



NUI Galway - University of Limerick Strategic Alliance

1. Background to the Alliance

- 1.1. The University of Limerick and NUI Galway have entered into an institution-wide strategic alliance across all of the key areas of activity including teaching, research, technology transfer, lifelong learning and the provision of services.
- 1.2. Both Universities are committed to the achievement of academic excellence, to providing leadership through the quality of our research, teaching programmes and our graduates, and to the social, cultural and economic development of the country and our region.
- 1.3. NUI Galway and the University of Limerick have well-developed relationships and effective partnerships with public agencies and industry and are committed to enhancing our various interactions with them for wealth creation and to benefit national and regional development.
- 1.4. This strategic alliance supports the Government's objective of developing the Smart Economy, as outlined in the Government report, 'Building Ireland's Smart Economy – A Framework for Sustainable Economic Renewal'. NUI Galway and the University of Limerick appreciate that Universities are key drivers in the Knowledge or Smart Economy. We recognise that, together, we can and will achieve more. We will better support the development of our wider region and help attract FDI (Foreign Direct Investment) and underpin large scale projects.

- 1.5. The new alliance supports the twin objectives of world class standards and positioning with regional focus. In a highly globalised society, and particularly in an export led economy, regional focus and international competitiveness go hand in hand.
- 1.6. The University of Limerick and NUI Galway believe that the future of Higher Education in Ireland is best served by the evolution of a network of collaborating institutions, each of which develops international excellence in appropriate priority themes. This alliance between our two institutions is an important step in that direction. The alliance is not intended as an exclusive partnership and both institutions will continue to co-operate and collaborate with other Universities as heretofore.
- 1.7. The NUI Galway – University of Limerick Strategic Alliance will also have an international dimension as we will partner with prominent third-level institutions internationally, in order to extend the global reach of our activity. In particular, in the area of technology transfer, we will partner with the Georgia Institute of Technology to develop a Translational Research Institute which will exploit the research outputs emerging from both Universities.
- 1.8. In the present environment, there is a particular need for and onus on all institutions to optimise the use of resources. The new alliance between NUI Galway and the University of Limerick will enable sharing of resources across a wide range of activities, to our mutual benefit. In order to maintain teaching standards and the student experience it is essential that we collaborate to best optimise our resources.
- 1.9. Through this alliance, the University of Limerick and NUI Galway will pursue our twin goals of academic excellence and contributing to national and regional development through greater collaboration in our research and development, technology transfer activities, social development and civic engagement, lifelong learning programmes, teaching and learning skills enhancement, shared services and in our interaction with development agencies.

1.10 Recent economic developments have made investment in the Shannon Region an imperative. The University of Limerick and NUI Galway, together with Shannon Development and the Irish Technology Leadership Group (ITLG), have created an initiative in the area of Energy, and centred on the Shannon region. The initiative has been named the Shannon Energy Valley with the overall goal being to create a national hub for energy research & development, industry and commerce to attract mobile international investment and generate high-end employment.

1.11 In summary, the overall objective of the alliance is to better support the social and economic development of our wider region by combining the strengths of the two Universities so as to increase the quantity and quality of our collaborative research and teaching, to further develop industrial, business and other partnerships, to ensure the most effective use of our combined resources, and to enhance the international standing of both Universities.

2. The NUI Galway -University of Limerick Strategic Alliance

2.1 The University of Limerick and NUI Galway now commit to a detailed programme of enhanced collaboration, co-operation and development. The programme will include, but is not limited to:

- i. Co-operation and collaboration in the development and provision of academic programmes.
- ii. Enhancing the quality of educational programmes and the student experience.
- iii. Fostering a spirit of innovation, leadership and civic engagement in the students of both institutions.
- iv. Development and implementation of teaching and learning strategy and policy to strengthen the development of a high level knowledge economy.
- v. Co-operation and collaboration in the development and provision of research programmes.
- vi. Joint dissemination of new knowledge deriving from research programmes across both institutions.

- vii. Coordinated support for industry and employment through technology transfer, translational research and commercialisation, including the development of a translational research institute with Georgia Institute of Technology.
- viii. Development of joint relationships with relevant regional, national and international organisations.
- ix. Co-ordinated educational outreach, lifelong learning and continuing professional development programmes.
- x. General optimisation of resources, including shared services and joint procurement activities.

2.2 The alliance will involve institution-wide co-operation across the whole range of our activities, will be led by the Presidents of the two Universities, and will be effected through an Implementation Board jointly chaired by the Registrars (Chief Academic Officers) of the two Universities. This joint Implementation Board will take the form of a six-member Board to include the Registrars and Vice-Presidents for Research of both Universities and two other members. It will meet on a regular basis and will invite participation from other members of the senior management teams of the two Universities as required. The remit of the Board will be:

- i. To review the needs of our stakeholders for third and fourth level education in the context of national priorities and international developments and to ensure that these needs are addressed in the most effective way.
- ii. To consider the ongoing plans of each University in areas including programmes of teaching and research, including the recruitment of key personnel, technology transfer, commercialisation of research, continuing education and service provision, in order to seek opportunities for efficient and effective delivery of teaching and research through joint and shared appointments and shared services.

2.3 In addition to the Implementation Board, each institution has appointed an internal Project Manager to oversee the day-to-day operation of the alliance. Both Project Managers will report to the Implementation Board and will be responsible for monitoring the progress of each of the various projects of the alliance, as well as organising regular progress meetings with all project partners.

2.4 While the focus of the alliance will be on building regional strengths and addressing regional needs in line with national priorities, it will always ensure that both Universities work to the highest international standards.

3. Specific Objectives of the NUI Galway – University of Limerick Strategic Alliance

3.1 We will build scale and enhance quality in defined research areas so as to provide a more effective service to our students and our industrial partners. Our initial focus will be on:

- Biomedicine and biomedical devices
- Energy
- ICT
- Social Development and Civic Engagement

3.2 We will achieve a more focused use of resources in research, teaching and academic support services, including commercialisation of research, support for teaching and teaching quality. We have joined forces to leverage research activities and encourage commercialisation, thereby further realising the economic benefits of our research investment.

