



lyit

Institiúid Teicneolaíochta Leitir Ceanainn
Letterkenny Institute of Technology

RESEARCH

STRATEGY

2015/16 – 2019/20



	<i>Page</i>
1. Introduction	1
2. Enablers and Key Drivers	1
3. Research Performance to-date	3
4. Challenges	3
5. Research Vision	4
5.1 Research Targets	4
6. A School Based Approach	5
7. Research Themes and Centres	5
7.1 Research Objectives	9
8. Support Structures	10
9. Academic Enterprise	11
10. Funding and Dissemination	11
11. Quality Assurance, Ethics and Postgraduate guidelines	12
11.1 Postgraduate Research Degree Regulations	12
11.2 Postgraduate Research Advisory Board	12
11.3 Supervision	13
References and Bibliography	14

1. Introduction

Letterkenny Institute of Technology will confirm its significant national profile for excellence in higher education through the pursuit of an ambitious development agenda informed by public policy, strong regional engagement, and a fundamental commitment to a student-centred ethos.

The core of the LYIT Research Strategy is to contribute to this mission by creating a research and development environment that brings researchers and students together with start-ups, regional industries and local communities.

This Research Strategy:

- Sets out recent developments in research and innovation at both national and European levels
- Outlines the Institute's past performance in respect of research and innovation activities
- Sets out a suite of objectives and actions which will develop research activity, resources and publications.

The Institute is committed to further expansion of research activity. This expansion presents an opportunity to proactively address the challenges and opportunities for research towards 2020. It provides a research context for the Institute and all its stakeholders. It demonstrates the commitments of the Institute to embrace and promote research as a key strand of its mission. Research activity will be integrated into teaching and learning, academic enterprise and regional development. This research will be benchmarked to international standards and is relevant to the strategic and economic development of the North West.

This document has been developed with the assistance and guidance of Executive Board; the Research Committee of Academic Council; and the input of staff. It is underpinned by the establishment of new research structures and supports: *Intellectual Property Rights Policy*; *Certificate in Research Practice*; *Postgraduate Degree Regulations* (section 15 QA Handbook); *Postgraduate Research Advisory Board*; and the *Research Ethics Committee*.

2. Enablers and Key Drivers

This Research Strategy responds to four key drivers:

- The desire to (re)commit to educational excellence at undergraduate and postgraduate levels.
- The imperative to deliver knowledge based benefits to the North West region of Ireland.
- The need to support ongoing academic enterprise and business incubation initiatives.
- The desire to disseminate research findings at international conferences and in peer reviewed journals.

In line with the National Strategy for Higher Education to 2030, LYIT will:

1. Implement a consistent quality framework for all postgraduate research activities.
2. Improve the coordination of research funding; underpinned by effective foresight, review and performance measurement systems.
3. Undertake research in our four Schools that informs teaching and builds a platform for strong research in strategically important areas.

4. Ensure a balance between different types of research undertaken by both individual investigators and large multi-disciplinary teams working with and for our stakeholders.
5. Embed knowledge and the commercialisation of intellectual property into institutional activity and reward researchers accordingly.

3. Research Performance to-date

During the lifetime of the previous Research Strategy 2007 – 2013 the following initiatives were implemented:

- Increased emphasis on Research as a criterion for recruitment/promotion.
- Employees from local industry were facilitated in registering for and pursuing higher level qualifications.
- The Postgraduate Research Advisory Board was established.
- A range of taught Masters programmes were developed.
- A research ethics committee was established.
- The provision of dedicated administrative support from the Development Office.
- The provision of dedicated accounting and financial reporting support from the Finance office.
- Annual delivery of an accredited research training programme: the Certificate in Research Practice (Level 9).
- The creation of an internal seed funding programme initiative aimed at Masters by Research (two Phases).
- Dedicated postgraduate research accommodation at CoLab.

