



TRINITY COLLEGE DUBLIN
COLÁISTE NA TRÍONÓIDE, BAILE ÁTHA CLIATH

THE
UNIVERSITY
OF DUBLIN

Annual Report 2008-2009



MEMBERS OF THE BOARD

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Members of the Board of Trinity College Dublin during the 2008/09 academic year were:

Ex-Officio Members

Provost, Dr John Hegarty (Chair)
Vice-Provost/Chief Academic Officer,
Professor Patrick Prendergast
Senior Lecturer, Dr Aileen Douglas
Registrar, Professor Jürgen Barkhoff
Bursar, Professor Margaret O'Mahony

Elected Fellows and Fellow Professors

Professor Shane Allwright (2008-2012)
Professor John McGilp (2008-2012)
Professor Eunan O'Halpin (2008-2012)
Dr Amanda Piesse (2005-2010)
Professor Henry Rice (2007-2010)
Dr Sinéad Ryan (2007-2010)
Professor David Singleton (2008-2012)
Professor Jagdish Vij (2006-2010)

Elected Non-Fellow Academic Staff

Dr Karen Walshe (2008-2012)*
Mr William Dowling (2008-2012)
Dr Eoin Mac Cárthaigh (2005-2010)
Dr Anthony McElligott (2008-2010)
Professor Des O'Neill (2008-2012)

Elected Non-Academic Staff

Mr Michael Slevin (2005-2010)**
Dr Kieran J McGinley (2005-2008)
Ms Peggy Murphy (2008-2012)

Student Representatives

President Graduate Students' Union,
Mr Ronan Hodson (2008-2009)
President Students' Union,
Mr Cathal Reilly (2008-2009)
Education Officer Students' Union,
Mr Hugh Sullivan (2008-2009)
Welfare Officer Students' Union,
Ms Orlaith Foley (2008-2009)

External members

Mr Brian Sweeney, nominated by Trinity College Dublin (2005-2010)
Ms Geraldine Clarke, nominated by the Minister for Education and Science (2005-2010)

In Attendance Ex-Officio

Acting Secretary, Ms Anne FitzGerald***
Acting Treasurer, Mr Ian Mathews***

- * Dr Karen Walshe was replaced by Ms Mary Coffey on 22.04.09
** Mr Michael Slevin was replaced by Mr Peter Connell on 27.01.09
*** Ms Anne FitzGerald and Mr Ian Mathews were confirmed as Secretary and Treasurer respectively during 2008/09

An accessible .pdf version of this annual report is available at
<http://www.tcd.ie/about/annualreport/>

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INTRODUCTION BY THE PROVOST

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This Annual Report outlines the College's position and highlights our achievements during the academic year 2008/09 which was another very successful and productive year for the College. Key milestones include:

Research & Innovation

For the first time in its history, Trinity received in excess of €100 million in research income in 2008/09, thus achieving one of its institutional goals. Trinity staff members excelled in research achievements and received national and international distinction. Ten new spin out companies commercialising research carried out at Trinity were approved as TCD campus companies during the calendar year 2009. Twenty-three patent applications were filed and five commercial licenses were issued.

Students

Trinity is fortunate in attracting intellectually strong students from Ireland and abroad. In 2008 Trinity attracted the second highest proportion of first preference applications in the CAO system. The accessibility of a Trinity education to all students of ability is an important element of our contribution to Ireland's future. Individuals from non-traditional learning groups, at different stages in their lives, and from disadvantaged sectors, have the opportunity to benefit from a Trinity education through such pioneering programmes

as, for example, the Trinity Access Programmes. In May 2009, the University Council approved the recommendation as set out in the Access Plan 2009-2013, to increase the number of places reserved on undergraduate courses for students from under-represented groups from 15% to 22% of CAO new entrants by 2013.

In 2008/09, seven new postgraduate and three new undergraduate courses were initiated and 3,986 students had their degrees conferred. Students continued to enjoy the 'Trinity Experience' which extends beyond the curriculum to a rich tapestry of student clubs and societies that equip students for a life of leadership and civic participation.

Staff

The success of a university, and the delivery of its strategic objectives, cannot be attained without its key resource – its staff. To retain and improve the status of the College, Trinity must recruit, develop and maintain people of exceptional calibre. During 2008/09, 102 new and replacement academic appointments were made and the Staff Office provided a training and development service for all staff.

Capital Development

The capital development programme on campus continued to thrive. Key developments include the ongoing construction of the Biosciences Development on Pearse Street and the Trinity Long Room Hub. Completed projects in the 2008/09 academic year were The Arts Technology Research Laboratory, the Sir Patrick Dun Research Laboratory, the Trinity Genome Sequencing Laboratory and the new Health Assessment Centre for the Irish Longitudinal Study on Ageing.

Financial Position

Financial stability continues to present a significant challenge in the years ahead as the College finds

itself in a position of having to invest strategically in the quality of its staff, students and infrastructure in order to deliver on its ambitions.

Similar to other Irish universities, the College continues to experience an erosion of its core funding and is financially constrained in the absence of base funding levels and multi-year funding, both of which are needed particularly in the current climate to provide a platform for strategic financial planning. The level and uncertainty of future State funding coupled with the requirement to abide by the HEA employment control framework creates an environment that is clearly not aligned to deliver a 'smart economy' for Ireland.

Having no accumulated recurrent deficit and a strong balance sheet at 30 September 2009, the College is currently in a position of financial strength. However given the state of the public finances and the global economic climate, it faces a financial environment that has changed markedly over a very short period and one that is likely to see significant future funding pressures and uncertainty that will clearly present greater challenges to the College's capacity to deliver its strategic goals.

At this time of unprecedented national economic crisis, it is vital that new ideas, knowledge and high level graduates have the greatest possible impact on the creation of new sustainable jobs and the renewal of existing business and services. The strategic partnership with UCD to form the TCD/UCD Innovation Alliance - a partnership working with the education sector, the State and its agencies alongside the business and venture capital communities to develop a world-class ecosystem for innovation - is an important development in this regard.

International Standing

Trinity was ranked in the top 50 world universities (49th) and top 15 European universities (13th) by the Times Higher Education-QS world university rankings. The College was the only university in the State to feature in the top 100 universities worldwide.

Strategic Plan 2003-2008

The academic year 2008/09 saw the conclusion of the period covered by the College's first Strategic Plan 2003-2008. The Strategic Plan focused on consolidating and growing excellence in research and graduate education to complement the long-standing undergraduate programme and positive student experience.

Achievements of the Strategic Plan include research capacity building and focused development of research strengths, namely in the key areas of European & International Integration, Culture & Creative Arts, Materials & Intelligent Systems, Biosciences & Translational Research and Transport, Energy & Environment; the promotion of interdisciplinarity and collaboration; the increased diversification of the student body; and the recruitment of world class academic leaders.

Graduate education provision was enhanced by increasing postgraduate numbers while maintaining the high quality of degrees and by developing integrated PhD programmes. Undergraduate education provision was strengthened by broadening the curriculum, building on high-quality initiatives in academic practice and student learning support systems, and supporting the existing initiatives to improve access, inclusiveness and diversity.

In addition to contributing to society through core activities in education and research, Trinity staff and students also contributed through a myriad

of initiatives such as exhibitions, public lectures, provision of academic expertise on issues of national importance, Trinity Access Programmes, inner city liaison, outreach programmes, student societies, *Pro Bono* work, volunteerism etc. Engagement with Irish culture and language was strengthened with the appointment of an Irish Language Officer. Considerable restructuring of the academic units and resource allocation mechanism was carried out to prepare for a more challenging and rapid changing environment.

A number of major capital projects underpinning the university's objectives for internationally competitive research and education were delivered under the lifetime of the Strategic Plan such as the School of Nursing and Midwifery on D'Olier Street; the Lloyd Institute, accommodating the Trinity College Institute of Neuroscience, High Performance Computing, and the School of Computer Science and Statistics; the first phase of the Pearse Street Corridor Development Plan comprising the Sports Complex and the Naughton Institute, which houses the Centre for Research on Adaptive Nanostructures and Nanodevices and the Science Gallery; the Centre for Advanced Medical Imaging in St James's Hospital; the Arts Technology Research Laboratory in the Trinity Technology and Enterprise Campus; and the renovation of the Provost's House Stables to accommodate the Trinity Irish Art Research Centre. Plans to deliver Phase 2, comprising the Student Centre and the Biosciences Medical Institute, are already underway as are the plans for a new state of the art facility for the Long Room Hub Institute of Research in the Arts and Humanities.

