

# **Second External Evaluation Report**

## **of the University of Luxembourg**

*By the Committee for the Evaluation of the University of Luxembourg*  
*March 2013*



# Contents

<b>5</b>	<b>Foreword by the President of the Committee</b>
<b>7</b>	<b>Introduction</b>
<b>9</b>	<b>Some preliminary remarks</b>
<b>11</b>	<b>Part One:</b>
	<b>CENTRAL MANAGEMENT</b>
15	1. Organisation & management
21	2. Research & innovation
23	3. Teaching & learning
25	Overview of recommendations
<b>27</b>	<b>Part Two:</b>
	<b>FACULTIES</b>
31	1. Faculty of Science, Technology and Communication (FSTC)
31	a. Organisation & management
33	b. Research & innovation
35	c. Teaching & learning
36	Overview of recommendations
37	2. Faculty of Law, Economics and Finance (FDEF)
37	a. Organisation & management
39	b. Research & innovation
40	c. Teaching & learning
41	Overview of recommendations
43	3. Faculty of Language, Humanities, Arts and Education (FLSHASE)
43	a. Organisation & management
45	b. Research & innovation
47	c. Teaching & learning
48	Overview of recommendations
<b>49</b>	<b>Part Three:</b>
	<b>RESEARCH PRIORITIES</b>
50	1. Education and Learning in multilingual and multicultural contexts
57	2. International Finance
65	3. European and Business Law
73	4. Systems Biomedicine
81	5. Security, Reliability and Trust
<b>87</b>	<b>Annexes</b>
89	Committee members
90	Composition of peer review panels
91	Schedule of meetings for the peer review site visits
92	Schedule of meetings for the integrated review



## Foreword

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The making of a new university is always a great adventure. It means that a group of professors, students and researchers are brought together to engage in a common project of advancing, preserving and transmitting knowledge in various scholarly and scientific fields. For such a project to succeed, two basic conditions are required: A clear legal and organisational framework and the capability and the enthusiasm of the people involved. The ten-year-old University of Luxembourg has greatly benefited from both these conditions having been in place. Its remarkable achievements would not have been realized if these two conditions had not been fulfilled.

That is why the Committee for the External Evaluation of the University of Luxembourg must at this point—and with great pleasure— congratulate all of the parties involved in this great enterprise for these achievements.

The main conclusion of this report is twofold: First, that the University has both in teaching and research realized to a great extent what it was created to accomplish and has, in many instances, exceeded what might have been expected. Second, that the University must now, as it moves forward, concentrate on building a common identity and a common sense of purpose.

The report provides a detailed explanation of the basis for this important conclusion and includes a series of recommendations for all of the decision-making bodies of the University. The report and its recommendations reflect the open and honest discussions that the Committee and its various panels have had with the faculty, students and staff of the University. Without the serious engagement of all members of the academic and administrative community of the University in the evaluation process, this sort of report would not have been possible.

Finally, on a personal level, I would like to thank all those who participated actively in this evaluation from the University side and also my colleagues on the Committee, who have dedicated themselves to providing the University, the Ministry of Higher Education and Research, and the Luxembourgish society at large with an informative report. In particular, I would wish to thank the Secretary to the Committee, Dr Steven Van Luchene, for his expert assistance in supporting all aspects of our work in such a highly professional and dedicated manner.

It is the earnest hope of the Committee that our report will contribute to the further flourishing of the University of Luxembourg.

Páll Skúlason  
President of the Committee of External Evaluation



# Introduction

## Aims of the report

This report presents the findings of the Committee regarding the second external evaluation of the University of Luxembourg, carried out in 2012.

The first evaluation, conducted in 2008 and leading to a report published in January 2009<sup>1</sup>, informed the general public and all stakeholders about the main achievements and challenges of the University within the areas of Organisation & management, Research & innovation and Teaching & learning. This second evaluation has followed a largely similar approach, by which the Committee has tried to ensure that the present report provides an updated account of the current state of affairs regarding the same three key areas.

As in the first evaluation, a second important objective of the evaluation process -- next to informing the public -- is to provide the University itself with external feedback and concrete recommendations, in order to support its continuing development.

The Committee hopes that this report can again serve as a solid foundation for further constructive discussions, both within the University community and between the University and its stakeholders.

Finally, this report, and especially the recommendations it contains, will also form the basis for a second follow up review by the Committee that will be organised in Autumn 2014.

## Evaluation method

The Committee has defined its procedures and executed its evaluation task within the Legal Framework set forward for the External Evaluation<sup>2</sup>. It has developed a 'Handbook for the second external evaluation of the University of Luxembourg 2012-2013', containing detailed descriptions of the aims and focus, outline and timing, and processes and procedures for the current exercise. This Handbook was drafted in the summer of 2011 and finalised and presented to the University during a seminar organised in December of that same year.

The evaluation was conducted in two phases:

In May 2012, a performance-oriented peer-assessment of the five Research Priorities retained in the 4-year Plan 2010-2013<sup>3</sup> was carried out. Each Priority was asked to provide a critical self-assessment report, and has been evaluated by a panel of independent experts<sup>4</sup> (composed and trained by the Committee) during a site visit where panels have held interviews with all parties concerned<sup>5</sup>. Results of these evaluations have been recorded in individual panel reports, containing the panels' findings, recommendations and overall conclusions assessing the quality of performance and outcomes of the Priorities.

A second phase was carried out in October 2012 and consisted of a mission-led, process-oriented integrated evaluation of the University and its Faculties. Before this evaluation, the University was asked to compose an integrated self-assessment report, focussing on the areas of Organisation & management, Research & innovation and Teaching & learning within the Central Management and also the three Faculties of the University. On the basis of that report, and taking into account the outcomes of the first phase, the Committee conducted a site visit during which interviews were held with all parties concerned within the University's Central Management and the three Faculties<sup>6</sup>.

Following its site visit in October 2012, the Committee discussed and drafted the current report, and sent it to the University for reaction in relation to factual misunderstandings. The final composition of the report however, lies within the autonomy and responsibility of the Committee alone.

<sup>1</sup> 'External evaluation report of the University of Luxembourg'. January 2009: [http://www.eni.lu/university/downloads/official\\_documents](http://www.eni.lu/university/downloads/official_documents)

<sup>2</sup> Art. 43 of the 'Loi du 12 août 2003 portant création de l'Université du Luxembourg'

<sup>3</sup> Art. 3 of the 'Contrat d'établissement Pluriannuel entre l'Etat et l'Université du Luxembourg 2010-2013' defines five 'priorités scientifiques' for the University: (1) International Finance; (2) Security, Reliability and Trust; (3) Systems Biomedicine; (4) European and Business Law; and (5) Education and Learning in multilingual and multicultural contexts.

<sup>4</sup> For the composition of the panels: see Annex 2

<sup>5</sup> For the schedules of meetings for the peer review site visits see Annex 3

<sup>6</sup> For the schedule of meetings for the integrated review: see Annex 4

## Outline of the report

The report contains three parts, reflecting the general structure of the evaluation process:

**PART ONE** contains the Committee's findings, including recommendations, in relation to the Central Management's oversight of (a) Organisation & management, (b) Teaching & learning and (c) Research & innovation. This first part concludes with a general assessment of the overall quality culture within this unit, leading to an overall grade on a 4-point scale, as is required by the regulations laid down in the Legal Framework.

**PART TWO** contains the Committee's findings, including recommendations, in relation to the individual Faculty's oversight of (a) Organisation & management (b) Teaching & learning and (c) Research & innovation. For each of these three areas, an assessment is given of the quality culture within the Faculty pertaining to that area. Again following the Legal Framework, each individual Faculty receives three grades on a 4-point scale.

The first two parts of the report focus on processes and especially on the capacity of the Central Management and the individual Faculties to develop and manage the quality within the three key areas. In general, the 'quality culture' of the given unit is explored and examined. Therefore, the following 4-point scale was used<sup>7</sup>:

GRADE	DESCRIPTION
AA	The unit has an effective quality culture. The Committee has full confidence in its capacity to develop and manage its present and future quality.
A	The unit has a reasonable quality culture. The Committee has confidence in its capacity to develop and manage its present and future quality.
B	The unit has a partial quality culture. The Committee has confidence in its capacity to develop and manage its present and future quality, in so far as the recommended adjustments are made.
C	The unit has a weak quality culture. The Committee has no confidence in its capacity to develop and manage its quality.

**PART THREE** contains the five panel reports with findings, recommendations, and an overall assessment on the quality of performance and outcomes of the five Research Priorities, leading to a grade on a 5-point scale for each of the Research Priorities.

The third part focusses more explicitly on the outcomes, i.e. on the quality of performance and output of Research. For that purpose, the following 5-point scale was used<sup>8</sup>:

GRADE	DESCRIPTION
EXCELLENT	The unit produces research that is world leading. Researchers are working at the forefront of their field internationally and their research has an important and substantial impact in the field.
VERY GOOD	The unit produces research that is internationally competitive and that makes a significant contribution to the field. The unit is considered a regional leader.
GOOD	The unit produces work that is competitive at the regional level and makes a valuable contribution in the international field. The unit is considered internationally visible.
SATISFACTORY	The unit produces work that adds to our understanding and is solid but pedestrian. The unit is considered regionally visible.
UNSATISFACTORY	The unit produces work that is pedestrian, not solid, flawed in the scientific and or technical approach and/or repeats other work.

<sup>7</sup> The Committee uses the following definition of Quality Culture: "Quality Culture refers to an organisational culture that intends to enhance quality permanently and is characterised by two distinct elements: on the one hand, a cultural / psychological element of shared values, beliefs, expectations and commitment towards quality and, on the other hand, a structural / managerial element with defined processes that enhance quality and aim at coordinating individual efforts." (definition quoted in Sursock, A. (2006). 'Quality culture in European Universities: A bottom-up approach'. EUA, [www.eua.be](http://www.eua.be)).

<sup>8</sup> The scale for the research priorities is based, with minor changes, upon the scale used in the 'Standard Evaluation Protocol 2009-2015' developed by the Association of Universities in the Netherlands (VSNU), the Royal Netherlands Academy of Arts and Sciences (KNAW) and the Netherlands Organisation for Scientific Research (NWO). See: [http://www.knaw.nl/content/Internet\\_KNAW/publicaties/pdf/20091052.pdf](http://www.knaw.nl/content/Internet_KNAW/publicaties/pdf/20091052.pdf)

## Some preliminary remarks

### [ I ]

At the time of the Committee visit to the University in October 2012 as part of the second full evaluation, the University was just over nine years old. Much has been achieved in a very short time by this young University, and all involved in the enterprise are to be congratulated on these significant achievements. The University is now into its second 4-year Plan (2010-2013) and there is clear evidence of significant progress, illustrated through a number of documents including the consecutive Annual Reports of the University and the two reports on contract fulfilment that can be consulted on the University's website<sup>9</sup>. These last two reports explicitly show substantial areas of success in achievement of the University's contractual targets set down in the 4-year Plan. The Committee's evaluation largely confirmed this picture.

The University is rapidly gaining visibility in the region and beyond, Faculties are growing with surprising speed, students and alumni generally speak highly of their learning experiences and several Research areas -- and especially some of the Priorities -- are very strong. In the course of the site visit, the Committee met many students, alumni and staff of the University who spoke with great pride of their experience of, and association with, the University and its individual Faculties and units. So first and foremost, all involved in the University, at Central and Faculty levels, are to be congratulated on these very significant achievements. Luxembourg now has an established University, unique in character, in which it can take considerable pride.

### [ II ]

Secondly, the Committee wishes to thank all persons from the University -- colleagues in management positions, academic staff and scientific staff, support staff, students and alumni -- for the openness and frankness with which they have again given the Committee an insight into the inner workings of the University. During the site visits, both the Committee and the peer review panels have experienced an openness to discuss frankly critical issues, none of which were shunned during discussions. In most interviews, light was thrown on sometimes unclear sections in the self-assessment reports, which were not all equally easy to understand or equally reflective or self-critical.

It is no secret that tensions, conflicting perceptions and unsolved, on-going debates are part of the life of every institution. This young University, that, as mentioned above, has much to be proud of, is no exception to that rule, and the Committee appreciates the fact that the University community has not tried to hide its challenges behind woolly expressions or a tiring and false glossy veneer.

With this report, the Committee has tried to respond to the University's frankness with its own openness. The Committee has tried to avoid obfuscation and to provide concrete recommendations that it hopes will truly help the University in its further development.

### [ III ]

Thirdly, it is important at this point to emphasise that the main focus of this second evaluation has been on the functioning of the University as a whole. Both the first evaluation and the follow up had already testified on the many achievements and strong developments within the University's individual units. These achievements have successfully transformed the University, as one of the interlocutors said, "from a medium-sized 'small' University to a small 'big' University". This trajectory brings with it the question of coherence that lies at the heart of the Committee's evaluation of the University today.

The Committee has pointed out in its earlier reports what it perceives as the main challenge for the University: the danger of fragmentation. In the first Evaluation Report a series of recommendations stressed the importance of strengthening the functioning of the University as a single coherent institution. In the follow-up report from 2011 it was observed that "no clear and broadly shared picture could be rendered of the complex decision and communication flows between Faculties, Research Priorities, interdisciplinary centres, the Rectorate and the Board. [...] The Committee is looking forward to exploring these issues further in the next full evaluation".

<sup>9</sup> For these reports see: [http://www.uni.lu/university/downloads/official\\_documents](http://www.uni.lu/university/downloads/official_documents)

From the outset, this present evaluation has thus focused on common frameworks, communication, and the presence of an emerging shared academic environment in which individual initiatives and solutions can be nourished, embedded and shared<sup>10</sup>.

The emphasis in this evaluation therefore, rather than providing information on the detailed working or outputs of the individual units, has been to try to take stock of progress in the important process of building a shared University identity and sense of common purpose.

## [ IV ]

Finally, the Committee wishes to underline, to all readers of this report, that the grades given to the individual units are but instruments. Instruments that try to catch -- in a sole and unique grade -- different and complex organisational realities operating in diverging contexts. Given the complexity of -- and the heterogeneity between -- these contexts, it should be noted that two identical grades do not necessarily carry exactly the same meaning. The grades only work as blunt indicators that should be interpreted in the light of the body of the report and the recommendations.

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<sup>10</sup> See also: 'Handbook for the second External evaluation of the University of Luxembourg 2012-2013', December 2011, p. 8: "The first evaluation highlighted positive initiatives and outcomes within the University on the level of individual study programmes and individual entities within the Faculties. It also, however, suggested a need to strengthen the development of the University as a coherent whole. Building on this main conclusion, the second evaluation will partly use a more explicit institutional perspective. The focus will lie more explicitly on how the University has established a common framework, enhancing the Faculty and Departmental structures, for the overall management of the quality and standards of all aspects of provision in line with the overall vision and standards of the University. Within this approach, a selection of individual units will be evaluated. As a result of the change in focus from individual activities and achievements to overarching structures and policies, the Committee aims to provide valuable feedback that can help to support all parties within the University in their undertaking of building and sustaining overall coherence and a common identity"

## Part One:

### **CENTRAL MANAGEMENT**

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## Introduction

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In this first part of the report, the Committee records its findings in relation to the Central Management's general oversight of (1) Organisation & management, (2) Research & innovation, and (3) Teaching & Learning.

It is important to note that the Committee sees the 'Central Management' of the University as a complex structure of decision making bodies on the Central level, and not as the individual roles or individuals within that structure. This section does not only provide an evaluation of the Rectorate per se, but takes into account all the initiatives, bodies and functions that transcend the Faculties, Interdisciplinary Centres and Research Units. The Committee also includes in this the role played by the Directors, Deans and other Faculty based staff in terms of their contribution to the Central management of the University.

Since the main emphasis of this evaluation is on the functioning of the University as a whole, this present section lies, in many ways, at the very heart of the evaluation, as it explicitly investigates the common institutional culture that has emerged in the University.



# 1. Central organisation & management

## The Board of Governors

In the University's organisational structure, the Board of Governors is the body that is at the pinnacle of the strategic management and governance. The University's website explains: "the Board of Governors decides upon the University's general policies and strategies and controls the University's activities. It is made up of 7 members, at least 4 of whom currently shall hold, or have held, a position of responsibility within a University [...] The University President, the Government Commissioner, a representative from the Teaching Body and a Students' Representative participate on equal terms in a consultative capacity at meetings held by the Board of Governors".

The Committee met with the recently appointed new Chair of the Board of Governors and -- due to practical circumstances -- also separately with one of its members. The Committee was pleased to learn of recent changes to facilitate improved engagement of the Board with University affairs including, importantly, the extension of the meetings of the Board to the evenings prior to the formal Board meetings. Given the widespread nature of the Board membership, this has clearly provided a very valuable opportunity for members to familiarise themselves with key matters and helped to form coherent Board perspectives on complex issues facing the University.

The Committee was also pleased to learn about the high level of administrative and secretarial professionalism underpinning the work of the Board. Preparatory papers and documentation, are said to be complete and of high quality, a considerable achievement given the scarce support resources of the Board. The Committee strongly encourages the future plans of the Board to further strengthen the role of the Secretary and to install a more adequately staffed Secretariat.

Several interlocutors were critical about the Board's poor involvement in the actual strategic management of the University. The Board itself is conscious of the fact that it has to deal with too many practical issues and micromanagement, and that it has not had the chance to engage in more profound strategic discussion on major topics (e.g. an in-depth review of the 4-year Plan; global appraisal of quality of teaching and learning; the future of Research Priorities; multilingualism; a long term view for Belval, etc). Furthermore, but in close relation to this first point, the contact between the Board and the rest of the University still appeared to be inadequate. The Board does not yet receive enough regular and reliable information from across the University community to enable it to reach well-informed views and decisions. On the other hand, it was heard many times during the interviews that the University community felt that it was largely unaware of the deliberations of the Board of Governors, given the fact that only 'headline minutes' are available and very little argument context is given.

The serious engagement of the Board in the governance of the University is viewed by the Committee as fundamental to the continuing success of the University as it seeks to mature beyond its early foundations. This analysis and view is clearly shared by the Board itself as it explicitly expressed its resolution to act in a much more proactive way in the future. The upcoming discussions about the next 4-year Plan are seen as an excellent occasion to increase the Board's monitoring and deliberative initiatives and to organise internal strategic discussions. The Committee is very conscious that the Board and its Secretariat, together with the University's senior management, will need, as a priority, to discuss the development of appropriate vehicles for effective communication, debate and feedback. In taking these vitally important initiatives forward, the Committee would very strongly encourage the Board to sustain its investment in systematic dialogue with the University community in general, and in particular with the University Council as one of the key, senior deliberative Committees in the University that should be heard clearly by the Board of Governors.

## The University Council

In the view of the Committee the University Council should indeed be one of the fundamental founding pillars of the University structure, as it is the place where the members of the University community, in all their functions and capacities, come together, discuss together, and decide together. The Committee found little evidence however, that this body has managed to bring itself into a position where it can make its proper significant contributions to the strategic academic management of the University.

The Committee did note that, since its previous evaluation, the Council is meeting with increased frequency (and, of particular note, prior to each meeting of the Board of Governors). However, all involved in the University Council whom the team met -- including the vast majority of senior University staff from the Rectorate and Faculties in membership, along with student and staff representation -- seemed to agree that the Council simply does not function properly. The Committee heard of persistent and significant problems with absenteeism. It was alleged that papers routinely are not read thoroughly by members in preparation for meetings, and also that it is common for members only to engage with

any seriousness in matters in which they have a vested interest. All concerned seemed to explicitly recognise this poor state of affairs. There was, however, no agreement on the fundamental cause of the problem. Everyone appeared to blame everyone else. The Rectorate laid the blame on the membership for lack of interest: poor engagement in debate; poor attendance; uncontested elections for elected members; no initiatives from the membership in suggesting future agenda items, etc. The membership of the Council blamed: the autocratic style of chairing; the particular arrangement of lengthy agendas; the real taking of decisions in advance by the Luxembourgish Government, the Governing Board, the Rectorate or Faculty Councils. All participants in the Council seemed to be caught in the vicious circle of a blame culture. Once a blame culture becomes established, it thrives on poor communication and a lack of constructive dialogue.

The Committee is not in a position to take sides in this debate. It can only point to what is clearly a problematic issue and encourage all parties involved to break this vicious circle by reflection and discussion and taking their share of the responsibility.

If there is one body that should be able to explore and discuss common issues, and to improve University wide communication, it is the University Council. The University law makes this very clear. If the University is to overcome the danger of fragmentation -- a danger the Committee has highlighted repeatedly in its previous reports -- the working of the University Council clearly needs to be seriously improved.

### **The Scientific Advisory Committee**

The University website describes the Scientific Advisory Committee as being "established by the Rectorate to be consulted on a certain number of issues, particularly those relating to the direction of research policies and educational programmes." Thus, although of less strategic significance in the overall formal management of the University than the University Council, it is nonetheless, in the view of the Committee, potentially a body of considerable deliberative and consultative significance. The Evaluation Committee was pleased to learn that, in 2009, the Vice President of Research adopted responsibility for the Scientific Committee and it met 3 or 4 times during that session -- a progress, however, unfortunately not subsequently sustained.

As with the University Council, the members of the Scientific Advisory Committee appeared to be equally disillusioned regarding its effectiveness. The Evaluation Committee was informed that attendance at meetings was poor, and that it was not asked to provide any input into strategic matters. For example, it was claimed that the Scientific Advisory Committee had no involvement in the development of the previous 4-year Plan until a relatively late stage in its development, and there had been no involvement to date in the preparation of the new 4-year Plan. The attendance of the external members had dropped off significantly.

These features no doubt contribute to an impatience in the Rectorate and reluctance to involve the Scientific Advisory Committee more actively in meaningful deliberation on strategic and operational planning. This lack of involvement adds further to the disengagement of members and here again, as with the University Council, we are in the viscous circle of a blame culture.

The University needs to reflect on the future working of the Scientific Advisory Committee and agree on ways to revitalise this body.

### **The Rectorate, Deans and Directors**

The Rectorate meets four times monthly and two of the four meetings are with the Deans and Directors of the Interdisciplinary Centres. The Deans and Directors are invited to contribute to the agendas of these meetings. A note of the main outcomes of these meetings is made available throughout the University. The Deans are charged with disseminating the detailed outcomes of Rectorate meetings (and also Board of Governors meetings) within their Faculties. The Rectorate reported that it is able to have open discussion although obviously there are sensitivities. However, no topics are said to be beyond discussion. It was also reported that it is rare to see a case that is not discussed also with the Deans and Directors.

The Committee was pleased to learn of the President's policy of having 'open door' times specifically and publicly set aside for him to meet with staff and students on an informal basis. The Committee shares the President's disappointment that more use was not made of these sessions by staff and students. In addition, the President either attends or chairs the management boards for the Interdisciplinary Centres, and attends, on an ad hoc basis, meetings of the Faculty Councils. The Committee was informed, however, that invitations to the latter now occur infrequently. In these various ways, the President personally has made significant attempts to achieve more effective communications throughout the University.

The Rectorate, together with the Deans and Directors, has clearly been responsible for driving from the top much of the early development of the University, including the creation of its initial staffing, the academic portfolio and research infrastructure (see the subsequent sections on Research and Teaching). In addition to these major tasks, it has evidently been quite successful in the daily management of the University. However, the major organisational and management issues now facing the Rectorate, Deans and Directors is the challenge of addressing the difficulties in internal dialogue hinted at above and further evidenced below. The perception of the Rectorate that there is more effective communication with the Faculties has not, in general, been confirmed during the interviews with Faculty-based personnel, notwithstanding the frequent distribution of reports by the Rectorate.

The general picture, emanating from this second evaluation, confirmed and even strengthened the one that was sketched in the first evaluation: different parts of the University are really developing in different directions. This heterogeneity is explicitly recognised in the Self-assessment report and was also strongly confirmed in meetings the Committee had both with the Central management and with Faculty-based personnel. In the view of the Committee, this issue stems from a deep lack of effective shared opportunities for reflection, understanding and decision making. Also within the Rectorate itself, there appears to be little coordination and support between the individual members. In these early years of the University, this may partly be explained by the very speed of change and development pressures of the University combined with the need to react quickly to growing external pressures. There is also the huge workload involved in setting up a new University and the significant turnover in senior management functions during the last years that have not made things any easier. However, further neglect of the development of a shared University ethos and sense of purpose could become increasingly problematic as the University strives to achieve its full potential.

The Committee is very conscious of the fact that decisions are sometimes, and legitimately, taken with great speed in a variety of pressing areas. In these contexts it is hard for the wider University community to be well informed on the main direction of travel of the University. This is, however, exacerbated when formal deliberative structures (such as the University Council or the Scientific Advisory Committee) are not working well as discussed above. In these circumstances, informal, and frequently unreliable channels thrive with sometimes conflicting interpretations of discussions and decisions. It is exactly in this climate that rumours and misinformation thrive.

A very telling example of this malaise is the way the self-evaluation process for the current review was handled. Individual contributions had been pasted together in a report without any attempt to provide a reflective synthesis. This absence of shared reflection and consideration of the University as a whole is symptomatic of the general fragmented nature of the University which was consistently evidenced to the Committee. The Committee was repeatedly told of how the different parts of the University organise themselves without taking into account the 'gestalt' of the whole institution of which they are a constituent part. In the report, there is no evidence of shared reflection, leading to a common analysis of strengths and weaknesses and resulting in common solutions. Neither the Governing Board, the University Council, the Rectorate nor the Faculty Councils have thoroughly discussed the content of the complete report as it was handed to the Committee. Each individual party only took care of (and responsibility for) its own section as if it was an independent unit in no need to discuss its self-evaluation with other units of the University.

Establishing effective dialogue in a University is challenging. Communication is a process that involves many stakeholders who all have their share of the responsibility. It is the role of the Rectorate, the Deans and the Directors however to initiate the development of a transparent and trusted framework for this communication. Both a 'grammar' (the formal structures of communication and decision making) and a 'vocabulary' (a common language) need to be developed urgently. As will be related in the sections on Research and on Teaching & Learning, there is no shared interpretation, let alone implementation, between Faculties, Centres and Research Units of important key concepts such as 'tutorial', 'Research Priority', 'interdisciplinary' or even 'quality assurance'. In raising these matters the Committee is very aware of consideration of these matters to a greater or lesser extent individually within the three Faculties. Indeed, there are some excellent but mostly isolated Faculty-based practices. What is missing is a good framework and effective contexts for deliberating and actually sharing challenges and achievements.

The Rectorate itself and also the Deans and Directors are not unaware of this major issue, and most of these colleagues recognise that the development of common culture, frameworks and procedures (which, in the eyes of the Committee, is not the same as dictating absolutely uniform approaches) is urgently needed. The Committee emphasises, in the strongest possible terms, that this crucial issue about fostering cohesion and exchange of successful practices, should be very high on the agenda in all the discussions as the University approaches the new 4-year Plan.