LYIT has invested in the expansion of CoLab and the establishment of the North West Regional Science Park. Our Wind Energy Centre in Killybegs was launched in 2011 and our new science facilities were opened by An Taoiseach, Enda Kenny, TD in 2012. As stated in our Strategic Plan (2014-2017) this Research Strategy will prioritise established research centres (particularly the WiSAR Research Lab – and the EI Technology Gateway).

4. Challenges

The North West Region has been affected by a range of severe economic impairments going back many decades with a low level of skills development. One consequence is that the synergy between research at LYIT and the local economy has not emerged fully. Good research will normally be ahead of the market but aware of its economic potential. This Research Strategy is part of LYIT's contribution to building the knowledge economy in the North West.

This Research Strategy aims to make research sustainable through a range of activities: identifying themes that will enable potential researchers to focus their work and allow the institute to focus its active support (without precluding potential emergent areas that arise from as yet unknown opportunities); developing an appropriate set of policies and supports that ensure the quality of proposals and subsequent activity; identified and coordinated supports provided by academic and administrative units within the institute that facilitate the start and sustainability of research groups.

This strategy will be realistic in facing these challenges. Despite current difficult economic circumstances LYIT will grow its research activities and aim to build funding streams from both national and international programmes.

5. Research Vision

Our overall vision is that:

Research at LYIT will be undertaken by highly qualified, well-resourced researchers of national and international standing. The findings of our research will inform dialogue and debate within LYIT; the Northwest; Ireland North and South; and academic communities internationally.

Staff at LYIT are engaged in transferring knowledge to students and in creating new knowledge. The institute supports this work in a spirit of innovation and entrepreneurship. LYIT will through our four Schools encourage emerging research areas with evident potential and make provision for improved research leadership. LYIT will continue to embed research skills and exposure to research within undergraduate/postgraduate programmes. The adoption of a School-based approach will link the research objectives of the individual Schools and set out the supports to sustain research activity. It is imperative that LYIT retains research approval from QQI at Level 9/10 of the NFQ and as appropriate works to extend research approval and research accreditation to cover new areas and ultimately achieve delegated authority for Research Degrees at Level 9.

LYIT will ensure that supports for enterprise and industry are accessible through a single point of contact and develop additional services through the North West Regional Science Park (NWRSP) and via the Institute's incubation, enterprise, research and development centre, CoLab. LYIT will establish the North West Industry and Employment Forum to aid further academic enterprise and applied research initiatives. LYIT will significantly increase the number of research active staff and postgraduate students during the lifetime of this Research Strategy. Finally, all the targets set out in this strategy take cognisance of the aims of *Innovation 2020*.

5.1 Research Targets

The following are key targets for LYIT under this Research Strategy (2016/17 – 2019/20):

1. To have a published School-based research plan through individual School PPEs
2. To achieve delegated authority for level 9 in the discipline areas of computing, business and science and extend delegated authority to new areas including engineering and humanities
3. To provide additional dedicated research space as research activity grows
4. To have a minimum of 25 research degree students registered by 2020
5. To increase the number of academic staff involved in postgraduate supervision by 2020
6. To have 25% of academic staff with level 10 qualifications by 2020 aligned to institute research themes
7. To secure external research funding of €5 million (cumulative) by 2020
8. To increase peer reviewed publications year on year to 2020
9. To increase research commercialisation outputs year on year by 2020

The Institute is acutely aware of the challenges presented by the external funding environment, but will retain its ambition to achieve these targets in that context.

6. A School Based Approach

The present modest scale of research and our dependence on Enterprise Ireland funding, creates risks to the sustainability and future development of research at LYIT. The development of research at LYIT will be driven by the four Schools. Individual Schools will devise plans to operationalise the objectives of this strategy. All aspects of research will be aligned with the overall aims of the institute and those articulated in Government Strategies i.e. *Innovation 2020*. To this end each School is mapping all research activity (publications; taught Masters programmes; Research Masters Programmes; doctoral studies and funded research) to the new LYIT Research Strategy. Sustainability is a key goal as considerable intellectual capital is built and can risk being lost if research initiatives are not sustained. It is imperative that LYIT works closely with funders and industry to attract additional funding. Decisions about future/further research activity both PhD and applied must align with the four research themes (fig 1); and must inform teaching and learning and/or support academic enterprise.

