

SCHOOL OF BIOTECHNOLOGY

STRATEGIC PLAN: Jan 2011 – Jan 2014

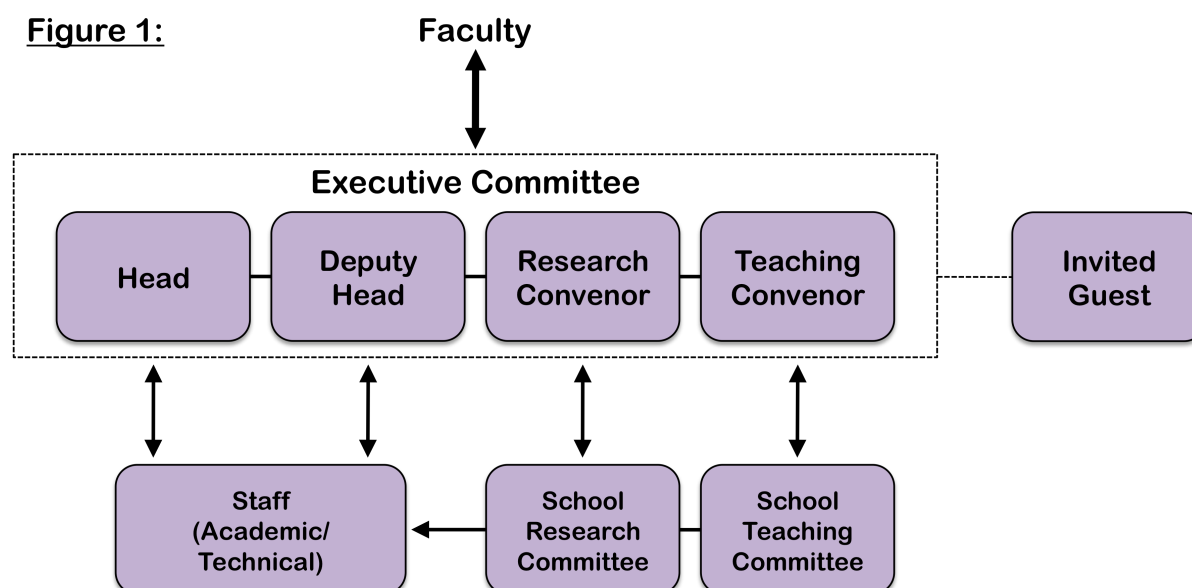
Executive Summary

The School of Biotechnology is a core Unit within the Faculty of Science & Health at DCU where it functions as an active centre of undergraduate, graduate and postdoctoral education and training. The School is unique in having established expertise across a broad range of life science and bioengineering disciplines contained within a single Faculty Unit, thus permitting delivery of a diverse range of innovative and industrially-relevant degree programmes. In addition to hosting the longest running undergraduate Biotechnology degree programme in Ireland, the School also boasts a highly successful undergraduate degree in Genetics & Cell Biology, as well as masters degree programmes in Bioinformatics and Bioprocess Engineering. The School is also an active centre of fundamental and applied research and in this capacity it supports a defined cluster of intersecting research themes - Bioprocess Engineering, Microbiology, Bioinformatics & Genomics, Cell & Molecular Biology, Immunology, and Biochemistry – which reflect the multi-disciplinary expertise base of academic staff and underpin its various research and training missions.

Biotechnology and related areas of biological, biomedical and health sciences are a pivotal feature of Ireland's *Smart Economy* strategy, which seeks to establish Ireland as a location for internationally recognized research, training and innovation, and a favourable environment for industrial development. As such, they are key components in the educational and research strategy of DCU. **The strategic direction taken by the School is therefore of fundamental importance to both the Faculty and University and must reflect a pragmatic adaptation to the changing needs and circumstances of the internal and external environments.** Within this context, the current strategic plan, prepared in consultation with all School academic and technical staff, therefore represents a timely examination of core School activities with a view to achieving necessary optimization on multiple levels such as; (1) Education & Training, (2) Research & Funding, (3) School-Centre Interactions, (4) Infrastructure and (5) Staffing & Workloads.