## The Central administrative services

A lot of encouraging signals were heard, both in meetings with Central University staff and with Faculty-based staff, about the increasingly significant and positive role played by the recently appointed Director of Administration. In terms of effective two-way communication and the sharing of good practice in a coherent way throughout the University's administrative community, this appointment seems to be highly successful and widely welcomed. While some of these developments may already have been underway, staff whom the Committee met consistently associated these developments with the recently appointed Director.

One example is the fact that the very much needed and overdue development of supportive University-wide accounting systems is finally taking place. This appeared to be welcomed in all the Faculties. The constructive cooperation between the Central Administration and Faculty-based staff in this context appeared to the Committee to be leading to significant positive outcomes in effectiveness and efficiency of financial management.

Similarly, there now appears to be effective sharing of guidance and good practice between Central and Faculty-based staff in the areas of IT, Communications and Human Resources Management. In relation to Communications, the Committee was informed about the improved workings between the Central services and the Faculties. The Committee also was informed however that one of the biggest remaining difficulties in the Central communications area is -- tellingly -- access to the information coming out of key committees in the University. It is indeed difficult to communicate if the communication department does not have explicit systemic channels of communication regarding ongoing discussions and decisions.

In relation to Human Resources Management, the creation of Faculty-based Human Resource Partners appeared to the Committee to be widely welcomed and made a significant contribution to the common development and operation of better human resources processes across the University. Nevertheless, the remaining lack of uniformity in contracts, job descriptions, distribution of workload, and promotion tracks, both for the administrative and the academic staff, remains a major issue repeatedly raised in interviews. The Committee did learn that a project has been launched on a Central level to take care of these matters, but again widely diverging views throughout the University about the current state of affairs were expressed to the Committee. Some parties had the impression the whole project has been abandoned, or at least was not a real priority. Others testified that solutions were well under way and a new common framework (at least for support staff) was actually being implemented. The picture presented to the Committee in this regard was one of total confusion. While the Committee was able to clarify the actual state of affairs in discussion with the President, the point of concern to the Committee was the complete absence of any shared understanding across the University in relation to this important matter. The picture repeatedly presented to the Committee evidenced the lack of clear information or common discussion, and the presence of conflicting impressions and rumours regarding the handling of career-management, which was causing serious frustration among personnel. It also creates annoying difficulties for the recruitment officers that have to inform candidates about their future working conditions. In repeated interviews, these frustrations were further underscored to the Committee by quite strong complaints about structural understaffing, particularly in the light of the significant growth in student numbers. The Committee would wish to stress, as it has done in its previous report, that both the level of staffing and the clarifying and dissemination of policy on these Human Resources matters requires serious consideration by the University.

Concerning the library, the establishment of a Library-user committee which meets four times each year is seen as a significant improvement. However, the Committee was informed that the Library remains significantly understaffed and underequipped in relation to European norms. Indeed, a range of problems has been raised in the Faculties concerning the lack of necessary library resources, in particular concerning access to online journals. Faculties are setting up their own subscriptions. Some interviewees called the situation no less than critical. The Committee however did note a general awareness of this problem and was encouraged to learn that the University commissioned a report from an external expert that contains valuable suggestions for improvement. It is now up to the decision makers to undertake the necessary discussions on the future of the Library, taking into account the outcomes of the said report. The Committee wishes to underline that the Library should consult the Faculties and Research entities in order to determine and subscribe to the urgently needed online journals, and also in other matters concerning the relation between the Faculties and the Library. It should also consult the students in order to plan additional study areas and rooms where students can work together. Additionally the Library needs to revise its very limited opening hours.

In relation to Student Services, there again appeared to be more dovetailing between Central services and the Faculties, and user committees are in place here as well. There is, however, no clear evidence yet of well-anchored and common University-wide procedures for handling intake, housing, or general student guidance. Interviews with both Faculty-based personnel

and with students evidenced very diverse experiences with the Central Student Service (SEVE) which would suggest the need for further reflection in this area involving consideration of some good Faculty-based procedures and solutions.

Finally, much confusion exists, throughout the University, about the pending move to Belval. A major milestone has been the completion of the building "House of Biomedicine" for the activities of the Luxembourg Centre for Systems Biomedicine. This unit is the first to be established on the Belval site with 50 employees in September 2011. Construction works of the 'Maison du Savoir' and the 'Maison des Sciences Humaines' are said to be in full swing. Although there is some clarity about who is moving, there is no unequivocal agreement about when this move is actually supposed to take place. One of the interlocutors has framed this confusion very tellingly: "the date for Belval is always X+5".

The Committee understands that part of the cause for the recurrent delays is not within the direct control of the University. However, the confusion about Belval is exacerbated by the communication issue mentioned above. In the absence of common strategic discussions, leading to a shared long term view for the development of the University, it is unclear to the Committee how a project with as many stakeholders and as big as Belval can be translated into clear operational plans that are based upon firm decisions, and that every part of the University can identify with and accommodate in their forward planning.

Pulling together all the discussions the Committee had with the administrative staff operating both at Central and at Faculty level, two major issues were recurrently raised: the urgent need for strategic reflection on -- and leadership with regard to -- the future of the University ('Where do we want to be in ten years from now?') and the strong sense that virtually all support services are structurally understaffed and under-budgeted in the perspective of University's crucial transition to 'a small big institution'.



## 2. The Central management of research & innovation

The Research Office is currently transforming into a Research 'Service' and aims to provide a University-wide pro-active support to researchers' careers, funding opportunities, project management and the dissemination of research results. This reorganisation should help to further consolidate the many achievements in the Central management of research.

The Committee especially notes the interesting initiative of introducing 'Research Facilitators' in most of the Research Units and Interdisciplinary Centres. Research Facilitators advise and support researchers concerning application processes for external funding, reporting and the dissemination of results and meet regularly with the Central Research Officers. The combination of advice and support on the level where the work has to be done in order to empower researchers and research groups, has gone hand in hand with University-wide communication and helps to bridge the existing gaps between the many units. The Committee was also pleased to learn that overarching tools such as project announcement sheets, a digital project management system and an open access publication server are being developed.

Another important achievement is the University-wide Doctoral Framework that has now been approved and implemented in the University's first three Doctoral Schools. The development of this Framework has taken a considerable amount of time, but it seems to have led to the necessary common discussions about the many aspects of supporting the quality of Doctoral education. Even though the Committee is not quite convinced that all researchers have a common understanding of this Framework, or that PhD-students themselves are already well aware of it, the very existence of a University-wide approach on this area is to be applauded. Continued investment in explaining the Framework and monitoring its implementation within the Faculties remains crucial.

The Research Office keeps a general overview of what goes on in the Faculties and Centres through its handling of all applications for internal and external project funding and grants. There is also a database being developed for all research projects within the University. In addition, the set of research indicators that has been developed for the Reports on Contract Fulfilment also serves as a useful monitoring tool for the central Research Office.

However, to make more valuable analysis to underpin evidence-based strategic planning, a more fundamental discussion on research policy and research management is needed. Smart performance indicators can only be developed -- and serve as a potential instrument for budget allocation decisions -- on the basis of transparent decisions regarding the research domains the University wants to stimulate and the quality standards it wants to achieve. The five Research Priorities of the University for example have attracted a lot of attention and most of them have developed and continue to progress in very promising directions (see Part 3 of this report). These Research Priorities are very visible both within and out with the University and are well monitored and evaluated.

The situation is, however, less favourable for the non-prioritised Research Units. As one of the interlocutors has put it, they "toil away in silence". Some steps have been taken to remedy this comparative 'neglect', including the further development of University-wide performance indicators that should identify existing but hidden issues. Important additional steps however will be needed to translate quantitative approaches such as these into a more integrated approach to the management of quality of research. Regular overviews are indeed needed of the whole research portfolio, which should eventually serve as the basis for University-wide discussion and strategic decisions. It is, for example, not clear to the Committee on what criteria or indicators the existing and substantial differences in University funding for the 5 Research Priorities have been based. To date there seems to have been no common debate on how the University understands the term 'quality' in the context of research, or on how it should be monitored, improved or rewarded.

There is another important issue regarding the dichotomy between the prioritised and non-prioritised research entities within the University's research infrastructure (and also regarding the second underlying dichotomy between Interdisciplinary Centres and the 'regular' Research Priorities). This is the confusion, throughout the University, about the very definition of the concept of a 'Research Priority'. Does it mean 'being privileged by having more budget, support and other facilities than other Research Units', or is it being the 'pillars' of and the most visible contribution to the image of the University because of their relevance for Luxembourgish society? Should an Interdisciplinary Centre always be a Research Priority? And should all Priorities be Centres? Is a Research Priority a purely thematic or also an organisational structure with various themes? These were all debates aired during the review visit.

The Committee recorded a lot of different answers to these questions. Board, Rectorate, Deans and Directors, as well as Heads of the different research entities (prioritised or non-prioritised), all have their own interpretation and view. They all use the same words but clearly have widely diverging interpretations of these words. As the following sections on the Faculties clearly evidence, a common discussion about this issue is urgently due, especially in the light of the next 4-year Plan. In the opinion of the Committee, the University requires a clear strategic view on the nature and role of Research Priorities and on the criteria for selecting future Priorities that should be part of a more general research strategy for the University as a whole.

Another example of an important issue that is common to different research entities but has not been taken up for serious discussion, is the alleged tension between scientific excellence and service to society. As the country's only University, it has a duty to respond to national demands and requirements from the Government and other stakeholders. It is clear, for example, that there is a legitimate and pressing interest from the country's education system in relation to issues of teacher training and research support for the school system. There is pressure also from the financial sector for support from the Luxembourg School of Finance. A further example is the external interest recently to emerge in relation to the provision in the University of medical education. The Committee noted that ideas are circulating to introduce a division between the more 'service to society'-based functions on the one hand, and blue sky profile research on the other hand, but it is far from clear who is and who is not involved in these discussions. The picture given to the Committee in interviews was one of the various Faculties considering this important matter in isolation from any co-ordinated University-wide dialogue.

In summary, what lags behind in the Central management of research is not so much the tools and instruments, but the development of a clear research strategy and even the development of a common understanding of the concepts necessary to discuss such a strategy within the University. The Committee urges the University to clarify important key concepts like Research Priority, interdisciplinary and quality assurance in research. These topics should be explicitly addressed in the preparation of the new 4-year Plan.

### 3.The Central management of teaching & learning

One of the important central initiatives in the area of teaching & learning is the introduction of explicit and published learning outcomes since 2010. This was done for all programmes, and involved the necessary cooperation between teachers within the Course Committees that are said to have been set up for most programmes. The Central academic office successfully initiated and monitored the first phase of this process.

From the evidence gathered in the interviews with Deans, Course Directors and teachers however, it seems that this project did not receive any further follow up and has been left to the initiative of the individual Faculties. During the interviews, it became clear that learning outcomes have been introduced at a formal level in all programmes, but have not uniformly taken root in relation to impacting on approaches to teaching, learning and assessment. To date no further shared efforts have been undertaken to ensure alignment of programme content, methods of provision or evaluation and assessment strategies to these learning outcomes. It is also surprising that the question of the definition of the learning outcomes itself doesn't seem to have raised any major debate at the University of Luxembourg as it has in many other Universities. The Committee is not at all sure the concept and its importance, both as a constructive and as monitoring tool for teaching and learning, has really been used to maximum advantage within the University community.

A similar case is the introduction of tutoring. A founding principle of the University is that teaching and learning will be based on the tutorial system. According to Central management, this system was introduced two years ago. In the first two semesters all students are assigned to a tutor, and meet with him or her once a week or on request. The system was further described as being essentially 'self-regulating' and seems to operate in more or less informal ways. In the interviews with course directors and students from the three Faculties it became evident that there is no shared understanding whatsoever across the University of the concept of tutorial. There are conflicting notions about the formal requirements of the system, no common framework for implementation exists, and the students the Committee met, could not unequivocally clarify how the concept worked on a purely practical level. There is no structural monitoring of tutoring on a Central level and no regular evaluation of its efficiency or effectiveness. The same applies more generally to all issues regarding the coordination of teaching and learning methods once the programmes are established. The Central level does not provide any guidelines on monitoring and review and seems to leave the organisation and quality assurance of teaching and learning largely to the Faculties and the individual Course Committees.

Central management does play a role in the development of new programmes. The procedure was described as appropriately rigorous. Proposals are made by the Faculties according to a template and then go through a process, which includes the necessary checks and balances before arriving at the Governing Board. However, when the same process is described -- not always consistently -- at Faculty level, the impression is given that there is no real added value and the processes on Central level are only procedural. It is not clear to the Committee what this process contributes to the coherence or quality of the educational offer at University level.

Central monitoring of what is actually happening in teaching and learning appeared to the Committee to be limited only to the organisation of University-wide student course evaluations and the indicators developed for the contract-fulfilling reports. Regarding the University-wide student course evaluations -- while there is some variation between programmes and Faculties -- it was widely agreed in all relevant interviews that the system is not working effectively. The main problem appears to be poor student participation. There appeared to be no real analysis or shared actions being taken to remedy this situation. The result has therefore been the development of a multitude of individual initiatives (sometimes limited even to one teacher within a course) or to a more general feeling (expressed repeatedly by the students) that the mechanism is only a formality and not worth taking seriously.

In terms of the indicators, what is developed quite extensively is the monitoring of input, success rate, and drop out. Again, there is no agreed analysis of the reasons behind the number of dropouts (that are high enough to attract attention), nor any commonly discussed action plan to address the issue. The lack of a University-wide reflection on this matter is worrying. This is particularly the case because the drop out problem seems to be related to a tension between two aims the University seems to have set for itself. On the one hand the University wants to develop excellence, which inevitably requires rather selective admission procedures, but on the other hand it strives (as Luxembourg's sole University) to play a social role and to address the difficult challenge of democratisation of higher education. In the view of the Committee, the University needs to embark on a strategic debate about this issue and go beyond input-oriented reflections that mostly conclude that the only solution lies in a rigorous selection of students. Providing potential students with clear information and guidance, and establishing more rigorous support systems with an adapted and well-developed tutoring-scheme, is certainly another part of the solution that should seriously, and urgently, be considered.

More generally, students from different Faculties informed the Committee that real student life is missing on the different campuses. Some of the campuses are said to be virtually 'dead' after office hours and students complained about lack of space for extracurricular and social activities. In the view of the Committee, the University should support the development of a lively student community more firmly, and should also develop closer ties to its alumni. For the moment, the University also has a rather limited knowledge of what happens to the graduates after they leave the University. A pilot study started in 2011 in collaboration with the 'Institut Universitaire International de Luxembourg' for five programmes but it remains unclear if this will lead to a more general system.

What is especially worrying from the Committee's perspective is the absence of any concepts or models across the University in relation to the management of quality. It is unclear how the University can assure itself, that all degrees awarded in its name, are worthy of the title of a 'degree of the University of Luxembourg'. Equally important, how does the University know that the experience of its students across the University is an 'appropriate' experience for the University of Luxembourg? For the avoidance of doubt, the Committee is not recommending necessarily an absolutely uniform approach on either quality management or tutorials across the Faculties. However, what the Committee does recommend, in the strongest of terms, is that consideration should be given to University-wide requirements and approaches in terms of tutorials and quality management that will underpin Faculty-based approaches. Again, a necessary condition for the successful introduction of such procedures is that it follows upon an University-wide stock-taking exercise of existing initiatives, shared discussions involving the whole community, clarification of key concepts and clearly communicated strategic decisions.

Even the very notion of quality assurance itself urgently needs to be discussed. It was astonishing to the Committee to learn that such a huge variety of interpretations still exist of what exactly 'quality assurance' should be. Some interlocutors simply equate this with the existence of student surveys, others immediately and only think of heavy internal or external accreditation procedures. The Committee learned, as it did in its previous evaluations, that there is a project of having a Central 'quality assurance cell', but neither goals nor resources have yet been defined. The Committee is of the opinion that no modern University can continue to operate successfully without a reliable and effective working system of quality assurance (for teaching, but, as was said above, also for research and management processes).

The general picture emerging from the area of teaching and learning is one of a wide variety of diverging initiatives and practices within the Faculties. There is hardly any shared discussion across the University on teaching and learning and virtually no University-wide strategy or central monitoring and guidance. This only reinforces the findings in the preceding sections of this report. The Committee stresses again that a lot of excellent work is done within the individual Faculties and programmes, and it consequently has no direct reason to doubt the actual quality of delivery. Nor does the Committee doubt the important achievements of the Central administration in successfully setting up this University. What the Committee questions, however, is the current capacity of the University of Luxembourg as a whole (i.e. as one organisational unit operating in an international and competitive environment) to securely develop and manage its future quality.

## Conclusion and recommendations for the Central Management

### CONCLUSION

*In line with the Handbook, the Committee provides a general assessment of “the overall quality culture within the unit”, leading to a grade on a 4-point scale.*

*This Central Management ‘Unit’, as the Committee reiterates, is a complex structure of decision making bodies and interactions on the Central level, and does not relate easily to the individual roles or persons within that structure. The Committee assesses the overall quality culture as it emerges and operates through all the initiatives, bodies and functions that transcend the individual elements of Faculties, Centres and Research Units.*

*In the Handbook the Committee clarifies the concept of Quality Culture as follows:*

*“Quality Culture refers to an organisational culture that intends to enhance quality permanently and is characterised by two distinct elements: on the one hand, a cultural / psychological element of shared values, beliefs, expectations and commitment towards quality and, on the other hand, a structural / managerial element with defined processes that enhance quality and aim at coordinating individual efforts”*

*In the light of what has been evidenced above, the Committee does not doubt that the many individuals and bodies within, or contributing to, the Central management of the University, work very hard with the goal of enhancing the quality of the institution. Colleagues interviewed by the Committee witnessed that they are proud of working in the University and are generally excited about being able to participate in building up this unique University, almost from scratch. As was said above: all involved in the University, at Central and Faculty levels, are to be congratulated on the very significant progress achieved.*

*It is equally clear however, as outlined in the sections above, that the Committee is of the opinion that the University still has to face up to the challenge of developing a meaningful and ubiquitous ‘University of Luxembourg’ culture. In the view of the Committee, this would be an important prerequisite for securing the next stage in the development of the maturing institution. Shared values, beliefs, expectations and understandings of quality exist up to a point within the Faculties. However, these features are certainly not shared across the University community as a whole. Poor dialogue across the institution and the emergence of a blame culture have acted as significant barriers to the successful development of a University-wide culture and effective University-wide structures and processes. In a multilingual and multicultural context, developing open dialogue is challenging, but this makes it all the more important to clarify key concepts and work proactively towards a common language.*

### GRADE

After careful deliberation, the Committee concludes that the Central Management Unit has a partial quality culture (grade B). The Committee has confidence in the capacity of the Central Management to develop and manage its present and future quality, but only on the explicit assumption that the following recommendations are implemented.

### RECOMMENDATIONS

The Committee recommends:

- ▶ That the entire University community -- Rectorate, Deans, Faculties, Directors, Heads, staff and students -- engage in a common dialogue addressing the important issues raised in this first part of the report in the light of the next 4-year Plan.
- ▶ That the Board of Governors, through the establishment of a small task force or otherwise, requests an Action Plan with timelines in response to the matters raised in this section of the report, and that the Board monitors the implementation of this Action Plan;
- ▶ That a review of communications involving all units in the locus of Central management takes place. This should include an open appraisal of communications both within units and between units and the rest of the University;
- ▶ That, in particular, the structure and operation of the University Council should be fully reviewed with the aim of realising its objective as a key, senior deliberative committee in the University in which the whole University community can have confidence;
- ▶ That there should be a review of the functioning of the Scientific Advisory Committee with the objective of creating a committee in which meaningful debate and consultation occurs;

- ▶ That the mechanisms for transmitting outcomes of the deliberations of key committees be reconsidered as part of the general review of communications referred to above. (In making this recommendation, the Committee is conscious of the fact that some agenda items (for example at Board of Governors meetings) are sensitive and should remain confidential.);
- ▶ That the University should embark upon a University-wide and general clarification process, preferably driven by the University Council in close cooperation with the Rectorate and the Board, on at least the key concepts and issues mentioned above (Research Priority, interdisciplinary, Belval, learning outcomes, tutoring, quality in and of research and teaching, quality assurance). This should lead to the development of common approaches to common challenges and connected to common strategic deliberations about the next 4-year Plan.
- ▶ That the University should develop a University-wide approach to quality assurance and enhancement both in the areas of Research and Teaching & Learning.
- ▶ That the University further develops (and unequivocally communicates) a uniform approach to developing contracts, job descriptions, distribution of workload, and promotion tracks, both for the administrative and the academic staff. This should be connected to a thorough investigation of structural understaffing.
- ▶ That the University develops and implements a strategy for improving Library facilities.

## Part Two:

# FACULTIES

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## Introduction

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The second part of this report contains the Committee's findings in relation to the three individual Faculties' oversight of (a) Organisation & management, (b) Research & innovation, and (c) Teaching & Learning. Conclusions and grades, printed in *italics*, can be found at the end of each of these three subsections within the individual Faculty reports. At the end of each Faculty report, the reader finds an overview of recommendations.

This second part closely relates to the first part of the report; it would indeed be hard to appraise the Faculties' activities and quality culture in the three areas mentioned above, without taking into account the overarching context these units are operating in. That context, as was illustrated in the first part of the report, actually combines two contrasting elements.

First, there is the element of what is felt, throughout the University, as directive and top down decision making -- be it initiated by the Luxembourgish Government, the Board, the Rectorate and (individual) Deans and Directors, or any combination of these actors -- about certain strategic issues (e.g. Belval, Human Resources decisions, decisions about Research Priorities and Centres, ... ) without much shared discussion, and about which a lot of confusion exists.

A second element, especially as far as the actual management of (non-prioritised) research and teaching & learning is concerned, is the significant leeway given to the Faculties to develop individual policies and processes, leading to, what the Central Self-assessment Report calls, "a high level of heterogeneity" between the Faculties.

With that particular background in mind, the Committee has looked, for the area of Organisation & management, primarily at how the Faculties relate to the Central level and deal with internal communication and decision making.

For the areas of Research & innovation and Teaching & Learning, the Committee's focus has been on how the Faculties take up their responsibility to secure common approaches and coherence within the Faculty, given the fact that no strongly secured University-wide guidelines for these areas are available.

In collecting evidence related to the management of the three Faculties, the Committee met with the Deans, the staff of the Dean's Offices and the Faculty Councils, the Directors of the Interdisciplinary Centres and the Heads of the Research Units, the Course Directors, teaching staff, students and alumni.



# 1. The Faculty of Science, Technology and Communication (FSTC)

## a. Organisation & management

In the relations between the Central management and the Faculty, the Dean obviously plays a crucial role, and according to the many positive comments the Committee heard in several meetings, the present Dean fulfils that role in a very satisfactory way. Even though some and sometimes quite harsh comments were made by Faculty staff about the lack of consultation and clear communication in several cases of the Central Management's decision-making, the Dean is generally seen throughout the Faculty, to be both an effective representative of the Faculty views at meetings of the Rectorate, and as an effective transmitter of information from meetings of the Rectorate. Relations between Dean and President seem to be constructive, and notwithstanding the criticisms stated above, there is a general feeling that the University has been giving the necessary attention to the needs of the Science Faculty.

Both the Self-assessment Report and interviews confirmed that the Faculty's overall internal organisation is largely effective. The Dean and Faculty Council work together in an open and democratic manner. Staff members report they have ready access to having items put on the agenda, no critical issues remain un-discussed, and reports are informative and readily available throughout the Faculty. Decisions are said to be taken in a very collegial manner.

The Self-assessment Report itself is a good illustration of this. Although largely prepared by the Dean's office, it clearly draws on discussions held in the Faculty Council on the basis of interviews with staff, and it concludes with a very extensive and well-executed SWOT-analysis. With a few exceptions (see below), the vast majority of interlocutors see the document as a good reflection of the current state of affairs within the Faculty. The Committee certainly encourages the Faculty to use this document as a basis for further strategic discussions about the future development of Faculty, Centres and University in the context of the next 4-year Plan.

The general impression, emanating from the interviews, but also from the Self-assessment Report, is one of a highly motivated and generally coherent team. As the Self-assessment Report says: "The large majority of the staff are proud to work at the UL [...] It's a great place to work".

The Committee wishes to stress that this overall positive and cooperative atmosphere is no small achievement and represents continuing demanding efforts (particularly for the Dean), especially in the light of the complexity of structures within and close to the Faculty in the Research area. Having very close scientific relations -- and providing the main core of staff -- to the University's two Interdisciplinary Research Centres (SnT and LCSB, see part 3), that are formally no part of the Faculty and thus have their own organisational and managerial structures (and some significant additional funding as well) is unquestionably an important and unceasing challenge for the general management of the Faculty. This complicated issue will be further addressed under the 'Research & innovation' section below, but it is certainly a strong indicator of very efficient overall Faculty management that such a difficult and potentially quite problematic situation has been handled so carefully and, with some exceptions, also to overall satisfaction within the Faculty.

With regard to service infrastructure for the organisation and management of the Faculty, the Office of the Dean and Faculty-based supportive structures appear to be operating very well within the limits of the resources available. The administrative team is highly motivated and works within a clear framework of distribution of tasks. According to all parties, internal communication flows are transparent and function well.

The Committee was also very pleased to note that all Faculty-based departments have regular contacts and share experiences with colleagues all over the University. The Faculty is active in several cross-Faculty working groups, covering a wide range of activities (student affairs, international relations, communication, financial management,...). The cooperation with the Central administration also appears to be fruitful and is highly valued. A good example is the Faculty-based Human Resources partner structure that provides a very valuable link between Faculty and Central University processes. The student support function that administers all Faculty-related student affairs (course enrolment, course management, grades...), after initial Central registration is another good example. Cooperation exists on senior levels too: the Head of Administration meets regularly with Heads of Administration from the other Faculties to share effective practice and problem solving.

A variety of tools (student database, budget monitoring system, an online recruitment tool,...) have been developed and are firmly in place to support administrative and support tasks. At the time of the Committee's site visit, a Faculty-wide review of managerial and administrative processes and procedures was running, with the explicit objective of taking stock and optimising operations. It is intended that this will lead to the implementation of a formal Business Process Management system which the Faculty intends to have ISO certified in the very near future.

Major issues for the administrative services are its structural understaffing and a lack of integrated database systems and tools on the Central level, creating high workload and a significant amount of annoying technical difficulties. These issues in fact reflect the Committee's findings in the first part of the report and need to be addressed initially on the Central level. Faculty-based personnel would certainly welcome more technical coordination and overarching support systems that can complement the necessary Faculty-based tools. As was reported above, the Committee noted that positive evolutions are expected in this area with the recent appointment of the new Director of Administration.