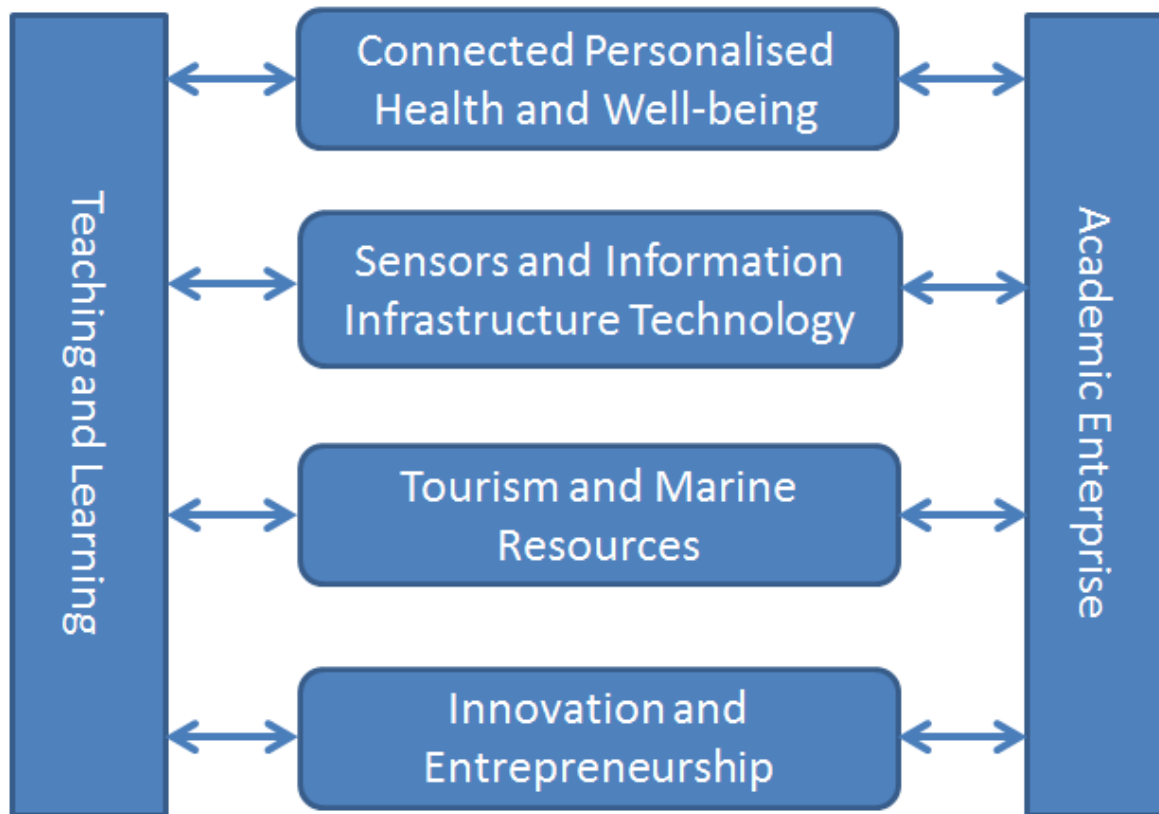
7. Research Themes and Centres

LYIT's research focus is on four themes which have regional and national relevance and impact. The four themes reflect the Institute's strengths and track record. Research is currently structured around the three areas which have research approval for the awards of Masters by Research and PhD. The three areas are: Business (MBus); Science (MSc and PhD); and Computing (MSc). Future developments will aim to retain research approval in the three existing areas and to apply for delegated authority for Research at Level 9. Following consultation at School level and with Executive Board, LYIT has chosen the following 4 themes for Research:

- 1) Connected Personalised Health and Well-being;**
- 2) Sensor Technology and Information Infrastructure;**
- 3) Tourism and Marine Resources;**
- 4) Innovation and Entrepreneurship.**

As illustrated in Figure 1, research activity in these four areas must contribute to teaching and learning and must inform ongoing connections between our researchers and our stakeholders (academic enterprise).