3.3 In teaching we will focus initially on programmes for adult learners, part time students and Continuous Professional Development (CPD) and will build on successful programmes already being delivered jointly by the institutions through blended learning in areas including Technology Management and Science and Technology Studies.

3.4 We will collaborate closely in the development and delivery of programmes at undergraduate and postgraduate level with an initial focus on the development of joint taught masters programmes in areas including business, engineering, medicine and health sciences.

3.5 We will optimise student choices by facilitating student exchange between our institutions. In particular, students at higher undergraduate and postgraduate level (taught and research) may avail of specialist opportunities available at the other institution, either on a module or semester basis.

3.6 We will work together and with other Universities, nationally and internationally, to develop joint structured PhD programmes, and to support research students with appropriate skills and vocational courses, so as to facilitate their entry into and swift contribution to the development of the Knowledge Economy.

3.7 We will achieve economies of scale and provide an enhanced service to our stakeholders in the areas of technology transfer and commercialisation of research. Specifically we will:

- Jointly support early stage, high growth potential Science and Technology companies by providing business mentoring, routes to funding and space.
- Jointly create high quality spin out companies from our research efforts.
- Jointly link existing companies to University-based experts and facilities.
- Jointly provide business skills courses to our staff and students.

3.8 We will work together to develop a partnership between our two institutions and the Georgia Institute of Technology. This partnership adds a significant international dimension to our alliance and represents a new model for applied/translational research, and technology commercialisation with industry partners, in Ireland. Together, our three institutions will form a joint

Translational Research Institute which will significantly enhance our leadership positions nationally and internationally in selected priority research areas.

3.9 NUI Galway and the University of Limerick have a combined expertise in the area of Mathematics education. The National Centre for Excellence in Mathematics and Science Teaching and Learning at the University of Limerick, and the Schools of Education and Mathematics, Statistics and Applied Mathematics at NUI Galway will work together to respond to the national objectives of building strong foundations in mathematics and science in primary and second level education.

3.10 We will work together to share services in order to ensure efficiency across the range of services that we currently provide separately within each institution. We will also collaborate in the procurement of goods and services to create economies of scale and to streamline contract and ordering processes.

4.0 Immediate Joint Projects of the Alliance

The signing of the enhanced co-operation agreement is accompanied by the announcement of a number of new projects that are set for immediate launch:

4.1 Research and Development

Both NUI Galway and the University of Limerick have significant research institutes which are cross-disciplinary in nature and which form a strong basis for research collaborations.

4.1.1 Energy and Sustainable Environment

The University of Limerick and NUI Galway have joined forces on several research initiatives aimed at providing the scientific and technological breakthroughs that are urgently needed in the energy and sustainable environment sector. The Shannon Energy Valley provides a coherent, integrated research, technology development and commercialisation ecosystem relating to energy. The main research partners, the University of Limerick and NUI Galway, will combine their research efforts in a coordinated way from the outset. The University of Limerick and NUI Galway will

also provide a range of undergraduate and post-graduate programmes, to PhD level, to provide the necessary human capital for the project.

These initiatives will be crucial to allowing Ireland play a significant role in solving the global energy crisis, as well as meeting its own energy and environmental commitments, both nationally and internationally. In addition, the initiatives will support the development of the “green tech” sector in Ireland, enabling industry and businesses in this sector to be more technologically equipped, and ultimately more competitive and profitable.

These research collaborations bring together expert groups in the University of Limerick and NUI Galway in a broad range of areas, including Biorefining and Bioenergy, Materials, Combustion, Turbines, Electrochemical Storage, and Offshore Renewable Energy.

In the area of Biorefining and Bioenergy, researchers are working to find viable means of producing fuel and energy from sustainable biomass sources, such as energy crops, wood, and waste.

The area of Electrochemical Storage is essentially concerned with battery technologies. To allow electric vehicles to replace the internal combustion engine on a mass scale, present day battery capabilities need to be considerably advanced, in terms of charging, battery life and performance. Researchers at the University of Limerick and at NUI Galway are working to develop high-performance lithium-ion batteries, flow batteries and fuel cells as well as their associated management and control systems.

Offshore Renewable Systems represent a considerable opportunity to harvest the significant energy associated with tides, waves and offshore wind. However, these systems operate in often harsh environments, and can be costly to operate and maintain. Technologies must be developed to ensure these systems are reliable, resilient and economically feasible. Researchers at NUI Galway and at the University of Limerick are working together to provide technologies for offshore energy

solutions, as well as developing the mapping and modeling science for the offshore environments.

See Case Study One in Appendix

4.1.2 Serving the Biomedical Devices Industry

The Biomedical Devices Industry is a significant part of the national economy. A strong and sustained research partnership exists between NUI Galway and the University of Limerick in the areas of Biomedical Engineering and Regenerative Medicine and these interactions have been in place for well over a decade. They are based on substantial interactions forged by the real synergy between the two institutions, through their flagship Biomedical Science and Engineering research institutes, the PRTL-funded the National Centre for Biomedical Engineering Science (NCBES), the Science Foundation Ireland-funded Regenerative Medicine Institute (REMEDI) and Network of Excellence in Functional Biomaterials (NFB) at NUI Galway and the Materials and Surface Science Institute (MSSI), at the University of Limerick.

The partnerships arise from research collaborations in a variety of areas including Biomechanics, Bioelectronics, Biomaterials, Imaging, Tissue Engineering, Rehabilitation Engineering and Regenerative Medicine. All of these partnered research projects are aimed at the development of new technologies for patient care and new approaches to understanding the biomechanics and biology of human tissues. There is a strong translational commitment in this effort as both institutes recognise the need to deliver research results that are of value to our region and to Ireland.

