

# Strategic Dialogue Cycle 4

## Self-Evaluation

### Waterford Institute of Technology



Waterford Institute *of* Technology  
INSTITIÚID TEICNEOLAÍOCHTA PHORT LÁIRGE

16th May 2017

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## Overview of Performance

### Introduction and Context

The *National Strategy for Higher Education* (2011) highlighted that “Irish higher education is now at a point of transition” and set out a transformational agenda for the higher education to 2030 that would “widen participation to include those previously excluded, to leverage the traditionally high value we place on education, to get ready for the job opportunities that will come with economic recovery, and to deliver knowledge and learning of lasting cultural and social significance” (p.4). WIT too is at a point of transformation and the challenges the Institute has faced over the course of this strategic dialogue process have reflected the tensions and opportunities that arise in a time of transition.

At no other point in the history of the Institute have the demands on and expectations of the Institute nationally and locally been so considerable, while the Institute's ability to respond has been so constrained. The crippling lack of capital investment in the Institute, coupled with an inability to recruit new staff and to retain others, has limited the Institute's ability to grow; yet the demands outlined in the *National Strategy for Higher Education* has expanded the range of activities the Institute is expected to be involved in and deliver to high quality. While retaining its position as one of the more successful higher education institutions in Ireland, the period 2014-2016 has been a challenging one for WIT.

The Institute's stakeholders demand that WIT sustains activities across the full range of activities associated with both Institutes of Technology and universities. Thus the Institute runs apprentice programmes and sub-HE programmes as well as PhD programmes; the Institute engages in training and development as well as in international research; the Institute facilitates the development of small companies and engages daily with multi-nationals; the Institute welcomes part-time students, full-time students, online students, and maintains multiple campuses and outreach facilities. The uniqueness of this wide range of activities—demanded by the Institute's stakeholders—requires the support of bespoke structures and modified systems internally and nationally.

The challenging external circumstances in this period were also matched with challenges internally for the Institute. Changes in leadership, changes in the composition of the governing authority, and various controversies contributed to unsettling internal instability within the organisation to the end of 2016. In the midst of internal difficulties the Institute was limited in how it could respond to the many external demands. The Institute's brand was damaged. The Institute's internal structures struggled adequately to respond and change to new sets of circumstances.

Key to the Institute's ability to negotiate a rapidly changing landscape and a dynamic external environment will be flexibility: the external community expects the Institute to be increasingly agile and responsive, and the Institute must redefine its

internal structures and processes in order to meet that need. External structures—such as the funding model—need to be aligned to ensure that agility and responsiveness are adequately supported.

The Institute has commenced the development of its next Strategic Plan which will guide the Institute to 2021. The co-incidence with a new strategic dialogue cycle is welcome. The Institute is now at a point of greater clarity and stability and has found new determination. WIT is confident that its trajectory will see it enhance its ability in the coming period to contribute positively to its community, the wider region, and the nation.

## Overview in Domain Areas

### Regional Clusters

The Institute objectives in this domain established at the beginning of the strategic dialogue process were to:

- Create a formal regional cluster between the named member institutions;
- Improve Student Pathways;
- Shared Academic Planning;
- Meet the criteria for technological university designation.

As *National Strategy for Higher Education* indicates, “building regional clusters of educational institutions to serve local needs ... allow programmes of teaching and learning to be better planned and organised; they use resources efficiently; they allow greater flexibility in student pathways and opportunities for progression; and they provide more coordinated services to enterprise in their region” (p.96). The focus throughout for WIT has been on meeting the human capital needs of the region through its education and training programmes and research activity and through attracting people from outside the region to study, live and work within it. It is in this context that WIT has engaged with cluster partners and cluster-related activity over the last number of years. It is also in this context that WIT's focus on meeting the published criteria for technological university must be set.

While partners across the Southern cluster routinely collaborate across a range of activities as peer academics—with particular collaboration evident in research—it has become clear to WIT that there are many challenges associated with engaging in formal activity where individual partners institutions are seen either to lose or gain relative to the others. It will take some time, in WIT's view, for cluster-based, “better together” thinking to permeate institutions.

In recent times, the regional development remit of the cluster has somewhat been subsumed within other regional development authorities such as the Regional Skills Forum and the initiatives associated with the Regional Action Plan for Jobs. While negotiating the necessary (and challenging) frameworks required to facilitate joint academic planning and joint academic development across cluster partners, the efforts of WIT and others within the cluster has been to ensure a continued focus on regional development activity through other means. All partners therefore have co-ordinated their efforts through the various regional skills development agencies.

### Access and Participation

Consistent with the Institute's history and traditions, WIT is committed to actions that promote and facilitate equity of access to and participation in higher education. The Institute's objectives in this domain over the course of this dialogue process were to:

- Continue to make available lifelong learning and flexible learning opportunities to the learner population;
- Continue to provide a series of coordinated supports to learners and potential learners to meet both their academic and personal development needs.

Increasing the Institute's responsiveness and flexibility within existing structures (whether financial, academic, or to do with quality assurance) has proven challenging; it is clear that Institute systems were established to manage and support mass recruitment from one source (that is, the CAO) and these must now be adapted to manage applicant and learner cohorts with multiple needs and expectations.

Widening participation for non-traditional students is the philosophy underpinning a range of projects and initiatives which link the institute with local and regional primary and secondary schools and with local community groups involved in tackling educational disadvantage. WIT's collaborative work aims to increase participation in HE and also to foster the development of cultural capital and enhance civic engagement. These access initiatives have been running for just over a decade and in the last couple of years the institute has seen the evidence of their success in breaking the cycle of educational disadvantage.

The Institute has sought where possible to exploit the inherent flexibility within a modularised programme delivery system to offer responsive entry and exit routes to programmes. WIT will shortly implement, for instance, flexible student transfer and exit arrangements that will allow for more individually tailored programmes of study.

The Institute is particularly challenged to support the needs of learners from designated categories within a flexible system; part-time learners, for instance, are not eligible for some State financial supports. The Institute's desire to take, for instance, increasing number of students with disabilities is constrained by the funding model.

### Teaching and Learning Development

The Institutional objectives in this domain overlap with objectives elsewhere. These were:

- To continue to develop the programme portfolio in areas that are relevant to sustainable economic, social and cultural development with a view to increasing the capacity of the higher education system in the region;
- Develop research programmes, in particular continue to develop doctoral (Level 10) and research masters (Level 9) offerings;

- Expand the flexibility of the programme portfolio through supporting broadening entry for first year cohort.

WIT's strong commitment to the development of the region and its human capital finds expression in its programme portfolio. The various development agencies mentioned above (such as the Regional Skills Forum) offer important strategic guidance to the Institute in terms of its programme development strategy. The Institute is also guided by the desire to attract students and faculty from outside the region and, particularly, from abroad. The programme portfolio reflects areas of strength and innovative approaches to teaching within the Institute. The Institute continues to seek to develop the portfolio, to explore inter-disciplinary programmes, and align undergraduate programmes with areas of research excellence and critical mass.

The Institute's graduate programmes are mature and reflect the Institute's lead role within the sector in graduate education over many years. WIT has been migrating systematically to more structured, credit-based graduate programmes over a number of years and shortly all new entrants will embark on credit-bearing, structured programmes. The Institute also offers, uniquely, a Doctorate in Business Administration which is an important element in the Institute's graduate education portfolio (and a model for future development).

The Institute continues to seek to broaden entry opportunities, consistent with its commitment to access and progression. The Institute is supportive of offering as much choice as possible to students while at the same time ensuring students can make sensible and informed education and career choices. Education is a lifelong process; the Institute has sought in this context to build more meaningful connections between second, further and higher education regionally and to recognise and address the challenges associated with the transition from one sector to another.

#### Research and Knowledge Exchange

The Institute has demonstrable excellence in research and knowledge exchange activity. Its objectives in these domains over the period of this strategic dialogue cycle were to:

- Support and develop high quality research of national and international standing;
- Value and support research career development;
- Develop a graduate school framework with National and International Partners;
- Further strengthen links with industry and enterprise agencies as part of the continuing development of the knowledge region by moving towards a sectoral model of engagement with stakeholders;
- Prioritise the translation of research for societal and economic benefit ;
- Enhance our contribution to the economic, social and cultural development of the region through the expansion of partnerships and alliances across all our activities.

The Institute has a mature, effective structure to support the delivery of high quality research which has resulted in significant tangible socio-economic impacts in Ireland; the excellence of the Institute's research community and the structures that support it is evident in the Institute's performance in attracting competitive research funding, leading and participating in international research alliances, publications and other measures. The Institute has continued over the course of this dialogue process to invest in developing further its support structures and in particular has invested considerably in developing career supports for researchers.

The Institute was one of the first Institutes of Technology to offer Level 10 programmes under delegated authority from QQI (then HETAC). The Institute continues to graduate doctoral candidates every year in a range of discipline areas and is one of the higher performing Institutes of Technology in this respect. The Institute recognises that sustaining excellent graduate programmes requires considerable, long-term investment and has explored with partner institutions how best to continue to deliver such programmes using pooled resources. Discussions on shared elements of graduate programmes have been a feature of the regional cluster meetings and there has been activity at cluster level on shared elements of graduate education.

WIT's research activity continues to be closely tied to industry and to commercial application in key areas of regional priority, including Bio-pharma, Advanced Manufacturing, Agriculture, and ICT. The Institute has invested in developing a strong collaborative approach to knowledge transfer. Some of the Institute's PhD programmes are now directly sponsored by industry partners, for instance. The Institute continues to develop a co-ordinated approach to external engagement, though in a complex organisation with multiple contact points this remains a challenge. WIT's engagement, it must be emphasised, is not limited to commercial and industrial partners; through a variety of means, WIT faculty and students are engaged also in a number of non-commercial community and cultural groups in the region and support greatly cultural and community activity.

### Internationalisation

The WIT objectives in this domain were to:

- Further develop the international environment to a critical mass of international students. Support the international learner to enable them manage the regulatory, financial and emotional challenges of living and studying in a new cultural environment
- Grow the international research profile by diversifying the funding base further, particularly through the development of international strategic collaborations

The Institute's commitment to access and participation also involves a commitment to diversity; attracting international students and internationalising the curriculum (and the wider Institute) remain important expressions of a commitment to diversity within WIT. The demands on the Institute's support structures necessarily grow with international student recruitment identified as a strategic priority; finding flexibility

within the existing financial, human resource and staff deployment models to enhance support specifically for international students remains challenging.

WIT is firmly committed to the measurement of its performance against international standards. Strong international partnerships and participation in international funding competitions are good ways for the Institute to enhance its research capacity and impact. The Institute continues to perform very strongly in EU funding competitions.

### **Institutional Differentiation and Consolidation**

The Institute's objective here overlaps to a great degree with its objectives articulated elsewhere in this document; its objective was to progress the development of a Technological University (TU) for the South East in partnership with IT Carlow. The focus of this endeavour is the improvement of the capacity of higher education in the region to address the region's development needs. The evidence is that a strong university in the region will greatly add to the region's competitiveness and attractiveness. WIT remains committed to that end goal, and to the creation of a university, with its partners.

WIT is differentiated from other Irish higher education institutions in a number of respects; the Institute is challenged to articulate more clearly to learners, parents, collaborators and other stakeholders, including the State, the nature of that differentiation. The Institute is confident of its role within the region and confident also in the part it can play within the national system of higher education. That role will be based on the:

- demonstrable excellence of the Institute's educational programmes, research and other activities;
- strong evidence of the Institute's commitment to collaboration and partnership;
- uniqueness of the environment within the Institute in terms of the mix of disciplines and in the teaching and learning approach;
- accessibility of the Institute and the diversity of the community within it;
- contribution of the Institute to regional and national development;
- unique physical, social and cultural environment provided both by the Institute and the region in which it is based.

### **Further Reflections and Conclusions**

It is appropriate as the dialogue cycle concludes also to offer some reflections on how the process itself has impacted on the Institute.

The dialogue process is associated strongly with the various policy developments that aim to enact the national higher education strategy. Notwithstanding the Institute's support for these policy developments, the perceived challenges to institutional autonomy require careful management. The interface between educational policy, regional development policy, and local and national politics needs also to be more fully understood and the various pressures within these

relationships appreciated. WIT is a very successful higher education institution in its own right and looks forward to working with other similar institutions on shared initiatives to enhance the collective impact of higher education for Ireland. The extent to which that shared future can be invented *outside* WIT without taking account of the Institute's record of success and how best to enhance that record is limited.

The thematic focus across clear domains is welcome and offers the Institute a useful template for developing future plans. The expression of priorities in terms of targets is also welcome, though this approach presents some challenges. For many years WIT has taken a target-driven approach in areas like research; translating that across multiple other domains within the institution is difficult. Again (as indicated earlier), some institutional structures need reform to reflect a target-driven approach. Identifying benchmarks against which to calibrate targets is also difficult. The HEA's annual publication of performance profiles offers some data that allows some measure of inter- and intra-sectoral and institutional benchmarking to take place. University ranking criteria also offer some benchmarking possibilities, though they lack specificity. The criteria for the Technological University have also proven useful to WIT as a means of determining targets.

The integration of financial and academic strategies remains particularly difficult for WIT; the Institute is incredibly constrained in its actions by its financial situation and yet its financial situation cannot be resolved without ambitious academic plans. Future cycles of strategic dialogue might more formally and in more detail take an integrated approach to institutional strategy and its business case.

Overall, WIT continues to find benefit in the process and greatly appreciates the assistance of the HEA in the Institute clarifying its own future plans, addressing its challenges, as well as reviewing and documenting its considerable successes.

## Summary Evaluation

|   |   |
|---|---|
|  | Target achieved or exceeded   |
|  | Substantial progress made, targets not met in full and reasons identified |
|  | Target not met for identified reasons                                     |

### Overview of institutional progress

#### *Overarching Statement*

- i. Waterford Institute of Technology continues to excel as a provider of higher education in Ireland. The Institute remains amongst the largest Institutes of Technology and is amongst the top performing higher education institutions in Ireland in research. It has a significant population of post-graduate students, both taught and research, and offers a wide range of undergraduate programmes across many disciplines and at all levels from level 6. These programmes are delivered by expert staff, many of whom are national and international disciplinary leaders, and the Institute takes an innovative approach to teaching and learning.
- ii. The Institute's primary focus is on contributing to the development of the South-East region in Ireland and consequently to the development of the country. WIT seeks to direct all its core activities towards this end. The Institute's participation over the course of this dialogue process in both the regional cluster (with partners UCC, CIT, ITT, and ITC) and the technological university application process (with IT Carlow) were guided by the desire to respond positively to the demands of the region and to facilitate socio-economic development across the South-East. The Institute more recently has been an active participant in the agencies established with direct responsibility for leading regional development, namely the Regional Skills Forum and the South East Action Plan for Jobs, again strongly focussed on how best to facilitate development through education and training programmes, research and other activity.
- iii. WIT is firmly committed to being accessible as an institution to its partners and stakeholders and to potential learners; the

Institute has a fundamental belief in the importance of education as a vehicle for social and personal development as well as a means to secure employment. Over the last number of years WIT has sought to build an infrastructure to support better flexibility in programme delivery, including in blended and online learning mode. This is in recognition both of the rapidly changing nature of learning in the twenty-first century—and the increased blurring of lines between part-time and full-time, work-based and college-based, training and education—and of the particular challenges presented to certain socio-economic categories and other groups within the region WIT serves. The Institute continues to explore the opportunities presented by modularisation to deliver flexibility as well as to offer more inter-disciplinary programmes of study. The flexibility and accessibility of WIT as well as the excellence of its programmes can offer a means to distinguish WIT from other Irish HEs.

- iv. The Institute continues to perform beyond expectations in research and innovation. The Institute has constructed a very effective research support infrastructure that has ensured the long-term sustainability of its research effort. The Institute continues to cultivate new research groups in a range of domains and has the maturity and expertise to support these groups in developing critical mass and in having a lasting impact regionally and nationally. The performance of the Institute's research community is very high according to standard academic research metrics; the Institute's research community also performs extremely well in transferring new knowledge into business opportunity—the proximity of the Institute's research community to industry has created significant socio-economic impact, as indicated below.
- v. WIT is firmly embedded in its region though not limited by it. Crucial to the development of the region is the extent to which it can attract and retain talent, including talent from abroad, and the Institute is a vital part of the region's proposition to investors from outside Ireland. The diversity of the Institute in terms of its staff and student populations is an important manifestation of the region's openness. The Institute has struggled to scale up its international recruitment of students. Once more, internal structures militate against this, as does sheer administrative and management capacity. Internal reform will facilitate it is envisaged growth within this domain. The Institute's performance in attracting EU research funding gives confidence in the strength of the Institute's offering internationally.
- vi. The Institute has been challenged over recent years to articulate more clearly its identity, its values, and its mission; the frustration of the Institute's efforts with regard to university designation has forced the Institute to examine more carefully and describe more clearly its core mission. This conversation is ongoing and it is anticipated that the coming strategic planning cycle (2018-2021) will give the Institute the opportunity to bring that conversation to a conclusion. The Institute's own uncertainty has translated—in our analysis—to a confusion about the Institute's "brand" and to disappointing

student recruitment statistics. Moreover, the Institute's structures and activities need to evolve in support of a newly articulated mission; our actions need to demonstrate our commitments. Future strategic dialogue cycles will greatly facilitate the Institute in this regard.

- vii. It is vital for the region and the wider higher education system that WIT continues to grow and renew, building on its excellent foundation and traditions. The resource pool available to the Institute—in terms of resources already committed and additional resources that may become free—is extremely limited however, and the indicators considered below suggest the Institute will be challenged in the coming years to expand that resource pool. Addressing performance in undergraduate recruitment, student retention, international recruitment, and part-time and online provision are priorities for the Institute and direct its current Executive actions. (The Institute convened a number of cross-institutional working groups in 2016 to address some of these themes.) The Institute is currently developing a range of targets for income generation that will guide the work of Schools, Departments and other areas and will inform priorities within the Strategic Plan, bearing in mind the imperative that the Institute must continue to be financially sustainable. WIT's business plan is subject to ongoing discussion with the HEA.

## 1. Regional Clusters

### Overarching Statement

- i. WIT is committed to the achievement of the regional impact envisioned in the HEA's strategy by increasing its impact and contribution to the development of its region, thus adding to the Institute's demonstrable record of building human capital across the South-East. The Institute's regional impact in terms of programme provision, research and knowledge transfer is described elsewhere in this document; the following offer reflections on the Institute's engagement with the Southern regional cluster of HEIs.
- ii. The Southern Cluster did not operate as originally intended by the participants. The geographic spread of the cluster and the composition of the cluster (one University and four Institutes of Technology divided between two consortia working towards merger and TU designation) proved challenging. The primary objectives of the Cluster mirror the objectives of the Regional Skills Forum (RSF) and the Regional Action Plan for Jobs (APJ) and the experience to-date is that the APJ and RSF structures provide the opportunity to deliver a more immediate and identifiable impact at regional level. For example, the South East RSF is acting as a catalyst to enhance and develop academic planning across FET and HET providers and is building relationships and networks with key industrial sectors by identifying (i) skills needs, (ii) existing programmes to meet these needs across all levels of the NQF and (iii) programme development opportunities where a need is identified. The work of the South East RSF is closely aligned with that of the South East APJ Implementation Group. This is maximised by cross-representation by the South-East IoTs (WIT and ITC) on both.
- iii. WIT has participated fully in the South-East RSF and WIT is an active member of the South East APJ Implementation Group. The South-East and South-West RSF's have a reciprocal arrangement whereby members from each attend forum meetings of the other. This is to ensure synergies with the South-West region of the Southern Cluster and consistency of approach to achieving the national goals of the RSF programme in support of the National Skills Strategy to 2025. This has proved beneficial to the achievement of programme goals and also in building relationships with providers intra and inter region.
- iv. Through the above arrangements the RSF managers have been embedded within the regional development ecosystem across the Cluster; data from industry workshops on skills needs is now routinely shared and helps guide partner institutions in developing programme provision; and all partners in the South Cluster continue to expand and deepen their partnerships

with further education providers.

- v. The Institute notes the HEA consultation document entitled *Discussion Document Regional Clusters: Maximising Collective Impact Strategy 2015-2020* issued in November 2015 and would welcome a new and broad ranging discussion on how to enhance collective impact and create the 'regions of knowledge' originally envisioned for the regional cluster programme. The new *National Planning Framework* presents also an important opportunity to reframe the approach to regional development.