Figure 1 - Research Themes



In addition, a number of research centres have been established on campus: EpiCentre (2004-2011); CAMBio (2004-2009); eConsultation (2005-2008); WiSAR (2008-present). During 2015/16 considerable exploratory work has been undertaken to develop research groupings related to the *Wild Atlantic Way*. These groups are formed by researchers based within the West/North-West Cluster. Progress in this area will be prioritised in 2016/17. Success in this area may lead to a revision of figure 1. Moving forward the creation of new centres and/or new networks will be based upon the Technological Higher Education Quality Framework (THEQF) guidelines on the establishment of and developmental trajectory for research units.

Fig 2 TU Criteria for the establishment of Research Units (HEA 2012 p. 16)

Dimension	Stage 1 Unit	Stage 2 Unit	Stage 3 Unit
Purpose and Leadership	Foster emerging research strengths and facilities strategic alignment and outcomes led by a senior researcher	Nationally recognised research unit led by a leading researcher with structured teams of senior researchers and associated teams of established and early stage researchers	Prominent large scale multi-discipline research unit with significant external research funding and a significant number of research teams each led by a leading researcher.
Scale	A coherent focussed group of researchers and national networks	Significant critical mass with demonstrable leadership of national research priorities.	Major international leader shaping the field of study.
Location within HEI	Part of faculty structure	Limited independence	Significant degree of autonomy with capacity to shift with market trend
Management and administrative structure	Within faculty	Clearly articulated governance structure, external advisory board with possibility of funded administrative structure.	Formal management an organisational structure with externally funded administrative and support structures. These units should have significant numbers of full-time research and administrative staff.
Funding Position	Funding from external competitive sources	Multiple sources of funding from external a competitive sources.	External funding base that provides a long-term sustainable capacity to lead the research field.
Learner Output	Provide for graduate education	A contribution to research training within the specific discipline areas	A significant and structured contribution to research training in both specific and generic areas
Academic Outputs	Developing national profile of publications, collaborations and knowledgeable exchange	Established profile of publications, strong collaborations and extensive knowledge exchange activities	International profile of outcomes across publications, collaborations and knowledge exchange.

LYIT will adopt the THEQF Model for the development of Research Units and researchers.

Therefore, all new Research Centres will need to:

1. Possess the required critical mass of researchers in a relevant research area prioritised by the Institute.
2. Be aligned with the research priorities of one of the Institute's academic schools.
3. Possess a proven track record in research dissemination and attainment of research funding from national/international funding schemes.
4. Provide evidence of how research activities will impact on undergraduate and postgraduate education within an academic school(s) and on the work of CoLab.
5. Provide evidence on how the research activities will generate peer-reviewed publications; citations; and additional funding.
6. Establish links with other HEIs, with an emphasis on partners in the West/North-West cluster; the CUA; and in Northern Ireland.
7. Align with the strategic priorities outlined in *Innovation 2020*.

7.1 Research Objectives

To achieve this vision LYIT will focus on the following six objectives:

1. *Focus on research which aligns with national priorities and has business and societal impact*
 - Action 1 Align with existing strengths and research centres
 - Action 2 Align with staff undertaking doctoral studies
 - Action 3 Align with national strategies
 - Action 4 Align with the members of the W/N-W Cluster; CUA; Partners in Northern Ireland; and other HEIs

2. *Prioritise research in four strategic areas (p. 8/9)*
 - Action 1 Provide funding to support existing staff and ongoing research
 - Action 2 Provide funding to support the development of emerging areas
 - Action 3 Attract high calibre staff
 - Action 4 Recognise and reward research excellence and impact

