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# Evaluation of the Luxembourg Institute of Socio-Economic Research (LISER)

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**Report by the external peer review committee**

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technopolis <sub>group</sub> February 2019

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# Executive summary

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This peer review of the LISER institute has been commissioned by the Ministry of Higher Education and Research and conducted by a panel of scientific peers, based on the institute's self-assessment, strategic documents, background analyses of LISER's performance and a three-day site visit to the institute. The panel was asked to review the performance of the institute as a whole as well as that of its three departments and the thematic research areas within each department.

As an economic and social research institute, LISER's job is to conduct applied research with social and policy impact and, as necessary, to generate or acquire more fundamental knowledge needed to underpin the applied research. It has been through a transition during the evaluation period, building on the heritage of its predecessor institute which had a strong focus on meeting short-term customer needs and complementing this with strengthened research capabilities and a more scientific approach.

## Performance

LISER is a strong and internationally visible institute, whose performance has been improving in the last three years. Its mission, goals and strategy are sound. It produces increasingly good (occasionally excellent) research. It has policy influence, satisfies its existing customers and represents very good value to Luxembourg. There are opportunities to engage even more proactively with the needs of Luxembourgish policymakers and to explore international markets for policy-related studies. LISER's collaboration with other Luxembourgish research-performing organisations and its human resources policies are all at the level we would expect of a good international player. Its location is good, and its working conditions are world class. The LISER Law defines the roles of the Board chiefly as to provide checks and balances for the institute and to provide a contractual interface to the commissioning Ministry. However, the membership of the Board was reformed in 2014, so that it no longer represents the Ministries but civil society. In this sense, its potential for advising LISER on societal needs and to represent LISER in civil society appears to be under-utilised. While the institute leadership is working well to address the challenges of managing and reorientating the institute following the introduction of performance contracting in 2015 and to put a new, functioning structure in place, there is still some distance to go.

Management, organisation and budget approach good international practice, but there is a need to reduce the overhead costs they incur, which take up a greater proportion of income than we see internationally, and which therefore limit the amount of LISER's institutional funding that can be spent strategically on research. LISER's research culture has developed strongly in the recent period, but there is a risk that the pendulum could now swing too far away from the institute's societal role as a provider of evidence for policy and towards science. User- and impact-orientation therefore need to improve to generate a culture that aims to combine excellence with impact.

LISER's strengths include its survey capabilities and its unique databases. These seem, however, to be under-exploited for scientific research as well as for research that provides evidence for policy. Making more and better use of these would give LISER a greater competitive edge. A research institute with strong academic and practice presence is increasingly rare, and a great resource for Luxembourg.

In the medium term, LISER needs to consolidate after this period of change, in which it is exploring more potential directions than it can handle at efficient scale in the longer term. The institute's thematic profile has become a little diffuse and LISER would benefit from sharpening of its strategic, thematic and market priorities. Management and organisation are currently complex, in order to enable LISER to address its change in role and can be simplified in the medium term.

The LISER researchers are very impressive and motivated. The CEO is dynamic, open to change and effective. LISER should continue to allocate time and resources to producing some excellent science, both as a foundation for its wider research and to demonstrate its capabilities to the scientific world.

However, the effort in improving the science has overshadowed LISER's societal role to such a degree that LISER's core mission to generate societal impact is neglected in places. It is important to redress this imbalance. Some departments need to increase funding from national sources; and all departments could improve their performance in competing for international funding. This should drive growth and result in a higher proportion of external income in turnover, better leveraging a constant amount of institutional funding from the Ministry – and also lead to increased impact for the academic research.

## Recommendations

LISER would benefit from internally reviewing its strategy and progress in about two years' time, as a basis for consolidating and prioritising its activities. This should not be an external evaluation and its purpose would be to support LISER's own strategic and organisational development. It should decide how to focus more effort on fewer research subjects, building critical mass and the ability to support truly excellent research in selected areas.

In the next stage of strategic planning, LISER could usefully be explicit about

- The desirable balance of effort between research to build capacity and knowledge at LISER and exploiting that in more projects orientated to shorter-term impact
- Understanding and planning against characteristics of the demand side (Who are the clients? What do they need? What can they spend and when? How can LISER influence or educate them so as to raise the level and quality of demand?)
- How to use the institutional funding more explicitly and strategically, both for investment and to create internal incentives
- The balance of effort devoted to publication and communication through the scientific literature, the 'grey' literature and more popular formats
- Setting aside specific resources to produce a select number of excellent, highly-visible publications that will enhance the reputation and visibility of LISER in the research world
- Communicating about and increasing both the internal and external use of LISER's databases and survey capabilities

LISER should also develop plans to reduce the cost and complexity of administration, in order to drive a significant cost reduction in the coming years.

Historically, LISER has had a strong 'impact culture' and it is important to take steps to ensure this is not lost in the drive to raise research-intensity. While the Administrative Board fulfils its function in providing checks and balances, we saw little evidence that it effectively went beyond this, actively to represent societal needs to LISER or to improve LISER's access to or influence with decision-makers. LISER should better use the potential of its Administrative Board as a link to wider needs of Luxembourg civil society, to generate access to and influence with decision-makers and to foster policy influence. It should also use the opportunities provided by its location to do applied research for neighbouring regions, both alone and in joint arrangements with the Luxembourg authorities, as well as in wider international projects.

LISER's databases and survey capabilities provide a strong platform and competitive advantage for the institute, which should more systematically be exploited. In parallel, a focused and adequately-resourced effort to develop a small number of points of international research excellence would have a strong reputational effect, in addition to being useful in support of the applied research agenda. While LISER's research strategy needs to be appropriate to an applied research institute, it is important to maintain cooperative links with LU and the other CRPs both in research and in postgraduate training.

With some 60% of turnover generated from institutional funding, LISER has a very strong resource base from which to expand its applied work by increasing the volume of externally-funded research it undertakes and thereby increasing the social rate of return on the institutional funding. LISER should set specific, increased external funding targets in order to achieve this.

LISER should review its policy for using institutional funding. Some must necessarily be used to pay the costs of administration and management. Some must be used to provide a 'core' budget for each department that is predictable, at least across the term of the performance agreements. Some should be set aside for investment in new research activities, and some should be reallocated dynamically towards those departments and groups that enjoy the greatest success in obtaining external funding. This combination will allow the institute to build further upon the solid foundation of its achievements in the last three years.



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## 1 Introduction and method

This Chapter reports the peer review of LISER. It has been commissioned by the Ministry of Higher Education and Research and conducted by a panel of scientific peers assembled by Technopolis and approved by both LISER and the Ministry.

The evaluation has been undertaken based on

- A detailed self-assessment report prepared by LISER, including five of the best scientific papers from each of LISER’s three departments
- Key documents including the LISER Law, performance contracts, strategies and annual reports
- A background document produced by Technopolis, analysing LISER’s income, customer portfolio and performance in bibliometric terms
- A three-day site visit to LISER in September 2018

The panel was asked to report on a list of evaluation questions laid down in the terms of reference – almost all of which are common with the other two CRPs. There were different evaluation questions at the level of the institute as a whole and at the level of its three departments. The panel was also asked to evaluate a sample of LISER’s best papers provided to it as part of the self-assessment exercise. Table 1 shows the evaluation questions in summary form. They are shown in detail in the Appendix.