In the areas of Bioelectronics and Rehabilitation Engineering there are several projects aimed at the development of devices for assisted living and fall detection for the disabled and elderly.

In Biomechanics there is a fundamental interest in the development of computational modeling approaches to allow a greater understanding of the mechanical functioning

in cardiovascular and orthopedics. This research is of particular relevance because of the concentration of medical device technology companies in the western region.

Collaborations in the development of novel biotherapeutic strategies for treating major diseases exist between groups within the Materials and Surface Science Institute (MSSI) at the University of Limerick and NUI Galway's REMEDI and NFB. This involves the delivery of stem cells and gene therapy products using a combination of devices and nanoscale and macroscale biomaterials to stimulate tissue repair or regeneration. Applications are being developed that target musculoskeletal, cardiovascular and neurodegenerative disorders.

See Case Study Two in Appendix

4.1.3 Serving the ICT Industry

The ICT industry in Ireland is a major contributor to the national economy. The Digital Enterprise Research Institute (DERI) at NUI Galway and the Irish Software Engineering Research Centre (Lero) at the University of Limerick, both SFI-funded Centres of Science and Engineering Technology, are joining forces to drive down the costs of software development through improved development processes.

DERI's expertise in semantic collaboration and linked data and Lero's expertise in the software development process are providing the necessary background for a joint research agenda. The collaboration between Lero and DERI is aiming to bring down costs by radically improving the software development process to enable smooth collaboration and integration of information sources relevant for the software engineering process. The common research agenda is facilitated by inter-institutional supervision of PhD students and joint project acquisition.

ICT solutions for the remote monitoring of the elderly in their homes by clinicians and caretakers are becoming more prevalent across rural Ireland and the rest of Europe. Researchers from the discipline of Electrical and Electronic Engineering and DERI at NUI Galway, along with colleagues from the Department of Electronic and Computer Engineering at the University of Limerick are collaborating on a telehealth project funded under the Assisted Ambient Living joint European programme

whereby the health of elderly people with multiple chronic conditions is being monitored at home and on the move, thereby improving their quality of life.

On the web, we have moved from a static web of information silos to a "social web" where people are interacting on a daily basis: sharing materials, posting discussions, and building social networks for both recreational and professional reasons.

Researchers at the University of Limerick and NUI Galway are examining how the adoption of a new service can be added (and the potential economic and social benefits increased) by strongly aligning these real-world objects of interest to the technologies being used in social networking websites.

NUI Galway's Digital Enterprise Research Institute and the University of Limerick's Enterprise Research Centre (ERC) have formed a jointly owned company to provide software support for commercial licensees of software created by both parties. As the two universities license more software into Irish commercial enterprises, an opportunity has emerged for the universities to provide contracted professional support. The initial inventory for the company will include DERI's patented ATOM interface and the IDEAS course selection system.

See Case Study Three in Appendix

4.1.4 Social Development and Civic Engagement

Researchers at NUI Galway's Irish Centre for Social Gerontology and the Child and Family Research Centre are working with researchers at the Department of Life-Long Learning and Outreach at the University of Limerick on a joint project to support urban renewal and regeneration in Limerick City and beyond.

This project will explore how mobilising community capacity with best practice youth work can lead to better resilience and wellbeing among disadvantaged youth through civic engagement. The project will assist a consortium among local communities, youth and youth services in conjunction with identified best practices in youth work, to construct a "fit for purpose" three year project which focuses on eliciting positive civic engagement to support disadvantaged young people.

This project, planned in collaboration with The Atlantic Philanthropies, will commence in January 2010, and last initially for three years in a range of selected sites within Ireland and internationally, with each taking a specific youth civic engagement focus but measured for success in similar ways.

The project will deliver a programme which entails active citizenship among identified cohorts of young people but with varying focus across geographical sites including intergenerational programmes, youth-led social, civic activities, active citizenship for youth in targeted services including disability, mental health and residential/foster care and international sites with a focus on capacity building for youth through citizenship.

See Case Study Four in Appendix

5.0 Technology Transfer

Research at both the University of Limerick and NUI Galway continues to exceed international benchmarks for delivery of commercial licences and spinouts per euro invested. In total, across both universities, 21 spin out companies have been set up over the past 4 years.

Both Universities have been strongly supported by the Irish Government and by the European Union for our research endeavours across all areas during the past year. The combined research income of both Universities in 2009 amounted to €104million from corporate sponsors and agencies such as Science Foundation Ireland, Enterprise Ireland, the Higher Education Authority and the EU.

5.1 Realising the Value of Research

A joint approach will be taken to marketing the resources, technologies and expertise available to the FDI and SME industry sectors. Our objective is to promote the enterprise support services of the two Universities as a single source. A coordinated approach will enhance the ability of the region to attract foreign direct investment. A particular focus will be placed on commercialisation within the collaborative research areas of ICT, Healthcare and Medical Technologies, and Energy, to accelerate the development of clusters within the broader region of the two institutions.

Universities can contribute to existing SME enterprises, which are a vital part of our economy, accounting for more than half of the private sector jobs in Ireland, by a range of activities including placements (cooperative education and researcher placements) consultancy, licencing of technologies, and R&D collaboration. In addition universities can contribute through the formation of new spin out companies, thus increasing the number of SMEs and creating high value jobs for both third and fourth level graduates. Joint targets for licences and spinouts are set out below:

Combined Targets	2010-2015
Invention Disclosures	450
Licence / Options	110
Patents Filed	200
Spin-outs	40

The Technology Transfer Offices of the two institutions are staffed by teams with wide technical and differing industrial experience. It is our intention to share this specialist knowledge in the evaluation and exploitation of technologies to drive positive outcomes in enterprise creation. A uniform approach will be used in Intellectual Property management and commercialisation that is in line with National Codes of Practice. In order to facilitate interaction with third parties, the two institutions will adopt common approaches to collaborative agreements by use of common standardized templates. The alliance will build on the existing collaboration between the Technology Transfer Offices in the areas of novel medical devices and knowledge management. A key focus will be innovative solutions to early stage seed capital, including the creation of new venture capital funds as evidenced by the announcement of the recent University of Limerick Bank of Ireland Kernel Fund.