In common with other Faculties, the FSTC faces problems over library resources, including access to current editions of key on-line journals. Researchers often do not even have access to their own articles. Individual and ad hoc solutions have been found within the Faculty, but it is clear that this basic problem needs a more structural solution in close collaboration with the other Faculties and the Central level.

A major challenge, reported in almost all interviews, is the current shortage of physical space and the fact that this relatively small Faculty is located on three sites, which creates its own additional challenges for efficient organisation and management. The Faculty has also learned quite recently that its main location, Kirchberg, will be sold, and since a long-term solution (the move to Belval) is not available yet, the Faculty will need to look for new temporary housing. This recent news has created a lot of frustrations within the Faculty and has added to the feeling that decisions which have serious implications for its operation, are taken above the Faculty's head, without any form of consultation. Here as well, the problem requires increased communication and careful management at both Faculty and University levels.

### CONCLUSION & GRADE

*In relation to the definition of the grades, set out in the Committee's Handbook for the present evaluation, and in light of its findings, the Committee concludes the Faculty of Science, Technology and Communication has a reasonable quality culture in the area of organisation and management. The Committee has confidence in the Faculty's capacity to develop and manage its present and future quality within this area. (grade A).*

*In general, the Committee found the overall organisation and management of the FSTC to be in good health. It is a well-organised Faculty, addressing its problems and is administered by an efficient and effective team and well led by a respected, skilful, diplomatic and highly motivated Dean. As evidenced above, open communication and shared discussion have clearly led to shared values and expectations. The Faculty has also made continuing efforts to define its organisation and management processes in order to enhance its quality. Challenges (in the area of infrastructure and administrative tools) mainly stem from the need for increased communication and cooperation between Faculty and University levels.*

## b. Research & innovation

The Committee hinted above about the complexity of structures within, and close to, the Faculty in the area of research. The Faculty is tightly linked to the two Interdisciplinary Research Centres and holds itself 5 Research Units: Computer Science & Communication and Life Sciences (both in a way 'mirroring' structures -- with different accents of course -- of the two 'external' Centres), and the Research Units in Mathematics, Engineering and Physics and Material Science. Although the Interdisciplinary Centres are independent units, having their own management, organisation, administration and funding, the disciplinary basis initially grew from within the Faculty and all academic personnel working within the Centres is still Faculty-based.

The Faculty is clearly proud -- and rightfully so -- of what both Centres have realised in their short life span. They are highly visible on the international scene, produce and attract outstanding research(ers) and are seen as a real asset for the Faculty. Some remarks in the Self-assessment Report however, show that the existence of the Interdisciplinary Centres also gives rise to tensions, especially for those researchers who are not within these Centres. The Committee could clearly detect that there is a feeling within the Faculty, that two systems are present of which one is seriously privileged. The Interdisciplinary Centres have significant budgets and the organisational freedom to pre-finance projects, work with incentives and negotiate directly with the Central level or the Government about their own strategy and needs.

Both Interdisciplinary Centres needed -- and still need -- this leeway, all interviewees agree, to consolidate their considerable successes. There is some disappointment, however, that successful approaches developed in the Centres, such as swift recruitment procedures or attractive promotion opportunities, have until now not been adopted in the Research Units at Faculty level. Additional frustrations that arise from this situation are the perceived imbalance in teaching load, the problem of visibility of the research output of the Faculty units, and the dramatic lack of space on the premises of the Faculty (the Centres having their own premises). Also public external peer assessment does not exist for the Research Units, which makes it more difficult for them to show the quality of their research, especially as the Interdisciplinary Centres tend to market and brand themselves as quite independent structures.

Another sign of a certain detachment between Faculty Units and Centres is the fact that the Centres have been less involved in the drafting of the Self-assessment Report and did not fully agree with the exact wording in which the relation between FSTC and the Centres has been described in the final text. Clearly defined interfaces between the Faculty and the Centres are apparently lacking as Centre Directors do not regularly attend the Faculty Council. Creating such interfaces, in which the issues mentioned above can be further discussed, might be a suggestion the Dean, Directors and Heads of Research Units could consider further.

However, it was equally clear to the Committee that both Dean and Directors of the Centres are very much aware of the tensions between Faculty and Centres and of the potential difficulties these tensions could create. New recruitments, teaching load and division of research activities are carefully discussed and negotiated in a friendly and collegial atmosphere. It is a testimony to the skills of the Dean and the Directors of the Centres that relationships until now have been cordial. The Committee could easily imagine a worst-case scenario. The current Directors and Dean agree that there is a strategy to develop together, and that all parties involved can only benefit from the continuing constructive engagement of Faculty and Centres. Undoubtedly the presence of the Centres provide a serious boost and stimulus for research in the Faculty. And reversibly, the Centres profit from the Faculty Units' fundamental and complementing research and teaching function. In the view of the Committee, holding this structure constructively together is a challenge that is currently being well managed, but will remain an issue to be carefully monitored.

The Committee is of the view that, ultimately, the Central level should also play a more active role in helping to minimise frustrations by paying more attention to transparent communication concerning policy decisions with regard to funding, accommodation, extra facilities, etc. ..., and by developing, together with all parties concerned, a clear and balanced strategy on the relationship between Faculties, Centres, Priorities and Research Units, taking also into account the relationship between research and teaching. This further underlines what has been said above in the first part of the report. All Research Units feel strongly that in the future the focus should not only be on Centres and Priorities, but also on important research initiatives within the Faculty, such as the Mathematics (RMATH). The latter is confronted with a policy from the 'Fonds National de la Recherche (FNR) that only projects in the domain of the 'core subjects' chosen by the FNR are eligible for funding. To tackle this problem, RMATH enhances as much as possible its cooperation with other parts of the Faculty, in order to be able to propose combined projects.

The Faculty's general internal quality assurance processes for research rely mainly on achievements as compared to the objectives fixed in the University-wide Key Performance Indicators (parameters being external funding, number of publications and citation index), and more, in general, on positive results when applying for external funding (FNR, EU,

other third parties) and on other feedback loops such as feedback from project partners and other external stakeholders. As indicated above, more attention should be given in the future to systematic monitoring and helping to improve the visibility of the non-prioritised Research Units.

Finally, the Committee found the recently established Doctoral Schools to be helpful in enhancing the structure and quality of the Doctoral education. The Schools appear to be establishing themselves very effectively. The four-year limit to finish the PhD study is considered by some candidates as a problem, especially by those who also participate in teaching. This is obligatory for some of them, depending on the contract they have. This issue is a further example of the lack of uniformity in contracts the Committee commented upon in the first part of the report.

### CONCLUSION & GRADE

*In relation to the definition of the grades, set out in the Committee's Handbook for the present evaluation, and in light of its findings, the Committee concludes the Faculty of Science, Technology and Communication has a reasonable quality culture in the area of research and innovation (grade A). The Committee has no reasons to doubt the Faculty's capacity to develop and manage its present and future quality in this area.*

*There is clear evidence of the existence of shared values and expectations in the area of research, even though continuing efforts will be needed to avoid too much detachment between Centres and Faculty. On the other hand, the Faculty, supported by the Centres, is largely permeated by quality culture, monitors and reflects upon its outcomes and makes good use of existing quality assurance processes, that should now be developed further and extended to all Research Units.*

### c. Teaching & learning

Both the interviews with the Dean and the Faculty Council confirmed that not a great amount of attention has been given recently to discussing, developing and implementing Faculty-wide frameworks for the quality management of delivery and outcomes within the area of teaching and learning. Dean and Faculty Council do discuss, and quite extensively so, strategy, design and expected outcomes for new programmes, but the monitoring and improvement of programmes once these are running, is largely left to the Course Directors and Course Committees.

Few monitoring tools exist, except for the Key Performance Indicators and the student survey operating on the Central level. The response rate is low for this Faculty and the Committee found no evidence that these tools were firmly embedded in all programmes or that their outcomes were used to lead any common discussions on quality improvement.

The Committee surely appreciates the fact that, due to the relatively small size of the Faculty, a relatively effective informal structure exists to intercept problems and issues -- a fact the students explicitly confirmed: teachers, Course Directors and Deans are said to be very accessible and willing to listen. However, the Committee cannot but establish that the Faculty as a unit really has no clear, well informed and overall view on the actual quality of delivery and output. The main responsibility for this seems to lie exclusively at a programme and teacher level. Turning to that level, the Committee observed that a lot of common challenges exist, but little common initiatives are taken to search for answers.

The concept of tutoring for example is understood in a wide variety of ways. In some programmes formal provisions exist for one-to-one tutoring, in others tutoring is seen as a teaching in small groups, or as a word for the general accessibility of teachers. The concept itself, or what it should or should not entail, did not appear to cause too much discussions or indeed too many worries among the teaching body. However, a lot of complaining was heard about the lack of preparation in incoming students, with levels in science in Luxembourgish secondary school allegedly being very low. This is partly taken as an explanation for the high dropout rates. In that respect, fingers of blame also pointed in the direction of the University that does not really allow for firm quality checks at the entrance level, while others mainly blamed the mandatory mobility policy. At the same time it was stated, and quite firmly so, that no teacher is willing to lower his or her standards. But in the whole discussion, no evidence was found that the problem was being systematically investigated, analysed and discussed together. There was no evidence of a search for initiatives the Faculty itself could take in the context, for example, of the elaboration of a Faculty-wide interpretation of 'tutoring'.

Similarly, it was alleged that a significant proportion of incoming students is not aware of the expectations of University education. However, the Committee is again not aware of specific endeavours of the Faculty to address this challenge constructively. In this context, for example, the explicit identification and publication of programme learning outcomes might have had a very useful role to play. In the process of generating and approving intended learning outcomes, careful consideration would have been given to the abilities required of starting students if they were to successfully achieve these outcomes given the planned approach to teaching and learning. This would provide the opportunity to match outcomes and learning strategies to the characteristics of the anticipated student intake. Through such processes and considerations, the curriculum (including arrangements for managing teaching and learning) would be ensured to be fit for purpose. In addition, potential students could be provided with clear guidance on the expected outcomes at university and also the specific starting skills and abilities expected. However, it appeared to the Committee that the potential role of learning outcomes in these contexts remains largely unexplored in the Faculty. The development of learning outcomes in the Faculty appeared to the Committee to be based largely on a one-time exercise, without any real programme-wide or Faculty-wide follow-up. Indeed, it was claimed in one of the interviews that learning outcomes are the unique responsibility of each of the individual lecturers. It is very positive that the Faculty did organise a workshop on learning outcomes, but, in the view of the Committee, it is certainly advisable that follow up activities should be seriously considered.

In fact, some elements of structures for these kind of common and more strategic discussions that transcend day-to-day management of teaching, and transcend individual teachers and programmes, are well in place. There are Course Committees for all programmes in the Faculty, Course Directors meet on a regular basis and there is a well-functioning Faculty Council. Some programmes have exemplary practices. Some work very actively with advisory committees in order to benchmark with comparable foreign programmes and one programme initiated an external labour market study.

Quality assurance as well is being discussed. The Faculty mentions program accreditation (either internal or external) as an important topic, but mainly seems to wait -- and in a way understandably so -- for initiatives to be taken on a Central level. However, in the view of the Committee, quality assurance is also about taking shared responsibility for and ensuring your own quality. No such approaches are in place yet, and even in the absence of Central structures, the Faculty should investigate how it can take its part of the responsibility. This is particularly important as in one or two cases, doubts about the quality of outcomes of certain parts of programmes have been reported to the Committee. The Committee is not in a

position to evaluate individual cases and has largely heard excellent comments on the quality of programmes (both from students, and importantly, alumni), but these remarks should function as a signal that serious action in the domain of safeguarding the standards of awards should be undertaken. The Committee was informed by the Dean that this was an area high in the priorities for future development of the Faculty.

### CONCLUSION & GRADE

*In relation to the definition of the grades, set out in the Committee's Handbook for the present evaluation, and in light of its findings, the Committee concludes the Faculty of Science, Technology and Communication has a partial quality culture in the area of teaching & learning (grade B).*

*Although some elements of good structures are in place to develop common quality management of teaching & learning, and an informal quality culture exists, the Committee is of the opinion that the Faculty faces important challenges to ensure consistent and reliable safeguarding of the standards of their awards. Developing common frameworks for common challenges (such as learning outcomes, tutoring and quality assurance), underpinned by common strategic discussions and sharing experiences is needed. The Committee has confidence in the Faculty's capacity to develop and manage its present and future quality, in so far as these recommended adjustments are made. With attention to the issues mentioned, the Committee is confident the Faculty is on its way to a higher grade.*

### Overview of recommendations

- ▶ use the Self-assessment Report as a basis for further strategic discussion about the future development of Faculty, Centres and University in the context of the next 4-year Plan;
- ▶ carefully monitor the cohesion between Interdisciplinary Centres and Faculty and create interfaces, in which the issues mentioned in the report can be further discussed;
- ▶ develop monitoring tools and help to improve the visibility of the non-prioritised Research Units;
- ▶ reserve time for common strategic discussions and sharing experiences with the objective to develop common frameworks for common challenges (such as learning outcomes, tutoring and quality assurance);
- ▶ develop ways to safeguard the standards of awards;
- ▶ develop Faculty-wide systematic approaches to quality assurance
- ▶ increase communication, discussions and sharing experiences and good practices with the other Faculties and Central level on all of these topics.

## 2.The Faculty of Law, Economics and Finance (FDEF)

### a. Organisation & management

The Committee explicitly wishes to applaud, at the very outset of this section, the excellent work the Faculty has produced in the context of its self-assessment. Both the way in which the self-assessment process was executed and the actual quality of the Self-assessment Report itself reflect a well-anchored culture of common and continuous reflection and debate within the Faculty. This resulted in a true team spirit the Committee could repeatedly experience during its interviews with staff and students.

The Committee learned that the Self-assessment Report has been discussed thoroughly (with staff and students taking active part in its preparation) and repeatedly in a series of separate meetings. The document has formally been on the agenda in the Faculty Bureau (Dean plus Heads of Research Units), the Faculty Council and the meeting of study directors, as well as in one of the Faculty's bi-annual retreats, open to all staff, where the report and especially the concluding SWOT analysis was discussed one last time together before it was finally approved. The result is a well organised and presented text, written in a very clear and accessible style, documented with the necessary facts and figures and covering all important issues. The document is known throughout the Faculty, including its student population. The Dean underlined that the report should be seen as one element in an already existing continuous and structurally secured process of collecting evidence and reflecting upon improvements and future strategies.

During the interviews, the Committee did indeed establish that the Faculty has put in place a governing structure that is sound, efficient and collegial, revolving around what has been called in the interviews a 'team centred leadership'. The Faculty Bureau acts as a management team, assists the Dean and prepares and implements the discussions and decisions of the Faculty Council. The Council is seen by all interviewees as the true parliament of the Faculty. According to its representatives, there is a lot of sometimes heated debate, but all parties stressed the collegial nature of decision taking and underlined the importance of the identity building function of the Council. The Faculty was described repeatedly as 'one big family' -- in a Faculty where the potentially diverging disciplines of Law, Economics and Finance are gathered, this level of coherence and shared commitment is remarkable and a clear sign of deliberate and common efforts by all parties involved. Students of all levels (bachelors, masters, PhD's, and alumni) report to be fully involved in all discussions and confirm the open and collegial atmosphere that reigns in the Faculty. Course Directors also meet regularly to address common issues in Teaching and Learning and try to harmonise course delivery. Proposals from this body are sent to the Faculty Council for approval.

A crucial and quite exemplary element in the Faculty's organisation and management structure is the initiative to meet twice a year with the entire staff. On these retreats overall ambitions, objectives and strategic issues, as well as future developments are discussed together, thus fostering -- in a relaxed and bottom up approach -- common understanding of missions and active cooperation and internal cross-fertilisation between different disciplines.

In the view of the Committee, these different but complementing structures and initiatives ensure that all parties responsible for the functioning of the Faculty, communicate regularly and provide the flow of information required for a sound decision-making. It also ensures a continuing process of reflection within the Faculty of its own activity and achievements.

The Faculty's achievements are impressive. It has built up a strong and coherent academic team, has developed a solid and strategically focused teaching portfolio and high quality and visible research. It also has clear and well-argued views on the issues that need further attention: consolidation of its personnel base; further investment in knowledge transfer and managing sometimes overstretched external expectations; attracting more external funding and strengthening internationalisation. It was made clear to the Committee the Faculty is actively working on these issues. One good example is internationalisation where the Faculty has taken the successful initiative to develop quite robust and clearly successful international networks beyond the University's Erasmus-framework.

There is also a robust formal and procedural side to the way in which organisation and management is handled within the FDEF. Since the last review a lot of effort has been put into the development of a comprehensive quality management system for managerial, supportive and administrative processes. Work processes and flows have been mapped and a monitoring system with defined indicators is in place. There is an electronic tool for tracking problems and a yearly management review with the Dean and each process owner. All elements of and provisions for the quality management system are laid down in a Quality Manual. The system was ISO certified in December 2010. According to all interviewees, this system is running very well and has created a real dynamic of quality awareness and continuous enhancement within the Faculty. According

to the Committee this certainly supports the structural embedding of continuous reflection and improvement within the area of organisation and management.

Critical notes were heard mainly about the fact that Faculty-based tools and databases are not always well in tune with Central processes that allegedly run behind or do not function properly. As in other Faculties, a plea was heard for the development of more centralised administrative support systems. Faculty-based administrative personnel was very positive about the personal contacts with Central administration and the fact that several platforms exist to discuss common challenges and share good practices. What is criticised are the processes, not the people, and in this Faculty as well, positive changes are expected from the new Director of Administration.

FDEF also finds it difficult to deal with the overall resources problem in the area of administrative support and services. The situation was called 'quite stretched'. Problems arise as soon as a member of the support staff is sick or on leave and academic staff are often forced to manage day to day administrative issues. The well running quality management system, that foresees in a back-up plan, helps to avoid major accidents but a University-wide investigation of real administrative needs is urgently called for. Fierce complaints were made in particular about the library service. Both of these issues were referred to in the first part of this report.

In several interviews remarks were also made about the top-down governance style of the Central management. The Faculty feels it should be represented, heard and informed better and not only through the President-Deans meetings. As said above, the Faculty does feel the need for common frameworks and procedures (for administrative processes such as recruitment or internal promotion, and also for more strategic reflections on key aspects such as quality assurance or the future of Research Priorities), but at the same time it strongly argues for a minimum of 'central intervention'.

In general, the Committee was told of frustrations in the Faculty at the lack of Central guidance and frameworks. However, the Committee was also informed that, understandably, this had not stood in the way of the Faculty pushing forward with its own developments. This illustrated to the Committee the danger of a growing separation between the Central University and its constituent Faculties.

The overall impression the Committee retained from the Self-assessment Report and from the interviews is one of a Faculty that has clearly not waited for the Central level to develop certain common frameworks, procedures or strategies, but has gathered forces internally and developed quite a strong corporate identity for itself.

This is evidently a sign of excellent proactive management, but in the view of the Committee it also brings with it the danger of estrangement of the Faculty community from the rest of the University. If the Faculty is to stay a full part of the University, it will need to make extra efforts to participate more actively in -- and to take more responsibility for -- the life of the University as a whole. The Faculty has clearly inspired other Faculties with some of its initiatives (The electronic platform 'Moodle', the ISO approach, working with Faculty-based international officers, ...), but it will also need to let itself be inspired by other Faculties or by Central initiatives. Helping to build bridges and to foster cooperation in order to strengthen the University as a whole, will optimise the environment the Faculty is working in and enable it to flourish even further.

## CONCLUSION & GRADE

*In relation to the definition of the grades, set out in the Committee's Handbook for the present evaluation, and in light of its findings, the Committee concludes the Faculty of Law, Economics and Finance has an effective quality culture in the area of organisation and management. The Committee has full confidence in the Faculty's capacity to develop and manage its present and future quality in this area. (grade AA).*

*FLEF is organised and managed in an exemplary way, showing clear evidence of collegial debate and decision making on all strategic issues that is underpinned by well organised and effective structures and services. All interviews confirmed the existence of a shared organisational culture that intends to enhance quality permanently and is characterised by shared objectives and values. Support services are also systematically secured in a comprehensive quality management system of formal procedures and processes and aim at coordinating individual efforts.*

*The Faculty could profit further from engaging itself more in the University life, sharing its experiences and contributing to building an University-wide shared and team-centred management culture.*

## b. Research & innovation

Research activities within the Faculty are structured around three Research Units, mirroring the three disciplines within the Faculty. Two of the Research Units of the FDEF -- the Research Unit in Law and the Luxembourg School of Finance -- are closely linked to the University's Research Priorities, namely in "European and Business Law" and in "International Finance" (See Part Three of this report). The third one, the Centre for Research in Economic Analysis (CREA) aims to foster interactions between economics and management. Plans exist to create a School of Economics and Management to further enhance its visibility.

The development of Faculty strategies and policies for research is one of the explicit tasks of the Faculty Bureau, which convenes every two weeks and comprises the Dean and the Heads of the three Research Units. According to all interviewees, this body acts as a well-functioning platform for discussion between the Research Units. Even though the exact relations and the precise borders between a 'Research Priority', a Research Unit and the Faculty-wide research policies are not entirely clear, this seems to cause no real problems on a practical or managerial level. As was stated in one of the interviews, Research Priorities basically mean additional money, but in terms of functioning, there is no real difference in the Faculty's treatment of the two prioritised units and the one non-prioritised unit. There is a difference in terms of opportunities to present the quality of research externally, as a peer review system for non-prioritised units is not in place. But as far as internal quality assurance is concerned, the Faculty uses the same indicators for all Units. These indicators incorporate the Key Performance Indicators developed at the Central level but the Faculty has also developed additional indicators. A regularly updated 'identity card' of the Faculty summarises the main figures. Outcomes are analysed and discussed at the Bureau, but also during the Faculty retreats and in the Faculty Council.

The way in which the Units are structured within the Faculty (including the important presence of a formal common discussion platform) and the fact that a monitoring system is in place that allows for problem analyses and follow up, constitute in the view of the Committee the necessary guarantee for a sound quality management in research. The SWOT shows that the Faculty is aware of the challenges lying ahead, such as increasing interdisciplinary research or, in the case of Finance, the need to closely monitor the necessary critical distance to the sector and to carefully manage external expectations. The external review panel reports (see Part Three) contain a number of further valuable suggestions for improvement the Committee trusts the Faculty will act on.

Two Doctoral schools have been installed -- one common school for Economics and Finance, and one for Law -- and are said to operate more or less according to the provisions laid down in the document developed at Central level (a document allegedly inspired by existing practices within the FDEF). The Faculty pointed out that the first draft of the Central guidelines was felt to be mainly modelled for technical Universities, aiming for instance at providing a significant number of collective courses, whereas the FDEF allegedly has only a small amount of 'content' to share.

PhD-students however suggested not only to increase the number of courses in transferrable skills (language, time management, management skills) and specific training in teaching, but would also welcome more advanced methodological courses in the various disciplines (e.g. Law for Economists and vice versa). Furthermore, not all students were convinced the Doctoral schools were already firmly embedded and fully operational, and some found it hard to identify the real added value of enrolling in the Doctoral program. The Committee notes that these remarks confirm some of the findings of the panels' reports and encourages the Faculty to look further into this issue.

## CONCLUSION & GRADE

*In relation to the definition of the grades, set out in the Committee's Handbook for the present evaluation, and in light of its findings, the Committee concludes the Faculty of Law, Economics and Finance has a reasonable quality culture in the area of research and innovation (grade A). The Committee has no reasons to doubt the Faculty's capacity to develop and manage its present and future quality in this area.*

*The three units are well embedded within the Faculty and an overarching structure exists to coordinate individual efforts. Also a monitoring system is in place that allows for problem analyses and follow up. The Faculty is aware of the challenges and the issues to address in the future such as increasing interdisciplinary research or carefully managing external expectations. Also the current set up and provisions for the Doctoral Schools needs to be critically reviewed.*

### c. Teaching & learning

The FDEF constitutes the largest student body within the University (with around 2600 students) taking in almost half of the University's population, spread over 3 bachelor and 7 master programmes. The development of the offer is thoroughly discussed (based on the necessary preparatory papers and feasibility studies) and decided upon in the Faculty Council before it goes to the Board for formal approval.

In comparison to the excellent quality management of organisation and administration (see section (a) above), the quality management of running programmes seems less coherent and extensive, although the Faculty has launched several interesting initiatives in this area as well and there are convincing signs that common strategic thinking on these issues is taking place. Course Directors meet regularly and discuss common challenges and solutions, such as common examination rules, or ways to involve the students more structurally in the evaluation of courses.

Teaching and learning issues are discussed during the retreats in a larger setting as well. Programmes and results are presented (using the monitoring tool comprising University-wide and Faculty specific Key Performance Indicators) and commonly discussed.

The Faculty also recently initiated, with the support of the Central student services, a study on study success, as it struggles (not unlike the other Faculties) with significant drop out. Results of this study were presented and discussed during the most recent Faculty retreat. The Committee understands that lessons learned from this exercise will now feed into a redefinition of programme profiles and the development of additional courses. A benchmarking exercise with similar courses in the Greater Region has been planned as well.

The Committee also learned that discussions have started on the important issue of selecting incoming students. A policy based on motivation primarily and qualitative criteria is currently being developed. Furthermore, the Committee wishes to mention the fact that some programmes have developed a Student Handbook, containing all the necessary information a student will need during his or her studies. This is an example of a simple but very effective tool for streamlining information to students and for managing their expectations.

As far as safeguarding the quality of output is concerned, FDEF largely relies on the professionalism of the individual teachers, the efforts of the Course Committees, the students within the Course Committees and on more informal ways of gathering feedback such as informal talks with partners or employers. Also a common policy against plagiarism has been developed. Learning outcomes have been put in place for all programmes but are not functioning yet as an explicit evaluation tool. An excellent initiative in the context of guaranteeing the level of output is the structural presence of external members in juries for all the final exams within the Faculty. The Committee also learned the FDEF has started planning internal accreditation of some its masters programmes.

In the view of the Committee, these are all examples of highly laudable initiatives that point to the existence of fruitful common debate within the Faculty community about issues concerning the continual improvement of the learning experience and the care for the quality of provision. Students and alumni speak very highly of the quality of the courses and especially appreciate the international teams of teachers. They also feel that they are well prepared for the labour market.

The Faculty now needs to pull these initiatives together, and complement them with further policy development (e.g. on the use of learning outcomes or the concept of tutoring) and the development of more structural feedback processes (gathering feedback from students, alumni and employers). More in general, what is needed according to the Committee, is the introduction of a more coherent overall quality assurance system for teaching and learning. The essentials for such a system -- formal bodies, the spirit of team work and promising initiatives -- are already present. The Faculty should evidently work on this in close cooperation with the other Faculties and the Central level.