*Table 1 Evaluation questions for the LISER Evaluation*

Evaluation questions for LISER as a whole	Evaluation questions at the level of each department
<ol style="list-style-type: none"> <li>1. Mission, goals and strategic plans</li> <li>2. Research performance in absolute terms and compared with other European institutes</li> <li>3. Innovation performance, policy influence</li> <li>4. Value for Luxembourg</li> <li>5. Users, networks and industry access</li> <li>6. Collaboration with Luxembourg research actors</li> <li>7. Human Resource policy and performance</li> <li>8. General working conditions and infrastructure</li> <li>9. Campus</li> <li>10. Governance and development since 2015</li> <li>11. Management and organisation, incl. budget</li> <li>12. Research and innovation culture</li> <li>13. Overall assessment</li> </ol>	<ol style="list-style-type: none"> <li>1. Department’s overall research performance in absolute terms and compared with other European institutes               <ol style="list-style-type: none"> <li>i) Clarity, uniqueness and ambition of the research agenda</li> <li>ii) Scientific quality and impact of the research</li> <li>iii) Research productivity</li> <li>iv) Critical mass in individual research activities</li> <li>v) Societal impact of the research</li> <li>vi) How strong is the contribution to mission-orientated research and societal challenges?</li> <li>vii) What progress is being made towards greater research-intensity?</li> <li>viii) How do these dimensions compare with other European institutes?</li> </ol> </li> <li>2. For each research theme               <ol style="list-style-type: none"> <li>i) Clarity, uniqueness and ambition of the research agenda</li> <li>ii) Scientific quality and impact of the research</li> <li>iii) Critical mass in individual research activities</li> <li>iv) Societal impact of the research</li> </ol> </li> <li>3. For each paper presented               <ol style="list-style-type: none"> <li>i) Scientific relevance – is this paper relevant to the wider work of the research community?</li> <li>ii) Scientific quality</li> <li>iii) Likely impact on science</li> <li>iv) Societal relevance and potential usefulness</li> </ol> </li> </ol>

## 2 LISER

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Over and above the general tasks of the CRP institutes, LISER's specific mission is "de réaliser des activités de recherche fondamentale et appliquée en sciences sociales dans le dessein de faire progresser les connaissances, d'éclairer l'action des pouvoirs publics et des acteurs socio-économiques au niveau national et international en rapport avec le tissu social, le tissu économique et le développement spatial et d'informer la société".

### 2.1 Overall assessment

The panel's judgements are made by considering LISER's performance in comparison with what might be expected of institutes three broad categories: the very best in the world operating at best international practice; strong players on the international stage operating at good international practice; and to institutes that may occasionally be visible internationally, but which mostly operate at the national level at an acceptable level of practice.

LISER's overall performance is clearly in the second category. Its overall performance has been improving over the evaluation period. With some variation across departments, LISER is a strong performer in international terms across almost all the evaluation dimensions considered. This is true on most of the evaluation dimensions, with some minor deviations. Its mission, goals and strategy are at this level. It produces increasingly good (occasionally excellent) research, providing a strong basis for increasing the institute's international scientific engagement. It has policy influence, provides unique services to customers in Luxembourg who appear very satisfied with what they receive and represents very good value to Luxembourg. There are nonetheless opportunities to engage even more proactively with the needs of Luxembourgish policymakers. LISER's ability to access users more widely is marginally below what we would expect to see among strong institutes internationally. It would be useful further to explore international markets for policy-related studies.

LISER's collaboration with other Luxembourgish research-performing organisations and its human resources policies are all at the level we would expect of good international players while its location and working conditions are world class. The governance and development of the institute under the new performance contracting regime, however, are a little below good international practice. The potential of the Administrative Board appears to be under-utilised. At present, the Ministry has a very strong voice in the Board through the Commissioner, while the other members, whose role is to represent civil society, could be more proactive in supporting and advising LISER. While the institute leadership is working well to develop the institute and to put a new, functioning structure in place, there is still some distance to go.

Management, organisation and budget approach good international practice, but there is a need to reduce the overhead costs they incur, which take up a greater proportion of income than we see internationally, and which therefore limit the amount of LISER's institutional funding that can be spent strategically on research. LISER's research culture has developed strongly in the recent period and is what we would expect to see in a strong international institute, but there is a risk that the pendulum would now swing too far from the institute's societal role as a provider of evidence for policy and towards science. User- and impact-orientation therefore need to improve to generate a culture that aims to combine excellence with impact.

The panel rated all three individual departments as strong international players, with little to discriminate among them in terms of performance. The Labour Market Department (LMD) is marginally stronger than the other two on most dimensions. All perform slightly less well on critical mass reflecting the fact that many groups are only just above the critical threshold and a small number are below. The Living Conditions Department (LCD) tends to perform at about the average level of the three departments while Urban Development and Mobility (UDM) lags slightly, notably in terms of

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<sup>1</sup> Article 37 de la Loi du 3 décembre 2014

research productivity, critical mass, and in comparison with equivalent departments in other European institutes.

LISER has been through a transition during the evaluation period, building on the heritage of its predecessor institute which had a strong focus on meeting short-term customer needs and complementing this with strengthened research capabilities and a more scientific approach.

LISER's strengths include its survey capabilities and its unique databases. These seem, however, to be under-exploited for scientific research as well as for research that provides evidence for policy. Making more and better use of these would give LISER a greater competitive edge. A research institute with strong academic and practice presence is increasingly rare, and a great resource for Luxembourg.

In the medium term, LISER needs to consolidate after this period of change, in which it is exploring more potential directions than it can handle at efficient scale in the longer term. The institute's thematic profile is a little diffuse and LISER would benefit from refining its focus and consolidating the rapid influx of new people and ideas of the recent period. That should result in a sharpening of LISER's strategic, thematic and market priorities. It should then communicate these internationally, explaining the importance and originality of what it is doing and giving both the research community and customers a clearer sense of its unique capabilities and value. Management and organisation are currently complex, to enable LISER to address its change in role, and can be simplified in the medium term.

The LISER researchers are very impressive and motivated. The CEO is dynamic, open to change and effective. LISER should continue to allocate time and resources to producing some excellent science, both as a foundation for its wider research and to demonstrate its capabilities to the scientific world. However, the effort in improving the science has overshadowed LISER's societal role to such a degree that LISER's core mission to generate societal impact is neglected in places. It is important to redress this imbalance, otherwise it will be difficult for LISER to differentiate itself from a university research department. As a research institute, providing evidence for policy and societal impact is crucial and LISER should set specific goals in this respect: some departments need to increase funding from national sources; and all departments could improve their performance in competing for international funding. This should drive growth and result in a higher proportion of external income in turnover, better leveraging a constant amount of institutional funding from the Ministry – and also lead to increased impact for the academic research.

LISER would therefore benefit from internally reviewing its strategy and progress in about two years' time, as a basis for consolidating and prioritising its activities. It might be useful to invite two or three external experts to participate, but this should not be an external evaluation and its purpose would not be to report to the Ministry but to support LISER's own strategic and organisational development.

## 2.2 Mission, goals and strategic plans

LISER has a mission that is similar to that of other economic and social research institutes in Europe which are expected to carry out a mixture of science and societally-orientated contract research. The underlying economic model is that the state provides institutional funding, which the institute should use for research that builds its internal capabilities (including infrastructure and databases) and creates a basis for doing high-quality applied and contract research to meet societal needs. Institutional funding should enable the institute to do societally-relevant contract research of a type or quality that private-sector consultants (who do not get institutional funding and can rarely afford to invest in research) cannot attain. This is an increasingly rare resource and should be strongly supported in Luxembourg.

In terms of research excellence and research capability LISER performs well but overall it needs to strengthen the societal impact component. At present, while each of the three departments has a more or less clear set of scientific ambitions, plans for selling and delivering contract research are under-developed. LISER needs to complement its work on developing the scientific 'supply' side with market research and close client liaison on the demand side. The institute would do well to revise and focus its plans on both the demand and the supply side by the time of the proposed internal review. It needs

clearer objectives for where it will be in 5 years in terms of scientific, policy, societal and market impact. Key expected deliverables and targets can be developed.

LISER's thematic scope is sensible: it tackles a coherent set of related or 'adjacent' themes in policy among which there is considerable synergy. Its strengths and foci are in analysing entities of about the size of Luxembourg and in tackling cross-border social and infrastructural problems. These can be exploited further but also widened to include other contextual factors important to Luxembourg and the region, and with wider resonance internationally. In terms of impact it is important to focus on topics beyond the local, in cases where the research provides important lessons for research and practice internationally. This includes LISER considering its 'home' market as Luxembourg and the adjacent regions, not only the grand duchy itself.

### 2.3 Research performance in absolute terms and compared with other European institutes

Overall, compared with other European institutes, LISER performs well in terms of research excellence – indeed, some of the work is excellent and equivalents are not to be found elsewhere – but less well in terms of policy and societal impacts. Across all departments at LISER the research agenda is clear. In some cases it seems overly ambitious and it may be worthwhile to reduce or consolidate some areas/topics to help provide a clearer research identity. For example, each department can develop its own research focus on particular issues that are original, yet also rooted in the Luxembourg and regional context. This can be much more clearly specified.