5.2 Joint Translational Research Institute with the Georgia Institute of Technology

NUI Galway and the University of Limerick have committed to a partnership with Georgia Institute of Technology to develop a joint Translational Research Institute.

The Translational Research Institute will focus on the application of core technologies and expertise within the partner institutions, to provide Irish industries with the capability to exploit synergies with their technologies and products. The Institute will

apply technologies developed within its partner institutions in the Healthcare and Sustainable Energy market segments.

The Translational Research Institute has a very significant strategic importance nationally. This Institute, with the backing of the Georgia Institute of Technology's long-standing and extensive track record in this area, will allow us to play a leadership role in the realisation of research output for national economic benefit.

Both NUI Galway and the University of Limerick have strong track records in applied research, technology development and commercialisation, in addition to having international reputations for collaborating successfully with industry partners. Our strong record of industry collaboration and world-class research in fields such as biomedicine (NCBES and REMEDI at NUI Galway), biomaterials (Materials and Surface Science Institute (MSSI), at the University of Limerick), renewable energy (at both Universities), internet technologies (DERI at NUI Galway) and software development (LERO at the University of Limerick), feed into and support the national focus on innovation and technology commercialization for economic growth and development. These strengths and experience will complement and significantly enhance the long-standing track record and reputation for delivery in translational research enjoyed by Georgia Institute of Technology and its associated applied research arm, the Georgia Tech Research Institute.

The new Translational Research Institute will be a national centre of excellence in translational research, technology development and exploitation in key strategic areas of Science, Engineering, and Technology (SET). It will create a unique translational research facility in Ireland and will significantly enhance the capacities and expertise available to Irish industry, providing a distinct competitive advantage for indigenous SMEs and Irish-based FDI industries, thus helping to establish Ireland as a global centre of excellence for technology development, innovation and commercialisation.

6.0 Joint Initiatives in Teaching and Learning.

NUI Galway and the University of Limerick will collaborate extensively in the area of teaching and learning. The current economic environment of reduced budgets and

staffing constraints has the potential to reduce the choices available to students and the quality of service they receive. This strategic alliance will give us the ability to respond flexibly to economic realities, while protecting the quality of the student experience at both universities. By sharing resources we will be in a position to maintain student choices and protect existing levels of service.

The following initiatives are planned in the area of teaching and learning:

6.1 We will facilitate students at either of our Universities who wish to study a at the other University, so that the full range of our learning opportunities and services are available to students of both Universities.

Initially this is likely to be available to students at higher undergraduate and postgraduate level (taught and research) who may wish to avail, by agreement, of specialist opportunities available at the other institution, either on a module basis or on a semester basis.

6.2 We will seek to ensure synergies in the delivery of our undergraduate and taught postgraduate programmes, including working towards complementarity of faculty expertise and course provision.

6.3 Mathematics and Science Education

NUI Galway and the University of Limerick have a combined expertise in the area of Mathematics education. The National Centre for Excellence in Mathematics and Science Teaching and Learning at the University of Limerick and the Schools of Education and Mathematics, Statistics and Applied Mathematics at NUI Galway will work together to respond to the national objectives of building strong foundations in mathematics and science in primary and second level education

6.4 Medicine, Nursing and Healthcare Education

The Medical Schools at NUI Galway and University of Limerick will work together to enhance medical education and research at both institutions. Co-ordinated recruitment between both schools and HSE West will seek to maximise the breadth of

specialities available and further develop clinical excellence in the region with a view to optimising patient care, medical education and medical research. As a first step in this collaboration, NUI Galway and University of Limerick have agreed the creation of a joint Medical Academy in Ballinasloe (Portiuncula) and Roscommon hospitals, thereby enhancing the status of those hospitals. The Academy will facilitate the rotation of undergraduate and postgraduate students on clinical placements at both hospitals. The status of these hospitals as centres of medical education will result in improved standards of practice, the recruitment of high-calibre staff with consequent benefit to patient outcomes and medical research activity.

The two Universities are now co-located within the more widely defined region of HSE West, stretching from Donegal to Limerick, and the Medical Schools therefore have a shared stake in this common region to provide their clinical placements and a broader regional population base for clinical research. The model of collaboration between Medical School, Hospitals and the Primary Care sector which is emerging in the Connacht hinterland and Donegal under the working title Western Academic Health Network (WAHN), will be extended to incorporate the former Mid West Health Board area, and the composition of existing University /HSE collaborative bodies and committees will also be reviewed towards this broader engagement

The Nursing Schools and Therapy programme staff are also engaged in discussions as to how they may derive mutual benefit from collaborations based on their particular expertise.

6.5 Graduate Education

Both universities have demonstrated their commitment to graduate education by the appointment of Deans of Graduate Studies and the establishment of Graduate Studies' offices. The two universities have substantial numbers of postgraduate research students. Currently there are 1780 research and 3668 taught postgraduates in both institutions and the output of doctoral graduates has risen substantially (248 in 2009-10).

The development of graduate education in both institutions has benefited from funding under the Strategic Innovation Fund. At national level, the Deans of Graduate Studies collaborate in the IUA Fourth Level Ireland group. Collaborations in graduate education programmes in ICT, Irish Social Sciences Platform, Digital Media and Film are specified within this alliance document. The development and delivery of Structured PhDs has highlighted the importance of advanced training (*Irish Universities' PhD Graduate Skills*, IUA, 2008) to prepare doctoral graduates for employment. The changing nature of graduate education and the induction of new academic staff to supervise research underline the need for training of supervisors to maintain the highest international best practice. Hence the Deans of Graduate Studies of both institutions will collaborate on the development, delivery and monitoring of Graduate and Supervisor Training programmes with a view to maximising the provision on both campuses and increasing the benefits to postgraduate research students.