## CONCLUSION & GRADE

*In relation to the definition of the grades, set out in the Committee's Handbook for the present evaluation, and in light of its findings, the Committee concludes the Faculty of Law, Economics and Finance has a reasonable quality culture in the area of Teaching & Learning. The Committee has confidence in its capacity to develop and manage its present and future quality. (grade A).*

*The Committee found clear evidence of shared, Faculty-wide discussions, regarding the quality of provision and outcomes and has learned about several promising results of these discussions. A systematic and analytical approach to teaching and learning is certainly immanent in the Faculty's culture, but needs to be made more explicit through the development of a more comprehensive approach to quality assurance.*

## Overview of recommendations

- ▶ participate more actively in -- and take more responsibility for -- the life of the University as a whole.
- ▶ review the current set up and provisions for the Doctoral Schools ;
- ▶ introduce a more coherent overall quality assurance system for teaching and learning.
- ▶ increase communication, discussions and sharing experiences and good practices with the other Faculties and the Central level on all of these topics.



### 3. The Faculty of Language and Literature, Humanities, Arts and Education (FLSHASE)

#### a. Organisation & management

As was pointed out in the Committee's first evaluation report, and in the Faculty report, the FLSHASE results from an integration of three pre-existing institutions with very different features, cultures and practices. Bringing together three different and formerly autonomous institutions into one organisational structure has been quite a challenge and the Committee was pleased to note that the Faculty has made good progress in this area. Throughout the Faculty, the Dean and his office are seen as an efficient and responsive team who have handled the management of this complex organisation successfully and have contributed to strengthening the role of the Humanities within what is very much felt to be a largely 'hard' science- and scientific research-oriented University.

Overarching structures such as the Faculty Council, Committees of the Heads of Research Units and Course Directors are in place and seem to function to general satisfaction. The Faculty Council is said to be operating in an effective and democratic way, with all the main issues of the Faculty being discussed. Minutes of Council and Committees are readily available via intranet and a general feeling exists that all Faculty matters are communicated and discussed in an open way with all parties involved.

The Committee was especially pleased to notice that the Dean has succeeded in developing a rather good team spirit in the overall management of the Faculty, which is no small achievement given the many different interests involved within this Faculty as reflected for example in the great diversity of teaching programs and research projects. This has been a considerable achievement. The Dean underlined that Faculty management is based upon a model of bottom up discussion and of bringing people together.

The Faculty has been able to develop several new programmes and is attracting a growing number of students. The quality of scientific output is rising and there is a good level of success in obtaining external funding. Considerable efforts have gone into the recruitment of international academic staff in order to develop a critical mass in all research areas. The recruitment process itself appears to be carefully balanced and seems to be effective. It has also been quite time consuming, especially for the Dean and his team, leaving little room for other large strategic projects.

The Faculty-based supportive and administrative functions underpinning the organisation and management of the Faculty appear to be operating well, and the FLSHASE is currently working towards an ISO certification of its processes. Work and decision flows are being fully documented with the explicit aim of increasing transparency and installing a more structural critical reflection on performance and efficiency. Tasks are mapped and job descriptions are developed in order to dissociate work from individuals and to enable internal mobility. This is an especially important initiative since this Faculty is said to suffer severely from the chronic understaffing, unbalanced workloads and lack of career development plans referred to in the first part of this report.

Administrative and support staff consistently highlighted the good relations with their colleagues from the Central Services but also pointed to the lack of overarching policies, tools and instruments that should complement Faculty-based initiatives. There are several formal platforms where colleagues across the Faculties meet to discuss common challenges and share good practices, but this has not yet led to the strengthening and improvement of University-wide tools and processes. There is no integrated system for accounting and Human Resources Management is said to be haphazard. Especially the lack of transparent promotion and career development schemes is causing quite a lot of frustration. The access to the library is also mentioned as a problem even though the access to on-line resources has improved.

Another source of frustration with regard to the general management and organisation that has been addressed in several meetings of the Committee is the feeling that not much real decision power lies in the hands of the Faculty. Complaints were heard about an overall lack of visibility in the decision-making bodies at University level (the Rectorate and the Governing Board) and the fact that very important discussions are being decided upon too fast (by the University or by the Government), without much time for reflection within the Faculty. Examples that were mentioned are the current 4-year Plan, decisions about budget, space and logistics and some specific cases of recruitment. The interviews left the Committee with the overall impression that the Faculty community as a whole feels it is kept at a certain distance from a Central level

that does not have a clear understanding of the challenges and needs of this Faculty. Many of these issues reverberate what has been put forward in the earlier sections of this report and clearly need to be addressed, as was already repeatedly said, by the University community as a whole.

There is an additional internal obstacle for a more coherent Faculty management that has to do with the complex organisation of the Faculty hinted at above. The Faculty has a large and quite diverse offer of bachelor and master programmes (16 in total), plus 4 equally diverse Research Units that constitute -- in a not altogether well defined way -- one of the University's Research Priorities (i.e. 'Education and learning in multilingual and multicultural contexts', see Part Three). These two structures each have their own difficulties (see sections (b) and (c) below), but have not been really strongly interlinked, creating serious mismatches between educational programmes and research.

The Faculty is very much aware of this important issue however, and has set up three working groups to address these problems. One group will deal with Teaching and Learning and especially with quality assurance. A second group will review the content of research programmes and address the structure of the Research Priority. A third group will specifically look into the interconnection between and the general set up of Faculty structures. This third group, the Committee learned, comprises recently appointed staff with the aim of bringing in views from the outside. It was explained to the Committee that this comprehensive review of Faculty structures has been set up in order to reinforce systematic strategic discussions within the Faculty community and to prepare together -- in a more proactive way -- for the next 4-year Plan. The self-assessment process prior to this current evaluation is seen by the Dean as part of this exercise as well.

The Committee is particularly pleased to see that formalised common reflection on such crucial topics has begun and very strongly encourages the Faculty to continue this extremely important initiative. The Faculty acknowledges it has been mostly re-active in the past, partly due to lack of time and the need to answer to all sorts of external pressures, and the Committee is pleased to see the Faculty is now taking its future more actively into its own hands.

As far as the self-assessment is concerned, the Committee expected a more coherent, self-critical analysis and, in particular, a clearer link between the descriptive parts and the SWOT analysis. The Committee is aware of the time consuming complexity of this exercise because of the diversity of disciplines and domains within the Faculty. However, the Committee also learned that due to timing issues, the last version of the Self-assessment Report has not been discussed in the Faculty Council. Several staff members and students claimed not to have seen the document. The interviews however, painted a more positive picture of how common strategic discussions and a growing team spirit are finding their way into the Faculty's managerial and organisational culture. The Committee is therefore confident the Faculty is willing and able to tackle the important organisational challenges ahead.

## CONCLUSION & GRADE

*In relation to the definition of the grades, set out in the Committee's Handbook for the present evaluation, and in light of its findings, the Committee concludes the Faculty of Language and Literature, Humanities, Arts and Education has a reasonable quality culture in the area of organisation and management. The Committee has confidence in the Faculty's capacity to develop and manage its present and future quality within this area. (grade A).*

*The Faculty has managed to bring and hold together former autonomous structures and has succeeded in building an overarching organisation for its governance. Common strategic discussions, shared values and expectations and a growing team spirit are emerging in the organisation. Administrative and supportive structures are well in place and are currently being translated into a more comprehensive quality management system. The Faculty is well aware of its challenges and has embarked upon an important review of its internal structure and organisation. The Committee very strongly encourages the Faculty to continue this important effort.*

## b. Research & innovation

Research within FLSHASE is organised in four interdisciplinary Research Units, having their own focus, personnel and budget, but also sharing the responsibility for one of the University's Research Priorities. The choice for a unifying topic within interdisciplinary Units was an explicit strategy of the Faculty from the beginning. It was however not very clear to the Committee how these Units, the areas of excellence (Education in multicultural contexts; Societal Transition studies), the 'research programs and domains', and the so called research priority areas of the Faculty (Luxembourg Studies, European Governance, Psycho-social Stress and Health, Social Inequalities, Assessment and Evaluation in Educational Fields) relate to one another. On top of that, the University Priority Education and Learning in multilingual and multicultural contexts, led by a Head of Priority, has been structured around five domains, each headed by a coordinator. However, Head and Coordinators of the Priority and its domains have no formal authority, nor is there official Priority membership status for personnel. The Priority is in a way a very ephemeral structure draped over firmly based Research Units. It is not guiding the research, but is the product of the individual operation of each unit. The actual work is done by individual researchers in the Faculty-based Research Units who have variable connections to the aims and domains of the Priority.

The complex situation of the University Research Priority has been analysed and evaluated -- from a Priority perspective -- by the peer review panel, whose report can be found in Part Three below. The current section, in which the Committee focuses on the overall (quality) management of Research from a Faculty perspective, cannot but reiterate first the findings of the panel, since Priority and Faculty research are closely intertwined.

The Panel's main conclusion in relation to the specific managerial challenges resulting from this complex and rather confusing situation, is that the University's Priority is yet to be integrated into the broader strategic planning of the Faculty. The Faculty made the defensible choice to give all existing Research Units the chance to participate in the Priority, but missed the opportunity to profit from the binding forces that might have sprung from this structure. As mentioned above, the Committee is pleased to note the Faculty has embarked upon a strategic discussion on the issue of organising the research structure as a whole in one of the working groups that is specifically looking at the content of research programmes. It aims to create an effective match between the research structures and the major priority research programmes where this is not already the case. In addition, it seeks to create appropriate and differentiated structures for its research and knowledge transfer tasks.

Within this discussion, attention should go as well to managing the tension between 'blue skies' research and service to society, especially in the area of Education. The Committee understands the Faculty is indeed already working on this topic as well, including the question of the positioning of contract research for the Government.

In both issues, the Committee is of the opinion that an important role is to be played by the Central University level as well. In the latter area in particular, it is the University that should clarify in its policies what exactly it expects from its Research Priorities and how it perceives the relation between applied and fundamental research; it should provide the necessary University-wide guidelines, underpinning structures and appropriate support and funding.

Looking more specifically at Faculty-based quality management of the Research Units, the main overall strategy in the recent years seems to have been the development of a Faculty-wide academic culture, fostering interdisciplinary research and the enhancement of the quality of output. Heads of Research Units pointed out that some of the former institutions that have been merged into the Faculty had little experience with academic research, resulting in low publication rates. As mentioned above, a lot of energy has been put into high quality recruitment that is beginning to bear fruit. The Faculty has also invested in seeking third party funding (The 'Fonds National de la Recherche', international projects) and seems to succeed in that area as well.

Furthermore, the Committee learned there has also been a more general and fundamental debate within the Faculty on stimulating performance and output, and during a short period a system of annual feedback talks was in place. The Committee strongly encourages the Faculty to continue this discussion. The Faculty should define its understanding of quality (and its measurement) in research, and develop on that basis a comprehensive quality assurance system with clear and Faculty-tailored indicators, comprising common frameworks for gathering feedback, monitoring performance and analysing results, and leading to the production and implementation of improvement plans.

The Doctoral School in Educational Sciences (DES) was officially launched in 2012. The Doctoral School in Humanities and Social Sciences still seems to be very much in its infancy. Apparently there have been significant discussions about the name of the School, reflecting the fact that there are probably different visions of what the School should be. Having made that point, the Committee is aware of the difficulties in achieving one view given the diversity of domains within the Faculty's Research portfolio. PhD-students testified they have been consulted in relation to the School, but were divided on the question if the School is currently running or not. The relationship between this second Doctoral School and the Research Units is not completely clear to the Committee and it suspects that it might be as vague to many of the staff and students as well. It is evident that the School needs to be further developed, again, in close connection with the Central University level.

## CONCLUSION & GRADE

*In relation to the definition of the grades, set out in the Committee's Handbook for the present evaluation, and in light of its findings, the Committee concludes the Faculty has a partial quality culture in the area of research and innovation (grade B).*

*Several strategic and organisational issues need to be addressed within the Faculty's research structure in order to ensure a more efficient quality management in this area. Both the relation between Research Priority and Research Unit and the relation between applied and fundamental research need to be clarified; a comprehensive quality assurance system should be put in place and the Doctoral School needs to be further developed. The Committee has confidence in the Faculty's capacity to develop and manage its present and future quality, in so far as these recommended adjustments are made. With attention to the issues mentioned, the Committee is confident the Faculty is on its way to a higher grade.*

### c. Teaching & learning

FLSHASE is the only Faculty within the University that has appointed a Vice-dean in charge of teaching and learning. In the view of the Committee, this is an important initiative. The Vice-dean chairs the meetings with all Course Directors (taking place every 4 to 6 weeks), keeps an overview of what is happening in the programmes, and coordinates common actions. Recent examples of such shared initiatives are the design of study guides for bachelor level and the development of sustainable links with the alumni.

Furthermore, the interviews with the Faculty Council, Course Directors and teaching staff confirmed the Faculty is engaged in several internal discussions on more general issues pertaining to teaching and learning. Examples are the graduation rates or the heterogeneity of the student population and the inherent difficulties of trilingual education as a particular challenge for this explicitly internationally oriented University. The Committee found little evidence that these debates have yet led to clear outcomes or have been translated in Faculty-wide approaches or policies, but it was clear from the interviews that these issues are being collectively addressed and are seen by the academic staff as collective challenges and not primarily as personal or disciplinary problems.

Proposals for new programmes are said to be thoroughly discussed, first between Course Directors, then in the Faculty Council. There is a strong focus on programme content, structure of programme and feasibility in terms of personnel. The Committee learned that all existing programmes have been benchmarked with comparable programmes and have been adapted according to the outcomes of that exercise. Learning outcomes have been introduced for all courses as well, but, as in the other Faculties, are mainly functioning as an information tool for students and not as explicit frameworks guiding teaching and assessment methods or evaluation strategies. The Committee is convinced that a Faculty featuring Educational Sciences certainly has the competence to develop such strategies. Similarly, tutoring seems to be an activity that is defined very differently across the Faculty. There is no evidence of an organised approach at programme level or any real reflection on the topic of tutoring at Faculty level. The Committee believes there is a real need to address those issues. Even though most students are very happy with the offer and commented on the high quality of provision, some students nevertheless indicated that learning in certain programmes is still very much teacher-centred rather than learning-centred.

At programme level, the role of the Course Directors is mainly to assure that the programmes are functioning well. They monitor the courses and benefit from steering committees that operate differently according to the programmes and to the size of the teaching team. Steering committees normally integrate alumni and students and meet at least twice a year. Some bigger sized programmes work with additional focus groups or alumni surveys. The student surveys organised on Central University level are working quite well in the Faculty, with a satisfactory proportion of the student population participating, which is unique for the University. Students testified they are using this opportunity and that some changes have been implemented because of the outcomes of the surveys.

The notions of accountability and continuous improvement are apparent at the level of programme teaching teams. However, the meetings with the academic staff and the Course Directors showed that the operation of these notions still very much depend on the context of each programme. Only a limited number of programmes for example utilise structured and regular discussions between Course Director / Module Responsible and each individual teacher. The question of how the programmes ensure that they are meeting their standards doesn't find a very robust answer. A few programmes make use of external examiners, some indicated they are using information about employers' satisfaction or alumni' feedback. In general the Committee's impression is that most issues are being discussed and addressed but that quality assurance mechanisms are rather informal. On Faculty level there is an awareness of the need to strengthen and formalise quality assurance in the area of teaching and learning. The Committee learned that FLSHASE plans to address the implementation of a quality assurance system in the next four-year plan and has set up a working group that is currently looking into this issue.

Finally, the organisational issues referred to in previous sections, also have their bearing on the quality management of teaching and learning. The fact that research structures are not in line with the educational offer results in tensions, especially on the bachelor level. Academic staff is hired with more attention for research potential than for the needs of the undergraduate programmes. This should be investigated further in the context of the overall review of Faculty structures.

## CONCLUSION & GRADE

*In relation to the definition of the grades, set out in the Committee's Handbook for the present evaluation, and in light of its findings, the Committee concludes the Faculty of Language and Literature, Humanities, Arts and Education has a reasonable quality culture in the area of Teaching & Learning. The Committee has confidence in its capacity to develop and manage its present and future quality. (grade A).*

*The Self-assessment Report and interviews left the Committee with a somewhat mixed impression about the management of Teaching and Learning within FLSHASE. Good structures exist for collective reflection and action within this area, and evidence was found that these structures are beginning to be effectively used. A certain number of key issues are being addressed at Faculty level and therefore are seen by the academic staff as collective challenges and not as personal or disciplinary problems. There is evidence of a shared quality awareness emerging within FLSHASE. On the other hand the Faculty could have been more proactive as a collective with regards to educational problems such as tutoring, teaching methods or safeguarding the quality of outcomes. The Committee is confident however the Faculty is aware of its challenges and has the necessary capacities to address them in the near future. The Faculty should work further on this in close cooperation with the other Faculties and the Central level.*

## Overview of recommendations

- ▶ execute the planned overall review of the Faculty's internal structure and organisation;
- ▶ review the content of research programmes, clarify the relation of the Priority to the Research Units and address the tensions between applied and fundamental research;
- ▶ discuss and develop a comprehensive quality assurance system for research;
- ▶ develop the Doctoral School;
- ▶ create interrelations between the educational offer and research structures and focus on appropriate staffing for the undergraduate programmes;
- ▶ discuss overarching approaches for tutoring, teaching methods and safeguarding the quality of outcomes and develop a solid quality assurance system for teaching and learning;
- ▶ increase communication, discussions and sharing experiences and good practices with the other Faculties and Central level on all of these topics.

## Part Three:

### **RESEARCH PRIORITIES**

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# 1. Education and Learning in Multilingual and Multicultural Context Research Priority

## INTRODUCTION

### HISTORY

The first University of Luxembourg four-year plan for the period 2006-2009 included “Building Excellence in Education” as one of its research programmes (P6). The next four-year plan 2010-2013 did initially not explicitly include a Research Priority (hereafter, RP) in the field of Education. Nonetheless, within the Faculty of Language and Literature, Humanities, Arts and Education (FLSHASE) work was undertaken to provide a common research framework and four main research areas were defined. This initiative led to the identification of Education as one of the University’s research priorities in late 2009 which was supported through the appointment of a Head of Priority and the allocation of a (rather modest) budget.

### AIMS

The RP is defined in relation to ‘Education and Learning in a Multilingual and Multicultural context’. Within this, the RP assigns itself the three following aims:

- Excellence in Research
- Establishing an interdisciplinary Doctoral School in educational sciences
- Contribution to developments in the educational and social field (public outreach publications, consultation and evaluation in form of contract research)

These aims are diverse and their fulfilment calls for a cohering research strategy which succeeds in intertwining research excellence with long term capacity building and public relevance. It should be noted, in particular, that the Grand Duchy offers an excellent context for locally-relevant research with potential international impact regarding multiculturalism and multilingualism.

### SPECIFIC SITUATION

Compared to other RPs, this RP is subject to various constraints that it has to address:

- The RP inherited a plurality of goals and objectives that require careful strategic thinking if they are to be reconciled. As already indicated these include serving the needs of Luxembourg society and conducting research with potential global impact;
- It has not consistently been easy to hire new staff whose specialisms reflect the RP’s mission. The RP is dependent on faculty recruitment and on existing staff from a variety of different backgrounds. Staffing therefore offers a mixed profile with some pockets of strong research but also some need for capacity building and focussing.
- Finally, the RP has worked, until now, under conditions best characterized as an organizational half-way house, a loose confederation of researchers who might or might not see themselves as part of the RP, and over whom the RP’s director had no formal authority. While other Research Priorities at the University appear to have some organizational independence, the Education RP has been embedded in the faculty of humanities and social sciences, with little discrete organizational infrastructure.

## INPUT

### DEFINING OBJECTIVES

In the self-assessment report, the arguments for the choice of the topic and the general objectives are described, and indications about the variety of questions that might be studied in the RP are provided. In the view of the panel the objectives are clear and reflect those of educational systems more generally. Nonetheless, given the specific context of Luxembourg these objectives are of high priority in the Grand Duchy. Indeed, given the importance of the objectives they

need further clarification and more concrete operational objectives which give direction to the RP and its theoretical, methodological and technical underpinnings.

The problem lies with the position of the RP in relation to the five distinct research domains of the University and the four research units that comprise the structure of the faculty. The more concrete objectives, deemed necessary by the panel, are not elaborated at the level of the overall RP but are determined separately in the five research domains which inform the RP. The five research domains are: educational systems; multilingualism; professionalization of actors; non-formal contexts; and assessment and cognition. Alongside this structure, the faculty is made up of four research units (IPSE; INSIDE; LCMI; EMACS) for the location of staff.

As a result of this complex structure, the RP is not guiding the research but is the product of the individual operation of each unit. The Panel's meetings with the Head of the RP and the Executive Board confirmed the Panel's impression of weaknesses in planning and management that are, at least in part, due to these organizational deficiencies, discussed further below. The actual work is done in the individual research units with variable connection to the aims and objectives of the RP.

The Doctoral School however was an exception to this general picture. The School is already beginning to function to build capacity and promote excellence in research. It was confirmed, however, in our meeting with the Head of the RP that the different research units varied in their engagement with the Doctoral School. This further demonstrates the need for a clear organizational structure.

## STRUCTURE

Currently the RP has a head but not members because colleagues' primary commitment is to the research units. The Panel sees this as a significant problem which has a major impact on the cohesion necessary if the three RP aims are to be met. For example, the self-assessment provides the publications produced. However a limited number of researchers account for this output. According to the Head of the priority, approximately 30 out of 360 staff in the research units actually contribute to the research and publications in the RP. There is no official RP membership status. These figures indicate the hard time the RP had attracting cooperating faculty staff.

The Panel concluded that the capability within the faculty needs to be more clearly developed in relation to the RP; and in order to do this there is a need for strategic planning with clear goals and milestones for the RP and for the research domains that contribute to it.

## RESOURCES

Most of the funding is held within the individual research units as a result of project funding. Based on the annual reports, the individual units appear to be successful in achieving funding independently and with external partners. The majority of the project funding to the research units comes from the EU and various funding institutions, which in itself can be seen as an indication of the quality of the proposals and the research undertaken.

However, for the RP itself funding is very limited and provided through the Deanery. In addition, when posts are available within the Faculty, where possible appointments are used to attract people who may promote the RP. However, it is important to emphasize that the RP has very little funds of its own with which to manage its own development. Consequently, the Expert Panel would recommend, if basic structural funding can be raised, creating additional tenure track and post doctoral positions over the next few years in line with agreed strategic planning.

## PROCESS

### THEME AND FOCUS OF RP

A key part of the RP's strategy is to carve out an area of research in which it has a good chance to gain international visibility, while at the same time drawing on the unique opportunities and addressing the unique challenges of its role as a part of the University of Luxembourg. The RP defined this area as "education in multi-cultural and multi-lingual contexts." This decision is based on the assessment that

- a) Education increasingly takes place in multi-cultural, multi-lingual contexts;
- b) There is a break with the traditional model of education for (national) uniformity, in favour of a model which underlines the cultivation of diversity;
- c) Educational institutions must balance the tension of integration and differentiation.

These are overarching themes intended to produce a shared framework of cooperation for what otherwise would be a large number of more narrowly, specialized, and weakly connected research undertakings.

To the Expert Panel, this strategy seems sound and promising. Clearly, the state and society of Luxembourg offer a globally unique microcosm of multicultural and multilingual educational practice. And equally clearly, there is strong global current for other states and societies to become similarly diverse in their cultural and linguistic make up. Through high-quality research, effectively disseminated, the university and the RP 'Educational Sciences' have the potential to establish the university as a leading institution of research.

### **BENCHMARKING AND OPERATIONAL GOALS**

The RP's strategic forward orientation, using benchmarking and operational goals, is still in its infancy, which may be explained both by its relative young age, and the half-way house structure described above, which makes formulating definitive goals even more difficult than it already is. The unit has a vague goal of establishing international visibility in the next 5-10 years—which seems realistic. Beyond that, it has not established benchmarks, or a sense of institutional peers and aspirational peers. This would seem an urgent task now.

### **STRUCTURE IN RELATION TO PROCESS**

The original structure in which the educational sciences at the faculty of humanities were pursued was defined by the four research units IPSE; INSIDE; LCMI; EMACS.

With the creation of the RP two years ago the question as to the proper organizational framework for the RP arose. From what can be seen, the only "structurally" relevant decision that was then made was to appoint Professor Daniel Tröhler to the position of "head" of the RP. It was very obvious to the Panel that he has received very little support in terms of support staff or infrastructure.

Five areas or domains of research were defined, each of which is headed by a responsible coordinator:

- Educational systems (Tröhler)
- Multilingualism (Weber)
- Professionalization of actors (Krolak-Schwerdt)
- Non-formal contexts (Willems)
- Assessment and cognition (Martin).

This structure is now seen as something that was, perhaps inevitably, a loosely coupled halfway house. It served the purpose of defining themes, initiating research and outreach activities, and, most importantly, creating a "doctoral school", but it suffered from a lack of clearly defined duties and responsibilities, as well as a lack of funding. In a sense, the RP in the Educational Sciences has been a relatively poorly funded mandate.

It appeared to the Panel that the discussion and reflection engendered by the preparation of the self-assessment report had led some of the senior faculty, notably the Dean, Professor Margue, and the head of the RP, Professor Tröhler, to become convinced of the need to move beyond the half-way house structure in favour of a more formal and permanent unit, similar, perhaps, to a "School of Education" structure in Anglo-American universities. This idea is currently discussed within the faculty, with the goal to arrive at a consensual understanding of the outline of the new unit in the course of the ensuing months.

### **CURRICULUM OF DOCTORAL SCHOOL**

The doctoral school is still very new. Thus, the curriculum – the set of courses that doctoral students take – is still emerging. Unlike in the American model, where graduate students enter with general areas of interest, the doctoral candidates recruited by the RP almost always come with defined dissertation research projects as is common in the European model. This requires that students begin working on their own research fairly quickly after arriving on campus. However, this process may somewhat limit the students' ability to profit from the synergies generated by the doctoral school. Thus, a phase during which all students attend a set of doctoral courses, along with colloquia, and study tours, might be the way to capitalize more on the doctoral school's potential.

### **STAFFING AND CAREER PATHS**

The current career path for academic employees at the university consists of a four-step ladder: post-doctoral; scientific auxiliary; assistant/associate professor; full professor. It is our understanding that the laws and regulations pertaining to

the University of Luxembourg make promotion from assistant/associate to full professor rather difficult, such that to date no such promotions have taken place. In the long run, this could disadvantage the University's ability to attract promising young scholars, who may have alternatives elsewhere in tenure-track institutions.