Both overall scientific quality and productivity have been improving in recent years and there are several examples of truly excellent papers published (or about to be published) in high-impact journals. We reviewed some of the best work that the institute could offer. Bibliometric analysis of LISER outputs in the period 2010-16 and based on the Web of Science presents a less positive picture, with few outstanding papers and the bulk (70%) of LISER's output being cited slightly less than would be expected given the disciplinary categories into which they fall. The outputs shown to the peer review panel are of more recent vintage and are considerably more impressive than the picture painted by the bibliometrics. This supports our impression that quality has been improving at quite a fast rate in the last couple of years or so. LISER has a great resource given to it, the technical staff are working with strong institutional support and in good working conditions, on a mix of research and practice projects. The outputs should be world-leading, and LISER should be well known for its outputs and its resources, such as surveys. The quality of deliverables is very good, but it can be strengthened further.

Overall the critical mass in individual research activities seems appropriate. Producing excellent papers relies not only on talent but also on allocating appropriate resources. A deliberate strategy of selectively allocating resources to produce a small number of world-leading papers per year could pay significant dividends in terms of LISER's reputation.

The societal impact of the research comes predominately from a sub-set of the teams in LISER and this is one area where the institute could improve. LISER experiences fragmented demand for contract research and has not yet invested in trying to coordinate the demand side to a greater degree. Together with the fragmented nature of LISER's more fundamental research, this means that the institute is not well placed to tackle many important societal challenges. This is part of a wider pattern of giving too little priority to the demand side that stands in the way of LISER realising its potential to contribute to society at a more systemic level and not just at the micro level of individual studies for individual customers' needs. Overall, the contribution to scientific excellence is high but the contribution to societal challenges could be further improved.

LISER makes rather modest use of external grants (from Luxembourg but especially from international sources) to fund research and capability development – perhaps because the generous core funding crowds out external grant funding. Some departments need to increase funding from national sources and all departments could improve their performance in competing for international funding. LISER's core funding is generous in international comparison (though it is not alone in having a high proportion of institutional funding in its income). Winning research grants signals scientific quality. Winning contract research signals societal relevance. LISER and its individual departments should aim to

increase both these external sources of income, growing and as a result reduce the percentage of turnover that comes from institutional funding while maintaining a focus on quality.

## 2.4 Innovation performance, policy influence

Unlike its partner CRP institutes, LISER is able primarily to make a contribution to society through influencing policy. It does little work on social innovation – potentially a missed opportunity to exploit the special opportunities of social innovation to be found in cross-border regions.

While there are some examples of a good contribution to policymaking (mostly in Luxembourg), the evidence is rather patchy across the institute as a whole. A pattern of separating academic research from more policy-relevant research was visible in some places. There were certainly also some good examples of combining the two and good practice from the teams that do this should be shared more widely.

LISER's visibility in the grey/policy orientated literature is low<sup>2</sup> and many reports etc that are completed are not very visible on the usual websites. LISER does not compare well to other European institutes in this respect and more effort is needed to increase its profile in this space. There can be greater consideration of research impact – with focus given to considering how a small number of key research and practice projects per department can be written up as impact case studies, demonstrating the relevance for society.

Some projects would benefit from clearer specification of expected policy and societal implications. Equally, a practice of requiring authors where relevant to explain the policy implications of their work in each article or report would raise internal consciousness of the importance of impact and increase LISER's attractiveness in the contract research market.

## 2.5 Value for Luxembourg

LISER has a distinct role in the research system of Luxembourg but it could extend beyond that to the European level and to the greater region. Its role in the wider European research system is minor and should be strengthened further. LISER is devoting effort to the quality of its Framework Programme participations but it should not neglect other mechanisms such as COST, which is a powerful way to build networks and often serves as a precursor to Framework participation. Equally, more local opportunities such as FNR's INTER programme should be exploited, especially in the context of building LISER's 'home' market to the greater region.

Last year there were 33 visiting researchers staying four weeks or more and six LISER staff members had FNR-funded sabbaticals. These are positive signs of scientific networking.

LISER's database and survey capabilities are a potentially powerful resource but seem under-exploited in research, both at LISER and at EU level. LISER is the only institute in Luxembourg that has significant expertise in survey methodology and the data centre provides a unique selling point for the institute in this respect. LISER is the natural Luxembourgish partner for EU-wide surveys and studies in social policy but does not seem to do much to exploit participation in these surveys more widely – for example through doing comparative studies with partners in other cross-border regions or in the greater region. LISER has the capacity to be a strong player in this area at an international level and the visibility of existing datasets needs to be improved. Survey data can be made more easily available through the LISER website, so that external researchers can make use of the resources. The development of the data archive should help to improve visibility.

## 2.6 Users, networks and industry access

At a national level, LISER has very good client relationships and is well networked with policy stakeholders in government. There is also some evidence of customer networking at the international

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<sup>2</sup> Many LISER colleagues maintain Google Scholar profiles. This is good practice, because it increases their visibility. LISER should encourage all researchers to have such a profile. Monitoring Google Scholar in parallel with the Web of Science, SCOPUS etc has the advantage that it tracks the 'grey' literature, which is one way to understand societal impact. The profiles we inspected contain almost only citations of contributions to the scientific literature and not to the 'grey' literature

level but the extent of this is uneven across departments. Overall, LISER is not very visible outside Luxembourg and its international scientific and contract research links need to be increased. Like other European institutes, LISER is deeply embedded in the national market but it performs less well in terms of international networks compared to other European research institutes.

There are no obvious major obstacles to increasing LISER's revenues from external funding and the newly established Programme Management Office (PMO) should help to increase revenues. One of the things it can do is systematically to monitor proposal success and failure and to generate lessons for future proposals. Several teams in LISER are already very successful in raising funding so there is an opportunity to share good practice and knowledge across the institute, especially in relation to national grants where there are marked variations among teams' ability to obtain funding. LISER could incentivise funding generating activity by increasing the discretionary part of departmental budgets to those that are successful in generating funding or by allowing those who are successful in generating funding to have more of a say in how some of the funding is allocated. Discussions with the departments and the PMO revealed that the number of applications for funding have been increasing recently so LISER seems to be moving in the right direction.

Although LISER has been less successful in generating revenues from international sources (e.g. H2020) it would be useful to keep track of scores obtained and comments received from unsuccessful proposals and use these to see how future applications could be improved.

## 2.7 Collaboration with Luxembourg research actors

It is natural and useful for the Ministry to want to encourage cooperation among the CRPs. This should trigger scientific innovation via interdisciplinary research and provide synergies among the CRPs' different roles. At the same time, cooperation should not be pursued for its own sake. There are natural, thematic synergies between LISER and LIH that should make a cooperation beneficial. For LISER to cooperate with LIST is much more demanding, but the societal challenges in particular create a need for more research into sociotechnical systems that such a cooperation could address.

Cooperation with LU has a different character. Here, cooperation should not only strengthen LISER's research capabilities and ability to draw on the wider work of the international research community in relevant areas but also provide LU with a stream of problems that can trigger research. LISER is already following good international practice in institute systems like Fraunhofer, IRIS in Sweden, the Norwegian research institute sector and elsewhere by creating joint appointments and hosting PhD students.

LISER is currently working to identify further opportunities for cooperation, in line with the aims of the Common Strategy Paper. In the view of the panel, LISER has so far only addressed a small sub-set of the beneficial cooperation opportunities in Luxembourg and so should continue to explore these – as long and as far as they serve the research and market interests of the institute, but not for its own sake. Enhanced collaboration and co-operation could also lead to additional FNR funding (FNR offers a number of funding instruments to foster cooperation).

## 2.8 Human Resource (HR) policy and performance

LISER has been successful in recruiting very good emerging researchers and senior researchers (although it is waiting for some senior posts to be filled). The recently hired senior researchers are playing strong roles in delivering the strategy (especially for science) and in developing and mentoring more junior researchers. However, the new recruits predominantly have university backgrounds and some of them may need assistance in adjusting to the rather different role of an applied research institute. LISER contacts in the Luxembourg market can be shared and events held to strengthen the local networks. Workshops can be held to discuss academic and practice agendas and synergies between them.

LISER offers its staff opportunities for in-service training, based on individual needs. Many senior staff play active roles in mentoring and progressing more junior researchers - this is invaluable for early-

career researchers. There is also a process in place to develop and manage more junior researchers for their next job (which may be outside research).