3. *Provide funding, training and time allocations to our active researchers*
 - Action 1 Implement a research career development framework in each School
 - Action 2 Agree appropriate protocols for the distribution of teaching and research responsibilities.
 - Action 3 Develop research mentoring schemes
 - Action 4 Provide appropriate structured/accredited training to researchers and research students

4. *Continue to inform teaching and learning through our research*
 - Action 1 Ensure all researchers contribute to teaching and learning
 - Action 2 Inform the development of new taught postgraduate programmes
 - Action 3 Facilitate networking among researchers and postgraduates
 - Action 4 Host showcases and seminars

5. *Retain and develop Strategic Partnerships with other HEIs and Research centres*
 - Action 1 Continue to engage with enterprises via CoLab and the Development Agencies
 - Action 2 Continue to work with W/N-W Cluster; CUA; partners in Northern Ireland; and other HEIs
 - Action 3 Actively pursue new partnerships, EU, US and International opportunities
 - Action 4 Increase engagement with external partners

6. *Improve the dissemination of our research*

Action 1	Embed research assessment within each School
Action 2	Enhance web and media based promotion
Action 3	Support participation at conferences
Action 4	Facilitate publication in appropriately ranked journals

8. **Support Structures**

The creation and maintenance of a long-term research environment is central to this strategy. In addition to current research, LYIT is at an advanced stage in a number of significant research proposals and thus in this context is committed to establishing a Research Office to support and sustain these new levels of activity. The institute will continue to enhance research resources and infrastructure including laboratory equipment, and information systems. The institute will identify and develop required training in research methods and create a coherent development process for researchers at all stages in their career from research student to principal investigator.

The institute will explore opportunities to collaborate with other HEIs, e.g., West/North-West Cluster and North/South partnership where such collaboration will enable involvement in research themes that require large scale as well as interdisciplinary collaboration.

The institute will facilitate academic units in releasing staff and accessing resources required to develop research. Each academic school will identify how they will achieve this as part of their PPEs. Recruitment of research staff attached to funded Research Centres will conform with LYIT's HR Policies and Procedures. Recruitment of postgraduate research students will be managed by the relevant Head of School and will be via public advertisement.

LYIT has invested in the provision of dedicated research infrastructure and facilities through the academic Schools, Library, Development Office and CoLab. LYIT provides dedicated research space to: WiSAR; Postgraduate researchers; doctoral researchers; and emerging centres. In 2012 LYIT completed a response to the HETAC/QQI Review of Research Degrees. Further updates from the disciplinary areas of Business, Computing and Science were submitted in September 2013.

The Executive Board approved a second Research Masters Seed Funding Initiative in 2013. Under this initiative, nine Research Masters projects were funded. Following a recruitment and selection process in the Schools of Science, Engineering and Business, six new Research Masters projects were recommended and formal applications were submitted to QQI in October 2013.

During the Academic year 2015/16 LYIT has:

- 11 staff employed in WiSAR
- 11 students registered on Research Degrees with QQI as at 31 October 2015 and a further two seeking QQI registration (December 2015).
- 3 Research Degree students conferred (October 2015).
- 25 staff undertaking studies at Doctoral Level

The following supports will be continued/introduced during the lifetime of this strategy:

- Research Office
- Research Masters seed funding initiative (phase 3)
- Allocation of hours to doctoral candidates
- Dedicated research day for staff
- Up-front payment of doctoral fees

9. Academic Enterprise

In November 2012, it was announced that LYIT in association with Northern Ireland Science Park (NISP), Belfast, would receive funding of €14 million for the North West Regional Science Park (NWRSP) project in the National Spatial Strategy (NSS) joint gateway of Letterkenny/Derry. This is a significant all-island Interreg/SEUPB award designed to build a 50,000 sq ft Science Park in Derry and extend LYIT's existing CoLab by an additional 20,000 sq ft. Project partners include the Northern Ireland Science Park (NISP) Foundation Ltd, LYIT and the North West Region Cross Border Group (NWRCBG). The NWRSP is a business support and technology transfer initiative to:

1. Encourage and support young innovation led, high growth, knowledge based businesses and those seeking to expand.
2. Provide an environment where larger and international business can develop specific and close inter-relations with the centres of knowledge creation in the North West for their mutual benefit.
3. Have formal and operational links with centres of knowledge creation such as Ulster University and LYIT as well as other higher education institutes and research organisations.