By all metrics, the Strategic Plan was successful in consolidating the university's position as a research-led university at the forefront of education and research both nationally and internationally.

The Strategic Plan 2009-14, which is being formulated this year through extensive consultation, will build on the College's achievements with a balanced approach to education, research and innovation.

Conclusion

I wish to thank all the staff of the College, academic, administrative and support, for their part in our achievements during 2008/09 – these could not have been attained without their dedication throughout the year.

I would also like to thank the Taoiseach, the Minister for Education and Science, the Minister for Health and Children and the many Government Ministers whose support is greatly valued. The College is also indebted to the Board and Executive of the Trinity Foundation, the Higher Education Authority, Science Foundation Ireland, the Health Research Board, IRCHSS, IRCSET and the many other agencies and individuals, public and private, who have supported the College.

John Hegarty,
Provost.
May 2010



COLLEGE ACTIVITIES

1. ACADEMIC DEVELOPMENTS

1.1 Times Higher Education-QS World University Rankings

Trinity College Dublin was the only Irish university to feature in the top 100 universities when it was ranked 49th place in the 2008 Times Higher Education-QS World University Rankings*. This is the first time an Irish third level institution has made it to the landmark world's top 50. It was also ranked 13th place in Europe. This is the highest ranking the College has ever achieved, up four places on last year's ranking of 53. Trinity's arts and humanities were ranked 32nd in the world and 8th in Europe.

The Times Higher Education-QS university rankings list the world's top 200 universities measured on peer review, number of citations per faculty member, ratio of students to staff and the number of international students and staff.

The College's continuing improvement in these world-wide university rankings illustrates ongoing international recognition from academics and employers as Ireland's premier university. Such high rankings are excellent accomplishments for a university in a small country, competing internationally with much better-resourced and larger universities.

** TCD was ranked 43rd in the world in the 2009 Times Higher Education-QS world university rankings*

1.2 Quality

Recognised globally as a university of high quality in teaching and research, TCD's education is distinctive in being research-led, balanced and student-centred. The College is committed to maintaining the exceptional quality of its undergraduate and postgraduate degrees and research and a major component of Trinity's strength lies in the commitment of its staff to its students.

Election to Fellowship is an honour marking the exceptional quality of the College's academic staff. Research achievement or scholarship of a high order is the primary qualification for Fellowship, coupled with evidence of the candidate's contribution to the academic life of the College, as shown in particular by participation in the work of his or her Discipline or School and an effective record in teaching.

Twenty-one Fellows, including three Honorary Fellows: broadcaster, historian and political scientist, Dr John Bowman; Consultant Paediatric Haematologist at Our Lady's Hospital for Sick Children, Dublin and TCD Professor of Haematology, Prof Owen Smith; and Professor of Physics at the Université de Perpignan Via Domitia, France, Yuri P. Kalmykov were announced on Trinity Monday 2009.

In 2008/09, the Quality Office facilitated the quality reviews of the School of Languages, Literatures & Cultural Studies (postponed from 2007/08), the School of Law, the School of History & Humanities, the School of Dental Science, the School of Social Sciences & Philosophy and the School of Pharmacy & Pharmaceutical Science. The reports arising from these reviews were generally positive and provided constructive feedback to the Schools on their teaching/learning, research and strategic planning activities.

The academic year 2008/09 saw the completion of year four of the second cycle of academic reviews (2004-2011).

Throughout the year, Trinity continued to engage with the principal national stakeholders involved in quality assurance/quality improvement through its participation in the activities of the Irish Higher Education Network, the Irish Universities Quality Board and the Irish Universities Association. During the academic year 2008/09, a paper was presented to the Graduate Studies Committee and

the University Council to define the Trinity PhD. Issues addressed included: the needs of students with disabilities; the division between PhD and other types of doctorates; contribution to the development of Ireland's economy and the relative opportunities and challenges involved; modes of thesis delivery and assessment; part-time PhDs and lifelong learning issues; inter-institutional programmes and skills training and career options for PhD graduates. This has formed the basis for the ongoing development of the Trinity PhD.

The Dublin Region Higher Education Alliance (DRHEA) project, funded under the Strategic Innovation Fund (SIF2), involves TCD, UCD, DCU, NUIM, DIT and ITT. In June 2009, the DRHEA Collaborative Agreement, an inter-institutional agreement related to the development and delivery of advanced disciplinary modules, was signed by all university representatives.

1.3 Academic Year Structure

A new academic structure was approved to come into effect from the 2009/10 academic year based on two twelve-week teaching terms with a third term devoted to assessment and end-of-year examinations. In October 2008, the College's Board approved a necessary amendment to the College Statutes in the run up to the implementation of the new term structure commencing in September 2009. Over the course of the 2008/09 academic year, decisions affecting teaching and examining were taken by the University Council. These included the designation of the seventh week in each teaching term as a study week, and the requirement that student workload, in the form of ECTS credits, should be evenly distributed across both Michaelmas and Hilary terms.

1.4 TCD/UCD Innovation Alliance



The Taoiseach, Brian Cowen, TD, Dr Hugh Brady, President, UCD, Dr John Hegarty, Provost, Trinity College and Mary Coughlan, Tanáiste at the announcement of the TCD/UCD Innovation Alliance

The TCD/UCD Innovation Alliance was announced in March 2009. The Innovation Alliance is a partnership working with the education sector, the State and its agencies alongside the business and venture capital communities to develop a world-class ecosystem for innovation that will drive enterprise development in Ireland. By forming the Innovation Alliance, the universities recognise a need to evolve and play a powerful role within such an ecosystem.

The Innovation Alliance has two major components:

The TCD/UCD Joint Venture in Enterprise Development aims to build on the universities' existing technology transfer operations and enterprise facilities. As it develops, it will include new facilities for pre-competitive research and design, prototyping and process innovation to help harness and commercialise new ideas, knowledge and inventions. It will also prioritise the establishment of a wider support framework of educational, legal, financial, technical,

2. EDUCATIONAL MATTERS

management and marketing capabilities and support needed to set good new business ideas on their way.

The Innovation Academy is the educational centrepiece of the Innovation Alliance. The Academy is a collaborative joint venture in PhD education that builds on existing resources and synergies between the two institutions and recognises the need for higher education to be a catalyst for innovation in Ireland.

The mission of the Academy is to develop a new breed of creative graduate, expert in their discipline, but with a thorough understanding of how innovation can rapidly convert knowledge, ideas and inventions into products, services and policies for economic and social benefit. All of them will be trained to recognise the innovation potential of blue skies research, while some of them will become entrepreneurs. Innovation is regarded in its broadest sense of exploiting new ideas in a competitive world; not restricted to science, engineering, technology and business, but encompassing the creativity, leadership, cultural and policy innovation of arts and humanities.

2.1 Student Body

Representing every county in Ireland and more than 110 nationalities, the College's student population is also diverse in social class and age.

In total, there were 16,215 registered undergraduate and postgraduate students in 2008/09. Of these, 80% were from the Republic of Ireland, 11% from other EU countries, 4% from North or Central America, 4% from other parts of the world and 1% from other European (non-EU) countries.

The College is committed to increasing the number of non-traditional students admitted to undergraduate programmes, including those from socio-economically disadvantaged backgrounds, and mature students. In 2008/09 the College made further progress in achieving the goal of reserving 15% of CAO quotas for non-traditional students when, in 2008, 14.5% of all CAO places were filled by non-traditional students. Fifty-three percent of the non-traditional students registered in 2008 were mature students.

In May 2009, the University Council approved the recommendations as set out in the Access Plan 2009–2013, to increase the number of places reserved on undergraduate courses for students from under-represented groups from 15% to 22% of CAO new entrants by 2013.

2.2 Admissions Statistics/ Entrance Exhibitioners

In 2008, Trinity attracted the second highest proportion (11%) of first preference applications in the CAO system. The College continues to attract the highest number of academically-able students. A total of 55,589 pupils sat the Leaving Certificate in 2008. Of those that applied to the CAO 1,744 achieved 545 points or more and 29% of these students accepted a place in Trinity College.