Regarding the RP specifically, the people in charge seem to be very much relying on future appointments, however, the way that new staff members can support the RP isn't always clear to the people who are appointed. At the moment, staff are merely encouraged to work with the RP, and even if they want to get involved more deeply, they don't always know how to contribute to and help shape the RP. Again, this points to the lack of a structure where the research strengths of the faculty in the areas covered by the RP might be brought together.

## OUTPUT

### MAIN RESULTS

Despite the RP's weak organizational structure, it has produced many impressive and significant outcomes:

- a) The Doctoral School: along with the lecture series (see below) the creation of the Doctoral School, launched in October 2011, has been one of the most immediate and tangible outcomes of the RP. The School has become home to more than 20 doctoral candidates of generally high calibre. According to the testimony the Expert Panel received, it provides students with an institutional home in which they can mature and progress as researchers and scientists through shared discussion among each other and with faculty of different backgrounds and research interests. The Doctoral School has thus replaced the more traditional "Doktorvater" model that prevailed in German speaking universities, in which a doctoral candidate's sole relationship was with a single faculty advisor. As part of the Doctoral School, students have been able to interact with a number of eminent visiting scholars both locally and internationally. Furthermore, efforts to improve the Doctoral School are noticeable, and an evaluation is being carried out by the Centre for Evaluation (Saarland University).
- b) The lecture series: the RP has also instituted a multi-semester lecture series on the "future of education research." The lecture series has brought leading researchers to campus. It has raised the profile and visibility of the University in Europe and beyond. It has stimulated thinking among faculty and doctoral students and can be expected to influence ongoing and future research in a more innovative direction. In addition, the lecture series has led to the publication of books with the first volume 'Education Systems in Historical, Cultural, and Sociological Perspectives' being published in 2011.
- c) Research performance and output: Output in high quality journals has increased significantly compared to previous 4-year period; an important part of which was produced by early career scholars and post docs. Several of the leading RP researchers have had an annual output of two or more peer reviewed articles, and several book chapters. Those for whom books are the main form of publication, have averaged one or more books or monographs, some with very selective publishers, and a large number of book chapters in addition to some non-refereed publications. A particular achievement that deserves mention here is the fact that the Head of the RP, Professor Tröhler, was awarded a best book award by the AERA, the field's leading international research association.
- d) Performance Oriented Research Culture: the RP has, according to the unanimous testimony from faculty and students, raised the level of aspirations among researchers. Before, as one faculty member said, there existed a culture where "any publication was as good as any other." In other words, faculty were often satisfied to publish their work in unselective sources. Due to the RP, there is now an understanding that all members of the faculty and all doctoral students must "aim high" and preferably place their work in selective journals and with selective publishers.

### SOCIETAL CONTEXT

The external stakeholders recognise the value of the focus of the RP to Luxembourg.

Clearly, the relationships with the state-related stakeholders (ministry, school principals, etc.) constitute one of the most exciting fields for development. In the view of the Expert Panel, the links between the RP and Luxembourgish society could develop to the advantage of all concerned. Cooperating in the day-to-day context of education in a multilingual and multicultural society – and a very complex one, as Luxembourg has three official languages, and many pupils having yet another mother tongue, – is extremely important. This is the case both for the professionalization of teachers and for the Ministry that manages the performance of the school system and also the senior staff who manage the individual schools. The Expert Panel view work in this area as also important in contributing to scientific excellence in the domain of Educational Research and associated publications. In this context, the balance between humanistic and social scientific traditions of educational research should be complemented by focusing on basic and applied research on processes of learning and development, data-driven interaction analysis and tool-bound activity research. For example the stakeholders emphasized the importance to them of the RP providing output in the form of good intervention studies, which ranged from action research to more clearly controlled interventions. Such an approach would provide considerable scope for a range of different kinds of research collaborations within the Grand Duchy.

## GUIDELINES

Clearly, there is no RP-wide definition of the expectations towards researchers. In this matter we would like to recommend that guidelines can be formulated and be agreed among the staff and the official bodies about the publications, the grants and funded proposals that are expected to be accomplished per year which could be used for professional and career development purposes. Doing so would make it easier to assess individuals as well as groups.

## QUALITY ASSURANCE

### QUALITY CONSCIOUSNESS

In general, Quality control measures need to follow RP-specific goals and missions. In a RP with heterogeneous objectives and sub-units with differing standards of research quality and quantity, there is always a danger of throttling promising, emerging developments by focusing on a few narrow indicators. Under such conditions, it seems wise to focus, first and foremost, on establishing a collective habit of quality consciousness.

Currently having no formal governance structure and as a consequence no formal tools to assure quality, the RP states that Quality Assurance is to be dealt with at the level of the individual research units:

Until there is an organizational backup of the RP, quality assurance cannot be pursued by the RP as this would conflict with the obligations of the individual research units and the steering committee formed by the head of the research units of the Faculty FLSHASE

In line with this remark in the SAR, all questions on quality assurance are answered "not applicable".

### EXISTING MECHANISMS

Nevertheless, in the SAR and during the site visit, the Panel got a general idea of how QA-mechanism is being dealt with. For that matter, the SWOT analysis included in the SAR shows the RP's high degree of awareness of its strength and weaknesses. The Units each publish an Annual Report that gives a detailed account on input and outcome (including details on the number of publications, Leadership & Management, Internal organization & Staff, results of ongoing projects, an overview of on-site activities, etc.). In line with these reports and the self-awareness they generate on productivity, it has become accepted by the faculty and doctoral students that the university must aim to create, sustain, and develop a performance-oriented culture. This would be a culture in which one measures the quality of one's work against that of the leading peer researchers and peer-institutions, applies for selective research funding, and aims for internationally visible impact.

Assuming that the RP intends to continue with this aim in a more fully integrated organizational structure, in the view of the Panel, it would be essential to make explicit the procedures and tools it intends to use to measure, evaluate, assure and enhance quality, including evaluation mechanisms for PhD students, and academic staff, and explicit quality standards for research. It would also be important to clearly identify the distribution of responsibilities for quality assurance and enhancement within the RP.

The SAR was produced by the director of the RP, prof. Daniel Tröhler, and his assistant Ragnhild Barbu. The Panel got the impression that few other participants had been really involved in the process of editing the SAR. A more fully devolved framework for managing quality would lead also to a wider and fuller involvement in preparing such a document.

During the site visit, the SAR turned out to be already outdated with regard to the remarks on the organizational structure. Apart from that, the Panel found the name Executive Committee (comprising the leaders of the five domains) rather confusing, as in fact this Committee is only a "mode of constructive cooperation" with meetings twice a year and with in fact no executive power

## CONCLUSION

*The Panel was of the view that the focus of the RP was entirely suited to the research environment offered by Luxembourg. It also concluded that the dual aims of international research excellence and contributing to Luxembourgish educational and social wellbeing were potentially compatible. Achieving a coherent research strategy to address these aims requires a demanding and cutting-edge conceptualisation of educational research. However, the panel is confident that the research strengths of the Faculty mean that the strategy can be built and the aims met.*

*Based on our discussions with faculty, students, and external stakeholders who recognised the tensions inherent in these two aims, there seems to be a real possibility for the RP to take advantage of the opportunities for educational research in a multi-lingual and multi-cultural environment. A suitable strategy might take a multi-layered approach, which allows the close-to-practice and close-to-policy research of some colleagues to inform and be informed by the more generalizable research and policy analyses of others. The Panel recognises that some researchers might engage in both types of research activity, the crucial point is that both are valued and seen to enhance the unique contribution of the RP both to international research and to the Duchy. The proposed*

*approach is not based on a separation of applied and blue-skies research, but on a recognition that educational research involves the co-construction of educational knowledge between researchers and users and between researchers working in the different sub-fields and genres that constitute educational research. Such an approach places considerable demands on organisational structures within and at the boundaries of the Faculty if they are to support the communication necessary for these processes to flourish and bear fruit.*

*In summary, although considerable research strengths and a great deal of hard work were revealed during the review, the Panel observed some areas for development if the RP is to achieve its aims. The Panel was pleased to note that both the Dean and the RP co-ordinator were beginning the process of developing a refreshed four-year plan which appeared to be addressing some of these key matters.*

*In view of the evident commitment of the core staff and assurances from the co-ordinator and the Dean that they are aware of a number of the points identified by the Panel and intend to address them, the Panel grades the Priority as **GOOD** and on a trajectory towards Very Good. The Panel is also aware, however, that the resourcing of this RP is relatively limited and would like to suggest that some additional University resourcing is allocated as the new strategic plan is put in place and milestones met. To some significant extent, the Panel's grading is based on the assumption that these revised plans of the Dean and Head of Priority bear fruit.*

## RECOMMENDATIONS

Topics the Faculty and the University may wish to consider during the current planning process are as follows:

- ▶ The discrete funding for the RP is relatively low, requiring potentially contributing research units to pursue project funding with the result that the financial drivers for the research units do not necessarily align with those of the RP.
- ▶ There is an over dependence on a few people, most notably the RP co-ordinator, with little structural opportunity or incentives to ensure a wider organisational commitment to the RP.
- ▶ The RP remains a loosely coupled entity and is yet to be integrated into broader faculty strategic planning for resource allocation etc.
- ▶ There has been an apparent need felt to prove immediate excellence with, for example, priority given to written outputs, perhaps at the expense of the slower organisational work that needs to be done to align the intentions and energies of colleagues at every level of the Faculty so that they might contribute to the RP.
- ▶ There is as yet an understandable lack of clear strategic planning with process milestones which include (I) the creation of appropriate infrastructures for collaboration and for QA; and (II) the building of both relationships and research capacity internally and with external stakeholders. These developments need to be budgeted and resources made available from the University via the Faculty in line with these milestones.
- ▶ The RP's planning and progress needs to be accountable within the Faculty so that resources are allocated on the basis of strong, yet supportive QA procedures.
- ▶ Planning needs to be conceptually driven, probably in line with the Panel's suggestion above, to ensure that both national and local aims are met and outcomes and outputs from both can be assessed against agreed benchmarks.

The Panel recognised the considerable efforts and achievements of a small group of dedicated people with limited funding. However, it was of the view that the ambitious and important aims of the RP warranted more broad-based support across the Faculty and that part of the role of strategic leadership was to achieve this. The Panel was pleased to hear that the Faculty was moving towards a clearer integration of the RP into its structures and hopes that it will find its comments useful.

## 2. Finance Research Priority - The Luxembourg School of Finance

### INTRODUCTION

The Finance Research Priority in the University of Luxembourg is located within the Luxembourg School of Finance (LSF). The School was created in 2002, prior to the establishment of the University itself, and initially focused solely on the delivery of a Master of Science in Banking and Finance programme. In 2005 the School was brought into the University as the finance department of the Faculty of Law, Economics and Finance.

Research became more prominent after 2005 so that, by the end of 2006, research was being undertaken within a new research laboratory entitled, the Centre for Research in Finance. As such it was evaluated as part of the first external evaluation of the University of Luxembourg in 2008-2009.

In late 2008 a Director was recruited for the School of Finance and responsibility for research and teaching was brought together under one head. The Director of the School was also a Professor of Finance within the Research Priority. The School of Finance and the Centre for Research in Finance were brought together under one name, the Luxembourg School of Finance. A strategic plan was agreed and remains the basis for the development of the Priority.

Significant changes have occurred within the School of Finance since 2009, largely as the strategic plan referred to above was implemented. In particular, 75% of staff at the time of the Panel's on-site visit had been recruited since 2009.

The evidence base for this review was the Research Priority's Self Assessment Report (SAR); additional documentation supplied by the Priority; and discussions with a range of staff and students within the Priority.

### INPUT

The mission statement of the Luxembourg School of Finance, within which the Finance Research Priority (the Priority) is located, is to offer '... education programmes and conduct academic research in finance at the highest level, developing thoughtful and responsible finance managers and leaders, expanding the frontiers of knowledge, influencing business practice, and contributing to the development of a stable Luxembourg financial sector ...'(SAR 1a). The finance groups in the London Business School and the Stern School of Business at New York University provide two 'role models' in support of this mission Priority's.

The mission statement above is relevant and realistic, although the role models indicated may not be the most appropriate. The focus on the Luxembourg financial sector is logical so long as the Priority is able to maintain an appropriate, critical distance between itself and the sector.

The ambition of the Faculty of Law, Economics and Finance (FLEF), within which the School of Finance is located, is to build a cluster of excellence in the fields of European and business law, finance, economic integration and strategic management (SAR 1b). It is against this background that the Finance Research Priority has sought to build specific competencies in quantitative finance, risk management, law and finance and experimental/behavioural finance (SAR 2c). The focus on these competencies has been shaped to a large extent by changes in the external environment, particularly in relation to the global financial crisis and the way that this has affected the Luxembourg economy (SAR 2e).

The need to accommodate the Luxembourg financial sector and economy has the potential to result in tension between academic and research criteria on the one hand and more market- and societal-oriented criteria on the other when deciding on research topics. The research topics and projects on which staff are engaged do not align entirely with the four competencies referred to above. Indeed, some staff do not appear to be aware of these four competencies. The panel recommends that the Priority should review its research priorities and prioritise its research activities. This will give a clearer rationale and a greater focus for the research activities of the Priority.

As noted above, the Finance Research Priority is located within the Faculty of Law, Finance and Economics. The recently-instituted Doctoral School within the Faculty covers both Economics and Finance. According to the Priority's SAR, collaboration 'arises occasionally' with economists and lawyers. In addition, the Priority collaborates with mathematicians and computer scientists within the Faculty of Science, Technology and Communication within the University (SAR 1c).

The Priority appears to have a degree of autonomy within the University to determine its research strategy and priorities and manage part of the expenditures associated with the Master of Science degree in Banking and Finance. The rules determining the teaching and administrative duties of staff, including undergraduate teaching and the establishment of new posts, are fully discussed within the Faculty (see also further in re recruitment of staff). Despite its location within the FLEF, however, there is little evidence to suggest that the potential synergies between the three academic disciplines are being fully exploited by the Priority.

The Finance Research Priority occupies modern premises in Luxembourg Kirchberg. One floor is entirely dedicated to office space and meeting/seminar facilities and another floor to teaching activities. Library services are located in the University's central library. Journals are typically accessible electronically; books can be borrowed by the library or purchased (SAR 1d).

The office and teaching facilities are excellent and the range and availability of journals and books is appropriate. One staff member commented on the short period of availability of books from the University library.

The Priority has 27 staff in total, including nine Professors or Associate Professor, six post-doctoral researchers, seven PhD candidates and three administrative staff. In addition, there is one Research Support Officer and one Co-ordinator of Relations with the financial sector. At the time the SAR was finalised, six more staff members were being recruited. These included the Deutsche Bank Luxembourg Professor of Finance whose appointment was announced immediately prior to the on-site visit. The Priority anticipates that the steady-state of the Priority will stabilise at a level of about 25 Professors and Associate Professors (SAR 1c)

A key determinant in the appointment of Professors and Associate Professors is whether candidates have published in what the SAR describes as 'the best journals', or core refereed journals. Candidates also need to be able to demonstrate that they have the research competence and drive to continue to publish in these journals. Selection committees appointed to consider applications for Professor and Associate Professor posts typically consist of six members. Each is chaired by the Dean of the FLEF, and comprises highly qualified professors of finance from prominent foreign universities, in addition to local professors. External members make up the majority of each selection panel (SAR 1f).

At present, the Priority's research strategy appears to be recruitment- rather than topic-driven. The Panel questions whether the current criteria for recruitment results in the appointment of staff aligned to the Priority's four research competencies (see above); whether its approach is financially sustainable; and whether it is in the long-term interests of the Priority if it is to develop home-grown researchers. Indeed, despite offering attractive salaries and working conditions, the Priority appears on occasions to have had some difficulty in recruiting desired applicants. In the light of the above, the Panel recommends that the Priority considers whether the present emphasis on publications in 'top journals' in its recruitment of staff is sustainable or conducive to the long-term development of the Priority.

The Finance Research Priority cooperates with a number of international and national external partners. Some partnerships are well developed. International partners include, but are not restricted to, the Stern School of Business, universities in Hong Kong, Malaysia, and the Netherlands as well as financial institutions and organisations such as the Swiss Finance Institute, the Financial Management Association in the USA and the Centre for Economic Policy Research in the UK. Partners located in Luxembourg include the European Investment Bank, the Banque Centrale du Luxembourg, AXA Luxembourg the Luxembourg Bankers' Association and the Private Bankers Group Luxembourg (SAR 1g). As noted earlier (see above), the Research Priority is located within the Faculty of Law, Finance and Economics and staff of the Priority have some joint projects with colleagues in other departments in the Faculty.

The Priority's network of cooperation appears to rely on personal connections of scholars rather than within a strategic framework. The institutions and organisations with which the Priority has links are able to provide valuable research inputs. Recently recruited staff retain strong links with their previous institutions. The Priority may, nevertheless, wish to review its international relationships in particular and prioritise those it wishes to strengthen. Research activity involving the private banking sector in Luxembourg appears to be limited.

## PROCESS

The Finance Research Priority regards the critical mass for research to be at least 20-25 highly qualified professors able to interact and collaborate both within and beyond the University. The starting point for achieving this aim is a publication strategy (SAR 2a). A list of journal rankings has been adopted by the Priority, This list is a sub-set, it is understood, of the Tinbergen Institute list of journals in economics adapted to the finance discipline (SAR 2b).

The critical mass for research suggested above, whilst realistic, has significant financial implications if it is to be achieved. Similarly, the publication strategy is ambitious but appropriate. The Priority may, nevertheless, wish to give consideration to the adoption of the IDEAS-RePEc ranking.

In September 2011 the Finance Research Priority established a Doctoral School in Economics and Finance with colleagues from the Economics department. To kick-start the School what was described as a '... somewhat informal course framework was developed ...'. The School currently enrolls about eight economics and finance students each year with the aim of having about 30 residential doctoral students within four to five years (SAR 2a). In addition, the Priority runs a weekly research seminar at which internationally renowned scholars present their current research (SAR 2a).

Although the Priority appears to see the Doctoral School within a strategic context and it appears to have made a promising start, its role remains unclear especially as the Research Priority is one element only of the School of Finance. Analytical and unbiased research is assisted by the creation of a doctoral school and the existence of the School will increase the attractiveness of the Priority as well as the quality of doctoral theses and other forms of research output. These activities allow PhD students to broaden the scope of their knowledge and to meet researchers from international universities and research centres. Even greater attention should be devoted to the School if it is to stand alone as opposed to being linked with a doctoral school in another university and if it is to be considered as the training centre for high-skilled researchers who may become top-class professors in the future.

The weekly research seminar run by the Doctoral School is well regarded by staff and students and makes a significant contribution to the School. PhD candidates prepare these seminars as part of their PhD programme. They provide an important opportunity for interaction between researchers working in the Priority.

Institutional support for the Research Priority is strong given the size of the unit which has a full-time research secretary, and research support officer. In addition, the Faculty's Research Facilitator, jointly with the University's Research Office provides general support regarding research activities and project acquisition. IT hardware support and software installation support is provided on a part-time basis (SAR 2e).

The overall management of the Priority is, however, not clear to the Panel. Although the Panel met some members of the Research Priority Management Team, the individuals involved do not appear to have written roles, responsibilities or reporting lines and do not appear to meet sufficiently frequently as a group to be described as a management group. A key element in the management of the Priority would appear to be the general assembly of professors and associate professors which meets every two months and considers both strategic and more operational matters.

In the view of the Panel the Finance Research Priority is still a collection of individual researchers focussing on individual rather than joint projects, even within the Priority. Whilst there is diversity in the Priority's research projects and programmes, there is limited strategic focus. The structuring of research priorities appears to reflect the specialisation of individual staff. This reflects, in turn, what has earlier been referred to as the Priority's 'recruitment-driven' strategy. Whilst this may ensure variety in research, it may come at the cost of what might be described as team spirit. In the light of the above, the Panel recommends that the Priority reviews its current governance and management arrangements especially if it increases in size.

One of the 'weaknesses' identified in the SAR is slow decision-making within the University in the appointment of professors and associate professors. As a result it was suggested that candidates are 'lost' in the process (SAR, SWOT analysis). Having discussed this matter with representatives of the Priority, the Faculty and the University differing views emerged concerning this issue. The Panel was, as a result, unable to determine with confidence the reason for the slowness and, therefore, what action it might recommend to address this issue.

Structural funding for research is provided by the University to cover personnel and other recurrent costs. Project funding is available on a competitive basis (see above). The University has recently introduced procedures for project proposals requiring funding. The Faculty Research Facilitator offers advice in the preparation of proposals (SAR 2f).

Participation at international conferences is strongly encouraged as is the organisation of conferences and meetings in the University itself. Discussions with staff and students suggested that financial support for attendance and participation from the Priority is generous.

The main sources of funding for the Finance Research Priority are:

- structural funding from the University of Luxembourg;
- competitive funding from the Luxembourg Fonds National de la Recherche (FNR);
- competitive funding from the University on project applications;
- funding from the LSF Foundation; and
- funding from other external parties with whom the Priority has organised joint research activities.

The Priority is well supported financially by the University, the FNR, the banking industry and other stakeholders. It benefits from having a monopoly position in respect of applications for project funding for finance research from the FNR which has provided €1.6m over five years to support PhD candidates and post-doctoral researchers. There has been a significant increase in structural funding and competitive funding since 2008. The LSF Foundation has been an important source of funding specifically in providing a 'top-up' element for salaries. The Panel was advised that the Foundation is in a period of leadership transition. As a result, funding from the Foundation may not be as forthcoming in the short term.

## OUTPUT

The core objective of the Finance Research Priority is to be an academic leader in the creation and dissemination of an integrated body of knowledge in the field of finance. In order to fulfil this mission, the Priority places a high priority on empirical research in particular (SAR 3a).

In the view of the Panel, research undertaken in the Priority is internationally competitive and makes a significant contribution to the field. Scientific output is significant in terms of both the number of papers produced and the journals in which they have appeared. This view was reinforced by detailed scrutiny of the six 'best' papers produced by the Priority as proposed by the Director of the Priority at the invitation of the Panel. The Priority has made significant contributions in the field of quantitative finance (at the macro and micro levels). Average productivity is high and increasing. The quality and productivity of staff varies depending, in part, on the teaching and administrative duties for which staff may also be responsible.

Whilst these publications make a significant contribution to the field of finance they do not necessarily constitute ground-breaking research, even though the financial crisis is considered to be the major research area of the Priority. The crisis provides researchers with an ideal opportunity to undertake research and suggest options that challenge commonly-held views and consensus in top journals covering, for example, the efficient financial market hypothesis, which the Priority could, perhaps, have exploited more than it appears to have done.

The Panel questions the extent to which journal productivity is a sustainable or even desirable objective in the long run. Indeed, the number of publications per year may be a misleading indicator in the case of co-authorship of papers. Collaborations within the Priority are fewer than collaborations outside the Priority and researchers continue to have strong collaborations with the co-authors of their previous affiliation which may have a negative impact on the 'visibility' of the Priority.

The Priority has organised well-attended conferences in Luxembourg. It is organising, and will host an international meeting of the European Financial Management Association in 2013, an example of recognition by peers. The Priority is able to attract high quality co-authors, visiting scholars and speakers to its weekly seminars and Priority staff participate in highly selective conferences. Some staff of the Priority are members of the boards of academic journals but this is limited at present.

The scientific impact of the Finance Research Priority is difficult to evaluate at this stage because of the relative youth of the Priority. Nevertheless, some high quality papers have been produced by staff. The citation index of the Priority as a whole is very good, and excellent for senior academic staff in the priority. One researcher is in the top 5% of most cited authors in

the IDEAS-RePEc database. It may be noted that at the time of the review only one of the permanent staff is registered on the database. It is recommended that, in order to enhance the Priority's visibility all staff should register on the database.

The Priority appears to have achieved a better balance, by comparison with the previous assessment, between academic research projects and the needs of the Luxembourg financial sector. Progress will be sustained, and extended beyond the national scene, if the Priority prioritises its activities as part of a more strategic focus. The Panel noted comments of one external funder concerning improvement in the quality of research project proposals made by the Priority in recent years. Two projects approved by one funder in 2010 and 2011 respectively secured project funding well in excess of €800,000. In addition, there appears to be a better understanding on the part of the Priority of the objectives of the Luxembourg Ministry of Higher Education and Research which will assist in establishing a reputation for academic excellence in research.

The Finance Research Priority has established close links with the financial sector in Luxembourg. External stakeholders are satisfied that the Priority fulfils its mission and delivers quality outcomes and enhances the reputation to the country. They trust the Priority to deliver the quality they seek. Recent evidence of this is the financing of a professorial chair by Deutsche Bank to which an eminent senior professor with an international reputation in his field has been appointed.

In the view of the Panel the Priority has capitalised on its proximity to the financial sector in Luxembourg and the research opportunities presented by the financial crisis. This conclusion is, however, tempered by the comments earlier concerning the potential that this proximity might have for constraining critical research and reflection and for limiting the choice of research projects that the focusing on the financial crisis might involve. The Priority has, nevertheless, moved beyond the focus on consultancy that was evident at the time of the previous evaluation to a greater focus on critical research.

The School of Finance has developed a masters degree in Economics and Finance which has a justifiable reputation as a leader in its field. All former PhD candidates in the Doctoral School have been recruited upon successful completion of their degree, two into academia and five into the banking sector. Some very good PhD theses have been produced leading to the publication of papers in respected journals. Subject to the adoption of appropriate policies the Doctoral School has the potential to become the cornerstone of the development of the Priority and the School of Finance more generally.

## QUALITY ASSURANCE

Over the last three years, the School of Finance has been developing a set of management tools for monitoring, feedback, improvement staff training, methodology development and cumulative knowledge production. Each research project is managed by one or two researchers. They are expected to meet with all the project researchers to discuss progress, issue challenges and plan next steps. Progress reports are provided to funding sources, usually on an annual basis (SAR 4a).

As noted previously, the overall management of the Priority is, however, not clear to the Panel. Although some governance arrangements are emerging on an incremental basis the organisational structure of the Priority remains unclear. As the Priority increases in size decision-making should be more transparent.

The SAR acknowledges what is described as a '... bit of an anomaly ...' in the distribution of responsibilities within the Priority (SAR 4g). This is the fact that Professor and Associate Professors in the Priority report to the Dean of the Faculty and not to the Director of the School of Finance. This does not appear to have led to any problems in practice, but the Priority acknowledges that it would be more logical if they were to report to the Director.

Staff members are recruited cautiously. Close attention is given to ensuring that the quality of new staff is appropriate, primarily through the use of a prescribed list of high quality journals. In order to maintain standards, the same list of journals is used for tenure decisions.

Although criteria and targets exist for individual members of staff within the Priority, the Priority itself appears to lack performance indicators with regard to its goal of becoming a recognised research centre. The main indicator it uses to refer to outputs, namely publications, which tends to define quality solely in terms of visibility and reputation.