Strong enterprise capabilities are increasingly recognised as an essential component of the skills set needed for a successful career in either academia or industry. Therefore, during the lifetime of this Research Strategy LYIT will establish a working-group and develop a series of networking events to create formal links between our academics, our postgraduates researchers and enterprises based in CoLab. The working-group will facilitate the sharing of experience and advice on all matters relating to intellectual property and its commercialisation - including the development of commercialisation strategies and the establishment of spin-out companies.

10. Funding and Dissemination

To date LYIT has secured funding from a wide range of sources including the EU; EI, INTERREG; HEA; Government Departments; and the Irish Research Council. As funding becomes more competitive and new priority areas (i.e., STEM) begin to emerge, there is a need for LYIT to align its research activities with funding sources that are likely to secure sustainability. During the lifetime of this strategy each School will prioritise strategic research themes with the potential to achieve sustainability through their PPEs. When a pattern of research activity is established then each School will identify priority funding needs and work with the Research Office to make applications as appropriate.

11. Quality Assurance, Ethics and Postgraduate guidelines

Under sectoral protocols (QQI, 2015, p.4) LYIT is committed to supporting and promoting all aspects of the academic formation of postgraduate students and early-career researchers. Therefore, postgraduate research at LYIT must be carried out under the supervision and guidance of appropriately qualified members of academic staff or, where appropriate, the workplace and facilitate transfer and progression between academic levels, and the engagement of individual researchers with relevant academic networks and the broader research community.

LYIT is cognisant of the report, by an Expert Panel (QQI, 2016) which is the first step in the development of a National Code of Practice on the Statutory Guidelines for the QA of Research Degree Programmes. The implementation of this strategy and its successor will ensure that LYIT develops appropriately in the three areas identified by the expert panel; namely, research environment; supervision protocols; and; governance and quality assurance.

11.1 Postgraduate Research Degree Regulations

In 2013 LYIT introduced *Postgraduate Research Degree Regulations* (section 15 of the QA Handbook). These regulations are accessible to all relevant stakeholders including: students, staff and examiners. The regulations outline our entry requirements which are transparent and applied in a consistent manner. Section 15 also outlines procedures for monitoring and supporting research student progress; examination and assessment including thesis formats; role of peer-reviewed publications and other outputs; research integrity and ethics; and complaints and appeals processes.

11.2 Postgraduate Research Advisory Board

The Postgraduate Research Advisory Board in partnership with the Registrar monitors the overall registration, assessment and examination of candidates for the Institute's Research Degree programmes. The Registrar sends reports from this Board to Academic Council, which is responsible for making recommendations to the Governing Body for the selection, admission, retention and exclusion of students.

The Postgraduate Research Advisory Board consists of the: Registrar; Head of Development; Heads of School (2); Heads of Department (2); Chair of the Academic Council Research Committee; Academic Representatives (3); and an external academic advisor.

The Board meets once per semester (and thereafter on an ad hoc basis as required).

Terms of Reference:

- a)** Review and approve all new applications for registration to Research Degree programmes before submission to QQI.
- b)** Approve the results of any qualifying examination process as required to support a registration application.
- c)** Review the annual assessment reports and approve the annual renewal of registrations.
- d)** Review and approve applications for transfer between postgraduate Research Degree registers.
- e)** Provide advice on the approval of internal and external examiners as required

- f) Advise on professional development opportunities for Research Supervisors and Research Students.
- g) Deal with appeals and complaints as appropriate.