A total of 597 first-year students were awarded special 'Entrance Exhibition Awards'. The students receiving these awards each achieved 545 points or higher (more than 6 A2 grades) in their Leaving Certificate examination or equivalent second level examination. The students represented 277 schools from all 32 counties in Ireland as well as from other EU schools.

2.3 Scholarships

Trinity Foundation and Non-Foundation Scholarships have long been a measure of academic achievement. Undergraduate students, at the end of their second year (or third year in the case of medical students), sit a special examination and only those who achieve first class honors are awarded a scholarship for a period of up to five years. In 2008/09, eighty-three students were awarded these prestigious scholarships on Trinity Monday 2009.



School of Medicine students celebrate being awarded Scholarships on Trinity Monday 2009

Recipients of the scholarships represented all faculties:

- Faculty of Arts, Humanities and Social Sciences (28);
- Faculty of Engineering, Mathematics and Science (24);
- Faculty of Health Sciences (25);
- and Multi-Faculty (6).

2.4 The Curriculum – New Undergraduate and Postgraduate Courses

The College responded to the development of new knowledge within disciplines, as well as to the changing needs of students and emerging opportunities, and the following courses were initiated in 2008/09:

Undergraduate

Degree

BA Philosophy, Political Science, Economics and Sociology

Bachelor in Business Studies and a Language (Polish)

Bachelor in Business Studies and a Language (Spanish)

Postgraduate

Degree

MSc Comparative European Politics

MSc Finance

MPhil Classics

MPhil in Irish Film, Music and Theatre***

MPhil in Musicology and Music Theory ***

MSc in Psychology (Applied Behaviour Analysis)

MSc in Respiratory Physiotherapy***

*** *Delivery of this programme was deferred until the academic year 2009/10.*

Engagement with the Bologna process continued. A College-wide project to draft and publish formal statements of student learning outcomes for all undergraduate and postgraduate programmes got underway in Michaelmas Term 2008 with a view to being in use from the 2010/11 academic year. A report regarding the establishment of joint programmes and degrees was approved by the Academic Council in June 2009. The award of a joint University of Dublin and Dublin Institute of Technology BSc in Human Nutrition and Dietetics and its revised curriculum was also approved by the Council.

2.5 Commencements, Firsts and Gold Medal Awards

A total of 3,986 degrees were conferred (2,572 primary degrees and 1,414 higher degrees) in 29 separate Commencement ceremonies in 2008. Four hundred and six students received first class honors at the degree examinations in 2008/09 and, of these, 85 were awarded Gold Medals.



Sir David Attenborough and Terry Pratchett, two of the Honorary Degree recipients at the 2008 Winter Commencements with the University Chancellor Mary Robinson

Honorary conferring took place at the Commencement ceremonies on 15 December 2008 and 13 July 2009. At the Winter Commencements, David Farrington, Dame Ann Dowling, Dame Jocelyn Bell Burnell, Sir David Attenborough and Terry Pratchett were honoured. Recipients of honorary degrees at the Summer Commencements were Janet Browne, Robert Dunbar, Patrick Scott, Amartya Sen and Fraser Stoddart.

2.6 Trinity Access Programmes

The Trinity Access Programmes (TAP) are a range of initiatives aimed at increasing the participation rate at third level of young adult and mature students from under-represented socio-economic groups. The programmes were established as part of an overall strategy to address low progression rates to third level by students in particular socio-economic

groups and are an illustration of the College's social mission in action.



Second level students participating in the TAP Summer School 2009

TAP owes its continued success to a network of highly productive partnerships with schools, further education colleges, families, students, Trinity staff, businesses, community groups and other Higher Education institutions, nationally and internationally.

TAP receives its funding from the Higher Education Authority through the Strategic Initiatives Fund, the Department of Education and Science and a number of individual and corporate donors. These funds support the following initiatives:

- The School and Community Outreach Links
- The Pre-University Preparation Courses: Young Adults and Mature Students, TCD
- The Partnership Courses in Liberal Arts: TCD and City of Dublin Vocational Education Committee Colleges (CDVEC)
- The Post Entry Progression Programme
- Research and Evaluation.

There were 138 admissions to Trinity College through the Trinity Access Programmes in 2008/09. Linking with over 40 primary and second-level schools which have little or no tradition of progression to third-level, TAP, with the assistance of some 30 College departments, enabled over

3. THE STUDENT EXPERIENCE

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4,000 students, parents and teachers to participate in on-campus activities during 2008/09, such as the Maths and Science Scholars Programme for 6th class pupils, the Med Day for Junior Cycle students, and Summer Schools.

2.7 Provost's Teaching Awards



Dr Gareth Bennett, School of Engineering, Prof John W. O'Hagan, School of Social Sciences & Philosophy, Dr Deirdre Connolly, School of Medicine and Dr Patrick Geoghegan, School of Histories and Humanities, recipients of the Provost's Teaching Awards 2009

The Provost's Teaching Awards are the College's principal means of acknowledging those academic staff who have made an outstanding contribution in the pursuit of teaching excellence in the College and who promote teaching as a scholarly activity.

Recipients in 2008/09 were Dr Deirdre Connolly, lecturer in Occupational Therapy in the School of Medicine and Dr Patrick Geoghegan, lecturer in History in the School of Histories and Humanities. Dr Gareth Bennett, Mechanical & Manufacturing Engineering lecturer in the School of Engineering received the Early Teaching Award and Prof John W. O'Hagan, lecturer in Economics in the School of Social Sciences and Philosophy was presented with the Provost's Teaching Lifetime Achievement Award. All recipients were recognised for their dedication and commitment to teaching and learning excellence.

The 'Trinity Experience' extends beyond the curriculum to a rich tapestry of student clubs and societies that equip students for a life of leadership and civic participation. The tutorial service for students also contributes to the personal ethos. Education at Trinity is distinctive in being research-led, balanced and student-centred.

3.1 Student Support Services

At the heart of all the College's activities is the commitment to the intellectual and personal development of all of its students. To enhance the student experience, Student Support Services offer a comprehensive range of administrative and support services including Accommodation and Catering, the Student Health Centre, Counselling Services, the Chaplaincy, Careers Advisory Service, the College Day Nursery and the Sports and Recreation Department. These services ensure that the welfare of students and their social, cultural and emotional development are provided for and managed in a balanced and holistic manner.

Among the new initiatives in 2008/09 were the introduction of two major new programmes: Appetite for Life – Prevention of Eating Disorders, and Calm Self-Help – for Depression, Anxiety, Stress Insomnia by the Counselling Services; and the College's first Family Fun Day was hosted by the Department of Sport and Recreation and supported by the College Equality Fund.



3.2 Student Achievements

During the academic year 2008/09, students and student societies were successful in many areas. At the National Irish College Awards in May 2009, The Philosophical Society won the 'Best Event in a Large College Award' and Mark Atkinson from Trinity Players was presented with the 'Best Fresher in a Large College Award'. Trinity was also strongly represented in a range of other award categories honouring the students' effort. During the year The Philosophical Society (The Phil) and The Historical Society (The Hist) included among their guests John Banville, Hon John Negroponte, Valery Giscard d'Estaing, Tommy Hillfiger, Dolores O'Riordan, Jonathan Rhys Meyers, Salman Rushdie, Patrick Stewart, Bertie Ahern and Archbishop Desmond Tutu.



John Gallagher and Andrea Mulligan of The Historical Society were the winning team of the *Irish Times* Debating competition in February 2009.

The competition, which is Ireland's biggest and most prestigious debating contest, had over 300 participants from colleges in the Republic and Northern Ireland.

The Dublin University Ladies Boat Club won the senior women's eight boat race at the 111th Trinity College Regatta which was held in April 2009. The annual Trinity Regatta, which is one of the main highlights in the College's sport calendar, is hosted by TCD and the Dublin University Boat Club and competitors include intervarsity rowing teams and other Irish Amateur Rowing Union (IARU) clubs from around Ireland.

The first Knights and Heraeans' sports day which was conceived to encourage students to try a new sport took place during Trinity Week. The event saw twenty sports clubs come together to raise student participation in sport and build upon Trinity's reputation as a sporting university.