LISER has been involved with the EURAXESS system for many years, using it to advertise job opportunities at the institute and communicate to potential recruits the advantages of working in Luxembourg. Discussion are in progress among the Luxembourgish research-performing organisations about creating a common platform within EURAXESS and more widely, but these plans have yet to come to fruition.

The human resources department is dealing with some legacy issues such as the need to retrain long-staying personnel who were recruited when LISER's predecessor institute had rather different tasks. LISER is also working to address the gender balance issue, which – as in many organisations – is increasingly improving at lower levels but remains harder to tackle at senior levels, despite the positive fact that LISER is led by a woman, as are various themes are within the departments. LISER plans to initiate an internal programme specifically to develop future women research leaders, raising them to level R4. In these respects, LISER does not compare at all badly with other research institutes.

## 2.9 General working conditions and infrastructure

LISER is a very attractive place to work; general working conditions are good and the research infrastructure is effective. Working conditions (in terms of wages, training and the physical environment) are excellent and internationally competitive. LISER has created a great research environment (in terms of conference budgets, seminars, mentoring, office accommodation, excellent library services including journal access). We were particularly impressed by LISER's social engineering in allocating space to various kinds of brainstorming and interaction among the staff. This is a useful counter-balance to the barriers to interaction created by having cellular offices, without resorting to the depersonalisation associated with 'hot-desking' environment.

LISER has supervision rights through an agreement with LU. Conditions for PhD students at LISER are excellent and the training is well done. The small sample we were able to interview were very impressive, which is testimony to LISER's attractiveness and ability to recruit. The PhD students and Post-Docs are well looked after and given (at least some) freedom to pursue their own research agenda.

## 2.10 Campus

LISER's physical accommodation is excellent and is one of the factors making it an attractive place to work. Its location is appropriate, in the closest possible proximity to the University of Luxembourg, providing an extra opportunity to increase links with the University and helps foster collaborations. It is also very close to other research partners such as FNR.

## 2.11 Governance and development since the introduction of performance contracting

LISER is largely content with the performance contract arrangement. Establishing the performance contract provides a way to discuss strategy with the Ministry and to allocate budget to strategic purposes, such as strengthening the personnel. A key change in the new performance contract 2018-2020 was the introduction of societal impact as a KPI. LISER is responding by trying to learn more about how to create societal impact. There needs to be coherence between research agenda and societal impact so that the two enrich each other. LISER is starting to do some case studies of impact to explore and demonstrate how it happens. The new (2018-2020) contract includes some impact indicators in addition to the more traditional income and output indicators. The indicators appear relatively easy to produce – they require no information beyond that which LISER should itself collect and hold for other purposes. The Ministry could nonetheless consider whether the number of indicators could be reduced.

There is some evidence from stakeholders that LISER contributes to setting national priorities but, the institute as a whole needs to be more proactive in this area.

The potential of the Administrative Board could be more fully utilised. It could play a stronger role in advising LISER on societal issues, lobbying (particularly in relation to data-access issues) and marketing

for LISER. Overall LISER has undergone a major transition in recent years. This process has been well managed, and the institute now has a greater science focus than before. A risk, however, is that the focus on science becomes so great as to crowd out LISER's primary function as an applied institute, providing evidence for policy.

The processes initiated by the restructuring of LISER are still work in progress. There are promising signs that LISER now takes a much more research-orientated approach than before, while continuing to meet needs in society. But as our earlier discussion emphasises, LISER needs to find a new balance between research and impact, to establish a new culture that properly values and unifies these activities, set up appropriate management and administration processes and ensure that the staff, both on the research and the administrative side, is well-trained and able to perform well in an organisation that has changed significantly. There is more to do, and the changes need time to bed down. Hence it would be useful to look at this during the suggested internal view in two years' time.

## 2.12 Management and organisation, incl. budget

LISER's organisation structure is complex: essentially a three-dimensional matrix (3 departments; 3 cross-cutting areas; 5 areas of excellence) to which the behavioural sciences centre has been added. The three cross-cutting areas clearly provide a way to support cohesion across the departments. We are sympathetic to the current complexity for the period while LISER continues its transition, but by the time of the internal review it should have been simplified considerably. Even a two-dimensional matrix is hard to manage. With further dimensions, management becomes extremely difficult and staff members struggle to understand where they belong. We would prefer to see a structure that has fewer formal dimensions (no more than two) but that at the same time is 'loose' enough to encourage staff cooperation (and even transfer) across department and team boundaries<sup>3</sup>.

The overall governance structure is complex, with a Board of Directors, CEO, Advisory Board, Staff Delegation, Executive Committee, Project Portfolio Management Committee and the Operational Board. It is unclear whether all these components make a positive contribution in terms of LISER achieving its mission and objectives.

The budgeting, financial management and controlling functions appear to function well. However, according to LISER's self-assessment report, the administration makes up a significant amount of the headcount (around 18%, which is substantially more than we see in many similar institutes internationally) and uses about 31% of the institutional funding. Administrative costs matter not only for reasons of efficiency but also because they squeeze out research effort. At present the balance between administrative and research costs is skewed too much towards administration. This might be necessary in a transition phase but both the absolute and the relative costs of administration should be reduced significantly in the medium term.

At present, LISER uses institutional funding to support "solidarity" across the three departments, essentially filling the gaps in the external income. If departments grow at different rates, relative to the markets they serve, they will place differing demands upon the institutional funding. It would be desirable for LISER to use more of its institutional funding for strategic investment, 'pump-priming' new activities in the expectation that their earning potential will then be realised, and they will no longer need central support.

The leadership at the institute and department level (including theme leaders and scientific and policy co-ordinators) all perform well and play key roles in developing research agendas. At present, however, strategy development and deployment rely on a small number of individuals, so it is important to continue to strengthen LISER's capabilities. As earlier indicated, the key weakness is in strategising about the demand side.

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<sup>3</sup> The LISER Law requires the institute to have departments. It does not specify that there have to be three, so the institute has considerable freedom to do organisational redesign



### 2.13 Research and innovation culture

RRI implies that societal actors work together during the whole research process, in order better to align both the process and its outcomes with the values, needs and expectations of society. There is evidence of this in parts of LISER. The meetings with customers provided evidence of how researchers at LISER often work with relevant Ministries to define research questions. This practice can be carried out across all departments; in some cases, LISER is not pro-active enough about proposing ideas for research and the process can be more driven by the demands of clients.

LISER is exploring opportunities further to develop Open Science at the institute. There are special difficulties in relation to social policy surveys and databases, whose information is immensely interesting for research, but which comprise personal data that must be treated in line with the GDPR.

LISER's contribution to science communications and outreach is relatively strong through training (summer schools and workshops), research days, *Cafés scientifiques*, workshops, public events and policy briefs and so on.

### 2.14 Recommendations

- LISER has gone through a transformation driven on the one hand by the restructuring of its predecessor institute and on the other by the desire of the Ministry to increase the CRPs' efforts in research, as a basis for improving their societal performance and relevance. LISER's response has been to recruit new people, reorganise and devise new research strategies. We suggest that, say, two years after this evaluation has been concluded, LISER organise an internal review (by all means supported by external expertise) to consider progress and the need for strategic changes
- LISER's research strategy is at present wide-ranging and expansive, as is appropriate for an organisation looking for new future paths. The proposed review should decide how to focus more effort on fewer research subjects once some of the current short-term experimentation has run its course, building more critical mass and the ability to support truly excellent research in selected areas
- In the next stage of strategic planning, LISER could usefully be explicit about
  - The desirable balance of effort between research to build capacity and knowledge at LISER and exploiting that in more projects orientated to shorter-term impact
  - Understanding and planning against characteristics of the demand side (Who are the clients? What do they need? What can they spend and when? How can LISER influence or educate them so as to raise the level and quality of demand?)
  - How to use the institutional funding more explicitly and strategically, both for investment and to create internal incentives
  - The balance of effort devoted to publication and communication through the scientific literature, the 'grey' literature and more popular formats
  - Setting aside specific resources to produce a select number of excellent, highly-visible publications that will enhance the reputation and visibility of LISER in the research world
  - Communicating about and increasing both the internal and external use of LISER's databases and survey capabilities
- In responding to the Ministry's desire for LISER to become more science-based, the institute has recruited a number of very promising people, largely from the university sphere, and appears to have set itself upon a promising and more scientific trajectory. LISER needs nonetheless to recall that its societal role is to do applied research that has bearing and impact upon an agreed set of societal issues and to find an appropriate balance between shorter-term applied and more fundamental kinds of research that may have longer-term societal relevance. This balance should be reflected in strategic plans, annual budgeting and the intended balance between institutionally- and externally-funded research income. The staff should understand this need for balance, which should be reflected in the way both strategic and human resource management operate