11.3 Supervision

Academic supervision is central to the successful completion of postgraduate research work. The supervisors play a key role in designing the research project, guiding the postgraduate student in his/her work, maintaining the general direction of the research, setting and maintaining appropriate targets for academic standards along with preparing the student for submission of their final thesis for examination. Each registered postgraduate research student has a supervisory team composed of a principal supervisor and at least one co-supervisor. All proposed principal supervisors and Co-Supervisors must hold either a PhD (level 10) Degree or in some exceptional cases a Masters (level 9). The relevant Head of School monitors the quality of supervision through the annual review process (details and relevant forms are available pp. 16-18 of section 15 of the QA handbook) and have been cross-referenced with QQI (2014, p. 5).

References

1. Department of Education and Skills (DoES) (2013) National Strategy for Higher Education to 2030, Dublin, Stationery Office.
2. Government of Ireland (2011), *National Strategy for Higher education (Hunt Report)*. Dublin, Stationery Office.
3. Government of Ireland (2015), *Innovation 2020, Ireland's Strategy for Research and Development*, Dublin, Stationery Office.
4. Higher Education Authority (2012a), *Towards a Future Higher Education Landscape*, Dublin, Stationery Office.
5. Higher Education Authority (2013b) *Towards a Performance Evaluation Framework: Profiling Irish Higher Education*, Dublin, Stationery Office.
6. Higher Education Authority (2014) *Higher Education System Performance First Report 2014-2016 Volume I Report of The Higher Education Authority to the Minister for Education and Skills*, Dublin, Stationery Office.
7. OECD (2004) *Review of National Policies for Education: Review of Higher Education in Ireland*, Examiners Report, Dublin, Stationery Office.
8. QQI (2015), *Sectoral Protocol for the Awarding of Research Master's Degrees at NFQ Level 9 under delegated authority (DA) from Quality and Qualifications Ireland (QQI)*, Dublin, Stationery Office.

Bibliography

1. Department of Education and Skills (DoES) (2014) General Scheme of Technological Universities Bill, Dublin, Stationery Office.
2. Economic and Social Research Institute (ESRI) (2012) A Study of Future Demand for Higher Education Forfás (2012) Report of the Research Prioritisation Steering Group, Dublin, Stationery Office.
3. Grant Thornton (2014) A Changing Landscape: Review of the Financial Health of the Irish Higher Education Sector
4. Higher Education Authority (2012b), *Analysis of Institutional Responses to the Landscape Documents*, Dublin, Stationery Office.
5. Higher Education Authority (2013a) Report to the Minister for Education and Skills on System Reconfiguration, Inter-Institutional Collaboration and System Governance in Irish Higher Education, Dublin, Stationery Office.
6. LYIT (2007), *Research Strategy 2007-2013*, available online at www.lyit.ie
7. QQI (2016) QQI Report of Expert Panel on the Quality Assurance of Research Degree Programmes in Irish Higher Education Institutions, Dublin, Stationery Office.
8. Skilbeck, M. (2001) *The University Challenged: A Review of International Trends and Issues with Particular Reference to Ireland*, The Higher Education Authority, Dublin, Stationery Office.
9. Solas (2014) Further Education and Training Strategy 2014-2019, Dublin, Stationery Office.
10. Teichler, U. (1993), *Structures of Higher Education Systems in Europe*, in (eds) Claudis Gellert, Higher Education in Europe, Jessica Kingsley, London.
11. UNESCO (2004) *Diversification of Higher Education and the Changing Role of Knowledge and Research* Paris: European Centre for Higher Education (UNESCO-CEPES).



lyit

**Institiúid Teicneolaíochta
Leitir Ceanainn
Letterkenny Institute
of Technology**

**Bóthar an Chalaigh, Leitir Ceanainn
Contae Dhún na nGall, Éire**

**Port Road, Letterkenny
County Donegal, Ireland**

**Telephone +353 74 918 6000
Fax +353 74 9186005**