The SAR itself, whilst informative and comprehensive in its description of the areas to be reviewed, generally lacked self-criticality. This was reflected in, for example, lists of partners (SAR 1g), conferences (SAR 3c), events, initiatives and achievements (SAR 3e) with little by way of synthesis or strategic focus. There was little evidence, beyond the production of the SAR itself, of a regular (annual) review and evaluation of progress against strategic goals and objectives set by the Priority itself. Nor was there any evidence of an evaluation by the Priority of the effectiveness of the new management tools referred to at the outset of this section of the report.

In autumn 2011 the University Council approved documents relating to ethics issues. Finance Research Priority staff were made aware of the documents and are expected to abide by its requirements and recommendations (SAR 4f). The SAR did not indicate how, or whether there is any systematic way of ensuring that staff do, in fact, comply with the University's requirements.

PhD training and supervision has been subjected to a certain degree of formalisation and standardisation based on a structured programme jointly with the Centre for Research in Applied Economics (SAR 4a). This includes:

- a standardised selection process for PhD students;
- a year of intensive coursework within the Master in Economics and Finance;
- three years of PhD studies and research;

Some courses are delivered by external experts in other universities invited to teach in Luxembourg. All the above are covered by the statutes of the Doctoral School, which are based on the University's Doctoral Education Framework, details of which were provided with the SAR (SAR 4a and Annex 9).

All PhD candidates are asked to submit a funding application to the Luxembourg National Research Fund which has its own standards and regulations. Candidates are encouraged to submit and present papers at scientific conferences. The progress of each candidate is discussed and reviewed annually in a formal meeting of the Comité d'encadrement de thèse, which consists of the candidate's supervisor and three other members (SAR 4a)

The supervision arrangements for PhD candidates appear to work well although the involvement of associate professors as supervisors is not clear. It is a matter of concern that half of the new candidates appear to be supervised by the same person.

A matter raised by PhD candidates who met the Panel concerned the requirement that the research phase of a PhD can only last for three years, four years exceptionally. Whilst there are good reasons for this requirement, there are also arguments for greater flexibility in the application of this regulation in so far as it is within the power of the Priority to interpret. This suggestion is reinforced if, as a result of applying the current requirement inflexibly the grades awarded for a PhD may not truly reflect the research potential of a candidate.

## CONCLUSION

*The Panel appointed to evaluate to Finance Research Priority grades the Priority as **VERY GOOD**. In the view of the Panel the Priority produces research that is internationally competitive and makes a significant contribution to the field of research in finance. The Priority is considered by the Panel to be a regional leader in such research. The major part of the evidence underpinning the panel's overall judgement is contained in Section 4 of this report, Outputs.*

62

*The Finance Research Priority has made significant progress in a relatively short period of time. The current review has provided the Priority with the opportunity to consolidate its position and reflect on whether the strategic direction and priorities which have served it well so far remain appropriate for the next stage.*

## RECOMMENDATIONS

The Panel believes that if the Priority is to maintain its present very good position it will need to undertake a fundamental review of its current strategic direction. With this in mind, the Panel makes recommendations in three areas. In the view of the Panel, urgent action is required in each of these areas if the quality and impact of research in the Priority is to be sustained.

The Panel recommends that the Priority urgently reviews its strategic priorities with respect to:

- A. its academic staff recruitment policies,
- B. its doctoral school and,
- C. its links with the Luxembourg financial sector.

In particular the Panels recommends that the Priority:

- ▶ reviews its current strategic priorities, in particular, whether the present emphasis on publications in 'top journals' in its recruitment of staff is sustainable or conducive to the long-term development of the Priority;
- ▶ gives greater priority to the development of its doctoral school as a means of developing a more sustainable basis for the long-term development of the Priority and of attracting promising young researchers;
- ▶ reviews the current balance between, on the one hand, research based on the needs of the Luxembourg financial sector and, on the other hand, research which will enable the Priority to sustain its current very good position as a school producing internationally competitive research and, in time, move to a position where it is able to produce world-leading research; and
- ▶ reviews its current governance and management arrangements especially if it increases in size.



### 3. Law Research Priority

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#### INTRODUCTION

The Research Priority European Business and Law comprises research carried out by the Research Unit in Law in the University of Luxembourg. Established in 2004 the Unit consists of two groups, namely:

the Centre de Droit Européen, founded in 2006, covering European Law, in particular EU constitutional, regulatory and administrative law; and

the Laboratoire de Droit Economique, founded in 1996 as part of the Centre de Recherche Public – Gabriel Lippman and integrated into the University of Luxembourg in 2005, covering commercial law, including banking and financial law, as well as company law

The development of the Research Unit started in 2004 when two professors were recruited into the newly created Faculty of Law, Economics and Finance. In 2005-2006 the teaching programme was reorganised to include a Bachelor and Master in Law. Between 2004 and 2008 the team grew from two to seven professors, with a growing number of PhD students.

Since 2008, what is now described as the Law Research Priority has grown in terms of the number of staff and students and developed in terms of its structure. The number of professors and associate professors has increased to 20 along with a comparable growth in the number of PhD candidates and post-doctoral staff. Additional administrative staff have also been recruited to support the research work, create a doctoral school, maintain relationships between the Priority and the central administration and monitor indicators of the quality of research.

The research team is now oriented around several axes of research (see below) permitting focused approaches to research themes with European, international and interdisciplinary emphases. The Priority has received support from ATOZ in relation to the establishment of a Chair in international tax law and from SES in relation to a Chair in satellite, communications and media law.

The Master in Law programme has expanded from one to three connecting different specialisations under one umbrella. An organisational structure has been developed to accommodate this expansion.

The evidence base for the review was the Law Research Priority's Self Assessment Report (SAR); additional documentation supplied by the Priority; and discussions with a range of staff and students within the Priority.

## INPUT

The '... general ambition ...' of the Research Priority in Law (the Priority) as described in the Priority's Self-Assessment Report (SAR) is to position itself as a centre of excellence bringing together a team with truly transnational abilities, experiences, reach and outlook, with the aim of developing its research activities in European law, economics, and business law as well as Luxembourgish law [SAR 1a]. The central objectives of the Priority are to:

- i. conduct pioneering research;
- ii. follow an interdisciplinary approach;
- iii. concentrate on topic in which the particular context of the G D of Luxembourg offers specific opportunities; and
- iv. form synergies with stakeholders and partners [SAR para 1a].

The overall aim, or ambition, of the Priority and the supporting objectives are clear and the objectives themselves are wide-ranging. They are broad enough to involve most researchers and appear to be acknowledged and shared by the whole research team.

The SAR describes what it calls three 'axes' which have characterised the research activities of the Priority from the beginning [SAR 1b]. These are:

- i. European law;
- ii. business law; and
- iii. Luxembourgish law

Two further axes of research have been added more recently, namely:

- iv. The ATOZ Chair for European and International Taxation; and
- v. The SES Chair in Satellite Communication and Media Law

All five axes of research are 'interconnected' by what the Priority describes as its 'transversal approach' to research. This is based on the claim that the traditional distinctions between the domains of private law, public law, criminal law and international law have been blurred and partly overcome by the process of globalisation [SAR 1b]. An example of the implementation of this transversal approach is in the field of media, satellite and electronic communications law [SAR 1b].

The organisation of the Priority does not distinguish between academic staff who are members of the Priority and other academic staff. This lack of a rigid boundary has benefits in that it offers the chance for members of staff who are not formally members of a research group to start a research project and join a group. The Priority's strategies insist on interdisciplinarity and empirical methods but the transversal approach seems to involve only researchers in the field of law rather than researchers in other disciplines.

By contrast, the current separation between lawyers and non-lawyers in the Faculty of Law, Economics and Finance seems to be rather rigid. Although lawyers are prepared to cooperate with colleagues in other disciplines this desire is not necessarily reciprocated. The Law Priority has an exemplary interdisciplinary approach which requires a more positive response from other parts of the Faculty. It is important for the Priority to develop relations with other disciplines, for example, economics, finance and philosophy and seek the endorsement of the central part of the University for its interdisciplinary approach to research. The Panel recommends that the Priority reviews its current policy concerning, and its approach to interdisciplinary research, and commits itself to increasing the number of interdisciplinary research projects during the next strategic plan period.

The Law Research Priority has established what it describes as a '... more solid management structure ...' in the recent past [SAR 1b]. This structure consists of four 'pillars'.

The first pillar is the Assembly of Law Professors, or 'Jour Fixe' which meets each month. It considers the strategic direction of research projects and organisational issues related to research management within the Priority. The second pillar is the Head of the Research Unit, elected by the Assembly for a three-year term. The Head is primarily responsible for the management of research activities within the Priority, implementation of the decisions of the Assembly and the budget of the Priority. The Head of the Research Unit along with the Head of the PhD School and the directors of the various study programmes make up the third pillar of the Priority. The fourth and final pillar is the administrative staff of the Priority who not only support the work of the Priority but also ensure that the Priority operates effectively within the Faculty, in particular in relation to the Faculty Dean's office [SAR 1b].

The organisational framework described above is relatively informal in its operation. Greater clarity is still required with regard to the roles and responsibilities of each pillar and between each pillar and the relationship between the Priority and the Faculty. For the time being, the relatively small size of the Priority means that staff are able to co-operate well with each other and adopt a consensual approach to the resolution of issues. These informal arrangements were appropriate in the past and undoubtedly contributed to the excellence of the Priority. In the longer term, however, more formal structures are required. The Panel endorses the view of the outgoing Head of the Priority and recommends that urgent attention is given to the development of more formal structures and procedures governing activities both within the Priority itself and between the Priority and the Faculty of Law, Economics and Finance. As part of this development, the Priority may wish to consider establishing an external advisory board with whom it might share possible strategic developments and from which it might obtain strategic 'intelligence'.

The Priority acknowledges that the significant increase in the size of the research team has posed accommodation problems. These have had the effect of restricting or postponing some research projects. It is hoped, however, that the current problems will be resolved by the end 2012 by which time the Priority's current premises will have been renovated and enlarged [SAR 1d].

The centralised organisation of the University's Library means, in the view of the Priority that the Library has been unable to achieve what the Priority regards as a satisfactory standard of service. This remains the biggest obstacle to the Priority's research activities. Staff of the Priority are actively engaged in seeking solutions to what it regards as a '... deplorable situation ...' [SAR 1d]

The Panel concurs with the views expressed by the Priority concerning the constraints posed by the current accommodation arrangements and, in particular, the problems associated with the Library. It is, nevertheless, worth making the point that in its discussions with staff and students there were few complaints about the resources available to them. Nevertheless, greater financial autonomy in respect of Library purchases latter may assist in resolving the current difficulties, although this has wider implications for the University's central budgetary arrangements and policies which may require review. The Priority has the following sources of funding:

- i. structural funding from the University of Luxembourg;
- ii. competitive funding from the University based on project applications;
- iii. competitive funding from the Luxembourg Fond National de la Recherche (FNR); and
- iv. funding from other external parties such as the European Commission and the Marie Curie programme [SAR 1e]

In the view of the Priority, its budget is appropriate to support and expand its activities [SAR 1e]. This view is shared by the Panel which noted the increase in structural funding between 2008 and 2011 commensurate with the increase in staffing noted below. Despite apparently complex procedures for acquiring competitive funds these have been sustained at a healthy level.

There has been a very significant increase in staff in the Priority, including PhD candidates, since 2008. The Priority had 18.5 staff in 2008, compared with 60.5 in 2011 [SAR 1c]. Of these, 16 were Professors, up from 7 in 2008. In 2011 there were 28 PhD candidates, up from 6 in 2008. The Priority has sought to recruit outstanding scholars with a background in more than one legal system [SAR 1c].

The human resources available to the Priority are well managed. On the basis of its discussions with staff and students the 'atmosphere' in the Priority is excellent. Staff describe themselves as a '... small ship where everybody wants to succeed ...'. Their evident commitment to the Priority is impressive. Relationships between colleagues appear to be relaxed and confident. Staff are strongly involved in personal research, although this may limit time available for collaborative research. Support staff are expected to develop professionally but would benefit from a clearer definition of the functions to be supported. This lack of clarity may reflect the informality referred to elsewhere.

Virtually all current PhD candidates are female and almost all current Professors are male. The Priority is aware of this, and is considering how this imbalance might be rectified.

The relationship with the Faculty is close, indeed the boundaries between the two are not always as clear as they might be. The relationship between the Priority and the University in general is good, with the exception of the library problems referred to elsewhere. Co-operation with other Priorities seems harder to achieve, as already noted. The Panel was disappointed not to be able to meet the Director of the Interdisciplinary Centre for Security, Reliability and Trust to be able

to explore this issue. There is an appropriate framework for international cooperation, including an agreement with an American faculty of law which seems realistic, feasible and profitable.

## PROCESS

The centrepiece of the Priority's activities has been the implementation of standards for doctoral studies. This has involved the development of a common structure for PhD supervision and a more detailed programme for the Doctoral School which, at the time of the review, was awaiting approval from the University's Vice-President of Research and the Board of Governors [SAR 2a]. [Post-visit note: The Priority advises that the Governing Board of the University has now approved the programme] The structure of PhD studies in the University is characterised by four core elements, namely:

- i. funding and working facilities;
- ii. transversal supervision;
- iii. international quality standards; and
- iv. implementation of a full teaching programme [SAR 2a]

The proposed organization of the Doctoral School reflects the Priority's desire to promote international research. A common definition of the PhD is, however, still required.

The criteria for selecting PhD candidates are demanding and should guarantee the quality of future dissertations. This is important given the competition for employment on completion of a doctorate. Monitoring PhD candidates by individual and collective procedures is effective without being over-bureaucratic. PhD candidates have generous contracts, good working conditions and sufficient travel funds. They regard themselves as 'young colleagues' of Professors and Associate Professors. Supervision of the research being undertaken by PhD candidates was commended by them. Nevertheless, they see themselves as under pressure, especially given the three-year timescale within which they are required to complete their doctoral studies. Whilst acknowledging this pressure, the Panel believes that there are also advantages in having a tight timescale within which a PhD must be completed.

Supervision of the teaching undertaken by PhD candidates is limited. There is little institutional support for such teaching and the views of students on the quality of the teaching received by them do not appear to be collected or evaluated in a systematic way. PhD candidates reported the existence of differences in their teaching obligations. It was suggested that these differences were being, indeed had been resolved according to one source. In the meanwhile the Priority has introduced consistent contracts with PhD students. From the coming academic year, all PhD students will have the same teaching obligations and surveillance of exams. Whether this includes students with old contracts is not clear though. There is a need for more transparency in the management of, and communication with PhD candidates and for consistency in the (old) contracts offered to, and the obligations of PhD candidates.

Essential elements of the Priority's strategic plans and planning processes are the links between the Priority and its stakeholders such as ATOZ, SES, who have funded professorial chairs in the Priority, and UBS with whom the Priority signed a privileged partnership agreement along with the Luxembourg School of Finance and the Economic research branch of the Faculty [SAR 2b]. In addition, the activities of the axes of research are integrated within different international networks. These include the European Financial Law Network, the European Criminal Law Academics Network along with active cooperation with universities in the USA, China and Russia [SAR 2b].

Researchers in the Priority appear to be heavily involved in relevant networks or conferences in their discipline. This adds to the international visibility of the Priority.

A key, strategic development is the creation of the Max Planck Institute of International, European and Regulatory Procedural Law in 2012-2013. The Priority plans to create synergies through common research activities and integrate the directors of the Institute into research and teaching in the Faculty of Law, Economics and Finance [SAR 1a]. The Max Planck Institute initiative is seen as both an opportunity and a challenge. Staff in the Priority, and the incoming Faculty Dean, demonstrated a mature self-confidence with regard to the challenge of co-operating with the Institute. The Priority is confident that it can meet the challenging standards of the Institute. This is significant given the fact that Max Planck Institutes are the leading German law research centres with a worldwide reputation.

Another strategic development is the establishment of a Luxembourg School of Law described as being 'high on the agenda' of the Priority [SAR 1c]. In the view of the Priority the establishment of such a School is '... an essential cornerstone ...' in creating a centre of legal scientific knowledge with a reputation throughout Europe and beyond. The Priority's ambition is to establish a flourishing centre for legal research in the heart of Europe. In the view of the Panel there is currently a

lack of clarity about, and possibly even of a lack of a shared commitment to, the plans to establish a School of Law. At the present stage, greater emphasis could more profitably be given to the successful development of the doctoral school within the Priority. In view of the lack of clarity identified by the Panel over such a potentially significant development, the Panel recommends that the Priority initiates a rigorous Priority- and Faculty-wide analysis and debate concerning the advantages and disadvantages of establishing a separate Law school.

Reference has already been made to the five axes of research which characterise the Priority. These axes focus on the European Union and on Luxembourgish law. The focus of research in European law is on the emerging legal framework of a composite legal system combining elements of national, supranational and international law. The focus of research in business law involves a comparative perspective reflecting Luxembourg's position as a financial centre. The two funded Chairs focus on, respectively European and international taxation, and satellite communication and media law [SAR 2c].

Those funding the two sponsored Chairs do not appear to exert undue influence on the research to be pursued. Nor do they impose any restrictions on the publication of the findings of that research.

Publication in leading journals and a framework of leading publishing houses are key elements in the Priority's publications strategy [SAR 2d]. A list of 'reputable' journals drawn up prior to 2008 has subsequently been modified as new staff have been appointed to the Priority and by scrutinising bibliometric platforms and their ability to reflect fully the multilingual and national publication activities of staff members. An additional cornerstone of the publication strategy has been membership of editorial or advisory boards of high level journals [SAR 2d].

The Priority's publication strategy and choice of journals is consistent with its strategic objectives and is commended by the Panel. Researchers in the Priority are free to publish without undue control from the centre and this appears to be effective. Articles appear in the major journals of France and Germany. With its international outlook, the Priority contributes effectively to the development of Luxembourgish law. Greater encouragement to publish might be given by the Priority to its PhD candidates.

The Priority describes the procedures for acquiring research funding as 'overly bureaucratic' and 'overly complicated'. This is further complicated in the view of the Priority by the organisation of doctoral schools within the University, in particular regarding the enrolment and supervision of PhD candidates [SAR 2h].

Researchers in the Priority have been active in international conferences, either by invitation or as a result of organising conferences at the University of Luxembourg. These conferences have covered topics in media and space communications law, European and international law, business law, European private law and European criminal law [SAR 2e].

The SAR contains an impressive list of conferences in which staff of the Priority have participated or which they were responsible for organising. Conferences organised by the Priority have attracted high quality speakers.

In the recent past, the Priority has moved from an initial period of consolidation to a period of more dynamic development. Transversal ideas of Europeanisation, comparative research and interdisciplinary orientations offer what the Priority describes as the 'compass' for common research projects demonstrating a philosophy described as 'unity in diversity' [SAR 2g].

## OUTPUT

The Priority developed and applied its own set of detailed research indicators to evaluate the scientific output of the Priority. This followed a decision by the Priority not to use a bibliometric evaluation system, which the Panel supports as they are inadequate in the law discipline. The indicators used cover publications, conference activities and PhD research work and the results of the application of the indicators are in Annex 5 to the SAR [SAR 3a].

The Panel met a group of committed staff who have achieved outstanding results. The 'atmosphere' in the Priority is excellent. Professors are motivated to succeed and conscious that reputation is a 'public good'. The scientific output of the Priority demonstrated in Annex 5 is remarkable both in quantitative terms (the number of publications) and in qualitative terms (publications in well known journals). Publications and conferences demonstrate an excellent output; PhD theses cover a very wide range of topics.

The Panel welcomes the interdisciplinary approach of the Priority. As already noted, this approach – particularly in relation to economics and finance – is not always reciprocated which limits the opportunity of the Priority to benefit from this approach.

According to the SAR, international recognition of the Priority's research is demonstrated by the publication of articles by staff of the Priority in peer-reviewed journals, and their dissemination in different languages and different legal cultures. Participation in international conferences is a second indicator of international recognition along with the Priority's network of international partners. One recent event highlighted in the SAR was the European Jurists Forum held in Luxembourg in 2011 at which Priority staff delivered keynote speeches. They are currently involved in publishing the proceedings of the Forum. In the view of the priority, they are '... starting to have an international impact ...' [SAR 3b].

In the view of the Panel, the international visibility and recognition of the Priority is, indeed, demonstrated by the publications produced and the conferences organised or attended by Priority staff. The number of conferences organised in Luxembourg is impressive. This will be enhanced by the planned location of the Max Planck Institute as an equal partner. Recruiting specialists in their fields from other countries, providing them with a stimulating environment in which to work and with good terms and conditions of employment is enabling the Priority to reach its goals. The research undertaken has an impact on various national scientific fields and on Luxembourgish law. The Priority's five research axes, its publication and conference strategy and the quality of its PhD juries all help to ensure international visibility and recognition.

The SAR Annex referred to above presents information in such a way as to enable the Priority to evaluate the scientific impact of its research at both a European and national level. It covers, for example, publications in international journals, conference activities, membership of public bodies and expert commissions and participation in European research projects and public hearings. At the national level, the relative lack of a research-based approach to Luxembourgish law means that the Priority's research has the potential to make an immediate impact on the Luxembourg economy and society [SAR3c].

The Priority has demonstrated intellectual strength and become pre-eminent in the field of European and Business Law. Luxembourg is viewed from outside as a centre of comparative law and the Priority has made a real impact at the regional and even international level in topics such as criminal law, European constitutional law and banking and financial law. The activities outlined above demonstrate the high social and scientific impact, at an international level, of the research undertaken by the Priority.

The recently established Professorial Chairs reveal a close integration with the professional community in Luxembourg. Research is being undertaken by the Priority in areas particularly relevant to the Luxembourgish economy and society. This includes satellite law, international tax law and European law. The contribution of the Priority to the Luxembourgish legal environment is important and should increase in coming years, despite the fact that external stakeholders in Luxembourg appear to be more interested in teaching than research. The Priority is aware of the Luxembourgish dimension of law. This is especially true for Business law, and should not be neglected when establishing new professorial chairs.

The research choices of staff of the Priority address current challenges for international law related to globalisation and technical development. A prominent - but not the only project demonstrating this - is the research of the SES chair in international media law. The relevance of the research for current challenges and issues is also true of the dissertation topics chosen by the Priority's PhD candidates. With regard to innovative power and innovative potential the Priority is an international leader.

The different Masters programmes within the Priority are aligned with the different axes of research to which reference has already been made. Interaction between staff engaged in research and staff engaged in teaching on the Masters programmes ensures, on the one hand, that teaching activities are not kept separate from the practical needs of Luxembourgish society and, on the other hand, that those practical needs are subjected to scientific analysis [SAR 3d].

External stakeholders confirmed that the Priority's teaching activities are connected to the practical needs of Luxembourgish society.

## QUALITY ASSURANCE

Since 2008, special attention has been given by the Priority to improving structures, developing tools and formalising procedures for quality assurance [SAR 4].

The management structure of the Priority is responsible for co-ordinating research projects and activities. The key group in this structure is the Assembly of academic staff, chaired by the Head of the Research Unit which defines the focus of its activities at the start of each calendar year. The Head of the Research Unit requires internal feedback on the quality of individual research activities. Visiting professors and stakeholders participate in the Assembly and bringing to it the views of Luxembourgish society [SAR 4].

The Jour Fixe and the CET are the two pillars of quality assurance. The personality of the outgoing Dean of the Faculty and that of the Head of the Research Unit have contributed greatly to the success of the Priority the last four years. The outgoing Head of the Research Unit, who will shortly become the new Dean, has prepared the new Head of the Research Unit well to take on his new role. The research staff trust the people in charge, the Dean and the Head of the Research Unit. This has its positive side but may also be a sign that managers are doing more than what they should rather than challenging staff to improve.

The supervision of PhD candidates is an example of a quality assurance tool used by the Priority. At the point of selection candidates are scrutinised with regard to their ability to undertake innovative research within the context of a transversal methodology of legal science. The ongoing supervision of a PhD candidate is the responsibility of a small Comité d'Encadrement de Thèse (CET) and members of staff as a whole. A doctoral diploma is only awarded on the basis of the decision of a jury consisting of academic staff of the Priority and leading foreign scholars. At each point in the process, selection, supervision and award, internal and external researchers are involved [SAR 4].

The flexibility afforded by the absence until recently of formal structures and procedures has been an asset in the past as it has allowed, for example, PhD candidates to obtain advice from academic staff whenever needed. Standards in research could, however, be improved, in particular as there is no formal standard for a Luxembourgish PhD. Research teams need to define whether a PhD should be based, for example, on the French model with two parts and two subparts, or on the German model with one part for each idea. Standards could also be introduced to provide equal opportunities for PhD candidates to improve their research through teaching. Criteria might also be introduced to avoid teaching overload on the part of PhD candidates. Problems identified by some PhD candidates concerning teaching expectations appeared to have been resolved although there remained some uncertainty about this.

Particular attention has been paid to efforts to reduce plagiarism in recent years within the Priority. In addition to careful scrutiny by staff and CET members, the integrity of Masters and PhD theses is maintained by the use of software packages such as Ephorus to detect plagiarism.

Formal feedback mechanisms are integrated within the different steps of the research process. The recent establishment of two professorial Chairs has resulted in the formal incorporation of feedback from stakeholders in the feedback process. Feedback is required, of course, by funding bodies. Standardised questionnaires are now used routinely to obtain feedback on international conferences and on summer schools for PhD candidates.

There are good relations between supervisors and PhD candidates in the Priority. Dialogue amongst colleagues, including students, is open and allows problems to be discussed and resolved informally. All these elements are necessary but not sufficient conditions for excellent research to be produced. The Priority is, however, aware that the growth of the research team and the multiplication of disciplines can give rise to new problems and the requirement for more formal procedures to resolve them. The Priority appears to be ready to address them. Staff could be more involved in the quality assurance mechanisms, such as students surveys.

Some staff to whom the Panel spoke during the on-site visit appeared unfamiliar with the SAR including, for example, on a key matter such as the organisation of the Priority. Such an exercise provides an opportunity for staff to reflect on current arrangements and consider their strengths and weaknesses, an opportunity which, it appears, was not embraced by all staff. This concern notwithstanding, the SAR does appear to have resulted in some significant conclusions with regard to the structure and decision-making processes within the Priority. Some aspects of quality assurance within the Priority might be enhanced by including a representative of PhD candidates on the Jours Fixes assembly or within an intermediate body.