6.6 Business Schools Collaboration

The Kemmy Business School at the University of Limerick and the J.E. Cairnes School of Business and Economics at NUI Galway will collaborate in the following areas:

- i Both Business Schools are currently actively collaborating with respect to the Irish Social Sciences Platform – a PRTLTI funded initiative. Part of this initiative involves the sharing of PhD level courses, and the Centre for Innovation and Structural Change at NUI Galway will be providing three PhD level courses in innovation in early 2010. These courses are available to PhD students from the University of Limerick and the other academic institutions who are part of the Irish Social Sciences Platform. In addition to this existing collaboration, it is intended that further PhD level courses will be developed between the two institutions.
- ii. Both NUI Galway and the University of Limerick have Executive Masters of Business Administration programmes. There are plans to share some

specialised courses. In particular the possibility and viability of providing specialised courses with respect to Health Care Management and the Medical Devices Sector is being actively explored.

- iii. Recognised Prior Learning – both Business Schools have agreed to share documentation and expertise with respect to this issue.

6.7 New Media and Film

The Huston School of Film & Digital Media at NUI Galway and the School of Languages, Literature, Culture and Communication at the University of Limerick share a combined expertise in the area of digital media in film, language pedagogy and social sciences. A four year structured Ph.D. programme in Digital Media and Film, drawing on strengths in both universities, will commence in September 2010. The programme will address significant issues for the art of cinema and for culture including the impact of digital technologies on the way audio visual works are produced and, importantly, how they are received and understood by audiences.

Contemporary work in the two universities in this area is at the leading edge of study, linking digital media to the traditions of narrative and image making. It aims to integrate theoretical concerns with the impact of digital media on cultural and social expression with practical concerns and the media industries. Whilst academically strong, the research should also lead to new concepts that are applicable to practice. It is based on the complementary nature of developed areas of teaching and research at both institutions.

6.8 Collaborations in the Social Sciences area

The College of Arts, Social Sciences and Celtic Studies at NUI Galway and the Faculty of Arts, Humanities and Social Sciences at the University of Limerick have agreed to collaborate in a number of areas:

- i. Both institutions will collaborate in developing new modules for courses at all levels, from undergraduate to PhD level.

- ii. PhD courses: Courses offered to PhD students in one institution will be made available to PhD students of the other institution. These include courses offered on the structured PhD programmes offered by the School of Political Science and Sociology in NUI Galway and courses offered on the Graduate Research Education Programme (GREP) jointly run by the Department of Sociology and the Department of Politics and Public Administration at the University of Limerick.
- iii. Students of both institutions will also be invited to attend the week-long doctoral seminar held every year by the Irish Centre for Human Rights and the two week long Winter School in Social Science Research Methods run by the Department of Sociology and the Department of Politics and Public Administration in University of Limerick. Both institutions will invite staff from the other institution to speak at their school and departmental seminars during the spring semester, 2010 and this practice will become a regular feature of the collaboration.
- iv. Opportunities to collaborate on research are also being explored. There are research specialisations in the area of Social Sciences in both institutions that will facilitate collaboration across a range of themes. FP7 research funding calls will be examined to identify possibilities for collaboration in research funding bids. A joint bid for research funding from the IRCHSS has already been made. The Institute for the Study of Knowledge in Society (ISKS) at the University of Limerick will assist in joint research bids involving partners from both institutions. In addition, we will take account of the specialisations existing in each institution when hiring staff, so that complementarity is developed between our two institutions.

6.9 Collaborating to achieve excellence in Learning and Teaching

The two universities have well-developed centres aimed at enhancing the quality of academic teaching and learning. The Centre for Excellence in Learning & Teaching at NUI Galway and the Centre for Teaching and Learning at University of Limerick will

collaborate in academic staff development, transferrable skill development among students, programmes of civic engagement by students, and, in collaboration with the National Centre for Excellence in Mathematics and Science Teaching and Learning at University of Limerick, will have a particular focus on enhancing the quality of education in mathematics and science at all levels.

Areas of cooperation will include:

- i. Civic Engagement: NUI Galway and University of Limerick are partners in the SIF supported Campus Engage network and this has facilitated training and development in the areas of student volunteering and service learning. This collaboration will continue and deepen through the exchange of materials, expertise and the provision of a credit-bearing module to staff in both institutions.
- ii. Both institutions provide workshops and seminar programmes on issues related to academic staff development, curricular reform and teaching methodologies. Under this alliance, we will collaborate in such events, sharing speakers and co-ordinating the scheduling of events.
- iii. Both institutions currently provide professional, postgraduate courses in teaching, learning and other aspects of academic practice. We will explore opportunities for sharing content/materials, developing interchangeable or joint modules and ensuring mutual recognition of credits and training acquired in each institution.
- iv. Different models and structures pertain to the support of student learning skills in each institution, yet many of the issues faced are similar. We will undertake to share experience and, where appropriate, pursue joint ventures in areas including academic writing, developing mathematical skills and confidence, approaches to study and the development of more generic, transferrable skills.

7.0 Lifelong Learning

Professional Development and Adult Education

NUI Galway and University of Limerick have a record of successful collaboration in recent years in the delivery of Adult and Continuing Education programmes at various academic levels. Programmes include the Masters in Technology Management since January 2003, a Diploma/Degree in Science and Technology Studies in January 2007, postgraduate Diplomas in Innovation Management and Technology Commercialisation from September 2008 and, more recently, undergraduate Diplomas in Environmental Sustainability and Medical Device Science since September 2009.