The inaugural Trinity College Dublin Shakespeare Festival, organised by DU Players, was held in June 2009 during which professional actors from the British Shakespeare Company and amateur actors from the Dublin Shakespeare Company, TCD, UCD, and NUIM came together to perform plays that were either written or influenced by William Shakespeare. Many of these performances were in the open air at specially chosen locations around the campus.



Three TCD students, Hugh Hackett, Séamus McManus and Ciarán Gallagher, were selected for the Washington Ireland Programme allowing them an opportunity to immerse themselves in the new administration of President Barack Obama. The programme is designed to give students a rich insight into America's professional and social culture through a two-month internship and an intensive training course in leadership and service.



Third year students from the School of Computer Science and Statistics, Aidan Lynch, Eoin O'Brien, Ross McMahon and Maria Francesca O'Connor were awarded first prize in the Irish Microsoft Imagine Cup Competition in May 2009. The Trinity students were one of twelve teams which made it to the competition final out of a total of 550 entries from third level institutions throughout Ireland. The Imagine Cup competition encourages young people to apply their imagination, their passion and their

creativity to technology innovations that can make a difference in the world today.

Trinity Business Economic and Social Studies students, Anne Byrne and Nathalie Ennis, were the winners of the Accenture Leaders of Tomorrow 'Best Technology Enabled Solution' Award held in March 2009.

TCD Computer Science postgraduate student, Conor Gaffney won the Irish Software Association Student Medal in November 2008 which is awarded for the most commercially viable piece of research.



4. RESEARCH ACTIVITIES

4.1 Research Themes

Trinity's research strategy encompasses all major academic disciplines and is committed to world-class research activities in key areas across science, engineering, social sciences, medicine and the arts. The College's strategic focus is on five key areas – European & International Integration, Culture & Creative Arts, Materials & Intelligent Systems, Biosciences & Translational Research and Transport, Energy & Environment. In each of these areas Trinity has significant research activities, linked nationally and internationally, building on a cornerstone of inter-disciplinarity to deliver research of global consequence.

Engaging with TCD on research matters takes place on many levels: the College has significant research partnerships with multinational and indigenous industry; it operates a unique 'researchers in residence' programme to embed partners at the heart of collaborative research projects; with the Science Gallery, Trinity is opening a window to the world of research in its broadest sense, fostering curiosity, stimulating debate and engaging the minds of tomorrow's investigators; through its policy of Creativity in the Community – at local, national and global levels - Trinity is committed to delivering world class research for societal benefit.

4.2 Research Funding

In 2008/09, Trinity was extremely successful in securing funding for research activities. Income to support all research activities reached a level of €89.7 million for the year, representing a 26% increase on the 2007/08 figure of €71.1 million. The contribution to indirect costs from research activity, however, continues to be below the full economic cost of hosting the research resulting in the core budget cross-subsidising research activity. This position is not sustainable.

Over the last number of years, there has been a shift in sources of research funds away from EU/ foreign sources to Irish sources largely driven by Science Foundation Ireland and HEA-funded PRTLl initiatives. There were 1,755 active research accounts and research activity supported 1,804 individuals, including 663 postgraduate students, in 2008/09.

Source of Research Activity (Income) Funding	Year ended 30 Sept 2009
Science Foundation Ireland	42%
Enterprise Ireland/Bioresearch Ireland/PATS	4%
Higher Education Authority	5%
Commission of the European Communities	9%
Others	40%

4.3 Trinity College's New Research Initiatives

Trinity spearheads several major national longitudinal studies, including children's research and ageing, and activities in nanoscience and telecommunications research supported by Science Foundation Ireland centres of excellence on campus. The Trinity Academic Medical Centre which is at the planning stage aims to combine best practice in patient care with cutting edge research and teaching in a single governance model based on world-leading healthcare centres. Similarly, TCD's major research institutes and centres in areas such as neuroscience, globalisation, immunology, molecular medicine and the Trinity Long Room Hub for the arts and humanities are firmly established among the international leaders in their fields. Trinity is actively involved in significant national collaborative research ventures such as the National Digital Research Centre (NDRC), Molecular Medicine Ireland (MMI) and the National Institute for Bioprocessing Research and Training (NIBRT). In addition to Trinity College's ongoing

interdisciplinary research initiatives in these areas, the following new projects were among those launched during 2008/09:

Trinity International Development Initiative

The Trinity International Development Initiative (TIDI), an initiative promoting research and teaching in international development at TCD was launched in February 2009. As part of the initiative, a Doctoral Training for Development in Africa Programme was also launched. The flagship project within this Programme is the International Doctoral School in Global Health (Indigo). International development is not a separate discipline but one with relevance to numerous schools across all three faculties of the university. TIDI is thus a College-wide initiative to coordinate and pool resources and where appropriate exploit synergies.

Flow Cytometry Facility

A €850,000 state-of-the-art Flow Cytometry Facility which will benefit cancer, inflammatory bowel disease and asthma-related research, was launched in January 2009 at the Institute of Molecular Medicine (IMM) at St James's Hospital. The SFI-funded facility will enable precision analysis and isolation of cell samples towards the development of treatments and cures for a range of conditions. As well as being used by clinicians in St. James's and associated hospitals, the new instruments at this facility will be available for use by external academics, industrial scientists and other researchers involved in analysing disease processes.

4.4 Research Links with Other Institutions

Among the research links with other institutions formed during the 2008/09 academic year were:

INSPIRE – National Nanoscience Consortium

A €31.6 million national nanoscience consortium – INSPIRE (Integrated NanoScience Platform for Ireland) – comprising ten third level institutions was launched in October 2008 by the Minister for Science, Technology and Innovation, Dr Jimmy Devins, at an event hosted by consortium partner, TCD's Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN). This was the largest funding allocation awarded to a consortium under HEA PRTL 4.

TCD and GlaxoSmithKline Announce First European Strategic Framework for Collaboration

An innovative collaborative framework between Trinity and the pharmaceutical company, GlaxoSmithKline (GSK) was put in place by Trinity's Provost, Dr John Hegarty and Eddie Gray, President of GSK Pharmaceuticals Europe at a signature ceremony in December 2008 in Trinity in the presence of the Tánaiste and Minister for Enterprise, Trade and Employment, Mary Coughlan.

Building on a research partnership between TCD and GSK which targets Alzheimer's Disease and neurodegeneration and is supported by IDA Ireland, the new strategic agreement will enable joint research projects and the sharing of expertise in new domains. A first for both organisations, and the first of its kind in a European context, the agreement provides a framework for engagement wherein the parties can openly explore collaborative research potential, synergies and partnership strategies of mutual benefit. Importantly, it facilitates the exchange of students and staff between the organisations and allows both organisations to tap into the strengths of the other to lever expertise into future collaborations.

Top Irish Universities and NGOs awarded \$900,000 in bid to tackle Challenges in Global Sustainable Development

TCD and UCD, in partnership with the University of Rwanda, Trócaire, the Ethical Globalisation Initiative, and Kimmage Development Centre, were awarded \$900,000 (€640,000) by the MacArthur Foundation, one of the largest independent foundations in the United States, to establish Ireland as the European Hub for the provision of Development Practice Education and Training.

The award is part of an \$8 million worldwide initiative by the MacArthur Foundation to tackle the challenges in global sustainable development. The joint Irish entry was selected from more than 70 proposals worldwide. The award, announced in July 2009, will be used to create a joint UCD-TCD Masters Degree in Development Practice which will train the next generation of development experts and provide them with the knowledge and skills required to tackle the challenges of global poverty and environmental sustainability.

TCD & UCD Sign Agreement with Silicon Valley Irish Technology Leadership Group

In June 2009 the TCD/UCD Innovation Alliance signed a transatlantic collaboration agreement with the Silicon Valley-based Irish Technology Leadership Group (ITLG) to drive innovation and create new business on the island of Ireland.

This unique Ireland-US partnership will see ITLG working with the universities to advance the Innovation Alliance's goals. ITLG will contribute their expertise to enhance the training of students participating in the TCD/UCD Innovation Academy and help grow the number of new, quality business spin-outs from the Alliance. In addition, Irish Technology Capital (ITC), a sister organisation of ITLG, will help to drive venture capital funding in Ireland.