- The growing focus on science means that LISER's historical 'impact culture' is imperilled. Unlike in the old days, LISER cannot restore this balance only by listening to its customers and being more responsive to their desires but needs in addition to put more effort both into educating the demand side and into building a LISER-wide 'impact culture' that involves all the research and all the researchers
- LISER maintains good relations with the Administrative Board, which in turn appears very loyal to LISER. There are opportunities to use the Board more actively in network-building, marketing and influencing as well as getting access to policymakers. LISER should work with the Board to make more active use of these opportunities, with the Board on the one hand doing advocacy for LISER and on the other hand better fulfilling its role as a representative of wider society in helping LISER understand needs and think about strategy
- LISER has opportunities to increase its international engagement, both in international research such as the Framework Programme and FNR's INTER programme and in serving potential customers outside Luxembourg – especially, but not only in the Greater Luxembourg region. Existing efforts to internationalise research should be supplemented by also by efforts to sell more studies across the border
- Despite the complications created by the GDPR and by increasing demands by funders for data to be open, LISER enjoys enormous potential competitive advantages based on its databases and survey capabilities. These are currently poorly integrated into LISER's wider strategy and should be more clearly planned into strategy at both the institute and the department level
- Unlike in university research, LISER has no need to demonstrate scientific excellence in research for its own sake. Developing and advertising a few points of global excellence – better than the internationally 'good' level of most of LISER's work today – will have a powerful reputational effect among funders and customers, increase yet further LISER's attractiveness as a place to work and help the institute maintain a virtuous circle that helps in the recruitment of new, high-quality staff. Achieving this requires strategic planning and the allocation of people, time and money to the task, which should therefore be managed as a transversal project in its own right
- Cooperative relationships with LU and selected universities abroad are vital in order to maintain and refine LISER's research capacity, access to world research and to a supply of PhD students and post-docs. This should continue to be a central part of LISER's strategy
- Institutional funding at present covers about 60% of LISER's costs. LISER should aim to increase its external research income, increasing the amount of societal impact that the institutional funding leverages. LISER should agree targets for increased external income at department level, and department managers should flow these down to the research groups. This will encourage the departments to make concrete plans and to develop the market networks and understanding of actual and potential future demand needed to realise them
- As part of its wider strategy development, LISER should review its policy for using institutional funding. Some must necessarily be used to pay the costs of administration and management. Some must be used to provide a 'core' budget for each department that is predictable, at least across the term of the performance agreements. Some should be set aside for investment in new research activities, and some should be reallocated dynamically towards those departments and groups that enjoy the greatest success in obtaining external funding
- One driver of cost is the complexity of LISER's structure, in both research and administration. LISER should demonstrate that it has plans for simplification. The proportion of institutional total funding consumed by administration and management should be reduced over time. LISER should agree an appropriate, dynamic target with the Ministry that reflects both the need to pay for these important functions and the opportunities to do them in a more efficient manner as LISER's wider performance develops further

## 3 LISER Departments

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### 3.1 Labour Market Department

#### 3.1.1 Overall performance

Overall, this is a strong department with a clear research agenda that is developing its own identity following its split from Living Conditions. The academic quality and productivity of the research are high, and we were shown a strong set of papers in good journals. However, in some teams the weight placed on academic excellence relative to societal impact is too great and that impact seems low so that it is hard to see how the work can be differentiated from that done in a university department. In an applied research institute, societal impact needs to be a factor in deciding on research topics and wherever relevant the policy implications or other expected societal impacts should be explained in research outputs.

The department makes the most of its location and connections in Luxembourg to develop its research agenda and capacity (using Luxembourg as a socio-economic laboratory). It has been successful in raising funding at a national level but less so at an international level. This is an area where LMD needs to improve and it seems to be in a good position to do so. The groups we met generally have critical mass. The work done for Luxembourgish clients is very well received. The intended increase in research intensity has been achieved to such an extent that the major risk now is too much rather than too little research focus. LMD compares favourably with other European institutes in terms of scientific quality and probably productivity but less favourably in terms of societal impact.

#### 3.1.2 Research agenda

The department's main themes are

- The employment effects of public policies in the Luxembourgish context, which is characterised by cross-border work and migration
- Employer-employee relations in times where firm behaviour is largely determined by socioeconomic challenges, such as digitalisation, population aging and workforce diversity

Moreover, the Labour Market Department contributes to LISER's interdisciplinary research programmes, which currently address issues of crossing borders and digitalisation as well as health and health systems.

The research agenda is clear, plays to the strengths of the researchers, is relevant at both a national and international level and is ambitious. The development of the specific research infrastructure on programme evaluation fits well with the overall agenda of the LMD. However, it is less clear where and how the LISER-LAB (behavioural economics) research infrastructure fits with the agenda and the department. Though this is an interesting area it is risky to attempt to grow a research centre on a particular topic from scratch. Perhaps it is better to allow a couple of individuals to work in an area, to test the water on funding and longevity, and then to grow a specialist centre once some momentum has grown.

The labour market observatory is impressive and although it could be thought to weaken the research focus of the department as a whole, it is one of the principal ways in which the department relates to users.

The Labour Market Department explores both traditional and new labour market issues, paying attention to producing both excellent scientific and relevant research. The research portfolio covers a wide range of topics: unemployment, labour supply and career paths, national and international mobility, labour force participation, occupational choice, matching of workers, employment trajectories, retirement, firm performance and worker behaviour, adoption of information and communication technologies, corporate social responsibility, organisational changes and human resource management practices, job satisfaction, work-life-quality, employment relations, collective bargaining, gender gaps,

and sociology of stakeholders and companies. Remarkably, the department has been extending the typical research programme of a labour market department by also addressing personnel and organisational economics. This is a promising approach.

LISER's Labour Market Department has recently established a large-scale linked employer-employee data set on information and communication technologies, organisational change and management practices. The quality of the survey and its variables is excellent. This holds even after comparing this data set with related international data sets, such as the World Management Survey (WMS) primarily applied in studies of the outstanding researchers Nickolas Bloom and John Van Reenen, the Linked Personnel Panel (LPP), the German Management and Organisational Practices (GMOP) Survey, or the KOF Innovation Panel for Swiss firms. Without any doubt, the Luxembourgish data set is a gold mine to be exploited for a number of high-quality research articles. The first publications based on this data set are very promising. It would be useful to develop a panel data set, which would make it possible to estimate causal effects rather than conditional correlations.

The department is putting a great deal of effort into increasing its international research visibility. For example, several researchers in the department collaborate internationally. Further, the department supports joint professorships with the University of Luxembourg. Such collaborations could be further developed to increase both research excellence and international visibility. Some additional examples of activities that could improve international visibility are the organisation of international conferences or the cooperation with other research institutes such as the Institute for Employment Research (IAB) in Nuremberg or the Centre for European Economic Research (ZEW) in Mannheim.

### *3.1.3 Scientific quality and impact*

Support for scientific excellence is well organised with important input coming both from the scientific coordinator and the group leaders. There is good multi-disciplinarity and strong research funding. The scientific quality of the work is very good and in some cases is truly excellent. There are several good examples of research with potentially high scientific impact and many of the papers we reviewed are published in leading journals.

The objective of LISER's Labour Market Department is the estimation of causal effects of political or firm interventions rather than estimating conditional correlations. It uses a mixture of quantitative empirical methods for programme evaluation using large scale survey data and laboratory experiments undertaken in LISER's own laboratory are applied. These methods are complemented by the application of qualitative research methods, such as semi-structured interviews. By and large, the methodological portfolio is state-of-the-art, and its application can enable the researchers to produce high-quality articles to be published in highly-ranked scientific journals. Perhaps the researchers could pay somewhat more attention to the newest empirical estimation strategies such as machine learning and event study modelling.