Both institutions acknowledge that one of the most significant challenges facing Europe is “to make our economy more competitive and productive, giving us the means to achieve an even higher standard of living and better quality of life,” (FP7, Nov. 2009). This collaboration will facilitate an expansion of our suite of joint programmes in a range of disciplines with a particular focus on up-skilling the national workforce, through outreach, open and distance learning and use of new educational technologies.

To enhance the competitiveness of enterprises within the region and to respond to current labour market needs, our two Universities will jointly research, develop and deploy innovative and flexible learning programmes which will increase access and enhance the skills and competences of those at work and especially of those seeking to re-enter the workforce. Awards offered will focus on the needs of students who require shorter term qualifications for immediate continuing professional development, while also providing an academic pathway for those interested in progressing to a longer term degree or masters award.

Further development and alignment of the two Universities’ policies for recognising and accrediting prior learning, especially workplace learning, will be the focus of a collaborative project in partnership with Regis University, Denver.

The region covered by the two Universities encompasses an area with a significant Public Sector employment cohort and we will begin work immediately to develop a suite of offerings for the public sector agencies in the region. These will, like those

associated with the Science and Technology programmes, be designed to be flexibly delivered with multiple access and exit routes.

In addition to these initiatives in the area of continuing professional development the two Universities will continue to develop the wider Lifelong Learning agenda through the joint development and delivery of a range of programmes in the broad areas of the Arts and Humanities. They will also develop further the academic discipline of Lifelong Learning through the expansion of programmes leading to awards in Lifelong Learning and the engaging in appropriate research initiatives

Work is currently underway at both universities in terms of mapping and identifying co-operation in the area of Access, Foundation and pre-tertiary initiatives. It has been agreed that, through collaborative programme design and delivery in association with the VEC/FE sector, there is both demand and potential for initiatives in Ennis/Co. Clare. Furthermore, a parallel review of all components of both Universities' programmes in Access, Foundation and pre-tertiary activity will be conducted to further identify synergies and widen the geographical scope of interventions along the Western seaboard.

8.0 Collaborating on service provision

Shared Services

There will also be collaboration on service provision (shared services) with both institutions making the best use of resources by ensuring efficient and effective transaction processing. To this end a joint approach will be pursued to the processing of employee records and payroll, thereby enhancing efficiency and reducing costs and providing a better service at lower cost per payslip. Both institutions regard this initiative an important step in preparing themselves for the future introduction in this area of shared services on a national scale.

In addition, there will be enhanced collaboration in the procurement of goods and services. The collaboration brings together the Shannon Consortium (an existing procurement shared service centre based in the University of Limerick and involving

UL, Limerick Institute of Technology, Mary Immaculate College and Institute of Technology Tralee) with the Procurement Office in NUI Galway. The partners will share procurement expertise, will combine expenditure to create economies of scale and will streamline contract and ordering processes. By aggregating expenditure and tendering as partners the collaboration will effect economies of scale in purchasing products and services and better prepare the institutions to fully participate in future national initiatives. The development of further measures aimed at reducing transaction cost in the purchase-to-pay process will also be progressed.

The initiative creates opportunity to achieve greater scale and, therefore, better value in our procurement. We regard this as a step on the road to nationally-led procurement services, which have the potential to deliver even greater scale and better access still to procurement expertise.

9.0 Extending the Alliance

This alliance is born out of a duty to further enhance the service both Universities already provide. For now an institutional collaboration between the two Universities is being developed. Over time we hope to involve other Higher Education Institutions. In particular, we anticipate the extension of alliance activities to include the Lónra network of NUI Galway, NUI Galway's partner Colleges, St. Angela's College, Sligo, Shannon College of Hotel Management, and Burren College of Art, the Institutes of Technology in the Border, Midland and West region, and the Shannon Consortium of the University of Limerick, Mary Immaculate College and the Institutes of Technology in Limerick and Tralee.

Conclusion

This newly announced agreement builds on an already fruitful partnership between the two institutions that embraces joint programmes and research ventures. By committing to a closer relationship, the University of Limerick and NUI Galway have signalled their desire to achieve economies of scale and critical mass with a view to enhancing the international standing of both institutions and to redoubling their contribution to national and regional economic and social development.

Appendix One

1. Case Study One

Energy and Sustainable Environment

The urgent need to address Ireland's energy and environmental problems has become abundantly clear. Our dependence on imported fossil fuels for transport, heat and electricity generation is simply untenable. We must make the use of alternative and renewable energy sources a day-to-day reality. Similarly, we can no longer manage the country's waste through landfill. While there has been a growth in waste recycling in recent years, much of our recycled waste is exported overseas, and as such we do not reap the commercial benefits which these recycled materials can offer. The changes Ireland must make in the energy and environment space require crucial scientific and technological advances.

The University of Limerick and NUI Galway have joined forces on several research initiatives aimed at providing the scientific and technological breakthroughs that are urgently needed in the energy and sustainable environment sector.

Biorefining and Bioenergy

In the area of biorefining and bioenergy, researchers are working to find viable means of producing fuel and energy from sustainable biomass sources, such as energy crops, wood, and waste. Waste is particularly important because if it can be commercially used to produce biofuels. This not only provides a vast source of energy, but it also allows us to divert significant quantities of waste away from landfill whilst simultaneously deriving further economic benefits from this waste. The processes being developed are primarily based on microbial/enzymatic and thermochemical biorefining. These projects are led by Prof. Vincent O'Flaherty of ECI/MRI, NUI Galway and Dr. J.J. Leahy of the University of Limerick, and build on the combined strengths within the two Universities in the areas of microbiology and chemical technologies.

Combustion Chemistry

A considerable portion of Ireland's electricity is produced by burning peat, oil and gas, and using gas and steam turbines for electricity generation. In order to migrate to the use of renewable biofuels for this purpose, considerable advances are needed to current turbine technologies, in terms of efficiency, lifespan, commercial feasibility, etc. Research teams in NUI Galway and the University of Limerick are working together to deliver these, and ongoing research includes the development of new materials, and advances in combustion chemistry, thermodynamics and heat transfer mechanisms for electricity generation turbines. These projects are led by Prof. Noel O'Dowd and Dr Jeff Punch of the University of Limerick and Prof. Sean Leen and Dr Henry Curran of NUI Galway.