Trinity-led Consortium in Global Health Launched

EquitAble, a Trinity led international consortium in global health, funded by a grant of €2.7 million from the European Commission Research Framework Programme 7, has started a four-year interdisciplinary research programme on 'Enabling universal and equitable access to healthcare for vulnerable people in resource poor settings in Africa'. The consortium, led by Associate Professor of Psychology, Mac MacLachlan and managed by Dr Hasheem Mannan of the Centre for Global Health and School of Psychology along with Trinity co-investigator Eilish Mc Auliffe also of the Centre for Global Health and School of Medicine, was launched by the Minister of Health in Khartoum in April 2009.

TCD and University of Missouri's Schools of Education Form Research Partnership

The Schools of Education in Trinity and the University of Missouri (MU) established a new research partnership, which will enable their respective institutions to build collaborative and complementary strengths. The primary focus of this collaboration concerns teaching and research; however the relationship will also enable students of TCD and MU an opportunity to study abroad and discover common interests with their international counterparts. The Schools of Education in both institutions are engaged in research in a wide range of areas related to the study of education and both have common interests in areas such as maths and science education, assessment, inclusive education, leadership and management, and information and technology.

4.5 Scholarship and Award Success for TCD's Researchers

Trinity staff members continued to excel in research achievements and received national and

international distinction. Awards received by Trinity researchers include:



New RIA members Prof Daniel Bradley, Prof Tony Kavanagh, Prof Damien McManus, Prof Marina Lynch, Prof David Taylor and Prof Kevin O' Rourke with RIA President Prof Nicholas Canny (third from left)

The Royal Irish Academy enrolled six TCD academics as new members in 2009, marking the highest representation of academics from any one university. The new members were: Prof Daniel Bradley, Professor of Population Genetics at TCD's Smurfit Institute of Genetics; Prof Tony Kavanagh, Professor of Molecular Genetics at TCD's Smurfit Institute of Genetics; Prof Marina Lynch, Professor of Cellular Neuroscience and Director of the Trinity College Institute of Neuroscience; Prof Damien McManus, Chair of Early Irish at the School of Languages, Literatures and Cultural Studies; Prof Kevin O'Rourke, Professor of Economics at the School of Social Sciences and Philosophy; and Prof David Taylor, Professor of Materials Engineering at the School of Engineering.

A total of €4.5m in funding was secured by five TCD research projects under the Science Foundation Ireland Principal Investigator Programme in July 2009. The successful groundbreaking research projects were led by Prof Seamus Martin at the School of Genetics and Microbiology; Prof Vincent Wade and Dr Owen Conlan at the School of Computer Science and Statistics; Professor in

Electronic and Electrical Engineering, Anil Kokaram at the School of Engineering; Dr Wolfgang Schmitt at the School of Chemistry; and Prof Jay Hinton, Stokes Professor of Microbial Pathogenesis at the School of Genetics and Microbiology.

Prof Orla Hardiman, HRB Clinician Scientist, Consultant Neurologist at Beaumont Hospital, Dublin and Clinical Professor of Neurology at Trinity, was awarded with the prestigious Sheila Essey Award by the American Academy of Neurology in April 2009 in recognition of her research into Motor Neuron Disease. Prof Hardiman and her team made significant discoveries into the genes that cause neurodegeneration thereby facilitating the development of new treatments for the disease.

Prof Poul Holm, Academic Director of the Trinity Long Room Hub and global principal investigator of the History of Marine Animal Populations project, was granted \$620,000 by the A.P. Sloan Foundation in June 2009 to support the final 18 months work of this 10-year research study, culminating in a global release on the environmental history of the oceans by the end of 2010 in connection with a final conference to be held at Trinity.

In December 2008, Prof Holm was appointed Knight of the Danish Order of Dannebrog by the Danish Queen in recognition of his contributions to universities and scholarship with specific reference to research in marine environmental history.

In 2009, Mary Keating, School of Business, and her fellow authors of 'Culture and Leadership across the World', were awarded the 2008 Ursula Gielen Global Psychology Award given by the American Psychological Association to the research that makes the most significant contribution to psychology as a global discipline.

Professor of Psychiatry, Harald Hampel and his research group at the Trinity College Institute of

Neuroscience and the Adelaide and Meath Hospital, incorporating the National Children's Hospital at Tallaght, were allocated €1 million in funding in April 2009 from Science Foundation Ireland to research human memory and Alzheimer's disease. The group established a major international research programme to develop innovative imaging technology for the early detection and prediction of Alzheimer's disease, the results of which are expected to pave the way for neuroimaging based diagnostic markers for the early diagnosis of Alzheimer's disease.

The Irish Economy blog, founded by Philip Lane, Professor of International Macroeconomics won the best specialist blog category at the Irish Blog Awards 2009. The blog provides economic analysis by Prof Lane and features contributions from members in Economics in the School of Social Sciences and Philosophy and the School of Business, in addition to economists from a range of Irish universities and research institutes.

Professor of International Financial Economics and Development, Patrick Honohan, was appointed Governor of the Central Bank by the Minister for Finance in September 2009. Prof Honohan is the first academic to hold this post.

The Irish Research Council for Humanities and Social Sciences (IRCHSS) awarded Trinity researchers 29 Postgraduate Research Scholarships, nine Postdoctoral Fellowships and two Senior Research Fellowship Project Grants. The Irish Research Council for Science, Engineering and Technology (IRCSET) awarded Trinity researchers 40 Embark Initiative Postgraduate Scholarships, three INSPIRE Postdoctoral Fellowships and ten EMPOWER Government of Ireland Postdoctoral Fellowships.

Prof Marek Radomski, Chair of Pharmacology and Head of the School of Pharmacy and

Pharmaceutical Sciences, was conferred with an honorary doctorate (Doctor *Honoris Causa*) from the Complutense University Madrid in Spain in May 2009 in recognition of his research work on nitric oxide, matrix metalloproteinases and, more recently, nanopharmacology and nanotoxicology.

Dr Micheál Ó Siochrú, School of Histories and Humanities and colleagues in Nottingham Trent University and Cambridge were awarded IRCHSS funding for a programme of network activities, involving leading scholars from Ireland, Britain and the US, to plan the publication of a new and authoritative four-volume collection of Oliver Cromwell's Letters and Speeches, along with ancillary material, for Oxford University Press. Dr Ó Siochrú and Prof Vincent Wade, School of Computer Science and Statistics also received funding from the Trinity Long Room Hub Murphy Innovation Fund to modify cutting-edge IBM software, creating a shared editing environment and a customised set of data rules and libraries for the 1641 Depositions.

In January 2009 Dr Sarah O'Donnell along with her colleagues in clinical medicine, Dr Orlaith Kelly and Dr Mary Shuhaibar, were awarded first prize at the 10th European Bridging Meeting in Gastroenterology for their research into the rare disease *Eosinophilic Esophagitis*. TCD researchers Dr Anthony O'Connor and Dr Chun Seng Lee were also awarded third prize at the meeting for their work into the infection *Clostridium Difficile*.

Dr Charles Holland, Fellow Emeritus at the School of Natural Sciences, was awarded the 2008 Lapworth Medal of the Palaeontological Association. The medal is awarded to palaeontologists who have made an outstanding contribution to the science through research.

Prof Sylvia Draper, School of Chemistry, was presented with an Award for Excellence in Teaching

in Higher Education by the National Academy for the Integration of Research & Teaching & Learning (NAIRTL). The awards honour exemplary teachers who are also innovative researchers in higher education in Ireland.

Dr Perna Tewari and Dr Martin Barr, Postdoctoral Research Fellows in St James's Hospital, were amongst four winners chosen by an international judging panel at the 4th All-Ireland Cancer Conference in December 2008.

Prof Yuri Gun'ko, School of Chemistry, was the winner of one of Enterprise Ireland's Industrial Technologies Commercialisation Awards in November 2008. The awards demonstrate how research carried out at Irish third-level institutions is informing and innovating enterprise.

The Zoological Museum in the School of Natural Sciences won the Highly Commended Award in the category of 'Best Collections Care Project' in the 2009 Museum of the Year Awards. The museum contains a collection of over 20,000 specimens and dates back over 200 years.