In order to push the level of quality even higher, it could be useful to set numeric targets for scientific publication in future years (key topics, number of papers, target journals, books and wider publications) – defining aspirations for 2-5 years. The department is already productive but could usefully focus in its publication strategy on some clear innovations, aiming to develop very highly cited papers. Specific resources could be given to generating, say, 4-5 key papers targeted over the next 5 years.

### *3.1.4 Research productivity*

The research productivity of LISER's Labour Market department is impressive. Recently, the department increased its research output published in peer-reviewed international journals from 17 articles per year between 2014 and 2016 to 30 articles in 2017 and it is focusing on producing higher-quality, not just more, articles. The articles are published in leading field journals of labour economics, personnel economics and industrial organisation, such as the *Journal of Human Resources*, *Journal of Public Economics*, *Industrial Relations*, and *British Journal of Industrial Relations*. Some articles are even published in top general interest journals, such as the *Journal of Political Economy*, *Review of Economics and Statistics* or the *Scandinavian Journal of Economics*. This publication record is

impressive and can be expected both to increase the department's international visibility and to demonstrate its research excellence.

### 3.1.5 *Critical mass*

The Labour Market Department is structured in three groups.

- Theme 1: Public Policies and Employment
- Theme 2: Employer/Employee Relations
- Labour Market Observatory

Each contributes to LISER's cross-departmental research programmes: crossing borders, digitalisation, and health and health systems. There are also organisational units providing support in terms of scientific excellence and societal impact. While complex, this three-dimensional approach matches the department's strategy, which is also three-dimensional and supports research cooperation across LISER. Each of the three groups has critical mass.

### 3.1.6 *Societal impact*

While the overall potential for policy impact is high, the most significant societal impacts come from the work of the Labour Market Observatory. The other two groups appear currently not to have societal impact as a goal. We are anxious about the division of labour indicated in the self-assessment report and the ghettoisation it suggests: "The main mission of the two thematic teams is to produce academic research, whereas the Observatory's main mission is to produce societal impact".

### 3.1.7 *Contribution to mission-orientated research and societal challenges*

The research of LISER's Labour Market Department is directed to the scientific community, policy-makers, civil society actors, firms and the general public. The interests of the scientific community are well served, for example, by producing articles to be published in high-ranked scientific journals, by regularly presenting their research at international conferences, by collaborations with the University of Luxembourg, by the establishment of the LISER laboratory, or by arranging research fellowships. Since the department's research is a mix of self-initiated projects and contract research, the needs of policy-makers, civil society actors, firms and the general public can be satisfied, too. Representatives of Luxembourgish ministries told us they were very happy with the services LISER provides to them.

### 3.1.8 *Progress towards greater research-intensity*

The department's research-intensity has increased greatly, with two thirds of the staff seen as focusing primarily on scientific rather than societal impact. The drive for research intensity must there be seen as having been very successful.

External funding as a proportion of income for the department is similar to that of LISER as a whole. This therefore needs to increase substantially, providing and demonstrating a better social rate of return on the investment in LISER's institutional funding. It is especially important to increase international funding from its currently low level, in order to valorise LISER's research capabilities, ensure LISER's membership of the international research and policy communities and provide LISER with a greater flow of information about addressable societal problems than is available in Luxembourg alone. Given the important role of Luxembourg in the 'greater Luxembourg' labour market, the department could usefully explore funding opportunities in neighbouring regions – possibly in cooperation with clients in Luxembourg itself. It is also in a good position to obtain Horizon funding. While LISER's Labour Market Department is involved in a number of policy-oriented networks at the national level and at the Greater Region level, its visibility at the European level can be improved.

### 3.1.9 *Performance compared with other European institutions*

LMD compares favourably with other European institutes in terms of scientific quality and probably productivity but less favourably in terms of societal impact. Applied research institutes internationally, even in the social sciences, tend to operate with a higher proportion of external funding than LISER.

LMD should aim to increase the volume of external funding, providing better societal leverage for its investment in research and demonstrating its societal value.

### *3.1.10 Themes*

The panel was generally impressed by the thematic groups but was a little concerned that not all were at critical mass and the lower level of societal impact in some.

#### *3.1.10.1 Theme 1 Public policy and employment*

The research agenda is clear and ambitious. The development of the research infrastructure around programme evaluation is a very good idea and offers the department an opportunity to build a strong reputation in this area. This has another advantage in that it this type of research can achieve both high academic quality and policy impact. The quality of research in the theme more generally is high to excellent. Critical mass seems good. There is modest evidence of societal impact although this seems to be improving with some of the new projects that the team has been successful in winning such as the work on active labour market policy evaluation.

#### *3.1.10.2 Employer-employee relations*

The research agenda is clear, unique in several place and ambitious. Our only real comment here is that is not immediately clear how the LISER-LAB fits into the research agenda. The quality of research is high to excellent and critical mass is adequate. There is some evidence of societal impact and efforts are being made to improving dissemination through public events, policy briefs and so on.

#### *3.1.10.3 Labour market observatory*

This team focuses more on contract research than the others and is well networked with key stakeholders in the area. The research agenda is clear and stakeholder focused. Given the group's success in generating funding, the scientific quality is likely to be of a good standard. Critical mass seems appropriate. Policy and societal impact is excellent: the group seems to deliver a large number of reports to stakeholders on important issues facing Luxembourg that have obvious implications for policy and large potential societal impact.

## **3.2 Living Conditions Department**

### *3.2.1 Overall performance*

The Living Conditions Department (LCD) represents the 'hard core' of LISER, cutting across its three transversal themes. All three teams ('income, wealth and poverty'; 'childhood, family and education'; 'health') have produced impressive results in terms both of scientific and societal impact. The fourth team ('modelling and microsimulation') is very small and appears to work in isolation from the others but its international visibility in the scientific community is strong.

LCD has been very successful in raising funding (the new PMO has been very helpful in this respect) and there may be scope for them to share knowledge and experience of this process with the other departments. They know their landscape and have excellent relationships with stakeholders. There is evidence of very strong project funding, sometimes with series of projects developed over time, e.g. in microsimulation. However, LCD needs to be more visible on the international stage (especially outside academic circles).

The collaboration between the three teams should to be strengthened further. The transversal themes are attractive to the department and will help increase collaboration not only within the department but also with the other ones.

Some of the department's strength builds on the use of administrative micro-data. A clear and present danger to the department's future research perspectives is posed by the way the GDPR is being implemented in Luxembourg, which has imposed new restrictions. Developing workable and compliant

ways to access administrative data should be a high priority not only for the department and LISER but also for the authorities in Luxembourg more generally.

### 3.2.2 *Research agenda*

The department's research agenda is clear, unique and ambitious. LISER has a strong tradition in areas such as income distribution and inequality and the department plans to strengthen this further through developing the 'National Centre of Excellence in Research' on inequality and well-being and the ambition to become the leading national expert in tax-benefit evaluation studies are to be welcomed.

### 3.2.3 *Scientific quality and impact*

The Living Conditions department has strong academic outputs and submitted a set of papers in good journals that also have strong societal relevance. There are some very innovative surveys being developed and used in publications, including longitudinal surveys which are quite rare. These are excellent resources and should be publicised to encourage much greater usage.

However, while the scientific quality of the research is good, it is not always well cited. A scientific co-ordinator could help in terms of improving journal quality in some areas, thereby putting the research results in front of larger audiences. A 'Luxembourg factor' may also be at play, with some audiences seeing Luxembourg not only as small but also inconsequential. This could be addressed by participating more in comparative studies, which inherently have larger audiences, and by emphasising the generic issues addressed in research over the Luxembourgish particularities.

There could be a clear prioritisation of expected deliverables for future years (key topics, number of papers, target journals, books and wider publications) – with aspirations for 2-5 years. There are many papers developed, but perhaps there can be a focus on the clear innovations, developing the very highly cited papers. Some resource could be given to generating, say, 4-5 targeted key papers over the next 5 years.

### 3.2.4 *Research productivity*

Over the period there were 1.38 peer-reviewed publications per FTE, which is a very respectable level. Although there is evidence of papers published in very good and excellent journals, LCD should on average aim for even higher quality ones.