The School Executive Committee (Figure 1) will monitor implementation of strategic actions and maintain forward impetus, promote staff participation, and make changes to the plan as necessary. It is anticipated that the Committee will meet to discuss the plan roll-out in Jan 2011 and meet quarterly thereafter. A formal mid-term self-assessment exercise will also be undertaken in order to fine-tune strategic plan implementation and take account of the external environment, incorporate views of new staff, and re-assess School KPI metric targets.

Figure 1:



1. Education & Training

The provision of a well-trained graduate workforce is a vital aspect of the School's core mission. Irish industry has grown substantially over the last 15 years with particularly strong emphasis on biopharmaceutical manufacturing and more recent growth in other knowledge-intensive areas (e.g. drug discovery, clinical trials, medical devices, biosensor technologies). School graduates play a significant role in driving this sector, now widely viewed as an important engine for national economic recovery. Going forward, the modernization of existing degree programmes and the provision of innovative new approaches to education and training is essential. The current plan proposes ways to further adapt the School's educational mission to satisfy evolving societal and industrial needs.

Actions: [Executive/Teaching Committee, Programme Coordinators, INTRA Coordinator, Technicians]

- 1.1 Robustly examine all elements of the core BT and GCB undergraduate degree programmes immediately with a view to flagging unnecessary or ineffective modules for removal or upgrade and to modernising course content to enhance industrial relevance (it is strongly recommended that this be done in collaboration with identified industry experts). A timely review of the *overall structure* of the BT degree programme will also be conducted with a view to diversifying the educational space it currently occupies (e.g. wrt business, languages, therapeutics, diagnostics, biostatistics etc.). Reviews of newer School MSc programmes as well as the ESH degree will also be conducted over the lifetime of this plan.
- 1.2 Expand and modernise BT degree bioprocess engineering-based laboratories through greater use of NIBRT facilities.
- 1.3 Investigate the possibility of engaging private sector-based BT experts to deliver specialist lectures to enhance the industrial relevance and impact of core BT modules.
- 1.4 In view of the national push towards a *knowledge-based* economy - critical thinking, problem solving, and entrepreneurship are now becoming increasingly important graduate traits. Employers have varying requirements of different graduate disciplines, and so it is proposed to conduct a comprehensive *employer needs survey* of identified BT/GCB INTRA contacts to pinpoint key employer-desired skills that can be targeted for improvement in these degrees. This will be done in collaboration with DCU INTRA Office/Career Service.
- 1.5 Robustly examine all elements of the teaching timetable to identify opportunities for *block teaching* (i.e. whereby lecture/laboratory modules can be fully delivered in condensed segments of time). This will have the benefit of enabling lecturers to deliver their teaching loads in a more concentrated manner, affording them greater research continuity during semester. Moreover, student engagement could be expected to improve by maintaining module continuity.
- 1.6 Relevant academic and technical staff will conduct a full review of 1st Yr biology practicals with a view to substantially reducing time/costs and prioritising *hands-on* training for those students taking biology-based streams.
- 1.7 In recent years, the School has played a leading role within DCU in the development and implementation of structured graduate training programmes (Masters/PhD) as a model for postgraduate education and research. This has greatly enhanced the School's graduate population, resource base, and international reputation. Going forward, the School will actively seek input and engagement from staff towards the development of relevant new graduate programmes as well as the diversification of existing ones. The introduction of elective modules focusing on key industrial specialisms (e.g. Regulatory Affairs) into the MSc in Bioprocess Engineering for example serves as a model for how a programme can be diversified in order to broaden its applicability and uptake across the industrial sector. These efforts will serve to further expand School graduate student intake and vital revenues, and to strengthen the School's ability to lobby for essential new teaching posts (e.g. in the key area of Genomics).
- 1.8 Consideration will be given to the development of an undergraduate pre-med degree programme (e.g. in conjunction with HHP and clinical partners).
- 1.9 On an annual basis (end of Semester 2), the School will weigh its existing/projected resources against student intake to determine the feasibility of further growth and expansion of its various degree programmes. **[Head & Staff]** In conjunction with this, the School will annually re-evaluate

its Outreach activities wrt secondary schools within the DCU catchment area in an effort to maintain and even improve student enrolment into its core BT & GCB undergraduate programmes. [Outreach representative]