## CONCLUSION

*The Panel appointed to evaluate the Law Research Priority grades the Priority as **EXCELLENT**. In the view of the Panel the Priority produces research that is world leading and contains researchers who are working at the forefront of their field internationally producing research that has an important and substantial impact in the field of European and Business law. The major part of the evidence underpinning the Panel's overall judgement is contained in the section of this report headed, Outputs.*

*The Law Research Priority has made excellent progress in a relatively short time. The current review provides the Priority with the opportunity to reflect on the informal arrangements which have served it well so far and consider whether these arrangements remain fit for purpose as the Priority continues to grow. For so young a research unit, the outputs are excellent. However, new challenges have to be met during the next four years to increase the impact of the Priority at international level. Key points to consider include the Priority's governance mechanisms and the interdisciplinary dimension of its research projects.*

## RECOMMENDATIONS

The Panel makes recommendations in three areas intended to enhance the quality and impact of research in the Priority covering governance. Interdisciplinary research and the desirability or otherwise of establishing a separate Law school.

In particular the Panel:

- ▶ recommends that the Priority reviews its current policy concerning, and its approach to interdisciplinary research, and commits itself to increasing the number of interdisciplinary research projects during the next strategic plan period;
- ▶ endorses the view of the outgoing Head of the Priority, namely that urgent attention is given to the development of more formal structures and procedures governing activities both within the Priority itself and between the Priority and the Faculty of Law, Economics and Finance; and
- ▶ recommends that the Priority initiates a rigorous Priority- and Faculty-wide analysis and debate concerning the advantages and disadvantages of establishing a separate Law school.

## 4. Life Sciences Research Priority - The Luxembourg Centre for Systems Biomedicine

### INTRODUCTION

The Luxembourg Centre for Systems Biomedicine (LCSB) was established in September 2009 with the recruitment of the founding Director. The establishment of LCSB was part of a wider Luxembourg Health Technology Initiative and was preceded by the creation of the Integrated Biobank of Luxembourg (IBBL), the funding of a pilot-project in lung cancer and the launch of three international collaboration projects in 2008 with US-partners to help kick-start the development of health research as a major priority within Luxembourg.

Within the University, the LCSB is being set up as an autonomous 'Interdisciplinary Centre', in addition to the three faculties. It has a specific mandate to establish and implement the University's 'Life Sciences priority' in close collaboration with the other faculties within the University and with partners at a national and international level.

In its Self-Assessment Report (SAR), LCSB presents itself as a basic research centre bridging discovery and clinical application. The major research focus of LCSB is on the analysis of complex biological systems and disease processes. As a new research centre within a recently established university, LCSB has decided to place the strategic focus on trying to quickly build up critical mass in bioinformatics, computational and systems biology and to focus on neurodegenerative diseases and more specifically on Parkinson's disease (PD).

This strategy goes hand in hand with the development of a highly interdisciplinary research environment with a strong collaboration of computer scientists, engineers, mathematicians, physicists, biologists and clinical scientists.

In the SAR, the LCSB's vision and mission are stated as follows:

#### VISION:

- Understand the mechanisms of complex biological systems and disease processes
- Enable new ways to cure or prevent human diseases

#### MISSION

- Carry out fundamental research in the field of systems biology and biomedicine
- Analyse the mechanisms of disease pathogenesis, with a special focus on Parkinson's disease
- Identify and validate new targets for disease prevention and intervention
- Develop new technology for biological systems analysis
- Explore opportunities for the translation of knowledge from basic research into industrial application
- Develop new strategic partnerships in the area of computational biology and systems biomedicine

In the current first phase (2009-2013) LCSB has now built up 7 research groups and a total staff of 69, out of the 72 that it aims for by the end of 2013. The second phase (2014-2017), which aims at a target of ca. 160 people, is currently under preparation.

LCSB has taken residence in its own premises at the new Belval Campus since September 2011. By the end of the second phase, the Faculty for Science, Technology and Communication (FSTC) plans to join LCSB at the Belval Campus.

Considering the youth of the Centre, the panel has focussed mainly on the quality of input and the establishment of processes. It is evident that in this phase of development, it is too early to provide decisive judgements on the quality of output

## INPUT

### OBJECTIVES & ORGANISATIONAL STRUCTURE

All documents (SAR, implementation plan, annual reports), as well as the interviews the panel had with the management and key collaborators of LCSB, clearly emanate the common goal to establish a world-class centre for systems bio-medicine research in Luxembourg. The investigation of neuro-degeneration, and in particular Parkinson's disease (PD), has been selected as the focal research theme and 'flag-ship' project for the LCSB.

In the view of the panel, this is a very ambitious, but also a very appropriate direction. The focus on PD is in tune with the growing need for a more 'disease driven' systems biology and gives the Centre a powerful scientific focus that has a direct social and economic importance in our aging societies. It also fills a niche not yet overpopulated.

As indicated in the introduction, the LCSB is a young dynamic organisation that has grown fast over its short lifetime. At the moment the structure of the Centre is flat, with a Director and 7 research groups each led by a Principal Investigator (PI). The Centre has not yet reached its full-size, with new appointments in negotiation and planning - the target size is around 15 PI groups within the next four years. During the site visit all PI groups presented their strategic plans and recent work to the panel. These presentations made clear that all groups cover aspects of biomedicine and computational science that are essential in an institute for research into the causes, mechanisms and potential therapies for neurodegenerative disease and that additional expertise (e.g. in neurobiology) will be gathered by collaboration. The panel is convinced that all PI groups in the Centre have the potential to contribute to developing an understanding of the etiologies and pathologies of PD in important ways. Although this was not evident in the SAR, during the site visit the panel felt a strong 'esprit-de-corps' among all employees. The PI's are for the most part at an early stage in their career and as they and their groups develop, the panel is assured that they will develop aspects of their work that contribute to the PD mission.

The panel learned that each of the now 7 groups in the Centre is expected to spend between 30 to 50% of its time on PD related research – the remaining time is for research determined by the individual group leaders. The panel sees this as allowing a good balance between 'investigator-driven research' and ensuring that groups fulfil their obligations to the Centre's core mission. By this balance the Director clearly tries to combine the personal development of the individual researchers with the institutional aims and objectives.

The site visit, and in particular the discussion of the panel with the Dean of the Faculty for Science, Technology and Communication also indicated broad support for the research strategy of the LCSB, including the important freedom to tailor the profile of new LCSB faculty to its specific needs.

It did become clear however that the University administration's turnaround time from the definition of new faculty positions to the actual hiring poses a significant challenge for the recruitment of highly-qualified personnel. A dynamic and competitive Centre clearly needs a dynamic and competitive HRM-environment (see below).

### RESOURCES & HRM

The LCSB currently has a budget of about 5 million euros a year, mainly stemming from structural funding. There are however, even in this early phase of build-up, significant competitive funds (20% in 2012) brought in through external grants (Fond National de la Recherche (FNR), EU funds, international grants) and some grants from industrial partners or donations from private partners. With respect to grant-financed PhD and post-doctoral positions, some administrative problems were brought to the panel's attention: applications for certain project-grants (such as "CORE" and "INTER") are restricted to one fixed date each year and thus hinder the timely hiring of appropriate candidates for research projects. This problem is further increased by the requirement to link a grant application to a predefined candidate.

For the planned expansion of the Centre, the Director envisages a budget increase to 15 million euros a year. In the view of the panel, the current budget as well as the estimated needs for the coming years are appropriate for the size of the institute and its ambitious goals.

The main concerns of the panel are situated on the domain of the available material facilities. The panel stresses that adequate facilities will be indispensable to match the future growth and needs of LCSB. Three key issues will need close attention:

Firstly, the current building at Belval, which is understood to be a transient building, is far from ideal in design and size. The building does not support interdisciplinary communication and cooperation. The situation will become even less favourable when, due to lack of space, the computational groups will move out to a neighbouring building. The panel is of the opinion that every effort should be made to try to provide LCSB with research premises as an under-one-roof concept as soon as possible. It is also clear that in order to really capitalise on LCSB as an interdisciplinary centre within

the University, other research groups of the University such as life sciences, computer science and physics should move to Belval as soon as possible, ideally to the same building.

Secondly, there is the issue of the current lack of an animal facility on the Belval premises. The panel is not at all convinced that competitive biomedical research is possible without animal models and specifically mouse experiments. LCSB is now collaborating with other research centres (mouse facility centres of Braunschweig, Munich and Homburg/Saar) to temporarily accommodate for this lack. Although a long-term solution is important and has to be initiated, the panel feels that also a more firm short-term solution should be sought (e.g. by renting containers) in order to make LCSB really competitive in experimental biology.

Thirdly, the panel has some serious concerns that the High Performance Computing group at the University grossly underestimates the future computing and storage needs of biological sciences in general and specifically those of LCSB. A detailed discussion on this topic and a realistic calculation of needs should be launched within the university community and computing and storage needs should be better reflected in the future expansion plans of the University's hardware strategy.

Finally, some other related issues, that are annoyances rather than threats, and that need attention are the difficulties in accessing scientific articles due to a limited range of journals of importance for LCSB held by the University library (e.g. Nature/Science/Lippincott), and some inadequacies on the administrative side of the University with regard to financial management and bookkeeping systems, resulting in double bookkeeping and software problems.

As HRM is concerned, the panel cannot be but impressed by the remarkable speed and the concern for quality with which LCSB is being built up. In order for LCSB to maintain this speed and quality (which are indeed key requirements for success) an adequate degree of autonomy for LCSB will need to be maintained. As indicated before, lengthy and formalistic recruitment procedures are far from beneficial for the Centre's future development. The panel underlines that the University should strive to provide quick and flexible procedures adequate for a competitive research environment in all issues of administration, management and personnel.

As the majority of the PIs are still relatively young and the LCSB as a whole currently depends largely (but understandably) on the Director, a particular structural issue for the future is the recruitment of a scientist that can also be Deputy Director. The recruitment of a computational senior PI could fill that important niche, adding a broad scientific view and management experience in the computational modelling/data analysis domain and thus complementing the Director's core expertise. Given the juniority of the PIs, it will certainly be necessary to develop better strategies for staff career development. The panel suggests that a first and very beneficial step would be to look into differences of contracts and establish means to harmonise salaries and teaching obligations.

More efforts are also needed to bring female PIs into LCSB and to make sure that enough lab technicians are hired to underpin the rapid growth in projects undertaken by the research groups.

In summary, the panel views LCSB as a young and dynamically developing research centre that has great promise in its project directions and in its staff. There are several serious issues concerning material facilities that need to be addressed in the near future. However, the planned areas of scientific expansion seem to be very clearly realised in the Director's mind and the panel was particularly pleased to note that there was no area of questioning that the Director had not already considered in a reasoned and rational manner.

## PROCESS

### RESEARCH STRATEGIES & MANAGEMENT

The SAR states that the management style in LCSB is based on "leadership by example", delegation and motivation: "while an overall focus gives direction and general strategies are developed in consensus, a large degree of freedom is given to the individual researchers in order to enable them to develop their own strength for the benefit of both, themselves and LCSB likewise."

The panel found this general statement largely corroborated by and supported during the interviews.

As noted earlier the LCSB is focussed on systems biomedicine applied to neurodegenerative conditions and in particular Parkinson's disease. This focus is obviously a great strength.

It gives LCSB: (i) a clear identity/delineator when compared with the large number of centres for systems biology across the world; (ii) an economically and socially relevant goal for our aging societies; (iii) and an uplifting and unifying sense of mission within in the Centre.

However, if no significant progress is made in PD research, there is the risk that the Centre could falter. In the panel's view, two factors balance this risk. First, the Director offers the PI groups leeway, in the flexibility to spend around 50% of their time on research topics of their own selection – and if they find an inspiring research idea in this way, then they are encouraged to 'run with it'. Second, PD is a heterogeneous multi-factorial condition – as a result there are so many aspects of PD that it is unlikely that the Centre will not find some relevant results.

In this context the panel finds it important to highlight one of the efforts in the LCSB that spans different groups. The "PD map" is a graphical representation of known interactions between key molecular players and pathways in PD. To the Centre, it serves as a discussion basis and vehicle for the integration of information and viewpoints from different disciplines, and more refined models within the Centre and in external collaborations. The panel believes, although the PD map does not represent an endpoint of research, it is an extremely useful instrument in realizing the mission of the Centre.

Other successful ways of stimulating interaction between groups and fostering collaboration is the organisation of common retreats and workshops. Several of such initiatives were mentioned during the interviews. The panel also learned that monthly bi-lateral exchanges, where strategies and priorities are discussed and adjusted, are organised between each of the PI's and the Director. In addition, a bi-weekly meeting of all PI's is dedicated to developing common management and research strategies. Minutes of the meetings are provided to allow a follow-up of decisions. The panel finds it interesting that the PI meeting also serves as Investment Committee to prioritise major investments for the coming year(s). Several interlocutors confirmed that prioritisation is based on a common agreement regarding the balance of the strategic importance of new infrastructure and its usefulness for more than one research group.

Finally, a yearly retreat is used to communicate the overall strategy with the entire team of LCSB and gives the chance for bottom-up ideas for the further development. Retreats with the PI's and retreats with other groups are in preparation for the strategic research development.

Publication strategy is attuned to the current developmental phase of the Centre. The Director convincingly explained that in its initial phase of development LCSB has been active in writing a number of reviews concentrating on the core elements of its research programmes. The goal was to position LCSB within the research community in the domains of systems biomedicine, bioinformatics, computational biology, and PD. On the long-term run the goal will shift to publish papers that address comprehensive investigations with a high impact.

Collaborators and PhD students stated they are actively stimulated and receive the necessary support to participate in scientific meetings. Experts are invited on a regular basis to the Centre's discussion sessions. LCSB is also proactively engaging to attract prestigious meetings to Luxembourg. The LCSB holds biennial symposia in its prime fields: the first meetings have taken place in 2010 (1st Parkinson's Disease Symposium) and 2011 (1st International Systems Biomedicine Symposium).

Doctoral studies are, given the short time since the respective doctoral schools were funded, well organised and the PhD candidates are appreciative of the offered courses as well as the flexibility granted to attend interesting external courses. However, there seems to be a lack of career advice offers suitable for PhD candidates in life sciences at the University. Furthermore, there are some concerns regarding differences between Post-docs financed through different venues. As noted earlier, also on the level of PhD contracts, means to harmonise the salaries, budgets, and teaching obligations should be developed.

All interlocutors (PI's, researchers, PhD students, administrative staff) expressed their overall satisfaction with the way in which the LCSB as an organisation is managed. Internal discussions were described as very lively but always constructive and all decisions are said to be communicated in a very transparent way. The panel clearly felt the pride and the excitement that comes with starting up a brand new and promising project and also detected a common willingness to succeed.

It is clear to all observers that the Director brings a wealth of experience from his previous positions. He knows how to develop an institute and how to successfully manage its growth. The administrative staff are fully engaged in this process and assist in developing processes that are flexible and effective.

## EXTERNAL & INTERNAL COLLABORATIONS

The panel views the level of cooperation with external institutions as very satisfactory, especially given the early stage of the Centre's development. The panel met some of the key external stakeholders of LCSB and found them to be impressed by the Centre's first achievements.

Especially the collaboration with the Institute for Systems Biology (ISB) in Seattle has been a critical element in jump-starting the LCSB. A key element in this was the prestige of the ISB and the weight it provided in positioning LCSB at an international level. Through the help of the ISB, LCSB became immediately visible within the scientific community, which helped to become accepted as a partner in international scientific projects. The pending return of several postdocs to the LCSB will likely reinforce the connection, and infuse further "systems biology know-how" into the LCSB culture. On the other

hand, the specific scientific interactions in this collaboration could extend more in the specific research orientations of the LCSB. The panel stresses that it is important to ensure that the LCSB director has all necessary instruments at his disposal to promote this alignment.

Another point of attention is the issue of future generation of suitable data sets. LCSB has built up a significant number of interdisciplinary collaborative projects. Its envisaged uniqueness will be its capability to drive PD research by large-scale, specific experiments and data sets that enable a unique “systems” modelling approach. The capability to produce these data sets using sequencing, imaging, metabolomics, and other technologies, and to analyse them using state-of-the-art data analysis approaches soon will therefore be of key importance to the timely success of the Centre. In the discussion the panel had with the Director it was clear that the latter has fully realized the importance of this point. The Director confirmed that he is actively trying to ensure that the generation of suitable data sets is gearing up.

Certain ‘internal’ natural connections (with the University’s Interdisciplinary Centre for Security, Reliability and Trust (SnT) priority, for example) appear to be local opportunities that could be developed further in the future. The SAR also refers to two other internal partners: the Life Science Research Unit (LSRU) and the Computer Science and Communications unit (CSC). Several examples of collaborations between individual researchers of LCSB-LSRU and LCSB-CSC were given during the interviews, but the Centre also realises that the level and integration of interactions and collaborations have not yet reached their full potential. One of the major bottlenecks appears to be the physical separation of the locations between the different research units. LSRU is located in Limpertsberg, CSC in Kirchberg and LCSB in Belval. As mentioned above, this situation is hardly supportive to the creation of an interdisciplinary research environment.

## OUTPUT

As already mentioned in the introduction, the panel finds it too early to fully evaluate LCSB’s value, as it is still a young and dynamically growing institute. On the other hand it would also be unfair not to mention the fact that the panel is hugely impressed by the LCSB as it now stands.

The formulated objectives (that have been translated into key performance indicators on publications, external funding, patents, collaborations, partnerships,...) have all been met, if not excelled, by the achievements of the LCSB so far. LCSB outperformed many of the expectations that were put in at the outset. The panel did note some differences in output between the 7 groups, but, again, given their short history, it is hard to attach any strong conclusions to this.

With regard to PD, the panel particularly refers to three examples of what it views as highly promising projects:

- (i) the consideration of intestinal microflora and their possible role as starting points for PD. In particular, the ‘gut on a chip’ project (Wilmes Lab) is patented hardware that allows the start of in-vitro research into the role of changes in the enteric nervous system as a potential ‘starting point’ for PD;
- (ii) there is common agreement that mitochondria malfunction during PD – but how and why is largely unknown. The metabolomic’s work (Hiller’s lab) offers the possibility of new insights into the dynamics of mitochondrial dysfunction in PD pathologies.
- (iii) The “PD map” mentioned before, a large graphical representation of existing knowledge around key areas of interest in understanding PD. While this map is not a predictive model by itself, it represents a powerful infrastructure that connects diverse existing knowledge in graphical form. This has two advantages: it provides (i) a scientific framework for integrating all the multi-factorial features of PD; and (ii) a discussion framework for bringing together diverse communities of experimental, computational, and medical researchers within and beyond the limits of LCSB..

Furthermore, the leadership (the vision and style given by the Director) and the dynamics of the Centre (how staff interact, share and ‘pull together’) are outstanding. The quality of the young researchers and the PhD students is impressive and the direction of the research points toward a high-impact research centre that can be a beacon of excellence for Luxembourg. This is all the more impressive when the panel takes into account the obstacles to excellence and development. The panel already mentioned the geographical distribution of groups within the University, the lack of space and inappropriate facilities for LCSB, and the (at times) outmoded administrative practices in Luxembourg University and national grant funding agency.

On the basis of the SAR, the additional documents that were provided during the site visit and the discussions with internal representatives and external stakeholders, the panel is fully confident that the LCSB can become an internationally recognised centre of excellence for systems biomedicine (and PD in particular) within a few years. Moreover, it can be expected that original new knowledge will emerge from LCSB on (i) the role of genetic factors in laying foundations for the usual (idiopathic) form of PD, (ii) the nature of mitochondrial malfunction in PD pathology and the role of the ENS as a possible start point for PD, (iii) potentially new therapies for PD treatment and prevention.

The PI's with a large-scale experimental or computational focus are at different stages in their career, and in approaching the PD topic. They all appear to have the capacity and opportunity to contribute excellent new results in their fields, but due to their sometimes formative state, and the relatively short time they spent together in the LCSB context, only the next few years will show whether they, as a group, will be able to move towards the deep integration that will make ground-breaking systems approaches in PD a reality.

## QUALITY ASSURANCE

The panel already commented on the fact that it finds the LCSB to be an extremely well and professionally managed organisation. Provisions for quality assurance reflect this further. These are thorough and appropriate and, as far as the panel could judge from the interviews, also effective.

Key information in the Centre's management and research activities is well documented and continually updated. Examples are the systematic preparation of minutes after meetings and the documentation in a Laboratory Information Management System.

Research initiatives and Centre processes are periodically reviewed. The panel learned that the Centre is in the process of developing and implementing a quality management system that takes as references the international standard ISO 9001:2008, specific process needs for a biomedicine research centre, biosafety, clinical studies and risk management. This will result in a "LCSB QA Handbook". The panel was provided with an outline of this QA Handbook that appears to be a very solid and comprehensive instrument.

Different communication activities (bi-weekly PI meetings, weekly staff meeting, retreats, intranet, etc.) are well established and are widely attended. Judging by the testimonies of the staff, these seem to actively promote continuous exchanges of information between groups and staff in general and to facilitate maximum dissemination of information. A system of '4-eyes checks' is established by which key outputs (strategy, plans, publications, projects proposals, financial and contracting documents, etc.) are reviewed by 2 or more staff members. This allows for early detections of inconsistencies and errors.

It is also evident from the SAR and from the interviews that the development of the Centre in its start-up phase is being monitored carefully. With the implementation plan for the LCSB, an extensive set of key performance indicators were developed. These reflect the major targets LCSB wants to achieve in terms of research milestones and the building up of the Centre. The panel learned that these key performance indicators were developed in close exchange with the Ministry for Higher Education and Research and the University.

As part of the University, LCSB states it uses, adopts, and expands when required new and existing University quality procedures and approaches. Examples for these are ethics, biosafety or human resources (HR).

Perhaps more important than instruments and procedures, the panel clearly experienced the existence of a vivid quality culture during the site visit. There is a strong 'esprit-de-corps' among all collaborators, interviews were held in an open and very constructive atmosphere and the principle of transparency is clearly held high within LCSB.

A very tangible result of this culture and of the efficiency of the QA-provisions is the excellent SAR. The document is rich in information, contains key figures and data and provides the necessary critical analysis. It also reflects the fact that the report has been a common effort of the management team and all groups in LCSB. The panel learned that discussion rounds based on a questionnaire were conducted with research groups and support staff. This analysis provided input to the report and initiated a reflection of strategy implementation, scientific culture and processes that will undoubtedly guide future development plans. Based on the first draft of the self-assessment report, further discussion rounds were also held with members of the faculty and close collaboration partners.

All parties that were interviewed regarded the SAR as an honest reflection of the internal discussions. The panel can only applaud such an approach that led to an exemplary document that has significantly contributed to the efficiency of the panel's work.

## CONCLUSION

*Taking into account the early stage of development of the LCSB, the panel grades the quality of performance and outcomes of the Centre as **VERY GOOD**. It is clear to the panel, however, that the Centre is firmly on track to excellence. As a young and dynamic Centre LCSB currently produces research that is internationally competitive and makes a significant contribution to the field of systems biology. LCSB can certainly be considered to be a regional leader. In order to intensify its already emerging impact at the international level, it will need to continue recruiting top level personnel and providing them with the necessary support and adequate facilities.*

*As is clear from the report, the panel was especially impressed by the work done by the Director. The Director has displayed great energy and personal commitment to building the LCSB. Through strong leadership and close collaboration with his staff he is successfully building a common vision and transforming it into the institutional outcomes that are required (e.g. solid organisational structures, appropriate research teams, international collaborations and local engagements). Within the LCSB there is an air of transparency in the management style, together with a strong team spirit and a sense of a shared mission. This, the panel finds, is quite exceptional.*

*Although the LCSB is already in solid shape for its young age, its ambitious long-term goals will require fortification in all scientific areas, biomedical, experimental, and computational. As the scientific vision of the institute, and the ability to fully represent it administratively, are currently concentrated mainly in the hands of the Director, an ideal senior PI recruitment seems to be the next logical step. Needless to say, the capabilities and mindset required for these recruitments are rare and sought after, thus, being able to fill these positions will require care, adequate resources, and potentially time.*

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



## 5.SnT Research Priority - The Interdisciplinary Centre for Security, Reliability and Trust

### INTRODUCTION

#### HISTORY AND OBJECTIVES

The first four-year plan (2006-2009) for the University established "Security and Reliability of Information technology" as one of seven research priorities, then covering a wide range of subjects within the defined field, and aiming at various kinds of research. Following a decision from 2007 by the Governing Board of the University, the "Interdisciplinary Centre for Security, Reliability and Trust (SnT)" was founded in 2009 as the carrying body for this research priority. In the next four-year plan (2010-2013), the SnT centre was acknowledged as aiming at "establishing Luxembourg a centre of excellence and innovation for security, reliability and trust in ICT (Information and Communication Technologies) systems"<sup>13</sup>. This general objective was to be achieved mainly through interdisciplinarity and cooperation with external partners.

In its self-assessment report (SAR), the SnT centre restates as its mission that it intends to become an internationally leading research centre in a sustainable way, meaning that it relies on strategic, mid- and long-term research partnerships with strongly committed industry or research players, rather than on one-shot projects. This strategy aims at making sure the research investments make sense in the long run for Luxembourg as an increasingly knowledge-oriented economy. In SnT's strategy, public funding for high-risk, blue-sky research should find an articulation with and not be done separately from more practice-oriented projects implying partners.

#### CONTEXT OF THE SECOND EVALUATION

SnT has experienced a fast and steady growth since its creation in 2009 in terms of staff members, PhD students, industry partners and public grants. Faculty staff and research associates numbers grew from 14 to some 70, PhD-candidates from 10 to 50, External funding rose from kEUR 35 to mEUR 3 in 2011 and (expected) to over mEUR 6 in 2012, total budget from kEUR 400 to over mEUR 10. . While most academic staff members that are active within SnT are members of the FSTC (Faculty of Science Technology and Communication), there are links with both other faculties. Resources are shared with the faculties. Nevertheless, SnT is autonomous in many respects, which can of course be seen as a sign of success but also implies certain threats.

Managing such a quick growth is not an easy task, the more so as SnT does not have power over all strategic decisions, such as for instance appointments of new staff members. Furthermore, the mutual compatibility of the stated objectives is not self evident and needs to be clarified: bringing together theoretical and applied research in one definite field while practicing real interdisciplinarity is without any doubt a challenge.

### INPUT

#### OBJECTIVES

The objectives of the centre are very ambitious. To really become a Centre of Excellence and Innovation means to compare regularly with the best entities in Europe on a common basis of accepted evaluation attributes. To reach this goal and to perform that on this level – and beyond –, very intensive contacts with the best players of the field have to be established. While it seemed agreed upon by most interlocutors that promoting scientific excellence is in the first place the responsibility of the Faculty, the mission of the research priority is considered to link the research domain with society and to contribute to the diversification of the Luxembourgish economy by cooperating with industry and participating in EU- and ESA-projects. Still, SnT is active in academic research, applied research and technological transfer, with levels of proximity with the University as such or with external partners, which vary among projects.