Trinity College's Science Gallery, in its opening year, won the category for the "best use of technology in education" at the national ICT Excellence Awards in May 2009. It also took the *Irish Times* Living Dublin Award in the Culture and Tourism category in December 2008 for its ground breaking exhibition TechnoThreads, which explored the connections between science and fashion and examined how fashion designers are incorporating developments in science, technology and engineering into their work.

Chancellor of the University, Dr Mary Robinson, was presented with the Medal of Freedom, America's highest civilian honour, by President Barack Obama at a ceremony in the White House in August 2009. The Medal of Freedom is awarded to individuals

who make an especially meritorious contribution to the security or national interests of the United States, world peace, cultural or other significant public or private endeavours.

Among the peer reviewed papers in scientific journals authored by TCD Researchers were:

TCD Scientists Discover Original Human Specific Genes

Six million years since we shared a common ancestor with the chimpanzee, researchers at Trinity have made the first discovery of original human-specific genes. The DNA of human and chimpanzee is 99% identical. The small genetic differences between humans and chimpanzees have profound consequences and a major role in determining what it is to be human. TCD scientists, Dr David Gonzalez Knowles and Dr Aoife McLysaght of the School of Genetics and Microbiology and the Smurfit Institute of Genetics have now identified for the first time human specific genes that originated during the evolution of humans following the separation from chimpanzees. These findings were published online in *Genome Research* in September 2009. This research was supported by a SFI President of Ireland Young Researcher Award.

TCD Scientists Make Vaccine Breakthrough

Trinity scientists discovered a brand new protein in the immune system which if targeted has the potential of developing more effective vaccines. The research team, led by Professor of Biochemistry, Luke O'Neill in the School of Biochemistry and Immunology, found a protein which they named TAG. TAG limits a key process in the body that is needed for vaccines to work. If a way is devised to interfere with TAG, experimental vaccines may be able to be boosted for diseases such as HIV and malaria. In May 2009 the findings were published online in the world leading Immunology journal, *Nature Immunology*.

Trinity Scientists Make Break Through in Eczema

An international collaboration between Trinity scientists and researchers in Scotland and Japan has developed a new animal model that reproduces a major genetic cause of human eczema. The TCD team was led by Prof Padraic Fallon, SFI Stokes Professor of Translational Immunology at the Institute of Molecular Medicine and School of Medicine. This new discovery which has the potential of assisting the development of new therapies in the treatment of the disease was published online in the leading international journal *Nature Genetics* in April 2009.

TCD Scientists' Discovery Improves Understanding of the Development of Autoimmune Diseases such as Multiple Sclerosis

Multiple sclerosis, rheumatoid arthritis and diabetes patients could benefit from a research discovery at Trinity. Professor of Experimental Immunology, Kingston Mills and his research team in the School of Biochemistry and Immunology discovered new information on how autoimmune diseases such as those mentioned above, develop. The research found that the source of a particular messenger molecule (in technical terms this molecule is a cytokine called IL-17) which is the major cause of cellular inflammation was produced by a heretofore unsuspected group of cells. These cells called gamma delta T cells orchestrate the inflammatory process. Autoimmune and chronic inflammatory diseases affect 20% of the population worldwide. The research, funded by SFI and the Health Research Board, was published in August 2009 in the Cell press journal, *Immunity*.

New Findings Shed Light on Cause of Cerebral Malaria that Kills 1 Million African Children Each Year

A novel pathway that may contribute to the high mortality associated with severe malaria in African

children has been identified by researchers from an international collaborative study led by Dr James O' Donnell, Director of the Haemostasis Research Group at Trinity and St James's Hospital. The research, published in the prestigious publication *PLoS Pathogen* in August 2009, was funded by the Wellcome Trust and Science Foundation Ireland.

New Discovery about Salmonella Gene Control Could Help to Develop New Ways to Kill Bacteria

Scientists from Ireland, the UK and Germany discovered a new type of gene regulation in *Salmonella* that gives new insight into the causes of bacterial infection. The discovery of this new mechanism of gene regulation could eventually lead to the development of innovative therapies and reduce the levels of disease caused by *Salmonella*. *Salmonella* causes food poisoning and kills around 1 million people worldwide every year. The research findings by scientists from TCD led by Prof Jay Hinton, Stokes Professor of Microbial Pathogenesis, the Institute of Food Research in the UK and the Max Planck Institute for Infection Biology were published in the journal *Nature Structural & Molecular Biology* in July 2009.

Important Breakthrough in Understanding of Human Immune Response that has Implications for the Treatment of Asthma and other Allergies

TCD scientists made an important breakthrough in the understanding of a protein within the human immune system which has the potential of impacting on future therapies for allergies and other immune conditions. The Trinity research group, led by Smurfit Professor of Medical Genetics, Prof Seamus Martin, published their findings in the internationally renowned peer-reviewed Cell Press journal, *Immunity* in July 2009. Prof Martin's team, along with another Trinity research group led by Dr Ed Lavelle, made an important breakthrough in understanding the mechanism of action of the protein, IL-33, a protein involved in driving immune

responses that are frequently associated with asthma and allergic reactions.

Researchers Contribute to New Findings on the Genetics of Schizophrenia and Bipolar Disorder

New evidence suggests that many common DNA variants contribute to a person's risk of schizophrenia, a common mental disorder affecting about one in a hundred of the adult Irish population. Surprisingly, many of the same DNA variants also appear to be involved in bipolar disorder. The findings, reported by the International Schizophrenia Consortium were published online in the journal *Nature* in July 2009. Dr Aiden Corvin, Head of the Psychosis Research Group at Trinity College was a co-author of the paper.

Low levels of Vitamin B12 Increase Risk of Spina Bifida

Children born to women who have low blood levels of vitamin B12 shortly before and after conception have an increased risk of neural tube defects such as spina bifida. The new findings by researchers at Trinity, the Health Research Board and the National Institutes of Health in the USA, were published in the March 2009 issue of *Pediatrics*. TCD researchers were first author Dr Anne Molloy, School of Medicine and co-author Prof John Scott, School of Biochemistry and Immunology.

New Research Identifies Faster Detection of Viruses

A more specific and faster detection of viruses has been identified in new research by Professor of Physics, Martin Hegner at TCD's Centre of Research on Adaptive Nanostructures and Nanodevices (CRANN) and an international team of researchers. The findings were published online in *Nature News* in February 2009 and in the international peer-reviewed journal *Nature Nanotechnology* the following month.

Viruses can now be detected in fluids and their detection is of major importance in medical

diagnostics. However, despite these recent advances, current assays are time consuming and labour intensive. Prof Hegner's research shows a more efficient and practical system in detecting the viruses by using micro-sized cantilevers to directly detect viruses binding to membrane proteins.

Omega-3 Fatty Acids may Benefit Cancer Patients Undergoing Major Operations

New research from Trinity published in *Annals of Surgery* in April 2009 points to a potentially significant advance in the treatment of patients undergoing major cancer surgery. The study was carried out by the oesophageal research group at TCD and St James's Hospital. A randomised controlled trial showed omega-3 fatty acids given as part of an oral nutritional supplement resulted in the preservation of muscle mass in patients undergoing surgery for oesophageal cancer, a procedure normally associated with significant weight loss and quality of life issues. The trial was designed by Prof John V Reynolds, Professor of Surgery at TCD and St James's Hospital and Dr Aoife Ryan, a research dietician at St James's Hospital.

New Discovery on Polymer Physics has Major Significance for Nanotechnology Industry

A new discovery concerning polymer physics by scientists at Trinity College and the University of Illinois may have major implications for manufacturing processes in nanotechnology. The research which was published in *Science Express*, the online version of the internationally renowned journal *Science* in October 2009 was led by Dr Graham Cross, School of Physics and CRANN and Prof William King of the University of Illinois at Urbana-Champaign. The results shed new light on the mechanism of polymer flow at the nanometre scale.



5. INNOVATION AND COMMERCIALISATION

6. HUMAN RESOURCES

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Trinity Research & Innovation (TR&I) actively supports Trinity's wider research portfolio. The unit promotes and manages the interface between TCD researchers, funding agencies and industry.

It is also responsible for managing TCD's Intellectual Property, Technology Transfer and Innovation, Commercialisation and Entrepreneurship. In line with the Irish National Development Plan and the College's Strategic Plan, Trinity Research & Innovation seeks to promote the successful exploitation of new ideas incorporating new technologies. Trinity Research & Innovation facilitates the interactions between the university, external agencies and industry, through four divisions: Research Development, Contracts, Technology Transfer and Entrepreneurship.