- 1.10 As a matter of immediate concern, engage all School academic staff to identify ways to reduce 1st Yr drop-out and failure rates. Possible ways forward here may include the introduction of a compulsory peer-mentoring module into the BT and GCB programmes to be primarily implemented by trained postgraduates as part of their annual demonstration load – [for review see Parkinson 2009 *Innov Educat & Teach Int*]). The application of web-based course management software by instructors/lecturers to enhance the learning experience is also warranted in this context (e.g. online discussion software to enhance the learning experience has been shown to improve students perspective taking, engagement in the material, and overall understanding).
- 1.11 As a matter of immediate concern, engage all School academic and technical staff to address the progressively worsening problem of INTRA placements for BT/GCB 3rd Yr students (e.g. through re-examination of employer contacts, development of a more formal in-house project/training structure for non-placed students, short research fellowships for students in other University labs, placement with School technicians to assist in Summertime overhaul of teaching/prep. lab facilities).

2. Research & Funding

Fundamental basic research constantly underpins much of the School's research portfolio and is a vital engine for the generation of novel and potentially exploitable scientific knowledge and ideas. Translation of this knowledge into measurable societal benefits (i.e. measureable impacts on health, economic development, and industry) has become a crucial feature of Ireland's Smart Economy strategy and is fast becoming a required quantifiable end-point for many external funding agencies. The serious contraction in national funding resources due to the recent economic downturn however, represents a serious challenge to academic researchers and places an increased emphasis on non-exchequer funding sources (FP7/8, Wellcome, NIH etc). The current plan examines core School research programmes and proposes ways to enhance them through strategic collaboration and alliance building along existing translational routes.

The School is committed to enhancing innovation and translational impact across all of its research themes. A significant enhancement in external links with other third level institutes, health organizations, and industrial partners can be anticipated from this, as can improved internal research links with other campus Units in areas of diagnostics, bioanalytic technologies, human disease therapeutics, and bioencapsulation applications (CBAS, NCSR, BDI, ICNT, NICB, and NIBRT). Noteworthy examples of relevant translational initiatives include: (i) **Translational Research Hub (TRH)** - This involves the strategic partnering of DCU, RCSI, and NUIM (and linked hospitals), and is expected to provide a unifying framework in terms of research infrastructure and clinical expertise for enhancing the translational *bench-to bedside* focus of research. The TRH is particularly relevant to key aspects of life science research ongoing within the School (e.g. cell biology, biochemistry, immunology, virology, genomics, nutrition); (ii) **Centre for Preventive Medicine** - This recently formed UDRC primarily comprising PIs from HHP and BT (as well as NICB and external clinical partners), encompasses a *bench-to-body* translational model that will help to enhance the health impact of life science research ongoing within both Schools, and which is well placed to adapt to EU funding models. The research focus on how lifestyle factors can influence chronic diseases (Diabetes, Cardiovascular Diseases, Respiratory Diseases) in association with globally relevant cross-thematic issues (Ageing, Obesity) makes this Centre unique to Ireland and represents *Innovation in Medicine and Health Economics*.

School Research Themes

Bioprocess Engineering, Microbiology: Bioprocess engineering (fermentation technologies, downstream processing, micro/nano-encapsulation systems) represents a multi-dimensional research theme that is unique to the School, and should be well placed to yield real translational impacts and to

attract new funding streams and industrial links. This is further emphasized by the School's pivotal involvement with NIBRT in which it plays a major role as the input for biochemical/bioprocess engineering. Allied to this are highly topical programmes in environmental microbiology and environmental technologies (pollutant detection, recovery, and degradation). Moreover, relevant to all aspects of School environmental research is the Energy & Design Laboratory (EDL), established to facilitate fundamental and applied research in energy engineering, bioelectricity, energy recovery from wastewater, and biofuel research (laboratory resources include a prototyping facility for rapid development and realization of prototype designs and systems). Collectively, these programmes have established critical links with the Schools of Chemical and Physical Sciences, Engineering, and the NCSR. Moreover, the School fully supports commercial exploitation of these varied research programmes and importantly, it recognizes the need for their closer consolidation going forward.