Electrochemical storage

The area of electrochemical storage is essentially concerned with battery technologies. To allow electric vehicles to replace the internal combustion engine on a mass scale, present day battery capabilities need to be considerably advanced, in terms of charging, battery life and performance. Equally, large-scale batteries could provide a reliable electricity storage solution for intermittent renewable energy sources, such as wind and solar. For these, it is necessary to generate as much electricity as possible when the resource is available (e.g. wind is blowing), and to store this until such a time as it is needed by the grid (e.g. peak usage hours). Led by Prof. Noel Buckley of the University of Limerick and Prof. Ger Hurley of NUI Galway, researchers are working to develop high-performance lithium-ion batteries, flow batteries and fuel cells as well as their associated management and control systems.

Offshore renewable energy

Offshore renewable systems represent a considerable opportunity to harvest the significant energy associated with tides, waves and offshore wind. However, these systems operate in often harsh environments, and can be costly to operate and maintain. Technologies must be developed to ensure these systems are reliable, resilient and economically feasible. Furthermore, rigorous scientific assessment is required in advance of deployment of offshore solutions to ensure optimal location

(e.g. wave flows, sediment transport, etc) and to ensure environmental protection. Researchers at NUI Galway, led by Dr. Colin Brown of ECI/MRI, and at the University of Limerick, led by Dr. Dan Toal, are working together to provide technologies for offshore energy solutions, as well as developing the mapping and modeling science for the offshore environments.

The University of Limerick and NUI Galway are committed to industry informed research-led teaching in their postgraduate and undergraduate energy and sustainable environment programmes.

2. Case Study Two

Serving the Biomedical Devices Industry

With over 140 companies exporting €6.2bn worth of product annually and employing 24,000 people, the medical technology industry represents an important and growing sector of the Irish economy, with over 60% employed in companies based in the west and mid-west regions. A significant number of the top global multinational medical technology companies have subsidiaries in Ireland and these include: Medtronic, Boston Scientific, Covidene, Stryker, Cook, Zimmer, and Johnson & Johnson.

This sector has seen significant growth globally and is positioned to continue to expand. In the cardiovascular area, 80% of global stent production is carried out in Ireland, with significant investment by Abbott, Boston Scientific, Guidant and Medtronic. In orthopaedics, Ireland hosts manufacturing facilities by industry leaders Stryker, J&J, DePuy and, most recently, a €50 million investment by Zimmer. In the diagnostics area, six of the top seven global diagnostics companies are located in Ireland, including Abbott Diagnostic and Beckman Coulter.

The challenge for Ireland is to embed these companies by continuing to increase the level of value-add activities that take place in Ireland, and in particular to increase the level of research and development activity. Fostering and deepening the co-operation now underway between companies, clinicians in the local hospitals and university-based researchers, will ensure that this challenge is met.

Bioelectronics and Rehabilitation Engineering

Projects in the areas of Bioelectronics and Rehabilitation Engineering, which are aimed at the development of devices for assisted living and fall detection for the disabled and elderly, are led by Professor Gearóid Ó Laighin and Prof. Andrew Murphy of NUI Galway and Dr. John Nelson, Prof. Paul Finucane and Prof. Declan Lyons of the University of Limerick. There is also an outstanding programme of advanced research, jointly developed in both institutions, on the configuration, design and testing of a neuromuscular electrical device for the treatment of chronic venous insufficiency in the lower limb. The first generation device from this programme of research has been certified by TUV Labs Germany and is currently undergoing patient testing in a clinical trial in Ireland. These projects are lead by Professor Gearóid Ó Laighin of NUI Galway and Prof. Pierce Grace of the University of Limerick.

Biomechanics

Research in Biomechanics and the development of computational modeling approaches to allow a greater understanding of the mechanical functioning in cardiovascular and orthopedics, is being led by Professor Peter McHugh of NUI Galway and Professor Tim McGloughlin at the University of Limerick. This research extends to both computational and physical modeling of the structure and fluidic behaviour of implantable devices, including vascular stents.

Biotherapeutics

Collaborations in the development of novel biotherapeutic strategies for treating major diseases through the delivery of stem cells and gene therapy products to stimulate tissue repair or regeneration are being led by Professors Frank Barry, Timothy O'Brien and Abhay Pandit at NUI Galway, and by Professor Tim McLoughlin at the University of Limerick and others, affiliated with the University of Limerick's MSSSI. A collaborative partnership also exists in the development of new experimental tools for well-defined biomaterial surface preparation and characterisation exists between the NCBES and MSSSI. The main goal of this collaboration, led by Professor Edmond Magner at the University of Limerick, and Dr. Yury Rochev of NUI Galway, is the design new biocompatible ultra-thin coatings for drug delivery and medical devices.

Both the University of Limerick and NUI Galway have developed undergraduate and postgraduate degrees which specifically focus on the delivery of graduates with the appropriate skills for the medical technology industry sector. The availability of graduates continues to be an essential requirement for companies in this high technology sector.

3. Case Study Three

Serving the ICT Industry

Ireland is the biggest exporter of software solutions in Europe, and in the top three in the world. ICT exports account for one-third of all Irish exports, with a value of €28 billion in 2008. The ICT industry accounts for 24% of Ireland's total turn over (€75 billion) and 19% of Gross Value Added (€15.5 billion).