5.1 Research Funding and Intellectual Property

In the course of the 2008/09 academic year, the Research Development Section processed a total of 1,370 research and funding applications while the Contracts Section processed a total of 546 contracts entered into by TCD valued at over €109 million. The Technology Transfer Section was responsible for filing 23 patents, five commercialisation licences and four spin-out companies (10 companies in the calendar year 2009).

5.2 Entrepreneurship and Innovation

The Entrepreneurship Section supported 45 postgraduates and researchers onto the Entrepreneurship Programme.

The Trinity Innovation Award was presented to Intel Ireland, led by Jim O'Hara, to celebrate 20 successful years in Ireland and to recognise the many successful collaborations with Trinity over the past 20 years.

Trinity's Human Resource function, the Staff Office, supports the College in achieving its strategic goals through the recruitment, retention and development of excellent people. To ensure the efficient delivery of these services the Staff Office is structured into four main areas, namely Recruitment, Staff Planning and Payroll, Staff Relations and Staff Development.

2008/09 marked the beginning of a period of significant transformation for the Staff Office. As one of the areas most exposed to changes in the external environment, the Staff Office has been in the frontline of implementing a series of significant changes mandated under the Government's restructuring efforts to control the public finances.

Under the auspices of the IUA Employment Control Framework it was agreed that both academic and administrative, support and technical headcounts would be reduced by 3% relative to the HEA December 2008 figure by the end of 2009. This change has impacted all areas of the Staff Office as it has sought to balance the College's growth plans with government directives to reduce centrally funded headcounts.

In parallel, the College's new Strategic Plan has resulted in ambitious objectives for improved responsiveness, alignment with College priorities, efficiency and effectiveness for all support service areas.

6.1 Recruitment

During the 2008/09 academic year, 102 new and replacement academic appointments were made – seven of whom were to Professorial Chairs, four were to Associate Professorships, one to Senior Lectureship, six to Lecturer/Registrars and 84 to Lectureships. Of these, 90 recruitment competitions were in progress prior to the announcement of the HEA's embargo on recruitment on 1 April 2009.

In total 1,625 contracts were issued, the majority of which were to researchers funded from non-exchequer funds not covered by the embargo. In addition 68 hosting agreements and 16 work permits were issued to visiting staff from overseas who contributed to research and teaching.

As part of the College's drive to streamline processes to improve efficiency an eRecruitment solution was implemented which will significantly reduce the volume of paper and improves processing times for recruitment competitions.

6.2 Equality

Equality monitoring at recruitment stage was implemented with the collection and analysis of data on the diversity profile of applicants gathered through the online Equality Monitoring Form. The Equality Officer and Staff Office continued to work proactively with the College's Equality Committee and other groups to help ensure a supportive work environment necessary for the promotion of the employment of people with disabilities and to providing equal participation and career development across all nine equality grounds. These efforts included the supply of management information, a dignity and respect awareness programme for staff and students, and culminated in a number of College-wide events including Celebrating Age Diversity week, Challenging Stereotypes Intervarsity Creative Competition 2009, and International Women's Week, in addition to the activities of the College Parental Group, the IUA Equality Network and the College Equality Fund initiatives.

The Equality Fund programme, established in 2007 by the Equality Committee, selected 13 staff and student projects in 2008 under a variety of themes such as 'the inclusive college community', 'challenging stereotypes' or 'family focus' aimed at promoting diversity in all College areas.

The Centre for Women in Science and Engineering Research (WiSER) aims to increase female representation in science and engineering research in Trinity. The programme for 2008/09 was designed to work with women researchers in science, engineering and technology, addressing the barriers that have been identified to retaining, advancing, and returning to these fields. These efforts included establishing a mentoring programme, introducing career development programmes, peer-support academic writing groups and networking events. In addition WiSER provided an Irish gender expert for the European Commission Group on Women and Science.

7. CAPITAL DEVELOPMENT PROGRAMME

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Key capital developments during the 2008/09 academic year include the ongoing construction of the Biosciences Development on Pearse Street, the Trinity Long Room Hub, and the acquisition of Phoenix House in South Leinster Street which is to be refurbished for academic use.

7.1 Completed Projects

The Arts Technology Research Laboratory

A cutting-edge arts and technology research facility was opened by the Minister for Arts, Sport and Tourism, Martin Cullen in April 2009. The Arts Technology Research Laboratory (ATRL) will bring together film, video, music, sound production, theatre, dance, live art and installation in a state-of-the-art digital environment for the purpose of interdisciplinary postgraduate research. The facility, developed by the School of Drama, Film and Music, is situated in the Trinity Technology and Enterprise Campus on Pearse Street.

The 650 sq.m. facility funded through the support of the HEA Facilities Enhancement Scheme 2008 houses a multi-purpose and multi-media auditorium/theatre for performance, recording, installations, lectures, symposia, a sound 'live' recording studio, two post-production digital editing suites and a seminar room. There are also workstations for up to 30 postgraduate research/ PhD students working on leading edge audio and video workstations using multiple software 'platforms'.

Sir Patrick Dun Research Laboratory

Also funded under the Higher Education Authority Research Facilities Enhancement Scheme, the refurbishment of the Sir Patrick Dun Translational Research Laboratory at the Trinity Centre, St James's Hospital, was completed. The newly refurbished laboratory provides state-of-the-art facilities to accommodate research into cancer,

infection, immune deficiency and metabolic disorders.

The refurbishment will further facilitate interdisciplinary research at the highest level for scientists and clinicians. With the aid of the facility and its advanced technology it is intended that the important research carried out by Trinity's clinicians and scientists may be translated more rapidly into clinically effective management strategies for patients.

Trinity Genome Sequencing Laboratory

Ireland's first Genome Sequencing Laboratory based in Trinity's Institute of Molecular Medicine was opened by the Minister for Science, Technology & Innovation, Conor Lenihan T.D. in June 2009. The SFI funded new laboratory will enable research into psychiatric disorders, infectious diseases and cancer that has potential to improve patient care. The new Trinity Genome Sequencing Laboratory houses an Illumina Genome Analyzer II, the first 'next generation DNA sequencing' platform to be set up in Ireland. This new technology allows scientists to undertake studies in molecular biology and genetics research that were previously not technically or economically feasible.

The Irish Longitudinal Study on Ageing New Health Assessment Centre

The President of Ireland, Mary McAleese, opened The Irish Longitudinal Study on Ageing (TILDA) Health Assessment Centre at Trinity College in May 2009. TILDA is a study of a representative cohort of 8,000 Irish people over the age of 50, charting their health, social and economic circumstances over a 10-year period. The study is being carried out by Trinity in collaboration with an interdisciplinary panel of scientific researchers, with expertise in various fields of ageing, from the Dundalk Institute of Technology, the Economic and Social Research Institute, the National University of Ireland Galway, the Royal College of Surgeons in

Ireland, University College Cork, University College Dublin and Waterford Institute of Technology.

In addition, other capital projects undertaken include the refurbishment of the Pavilion to provide universal access, a Club Room and modern facilities; the start of a project to refurbish residential accommodation in New Square; planning work for the proposed Students' Centre in Luce Hall and the cobble reduction programme in Front Square to enable universal access; grounds improvement projects; the creation of facilities for SFI researchers; the refurbishment of existing facilities at 15/16 Westland Row, the Moyne Institute, Dunlop Oriel House, and the Trinity Technology and Enterprise Campus.

7.2 Construction Projects

The Biosciences Development



Biosciences Development

The Biosciences Development is the most ambitious construction project in Trinity's history. This site, between Cumberland Street and Sandwith Street, which was previously used as a surface car park, is being redeveloped to provide a mixed development of academic and commercial space of over 30,000 sq.m..

Several defined centres - a Centre for Cancer Drug Discovery, a Centre for Bioengineering and Medical Device Technologies, an Immunology Research Centre - and medical teaching facilities will be located in the building. The academic space will facilitate the relocation of certain disciplines to purpose built accommodation. The commercial space will include shops, office accommodation and laboratory space. The development adjoins Pearse Railway Station and the design incorporates a new entrance to the Station. This project started on site early in August 2008 and is due to be completed in early 2011.