Bioinformatics & Genomics: This is an important emerging and high profile area of teaching and research unique to the School. Given proper resources this theme could advance much of our ongoing life science research. This particular area is also highlighted in the DCU Foresight Report under *Theme 2 - Managing Your Health: Greater Understanding of Human Biology & Living Systems*. The importance of this research theme for the School of Biotechnology is exemplified by two degree programmes that this area - one at undergraduate and one at postgraduate level (i.e. the BSc in Genetics & Cell Biology and the MSc in Bioinformatics, respectively). Continued growth and investment in this research theme are considered vital to ensure that the current high standards of both our taught and research degrees are maintained. Strengthening of research links with current and future collaborators from institutions such as the US National Institute of Health (NIH), Sanger Centre (UK), Teagasc, RCSI, and NUIM will be prioritised for this theme. This will ensure increased growth, enhancement of our degree programmes and increased opportunities for attainment of non-exchequer research funding. This theme is essential for the support of research within the lifesciences - a key focus of the School and DCU.

Cell & Molecular Biology, Immunology, Biochemistry: An understanding of cellular components and signaling mechanisms is a fundamental cornerstone of life sciences, enabling scientists to elucidate the molecular/cellular "sources" of human diseases such as cardiovascular and autoimmune disorders, cancer, diabetes, and infectious diseases, and to develop associated therapies. Importantly, it also provides a unifying theme for related life science disciplines such as immunology and biochemistry, fostering important inter-disciplinary collaborations. Within this context, the School has developed a broad life science programme encompassing immunomodulation, virology (influenza, Epstein-Barr virus), cancer biology, vascular cell signaling/physiology, and molecular nutrition, thereby fueling numerous strategic internal and external collaborations and participation in graduate training programmes (e.g. T3, BioAT). Notwithstanding the significant translational advances achieved in areas of applied biochemistry and antibody production (i.e. with NCSR, BDI, CBAS), the School now recognizes the need to significantly enhance the translational impact of its various basic life science programmes and will endeavor to establish strategic external alliances to achieve this.

Actions: [Executive/Research Committee, PIs]

- 2.1 Appoint representatives to report back into monthly staff meetings on TRH, CPM and NIBRT activities.
- 2.2 With respect to the Bioinformatics & Genomics theme, enhance current links with world renowned scientists at the National Human Genome Research Institute (an NIH division) with a view to providing PhD or postdoctoral opportunities for DCU graduates, facilitating attainment of non-exchequer funds, and achieving excellence in research reflected in publication output.
- 2.3 With respect to the Bioinformatics & Genomics theme, solidify current links with world renowned scientists at NUIM and Teagasc through shared research projects and joint publications into the future to continue to gain funding for such efforts. Also, enhance and develop research links with centres of excellence in bioinformatics and molecular evolution world-wide, including the Sanger Centre UK and the Natural History Museum London, with a view to raising our international profile for the purpose of attracting non-exchequer funds and for us to continue to achieve excellence in this research area as reflected in publication output.

- 2.4 Actively engage national contact points (e.g. Enterprise Ireland, HRB, and IUA representatives) to coordinate participation of relevant School PIs in European Framework Programmes particularly in the core areas of *Cooperation* (e.g. health, food/agriculture/fisheries biotechnology, energy, environment/climate, nanotechnologies), *People* (Marie Curie programme), and *Capacity* (research infrastructure, research for the benefit of SMEs). Funds to facilitate necessary planning and networking exercises may include FSH/OVPR funding schemes (e.g. Research Alliance/Conference Support/Travel schemes), as well as semi-state funding bodies (e.g. Enterprise Ireland, HRB).
- 2.5 Relevant life science PIs will establish working alliances within the TRH and CPM (e.g. cardiovascular research with RCSI/CPM, immunology and virology with NUIM/CPM). Funds to facilitate necessary planning and networking exercises may include FSH/OVPR funding schemes (e.g. Research Alliance/Conference Support/UDRC schemes).

3. School-Centre Interactions

Interactions with other Schools (Nursing, Chemical Sciences, HHP, Communications, Computing, Business, Law & Government) and Centres (NICB, NCSR, BDI, CBAS, ICNT, CPM, SciSym, NIBRT) across the wider DCU community are of fundamental importance to the School's core mission. Indeed, well established School-based research activities have frequently served as the seeding ground for a number of UDRCs and National Centres of Excellence on campus, with many of the School's academic staff allied to at least one Centre for their research activities. In line with a recent University-wide review into governance of Schools and Centres, which pointed out the need for a more harmonious interface between campus Units in order to minimize duplication of resources and activities, the current plan proposes ways to optimize and enhance the School's relationships with other campus Units.