87,000 people are employed in the ICT sector in Ireland, representing 8% of total employment. Of these, approximately 15% are employed in permanent jobs in the ICT sector in the West and Mid West. There are 233 foreign-owned ICT companies in Ireland, representing 58,500 employees. In addition, 7 of the top 10 ICT organisations globally have a strong presence in Ireland. Many of Ireland's global ICT companies are located in the West and Mid-West regions including Hewlett Packard, DELL, SAP, Nortel Networks and Analog Devices.

The Forfás Regional Competitiveness Agenda Report recognised the 'strong and established cohort of software companies and research institutes' in the West and mid-West, and saw these regions as well-positioned to take advantage of the exponential growth in the software industry. In particular, the Report points to the potential for collaboration between the ICT sector and the medical technologies sector in the West and Mid-West regions.

Software Development

Software maintenance and evolution are the most expensive activities in the software lifecycle and software developers spend a large amount of time with ineffective collaboration tools and gathering required information from different sources. The

Digital Enterprise Research Institute (DERI) at NUI Galway and the Irish Software Engineering Research Centre (Lero) at the University of Limerick are joining forces to drive down these costs through improved software development processes.

The collaboration between Lero and DERI is aiming to bring down this cost by radically improving the software development process to enable smooth collaboration and integration of information sources relevant for the software engineering process. The common research agenda is facilitated by cross supervision of PhD students and joint project acquisition.

Assisted Living Technology

ICT solutions for the remote monitoring of elderly in their homes by clinicians and caretakers are becoming more and more prevalent, and will continue to become more commonplace across rural Ireland and the rest of Europe as the percentage of those over 60 increases sharply over the next few decades. Researchers from the Discipline of Electrical and Electronic Engineering and DERI at NUI Galway, along with colleagues from the Department of Electronic and Computer Engineering at the University of Limerick are collaborating on a telehealth project funded under the Assisted Ambient Living joint European programme whereby the health of elderly people with multiple chronic conditions is being monitored at home and on the move: thereby improving their quality of life.

Sensors linked to a "tricoder" monitoring device are networked through set-top boxes and mobile internet systems, allowing doctors to monitor prevalent chronic conditions and potential health risks. Ambient readings from weather monitors and in-house positioning systems will add context to the bioreadings, allowing intelligence to be derived from previously ambiguous data.

The Future of Social Networking

On the Web, we have moved from a static web of information silos to a "social web" where people are interacting on a daily basis: sharing materials, posting discussions, and building social networks for both recreational and professional reasons. Ireland has homegrown talent in this space through boards.ie (founded by NUI Galway's John

Breslin), but is also home to the EMEA headquarters of international success story Facebook and the Lotus Connections social software team at IBM Ireland (with NUI Galway and the University of Limerick collaborations on semantic social networks and enterprise social software respectively).

While many social websites are in existence, the most popular ones are those where the people using them and communicating with each other have some common objects of interest: hobbies, work interests, social events, musical tastes, etc.

Researchers at the University of Limerick and NUI Galway are examining how the adoption of a new service can be added on (and the potential economic and social benefits increased) by strongly aligning these real-world objects of interest to the technologies being used in social networking websites.

The Semantic Web can be leveraged since the semantics or meaning of these "social objects" and how they are connected to different people needs to be shareable and exchangeable, not just on the public web but within enterprise intranets that use social software applications. This project is a collaboration between Dr. Alexandre Passant, co-lead of the Social Software Unit in DERI at NUI Galway, Dr. John Breslin from NUI Galway's School of Engineering and Informatics, Dr. Gabriela Avram, Digital Media lecturer in the Interaction Design Centre at the University of Limerick, and Dr. Stephen Kinsella, an economics lecturer at the University of Limerick and author of "Ireland in 2050".

4. Case Study Four

Social Development and Civic Engagement

A joint project to support urban renewal and regeneration in Limerick City and beyond will explore how mobilising community capacity with best practice youth work can lead to better resilience and wellbeing among disadvantaged youth through civic engagement. The project will use a consortium among local communities, youth and youth services in conjunction with identified best practices in youth work to construct a "fit for purpose" three year project which focuses on eliciting positive civic engagement as a means to enabling young people to cope, and to improve outcomes, including resilience and wellbeing.

Importantly, all strands of this project will be supported by the infusion of best practice models, reflective practice and youth leadership training provided by the Child and Family Research Centre (CRFC) at NUI Galway as part of a service and practice design methodology.

Specifically, two elements of an emerging strategy for the regeneration of Limerick City are ready for implementation in collaboration with on-site partners in Limerick.

(i) Intergenerational Civic Engagement (Older People and Youth Collaborations) in Limerick City

Building on the current drive to regenerate communities within Limerick City including current interest in intergenerational activity as a support to older people and youth alike, this proposed project will focus on resilience building of young people through the exchange of wisdom (from older people) and protective and practical support (from youth). The project will focus on transference of support between generations within community settings and include practical support and protection from youth to older people and wisdom/emotional support from elders to young people in matched mentoring programmes. The project will be led from NUI Galway by CFRC Directors and Associate Directors Professor Pat Dolan and Dr. John Canavan and Professor Eamon O'Shea of the Irish Centre for Social Gerontology and community-based researchers Neil Haran and Martin Galvin at the University of Limerick.

(ii) Community Development and Youth

This project, a collaboration between applied researchers at the Child and Family Research Centre, community development expertise at the School of Political Science & Sociology and researchers at the University of Limerick will develop a framework to advance civic engagement among disadvantaged youth. Through on-site exploration of civic engagement as a practice tool and policy orientation that can enable coping in disadvantaged and vulnerable youth populations, it will demonstrate the value of connecting community development practices with civic engagement strategies to bringing about better outcomes for youth. The framework developed will be designed for use nationally and internationally to engender more knowledge about connections between disadvantaged youth and civic engagement, in particular, its effects on resilience and coping mechanisms. Professor Pat Dolan, Dr. John Canavan and Dr.

Brian McGrath from NUI Galway will lead the CFRC research team and work in collaboration with Neil Haran and Martin Galvin at the University of Limerick.