While the Cluster has not functioned as originally intended, the objectives have been coded green below as the Cluster objectives have largely been achieved through other means and alternative structures, as described above.

| Institution objective   | Performance indicator   | Baseline   | Final target, end 2016, commentary and data source   | Summary  |
|---|---|--|--|--|
| Create a formal regional cluster between the named member institutions. | Agree and implement a framework for cluster operation and commence implementation of agreed collaborative projects. | Many inter-institutional relationships exist but no formalised cluster structure is in place | Evaluate the effectiveness of the governance framework in place for the cluster and explore further collaborative opportunities. | Cluster partners have evaluated the effectiveness of the governance framework in place for the Cluster.<br><br>The Cluster did not progress or function as originally envisaged but many of the objectives are being achieved within and across regions. For instance, it was proposed (in the <i>National Strategy for Higher Education</i> , for instance) that regional clusters would be an effective way to build greater collaboration and co-operation between HEIs, and between HEIs and other stakeholders. This is a primary outcome of the RSF and the Regional APJ |

|                                  |  |  |  |  |
|----------------------------------|--|--|--|--|
|                                  |  |  |  | <p>action plans and in this sense the RSF and APJ have formed the principal vehicle through which cluster goals can be achieved. Regional engagement by the Institute through the RSF and SE APJ, amongst other initiatives, is described in Appendix 1.1 below.</p>   |
| <p>Improve Student Pathways.</p> | <p>Produce a mapping profile which outlines learner opportunities and pathways for all disciplines and levels across the cluster region which will assist in future academic planning and delivery.</p>  | <p>Many inter-institutional pathways exist but no complete mapping profile is available.</p>   | <p>Review pathways profile based on new academic developments.</p>   | <p>The RSF provides a mechanism for maintaining and enhancing relationships between FET and HET providers. More and deeper partnerships are being developed. For instance WIT now has over 20 FE links agreements and 1 ETB region agreement generating over 340 applications for 2016.</p> <p>See Appendix 1.2 for more detail on WIT's FT pathways.</p>  |
| <p>Shared Academic Planning</p>  | <p>Develop a cluster wide academic planning structure focused on the delivery of national priority objectives such as the Transitions Programme, Horizon 2020 and other objectives focused on improving the economic, social and cultural profile of the cluster region.</p> | <p>No cluster wide academic planning structure exists. However, there is an understanding that: Individual institutes will continue to provide a broad base of undergraduate course opportunities up</p> | <p>Review operation of academic planning process with a view to identifying new areas for collaboration in the next round of institutional compacts.</p> | <p>Shared academic planning has occurred between HET, FET and Skillnets in the South-East region. Through the management committee of the RSF, opportunities to meet skills needs have been discussed and actioned across all levels of the NFQ from levels 4 to 10.</p> <p>For instance, a detailed mapping of all programmes aimed at developing employees for the biopharma sector has been carried out and presented to the Biopharma committee of the APJ (see Appendix 1.3 and also the Case Studies below). This promoted programmes ranging from short skills based programmes in laboratory practice to Masters</p> |

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|  |  | <p>to level 8 to satisfy needs of individual hinterlands given the geographical scale of region;</p> <p>External stakeholders such as regulatory and professional bodies will also influence the planning and delivery process;</p> <p>The number of CAO entry paths is anticipated to reduce with the collective implementation of the transitions initiative;</p> <p>Agreement that there are benefits to shared academic</p> |  | <p>programmes. Linkages between programmes and providers are being developed and promoted to industry through this mechanism thereby meeting the goals of the regional cluster.</p> |
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|  |  | <p>planning in specialist areas, most notably at level 9 and above;<br/>Acceptance this will lead to the creation of strong thematic areas in individual and co-operating institutes in the cluster. This activity is particularly relevant to the delivery of Horizon 2020, Government objectives, targets for R&amp;D activity and enterprise and industry development. It is also relevant to the delivery of industry and employer needs, hence engagement</p> |  |  |
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|   |  | with employers in the region is significant to academic planning agenda. |  |   |
| <b>Meet the criteria for technological university designation</b> | Achievement of technological university criteria | Stage 1/MOU approved and Stage 2 commenced                               | <p>2016 target</p> <p>If we use total numbers to calculate the %, the following results emerge as at March 2015 (SRS):</p> <p>Total level 8 (FT &amp; PT): 4021</p> <p>Total levels 9 &amp; 10 (FT &amp; PT): 665</p> <p>Total levels 8 to 10 (FT &amp; PT): 4,686</p> <p>Research Levels 9 &amp; 10 (FT &amp; PT): 176</p> <p>% of level 9s &amp; 10s/level 8s to 10s: 3.8%</p> | <p>There are multiple criteria associated with the Technological University. The Institute has chosen the criterion associated with the recruitment of graduate students as indicative ("enrolment in the applicant institution in research programmes at Levels 9-10 will not be less than 4% of FTE enrolments at levels 8 to 10").</p> <p>The final March 2015 (SRS) figures are as follows (the figures to the left are incorrect):</p> <p>Total level 8 (FT &amp; PT): 4039<br/>                 Total levels 9-10 (FT &amp; PT): 614<br/>                 Total levels 8-10 (FT &amp; PT): 4653<br/>                 Research levels 9-10 (FT &amp; PT): 136<br/>                 % of research levels 9-10/levels 8-10: 2.9%</p> <p>The following results emerge from the March 2016 SRS:</p> <p>Total level 8 (FT &amp; PT): 4013<br/>                 Total levels 9-10 (FT &amp; PT): 595<br/>                 Total levels 8-10 (FT &amp; PT): 4608<br/>                 Research Levels 9 &amp; 10 (FT &amp; PT): 163<br/> <b>% of levels 9-10 to level 8-10: 3.5%</b></p> <p>While the figure does not reach the criterion, it</p> |

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|  |  |  |  | represents considerable progress. |
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## 2. Participation, equal access and lifelong learning

### *Overarching Statement*

- i. WIT is firmly committed to enhancing the quality of life of citizens across the city, region and beyond, and this involves a commitment to the provision of multiple pathways to educational achievement.
- ii. It is clear to the Institute that students engage in many different ways with learning and at many different stages; increased flexibility is required to meet the needs of students when those needs manifest themselves. The Institute is challenged to continue to develop its internal processes and practices to facilitate multiple entry, progression and participation pathways. The Institute's use of a modular curriculum development and delivery system offers the potential to create more flexible programmes and in recent years the Institute has created an online module catalogue that will facilitate greater utilisation of the Institute's module in building course offerings. The Institute's transformation into an agile, responsive provider requires further development of external processes to support internal arrangements—a challenge for HEA, QQI and other national bodies. In particular State supports for flexible recruitment and continued support for students enrolled in flexible programmes need to increase.
- iii. Part of the Institute's transformation is the re-conceptualising of the student experience and the notion of student engagement. This will involve changing our understanding of the mode of study; traditional categories such as “full-time” and “part-time” are breaking down. The Institute continues to invest in developing models for quality higher education programmes that take full account of these dramatic changes in understanding. The Institute's programme with the Irish Prison Service (the Higher Certificate in Custodial Care) is an example of a programme that defies traditional categorisation but is more typical of the demands of students and stakeholders.
- iv. The Institute devotes significant resources to retention and increasingly is focussing on developing its intelligence and infrastructure better to support student decision-making with regard to their programmes of study. The Institute has commenced a “Right-Student Right-Course” initiative and has developed internal programme transfer arrangements to facilitate applicants and students identifying the right course for them—this on foot of the

recognition that a student who makes a wrong course choice is more likely to drop out of that course. Other activities in support of retention are described in Appendix 2.1 below.

- v. The significant recruitment of students at WIT from outside traditional categories (that is, from the school-leaving population) is noteworthy and likely to grow into the future. At the same time, the Institute has struggled to sustain a part-time programme portfolio; the Institute has been challenged in its responsiveness to the needs of learners and in particular industry partners and has been constrained by funding challenges as well as internal processes.

| Institution objective   | Performance indicator   | Baseline                          | Final target, end 2016, commentary and data source | Summary  |
|---|---|-----------------------------------|--|--|
| <b>Continue to make available lifelong learning and flexible learning opportunities to the learner population</b> | Number of part-time and flexible learners as % of total level 6 to 10 | 15% (1,248/8,008);<br>March, 2014 | 17% (1,350/8,155), 8% growth in part-time learners | <p>SRS returns as follows (FT/PT/%):</p> <p>March 2015: 1318/7076: 18.6%</p> <p>March 2016: 1544/6706: <b>23%</b></p> <p>While it would seem that the Institute has exceeded its target, it is clear that there is significant additional potential unrealised in part-time programmes. See Appendix 2.2 below for more detail.</p> <p>The Institute has not been as successful as it hoped in creating online programmes (though it has a number in existence). A strategy to address this has been developed. Further details are given in Appendix 2.3.</p> |

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| <p><b>Continue to provide a series of coordinated supports to learners and potential learners to meet both their academic and personal development needs. In particular, build upon the existing Early Intervention Programmes (EIPs) to foster engagement with hard-to-reach groups</b></p> | <p>Reach and influence of EIPs</p> | <p>180 new entrants, 600 total participants, 32 families</p> | <p>New entrants = 294<br/>Total participants = 669<br/>Total families direct impact = 45</p> | <p>The figures for the EIPs for 2016 are as follows:<br/>New Entrants = 369<br/>Total Participants = 787<br/>Direct impact on families = 65<br/><br/>WIT has exceeded its target by a considerable amount.<br/><br/>See Appendix 2.4 for more details.</p> |
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### 3. Excellent teaching and learning and quality of the student experience

#### *Overarching Statement*

- i. The Institute's programme portfolio gives expression to its vision and values, particularly with regard to the region. The programme portfolio reflects the areas of the Institute's academic strength as well as its deep traditions as an Institute of Technology, its aspirations to be an accessible provider of education, and a disciplinary mix that is both responsive to regional demand and necessary to cultivate innovation and creativity across the wider population. The challenge for the Institute is to sustain the breadth and depth of its portfolio in the face of increasing "market" pressures (increasing numbers of providers offering increasing numbers of opportunities to learners) and a challenging funding environment.
- ii. The Institute remains strongly committed to the provision of level 6 programmes and to Apprentice and other educational programmes of this type. The demand is also made of the Institute to continue to provide graduate programmes up to level 10 and, indeed, increasingly, to support post-doctoral education. The Institute's insistence on the quality of its provision across all these levels presents extremely challenging resource demands on WIT.
- iii. The strengths of the WIT student experience, and its distinctiveness, are visible in the returns from WIT students to the national student survey, the outcomes of which are summarised in Appendix 3.1 below. WIT is disappointed with the outcomes of some categories, though in many cases the outcomes from some disciplinary areas or Schools skew the results. Clearly the marks of distinction for WIT out of the survey highlight the Institute's close engagement with industry and the relevance of its programmes to career development.
- iv. The Institute is currently (2016-17) concluding a programmatic review cycle with all academic areas. The indicative outcomes of this process to date are encouraging; the responses of external peers, many drawn from international institutions, have largely endorsed the quality of WIT's teaching and research.

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| Institution objective   | Performance indicator                             | Baseline              | Final target, end 2016, commentary and data source | Summary   |        |        |        |       |       |       |
|---|---|-----------------------|--|---|--------|--------|--------|-------|-------|-------|
| <b>To continue to develop the programme portfolio in areas that are relevant to sustainable economic, social and cultural development with a view to increasing the capacity of the higher education system in the region</b> | Total students enrolled                           | 7,943 (2011/12)       | 8,155  | <p>The SRS returns for the last three years (before exclusions) give the following student enrolments:</p> <table border="1" data-bbox="1565 558 1951 643"> <tr> <td>Mar-14</td> <td>Mar-15</td> <td>Mar-16</td> </tr> <tr> <td>8,589</td> <td>8,395</td> <td>8,250</td> </tr> </table> <p>While the target has been met, the Institute's declining numbers, in a time of increasing overall applicants to higher education, is extremely concerning. Not least of concern is the reduction in funding consequent on this drop.</p> <p>See Appendix 3.2 for further analysis.</p> | Mar-14 | Mar-15 | Mar-16 | 8,589 | 8,395 | 8,250 |
| Mar-14  | Mar-15  | Mar-16                |  |   |        |        |        |       |       |       |
| 8,589   | 8,395   | 8,250                 |  |   |        |        |        |       |       |       |
| <b>Develop research programmes, in particular continue to develop doctoral (Level 10) and research masters (Level 9) offerings</b>  | % of learners on L9R and L10 (as per TU criteria) | 3%, 137 FTE (2011/12) | 4.1%, 195 FTE                                      | <p>The Institute is just off target with recruitment of research degrees in 2016 at 163 (3.5% of the overall levels 8-10 cohort).</p> <p>The Institute continues to support a funded PhD scholarship scheme and anticipates 20 funded PhD scholarship programmes (including 6 co-funded with industry) in 2017-18.</p> <p>See Appendix 3.3 for more details.</p> <p>The Institute continues to deliver, very successfully, the Doctorate in Business</p>  |        |        |        |       |       |       |

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|  |  |  |   | Administration. Further details on this programme are given in Appendix 3.4 below.   |
| <b>Expand the flexibility of the programme portfolio through supporting broadening entry for first year cohort</b> | Number of broad-based entry programmes (CAO listing) | 43 level 8 programmes on CAO list (2013) | To achieve flexible broad denominated entry in at least two Schools | The Institute currently has broad denominated entry in the Schools of Business and Humanities.<br>Through the current School review cycle, additional generic entry routes are planned in Engineering, Science and Health Science.<br>See Appendix 3.5 for further brief comments. |

#### 4. High quality, internationally competitive research and innovation

##### *Overarching Statement*

- i. Waterford Institute of Technology continues to excel in research and can legitimately and credibly be defined as a research-led organisation. The Institute's high performance in the research domain is demonstrable against all standard metrics. The Institute continues to grow research across multiple discipline areas with internationally recognised research centres validated by Irish and other agencies functioning in a number of areas in the Institute.
- ii. The Institute's research activity is closely aligned with regional needs; at the same time, the research community at WIT is networked into the global research community. It is through the excellent research activity of WIT that the Institute connects local, regional, national and international agents. The exchange of knowledge between the region and the rest of the world that is facilitated by WIT's researchers is a critical part of the vibrancy of the ecosystem in the region, an ecosystem that is responsible for significant job creation and business development; in this sense, the research community at WIT is a central element in the regional development infrastructure. The Institute has focused its resources on building centres of research excellence in areas which are of strategic important for Ireland and the South-East region. These include Bio-Pharma, Communications Networks and Mobile Services and Advanced Manufacturing. (Brief profiles of these centres are included in the Appendices below.)
- iii. The Institute continues to develop its research support infrastructure. The Institute's Research Support Unit (RSU) continues to provide support across the full life-cycle of research projects. The scale and complexity of research activity at the Institute requires continued significant investment in such infrastructure, which WIT has prioritised. The Institute in particular wishes to continue to enhance the Human Resource infrastructure in support of research and researchers.
- iv. WIT continues to build its graduate studies community. It continues to recruit significant numbers of Masters and PhD research students across multiple disciplines. It has invested in a PhD scholarship programme which cultivates research activity across many domains in the Institute, including in new areas. The Institute continues to build critical mass in this way in order to create the next generation of centres that will continue to contribute to regional and national development.

| Institution objective   | Performance indicator   | Baseline  | Final target, end 2016, commentary and data source   | Summary  |
|---|---|---|--|--|
| <b>Support and develop high quality research of national and international standing</b> | Cumulative value of research contracts signed on research support unit (RSU) supported projects | €8.5m (2011/12)                                     | <p>Cumulative from 2012/13 to 2015/2016 target is €42m</p> <p>The accumulated funding over the 4 year period is €55.5M. This is 25% above the target showing continued strong performance at national and EU level</p>   | <p>WIT estimated a 2015/16 figure of €10m in research funding but actually brought in €13.8m. The Institute is ahead of its target.</p> <p>Further detail on research funding in the 2014-16 period is offered in Appendix 4.1 below.</p>                                      |
| <b>Support and develop high quality research of national and international standing</b> | Development and Implementation of national and international collaborative research strategies  | Collaborations have evolved in a 'bottom up' manner | <p>Align 3 prioritised research areas with EU research centres/graduate schools.</p> <p>The Institute has developed a critical mass of internationally accredited research in the areas of ICT, BioPharma and Advanced manufacturing in line with regional strategic</p> | <p>The areas of critical mass identified by the Institute in ICT, Biopharma and Advanced Manufacturing have been externally validated both as SFI centres and Technology Gateways.</p> <p>Profiles of WIT's highest performing research centres are given in Appendix 4.2.</p> |

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|  |   |   | regional priorities.   |  |
| <b>Value and support research career development</b> | Achievement of HRS4R logo and delivery of Action Plan | No overarching strategy for researcher career development | <p>WIT's performance on progress on HRS4R Action Plan to be evaluated by EU and HRS4R status to be maintained based on reaching key milestones.</p> <p>Progression on delivery of priority actions in accordance with the timelines of the interim review submitted to the EU in June 2016.</p> <p>Research Integrity Officer to be appointed.</p> | <p>WIT's HRS4R performance was reviewed and validated and WIT has been endorsed by the European Commission for the next two years.</p> <p>Further details are given in Appendix 4.3 and Appendix 4.4 below.</p> <p>The appointment of a Research Integrity Officers is in process.</p> |

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|   |  |  | <p>Research ethics policy review to be undertaken</p> <p>Best practice research guide to be in draft format for consultation</p> <p>A more robust HR support framework to be put in place for researchers</p> | <p>A review of the Research Ethics Policy has gone to tender.</p> <p>A best practice research guide has been drafted.</p> <p>An agreement has been put in place to fill a Grade VII internal post in HR to support researchers.</p>  |
| <p><b>To develop a graduate school framework with National and International Partners</b></p> | <p>Progress towards an internationally-benchmarked graduate school structure</p> | <p>Current research structure but no graduate school structure</p> | <p>Roll-out of graduate school for all level 9 and 10 research students</p>   | <p>The objective has been modified in light of developments during 2015/16 in the Southern Cluster. The most important collaboration within the Cluster in this domain has been on research integrity; WIT has worked closely with Cluster partners in a research integrity forum and this collaboration has impacted on WIT's own research integrity policy.</p> <p>WIT's graduate studies framework and specifically its generic skills modules were validated by an external peer review panel in October 2016. This body of modules forms basis of future activity across the Cluster. Partners will begin exploring the opportunity to deliver these modules or selections of them across all partners. The approach to the framework and the generic skills modules are described in Appendix 4.5 below.</p> |

## 5. Enhanced engagement with enterprise and the community and embedded knowledge exchange

### Overarching Statement

- i. Waterford Institute of Technology is committed to providing a research and development environment to support industry in the South East region and throughout Ireland, as has already been indicated. WIT collaborates across a spectrum of industries from multinationals to SME and entrepreneurs driving the development of the knowledge economy for the South-East region and beyond. The period from 2014 saw a significant increase in WIT's activities in this domain, as indicated in the performance of the Institute described below.
- ii. Elsewhere in this document the areas of applied research specialism and excellence of the Institute have been described. The Institute's research centres have developed the resources and capability required to translate research in science, engineering and technology into commercial benefits. WIT has a track record of licensing its technologies and supporting the creation of spin-out companies, as indicated in the performance metrics described below and in the appendices.
- iii. Waterford Institute of Technology's Technology Transfer Office forms a key part of the Institute's core infrastructure supporting research and innovation. The WIT Technology Transfer Office is funded by Enterprise Ireland and is part of a Technology Transfer consortium, along with Athlone IT and IT Carlow and led by Maynooth University.

| Institution objective  | Performance indicator                                    | Baseline                          | Final target, end 2016, commentary and data source                                       | Summary  |
|--|--|-----------------------------------|--|--|
| <b>Further strengthen links with industry and enterprise agencies as part of the continuing development of</b> | Develop a sectoral model of engagement with stakeholders | Engagement on an individual basis | Implement an integrated external engagement strategy with defined objectives, governance | The Institute's Research Office provides the primary mechanism for engaging with industry outside individual Schools and academic departments. In particular the Technology Transfer Office provides a central resource to |

| <p><b>the knowledge region by moving towards a sectoral model of engagement with stakeholders</b></p> |  |  | <p>structures, systems and processes in place to manage engagement</p>  | <p>support knowledge exchange between the academy and industry.</p> <p>The Institute is fully engaged with relevant regional government-supported bodies such as the Action Plan for Jobs and the Regional Skills Forum. These bodies have strengthened the Institute's already robust structures for engaging with external bodies and industry. See Section 1 above for a more complete description of WIT's engagement with both the RSF and the SE APJ.</p>   |  |      |  |        |        |          |   |   |           |   |   |             |   |   |               |   |   |                      |     |        |                                |   |    |                               |    |     |
|---|--|--|---|---|--|------|--|--------|--------|----------|---|---|-----------|---|---|-------------|---|---|---------------|---|---|----------------------|-----|--------|--------------------------------|---|----|-------------------------------|----|-----|
| <p><b>Prioritise the translation of research for societal and economic benefit</b></p>                | <p>Commercialisation targets &amp; research with defined impact statements</p> <p>Level of formal research activity that incorporates defined statements on impact/translation</p> | <p>Fragmented approach to research translation</p> | <p>Commercialisation targets over 4 year period (2013-2016): 4 spin outs, 18 licences, 32 invention disclosures</p> | <p>The Institute has exceeded its technology transfer targets for the period, as indicated in the following:</p> <table border="1" data-bbox="1518 751 2024 1235"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">2016</th> </tr> <tr> <th>Target</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>Licences</td> <td>5</td> <td>7</td> </tr> <tr> <td>Spin-outs</td> <td>1</td> <td>1</td> </tr> <tr> <td>Disclosures</td> <td>8</td> <td>9</td> </tr> <tr> <td>Patents filed</td> <td>4</td> <td>4</td> </tr> <tr> <td>Research expenditure</td> <td>n/a</td> <td>€16.7m</td> </tr> <tr> <td>Research Agrts with Ind &gt; €25k</td> <td>4</td> <td>19</td> </tr> <tr> <td>Research Agrts with Ind &lt;€25k</td> <td>50</td> <td>113</td> </tr> </tbody> </table> <p>Further details on the Institute's performance in knowledge transfer is given in Appendix 5.1.</p> |  | 2016 |  | Target | Actual | Licences | 5 | 7 | Spin-outs | 1 | 1 | Disclosures | 8 | 9 | Patents filed | 4 | 4 | Research expenditure | n/a | €16.7m | Research Agrts with Ind > €25k | 4 | 19 | Research Agrts with Ind <€25k | 50 | 113 |
|   | 2016   |  |   |   |  |      |  |        |        |          |   |   |           |   |   |             |   |   |               |   |   |                      |     |        |                                |   |    |                               |    |     |
|   | Target   | Actual   |   |   |  |      |  |        |        |          |   |   |           |   |   |             |   |   |               |   |   |                      |     |        |                                |   |    |                               |    |     |
| Licences  | 5  | 7  |   |   |  |      |  |        |        |          |   |   |           |   |   |             |   |   |               |   |   |                      |     |        |                                |   |    |                               |    |     |
| Spin-outs   | 1  | 1  |   |   |  |      |  |        |        |          |   |   |           |   |   |             |   |   |               |   |   |                      |     |        |                                |   |    |                               |    |     |
| Disclosures   | 8  | 9  |   |   |  |      |  |        |        |          |   |   |           |   |   |             |   |   |               |   |   |                      |     |        |                                |   |    |                               |    |     |
| Patents filed   | 4  | 4  |   |   |  |      |  |        |        |          |   |   |           |   |   |             |   |   |               |   |   |                      |     |        |                                |   |    |                               |    |     |
| Research expenditure  | n/a  | €16.7m   |   |   |  |      |  |        |        |          |   |   |           |   |   |             |   |   |               |   |   |                      |     |        |                                |   |    |                               |    |     |
| Research Agrts with Ind > €25k  | 4  | 19   |   |   |  |      |  |        |        |          |   |   |           |   |   |             |   |   |               |   |   |                      |     |        |                                |   |    |                               |    |     |
| Research Agrts with Ind <€25k   | 50   | 113  |   |   |  |      |  |        |        |          |   |   |           |   |   |             |   |   |               |   |   |                      |     |        |                                |   |    |                               |    |     |