#### SCOPE

The scope of the centre's activity might raise some questions. It seems clear that a number of collaborations with private partners are not within the "academic" spectrum of security, reliability and trust in ICT systems. But since the staff has competence to cover broader fields and that their partners are happy with the kind of competence they offer, SnT seems to have found a "niche" here. Obviously this positioning implies that SnT will not always be considered as an academic centre in the strict sense of the word. The panel feels that a more precise definition of the scope of the lab could be beneficial.

<sup>13</sup> 2ème plan quadriennal de l'université du Luxembourg, 2010-2013, p. 24.

## DEVELOPMENT

The number of partners (and number of contracts) is much higher than expected 3 years ago. SnT has now 14 partners (the 14th partnership was signed on May 10th). All partners, from the smaller ones to the much bigger ones, such as SES, are extremely happy with their collaborations with SnT. Most cooperation is with local players, but this was part of the objectives. In order to diversify their collaborations, SnT will need more time and human resources (see below).

## PERSPECTIVES

In this context, making Luxembourg one of the places to be for Secure, Reliable and Trustworthy ICT Systems and Services, aiming at fostering knowledge transfer and exchange of ideas seems to be a very good way to become excellent, even if this is challenging. Of course, the yearly exchange with the international partners enabling highly sophisticated research programs is key.

The very interesting and high-prioritized research projects – funded by third parties – are often created in discussions with industry partners. This means that, at the moment, the overall strategy is more project-driven than research-driven. Although partnership agreements are often closed for several years, renewable year by year, it is sometimes difficult to understand how these research projects fit within the long-term research strategy of both the priority and the faculty. Hence, a central question is how the long-term vision of academic research can be strengthened while respecting the various existing partnership agreements.

As far as funding is concerned, the Centre is in an excellent position that has advantages and disadvantages though. There is a solid base funding and a very strong position with regard to acquiring funds from the regional industry. Substantial progress has been made with acquiring EU and ESA funding. The price for this excellent financial situation might be that the Centre becomes too dependent on industrial funding to realize coherent academic research in the first place. Expanding abroad and convincing international partners outside the Greater Region of the research power of the Centre – starting with stronger relationships with international institutes as a first step – would help to climb up the ladder of excellence.

## STAFF

Although SnT has no formal autonomy in recruiting faculty staff, it manages to put forward its interests when a position is open. Moreover, SnT has appointed many researchers with an international background. An enhanced recruitment autonomy, for instance a track for appointing good researchers to a stable position after a successful assessment, would be helpful in order to adjust to the changing needs more quickly.

A specific issue in staff management concerns PhD students' supervision. The experts understood for example that 2 professors had to supervise 16 PhD students, which seems only feasible with substantial support from experienced postdoctoral researchers. Clear rules for such situations, as well as indicators regarding time allocation for staff members would help monitor the human resources situation.

## FACILITIES

The panel feels that SnT's facilities should be improved, since the current geographic dispersion of the Centre is an obstacle to its development.

## PROCESS

SnT has accomplished a remarkable increase in its activities since 3 years, leading to important achievements. The Director clearly plays a major role in this rapid growth. Under his direction, SnT is not run as a "standard" academic research lab; the specificity of a structure whose goal is to put in contact academic researchers and private companies is clearly taken into account under his governance. Making growth sustainable and managing sustainable growth will be the main challenges after three very successful years.

In this context, the panel wants to formulate some questions and suggestions based on the documents at the experts' disposal and on the meetings during the site visit.

## POSITIONING

The first question is about the positioning of SnT with respect to the faculty departments. At first sight, as mentioned already in the previous paragraph, one may see SnT as dealing mainly with applied research as the faculty departments may be in charge of blue-sky research. But the strategic plan states that:

The overall aim of SnT is to become an internationally leading research centre that together with faculty at UL is capable of establishing Luxembourg as a European centre of excellence and innovation for secure, reliable, and trustworthy ICT systems and services.

At UL, this challenge will be met in two complementary ways:

- By evolving and strengthening the intra-disciplinary research activities in the faculties and laboratories active in this research field.
- By building a program and project-oriented research centre, SnT, that carries out large, innovative and/or interdisciplinary research projects in cooperation with its external partners.

According to the Centre, there is no tension between project driven collaboration with industry and long term academic research, since SnT 'not only tackles precisely defined problems and investigates solutions applicable and scalable in actual industrial contexts, but also performs longer term, higher risk research, often funded by the industry and the FNR'. The panel feels however that this leaves unclear whether the performance indicators for 'excellence' should refer in the first place to longer term fundamental research, or to knowledge transfer and/or innovation. If it is first and foremost excellence in research the Centre wants to achieve, evaluation should refer in the first place to a number of standard research indicators - not only on an institution-wide level, but also for each subunit or staff member - , e.g. publications, software, participation to journal editorial boards and program committees, organization of major research meetings, European and international relations, etc. Some typical European-wide indicators are also ERC grants, starting, confirmed or advanced. With respect to these indicators, the results of SnT are good to very good.

If SnT aims in the first place at excellence with regard to the applied side of research, different indicators should be stressed, e.g. the number of patents, the number of start-ups, the number of students transferring competences directly in companies in particular in Luxembourg and in Europe. An important indicator consists also in the number of bi-lateral partnerships with industry. On this side too, SnT has formulated Key Performance indicators and achieved results, but there is still room for further development. The panel is aware of the fact that realising these indicators requires time, and that the Centre is still young.

The Strategic Plan defines Primary and Secondary Key Performance Indicators, but not exactly along the lines of the division mentioned above.

The question about the positioning of SnT should also be considered with regard to the role of PhD students in the centre. In particular a clear distinction between PhD students and engineers should be made.

## STRUCTURES

The second question concerns the structures underlying SnT. As described in the SAR, there are

- research projects
- 6 established research groups
- laboratories

As far as the experts understood during the on-site visit, the definition as well as the relationships between these structures did not always seem completely clear to all of the actors, nor did the relationships between these structures and the external partners, even though these relationships are formalized in contracts.

Having said this, the complex organization does not seem to affect day-to-day working conditions, and it certainly allows flexibility. Still, such undefined structures make accounting for all branches of activity harder.

Regarding financial aspects, there are well-defined budgeting procedures based on definitions of priorities, a solid support infrastructure for acquisition of research funding, and financial means available to encourage participation in conferences. As far as the decision making structure is concerned, the Panel thought it rather confusing that the so called SnT Advisory Board, chaired by the University President, in fact has important decision making powers, as it is responsible for the Strategic Plan, the yearly Activity Plans and Budget, the financial report and major decisions influencing the SnT activities. This governance structure and especially the position of the University President, was considered rather uncommon. Globally, it can be hard for some actors to understand precisely how responsibilities are shared.

## FOCUS AND NAME

The focus on security, reliability and trust fits the strategic development towards the digital society and remains an excellent choice for many years to come. But based on the interviews with PhD students, it appears that at most one third of them identify their work as contributing to these themes. Moreover, when speaking to the external stakeholders, it appears that they would rather prefer a broader range of activities and competences, including signal processing.

In this context, the panel feels that SnT should keep its name and priorities unchanged and should make them a true scientific focus. It should then make a strong statement about the way it differentiates from nearby other research centers (e.g. in Bochum, Darmstadt, Eindhoven, Leuven, Nancy, Saarbrücken, Strasbourg). Formalizing thematic focuses and instances in charge of making the individual decisions would help. A strong element in the research is the interdisciplinary character that goes beyond purely technical research. For the time being the fraction of truly interdisciplinary research is still limited, but plans to further develop this are being enacted.

## SUPPORTING INFRASTRUCTURE

The strategic plan mentions:

*A highly competent and efficient Centre Office provides supporting functions for SnT. A management team headed by the Director organizes the activities and the Centre Office. The supporting functions are structured according to the activities of the Centre.*

This seems to be appreciated by the users. How much this office supports specifically transfer and innovation is not clear. Because of the specificities of these, one may also advise to have specific trainings, organized by the office, allowing researchers to acquire competences on these questions. Depending on the office organization, one may also have engineers attached to it and contributing, for a given project, to the development of systems.

The internal seminars of research groups seem to be well-organized, rich in topics and appreciated by participants, including students.

Only 25% of PhD students plan to apply for an academic position in the future. If a higher rate of academic commitment is to be achieved, academic publications should be further fostered, and PhD students might be offered more teaching opportunities than is currently the case. The Doctoral school could be complemented with a training program (WiP), and participation in winter or summer schools could be brought forward to all students (currently, only 30% has participated in such a winter or summer school, or planned to do so).

## OUTPUT

### TARGET DEFINITION

SnT has a strong scientific output but does not classify up till now publications according to, for instance, an A-B-C level system with clear targets for the medium and long term. This is of course a complex task, because there are no uniform measures for multiple disciplines, a problem inherent to multi-disciplinary research. However, most of the research is not *stricto sensu* interdisciplinary and a centre like SnT should try to perform such a classification. An organization of research by nature from fundamental to contract research with some scales in between would be useful. It is not clear whether there is a common understanding of targets with regard to publication numbers and impact; as an example, h indices are listed for some staff members but not for others. The growth on the performance indicators is very impressive, especially the numbers of publications in referred conference proceedings and in referred journals. The same applies to the number of best paper awards and the large portion of publications, co-authored with researchers from other institutions. It would seem useful to also provide some of these numbers per full-time researcher.

Nevertheless it is an open question whether or not these indicators are sufficient to prove the performance of SnT regionally and internationally. The practical orientation makes it hard to judge research output basing solely on published papers.

Defining its own targets therefore is an efficient way for SnT to help partners taking into account their special situation. It is clear, for instance, that for a Centre that is three years old, taking publications in the best journals as one of the main criteria is not an efficient way of judging research output.

SnT has strong connections with local industry. This shows that research is in good alignment with requirements of industry in strategic programs. SnT is making solid progress towards achieving its goals of applied research in collaboration with industry; meanwhile, some areas of technology transfer such as patents and spin-offs are still under discussion or development. Scientific quality of output is very good, but excellence of the whole line is not achievable, because compromises are made with applicability of research results.

### SCALES

The complex and rather fluid structure has advantages during a development phase, but makes it impossible, at this stage, to evaluate the research per group, per strategic project or per lab.

According to the strategic goals, research is indeed driven by the needs of the local industry and supports industrial innovation through the establishing of an innovation culture and training of highly qualified staff.

Long-term strategic research is still under development. The bases for the selection of topics were not always clear to the panel.

## EDUCATION

Although SnT does not carry the responsibility of any educational programs, the Centre supports several Master Programs and other educational activities (seminars, lectures) at the University. Within the universities doctoral school program, SnT has submitted a Doctoral School application to the University management. The experts thought it hard to evaluate SnT's activities' actual impact on learning and teaching in the Faculties based on information available.

## QUALITY ASSURANCE

### PROCEDURES

Academic staff, PhD students and external stakeholders were actively involved in the process of writing the SAR and well acquainted with its content. The panel judged the SAR to be clear and informative, and appreciated the reflections at the end of each chapter and in the SWOT analysis.

A quality assurance program is part of the Strategic Plan and has been adopted by the SnT Advisory Board. A method for continuous quality control and management still has to be developed. At the level of individual research, SnT relies strongly on supervision by professors in charge and, to a lesser extent, thesis committees.

As far as internal quality assurance is concerned, there are various evaluation and review procedures in place, aiming at improving quality and creating shared values, the most important ones being a collective one focussing on the preparation of the Review of Activities Report and the Activity Plan, and individual ones through annual individual review meetings of the Director with staff. Feed back from external stakeholders is organised through monthly meetings of the Industrial Advisory Board, which provides a forum for interaction between the Centre and external partners.

The performance oriented peer evaluations organised by the External Evaluation committee of the University of Luxembourg every four year will be complemented by evaluations of a Scientific Advisory Board, appointed by and reporting to the SnT Advisory Board. This SAB will be composed of external experts. Despite the naming, it should not only give input and recommendations, but also assess past performance. The meetings are planned to be held every other year and an interface to the University EEC should be established.

The existing architecture of quality assurance methods – both internal and external - guarantees a regular assessment of SnT's results and the evaluation of the progress of the KPIs. The Panel appreciates the wish for frequent evaluations in order to improve quality, but warns against too many feed back loops that might make procedures rather unclear. The integration of quality assurance into the daily applied set of project management tools seems to be a topic that should be pushed further in the future. In addition, an ethical code could be an important addition since some projects may need boundaries and methods to be well defined a priori.

## CONCLUSION

*As already stated, SnT is experiencing a very quick growth for a multidisciplinary Centre in terms of human resources, number of partners, papers published, awards received, public grants and overall budget. The Director clearly plays a major role in this rapid growth. He is both an outstanding researcher and an excellent research manager for this Centre. He is highly appreciated by SnT members and by their Partners. Under his direction, SnT is not run as a "standard" academic research lab; the specificity of a structure whose goal is to put in contact academic researchers and private companies is clearly taken into account under his governance. In one sentence, one could say that he simply did what he was asked to do, with great success. Overall, the performance of the research team and support staff is also beyond expectations. Total growth was impressive.*

*This is not the same as to say that the Centre has achieved overall excellence though – which is pretty normal since it is still so young. SnT's growth yielded some excellent research, but the current lack of consistently implemented project management methods and evaluation tools makes it impossible to generalize this assertion to all research projects. It is obvious that in the few past years, for very understandable reasons, the aims have been (re)defined in a soft, flexible way in order to accommodate various new projects. If outputs were to be judged based on how they fit set aims and goals, then it would be hard to make a substantive and definitive judgement on SnT's outputs in 2012.*

*Having highly appreciated the SAR submitted by SnT, the experts also enjoyed their on-site visit at SnT. The clear-sightedness of most parts of the reports and the dynamism of the management and research teams speak strongly in favour of this recently created Centre. The centre can without any doubt be considered a regional leader with international competitiveness.*

*The centre can without any doubt be considered a regional leader with international competitiveness. According to the definition in the Handbook, the Panel grades the Centre as **VERY GOOD** and expect, grounding in the ongoing developments, that SnT is on its way to an "Excellent" grade in the near future.*

*The Panel feels that SnT will have to position itself clearly on two important axes:*

- *Conciliating scientific excellence in research with high industry-orientedness*
- *Choosing between a clear focus on security, trust and reliability in ICT and a larger spectrum of research fields.*

## **RECOMMENDATIONS**

Making growth sustainable and managing sustainable growth will be the main challenges after three very successful years. In order for SnT to face these challenges as effectively as possible, the experts make following suggestions:

- ▶ SnT should be granted the ability to recruit Faculty professors with scientific profiles adapted to its most urgent needs and to be able to keep recently recruited young researchers with adapted career profiles
- ▶ SnT's facilities should be improved, since the current geographic dispersion of the Centre is an obstacle to their development
- ▶ SnT's activity would profit from developing links with sectors within the University it has little cooperation with up till now, such as Finance or LCSB
- ▶ SnT should work towards clear strategic planning and articulate with more clarity whether or not fundamental research should be performed within the centre
- ▶ SnT should establish project management guidelines and tools as well as a more focused grid for assessing quality
- ▶ SnT's funding should ensure a correct balance between strategic and more applied research

## **ANNEXES**

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## Annex 1: Committee members

The Committee for the Evaluation of the University of Luxembourg (henceforth 'the Committee') has been appointed by the Minister of Higher Education and Research in Luxembourg. The Committee has full operational autonomy and works independently, both from the Luxembourg Higher Education sector and the Ministry.

### THE COMMITTEE CONSISTS OF:

**Páll SKÚLASON** (President) is Professor of Philosophy at the University of Iceland and is former Rector of that University and also former chair of the Icelandic Rector's Conference. He has been involved in the evaluation of universities and the accreditation of institutions and programs of higher learning, and he has been a member of the EUA's Institutional Evaluation Programme since 2005. He was also a member of the expert panel that evaluated the European Quality Assurance Register (EQAR) in 2011.

**Tove BULL** is Professor of Linguistics at the University of Tromsø, Norway and is former Rector of that University and also former chair of the Norwegian Rectors' Conference. She has been involved in evaluations of Universities (audits, institutional and Research evaluations) worldwide, e.g. as a member of the EUA's Institutional Evaluation Programme since 2002 (former deputy chair of the board) and as a member of the Quality Board of the Icelandic Higher Education. She is also an external board member of different universities, nationally and internationally

**Bruno CURVALE** is Senior Project Leader at the Centre international d'études pédagogiques (CIEP) in France. He is a Member of the Advisory Board of ANECA, the national Accreditation Agency in Spain, and a Member of the Management Board of AEQES, the evaluation agency of the French speaking community in Belgium. He is also a Member of the French Bologna Experts' team. From 2003 to 2009, Bruno Curvale served on the Board of ENQA (the European Association for Quality Assurance in Higher Education) as Member, Vice President and President of that association.

**Jean-Marie HOMBERT** is Member of the Quality Board of the Icelandic Higher Education and Expert for the European Research Council («Human mind and its complexity»), the Agence Nationale pour la Recherche (ANR) and the Agence d'Evaluation de la Recherche et de l'Enseignement Supérieur (AERES). He has been Vice-President for Research at the University Lyon2, Director of the Laboratory «Dynamique du Langage» (CNRS-University Lyon2, France) and Director of the Department of Social Sciences and Humanities of the National Centre for Scientific Research (CNRS),

**Norman SHARP** is former Director of the Quality Assurance Agency (QAA) in Scotland. His current responsibilities include: Chair of the Icelandic Quality Board for Higher Education; Chairman of sparqs (Student Participation in Quality Scotland); Governor of Glyndwr University in Wales, the University of the Highlands and Islands in Scotland, and The Royal Conservatoire of Scotland. He is also Member of the International Panel for the Journal Quality in Higher Education.

**Greetje VAN DEN BERGH** is a former Board Member of the Quality Assurance Agency for Universities in the Netherlands (QANU). She has also served as Vice President for Education and Quality Assurance in the Executive Board of the University of Amsterdam and as Head of the Dutch Inspectorate for Higher Education. Currently she is a Member of the Advisory Committee for Higher Education in Flanders.

**Steven VAN LUCHENE** (academic secretary) is a former Staff Member of the Quality Assurance Unit of the Flemish Interuniversity Council (VLIR-QAU) in Belgium, and is currently Senior Policy Advisor for the Flemish Interuniversity Council. He is Member of the Management Board of AEQES, the evaluation agency of the French speaking community in Belgium and serves as Quality Assurance Expert in the Ministerial Evaluation Committee for the Educational Support Services in Primary and Secondary Education in Flanders.

## Annex 2: Composition of peer review panels

### FINANCE PANEL

(Site visit: May 7th - May 8th, 2012)

Bruno Curvale Chair, Committee member	France
Tove Bull Committee member	Norway
Jean-Bernard Chatelain Expert	Université Paris X , France
Anne Lavigne Expert	Laboratoire d'Economie d'Orléans, France
Patrick Navatte Expert	University of Rennes , France
Frederick Van Gysegem PhD-student	Ghent University, Belgium
David Parry Academic secretary	UK

### EDUCATION PANEL

(Site visit: May 7th - May 8th, 2012)

Norman Sharp Chair, Committee member	Scotland
Greetje van den Bergh Committee member	The Netherlands
Anne Edwards Expert	University of Oxford , United Kingdom
Bert Creemers Expert	University of Groningen , The Netherlands
Heinz-Dieter Meyer Expert	State University of New York (SUNY) at Albany , USA
Magda Isac PhD-student	University of Groningen , The Netherlands
Benoit Gaillard Academic secretary	Switzerland

### LIFE SCIENCES PANEL

(Site visit: May 7th - May 8th, 2012)

Jean-Marie Hombert Chair, Committee member	France
Páll Skúlason Committee member	Iceland
Rolf Apweiler Expert	The European Bioinformatics Institute, Cambridge , UK
Benno Schwikowski Expert	Institut Pasteur, France
Peter Wellstead Expert	Hamilton Institute, Ireland
Frederik Gwinner PhD-student	Université d'Evry-Val- d'Essone, France
Steven Van Luchene Academic secretary	Belgium

### LAW PANEL

(Site visit: May 8th - May 9th, 2012)

Tove Bull Chair, Committee member	Norway
Bruno Curvale Committee member	France
Catherine Barreau-Saliou Expert	Université de Rennes, France
Bruno Deffains Expert	Université Paris X (Nanterre), France
Klaus Tonner Expert	Universität Rostock, Germany
Lionel Dreyfuss PhD-student	Université de Strasbourg, France
David Parry Academic secretary	UK

### SECURITY & TRUST PANEL

(Site visit: May 8th - May 9th, 2012)

Greetje Vandenberg Chair, Committee member	The Netherlands
Jean-Marie Hombert Committee member	France
Claude Kirchner Expert	INRIA Research Centre, Bordeaux - Sud-Ouest, France
Gunter Frank Expert	Secure AG, Switzerland
Bart Preneel Expert	K.U.Leuven, Belgium
Nicolas Estibals PhD-student	INRIA Research Centre, Bordeaux - Sud-Ouest, France France
Benoit Gaillard Academic secretary	Switzerland

### Annex 3: Schedules of meetings for the peer review site visits

Site visits May 7th - May 8th, 2012

<b>Monday, May 7th</b>	
09h00 - 11h00	Preparatory panel meeting
11h00 - 11h30	Meeting with head of research priority
11h30 - 12h15	Meeting with research priority's management team (incl. authors of SAR)
12h15 - 13h15	Lunch
13h15 - 14h00	Meeting with PhD Students
14h15 - 15h30	Meeting with academic staff
15h30 - 16h45	Visit of facilities
17h00 - 17h30	Possibility for members of research priority to be heard in a private meeting
17h30 - 18h30	Panel meeting & time to study available documents
18h30 - 19h15	Meeting with external stakeholders
19h15 - 20h00	Informal aperitif with interlocutors of that day
20h00	Diner

<b>Tuesday, May 8th</b>	
09h00 - 09h30	Second meeting with head of research priority
09h30 - 12h00	Concluding panel meeting, preparation of report
12h00	Lunch

Site visits May 8th - May 9th, 2012

<b>Tuesday, May 8th</b>	
12h00 - 13h00	Lunch
13h00 - 15h00	Preparatory panel meeting
15h00 - 15h30	Meeting with head of research priority
15h45 - 16h30	Meeting with research priority's management team (incl. authors of SAR)
16h45 - 18h00	Visit of facilities
18h00 - 18h30	Panel meeting & time to study available documents
18h30 - 19h15	Meeting with external stakeholders
19h15 - 20h00	Informal aperitif with interlocutors of that day
20h00	Diner

<b>Wednesday, May 9th</b>	
09h00 - 09h45	Meeting with PhD Students
10h00 - 11h15	Meeting with academic staff
11h30 - 12h00	Possibility for members of research priority to be heard in a private meeting
12h00 - 12h30	Panel meeting & time to study available documents
12h30 - 13h30	Lunch
13h30 - 14h00	Second meeting with head of research priority
14h00 - 16h00	Concluding panel meeting, preparation of report

## Annex 4: Schedule of meetings for the integrated review

<b>Monday, October 22th 2012 - Central Management</b>	
09h00 - 09h30	Meeting with the President
09h30 - 10h15	Meeting with delegation of the Board of Governors
10h15 - 11h00	Break
11h00 - 11h45	Meeting with the Rectorate
11h45 - 12h30	Meeting with Heads of department & Administrative departments
12h30 - 13h30	Lunch
13h30 - 14h00	Meeting with delegation of University Council
14h00 - 14h30	Meeting with delegation of Scientific Advisory Committee
14h30 - 14h45	Break
14h45 - 15h45	Meeting with Vice-president for Research & Research office
15h45 - 16h45	Meeting with Vice-president for Academic affairs & team
16h45 - 17h30	Meeting with delegation of student unions
17h30 - 18h00	Possibility to talk to committee in private
18h00 - 19h00	Internal committee meeting
19h30-20h30	Meeting with Chair of the Board of Governors
21h00	Diner

<b>Tuesday, October 23th 2012 - Faculty of Science, Technology &amp; Communication</b>	
09h00 - 09h30	Meeting with Dean
09h30 - 10h15	Meeting with Dean & Dean's office
10h15 - 11h00	Break
11h00 - 11h45	Meeting with delegation of Faculty Council
11h45 - 12h30	Meeting with Directors of Interdisciplinary Centres and Heads of Research Units
12h30 - 13h30	Lunch
13h30 - 14h30	Meeting with delegation of Course directors
14h30 - 14h45	Break
14h45 - 15h30	Meeting with delegation of teaching staff
15h30 - 16h00	Meeting with delegation of Bachelor & Master students
16h00 - 16h15	Meeting with delegation of PhD students
16h15 - 17h00	Meeting with delegation of alumni
17h00 - 17h30	Possibility to talk to committee in private
17h30 - 19h00	Internal committee meeting
20h00	Diner

<b>Wednesday, October 24th 2012 - Faculty of Law, Economics and Finance</b>	
09h00 - 09h30	Meeting with Dean
09h30 - 10h15	Meeting with Dean & Dean's office
10h15 - 11h00	Break
11h00 - 11h45	Meeting with delegation of Faculty Council
11h45 - 12h30	Meeting with Heads of Research Units
12h30 - 13h30	Lunch
13h30 - 14h30	Meeting with delegation of Course directors
14h30 - 14h45	Break
14h45-15h30	Meeting with delegation of teaching staff
15h30 - 16h00	Meeting with delegation of Bachelor & Master students
16h00 - 16h15	Meeting with delegation of PhD students
16h15 - 17h00	Meeting with delegation of alumni
17h00 - 17h30	Possibility to talk to committee in private
17h30 - 19h00	Internal committee meeting
20h00	Diner

<b>Thursday, October 25th 2012 - Faculty of Language and Literature, Humanities, Arts and Education</b>	
09h00 - 09h30	Meeting with Dean
09h30 - 10h15	Meeting with Dean & Dean's office
10h15 - 11h00	Break
11h00 - 11h45	Meeting with delegation of Faculty Council
11h45-12h30	Meeting with Heads of Research Units
12h30 - 13h30	Lunch
13h30 - 14h30	Meeting with delegation of Course directors
14h30 - 14h45	Break
14h45 - 15h30	Meeting with delegation of teaching staff
15h30 - 16h00	Meeting with delegation of Bachelor & Master students
16h00 - 16h15	Meeting with delegation of PhD students
16h15 - 17h00	Meeting with delegation of alumni
17h00 - 17h30	Possibility to talk to committee in private
17h30 - 18h30	Internal committee meeting
18h30 - 19h30	Closing session with President
20h00	Diner

<b>Friday, October 26th 2012 – Closing sessions</b>	
09h00 - 10h00	Internal committee meeting
10h00 - 10h30	Closing session with Vice-presidents
10h30 - 11h15	Closing session with Deans, Directors of Interdisciplinary Centres and Heads of Research Units
11h15- 14h00	Internal committee meeting, including working dinner