Actions: [Executive Committee, School Convenors]

- 3.1 The School Research Committee will broaden its membership to include members of the School's closest Centre partners, NICB, CBAS and ICNT. This is expected to expedite more open sharing of facilities, encourage communication, and identify joint translational initiatives.
- 3.2 Examine ways to transform the annual School Research Open Day to enhance participation by other Schools/Centres, to run in tandem with related School/Centre Open Days, and/or to showcase successful instances of School/Centre collaboration. **[Open Day Organising Committee]**
- 3.3 Through the School Research Committee, annually coordinate strategic joint applications between School/Centre personnel for Faculty/OVPR overhead funding schemes (e.g. Targeted Research Initiative Fund, Research Alliance Fund, Equipment Maintenance Fund, Conference Support Scheme).
- 3.4 Through the School Teaching Committee, fully assess the involvement of Centre-based research scientists in School teaching programmes with a view to increasing their involvement (e.g. through allocation of paid senior demonstratorship positions to facilitate Centre-based researchers in need of bridging funds, through increased allocation of 4th Yr and MSc project students to provide valuable supervisory experience and in-lab assistance).
- 3.5 Engage with Centre partners to promote a *topically relevant cross-thematic* seminar programme delivered by international experts. One such programme is currently being undertaken for the 2010/2011 academic year by the Centre for Preventive Medicine for example, as part of a larger effort to strengthen links between BT, HHP, and NICB.

4. Infrastructure

Maintenance and enhancement of School infrastructure and computing facilities on an ongoing basis is absolutely essential for modern, efficient and cost-effective teaching and research. The current plan examines necessary infrastructural improvements.

Actions: [Executive Committee, PIs, Technicians]

- 4.1 From the annual School budget, set aside an agreed transparent fund for necessary infrastructural maintenance and improvements, with job priorities dictated by open feedback from academic and technical staff.
- 4.2 As an indispensable element of modern industrially-relevant learning it is absolutely essential that the School provide adequate computing facilities to drive computer-aided learning, modular teaching, and continuous assessment, as well as bioinformatics and bioengineering-based lecture content. A number of limitations currently exist however with regards to provision of fit-for-purpose wireless network capabilities, software and site licences, laptop provision etc, very seriously undermining proper delivery of innovative new programmes such as the MSc in Bioinformatics. The School will therefore establish a working group from amongst relevant School PIs to identify ways in which current limitations to computer-based learning can be surmounted (e.g. engaging with the FTL Committee and OVPLI to examine changes that can be introduced to overhead grant schemes to address these infrastructural deficits, tapping into external capacity-building grants, identification of industrial sponsors, identification of a dedicated space to accommodate up to 40 ethernet ports, investigating use of School of Computing facilities etc).
- 4.3 Appoint a member of academic/technical staff to maintain timely upgrades to the School website in conjunction with ISS and to report back into monthly staff meetings.

5. Staffing & Workloads

The recent economic downturn has meant a significant projected increase in undergraduate student intake, in direct parallel with an erosion of staffing resources, presenting major challenges for the School with respect to teaching and administrative workloads. It is essential that initiatives be undertaken to ensure that staff workloads are fairly distributed and compatible with a significant and necessary level of research time. New appointments (inc. senior level appointments), promotions, and more security of tenure for key long-term senior researchers are equally important in this context and are fundamental to the success of the School in delivering on its identified priorities. The current plan will examine this workload issue and make appropriate recommendations.