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| <p><b>Enhance our contribution to the economic, social and cultural development of the region through the expansion of partnerships and alliances across all our activities</b></p> | <p>Regional engagement forum</p> | <p>Existing extensive engagement</p> | <p>Evaluation of Regional Engagement Forum</p> | <p>In the period since 2014, the RSF and the SE APJ have been the primary formal means by which the Institute has engaged in partnerships and alliances towards regional development. Activities associated with these bodies are described more completely in the first section of this evaluation summary above.</p> <p>The Institute continues to play a lead role in regional development across multiple domains.</p> |
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## 6. Enhanced internationalisation

### *Overarching Statement*

- i. The Institute is committed to internationalisation—of its community, its curriculum, and its research and teaching effort—as an expression of a wider commitment both to diversity and being outward looking and engaged. The Institute seeks to facilitate the mobility of its staff and students and the inward mobility of staff and students from overseas through agreements of various kinds with international partners, including academic and industry partners, and the provision of supports through the International Office.
- ii. The Institute was for many years the leader in international recruitment in the IOT sector. In more recent times, the Institute has not been competing at the same level internationally for a variety of reasons, many of them within the Institute's control. The re-prioritisation of internationalisation within the Institute's coming strategy with consequent resource allocation is vital if the Institute is to restore its position as a leader within this sector.
- iii. The Institute has been challenged to reshape its internal structures better to support internationalisation. Internal structures need to change to encourage more systematically academic domains to take ownership of creating the necessary partnerships to secure students. The Institute, moreover, needs to create more flexible structures to be able to be more proactive in responding to a dynamic and competitive international environment.
- iv. WIT has been enormously successful in securing EU research funding and is amongst the most successful institutions in Ireland in this regard. The Institute sustains a range of very active research partnerships including with international academic and industrial partners.

| Institution objective   | Performance indicator   | Baseline   | Final target, end 2016, commentary and data source   | Summary   |
|---|---|--|--|---|
| <p><b>Further develop the international environment to a critical mass of international students. Support the international learner to enable them manage the regulatory, financial and emotional challenges of living and studying in a new cultural environment</b></p> | <p>Number of full time incoming international students – domicile not Ireland and not on exchange programme, where domicile is defined as the student's country of permanent residency (3 years or more) prior to entry to the programme of study</p> | <p>114 full-time fee paying international students (2011/12)</p> | <p>327 Full time fee paying international students (revised from 220 in original document)</p> | <p>The Institute has not achieved its target in this area. The Institute by 2016 had 218 fee paying non-EU students in the Institute.</p> <p>The collapse of the Brazilian market is in part responsible for the Institute's failure to achieve this objective. Other jurisdictions similarly did not perform strongly. The Institute continues to depend heavily on China for student recruitment.</p> <p>Moreover, the Institute has been challenged internally to reallocate resources to this area. The Institute has strategically targeted North America study abroad for future development as well as existing markets; this will take time to mature.</p> <p>The emphasis in markets increasingly is towards TNE (Trans-National Education) and towards joint degrees and campuses abroad. The Institute has had some success in the past in joint degree provision on which it can build activity.</p> <p>The Institute is conscious of the government target of 15% international students and is working towards that end, notwithstanding its challenges.</p> <p>Further information on international recruitment at WIT is given in Appendices 6.1 and 6.2.</p> |

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| <p><b>Grow the international research profile by diversifying the funding base further, particularly through the development of international strategic collaborations</b></p> | <p>Income generated through EU framework</p> | <p>€2.1m for 2011/12</p> | <p>The total value of EU funding from 2013 to 2015 (Calendar years) was €8,605,884 which was on target.</p> | <p>The Institute has exceeded its target. Income figures from EU research funds are as follows:</p> <p style="padding-left: 40px;">2015/16 income: €5.5 million</p> <p style="padding-left: 40px;">2016/17 income: 8.4 million</p> <p>Further details on EU funding and on international research partners and projects are given in Appendices 6.3 and following.</p> |
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## 7. Institutional consolidation

### Overarching Statement

It is well established that the development of a university would be a major strategic asset to drive regional development in the South East (*Joint submission by the South East Institutes of Technology to the HEA 2012; Engagement and Consultation Process on a Technological University for the South-East, Kelly, 2015*). Joint vision and merger planning discussions have been ongoing with Institute of Technology Carlow since 2012. An independent review of the project was commissioned by the Minister for Education and Skills at this time and the outcomes were published in August 2015. The review identified seven challenges unique to the South East TU project that need to be addressed if the project is to be successful. Additional insights have been gleaned during a pre-engagement process involving Governing Body Chairs and Presidents of both Institutes in Q4 2015.

Following a joint meeting of the two Governing Bodies in early 2016 there was agreement on recommencing work on the South East TU project. Funding of €1.5m was provided from the HEA in late 2016 following a joint application and presentation to HEA Board Members and Executive. It is planned to use this funding to support positive collaborative experiences across and between all levels of both Institutes, while developing a unitary vision for the Technological University of the South East. There is also a commitment from the leadership in both Institutes to make a joint submission for a Technological University of the South East region within a three-year timescale. A new MOU has been drafted by the Presidents and Chairs of the two Institutes and this will be brought for approval to the Executives and Governing Bodies of both institutes following the appointment and agreement of the new Governing Body Chair to WIT (a process currently underway). This MOU provides *inter alia* for a governance and management framework to scaffold the new process comprised of the MOU, an Independent Chair and a Project Steering Group comprised of members of the Governing Bodies and Senior Executives of both Parties, International Experts and experts in Change Management.

One constraint on development is ongoing uncertainty and speculation regarding the final shape of, and timing for the enactment of the Technological Universities Bill. Within this context the Institute acknowledges the need for risk management in pursuing the unitary technological university to ensure successful amalgamation and the formation of an integrated organisation.

Notwithstanding these challenges, there are also new drivers. Not least of these is the collaborative engagement of key regional stakeholders from across the five counties in new regional structures established to implement the South East Action Plan for Jobs and to

better align skills with the economy through the South East Regional Skills Forum.

| Institution objective   | Performance indicator   | Baseline  | Final target, end 2016, commentary and data source                              | Summary  |
|---|---|---|---|--|
| <p>To progress the development of a multi-campus Technological University (TU) for the South East in partnership with WIT</p> | <p>Progress through stages for designation as a TU in line with the process set out in the HEA 2012 publication <i>'Process and Criteria for Designation as a Technological University'</i></p> | <p>Memorandum of understanding between Institute of Technology Carlow and Waterford IT (Appendix 6)</p> <p>Approval to progress to Stage 2 of the published TU process</p> <p>TU Project</p> <p>Implementation Board in operation</p> | <p>Advanced implementation of business plan for the establishment of the TU</p> | <p>Following re-engagement of WIT in the South East TU process in January 2016, both Institutes completed the preliminary engagement phase, recommended by Michael Kelly in his 2015 report to the Minister for Education and Skills.</p> <p>Funding of €1.5m was provided from the HEA in late 2016 following a joint application and presentation to HEA Board Members and Executive. It is planned to use this funding to support collaborative projects across and between all levels of both Institutes, while developing a unitary vision for the Technological University of the South East.</p> <p>There is also a commitment from the leadership in both Institutes to make a joint submission for a Technological University of the South East region within a three-year timescale.</p> <p>A new MOU has been drafted by the Presidents and Chairs of the two Institutes and will be brought for approval by the Executives and Governing Bodies of both institutes</p> |

|  |  |  |  |   |
|--|--|--|--|---|
|  |  | TU Project Office established in each campus |  | following the appointment and agreement of the new Governing Body Chair to WIT (a process currently underway).<br><br>This MOU provides <i>inter alia</i> for a governance and management framework to scaffold the new process comprised of the MOU, an Independent Chair and a Project Steering Group comprised of members of the Governing Bodies and Senior Executives of both Parties, International Experts and experts in Change Management. |
|--|--|--|--|---|

## Institutional Profile 2017-2018



## Case Studies

### BYTE (Broadening Your Third Level Experience)

BYTE is an initiative in the WIT School of Engineering in partnership with the Institute's Student Life & Learning Unit that aims to improve the transition to third level through fostering a sense of belonging.

This initiative started in 2015/16 as a pilot with Electronic Engineering students. BYTE was widened in 2016/17 to include students in 2 of the 3 Departments in the School. Next year 2017/18 BYTE will be further developed to include all students in the School and an enhanced set of activities.

The School of Engineering is convinced that BYTE and the positive energy it has created is core to the improved retention of students and increasing the number of graduates to meet industry demands. BYTE has greatly enriched the student experience. Students feel more comfortable and confident about themselves and their courses. This is vital in the context of a growing regional and national need for engineering talent at all levels.

The overall objectives of BYTE include improving student retention by making students feel like they belong, and giving students ways to get to know and ultimately help each other. As well as helping with retention BYTE gives students a set of tangible skills that will scaffold their learning experiences at WIT and benefit them not just throughout their college experience but throughout their life.

It is not a formal mentoring scheme but encompasses many elements that help students make the transition to third level. It fosters peer support that naturally arises within a student community and has developed into a mix of elements that include social integration, academic integration and mentoring.

### The DELAROSE Project

#### *Introduction*

DELAROSE (*Delivering E-Learning Accreditation to Reduce Occupational Stress in Employment*) was a European Union-funded research project led by Waterford Institute of Technology. DELAROSE was based on findings of a previous project called ROSE (*Reducing Occupational Stress in Employment*) which led to the development of an open-access suite of online programmes for health and social care workers to manage their work-related stress (Denny et al., 201; Ridge et al., 2011). One of the findings from a trial of ROSE was that workers wanted formal recognition of their learning in completing these programmes. This finding formed the basis for a further application to the European Union for funding to establish an accredited online learning programme for health and social care workers (Wells, 2011).

#### *Excellence in International Collaboration*

DELAROSE is a case-example of successful joint collaboration among four European higher education institutions to develop a new online learning programme – a Certificate in the Management of Work-Related Stress. This course is accredited and delivered by three of the four institutions involved in its development, namely Waterford Institute of Technology in Ireland, the University of Applied Sciences and Arts of Southern Switzerland, and the University

of Graz in Austria; in English, Italian, and German respectively. The development was also aided by the expertise of mental health and social care service providers, educators and representative organisations from across Europe, including Kings College London and The European Association of Service Providers for People with Disabilities.

The DEALROSE consortium drew upon the principles of the interdisciplinary team model (Care and Scanlan 2001) to structure and manage the process of collaboration. The collaborative development produced many beneficial outcomes, such as enhancing the national and international profile of the team members, facilitating access to world-renowned expertise and diverse knowledge domains (including mental health care, sport science and information technology) and a sharing workload in the delivery of high quality content to learners (Ryan et al., 2017). However, the team also had to overcome significant challenges such as increased administrative load, concerns over intellectual property, limited guiding literature, complex accreditation procedures and unique institutional practices and language barriers. A joint international oversight board was established in order to bring the institutions together for the purposes of recognising the credits awarded to learners from the other institutions, to facilitate mobility, to share information and to engage in future planning.

#### *Innovation in Technology-enhanced Teaching and Assessment*

The Certificate in the Management of Work-Related Stress is an innovative online learning programme delivered by three European higher education institutions. The Certificate is delivered as an online open-access programme and as such is the first of its type to be delivered by these institutions. The course comprises the two modules; the first provides workers with the information and skills to manage their individual levels of occupational stress while the second helps them to create a less stressful workplace. The course is completely asynchronous, with no lectures to attend and content that can be accessed online anytime and anywhere. Learner can enrol anytime, while their learning is supported by a dedicated lecturer who facilitates online discussion forums and regular online tutorials. To complete the course learners submit a work-based portfolio of learning for assessment, which is completed incrementally as these progress through the course content and expand their knowledge and skills.

#### *Innovations in pan-European Accreditation*

DELA ROSE made a unique and significant contribution to the field of pan-European accreditation by developing and accrediting the course within the European Credit Transfer System (ECTS) and referencing it to the European Credit system for Vocational Education and Training (ECVET) framework. It is one of the only courses of its kind to pilot a system of common credit recognition between higher and vocational education in Europe in order to promote learner mobility (Ryan, Bergin & Wells, in press). This was achieved by designing and accrediting the course in line with the higher education credit system ECTS, while also designing it ensure compatibility with the vocational credit scheme ECVET. Vocational system indicators could therefore be mapped to higher education learning outcomes, and once a learner had achieved the learning requirements, accreditation could be granted. A Technical Report detailing this process and recommendations for national policy was submitted to Quality and Qualification Ireland (QQI) in 2015 (Wells, Ryan & Bergin, 2015).

#### **Economy and Society PhD Summer School**

The Economy and Society Summer School is a WIT-led initiative in partnership with UCC. It involves faculty from the School of Humanities and the School of Business at WIT and is directed at doctoral students from across Ireland. The summer school was developed under the auspices of the President of Ireland's Ethics Initiative, an attempt to address recent and on-going crises, to understand and criticise the thinking which put these processes in train; the School supports inquiry into the complex intersections between society and economy.

The School recruits doctoral students largely from the social sciences but also from other disciplines.

The School is organised by the Moral Foundations of Economy & Society research groups which is a collaboration between University College Cork and Waterford Institute of Technology. The Centre is based in the School of Humanities at WIT and the Department of Sociology at UCC. The Moral Foundations of Economy & Society research group:

- Studies the manner in which the development of the modern global economy, driven by unlimited technological growth and an unbridled profit motive, irreparably damages the very tissue of social life;
- Suggests ways to stop this process by re-ethicizing the social and moral fabric that is necessary in order to live a healthy, meaningful and ethical life;
- Organizes courses, both at the undergraduate and graduate level, that promote an education oriented towards a responsible, meaningful, healthy and hopeful life.

The School is an example of collaborative work at the highest level between partners in the Southern Cluster. That this partnership exists in the Humanities is of particular note. The School also is an example of new thinking on doctoral education and new pedagogies as they are applied to graduate studies.

### National Adult Literacy Development Centre at WIT

The Literacy Development Centre, incorporating the NALA/WIT Accreditation Project, is a national partnership between the National Adult Literacy Agency (NALA) and Waterford Institute of Technology (WIT) that was established in 1997 to design, develop and deliver third level qualifications to practitioners working in the adult literacy sector in Ireland. The Literacy Development Centre is based in the School of Lifelong Learning and Education in WIT. The Partnership was further strengthened in 2011, when the two organisations signed a Memorandum of Understanding with the agreed priorities of programme design and delivery, research and input into national policy.

Over the past 15 years the LDC has developed a range of nationally recognised programmes for both tutors and managers working in adult literacy and more recently to a broader cohort of practitioners working across adult basic education and further education settings including the regional Education and Training Boards, Colleges of Further Education, Adult education services, Adult Literacy, Community Development centres and a range of ETB (formerly FAS) Training Centres nationwide.

The LDC has secured over €5.5M in funding over this period and has facilitated over 1600 adult educators in their continued professional development.

Today this national partnership is involved in a range of activities including programme development and delivery, teacher education programmes for the Further Education sector (Teaching Council approved), research (NALA, Grundtvig, Scotens, Fulbright, National, Forum for the Enhancement of Teaching and Learning initiatives), input into national policy and partnership with national stakeholders in adult literacy, adult education and further education and training.

In conclusion, this national partnership enables WIT to engage with regional and national stakeholders for adult and further education in a sustainable and strategic way.

## Teagasc and WIT

Waterford Institute of Technology and Teagasc, the Agriculture and Food Development Authority have also worked together in research, particularly through the Walsh Fellowships which are designed to generate and apply new knowledge for the sustainable development of the agriculture and food processing industry. In January 2016, WIT and Teagasc launched their Education Partnership where WIT committed to delivering a range of continuing professional development programmes in the fields of education, science and business to Teagasc staff through to the end of 2017.

This significant strategic development marked further collaboration between WIT and Teagasc, who have been working together over the past 20 years in the areas of research and programme development. Programmes where WIT continue to collaborate with Teagasc include:

- Bachelor of Science in Agricultural Science
- Bachelor of Science in Agriculture
- Bachelor of Science in Forestry
- Bachelor of Science in Horticulture (through collaboration with Kildalton College and the National Botanic Gardens)

Since 2015 WIT has been working with Teagasc in designing customised programmes that meet the specific needs identified by Teagasc to ensure staff are offered an opportunity to engage with a training initiative that is both relevant and nationally recognised.

WIT has delivered the following programmes to Teagasc staff since May 2015:

- Certificate in Teaching Strategies for Adult and Further Education (5 cohorts – 76 participants)
- Supervisory Management (2 cohorts – 29 participants)
- Financial Management (1 cohort – 13 participants)
- Presentation Skills (1 cohort – 12 participants)
- Good Laboratory Practice (1 cohort – 10 participants)

Total number of participants – 140

In addition to the above bespoke programmes, a number of Teagasc staff has participated on the WIT Post Graduate Diploma in Teaching for Further Education, a nationally recognised teaching qualification, recognised by the Teaching Council in Ireland.

The programmes have been delivered through the Department of Education and the Department of Science in WIT. General programme administration and course management has been managed by the Department of Education and the teaching teams comprise lecturers, both full time and adjunct staff from both Departments. Plans are already in place to deliver further iterations of these courses.

## Appendices

## Appendix 1: Regional Clusters/Meeting Regional Human Capital Needs

### 1.1 WIT and Regional Engagement: Regional Action Plan for Jobs and Regional Skills Forum

The Regional Action Plan for Jobs and the Regional Skills Forum emerged separately and have complementary agendas through different reporting lines. WIT is fully engaged with both bodies. Both provide mechanisms for the co-ordination of effort across HEIs in the region towards regional development needs.

#### *Regional Action Plan for Jobs*

The core objective of the Action Plan for Jobs for the South East—which covers the counties of Carlow, Kilkenny, Tipperary, Waterford and Wexford—is to support employment creation in the South East through increasing the number of start-ups, developing the capacity of existing enterprises, and capitalising on the strengths and opportunities of the region.

WIT is fully engaged with the Plan and embedded in the process. WIT contributes to the strategic direction of the Plan through the Steering Group (on which the WIT President sits) as well as to the monitoring of the Plan's outputs and the implementation of the Plan's action through participation in various working groups (a number of which have WIT members).

The Action Plan has identified a range of areas within which there is opportunity for significant regional jobs growth. WIT has been focused on aligning its own development with some of these areas; the next cycle of Strategic Planning at the Institute will further prioritise these domains.

Of particular interest, both for the project's own output and as a model for development in additional areas, is the eDIGIREGIONS project ([www.edigiregions.eu](http://www.edigiregions.eu)). The project comprises technology-focused research-intensive organisations in the specific Digital Agenda domains (including WIT along with European partners), expertise in regional innovation systems, local groupings of regional ICT businesses and regional authorities with specific responsibility for regional strategy and funding for research, innovation and regional growth. The project aims to plan, design and implement an ecosystem of research, innovation, creativity and commercialisation that supports the implementation of the EU Digital Agenda in a number of regions across Europe, including the South-east of Ireland.

Specific domains for future development linked to the Action Plan and set to direct WIT's own strategy for the coming period are:

- *Bio-pharma*: actions by WIT specific to the growth of this sector are described separately below;
- *Agri-tech*: the strong potential identified in the Action Plan has been built on by WIT's TSSG research centre in collaboration with Teagasc and Glanbia;

- *ICT*: through the TSSG at WIT, there continues to be significant and impactful development work taking place in the software development and wider ICT domain, including the development of new start-ups; the Institute also continues through its School of Science to deliver training and education programmes in ICT;
- *Food production, hospitality and artisan food*: WIT continues to recruit strongly into its undergraduate culinary programmes with a view to developing the food production and, particularly, the artisan food production industries in the region;
- *Design*: WIT has recently (Q4 2016) launched DASI (Research Group for Design and Social Innovation) that seeks to exploit the potential in this area identified in the Plan and complements activities taking place across the region;

### *South East Regional Skills Forum*

The South East Regional Skills Forum comprises WIT, IT Carlow, LIT Tipperary, Tipperary ETB, Waterford/Wexford ETB, Kilkenny/Carlow ETB, Skillnets, as well as the IDA, Enterprise Ireland, Chambers of Commerce, Local Enterprise Offices, IBEC, Construction Industry Federation, and industry representatives. The Forum seeks to provide

- A cohesive education-led structure for employers and the FET and HE systems to work together in building the skills needs of their regions.
- Better understanding and access for employers of the full range of services available across the education and training system.
- Enhanced links between education and training providers in planning and delivering programmes, providing for learner progression and informing national funding decisions.
- The opportunity to involve enterprise stakeholders in a collaborative framework with education and training partners in the identification, development and delivery of skills development responses

The South East Regional Skills Forum provides a framework to support and facilitate the implementation of actions by individual ETBs or HEIs to enhance links with enterprise and prepare learners for the different roles they will have over their working lives.