### 3.2.5 *Critical mass*

The numbers in the individual groups seems appropriate but the 'modelling and microsimulation' team is thinly resourced (1.5 people). The development of the microsimulation model from being static to behavioural to dynamic over a relatively short-space of time was therefore all the more impressive. There are opportunities to develop this team further, provided it established stronger links across the three LISER departments.

### 3.2.6 *Societal impact*

The societal impact of LCD research is good. (LCD provided the peer-review team with some great examples such as the work with MathemaTIC). The LCD goal of turning policy related work into opportunities for societal impact is appropriate and needs to be pursued.

It would nonetheless be useful to explain the societal relevance and impact of the work in clearer terms, explaining the link between research/dissemination and usage and improved living conditions. For example, this could be done for the maths skills software, producing a very strong impact case study demonstrating how maths skills have been enhanced in disadvantaged groups. Such case studies not only allow LISER to explore, understand and improve its ability to generate impact but can also be used in publicity for the institute and to demonstrate its value to funders and taxpayers. Some institutes maintain a collection of impact cases on their web sites, for such purposes.

Collaboration with the public sector (especially with the Ministry of Education) is an especially strong point of the department and of LISER, as a result not only of LISER's scientific skills but also of the skills

and absorptive capacity of administrative staff at the ministries. The department can nonetheless invest further effort in communicating to the ministries the opportunities provided by their research. These are not always evident to research users, so it is important where possible not only to wait for requests to come from ministries but also to explain what future requests could involve. The tradition of cooperation and transparent division of labour with the ministries will remain important to LISER, which needs to continue to invest in these relationships and maintain continuous communication with the clients. LCD practice demonstrates to the rest of LISER the potential and the relevance of such relationships, even if it is itself still capable of further improvement.

One further strength of the LC department is the strong effort to discuss their scientific output not only in the scientific community but also at public events. Such work is not possible for every scientific output but the LC department tries to distribute and discuss their results whenever it is suitable. This is another could practice that could be spread further within LISER itself.

### *3.2.7 Contribution to mission-orientated research and societal challenges*

This is the department that best captures LISER's overall missions of scientific excellence and societal impact at a team and individual level. The department also contributes to LISER's transversal themes.

LCD has the biggest external project income of the three departments, leveraging the LISER core funding more effectively than the others into work with evident societal benefits and demonstrating market appreciation for the relevance of its work. This may in part be because this department represents the historical core of the institute and has therefore the best market networks. It would be useful systematically to share its experience in this respect with the two other departments.

### *3.2.8 Progress towards greater research-intensity*

LCD is to be commended for its success in raising funding at both EU (such as European Social Policy Network) and national level (mainly FNR funding). It should be in a strong position to apply more regularly for international funding such as H2020.

The collaboration with LU is really strong, from both sides. It should be maintained and offers a good basis for further strengthening and expansion. For LISER in general, the intensification of similar collaborations seems a very promising way to strengthen its position and networks in the international scientific community.

### *3.2.9 Performance compared with other European institutions*

This department performs well and is among the better ones compared with other similar departments in European research institutes.

### *3.2.10 Themes*

The panel was generally impressed by the thematic groups, and especially by the outstanding level of societal impact achieved by the Childhood, Family and Education group.

#### *3.2.10.1 Theme 1 Income, Wealth and Poverty*

This is a successful team with a clear focus that has good national and international networks. The joint professor plays an important role and could perhaps be encouraged to take on the overall scientific co-ordinator role. The research agenda is clear and focussed and plays to the traditional strengths of LISER. The scientific quality is high, and the group has critical mass. The microsimulation team is achieving good impact within the international scientific community and provides support to the research of the rest of the department. Its resources may need to be increased, given the important role it plays in Theme 1 and the department as a whole. There is some evidence of societal impact, but this is an area that needs improvement.



### 3.2.10.2 Theme 2 Childhood, Family and Education

This team concentrates more on contract work and has excellent client relationships. For the future, greater focus should be given to raising the academic profile of the research. The work topics are clearly (although somewhat narrowly) defined. The agenda seems to be set by existing funding relationships rather than moving towards strategic goals. The team needs to think about what the big topics in this area are, the ways in which these topics are evolving and how it will position itself to be successful in terms of producing high quality academic and policy relevant research in these areas. The scientific quality of the work is good, but the group could aim to publish in higher-quality journals. Critical mass is adequate. The societal impact of this research is high, and the researchers gave lots of examples of its societal impact (including the impact on teaching methods from MathemaTIC which impressed the review panel a great deal).

### 3.2.10.3 Theme 3 Health

The research agenda is clear and ambitious. The scientific quality of the work is good and there are some very good publications, but the team could aim to publish in higher-quality and therefore more prominent journals. The group has adequate critical mass and has good connections with stakeholders and policy makers. Its role in the SHARE survey is a particular strength. However, there were few examples of the societal impact of the research.

## 3.3 Urban Development and Mobility

### 3.3.1 Overall performance

This is a strong, vibrant department that has good, effective leadership, an excellent esprit de corps and addresses important issues with great enthusiasm and ambition. The division of UMD's work and research agenda into two research themes seems sensible. However, it is not clear how the Centre for Behavioural Science fits in with the work and needs of the Department. The research team leaders are impressive, with sound management skills and high academic credentials. UDM has integrated LISER's three cross-cutting, "transversal" themes well into the Department's research agenda and included colleagues from other Departments in its own research teams. The overall structure is fluid, encourages interactions across teams (and departments) and seems to work well. However, links with other departments need to be strengthened. The head of department and theme leaders are energetic and keen to help develop the more junior researchers. The department needs to increase its efforts in terms of funding. To that end the PMO also has a role to play here in ensuring researchers have the necessary support to complete successful proposals.

UDM produces some high-quality research papers, has brought in new staff and restructured to focus on key themes - living with urban dynamics, managing crossing flows, geo data centre. This is a good start, but more support, including financial, to support new initiatives, can help build a stronger group and critical mass to start to produce a strong series of academic outputs and advice to the Luxembourg authorities. The department is well managed, has excellent academic leaders and can seek to produce internationally-leading outputs. The geodata centre could become an innovative resource, leading to many interesting papers on urban dynamics, including issues such as real time data and citizen science.

### 3.3.2 Research agenda

The research agenda is clear and unique but may be overly ambitious in terms of the number of topics and sub-topics that are covered. Reducing or consolidating the number of topics and sub-topics could serve to provide a clearer research identity to the department. The proposed internal mid-term review provides a good opportunity.

Recent research outputs are strong but can be strengthened to become leading edge.

### 3.3.3 *Scientific quality and impact*

The scientific quality of the work is very good and, in some cases, the scientific impact of research is very high. The papers submitted to the panel were of uniformly high quality, though a little more likely to influence science than society.

There is scope for quality to increase further, with high quality and leading-edge papers. Deliverables for future years can be prioritised and planned (key topics, number of papers, target journals, books and wider publications) - say with aspirations for 2/5/10 years. This can be delivered with key individuals but also a strong team is required to help produce the research and outputs. Research visibility can also be improved by chairing conference sessions, preparing edited books and special issues, and hosting conferences and workshops. Visiting academics can also be a strong source of inspiration and collaboration and lead to further work in emerging areas and key deliverables.

### 3.3.4 *Research productivity*

An average of 26 peer-reviewed journal articles is published per year. In 2017 there were 21.5 FTEs in the department (calculated as total department FTEs less technical staff) implying 1.21 publications per FTE. This is an improvement on previous time periods, but the department could improve further. One opportunity to do so is by encouraging policy study staff to develop more academic outputs - there can be a strong overlap between research and studies.

### 3.3.5 *Critical mass*

The numbers in the broad themes seem appropriate but as a result of the fragmentation of the research the critical mass in some sub-topics is low. This can be improved as more externally-funded projects are won.

### 3.3.6 *Societal impact*

While there is some evidence of strong societal impact from the research, especially at the local level, this is rather patchy across the department as a whole. Improvements can be made over time as research is carried out with stronger societal implications. Impact case studies can be prepared on one or two key projects to help demonstrate the impact of the department.

### 3.3.7 *Contribution to mission-orientated research and societal challenges*

The contribution to scientific excellence is high but the contribution to societal challenges should be further improved. This depends in no small part on building market networks and relationships.