Actions: [Executive Committee, Programme Coordinators, Technicians]

- 5.1 Comprehensively revise the existing academic staff workload distribution model with a view to normalizing and/or reducing contact hours, without deterioration of the student learning experience. This model should properly incorporate a weighting for postgraduate research supervision (possibly balancing this against 4th year project supervision duties).
- 5.2 Establish a technical sub-group to prepare an up-to-date workload distribution model for technical staff with a view to identifying possible opportunities for their increased involvement in teaching (inc. demonstration), outreach (inc. open day), and research activities.
- 5.3 Re-examine the postgraduate demonstration funding model to include senior demonstrators to manage specific practicals and routinely involve senior scientists in teaching activities as an element of their academic training.
- 5.4 Robustly examine all Biotechnology service teaching annually to facilitate normalization of teaching loads and to weed out ineffective and/or unsustainable modules. Moreover, in conjunction with Action 1.1, examine the possibility of merging certain programme modules, as well as the possibility of simultaneously delivering specific modules to multiple years (in combination with year-specific tutorials).
- 5.5 In conjunction with Action 1.10, examine the possibility of rationalizing teaching workloads using electronic teaching and learning methods. The aim here is to decrease the number of direct contact hours with students and instead move to structured material available online, e-demonstrations (e-clips) for certain tasks, and structured discussion e-boards to reinforce the material. Lectures and tutorials would still take place but at a much reduced rate (i.e. the

emphasis would be placed back on the student to read about the topic and then actively take part in the e-discussions that would be structured and supervised).

- 5.6 Ensure timely rotation of all administrative tasks (e.g. 3 Yrs for standard admin roles, 4 Yrs for programme chairs). A heavily loaded admin position should, if possible, be followed by a lighter admin role.
- 5.7 For all academic/technical staff, review individual promotion aspirations and identify medium-to-long term barriers that need to be overcome (can possibly be done in conjunction with PMDS). **[Head & Deputy Head]**

Deliverables

The School will:

- Enhance its interactions with associated research Centres through integration of committee activities and implementation of joint research initiatives
- Conduct robust reviews of all of its taught degree programmes and implement recommendations
- Build strategic alliances to improve the translational impact of its research programs and significantly enhance its efforts to secure non-exchequer funding
- Achieve strategic recruitments to underpin teaching and research in priority areas
- Pursue infrastructural improvements in key areas such as computing
- Revise the staff workload model to better account for administrative and research activities
- Conduct a formal mid-term self-assessment exercise to assess plan progress

The School will aspire to:

- National and international recognition in the listed research priority areas
- Be a national leader in the delivery of structured graduate training programmes (MSc/PhD)
- Be the preferred national university contact point for the biotech/biopharma industry in terms of R&D services, in-house industrial training, and graduate recruitment
- Be the preferred contact point in the greater Dublin area for secondary school Outreach educational activities in biotechnology and related life science disciplines
- Be the preferred contact point in the greater Dublin area for secondary school students wishing to pursue undergraduate pre-clinical training

This is a draft document that should involve intensive and inclusive consultation and multiple opportunities for input from all School staff. It should represent the consensus opinion on the areas that it covers. It should therefore be considered as a *Constitution* in relation to ongoing development of School policy. Implementation of the plan is the responsibility not only of the Head of School and Executive Committee, but also of ALL School staff to whom particular sections of the plan apply. As a result, this draft document will be circulated to all academic and technical members of staff and revisions comments requested by the Dec 1st, 2010. Modifications may then be made to the document, which will be submitted to the Faculty and all School staff.

APPENDIX I

SWOT Analysis (conducted in Spring 2010 by the School Research Committee)

Strengths

- Success with many leading funding bodies (SFI, HRB, Enterprise Ireland, Wellcome, IRCSET, EPA etc)
- PRTL success in Cycles 1, 3, & 4 (possibly 5?)
- Multidisciplinary research faculty
- Consistent publication output
- Established research links: (FSH, national, international, industry, academic, hospital)
- Seeding ground for Centre's of Excellence (NICB, NCSR, BDI, NIBRT)
- Commercial successes (Slidepath, invention disclosure awards, patents pending)
- Excellent core facilities (T3 facilities, IM Bioanalysis labs)
- A leading School in the establishment of PhD graduate training programmes (T³ template in place for validated & accredited 1+3 yr PhD training for future Marie Curie &/or inter-institutional agreements)

Weaknesses

- Lack of medical school and on-site clinical expertise
- Much of our research (particularly in life sciences) lacks real translational/societal impact
- Lack of a common or school-wide research mission/theme
- Poor linkage between School and Centre's such as NICB and ICNT (School-Centre relationships & perceptions operate to the School's detriment)
- No record of consistently high impact publication in life sciences (i.e. 1st or senior author at impact factor 7+)
- On several levels, we are not perceived internally/externally as making a significant impact (we also have a poor visibility on campus)
- Very poor history of promotions to Assoc. Prof. level (especially for a 25 yr flagship school)