The South East Regional Skills Forum Manager has a base in WIT and spends at least one day a week at the Institute. There has been extensive engagement by WIT across multiple departments and Schools with the Forum through the manager. To date the most important engagements have been in Business (including in the area of lean processes and practices), Engineering (including in the advanced manufacturing domain), and Science (specifically in ICT and bio-pharma). These engagements have directed WIT's submissions for Springboard funding, for instance. They have also directed other initiatives within the Institute, including the development of a Higher Diploma in Arts in Early Childhood Care, a programme to upskill practitioners in that industry.

### Other Regional Engagement Activities

Amongst other regional engagement activities the Institute was engaged in during the period under review are the following:

- The Institute is a member of the Waterford Local Community Development Committee (LCDC) which is charged with “of developing, coordinating and implementing a coherent and integrated approach to local and community development”. The Committee takes its lead from *One Waterford: Local Economic & Community Plan 2015-2020*, a local authority initiative, that charts the actions needed to transform the city and wider region over the coming period.
- WIT was actively involved in the South-east “Three Sisters” bid for European Capital of Culture 2020 designation. The bid process itself involved extensive engagement across the region with culture and community groups and also involved the development of a regional cultural strategy. The “Better Together” strategy establishes the agenda for cultural development in Waterford, Wexford and Kilkenny and has four sets of strategic actions:
  - Working Regionally for Greater Impact
  - Developing the Cultural Economy
  - Culture-Led Social Development
  - Urban and Rural Regeneration Programme

The strategy offers a framework within which WIT's contribution to regional cultural development—and consequent economic development—can be positioned.

- The Action Plan for Jobs recommends that the region more heavily exploits its diaspora in the United States. A number of WIT projects in the period 2014-16 were directed towards this agenda, including projects with several institutions in Waterford's sister city of Rochester, New York, as well as other partnership projects (with Wexford County Council) with partners in Georgia and elsewhere. The Institute is currently in ongoing discussions with Wexford County Council and other stakeholders about the development of a migrant research centre and information hub in New Ross.
- The Institute is extremely active in the domain of teacher education and professional development through its School of Lifelong Learning. It works closely with teacher representative bodies, local schools, teacher centres and other bodies to identify skills needs amongst the teaching community (at all levels) and to address those needs with training programmes.

## 1.2 Further Education Progression Scheme

In recent years the Institute has sought to build on its relationship with a number of local and regional further education providers by developing formal progression agreements with those providers. The Institute's FE Progression Scheme is designed to ensure equality of opportunity for, and the smooth transition of learners moving from further to higher education. The Scheme recognises the range of generic and discipline specific skills and knowledge acquired by successful students on further education programmes and matches these to the requirements of WIT programmes.

The table below shows that WIT has currently over 20 FE links agreements and 1 ETB region agreement generating over 340 applications for 2016. This translated into over 160 registrations in the year from these links. These are additional enrolments to students arising from the FE sector non-link programmes.

The Institute continues proactively to develop links agreements with FE providers particularly within the region.

| School                                   |        | No of Fetac Courses | Approx No of Students | No of WIT Apps April 2016 | Accepted Places 2016 |
|--|--------|---------------------|-----------------------|---------------------------|----------------------|
| Ballsbridge College of Further Education | BCFE   |                     |                       | 3                         | 1                    |
| Blackrock Institute of Further Education | BFEI   |                     |                       | 1                         | 1                    |
| Bunclody Vocational School               | BVC    | 10                  | 100                   | 10                        | 2                    |
| Carlow Institute of Further Education    | CIFE   | 20                  | 200                   | 23                        | 9                    |
| CTI, Clonmel                             | CTI    | 14                  | 140                   | 15                        | 7                    |
| Colaiste Cathal Naofa                    | CCN    | 11                  | 110                   | 24                        | 17                   |
| Colaiste Ciaran, Croom                   | CCO    | 10                  | 100                   | 3                         | 0                    |
| Colaiste Mhuire Co Ed- Thurles           | CMCO   |                     |                       | 2                         | 2                    |
| Colaiste Phobal, Ros Cre                 | CPR    | 7                   | 90                    | 5                         | 3                    |
| Crumlin College, D12                     | CCFE   | 27                  | 270                   | 0                         | 3                    |
| Duiske College, Graiguenamanagh          | DCG    | 5                   | 50                    | 3                         | 1                    |
| Enniscorthy Vocational College           | EVC    | 21                  | 220                   | 12                        | 9                    |
| New Ross Vocational College              | NRVCFE | 6                   | 50                    | 8                         | 2                    |
| Ormonde College of Further Education     | OCFE   | 15                  | 210                   | 22                        | 9                    |
| Pearse College, Dublin 12                | PCFE   | 25                  | 280                   | 0                         | 0                    |
| Ramsgrange Community School              | RCS    | 2                   | 25                    | 0                         | 0                    |

|  |      |    |       |            |            |
|--|------|----|-------|------------|------------|
| St Pauls Community College                       | SPCC |    |       | 9          | 6          |
| Teagasc College of Amenity Horticulture          | TCAH | 1  | 10    | 0          | 0          |
| Templemore College of Further Ed                 | TCFE | 30 | 390   | 3          | 3          |
| WCFE   | WCFE | 23 | 846   | 152        | 74         |
| Wexford Vocational College                       | WVC  | 24 | 240   | 9          | 5          |
|  |      |    |       |            |            |
| <b>Cork Education and Training Board</b>         |      |    | 5,036 |            |            |
| Cork College of Commerce                         | CCC  |    |       | 23         | 8          |
| St Johns College, Cork                           | SJC  |    |       | 0          | 0          |
| Mallow College of Further Education              | MCFE |    |       | 1          | 0          |
| Colaiste Stiofan Naofa                           | CSN  |    |       | 15         | 4          |
| Kinsale CFE (new 2017)                           | KCFE |    |       | 0          |            |
| St Colmans, Midleton (new 2017)                  | SCCM |    |       |            |            |
| St Conleths, Newbridge (new 2017)                | SCCC | 14 | 140   |            |            |
| Limerick College of Further Education (new 2017) | LCFE |    |       |            |            |
| <b>Total</b>                                     |      |    |       | <b>343</b> | <b>166</b> |

Table 1 Applications from Regional FE Colleges 2016

### 1.3 Addressing Skills Needs in the Biopharma Sector

Initial discussions were held in September 2016 with the Director of the South East Action Plan for Jobs (SEAPJ) and South East Regional Skills Manager to determine how the region can prepare for the expansion of the life sciences sector (pharma/biopharma medtech). There are approximately twenty major life sciences employers in the region employing up to 7,500 people. In the last two years there have been ten company announcements accounting for a total of 1,700 jobs. The majority of these jobs have yet to be created.

As a direct action from these initial discussions a number of meetings were held with industry to:

- determine the skills needs in science, engineering, and IT disciplines
- ascertain up-skilling requirements for existing employees
- determine the skills needs for expansion/growth within the sector
- establish the need for additional test/incubation/training facilities within the region

The following companies participated in the meetings:

- West Pharmaceuticals, Waterford;
- Merck, Sharp & Dohme Ballydine, Co. Tipperary;
- GSK Dungarvan, Co. Waterford;
- EirGen Pharma, Waterford;
- Amneal Pharmaceuticals, Cashel, Co. Tipperary;
- Bausch & Lomb, Waterford.

More industry meetings are planned for June 2017.

In addition, WIT hosted a workshop in January 2017 to further engage with industry. The workshop was organised in conjunction with Biopharmachem Ireland. The workshop considered:

- How can the skills supply pipeline be improved? What activities can be implemented at a local level over the next 18 months to help offset the skills demand for the sector under the following headings:
  - Work based training at Level 6/Level 7
  - Advanced training at Level 8/Level 9
  - Improvement of existing undergraduate programmes
  - Placement programme
- What activities can be implemented at a local level over the next 18 months to enhance the level of engagement between WIT and industry under the following headings:
  - Implementation of Industry Advisory Boards
  - Promotion of biopharma/pharma careers in the region i.e. industry fairs
  - Promotion of science careers at primary and second level

The key scientific skills gaps were presented and a number of key actions were identified as follows:

- Action 1: WIT Industry Advisory Board to be established

- Action 2: Placement programmes to be reviewed
- Action 3: Programmes/modules to be designed/modified based on industry needs
- Action 4: Industry engagement with students - industry representatives to be invited to speak to students

WIT is acting on foot of these recommendations. WIT made a number of applications for Springboard funding in 2017 arising directly from this engagement. These programmes were:

- Certificate in Pharmaceutical Technology (level 6), designed to upskill applicants to become technically competent personnel for roles in the manufacturing, regulatory or compliance sections of bio-pharmachem/medtech facilities throughout the region;
- Certificate in Advanced Analytical Techniques (level 9), designed for those who have some experience of working in an industrial laboratory environment who need to upskill in the core areas of analytical science.

Both programmes were endorsed by industry and recommended as meeting significant skills needs regionally.

## Appendix 2: Participation, Access and Lifelong Learning

### 2.1 Retention/Non-Progression

#### Overall Performance

WIT has a non-progression rate from year 1 to year 2 (based on the HEA Higher Education System Performance profiles using 2013-14 published data) of 26% for level 6, 23% for level 7, and 19% for level 8. This is similar to the Institute of Technology non-progression rate for the same year but significantly different to that of the universities, as the following table shows.

|                          | Level 6    | Level 7   | Level 8    |
|--------------------------|------------|-----------|------------|
| WIT                      | 26%        | 23%       | 19%        |
| All HEIs                 | 26%        | 28%       | 12%        |
| Institutes of Technology | 26%        | 28%       | 17%        |
| Top IOT                  | 21% (LKIT) | 22% (ITC) | 13% (IADT) |
| Bottom IOT               | 36% (Tral) | 34% (ITB) | 22% (ITB)  |
| Universities             | -          | -         | 11%        |
| Top University           |            |           | 7% (TCD)   |
| Bottom University        |            |           | 13% (UL)   |

Table 2 Non-Progression 2013-14

WIT ranks 5<sup>th</sup> best of all IOTs for level 6 progression (the best performance is 21% to WIT's 26%), ranks 3<sup>rd</sup> best for level 7 progression (the best performance is 22% to WIT's 23%) but 12<sup>th</sup> best for level 8 progression (the best performing university is 7%, the best IOT is 13%, while WIT is at 19%).

#### Current Interventions

The Institute has initiated a range of interventions to address some of the retention challenges identified above. Key is the Institute Registration Audit which is a retention measure aimed at First Year students with data collected at two points in the academic year, once per semester. It is a data collection instrument aimed at: confirming actual student numbers; identifying students at risk of non-completion or falling behind in their studies and providing more robust data for examinations reports. A student who may be at risk of non-completion due to poor attendance at lectures/labs/tutorials or inadequate completion of assignments etc. is contacted by their Department and encouraged to make contact with their course leader in order to resolve difficulties.

Schools and Departments have also embarked on individual retention initiatives with some combining a number of initiatives under specific headings.

- *School of Business - First Year Experience (FYE) Group*  
Created in February 2010 this initiative includes; Annual Business School Student Survey of the First Year Experience; First Year Induction overhaul and First Year curriculum developments.

- *School of Humanities (Law Programmes) - Performance and Attendance Committee*  
This initiative is used for first year LLB students to try to combat poor attendance in semester I. Students receive letters and attend a meeting with the course leader and HOD to explain their absence.
- *Department of Computing and Mathematics – First Year Retention Scheme (FYRS)*  
Created in September 2015 the First Year Retention Scheme (FYRS) was initiated to address the academic problems students have in certain scientific areas, by providing them with additional tuition in the area of difficulty for a limited period (determined by the needs and capability of the student), to overcome these problems.
- *Department of Engineering Technology - BYTE (Broadening Your Third-level Experience)*  
BYTE (Broadening Your Third-level Experience) is a new retention initiative that has been created by and is being trialed in the Department of Engineering Technology. It is running with the support of SLL under their STEPS programme. The BYTE initiative aims to provide students with an informal social setting whilst delivering a set of tangible skills that will benefit them not just throughout their college experience but throughout their life.

### Mentoring

The allocation of Mentors to first year students has been implemented in a number of Schools. In the School of Business a Mentor is allocated to 1st year Bachelor of Business (Hons) students. The Mentor meets all students to discuss progress at least once per semester. In the Department of HSE all first year student are allocated a staff Mentor whom they meet during semester 1 and 2. A peer-to-peer mentoring initiative has also been running in the Department of HSE in conjunction with SLL. This matches students on later years of the programme with first year students. In the Department of Engineering Technology students on the Higher Certificate in Electronic Engineering are spoken to individually in semester 1 after a few weeks attendance and again in January in relation to their semester 1 exam results and overall progress.

### Induction

First year Induction has been a focus for a number of Schools. The School of Business radically overhauled the first year induction programme, piloted in 2011, by making it more dynamic and actively involving students and faculty throughout in order to facilitate transition, engagement and teaching & learning. All first year students engage in the same activities; ice-breakers, treasure hunt, quiz, LEGO exercise and case study. The Department of HSE deliver programme specific induction to first year students that involves familiarisation with the course and college and team building/group activities.

### Curriculum Initiatives

The School of Business and Departments of HSE and Computing & Mathematics have piloted and implement a range of curriculum initiatives relevant to their particular disciplines. The School of Business introduced the Business Learning & Practice module in Semester 1 on Level 6 and 7 programmes to facilitate transition

and engagement. Year-long linked modules in Accounting and in Economics were implemented on a pilot basis for 2012/2013 and 2013/2014 in an attempt to counter the fragmented learning arising from semesterisation. An Integrated Project comprising a business case study was piloted in semester 1 2014/2015 to further engage first year students, and enable them to synthesise and apply knowledge and learning across all modules. The pilot was delivered to two 1st year class groups in 2014/2015 and three 1st year class groups in 2015/2016 and will be rolled out to all 1st year class groups from 2016/2017 onwards. All first year students in the Department of HSE take part in generic skills/learning modules (Research and Learning, IT and Communications, Learning to Learn) and there is an emphasis on continuous assessment in semester 1 for first year students. Care is taken to assign the course leader to a module being delivered in semester 1 of first year for their respective programmes. All course boards generate assessment schedules each semester in an effort to manage submission dates and assessment loads. It is noted that where a module requires an 80% attendance criterion (to satisfy external accreditation) it results in greater student engagement. Traditionally, the Department encounters challenges with 2<sup>nd</sup> year student retention. Overall the Department has looked at ensuring a balance of theory and applied/practical modules in all semesters as well as balance in relation to continuous and final assessments. The Department of Science has attempted to distribute theory classes and laboratory/practical classes on the student's timetable, with lectures scheduled for the morning, and practicals scheduled for the afternoon. In semester one of 2015, no practicals or tutorials were scheduled for week 6 in the first year timetables of the Department; instead all continuous assessments were carried out during this week.

#### Other Supports

- The Computing & Maths Learning Centre provides additional support to students with the computing and maths content of their courses. The Centre is open during term time for four days per week, following a structured timetable. Students are not required to make an appointment to avail of the support; they may drop in for any of the timetabled sessions.
- The Department of Nursing and Health Care conduct daily monitoring of student attendance and follow up in relation to poor attendance. The ARC system allows for the generation of attendance reports facilitating early intervention with non-attenders/poor attenders.
- Academic Writing workshops are run by Student Life and Learning for one hour once a week on the Cork Road and College Street campuses.
- The International Office run the International Buddy Scheme which pairs Irish students to International students.
- The Schools and Departments recognize the support provided by Student Life & Learning for both Institute-led and School/Departmental led retention initiatives. Along with the above retention activities currently in place School/Departments have designed additional retention initiatives documented, in the main, in their respective School Review documents.

## Future Developments and Strategy

Developing a culture where student success is a priority across all spheres of Institute life is critical. Collaboration between academic departments, central student support service and students' union is critical to this.

The following are suggested areas for focusing on:

- Developing an appreciation and understanding of the importance of taking an institutional approach to student retention and success and focusing on first year transition and experience.
- Creating an Institute Student Retention and Success Strategy that will focus on student retention and the first year experience over a 2 to 3 year period
- Acknowledging that a "one size fits all" approach is not sufficient. The Institute encompasses different student cohorts (school leavers, mature students, springboard, students with a disability etc.) with different prior educational levels and experiences different needs. and therefore considering the transition of all students
- To be cognisant of sectoral change and review including; Transition Reform (HEA and NCCA), widening of entry and re-entry points to facilitate lifelong learning and more flexible transfer systems and maximising RPL opportunities (Recognition of Prior Learning).
- Re-visioning of the student induction. A re-design of the existing induction programme to ensure that induction is an ongoing activity. The initial induction day at the very start of semester 1 needs to be re-designed and extended to a two-day activity to ensure that opportunities are maximised for students to engage socially with their peers and the Institute. The STEPS Programme (Student Transition Engagement Progression and Success) could be utilised to enhance induction across all of semester one and two.
- Consider the rollout of an institute-wide student mentoring model that suits the department/discipline. P2P and BYTE are existing programmes run through SLL under STEPS in two departments in the Institute.
- Developing our data and statistical capability in order to track students' engagement, progressing, leaving, transferring and completing and also to highlight at-risk groups. This data will then help inform strategy development and subsequent targeted interventions (for example looking at trends for specific weeks when students are more at risk of leaving). Technology used within learning, coupled with robust data modeling across the student learning environment, can provide timely information to support the implementation of innovative approaches, evidence base decision making, and performance analysis of the quality and impact of retention initiatives/strategies. Several of the suggested priorities are dependent on the availability of timely and reliable data. Additionally, technology can facilitate internal dissemination, discussion, collaboration and evolution of pedagogical policy/plan and associated activities both within and beyond WIT.
- Developing a pedagogical engagement policy/plan to consider the following:
  - Curriculum and assessment; the importance of assessment and curriculum to student success, particularly for first years needs to be understood. Early formative feedback is critical and looking at

- assessment load in semester 1 along with engaging in more innovative assessment that facilitates formative feedback is critical.
  - Develop an awareness of the importance of building a vision for students in semester 1. Students need to build a sense of identity around the programme and the discipline e.g. through concept modules to convey identity of discipline, re-structuring of semester one for first year students
  - Learning-to-learn modules that are linked to other modules on the programme
  - Provide taster/introductory modules in year 1 where possible and avoid declaring specialisms until year 2 if possible
  - Development of support centres supports including support centres (maths, academic writing, literacy etc., refresher sessions)
  - Examine the structure of the first semester and consider the impact of semesterisation on the first year experience and consider constructive ways that existing 30 credit model over 12 weeks could be delivered in a way that fosters opportunities for social and academic engagement and the acquiring of foundation skills
  - Prioritise a series of inter-disciplinary teaching and learning innovations which recognise and utilise technology, both to facilitate the objectives of the innovation and to inform the evidence based and timely decision making regarding student engagement and at risk students (e.g dashboard indicating assessment load and/or student engagement visible to course leaders)
- Developing a student advisor structure within academic departments that is an academic and social contact and is linked to the Retention Office in SLL to encourage:
  - Development of student/staff relationships
  - Early identification of at-risk students
  - Provide a pastoral contact for students
  - Early referrals if required
- Enhancing pre-entry activity including:
  - Communication with applicants
  - Improved availability of course information
  - Managing student/applicant expectations

#### *Planned Activities and Resource Allocation*

| <b>Activity</b>   | <b>Resource Requirements</b>  |
|---|---|
| Establish an academic advisor structure with responsibility for: <ul style="list-style-type: none"> <li>● Identifying and engaging with at-risk students and co-ordinating early-intervention programmes</li> <li>● Monitoring attendance</li> <li>● Liaise with and refer to SLL supports as required</li> <li>● Research and reporting on retention, progression</li> <li>● Work in collaboration with SLL to develop student engagement and</li> </ul> | <ul style="list-style-type: none"> <li>● Identify academic staff members within each department to act as academic advisors for students and actively engage with identifying at-risk students and the development of student engagement projects in collaboration with SLL.</li> <li>● The numbers of advisors required will depend on the student numbers in the department.</li> </ul> |

| retention programmes   |  |
|--|--|
| <p>Establish a Student Engagement and Retention Office in SLL with responsibility to include:</p> <ul style="list-style-type: none"> <li>• Training and support for dedicated academic staff allocated as academic advisors</li> <li>• Development of student engagement projects in collaboration with academic departments (e.g. BYTE, P2P) that suit the departments</li> <li>• Rollout of STEPS programme (extended first year induction programme which spans the first seven weeks of semester one and the first three weeks of semester two)</li> <li>• Participation in the National Student Engagement Programme Pilot – pilot programme for which WIT was selected in partnership with the HEA, QQI and USI</li> </ul> | <ul style="list-style-type: none"> <li>• Continue with the restructuring of the SLL office as planned to include allocated staff resource to first year and student engagement programmes with appropriate support person in situ (additional resources administrative support person)</li> <li>• Reallocation of management time to retention expansion supported by the additional resources required above.</li> <li>• Offer a student placement to 3<sup>rd</sup> year Health Promotion/Exercise and Health during September to December 2016 (this has been completed and will commence in September)</li> </ul>  |
| <p>A physical office space for the Student Engagement and Retention Office</p>   | <ul style="list-style-type: none"> <li>• Central location which is easily visible and accessible. This space will be a central hub and drop-in centre for students and be highly advertised as the contact centre for STEPS, P2P and BYTE.</li> </ul>  |
| <p>Establish a series of teaching and learning innovations with defined objectives and their anticipated impact on retention and engagement</p>  | <ul style="list-style-type: none"> <li>• The innovations will be initially serviced by existing programme resources and structures</li> <li>• Additional allocation of hours may be required to facilitate discussion and collaboration regarding pedagogical engagement plan across disciplines.</li> <li>• Existing learning technologies (e.g. Moodle, student engagement dashboards informed by relevant data analytics, etc) can be adapted and utilised as appropriate to the objectives of the pedagogical engagement policy. Collaborative support from existing institutional departments (e.g. HoDs and Programme Leaders, Centre for Technology-Enhanced Learning, Library, Retention Officer, etc).</li> </ul> |

Table 3 Planned Retention Activities



## 2.2 Further Reflections on Part-time and Lifelong Learning at WIT

### Student Numbers

The following table describes the balance of part-time to full-time provision at WIT based on the SRS returns from March 2014, March 2015 and March 2016.

|                              | Mar-14       | Mar-15       | Mar-16       |
|------------------------------|--------------|--------------|--------------|
| Full time (after exclusions) |              |              |              |
| <b>TOTAL</b>                 | <b>5,881</b> | <b>5,647</b> | <b>5,459</b> |
| Part time                    |              |              |              |
|                              | 1,360        | 1,319        | 1,544        |
| LMA                          | 161          | 58           | 133          |
| Sub -total                   | <b>1,199</b> | <b>1,261</b> | <b>1,411</b> |
| Apprentices                  | 140          | 152          | 202          |
| Masters exclusions           | 0            | 11           | 6            |
| Other ( Socrates etc )       | 10           | 41           | 14           |
| Sub-total                    | <b>1,049</b> | <b>1,057</b> | <b>1,189</b> |
| Credits wte                  | 497          | 502          | 609          |
| <b>TOTAL</b>                 | <b>552</b>   | <b>555</b>   | <b>580</b>   |

Table 4 Full-time/Part-time SRS 2014-2106

The following represents the enrolment figures (pre-exclusion) as a percentage of the overall enrolment:

|                | March 2014   | March 2015   | March 2016   |
|----------------|--------------|--------------|--------------|
| Full-time      | 7,229        | 7,076        | 6,706        |
| Part-time      | 1,360        | 1,319        | 1,544        |
| Part-time as % | <b>18.8%</b> | <b>18.6%</b> | <b>23.0%</b> |

Table 5 Part-time as % of FT 2014-16

These figures compare favourably with the national statistics (for 2013-14) published in 2016 by the HEA (see *Higher Education System Performance Sectoral and Institutional Profiles 2013-14*, July 2016) where the figure for the entire HE system was 17%. The figures are less favourable when compared with the IOT statistics, where the sectoral average was 20%.