### 3.3.8 *Progress towards greater research-intensity*

The department has been successful in recruiting people with PhDs and should continue in this direction. Relative to the other departments, UDM has been less successful in leveraging its core funding to raise external money at national and international level and efforts in both areas needs to continue to improve. Most of the limited external funding raised comes from FNR's INTER programme, in line with the importance of cross-border issues in the department's portfolio.

LISER could incentivise funding generating activity by increasing the discretionary part of departmental budgets awarded to those who are successful in generating funding or by allowing those who are successful in generating funds to have a say in how some of the money is allocated. Discussions with the department indicated that the number of applications for funding has been increasing so it seems the department is moving in the right direction in this space. Integrating regions adjacent to Luxembourg into studies would both increase their scientific interest and create for opportunities to obtain project funding.

It might be worth thinking about working on a flagship, edited book, published by a prestigious academic or trade publisher, highlighting the research of the department. To quote the department chair in another context, this would also be a way of showing "This is what we have done ..." in the next few years.

### 3.3.9 *Performance compared with other European institutions*

The department compares favourably in terms of areas such as research quality but less favourably in terms of overall productivity and societal impact.

### 3.3.10 *Themes*

The panel felt the individual themes were of good quality, but there were some issues relating to improving societal impact and in one case to critical mass.

#### 3.3.10.1 *Theme 1 Living with Urban Dynamics*

This is an interesting theme with much potential for interesting analysis, using emerging data sources and focusing on innovative areas such as well-being. The research agenda of this theme is clear and ambitious. The scientific quality of the work is good and potential societal impact is high in some cases. Critical mass seems appropriate. There is some evidence that societal impact is being achieved but this is an area that needs improvement.

#### 3.3.10.2 *Theme 2 Managing Crossing Flows in Urban Areas*

The research agenda of this theme is clear but may be too ambitious in terms of the number of topics it is trying to cover. The overall identity of the team is hard to define, and it is difficult to get a sense of its strategy, including the 'unique selling proposition' of the team and its priorities for areas in which it wants to become internationally known. Thus, while the quality of the research is generally high, the number of topics covered (around 12) means that the necessary critical mass cannot be generated in some areas. There is some evidence of societal impact, but this is an area that needs improvement. The team should focus its activities onto a smaller number of topics that will both be of high scientific quality and that will have societal impact. While much of the group's work is rather specific to Luxembourg its scope could usefully be broadened to give the same or similar research questions more of an international dimension, for example by looking at cross-border flows more generally and in a range of different contexts. This will, on the one hand, increase scientific quality and impact by focusing more on the generic than the specific while addressing a bigger audience and, on the other, extend LISER's ability to generate societal impact into neighbouring regions and even cross-border regions elsewhere such as Switzerland and the Great Copenhagen (Øresund) region.

#### 3.3.10.3 *Theme 3 Geodata Centre*

This has great potential through the use of use of novel datasets, real-time data, citizen science and so on and could be very innovative but is only just being developed so at this stage there is little more that can be said in evaluative terms.



## Appendix A Detailed evaluation questions

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### Evaluation questions for LISER as a whole

1. Mission, goals and strategic plans
  - i) Does LISER have the right goals and mission?
  - ii) How well does it live up to these?
  - iii) Quality and realism of mid-long-term plans
  - iv) Does LISER have the right thematic and spatial scope?
2. Research performance in absolute terms and compared with other European institutes
  - i) Clarity, uniqueness and ambition of the research agenda
  - ii) Scientific quality and impact of the research
  - iii) Research productivity
  - iv) Critical mass in individual research activities
  - v) Societal impact of the research
  - vi) How strong is the contribution to mission-orientated research and societal challenges?
  - vii) What progress is being made towards greater research-intensity?
    - a. Is this sufficient to renew LISER's knowledge base?
    - b. Is it adequately reflected in LISER's income from research grants (FNR, EU, etc)?
  - viii) How do these dimensions compare with other European institutes?
3. Innovation performance, policy influence
  - i) How strong is LISER's contribution to industrial and societal innovation?
  - ii) How strong is LISER's contribution to policymaking?
  - iii) How do these dimensions compare with other European institutes?
4. Value for Luxembourg
  - i) Does LISER have a distinct and valuable role in the research and innovation system of Luxembourg and the greater region?
  - ii) Does it have a distinct and valuable role in the wider European research and innovation system?
  - iii) Does it maintain unique or unusual databases, of wider research interest in Europe? What is their quality and relevance?
5. Users, networks and industry access
  - i) How good are LISER's networks with customers and societal users of the knowledge it produces, in terms n=both of quantity and quality?
  - ii) How well is LISER embedded in international research and innovation networks?
  - iii) How do these dimensions compare with other European institutes?
  - iv) What are the obstacles to increasing LISER's revenues from external funding, including the Framework Programme?
  - v) What should LISER do in order to increase revenues from external sources, including the Framework Programme?
6. Collaboration with Luxembourg research actors
  - i) Is cooperation with the other CRPs and UL adequate and successful?
  - ii) Is LISER's role in the division of labour appropriate and well realised?
  - iii) To what extent are the promises of the Common Strategy Paper 2016-2025 being realised?
7. Human Resource (HR) policy and performance
  - i) Does the institute succeed in recruiting the right people?
  - ii) How well does it develop, manage and mentor research and related management careers?
  - iii) Does LISER have an appropriate gender balance, especially at management level?
  - iv) Is PhD training at LISER well done?
  - v) Does LISER make an adequate contribution to life-long learning in industry and society?
  - vi) Does LISER participate adequately in EURAXESS?
8. General working conditions and infrastructure
  - i) Are working conditions for staff attractive and internationally competitive?
  - ii) Is the research infrastructure adequate to allow researchers to be effective?
  - iii) Are core facilities well managed and easily available to researchers?
9. Campus
  - i) Does LISER's building(s) provide a good organisational and physical environment?
  - ii) Is the institute's physical location appropriate to its needs and competitiveness?
10. Governance and development
  - i) How well does the governance relation between the Ministry and LISER function?
    - a. Do the performance indicators and contract work well?
    - b. How well does LISER perform in relation to its performance indicators?
    - c. Does LISER contribute to setting national priorities?
  - ii) How well does the Board advise, steer, represent societal needs, lobby and market for LISER?
  - iii) How well has LISER performed in terms of the development and restructuring processes following LISER reforms?
11. Management and organisation, incl. budget
  - i) How well does the organisation structure (chart) function?
  - ii) Do the budgeting, financial management and controlling functions appear to function well?
  - iii) Does the institute make good use of its institutional funding?
  - iv) Does the leadership at the institute and department level perform well, making adequate use of institutional autonomy?

- v) How good is management capability to develop research agendas, as opposed to administrative management?
- 12. Research and innovation culture
  - i) How well does LISER respect the principles of Responsible Research and Innovation (RRI)?
  - ii) How does LISER contribute to open science?
  - iii) How strong is LISER's contribution to science communications, outreach?
- 13. Overall assessment
  - i) Sum up the overall performance of LISER
  - ii) Provide advice the in CRP and the ministry about how to improve performance

**Evaluation questions at the level of each department**

- 1. Department's overall research performance in absolute terms and compared with other European institutes
  - i) Clarity, uniqueness and ambition of the research agenda
  - ii) Scientific quality and impact of the research
  - iii) Research productivity
  - iv) Critical mass in individual research activities
  - v) Societal impact of the research
  - vi) How strong is the contribution to mission-orientated research and societal challenges?
  - vii) What progress is being made towards greater research-intensity?
    - a. Is this sufficient to renew LISER's knowledge base?
    - b. Is it adequately reflected in LISER's income from research grants (FNR, EU, etc)?
  - viii) How do these dimensions compare with other European institutes?

**Evaluation questions for each research theme presented by the department**

- 2. Theme 1 (and similarly for other themes)
  - i) Clarity, uniqueness and ambition of the research agenda
  - ii) Scientific quality and impact of the research
  - iii) Critical mass in individual research activities
  - iv) Societal impact of the research

**Evaluation questions for each paper presented**

- 3. Paper 1 (and similarly for the other papers)
  - i) Scientific relevance – is this paper relevant to the wider work of the research community?
  - ii) Scientific quality
  - iii) Likely impact on science
  - iv) Societal relevance and potential usefulness



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