Opportunities

- Through necessity, engage more actively in non-exchequer funding activities (e.g. FP7)
- Consolidate individual research programmes and engage in cluster-based initiatives
- Raise awareness of the School's research profile and highlight the value of our research portfolio to the broader Faculty and University
- Keep abreast of DCU overtures to Indian HEIs (APMcD report)
- Establish closer ties, via the Translational Research Hub, with RCSI & NUI Maynooth
- Contract an internal/external innovation expert to review the School's research portfolio and give feedback/masterclass on how best to capitalize on our research efforts (Can we approach the Faculty/OVPR for overhead funding to support this activity? Can this be implemented as part of a School away-day?)
- Use the SoBT Research Day even more effectively to establish stronger links with other Centre's (e.g. joint BT/NICB research day event?)
- Explore possibilities to work with Dundalk Institute of Technology (see http://ww2.dkit.ie/frontpages/research_at_dkit)

Threats

- National University mergers are potentially leading to collaborative constraints and fund ring-fencing (e.g. For the 2010 IRCSET postdoc awards, **56%** of EMPOWER and **46%** of INSPIRE awards went exclusively to TCD-UCD! Similarly, **53%** of SFI-RFP 2009 awards went exclusively to TCD-UCD!!)
- Funding cutbacks! Many traditional exchequer funding streams have been scaled-back, discontinued, or altered to incorporate real societal impacts and commercial gains as required end-points. This highlights the clear need for all School PIs to adapt their programmes and grant

applications accordingly to keep pace with the changing demands of national funding schemes and/or identify a funding partner in the private sector.

- Decreasing education standards and grade inflation
- Difficulties in attracting postgraduate students (we can no longer rely on our own AS/BT/GCB graduates to fill our postgrad pipeline - we must look to attract good graduates from other Irish universities & from overseas – e.g. ERASMUS, India!)
- Rising teaching loads (this has become an even more pressing issue due to forecasts of elevated student intake)
- Current public sector recruitment & promotions embargo is blocking entry of new talent and is stifling motivation and ambition
- Apathy arising due to perceptions of the external funding environment and internal resourcing
- Erosion of our educational space by competing universities (e.g. MSc in Biotechnology with Business in UCD)

APPENDIX II

Projected action timelines (Jan 2011 - Jan 2014):

| | 2011 | | | |
|--------------------------------|----------------|----------------|------------------------|----------------|
| | Jan-Mar | Apr-Jun | Jul-Sept | Oct-Dec |
| Education & Training (1) | | 1.9 / 1.11 | 1.1 / 1.5 / 1.6 / 1.10 | 1.4 |
| Research & Funding (2) | 2.1 | | | |
| School-Centre Interactions (3) | 3.1 / 3.5 | 3.3 | 3.4 | 3.2 |
| Infrastructure (4) | | | 4.1 / 4.2 / 4.3 | |
| Staffing & Workloads (5) | | | 5.1 / 5.2 / 5.3 / 5.4 | 5.6 / 5.7 |

| | 2012 | | | |
|--------------------------------|----------------|----------------|-----------------|----------------|
| | Jan-Mar | Apr-Jun | Jul-Sept | Oct-Dec |
| Education & Training (1) | 1.3 | 1.9 | 1.2 / 1.5 | |
| Research & Funding (2) | | 2.4 | | |
| School-Centre Interactions (3) | 3.5 | | 3.4 | |
| Infrastructure (4) | | | 4.1 | |
| Staffing & Workloads (5) | | 5.5 | | 5.6 / 5.7 |

| | 2013 | | | |
|--------------------------------|----------------|----------------|-----------------|----------------|
| | Jan-Mar | Apr-Jun | Jul-Sept | Oct-Dec |
| Education & Training (1) | | 1.9 | 1.5 / 1.7 / 1.8 | |
| Research & Funding (2) | | | 2.2 / 2.3 / 2.5 | |
| School-Centre Interactions (3) | 3.5 | | 3.4 | |
| Infrastructure (4) | | | 4.1 | |
| Staffing & Workloads (5) | | | | 5.6 / 5.7 |