### Mature Learners

These figures do not include "mature" learners (that is, learners over the age of 23) who enter through FT programmes. The March 2016 returns suggest that 18.6% of the WIT first year intake fell into the "mature" category.

### *Structures and Processes*

Part-time learning is facilitated by WIT through the School of Lifelong Education. At the same time, the ownership of programmes lies with the Institute's individual academic schools. The School of Lifelong Learning takes an advocacy role for part-time learners as well as supporting Schools in identifying opportunities for new programme development through assisting (with the allocation of dedicated human resources) with the development process (including identifying market demand and need), as well as facilitating with marketing and recruitment.

The Institute needs to bring greater clarity as to where responsibility for part-time and life-long learning lies. It also needs to put in place certain enablers to facilitate the development and delivery of part-time programmes, including developing a workload allocation model that adequately describes teaching activity, including delivery on part-time, night-time and online programmes, as well as re-aligning central functions and processes for new programme approvals and the recognition of prior learning to facilitate, respectively, the responsiveness of the programme development process and flexible entry routes for potential learners. The institute's development of an up to date module catalogue which should be available at the end of the Programme of School reviews will place the School through the Department of Lifelong Learning in an enhanced position to deliver customised course provision for industry and smaller minor and special purpose awards for national calls such as Springboard.

Other important operational developments are necessary, in some cases dependent on national policy changes:

- The Institute needs to be able to make more flexible awards, including awards for small volumes of credit (<10 ECTS): at the moment national policy allows only for >10 credit awards;
- Online delivery needs to be recognised on timetabling systems as legitimate teaching activity, which requires the development of the workload allocation model described above;
- More responsive module and programme development and approval processes are required, including revised processes for minor, special purpose and particularly embedded awards;
- There needs to be greater enhancement of an Institute-wide RPL infrastructure including the upskilling of staff through a new level 9 RPL module, the development of an online level 6 module for students seeking to use RPL for access and progression;
- Greater delegation of autonomy to academics Schools to accredit programmes and budgetary processes to recognise income.

The Institute is currently engaged in determining its part-time targets for the coming years.

### 2.3 Online Learning at WIT

WIT is conscious of unrealised potential for the integration of technology into traditional 'on campus' teaching and learning, and the development of online programmes. The Institute is committed to excellence in the student experience and recognises that technology continues to evolve and enable new approaches to learning and teaching in contemporary education.

The positive culture of engagement with Technology-Enhanced Learning (TEL) approaches in WIT is reflected in the continued increase and adoption of technology within the delivery of the curriculum. Technology is very much part of the teaching and learning experience in WIT. Analytics indicate a continued increase in the rate of usage, access and update of the Virtual Learning Environment (VLE), namely Moodle, and encompassing technologies such as plagiarism detection software and virtual classroom platforms. Over 90% of modules assigned one or more lecturers and students in Moodle have content in place. Logs from the Moodle website indicating daily activity such as posting or viewing content, contributing to discussion forums, etc., continue to increase when viewed annually exceeding 1.3 million visits in 2015. There has been a significant increase in the use of the online assessment features including assignment submission, grade management and feedback highlighting the changing role of technology within the delivery of the curriculum. Cumulative figures for online assignment submissions indicate a 45% increase when comparing 2014 and 2015 academic years with approximately 80,842 online assignment submissions in 2015.

WIT established a dedicated Centre responsible for providing leadership and coordinating the development of TEL within WIT and is evolving a strategy for online learning in tandem with the development of the new institutional strategy. The creation of the Centre for Technology Enhanced Learning (CTEL) will greatly facilitate the Institute's online learning presence in the coming period.

It has a dedicated physical presence on both main WIT campuses and facilitates a schedule of support and training interventions for staff and students in their TEL practices in WIT. CTEL has positively contributed to a range of nationally funded Teaching and Learning projects with partners drawn from across Irish HE and will continue to support the development of funding proposals in this area. It also has a key role in development the curriculum through developing TEL dimensions to individual modules and programmes. The following key objectives provide direction to the development of TEL within the WIT learning environment:

- Provide leadership in TEL by consolidating, extending and transforming the digital learning environment (including the Virtual Learning Environment (VLE)) via evolving governance, engagement and usage by all stakeholders;
- Empower learners and educators, using pedagogic innovations that seek to share contemporary evidence based TEL teaching practice and assessment underpinned by constructivist theories such as Multiple Intelligences(MI) and Learning Styles Inventory(LSI);
- Research collaboration and engagement with stakeholders thereby enhancing quality by creating a virtuous synthesis between teaching, learning, research and

quality enhancement through international evidence based research and rigorous evaluation.

Additionally, the strategic conceptual TEL vision for WIT is underpinned by the following three key principles:

- Student centred digital learning environment;
- Educationally coherent, that is, clearly articulated learning needs that are aligned to the curriculum educational philosophy and responsive to student and staff learning needs;
- Teaching and learning that is innovative, evidence based and supports a strong research led teaching and learning agenda.

## 2.4 WIT Early Intervention Programmes

Waterford Institute of Technology works in partnership with a variety of external partners to develop and deliver a series of integrated early intervention programmes that explore ways of opening up educational opportunities for young people within the City. The cornerstone of the work is to provide repeat and sustained educational interventions which raise aspirations and increase opportunities and awareness, among young people of the advantages of staying on and progressing within the educational system.

The following programmes are currently running:

### *Junior Access Programmes*

- Long term, sustained interventions (Learning for Life) that work with young people between the ages of 10yrs and 12yrs through providing multi-disciplinary programmes that include Web Design, Music, Engineering and Arts as well as discipline focused programmes such as Maths, Computing or Science. Annual beneficiaries approx. 120
- Secondary School Homework clubs with an annual intake of 50 6<sup>th</sup> year pupils
- HE Awareness Programme for a variety of groups and involves tours/taster workshops and information sessions. Over 600 primary, secondary and young adults engage in targeted half and full day programmes annually.
- Discipline specific outreach programmes are delivered in partner schools – annual beneficiaries approx. 80 1<sup>st</sup> to 3<sup>rd</sup> years
- Direct entry access programme (REACH) takes in 20 targeted WIT entrants per annum – they receive a variety of supports for the duration of their time in WIT.

### *Senior Access Programmes*

- Awareness information sessions: Targeting key influencers is a key underpinning principle of our Access work. We work closely with our partners to develop and implement ways to encourage and support parents and other community members to engage in accessing educational information and opportunities. Parents are actively linked into all our EIPs – annual engagement is approximately 80 families.
- FE progression programme – new introduction in 2015-16. This is still in development stage. It will target unsuccessful direct entry (REACH) applicants who have completed a FETAC qualification.

### *Civic Engagement Programmes*

Undergraduate 'Buddy', Student Ambassador and Volunteer programmes develop the skills among WIT registered student volunteers so they can work with the Access programmes. Our EIP participants are targeted for this programme along with the wider student cohort. The training and 'hands-on' experience is an interesting and fun way to develop their core transferable skills and to raise awareness of their civic

engagement responsibilities. Approximately 40 annual beneficiaries of these programmes

## Appendix 3: Excellence in Teaching and Learning

### 3.1 Student Engagement Survey Outcomes

562 WIT students participated in the national Survey of Student Engagement in 2014, 707 in 2015. The 2015 results are the most recent available.

In terms of overall satisfaction with their educational experience, 67% of WIT students said they were satisfied, just below the national average (67.1%).

The outcomes on other indicators for 2015 were as follows:

| Area   | National | WIT  |
|--|----------|------|
| Academic Challenge: the extent to which expectations and assessments challenge students to learn           | 47.7     | 47.1 |
| Active Learning: students' efforts to actively construct knowledge   | 40.8     | 41.1 |
| Student-Staff Interactions: the level and nature of students' contact and interactions with teaching staff | 22.8     | 23.2 |
| Enriching Educational Experiences: students' participation in broadening educational activities            | 28.1     | 26.9 |
| Supportive Learning Environment: students' feelings of support within the college community                | 54.9     | 54.5 |
| Work Integrated Learning: integration of employment-focused work experiences into study                    | 46.7     | 48.1 |
| Higher Order Thinking: participation in higher order forms of thinking                                     | 62       | 60.8 |
| General Learning Outcomes: development of general competencies   | 60.8     | 62.6 |
| General Development Outcomes: development of general forms of individual and social development            | 44.7     | 42.9 |
| Career Readiness: preparation for participation in the professional workforce                              | 42.8     | 45.7 |

Table 6 WIT Performance in ISSE 2015

The table clearly indicates WIT's particular areas of strength are in career focus and engagement with employers. Also WIT seems to have strength, relative to national averages, in active learning.

### 3.2 Reflections on Student Recruitment

#### *New Entrants*

The following is the new entrant profile for WIT for 2015-16 as compared to 2013-14. The sectoral figures are drawn from the published HEA performance profiles and overall sectoral reports.

|                     | <b>2013-14</b> | <b>2015-16</b> |
|---------------------|----------------|----------------|
| All                 | 41,529         | 43,460         |
| IOTs only           | 19,117         | 19,529         |
| WIT                 | 2,010          | 1,943          |
| WIT %<br>(All/IOTs) | (4.8%/10.5%)   | (4.4%/9.9%)    |

*Table 7 WIT New Entrants vs Overall 2014 vs 2016*

This shows a drop in the overall share of entrants to Higher Education at WIT.

It should be noted that this position is not entirely reflective of the Institute's position earlier in the recruitment cycle, as the following analysis of the 2016 entrant cohort shows.

Overall, applications to the Institute from CAO in 2016 were up 2.3% at level 8 and down 2% at level 6/7. This outperformed the market which grew at 1.7% for level 8 and was down 2.7% in level 6/7. Accordingly, the institute's overall market share rose by circa 0.1% point at both level 8 and level 6/7. This overall growth rate however masks the discipline specific mix where programmes at full capacity showed strong application growth, notably nursing which grew by 25%. The data also shows that WIT's application profile, broadly, follows the national pattern of applications particularly with proportionally large application numbers in Arts/Social Science and Business.

Overall the translation of these applications into offers resulted in a reduction in the total offers, down marginally by 0.3%. The breakdown of the offers however show that initiatives such as the FET links project has been hugely successful almost doubling offers from 195 to 354, while the both the mature entry numbers continue to decline and the traditional CAO Leaving Certificate entrant were also down. The discipline mix of these offers also show some concerning trends with some departments experiencing weak demand, notable Health, Sports and Exercise studies down over 90 offers from the previous year (18.1%). Indeed this fall alone accounts for almost 2% of the total offers made. The lower number of offers resulted in an overall reduction in the number of accepts by circa 5%.

The Institute's conversion rates (from acceptance of offer to registration) were on an upward trajectory for the period 2014-2016, as the following table shows.

|         | <b>2014-15</b> | <b>2015-16</b> | <b>2016-17</b> |
|---------|----------------|----------------|----------------|
| Accepts | 1983           | 2170           | 2024           |

|                 |              |              |              |
|-----------------|--------------|--------------|--------------|
| Registrations   | 1838         | 2030         | 1903         |
| Conversion rate | <b>92.7%</b> | <b>93.5%</b> | <b>94.0%</b> |

Table 8 Acceptance to Registration Conversion Rates 2014-16

The following table describes the change in the number of acceptances across all higher education institutions between 2015 and 2016.

| <b>Higher Education Institution</b> | <b>2016</b>   | <b>2015</b>   | <b>% Growth</b> |
|-------------------------------------|---------------|---------------|-----------------|
| <b>DIT</b>                          | <b>3,904</b>  | <b>3,873</b>  | <b>0.8%</b>     |
| UCD                                 | 4,387         | 4,436         | -1.1%           |
| UCC                                 | 3,663         | 3,730         | -1.8%           |
| DCU                                 | 3,385         | 3,302         | 2.5%            |
| NUI Galway                          | 3,243         | 3,166         | 2.4%            |
| Trinity College Dublin              | 2,939         | 2,923         | 0.5%            |
| Maynooth University                 | 2,995         | 2,830         | 5.8%            |
| University of Limerick              | 2,852         | 2,771         | 2.9%            |
| <b>Total Universities</b>           | <b>23,464</b> | <b>23,158</b> | <b>1.3%</b>     |
| IT Tallaght                         | 932           | 957           | -2.6%           |
| IT Blanchardstown                   | 884           | 963           | -8.2%           |
| Limerick IT                         | 1,603         | 1,691         | -5.2%           |
| Athlone IT                          | 1,120         | 1,180         | -5.1%           |
| Cork IT                             | 2,505         | 2,532         | -1.1%           |
| IT Carlow                           | 1,336         | 1,382         | -3.3%           |
| Dundalk IT                          | 1,271         | 1,394         | -8.8%           |
| Galway-Mayo IT                      | 2,010         | 2,033         | -1.1%           |
| Letterkenny IT                      | 947           | 1,038         | -8.8%           |
| IT Sligo                            | 1,186         | 1,270         | -6.6%           |
| IT Tralee                           | 695           | 752           | -7.6%           |
| Waterford IT                        | 2,024         | 2,170         | -6.7%           |
| <b>Total IoT's</b>                  | <b>16,513</b> | <b>17,362</b> | <b>-4.9%</b>    |

Table 9 Acceptance and Registrations Across HEIs 2016

This data clearly shows the competitive positioning of the various sectors and the capacity for the university to absorb market shifts while the IoT sector is more vulnerable to such shifts. The fundamental differences in the portfolio of the two sectors may also explain some of the difference.

More detailed analysis of the level 8 and level 6/7 performance shows that the Institutes of Technology actually grow level 8 provision by 1.7% but that the level 6/7 acceptances fell by 10.5%. This data may be somewhat skewed as some institutes

may have shifted L6/7 provision to level 8 in the year (i.e. new programmes offered on L8 replacing a level 7). There were six institutions that showed level 8 growth but all showed corresponding falls in level 6/7. Currently WIT has a reasonably low ratio of level 6/7 to total offers (i.e. our level 8 intake is high relative to our level 6/7) as we have a mature level 8 portfolio.

### Regional Intake

WIT's intake continues to follow existing patterns of regional intake with intakes originating primarily in the region. As the following table illustrates, however, it still remains a regional characteristic however that the percentage of regional learners coming to WIT is relatively low at 16% overall.

| County           | 2014                |                      |          | 2015                |                      |          | 2016                |                      |          |
|------------------|---------------------|----------------------|----------|---------------------|----------------------|----------|---------------------|----------------------|----------|
|                  | Applications to CAO | Registrations at WIT | % Region | Applications to CAO | Registrations at WIT | % Region | Applications to CAO | Registrations at WIT | % Region |
| Waterford        | 1830                | 586                  | 32%      | 1915                | 637                  | 33%      | 1882                | 601                  | 32%      |
| Wexford          | 2226                | 286                  | 13%      | 2300                | 304                  | 13%      | 2288                | 344                  | 15%      |
| Kilkenny         | 1412                | 214                  | 15%      | 1521                | 282                  | 19%      | 1524                | 248                  | 16%      |
| Carlow           | 867                 | 53                   | 6%       | 881                 | 83                   | 9%       | 973                 | 59                   | 6%       |
| Tipperary        | 2533                | 223                  | 9%       | 2542                | 251                  | 10%      | 2556                | 227                  | 9%       |
| Total South East | 8868                | 1362                 | 15%      | 9159                | 1557                 | 17%      | 9223                | 1479                 | 16%      |

Table 10 WIT Registrations as % of National Applications by County

Even in Waterford the percentage of applicants to the CAO who register at WIT is only 32%. The bulk of registrations in WIT come from regional counties: Waterford (32%), Wexford (18%), Kilkenny (13%), Tipperary (12%). Counties peripheral to the region (Cork, Carlow, Kildare, Laois and Dublin) account between them for 19%. The rest of the country supplied 1% of the intake.

This regional profile also raises issues of competitiveness and the strategy and understanding of WIT as a regional provider. While we are the Institute of choice in so far as we historically take the largest number of candidates of any institution from Waterford, Wexford and Kilkenny and compete closely for the leadership spot in Tipperary we none-the-less do so within a highly fragmented regional market where the vast majority of learners leave. In addition we do not compensate for the outflow of learners by competing nationally and attracting corresponding numbers into the region.

### Actions

To address some of these challenges, the Institute is currently engaged in a range of initiatives, as follows (and as reflected elsewhere in this document):

- WIT will move to generic entry in a number of disciplines;

- The Institute has prioritised the further development of its FET links programme;
- The Institute continues to enhance engagement and interaction with applicants in line with our “Right-Student Right-Course” philosophy (including through the website and various other publications and guide books);
- WIT has re-designed its Schools Visit programmes and CRM system to better engage with applicants in a more targeted manner. This includes a new student ambassador led initiative, a deepening of regional engagement and a drive to widen the visits programme beyond the South East region in a more targeted manner.
- The Institute plans more targeted interactions with career guidance teachers and organisations

The Institute's analysis suggests that applicants want a particular type of “programme product” and the ability to differentiate that product in a crowded marketplace with multiple offerings is complex. Ideally, WIT needs to “jump” between sectors and offer a clear articulation of what makes WIT an attractive place to study (as an alternative to the major universities). This is also an issue of scale. For WIT to increase its numbers by the scale required it will have to become a more mainstream competitor and in effect cannot be in the “wrong pack” when it comes to student perceptions (as the table above shows, all IOTs showed declines). It is also significant that WIT connects undergraduate numbers to regional development given the region cannot continue to afford the loss of both this talent and the associated economic activity.

A significant part of the strategic choices facing the institute is the need to recognise the “Double Demand” dilemma. On the one side we are focused on the provision of graduates skilled to meet the needs of our industrial, commercial and employer partners while on the other hand we are competing in a marketplace for applicants in a much wider context. It is very evident that what we want learners to study and what they want to study are very different things and are not easily reconciled. This is not a WIT problem but a national one. It does however require the institute to determine the optimum balance between these two activities.

These are significant and weighty strategic challenges, particularly as WIT needs to balance a number of overall strategic themes across student undergraduate recruitment, life-long learning, research, industry development and sustainability within a limited resource environment.

### 3.3 Research Degrees

#### Recruitment

WIT continues to recruit good numbers of research students, notwithstanding the slight fall-off evident towards the end of this review cycle. When compared with figures nationally, WIT's recruitment shows a steady growth over the period 2014-16, as illustrated below (the figures refer only to full-time research students; national figures are drawn from HEA performance reports and WIT figures from SRS):

|                            | <b>13/14</b> | <b>14/15</b> | <b>15/16</b> |
|----------------------------|--------------|--------------|--------------|
| National Doctorate Numbers | 6,645        | 6,800        | 6,928        |
| National Masters Number    | 1,082        | 1,145        | 1,115        |
| Total                      | 7,727        | 7,945        | 8,043        |
| WIT                        | 95           | 107          | 129          |
| <i>% Share</i>             | <i>1.23%</i> | <i>1.35%</i> | <i>1.60%</i> |

Table 11 WIT % Share of National Graduate Student Enrolments 2014-16

The trend evident here is encouraging.

#### PhD Scholarship Programme

In a bid to increase the levels of PhDs emerging from the Institute, the WIT PhD Scholarship programme was introduced in 2013 to fund PhD research across all disciplines in the Institute.

Forty-four projects were approved for funding through the WIT PhD Scholarship scheme between 2013 and 2015; 14 in 2013 and 15 in both 2014 and 2015. There are currently *40 students enrolled* on the WIT PhD Scholarship programme. Owing to personal circumstances, three of the students have withdrawn from the programme, two from the 2014 cohort and one from the 2015 cohort. One of the projects awarded a scholarship in the 2015 call is still in the process of recruiting suitable candidates.

This year has seen the introduction of a new stream of PhD scholarship funding with five co-funded industry-led projects (there were six approved but one has been forced to withdraw), as well as 14 projects, fully funded by the WIT PhD Scholarship Programme.

This makes the total number of projects *approved* through this programme as 64.

Scholarships awarded to the first three cohorts were for 36month duration. From 2017, all candidates will complete the 48 month structured PhD programme. The annual value of the scholarship per student is as follows:

- €10,000 Student Stipend
- €4,500 Fees

- €2,250 Research Costs

### 3.4 Doctorate in Business Administration, 2014-16

The DBA is the international post-masters qualification for senior management advancement. This business doctorate develops management expertise through rigorous research design, positioning the DBA graduate for rapid organisation and career progression.

The four year part time programme is innovative in its structure, combining three significant milestones on the doctoral process, advanced research skills workshops, cumulative paper series and the completion of the DBA thesis, all of which centre around addressing an organisational issue of interest. The programme is designed to facilitate senior manager access. The WIT DBA utilises a blended learning approach, combining the latest technologies for remote access and communications.

The DBA programme commenced with its first cohort in September 2010. As a four-year doctoral programme which balances demand and resource capacity, programme recruitment has been generally on a two yearly basis, coinciding with participants moving out of stage 1 of the DBA to stage 2 of the DBA.

The following is a summary of statistics for DBA candidates progress to date.

| DBA Cohort Group | No. of candidates | No. progressed to DBA Stage 2 | % progressing to Stage 2 | No. progressed to DBA Stage 3 | No. Completed Stage 3 | % Completed Stage 3 | % Completed Thesis & Viva |
|------------------|-------------------|-------------------------------|--------------------------|-------------------------------|-----------------------|---------------------|---------------------------|
| 2010-2014        | 10                | 10                            | 100%                     | 8                             | 8                     | 80%                 | 80%                       |
| 2013-2017        | 10                | 5                             | 50%                      | Oct 2016                      |                       |                     |                           |
| 2014-2018        | 17                | Apr 2016                      |                          | Apr 2018                      |                       |                     |                           |
| 2016-2020        | 13                |                               |                          |                               |                       |                     |                           |

Table 12 Doctorate of Business Administration Profile

The trends to date on the DBA programme in the infancy of its life cycle are as follows:

- While it is too early to have meaningful trends, the average of the three DBA programme recruitments to date has been approximately 12  $((10+10+17)/3)$  and the most recent recruitment drive shows an increased demand for the programme. Interest in the programme continues with the next recruitment cycle expected to have a cohort in place for September 2018 commencement.
- The programme has built on its international dimension with a relationship built with Munich University of Applied Sciences (MUAS) in the academic year 12/13. This relationship led to one DBA candidate joining the DBA 2013-2017 cohort and two candidates joining the DBA 2014-2018 cohort.

- From a competitive perspective, the WIT DBA continues to be the only general business Professional Doctorate offered in the country since its inception in 2010.
- The profile of candidates has seen a shift from more private sector than public sector programme participants but this does not appear to have implications for programme design or delivery.

#### *Waterford Business School Writing Lab*

Another important innovation proposed for customised student support is the WBS Writing Lab. This acknowledges that DBA students need to be given individual support and feedback on academic writing from Year 1 of the programme. While, of course, the feedback from workshop tutors includes assessment of academic writing, it is considered that it would be important to provide a separate interactive facility which would address common issues and problems with academic writing, as well as facilitating individualised feedback. Therefore, the key objectives of the Lab are:

1. Develop enhanced ability in participants on all aspects of academic writing including structure, grammar, syntax, citing, referencing and plagiarism.
2. Develop ability in building argument, academic critique and defence.
3. Develop a valuable resource bank on academic writing for the DBA programme.

The Lab will take the format of live online workshops, assessment of student academic writing and personalised feedback, and online resources (articles, videos, web links, webinars etc.). With the commencement of the first pilot Lab initiative (January, 2015), feedback from participants was very positive.

#### *External Examiners*

External examiners on the DBA programme are as follows:

##### *Academic years: 2010 to 2014*

|                       |                             |
|-----------------------|-----------------------------|
| Dr. Murray Clark      | Sheffield Hallam University |
| Dr Scott Leichenstein | Henley Management College   |

##### *Academic years: 2014 to 2018*

|                       |                             |
|-----------------------|-----------------------------|
| Dr Jean-Anne Stewart  | Henley Management College   |
| Professor Alan Wilson | Strathclyde Business School |

The external examiners have been satisfied with the quality of the DBA submissions. They have commended the programme team for their direction and co-ordination of the workshops and associated assignments.

### 3.5 Common Entry

National data suggests that the largest recruiting programmes in the State are generic programmes, specifically Liberal Arts programmes in UCD, UCC, NUI Galway and Maynooth.

WIT targeted the creation of flexible, broad denominated entry in at least two Schools by 2016. Currently the Institute offers broad entry options in Business. The Institute's Liberal Arts programme is also a generic programme with multiple options. The WIT level 7 programme in Science is also generic. WIT has shown some success where generic programmes are available with the Business degree applications up 2.5% and Arts degree up 6.7%.

The Institute's current School Review cycle will establish generic entry in Engineering and Health Science with a target of recruiting on these programmes by the next CAO cycle.

Current common entry programmes are listed below.

| <b>School</b> | <b>CAO Code</b> | <b>Programme</b>            |
|---------------|-----------------|-----------------------------|
| Business      | WD048           | Bachelor of Business (Hons) |
| Humanities    | WD200           | Bachelor of Arts (Hons)     |
| Science       | WD177           | Bachelor of Science         |

Table 13 Common Entry Courses at WIT 2016

## Appendix 4: Research and Innovation

### 4.1 Overview of Funding Received 2014-16

The following figures summarise the Institute's performance in attracting research funding in the period 2014-16.

#### Funding for Academic Year 2014/2015

Total Funding Awards: €14,890,457

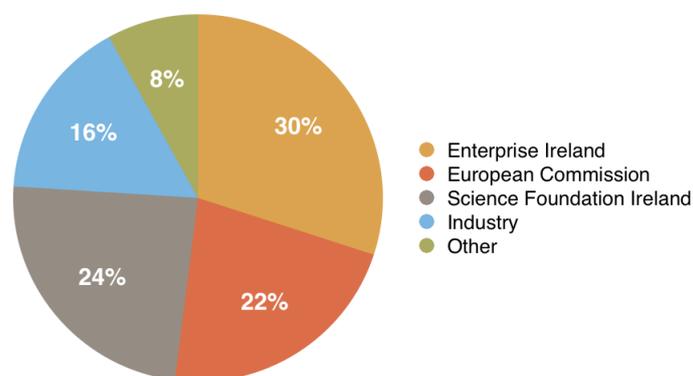


Figure 1: Funding awards by sponsor 2014/2015

| Agency                     | Amount (€)        |
|----------------------------|-------------------|
| Enterprise Ireland         | 4,480,077         |
| European Commission        | 3,275,525         |
| Science Foundation Ireland | 3,560,453         |
| Industry                   | 2,370,721         |
| Other                      | 1,203,681         |
| <b>Total</b>               | <b>14,890,457</b> |

Table 14: Funding awards by sponsor 2014/2015

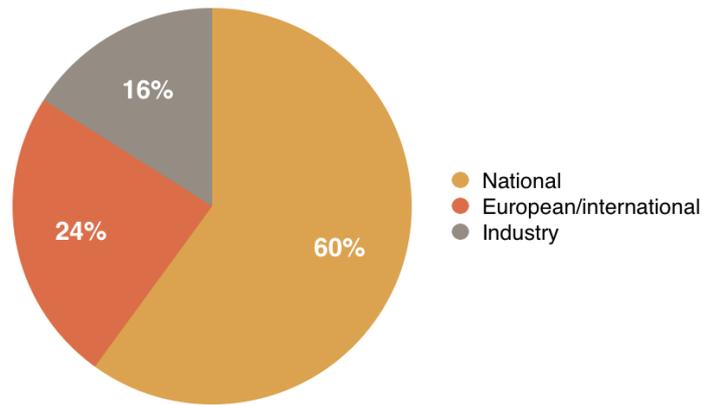


Figure 2: Funding awards by region 2014/2015

| Region                 | Amount (€)        |
|------------------------|-------------------|
| National               | 9,244,211         |
| European/International | 3,275,525         |
| Industry               | 2,370,721         |
| <b>Total</b>           | <b>14,890,457</b> |

Table 15: Funding awards by region 2014/2015

### Funding for Academic Year 2015/2016

Total Funding Awards: €13,792,689

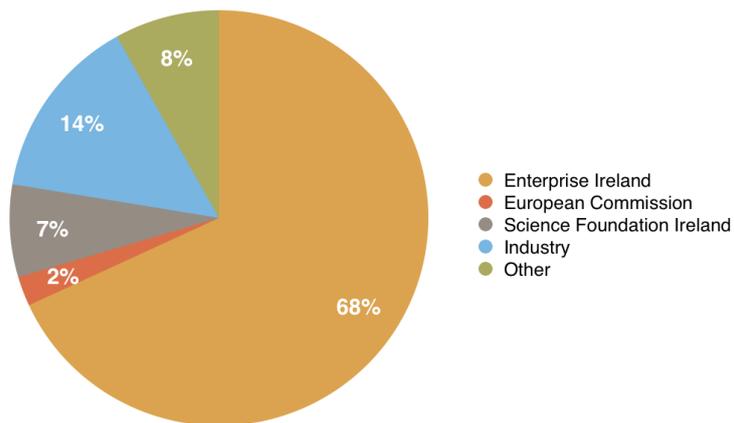


Figure 3: Funding awards by sponsor 2015/2016

| Agency                     | Amount (€)        |
|----------------------------|-------------------|
| Enterprise Ireland         | 9,391,524         |
| European Commission        | 316,944           |
| Science Foundation Ireland | 993,756           |
| Industry                   | 1,968,075         |
| Other                      | 1,122,390         |
| <b>Total</b>               | <b>13,792,689</b> |

Table 16: Funding awards by sponsor 2015/2016

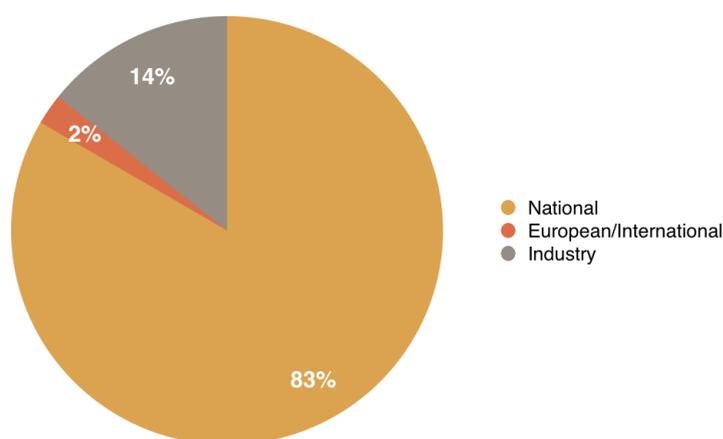


Figure 4: Funding awards by region 2015/2016

| Region                 | Amount (€)        |
|------------------------|-------------------|
| National               | 11,507,670        |
| European/International | 316,944           |
| Industry               | 1,968,075         |
| <b>Total</b>           | <b>13,792,689</b> |

Table 17: Funding awards by region 2015/2016

Funding for Academic Year 2016/Year-end

Total Funding Awards: €4,665,852

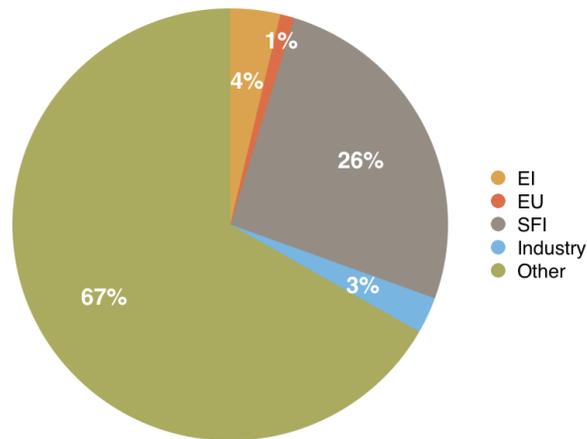


Figure 5: Funding awards by sponsor 2016/Year-end

| Agency                     | Amount (€)       |
|----------------------------|------------------|
| Enterprise Ireland         | 172,816          |
| European Commission        | 49,437           |
| Science Foundation Ireland | 1,203,275        |
| Industry                   | 126,625          |
| Other                      | 3,113,699        |
| <b>Total</b>               | <b>4,665,852</b> |

Table 18: Funding awards by sponsor 2016/Year-end

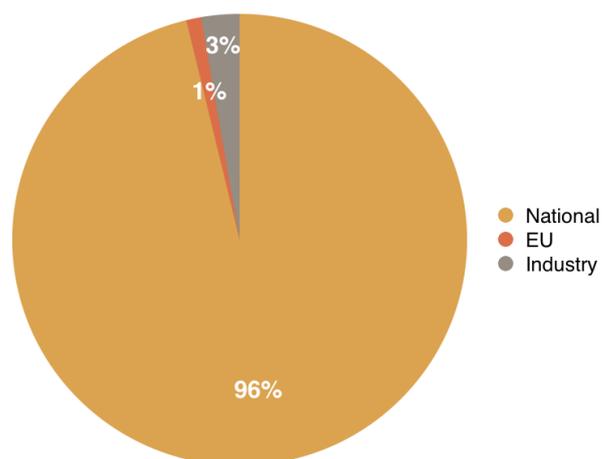


Figure 6: Funding awards by region 2016/Year-end

| <b>Region</b>          | <b>Amount (€)</b> |
|------------------------|-------------------|
| National               | 4,489,790         |
| European/International | 49,437            |
| Industry               | 126,625           |
| <b>Total</b>           | <b>4,665,852</b>  |

Table 19; Funding awards by region 2016/Year-end

## 4.2 Profiles of Top-Performing Research Centres

### Telecommunications Software and Systems Group (TSSG)

TSSG is a leading Research Institute with 100+ staff comprising researchers, engineers and post-docs. TSSG is an internationally recognised centre of excellence for ICT research and innovation. TSSG carries out a spectrum of industry-informed research in ICT, particularly technologies enabling communications and information services. TSSG's mission is to leverage the excellence in science, technology, innovation and entrepreneurship of the entire organisation to deliver innovative research and commercial results for industry partners.

TSSG creates economic impact by translating our knowledge base and innovation, formed through our ecosystem of basic, applied and commercial research, into leading edge products and services by continuously engaging with industry in collaborative R&D, knowledge generation and knowledge-transfer programmes.

TSSG has delivered innovative solutions to over 110 Irish companies, and has created 16 spin out companies in the South East including the recently acquired FeedHenry, a ground breaking mobile cloud platform company; ZolkC, a leading provider of mobile technology for international visitor attractions; and Kodacall a new "Click to Call" Technology.

Focusing in particular on Irish Industry, TSSG has a proven capability to engage with SMEs and start-ups, particularly through the Mobile Services Technology Gateway ([mstg.tssg.org](http://mstg.tssg.org)) which is the commercial interface of TSSG.

#### Industry Investment (year 2014-15):

The figures below present a snapshot of TSSG's effectiveness in securing collaborative research grants and direct consultancy work, through our extensive international network.

- 5 EU Research Contracts
- 1 SFI Contracts
- 36 EI Contracts – 4 Commercialisation Funds, 1 Innovation Partnership, 10 Coordinator Grants, 18 Innovation Vouchers, 2 Matched €10k vouchers, 1 IP Feasibility
- 21 Contract R&D projects

#### Awards (2014-15):

- Tech Excellence Awards – IT Team of the Year alongside Eircom (2014)
- Glanbia Kilkenny Business Awards – Innovation in Business as well as Information and Communications Technology (2014)
- ISA Software Industry Awards – Outstanding Academic Achievement Awards (2014)
- TADHack – Global Winner (2015)

### Publications

All publications are available via the TSSG website ([www.tssg.org](http://www.tssg.org)). In the period 2014-16, the group had 34 publications of significance.

### Pharmaceutical and Molecular Biotechnology Research Centre (PMBRC)

The Pharmaceutical and Molecular Biotechnology Research Centre (PMBRC) is an applied research centre which aims to support the sustainable growth of the pharmaceutical and healthcare industry in the south east of Ireland. Situated in the heart of the region on the WIT campus, the centre seeks to stimulate research and innovation, allowing companies to embed R&D into their activities. One of 15 Enterprise Ireland Technology Gateways, the PMBRC consists of an 800 m<sup>2</sup> state-of-the-art facility with 27 highly-trained research personnel. The PMBRC has established links with national and international partners in industry, academia and medical care institutions.

### PMBRC Facts and Figures:

- Established 2009
- 800 m<sup>2</sup> research labs
- 12 research staff
- 15 postgraduate students
- 14 research active academic staff
- Average annual income ~ €1m
- Industry partners since 2009: 66
- Average annual industry cash income: ~ €200k
- Invention disclosures: 18
- License agreements to industry: 3
- Funding agencies: Enterprise Ireland, Science Foundation Ireland, Irish Research Council, EU funding programmes, industry funding

### PMBRC research areas:

- Drug delivery and formulation
- Biocatalysis and organic synthesis
- Biomedical science
- Pharmaceutical analysis and solid state materials characterisation

### Funding Secured:

2014: €841,798

2015: €946,805

2016: €1,153,275

### Peer reviewed publications in 2016: 11

## South Eastern Applied Materials (SEAM) Research Centre

The South Eastern Applied Materials (SEAM) Research Centre has established its status as the foremost Applied Material's Research Centre in Ireland. It has also become the first stop for companies in the South and South Eastern Region of Ireland and beyond for seeking assistance on materials related issues that cannot be solved by utilising their own on-site resources. This was achieved through the provision of excellence in service delivery for the Medical device, Precision engineering, Electronics, Pharma, Aerospace and Energy sectors in Ireland.

SEAM is also Ireland's leading Technology Gateway (TG) Centre executing 120 direct funded projects per year accounting for nearly 30% of total Gateway programme metrics. SEAM's unique strength lies in its ability to deliver professional, competitive customised solutions and services often under extreme time constraints. SEAM's ability to deliver and satisfy industries needs is proven through dramatic growth of its client base within eight years of its launch, now serving over 140 companies from wide ranging sectors across whole of Ireland.

SEAM in addition to executing short-medium term direct funded projects, it also provides assistance in new product development and product design optimisation projects which are of long term in duration (18-24 months). Since its launch SEAM has successfully completed multiple Innovation Partnerships programme with companies such as Carten Control (increased product lifetime by 20 times), Bausch and Lomb (increased product yield by 60%) and Mincon (increased product sales by 30%).

In late 2014, SEAM initiated and currently leading a multi-party EI innovation partnership project in the key emerging Additive Manufacturing (AM) otherwise known as 3D Printing field that comprises of Boston Scientific (MNC), Schivo (Indigenous SME) and Lisnabrin (LEO client) to develop metal components whose geometry is sufficiently complex that they do not lend themselves to conventional machining techniques. The project which is nearing its 30 months duration has set a good model for enhancing Business to Business and academia to Industry collaborations in Ireland with all partners benefiting hugely from this multiparty IP project.

The success of the program to date has enabled the leading industrial partner Boston Scientific Clonmel to establish itself as the knowledge centre of excellence for additive manufacturing within their global network. The recent inclusion of AM kits in their R&D capabilities at their facility has allowed the integration of additively manufacturing components within their business model and the success it is creating is being closely monitored by their global sister companies. The formation of Schivo 3D ([www.schivo3d.com](http://www.schivo3d.com)) is a direct result of the expertise Schivo gained through interaction with this multiparty party consortium and experience gained from SEAM 3D facility over the course of the project. Furthermore, Schivo's involvement in this key emerging AM project has allowed to stay 'ahead of the game' and their competitors as Schivo 3D is fast becoming a standalone business opportunity for the parent Schivo precision engineering company. For small company Lisnabrin their participation in this multiparty consortium has aided to develop knowledge in complex multi-functional tooling solutions and post processing of additively produced components and tools. This project has enabled them to position itself to offer auxiliary AM post processing services including heat treatment, surface finishes/modification, and other specialist technique in the not too distant future.

From a SEAM perspective, the establishment of Metal Additive Manufacturing Centre at its premises is providing numerous opportunities to collaborate with other companies in this field. On the academic front, this centre is now providing AM exposure opportunity for WIT engineering graduates and has begun to offer PhD positions as well in metal AM. Furthermore, the establishment of AM centre has raised SEAM's profile both nationally and internationally as it has enabled to participate in European funding proposals and seek new opportunities with European Space Agency related projects. SEAM has also been identified as a key player to develop Advanced Manufacturing Technology in the South East Action Plan for Jobs 2015-2017 document.

Combined with its 3D metal printing and design capability as well as through its CAD, FEA and CT and other wide ranging materials engineering capability and expertise, SEAM is now positioning itself to become a National Access Centre for Training, Design and Validation of Additively Manufactured Component in the region. The participation of SEAM-WIT as one of the consortium partner in the newly approved UCD led SFI Additive Manufacturing Centre will boost further SEAM's AM vision.

#### Eco-Innovation Research Centre (EIRC)

The Eco-Innovation Research Centre (EIRC) focuses on the innovative development of high value-added technologies/products/processes from natural resources and low environmental impact processing/growth methods. Sustainable solutions for the future development of industries such as the marine, agriculture and forestry sectors, and 'green' chemistry for pharmaceutical synthesis, require a collaborative approach. Since 2008, the Centre has secured funding of €4.7 million from a range of national and international sources. In the 2014 – 2016 period alone the EIRC centre secured funding of just under €1.4 million. Outputs for the same period stand at 21 peer reviewed papers and over 25 conference papers presented.

Currently, the EIRC has

- 20 members of academic staff,
- 3 postdoctoral researchers,
- 20 postgraduate students.

Some of the academic staff members are also part of the PMBRC. Eco-Innovation Research at WIT is supported across a broad range of disciplines and sub-groups, as follows: the Estuarine Research Group (ERG); Forestry Research Group (FRG); Molecular Ecology Research Group (MERG); and Sustainable Agriculture Research Group (SARG). These groups engage with research in areas such as the Bioremediation of toxic heavy metals using seaweed biomass; Environmental biomonitoring; Isolation of bioactive compounds from sustainable marine sources; Wood energy; Vegetation management; Invasive species management; Traditional and novel control methods, including biological control; Development of non-invasive DNA identification techniques for mammals; Population analysis of pine martens in Ireland; Agri-environmental management

#### Ongoing Research Projects

- An Investigation of the Potential of Short Rotation Forestry in Ireland
- An Assessment of Moisture Meters for the Purpose of Wood Fuel Moisture Content Determination

- The Development of Species-Specific Real-Time PCR DNA tests for the Identification of Irish Bat Species
- An Investigation of Cost Effective Wood Fuel Supply Chains from Clearfelled Forest Sites in Ireland
- Management Practices to Improve the Efficiency of Fertiliser Nitrogen Use in Irish Grassland
- MARTT (Map of Agreed Routes for Timber Transport): Developing a GIS Based Agreed Routes Map for Sustainable Timber Transport in Ireland
- A Novel Mobile Genetic Element Associated with Horizontal Gene Transfer of a Nitrilase Gene in Soil Bacteria
- Extraction, Isolation and Identification of Antimicrobial Compounds in Polysiphonia Lanosa Seaweed and the Development of a Novel Antimicrobial Seaweed Wound Dressing
- Investigation of Plant Growth and Associated Soil Microbial Stimulation by Digestate Fertilisers
- Development of a Novel, Heat-Stable, wound dressing using seaweed derived antimicrobial compounds
- In-Situ Bioremediation and Molecular Microbiological Monitoring of Ammonia Contamination in Shallow Groundwater
- A Digestive Tract Approach to Optimise Feed Efficiency and Reduce the Ecological Footprint of Pigs
- Targeted Low Cost Strategies to Combat Salmonella in Finisher Pigs and in the Slaughterhouse
- Improving the Efficacy of Broad-leaved Dock (*Rumex Obtusifolius*) Herbicides in Irish Grassland Using Aspects of Integrated Weed Management
- Investigating the Potential Use of Seaweed Extracts as Pesticides in Forestry
- The Development and Application of Non-Invasive Genetic Methods to Free Ranging Deer Population in South-West Ireland
- Population Structure and Bat Predation Analysis of Pine Marten (*Martes Martes*) and Stone Marten (*Martes Foina*) in the Nietoperek Bat Hibernation Site, Poland

#### National and International Collaborators

Key academic partners of EIRC include

- University College Cork
- Trinity College Dublin
- Queen's University Belfast
- University College Dublin

Key industry partners include

- Teagasc
- Coillte
- The Heritage Council
- Department of Agriculture, Food and the Marine
- Bord Iascaigh Mhara
- The National Biodiversity Data Centre

### The Nutrition Research Centre Ireland

The Nutrition Research Centre Ireland has been established to study the role of nutrition and lifestyle for human wellbeing. The main research areas active within the centre include eye health and function; mental health; cognitive function; clinical health; cancer; pharmacoepidemiology and pharmacovigilance; human enhancement and drug research; chemistry and biochemistry; and biotechnology.

The centre supports Principal Investigators across a range of nutrition-related themes and provides an infrastructure that is highly specialised and capable of delivering research projects to the highest possible standard. Our facilities include suites for testing vision and cognitive function, which are used to conduct clinical trials. We also have bespoke infrastructure, in terms of equipment and expertise, to study nutrition in health, from its origins (food) to function (target tissue). The team is multi-disciplinary with expertise in vision science, nutrition, biochemistry, statistics, optometry, gerontology, ophthalmology and brain science. The group has contributed significantly to science and medicine by publishing landmark research papers in high impact-factor scientific and medical journals.

The centre currently employs 17 staff and has 6 postgraduate research students. Between 2014 and 2016, the centre secured circa €215,000 and published 53 peer-reviewed publications in high-impact scientific journals, as outlined in the figures below.

### 4.3 WIT's HRS4R Performance

In recent years WIT has been making substantial and measurable advances in realising its Human Resources Strategy for Researchers (HRS4Rs) through the delivery of key priority actions outlined in the original Action Plan (2014-2018). In November 2016, WIT successfully retained the HR Excellence in Research Award from the European Commission for a further two years. Following an internal self-evaluation, WIT retained the award at the two year stage and the Institute is currently implementing an evolved Action Plan for the 2016-2018 period. Several of the initial objectives set out in the original Action Plan have been achieved. In addition, we have made significant progress in embedding the Principles of The Charter and Code into policy and procedure.

#### Summary of Key Achievements (2014-2016)

1. In-house review of "Institutional Research Ethics: Current Structures and Supports at WIT" conducted.
2. Research ethics tender document developed.
3. Good Research Practice working Group established to work on the development of the WIT Good Research Practice Guide.
4. Best Practice desk based review conducted on Research Integrity policies nationally and internationally.
5. Good Research Practice Guide template devised.
6. Institutional representation on the National Forum on Research Integrity.
7. The Researcher Staff Forum established.
8. Head of Graduate Studies appointed and Graduate Studies Office created.
9. WIT Research Postgraduate Forum established.
10. Plans for Improved Generic Skills Postgraduate Training Programmes developed.
11. Enhanced engagement between HR Office and Office of Research, Innovation & Graduate Studies; monthly meetings put in place.
12. Interview training for research Interview panels delivered.
13. 'Creating Connections' – Interdisciplinary research event introduced.
14. Research networking training provided by external facilitator.
15. Redesign of recruitment forms and research contracts of employment for funded research posts.
16. Researcher representation on the Management Co-ordination Forum and on other Institute fora.
17. Introduction of PMDS and salary bands in the Institute's largest research centre, the Telecommunications Software & Systems Group (TSSG) – pilot site.
18. Research Network Series introduced - informal events to promote cross disciplinary interaction.
19. Research Supervisor Skills module for all new supervisors is now a mandatory course.
20. Introduction of a "Grant Preparation Support Scheme - GPSS" piloted in the Department of Science, facilitating academics to apply for up to 5 hours off their timetable over a semester to apply for research funding.
21. Subscribed to institutional membership of Vitae, an international programme dedicated to realising the potential of researchers through transforming their professional and career development. All WIT researchers benefit from free access to this external service.
22. Promotion of HRS4Rs through inviting guest speakers to WIT including - Mr Justin Synnott, UCD HRS4Rs Project Manager; Dr David O' Connell, Director of

Research Support Services, UCC who is also the external representative on WIT's HRS4Rs Monitoring Group and Ms Jennifer Cleary, Head of Euraxess Ireland.

23. External Peer Reviewer for the European Commission on external evaluations of the HRS4R in European research performing organisations.
24. One to one application workshops with H2020 NCP's.
25. Introduction of monthly Profile of a Researcher on WIT website to increase the profiles of WIT Research community.
26. Subscribed to Institutional membership of EARMA; a networking forum for Research Managers and Administrators.
27. Institute proactively engaged with the Irish Research Council #LoveIrishResearch, a national campaign to promote public engagement with research.

Although much progress has been made there remain critical areas in which we must focus our efforts over the next two years to fully achieve the aims of the Institutes HRS4Rs Action Plan outlined below.

#### Summary of Key Actions to be delivered over the Next 2 years (2016-2018)

1. Establishment of an Office of Research Integrity & Ethics, Provision of dedicated Research Ethics & Research Integrity and Data Management Training Workshops.
2. Development of an Institute Good Research Practice Policy.
3. Appointment of a Research Integrity Officer.
4. Establishment of a HR Research Unit within the HR office to support the professional career development of researchers.
5. Development of an Institute Research Recruitment Policy.
6. Introduction of a new Online Recruitment System for Researchers.
7. Implementation of Salary Bands for Researchers across Research Centres.
8. Annual provision of Research Staff Orientation.
9. Development of a Staff Intranet for Researchers containing all HR Policies and Procedures.
10. Introduction of an Information Checklist for incoming Research Postgraduates.
11. Enhance the relationship with the WIT Research Staff forum to strengthen the provision of supports to its members.
12. Continued Promotion of the HRS4Rs Action Plan both internally and externally.
13. Promotion of participation of researchers on new internal committees into the future.

WIT is fully committed to the HRS4Rs and will continue to adopt proactive initiatives to realise the aims of the Action Plan, ensuring the value and impact of implementing this strategy is primarily felt by researchers. The self-assessment review has encouraged the Institute to re-evaluate our progress in the provision of support at all research career stages, and provides a clear roadmap for continuous improvement going forward.

#### 4.4 HR Framework to Support Researchers

Implementing the Human Resource Strategy has highlighted the need to enhance the Human Resource support structure for researchers within the Institute to deliver

on the specific Recruitment, Working Conditions and Social Security and Training actions associated with HR. This new structure will be supported by additional resources to concentrate on supporting the Career and Professional Development of Researchers. A series of new Professional Development programmes designed in consultation with Researchers will provide skills based training opportunities which encourage both the personal and professional growth of researchers. Training and development opportunities will include Orientation; Career Development; Leadership and Management Training; Research Ethics/Research Integrity Training; Mentoring and Career Coaching.

#### 4.5 Proposed Structured PhD Framework

##### *Approach to Structured Graduate Studies*

WIT has re-shaped its graduate studies offering and will henceforth offer research degree programmes in a more structured, credit-bearing format.

One of the key underpinning reasons driving these changes was a desire to have more doctorate level graduates working in industry, as targeted in the EU's *Lisbon Strategy* (2000-2010) (European Council, 2000), which called for innovation as the motor for economic change and the "learning economy;" this approach was re-stated in 2010 as the *EU 2020 Goals* (European Commission, 2010). In Ireland, doctoral graduates working in a research and development capacity in the private sector almost trebled between 2001 and 2007, from 420 to 1,191 (Forfás, CSO, 2009). Acknowledging this trend, in 2009 the Advisory Council for Science, Technology & Innovation recommended that structured PhD programmes should both deepen candidates' understanding of their discipline and enable them develop an in-depth knowledge of research approaches, techniques and methods that are critical to the value of the PhDs for enterprise (Advisory Council for Science, Technology and Innovation, 2009). To ensure quality of doctorates, ten principles were drawn up and have been widely adopted throughout Europe—these are known as the *Salzburg Principles* (European University Association, 2005). The preparation of the doctoral candidate so that a post graduation career outside of academia is an option is provided in the explanation attached to the first of these ten principles, which states that "Training in transferable, 'generic' skills and competences should become an integral part of all doctoral programmes in order to meet challenges and needs of the global labour market." The Salzburg principles were themselves influenced significantly by developments in Irish academia, but their elucidation provided a strong impetus for a national discourse on doctoral education, led in the main by the Irish Universities Association. This discourse culminated in the recently launched *National Framework for Doctoral Education* (Higher Education Authority, 2015).

Reflecting the national and international trends in doctoral education, our goal in introducing a framework for provision of structured PhD programmes across the six WIT schools is to ensure that our cohort of research students are equipped with transferrable and discipline-specific skills that will significantly contribute to ongoing success in their career following graduation. Whilst acknowledging that each PhD candidate pursues a unique programme that is designed based on their skills and prior experience and on their research objectives, we wish to ensure that all PhD

candidates in WIT are provided with a supportive and pedagogically-rich graduate education environment, which offers clear entry and exit points, together with a set of research supervisory and taught module arrangements that allow candidates complete their programmes in a productive and timely manner. We wish to produce well-rounded PhD graduates, capable of formulating and executing independent research projects that hold the potential of producing impactful and important research outputs of scientific, social, cultural and/or economic value.

The contemporaneous introduction of an Institute-wide Graduate School structure will allow us to harmonise and improve the entry experience for PhD candidates and to ensure that consistent supervision practices are in place across the Institute. The structure will facilitate an ongoing iterative process of improvement in policies and processes relating to postgraduate research and the development and refinement of common best practices for supervision. We believe this will result in an enhanced learning experience for PhD candidates that will lead to increased rates of timely completion and higher quality research outputs.

Our aims are directly aligned to the *National Framework for Doctoral Education* (Higher Education Authority, 2015), which outlines nine principles focusing, *inter alia*, on “deep engagement with a question, problem or hypothesis at the frontier of knowledge,” increasing significantly candidates’ “depth and breadth of knowledge of their discipline,” and that doctoral education is conducted in “a learning community where sufficient critical mass of internationally recognised research activity exists to allow students to gain access to a training programme of appropriate breadth.” More specifically, we envisage that all graduates of the WIT structured PhD programme will have achieved the following learning outcomes:

- develop, interpret and communicate new knowledge through original research and/or scholarship that is of publishable quality;
- demonstrate systematic and extensive knowledge of their specific subject area and their wider field;
- independently and proactively formulate ideas and hypotheses and design and execute means through which to evaluate these;
- identify areas where ethical issues may arise in their work and develop and implement strategies for addressing such issues;
- articulate the principles associated with good research practice and apply these in the context of their research and/or scholarly work;
- effectively identify and communicate to students, peers, potential partners, funding agencies and the general public the potential economic and/or societal impact of their work;
- critically reflect on their progression in attaining research experience and skills and actively prepare for their professional career following graduation.

#### *Generic Skills-based Modules*

WIT will offer a suite of Universal PhD Path Modules to its cohort of structured PhD candidates. Such modules will typically be designed to carry 5 ECTS. In the terminology of EUA Salzburg principles, these modules offer “generic skills training” to doctoral candidates. Development of these modules has been guided by the IUA PhD Skills statement (Irish Universities Association, 2014a) and, as such, will cover topics including research skills and awareness, ethics and social understanding,

communication skills, personal effectiveness and development, team-working and leadership, career management and entrepreneurship and innovation. The following is the initial suite of Universal PhD Path modules we plan to offer:

- *Introduction to Research Methodologies*—this module will provide candidates with an understanding of research through exploration of research concepts, terminology and methodological approaches. This module is likely to be of most benefit to students at the start of their programme, given that it will equip them with knowledge that can be directly applied in the execution of their research plan;
- *Research Integrity and Ethics*—this module will introduce students to the principles underpinning standards of integrity in the performance of research. Given that the recent *National Policy Statement on Ensuring Research Integrity in Ireland* (Irish Universities Association, 2014b) recommends that all researchers take formal training in the principles of research integrity this will be a *mandatory* module, which ideally should be taken at the start of a student's programme;
- *Practical Pedagogy for Research Postgraduates*—this module will provide students with the knowledge and competencies that will enable them to become effective as student-centred facilitators of learning. It will be of particular benefit to students who wish to pursue a career in academia and to students who will engage in teaching or teaching-related duties during their time as a PhD student in WIT. For the latter cohort, in particular those funded through the WIT President's PhD Scholarship schemes, it would be expected that this module be taken at the start of their programme;
- *Academic Writing for Research Postgraduates*—this module will equip students with the knowledge, language and skills necessary for effective academic writing. Whilst it will be available to all PhD students, it may be of particular benefit to PhD students whose first language is not English. It is likely to be of most benefit to students at the start of their programme, given that it will equip them with knowledge that can be directly applied in the execution of their research plan;
- *Research Communication*—this module will give students an appreciation of the ways in which academic research impacts on society and the means of communication through which such impact can be maximised. The module is likely to be of most benefit to students in the middle or latter phases of their programme when they are starting to generate initial research outputs and considering how best to communicate them;
- *Statistics and Quantitative Data Analysis*—this module will develop students' competence in the application of modern techniques of quantitative data analysis. The module is likely to be of most benefit to students in the middle or latter phases of their programme when they are starting to generate and analyse initial results of quantitative studies;
- *Innovation and Entrepreneurship*—this module will equip students with a toolkit of skills and capabilities to allow them translate their research into meaningful economic impact. The module is likely to be of most benefit to

students in the later phases of their programme who are considering the economic potential of intellectual property developed during the course of their PhD project. The module is based on a collaborative programme promoting the commercialisation of research outputs that was developed as a cooperation between the Technology Transfer Offices of WIT, IT Carlow and Maynooth University;

- *Research Planning and Project Management*—this module will provide students with an understanding of project management theory in the context of research and will introduce them to a portfolio of relevant tools and techniques. The module is likely to be of most benefit to students in the later phases of their programme who wish to develop project management skills that will be applicable in future post-doctoral, academic, or industry/governmental/charity based researcher professional roles;
- *Power, Place and Knowledge Production*—this module will assist students position their research within the wider context provided by their place of student, that is, Waterford city and the South-East of Ireland. The module is likely to be of most benefit to students in the earlier and middle phases of their programme as the insights gained will assist them in contextualising the outputs of their research programme as it evolves.

We view these as a preliminary suite of modules that may change over time based on our experience of their delivery and feedback from the PhD candidate cohort and School Boards.

## Appendix 5: Engagement with Enterprise and the Community and Knowledge Exchange

### 5.1 KE Performance and Future Targets

|                                | 2007   |        | 2008   |        | 2009   |        | 2010   |        | 2011   |        | 2012   |        | 2013   |        | 2014   |        | 2015   |        | 2016   |        |
|--------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                | Target | Actual |
| Licences                       | 2      | 1      | 2      | 1      | 2      | 2      | 2      | 2      | 2      | 3      | 3      | 1      | 4      | 4      | 4      | 5      | 5      | 9      | 5      | 7      |
| Spin-outs                      | 2      | 1      | 1      | 1      | 1      | 1      | 1      | 2      | 1      | 1      | 1      | 0      | 1      | 1      | 1      | 1      | 1      | 2      | 1      | 1      |
| Disclosures                    | 3      | 2      | 6      | 14     | 7      | 5      | 8      | 5      | 10     | 19     | 13     | 16     | 8      | 20     | 8      | 17     | 8      | 9      | 8      | 9      |
| Patents filed                  | 2      | 2      | 2      | 1      | 3      | 4      | 3      | 0      | 4      | 6      | 6      | 5      | 4      | 8      | 4      | 3      | 4      | 3      | 4      | 4      |
| Research expenditure           | €10.5m | €12.7m | €12m   | €17.2m | €13.5m | €18.5m | €15m   | €17m   | €16m   | €20.9m | €16m   | €20m   | n/a    | €14.8m | n/a    | €17.5m | n/a    | €17.7m | n/a    | €16.7m |
| Research Agrts with Ind > €25k |        | -      |        | -      |        | -      |        | -      |        | -      |        | -      | 4      | 6      | 4      | 17     | 4      | 11     | 4      | 19     |
| Research Agrts with Ind <€25k  |        | -      |        | -      |        | -      |        | -      |        | -      |        | -      | 50     | -      | 50     | 162    | 50     | 123    | 50     | 113    |

Figure 7: TTO target vs actual metrics 2007-2016

| Targets                                   | 2017   | 2018   | 2019   | 2020   | 2021   | TTSI 3 total |
|---|--------|--------|--------|--------|--------|--------------|
|   | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |              |
| LOAs                                      | 5      | 5      | 6      | 6      | 6      | 28           |
| Registered spinouts created               | 1      | 1      | 1      | 1      | 1      | 5            |
| Funded spinouts created                   | 1      | 0      | 1      | 0      | 1      | 3            |
| Spin-outs converting EI to HPSU clients   | 1      | 0      | 1      | 0      | 1      | 3            |
| Research agreements with industry < €25K  | 80     | 85     | 85     | 85     | 85     | 420          |
| €25K- €500                                | 1      | 2      | 1      | 2      | 1      | 7            |
| >€500K                                    | 0      | 0      | 0      | 0      | 0      | 0            |
| Research collaboration agreements < €25K  | 2      | 2      | 3      | 3      | 3      | 13           |
| €25K- €500                                | 5      | 5      | 5      | 5      | 5      | 25           |
| >€500K                                    | 0      | 0      | 0      | 0      | 0      | 0            |
| IDF's                                     | 10     | 12     | 12     | 14     | 14     | 62           |
| IDFs converted to Licences                | 5      | 5      | 6      | 6      | 6      | 28           |
| Priorty Patent applications filed         | 4      | 4      | 5      | 5      | 5      | 23           |
| Patent applications granted               | 0      | 1      | 0      | 0      | 1      | 2            |
| Patent applications converted to licences | 0      | 1      | 0      | 1      | 1      | 3            |
| Consultancy agreements                    | 3      | 3      | 3      | 4      | 4      | 17           |

Figure 8: TTO targets 2017-2021



## Appendix 6: Internationalisation

### 6.1 Erasmus+ Outgoing Student & Staff Numbers for 2014-2017

The Institute's internationalisation efforts is focussed not just on student recruitment but on student mobility, including mobility of Irish WIT students.

The following table show the number of students outgoing as part of the Erasmus+ programme.

| <b>Academic Year</b>     | <b>2014 – 2015</b> | <b>2015 – 2016</b> | <b>2016 – 2017</b> |
|--------------------------|--------------------|--------------------|--------------------|
| Students on Study        | 37                 | 50                 | 34                 |
| Students on Traineeships | 2                  | 2                  | 6                  |
| <b>Total</b>             | <b>39</b>          | <b>52</b>          | <b>40</b>          |

*Table 20 Erasmus+ Annual Outgoing Student No's:*

Student mobility is encouraged by staff mobility. The following describes the profile of staff mobility through the Erasmus+ programme

| <b>Academic Year</b>                     | <b>2014 – 2015</b> | <b>2015 – 2016</b> | <b>2016 – 2017</b> |
|--|--------------------|--------------------|--------------------|
| Staff on Teaching Assignments            | 5                  | 6                  | 6                  |
| Staff on Training Assignments            | 1                  | 4                  | 3                  |
| Staff on Monitoring/ Scoping Assignments | 4                  | 8                  | 8                  |
| <b>Total</b>                             | <b>10</b>          | <b>18</b>          | <b>17</b>          |

*Table 21 Erasmus+ Annual Outgoing Staff No's:*

Incoming Erasmus+ students are described in the following table. The bulk of student arrive in the first semester.

| <b>Academic Year</b> | <b>2014-15</b> | <b>2015-16</b> | <b>2016-17</b> |
|----------------------|----------------|----------------|----------------|
| Full Academic Year   | 43             | 41             | 48             |
| Semester 1           | 93             | 85             | 93             |
| Semester 2           | 32             | 29             | 57             |
| <b>Total</b>         | <b>168</b>     | <b>155</b>     | <b>198</b>     |

*Table 22 Erasmus+ Annual Incoming Totals*

A range of inter-institutional agreements support the mobility of students. The number of agreements involving WIT has increased significantly in recent years.

| <b>Academic Year</b>                          | <b>2014-15</b> | <b>2015-16</b> | <b>2016-17</b> |
|---|----------------|----------------|----------------|
| TOTAL AGREEMENTS                              | 80             | 87             | 104            |
| Total No. of Students included in Agreements* | 182.5          | 196            | 215            |

*Table 23 Erasmus+ Inter-Institutional Agreements*

\*These are the total no. of students who could have come on the exchange mobility.

The following table describes incoming exchange totals for the years under review.

| <b>Academic Year</b> | <b>2014-15</b> | <b>2015-16</b> | <b>2016-17</b> |
|----------------------|----------------|----------------|----------------|
| Full Academic Year   | 2              | 5              | 6              |
| Semester 1           | 31             | 21             | 37             |
| Semester 2           | 27             | 23             | 21             |
| <b>TOTAL</b>         | <b>60</b>      | <b>49</b>      | <b>64</b>      |

*Table 24 International Exchange Annual Incoming Totals*

## 6.2 Non-EU Student Recruitment, 2014-16 (by jurisdiction)

2014

| Nationality              | Foundation | Level 6 | Level 7 | Level 8 | Level 9 | Level 10 | Totals     |
|--------------------------|------------|---------|---------|---------|---------|----------|------------|
| China                    | 24         | 22      | 1       | 97      | 23      |          | 167        |
| Saudi Arabia             |            |         | 38      | 41      | 1       |          | 80         |
| Malaysia                 |            |         | 2       | 57      | 4       | 1        | 64         |
| India                    |            |         |         | 4       | 12      |          | 16         |
| Oman                     |            |         |         | 8       |         |          | 8          |
| Canada                   |            |         |         | 6       | 1       |          | 7          |
| Brazil                   |            |         | 1       | 1       | 3       | 1        | 6          |
| Pakistan                 |            |         | 1       | 3       | 2       |          | 6          |
| United States of America |            |         | 1       | 1       |         | 1        | 3          |
| Vietnam                  |            |         |         | 3       |         |          | 3          |
| Other                    |            | 3       | 4       | 8       |         |          | 14         |
| <b>Totals</b>            | 24         | 24      | 48      | 229     | 46      | 3        | <b>374</b> |

Table 25 Non-EU Recruitment by Jurisdiction 2014

In addition, there were 199 Science without Borders (Brazil) students recruited.

2015

| Nationality   | Foundation | Level 6 | Level 7 | Level 8 | Level 9 | Level 10 | Totals     |
|---------------|------------|---------|---------|---------|---------|----------|------------|
| China         | 5          | 10      | 2       | 84      | 12      |          | 113        |
| Malaysia      |            |         | 4       | 52      | 1       | 1        | 58         |
| Saudi Arabia  |            |         | 14      | 35      |         |          | 49         |
| India         |            |         |         | 3       | 20      |          | 23         |
| Oman          |            |         |         | 8       |         |          | 8          |
| Brazil        |            |         | 1       | 1       | 4       | 1        | 7          |
| Canada        |            |         |         | 6       |         |          | 6          |
| Vietnam       |            |         | 1       | 4       |         |          | 5          |
| Nigeria       |            | 1       | 1       | 1       | 1       |          | 4          |
| Other         |            |         | 4       | 7       | 4       |          | 15         |
| <b>Totals</b> | 5          | 11      | 27      | 201     | 42      | 2        | <b>288</b> |

Table 26 Non-EU Recruitment by Jurisdiction 2015

In addition there were 17 Science without Borders students.

2016

| <b>Nationality</b> | <b>Foundation</b> | <b>Level 6</b> | <b>Level 7</b> | <b>Level 8</b> | <b>Level 9</b> | <b>Level 10</b> | <b>Study Abroad</b> | <b>Totals</b> |
|--------------------|-------------------|----------------|----------------|----------------|----------------|-----------------|---------------------|---------------|
| China              |                   |                | 2              | 46             | 9              |                 | 1                   | 58            |
| Malaysia           |                   |                | 2              | 51             | 5              |                 |                     | 58            |
| Saudi Arabia       |                   |                | 6              | 25             | 1              |                 |                     | 32            |
| India              |                   |                | 1              | 3              | 10             |                 |                     | 14            |
| Brazil             |                   |                | 1              | 1              |                |                 | 11                  | 13            |
| Oman               |                   |                | 1              | 6              | 2              |                 |                     | 9             |
| USA                |                   |                |                | 3              | 2              |                 | 1                   | 6             |
| Vietnam            |                   |                | 1              | 5              |                |                 |                     | 6             |
| Canada             |                   |                | 1              | 3              |                |                 |                     | 4             |
| Nigeria            |                   |                | 1              | 1              | 2              |                 |                     | 4             |
| Pakistan           |                   |                |                | 2              | 1              |                 |                     | 3             |
| Other              |                   |                | 2              | 6              | 3              |                 |                     | 11            |
| <b>Totals</b>      | 0                 | 0              | 18             | 152            | 35             | 0               | 13                  | <b>218</b>    |

Table 27 Non-EU Recruitment by Jurisdiction 2016

## 6.3 International Research Partnerships and Collaborations

### International Project Partners 2014/2015

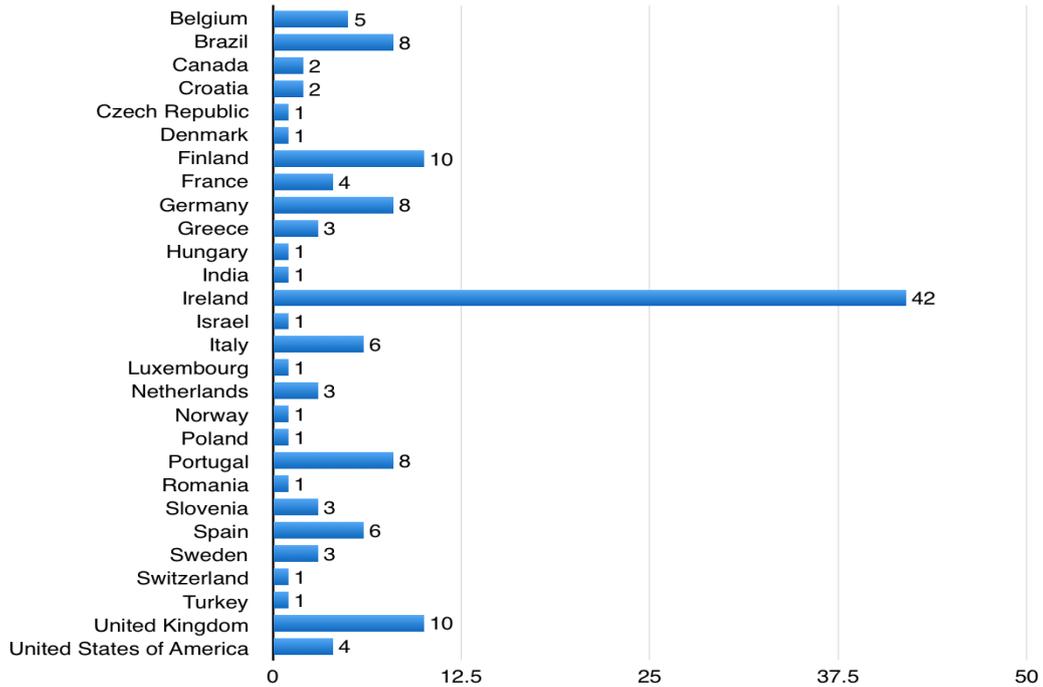
| Partner Name  | Country        |
|---|----------------|
| Gymnastiek Federation Vlaanderen                                    | Belgium        |
| iMinds  | Belgium        |
| Katholieke University Leuven  | Belgium        |
| Materialise   | Belgium        |
| Technische Universitat Berlin                                       | Belgium        |
| Fundacao De Apoio A Universidade De Sao Paulo                       | Brazil         |
| Fundacao Universidade de Brasilia                                   | Brazil         |
| Intelbras   | Brazil         |
| Khomp   | Brazil         |
| Universidade Federal De Santa Catarina                              | Brazil         |
| University of Brasilia  | Brazil         |
| University of Rio Grande do Sul                                     | Brazil         |
| University of Santa Catarina  | Brazil         |
| Ontario College of Art and Design University                        | Canada         |
| Strategic Network for Smart Applications on Virtual Infrastructures | Canada         |
| SD Informatika doo Informatiki Inzenjering                          | Croatia        |
| University of Zagreb Faculty of Kinesiology                         | Croatia        |
| Univerzita Palackeho V Olomouci                                     | Czech Republic |
| International Sport and Culture Association                         | Denmark        |
| Etela-Suomen Liikunta ja Urheila ry                                 | Finland        |
| Finnish Boxing Association  | Finland        |
| Finnish Swimming Association  | Finland        |
| Jyvaskylan Yliopisto  | Finland        |
| Pohjanmaan Liikunta ja Urheilu PLU ry                               | Finland        |
| Tampere University of Technology                                    | Finland        |
| The Equestrian Federation of Finland                                | Finland        |
| The Finnish Gymnastics Federation                                   | Finland        |
| Turun Yliopisto University of Turku                                 | Finland        |
| Valo Sport Federation   | Finland        |
| Eurocloud   | France         |
| European Non-Governmental Sports Organisation (ENGSO)               | France         |

|   |             |
|---|-------------|
| Gemalto   | France      |
| Institut National Des Sciences Appliquees de Lyon               | France      |
| BitTubes GmbH   | Germany     |
| Deutscher Turner-Bund e.V                                       | Germany     |
| Direct Manufacturing Research Centre                            | Germany     |
| Fraunhofer-Gesellschaft   | Germany     |
| Helmoltz Centre for Environmental Research                      | Germany     |
| Institut fur finanzdienstleistungen                             | Germany     |
| Universitat Frankfurt am Main                                   | Germany     |
| Universitat Rostock   | Germany     |
| ALTEC Software SA   | Greece      |
| Aristotle University of Thessaloniki                            | Greece      |
| Grammos SA  | Greece      |
| Integrated Information Systems SA                               | Greece      |
| National Technical University Athens                            | Greece      |
| Andrassy Gyula Budapesti Nemet Nyelvu Egyetem                   | Hungary     |
| Eotvos Lorand Tudomanyegyetem                                   | Hungary     |
| Beyond Evolution Tech Solutions Pvt. Limited                    | India       |
| Indian Institute of Technology Delhi                            | India       |
| Ardag   | Israel      |
| WeFi  | Israel      |
| Consiglio Nazionale Delle Ricerche CNR                          | Italy       |
| Consorzio Nazionale Interuniversitario per le Telecomunicazioni | Italy       |
| Interoute SPA   | Italy       |
| Libera Universita Maria Assunta                                 | Italy       |
| Telecom Italia  | Italy       |
| Universita Degli Studi Di Trento                                | Italy       |
| Universita delgi Studi di Perugia                               | Italy       |
| Universite Du Luxembourg  | Luxembourg  |
| Technical University of Delft                                   | Netherlands |
| University Medical Center                                       | Netherlands |
| University of Amsterdam   | Netherlands |
| Nordforsk   | Norway      |
| Instytut Psychiatrii Neurologi                                  | Poland      |
| ISCTE-IUL   | Portugal    |
| PHC   | Portugal    |

|   |                          |
|---|--------------------------|
| Portugal Telecom Comunicacoes                         | Portugal                 |
| PT Inovacao e Sistemas                                | Portugal                 |
| Uninova   | Portugal                 |
| Universidade De Coimbra                               | Portugal                 |
| Universidade Nova de Lisboa                           | Portugal                 |
| University of Coimbra                                 | Portugal                 |
| Unisoft Romania                                       | Romania                  |
| Jozef Stefan Institute                                | Slovenia                 |
| Si.mobil d.d  | Slovenia                 |
| XLAB  | Slovenia                 |
| Andromeda Iberica                                     | Spain                    |
| ATOS  | Spain                    |
| Fundacion Centro De Tecnologias De Interaccion Visual | Spain                    |
| Inmark Estudios Y Estrategias                         | Spain                    |
| Mobivery  | Spain                    |
| Telefonica I+D (CR)                                   | Spain                    |
| Universidad Politecnica de Madrid                     | Spain                    |
| Universitat Politecnica de Catalunya                  | Spain                    |
| Lund University                                       | Sweden                   |
| Orebro University                                     | Sweden                   |
| Sveriges Riksidrottsforbund                           | Sweden                   |
| University of Neuchatel                               | Switzerland              |
| Koc University  | Turkey                   |
| 451 Research  | United Kingdom           |
| Electro Optical Systems                               | United Kingdom           |
| Hewlett Packard Ltd                                   | United Kingdom           |
| Institute of Occupational Medicine                    | United Kingdom           |
| Intelesens Ltd  | United Kingdom           |
| Kings College London                                  | United Kingdom           |
| Ned Cohen   | United Kingdom           |
| Queen's University Belfast                            | United Kingdom           |
| Southern Health and Social Care Trust                 | United Kingdom           |
| Trust IT Services                                     | United Kingdom           |
| University of Cambridge                               | United Kingdom           |
| University of Ulster                                  | United Kingdom           |
| Cisco   | United States of America |

|  |                          |
|--|--------------------------|
| European American Chamber of Commerce                    | United States of America |
| Georgia Institute of Technology                          | United States of America |
| Tessera Multimedia                                       | United States of America |
| University Corporation for Advanced Internet Development | United States of America |

### Geographical Categorisation of Project Partners 2014/2015

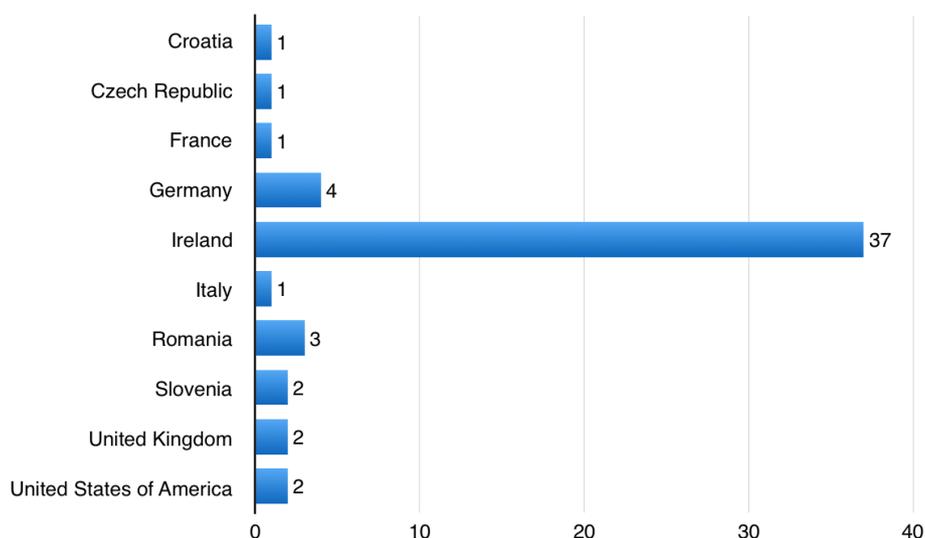


### International Project Partners 2015/2016

| Partner Name   | Country        |
|--|----------------|
| Dunavska Mreza                                       | Croatia        |
| Pro Rozvoj Sumavy                                    | Czech Republic |
| Magic Bastos   | France         |
| Ericsson GmbH  | Germany        |
| Flexible Elektrische Netze FEN GmbH                  | Germany        |
| Gridhound UG   | Germany        |
| Rheinisch-Westfaelische Technische Hochschule Aachen | Germany        |
| Politecnico Di Torino                                | Italy          |
| Centrul Roman al Energiei                            | Romania        |

|   |                          |
|---|--------------------------|
| Compania Nationala de Transport Alenergiei Electrice Transelectrica | Romania                  |
| Universitatea Politehnica Din Bucuresti                             | Romania                  |
| Brezice Municipality  | Slovenia                 |
| Drustvo za boljsi Svet Vilinski Kljuc                               | Slovenia                 |
| Fakulteta Za Informacijske Studije V Novem Mestu                    | Slovenia                 |
| Agri Food and Biosciences Institute of Northern Ireland             | United Kingdom           |
| Technocomm Ltd  | United Kingdom           |
| University of Ulster  | United Kingdom           |
| Cisco   | United States of America |
| Spelman University  | United States of America |

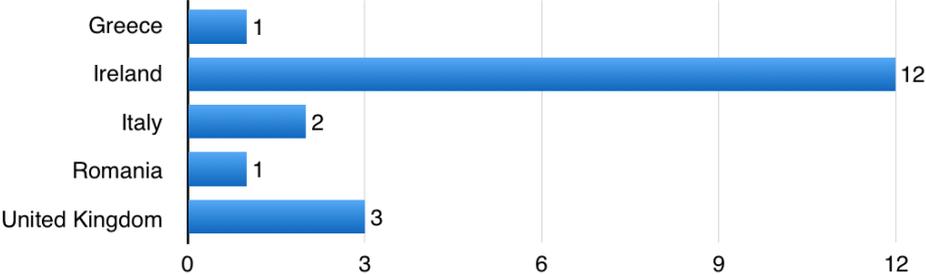
### Geographical Categorisation of Project Partners 2015/2016



### International Project Partners 2016/Year-end

| Partner Name                 | Country        |
|------------------------------|----------------|
| Institute of Child Health    | Greece         |
| Societa Della Salute         | Italy          |
| Regione Toscana              | Italy          |
| Universitatea Babes-b        | Romania        |
| University of Ulster         | United Kingdom |
| Milford Haven Port Authority | United Kingdom |
| Cardiff University           | United Kingdom |

Geographical Categorisation of Project Partners 2016/Year-end



## 6.4 EU Funding 2014-2016

## EU Projects Funded 2014/2015

| <b>Funding Programme</b>                         | <b>Project Title</b>   | <b>Amount Approved</b> | <b>Total Project Value</b> |
|--|--|------------------------|----------------------------|
| Competitiveness & Innovation Framework Programme | Fostering Mobile Business Through Enhanced Cloud Solutions MOBIZZ                                      | €353,450               | €2,008,310                 |
| Employment Social Affairs & Inclusion            | Integrating Residential Property with Private Pension Provision  | €55,246                | €365,770                   |
| Erasmus Plus                                     | Promoting National Implementation for Sport Club for Health Programmes in Eu Member States             | €17,713                | €613,710                   |
| EuropeAid  | EU India Cooperation Platform in Future Internet (EU-INDIA FI-MEDIA)                                   | €332,602               | €415,753                   |
| Fisheries Local Area Development Scheme          | Animation - to Investigate the Viability of creating a seafood product centre                          | €18,860                | €24,610                    |
| H2020 - ICT - 2014 - 2                           | CogNet Building an Intelligent System of Insights and Action for 5G Network Management                 | €943,625               | €5,972,821                 |
| H2020 - ICT - 2015                               | Discovery  | €286,500               | €1,498,275                 |
| H2020 EUB-2015                                   | EUBrasilCloudFORUM: Fostering an International dialogue between Europe and Brasil                      | €156,812               | €500,000                   |
| H2020 FETOPEN 2014                               | Coordinating European Research on Molecular Communications (CIRCLE)                                    | €123,906               | €532,336                   |
| H2020 ICT-15-2014                                | Aquaculture Smart and Open Data Analytics as a Service AQUASMART                                       | €806,250               | €3,109,078                 |
| H2020 MSCA-RISE-2014                             | Wrist and Arm Sensing Technologies for Cardiac Arrhythmias Detection WASTCARd                          | €54,000                | €324,000                   |
| Just Action                                      | Computer Assisted Solutions for studying the availability of novel psychoActive substances (CASSANDRA) | €79,360                | €459,683                   |

|  |  |            |             |
|--|--|------------|-------------|
|  | New Psychoactive Substances:transitional project on different user groups, user characteristics, extent and patterns of use, market dynamics, and best practices in prevention | €47,201    | €354,172    |
|  | Total  | €3,275,525 | €16,178,518 |

#### EU Projects Funded 2015/2016

| Funding Programme   | Project Title             | Amount Approved | Total Project Value |
|---------------------|---------------------------|-----------------|---------------------|
| Erasmus Plus        | Feel the Freedom of Water | €16,944         | €494,113            |
| H2020 LCE-2016-2017 | RE-SERVE                  | €300,000        | €4,996,652          |
|                     | Total                     | €316,944        | €5,490,765          |

#### EU Projects Funded 2016/Year-end

| Funding Programme                              | Project Title   | Amount Approved | Total Project Value |
|--|---|-----------------|---------------------|
| Just Action                                    | Support to Adult Survivors of Child Abuse in International Settings SASCA | €49,437         | incomplete          |
| Ireland Wales Co-operation Programme 2014-2020 | Pisces  | €1,204,393      | €1,825,672          |
|  | Total   | €1,253,830      | incomplete          |