This development will build on Trinity's leadership position in immunology, neuroscience and cancer to bring Ireland to the frontiers of research benefiting human health and society.

Trinity Long Room Hub

Construction of the Trinity Long Room Hub commenced in 2009. This initiative will facilitate the College's strategic development of research in the Arts, Humanities and Social Sciences through the full exploitation of the College's outstanding research collections and the creation of a community of scholars across a range of disciplines. It will seek to answer questions about human identity in global contexts, focusing research energies and thereby helping to realise the creative potential of Trinity College as a great national and international institution.

The new physical space will allow the creation of a 'living community of scholars' around the Trinity Long Room Hub and assist towards a goal of doubling the number of postgraduate students by 2012. The building will provide physical accommodation for a Reading Room, Visiting Researchers' rooms, a Knowledge Exchange, a Video Conferencing suite and a Digitisation area.

Wellcome Trust-HRB Clinical Research Facility

In 2009 the tripartite agreement between TCD, Wellcome Trust and St. James's Hospital allowed for the construction of the Clinical Research Facility at St. James's Hospital. Building Tenders have been received and the preferred contractor is expected to start on site in the Summer/Autumn of 2010. The 10 bed facility will be some 1,300 sq.m. and will include special clinical research areas for exercise physiology, neurophysiology and gene and molecular therapies. It will be adjacent to the HRB funded three Tesla MRI (Centre for Advanced Medical Imaging) and the TCD Institute of Cardiovascular Sciences, which is being funded by the Baggot Street Trust will be co-located in the same building. The facility is expected to open in late 2011.

7.3 Energy Conservation

Trinity consumed over 34.4 million kWh of electricity and over 35.5 million kWh of natural gas and oil during 2008/09. This modest growth from the previous academic year is a consequence of the full occupancy of the newer buildings located on the north east corner of the campus. Expenditure for the year for all utility related costs amounted to €7.2 million.

Savings were achieved through the e3 group, comprising UCD, DIT, DCU and TCD, as they used their collective purchasing power to get the most advantageous electricity and gas tenders from suppliers. The bulk of Trinity's electricity is sourced from Energia which provides 50% of the power from renewable wind generated electricity. Using such a 'green' energy supplier is an effective way to reduce CO₂ emissions substantially.

Another aspect of the e3 programme is the reduction of energy consumption in College. An on-going programme of energy conservation

work includes targeted measures in specific buildings and a programme of communication and education of building users. The energy reduction programme set up a monitoring and targeting system for selected buildings and then worked to reduce energy consumption within them. The current phase of this programme commenced in March 2007 and tackles ten buildings targeting a 10% reduction over three years. Savings to date of c.12% in phase 1 and 6.3% in phase 2 when weather corrected have been achieved.

In the course of 2008/09, alternative proposals for energy sources in new buildings were examined, designs were optimised to reduce energy consumption and in-house refurbishments were reviewed to improve and reduce energy consumption while the commissioning of buildings aimed to operate energy consumption as economically as possible.

8. FUNDRAISING

The future of Trinity College depends primarily on its people - staff and students - as well as investment in its teaching, research, innovation and outreach. Significant funding is required if the College is to confirm its position as one of the world's leading universities. To this end, Trinity Foundation raises funds from the College's alumni and friends.

Trinity groups its fundraising priorities into five themes, each articulating the relevance, importance and value of a university today – with an adopted mission that Trinity will play a pivotal role in helping Ireland be the most productive place to invent, work and learn and the most civilised place to live and contribute to local and global society.

The College cannot rely on State funding alone - securing private support is essential to Trinity's future. In the period 1 October 2008 to 30 September 2009, €27 million was secured in private donations (€28.5 million in 2007/08). The benefits of this private support can be seen throughout the College.

Planning for the next phase of fundraising is underway, ensuring it will support the College's emerging Strategic Plan for the period 2009-14.

Current priority projects include:

- Completing the funding for the Biosciences Institute on Pearse Street
- Refurbishment of the Long Room with expanded Humanities research facilities
- New Business School Building and new Engineering development
- Various projects supporting College's 'Engagement with Society' theme
- Professorships & Lectureships in College's academic priorities.

Central to the College's fundraising success is the outstanding contribution of the many volunteer

groups that support Trinity including the TCD Association and Trust, the Business School's Advisory Board, the Engineering Advisory Board, the External Advisory Board of the Trinity Long Room Hub, the Medical School's Tercentenary Board, the Trinity Business Alumni, the Science Gallery Governing Board, the USA Fund and the UK Trust. These volunteers give their time, strategic input and considerable financial support. The College is extremely grateful for the support of these groups. Special mention is due to the Board of Trinity Foundation, which plays a key role in co-ordinating the College's philanthropic strategy. Trinity's alumni and friends continue to support the College through the Annual Fund, volunteering to help with College initiatives and in many other ways.

9. FINANCIAL POSITION

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The Funding Statements for the year ended 30 September 2009 as prepared on the agreed harmonised basis for the Irish University sector were approved by the Board on 27 January 2010.

The Funding Statements represent Part I of the financial reporting requirements of the Universities Act and reflect the core teaching/unfunded research and research grants and contracts activity in the Income & Expenditure Account. The College's external auditors KPMG identified no material control weaknesses and issued an unqualified audit opinion on the Funding Statements. The Consolidated Financial Statements, which represent Part II of the financial reporting requirements and prepared in accordance with generally accepted accounting standards, are expected to be finalised in 2010.

The College has reported an excess of income over expenditure of €9.7 million for the year to 30 September 2009 (Appendix I). This has resulted in the elimination of the accumulated recurrent deficit of €9.8 million at 30 September 2008 that arose from setting aside a substantial provision for the cost of compliance with the Protection of Employee (Fixed Term Work) Act 2003 (FTWA), an additional cost for which no additional Government funding was received. The performance for the year reflects the once-off release of the accumulated FTWA provision (no longer required following the enactment of specific legislation in 2009 to transfer all the assets and liabilities of the College's Master Pension Fund to the State), planned expenditure savings to address the real reduction of State recurrent funding and a transfer to capital to support the purchase of new strategically located property. Total income (excluding research) is made up of state grants (49%), student fees (41%) and other income (10%) and has increased by 3% over 2008 levels. As a significant proportion of student fees are funded through the free fees initiative, the College remains heavily dependent on State

funding with 66% of core funding (excluding research) derived from State sources.

The Balance Sheet (Appendix II) remains strong in the current economic climate with net assets of €676 million at 30 September 2009, an increase of €26 million over 2009 mainly due to fixed asset additions. For the first time in its history and having secured financing by way of a Board approved long-term loan of €75 million on advantageous terms from the European Investment Bank (its first direct investment in an educational institute in Ireland), the College proceeded with the construction of the Biosciences Facility. The College is aware that the funding of the academic facility is dependent on significant investment of PRTL I V in order to avoid a scenario whereby existing College resources are reprioritised to repay the loan finance over the longer term. The College is also working with Trinity Foundation to generate funding from philanthropic sources for this project.

Also for the first time in its history, the College received in excess of €100 million in research income in 2008/09 thus achieving one of its institutional goals. The level of research activity for 2008/09 recorded in the Funding Statements (measured on the basis of expenditure activity during the year and not income received) amounted to €89.7 million (Appendix 1), an increase of 26% over 2008 levels. Given the high proportion of research activity currently funded by the State, similar to its core funding, the College is at risk from any significant future downward adjustment in State investment in research. As in previous years, the continuing situation, where the contribution to indirect costs from research activity continues to be significantly below the full economic cost of hosting the research, is not sustainable.

The College continues to adopt a financial strategy where it 1) manages its activity within budgeted resources over the medium term; 2) constantly

adapts to a changing financial environment; 3) promotes and motivates income generation as well as securing diversification of income; 4) prioritises cost management, procurement and efficiency initiatives in our day to day operations; 5) strives to improve the delivery of financial information for decision making; and 6) evaluates strategic opportunities following a formal risk assessment as they arise.



APPENDICES

Appendix I: Income and Expenditure Account		
Year ended 30 September 2009		
	2009	2008
	€'000	€'000
Income		
State Grants	105,392	103,259
Student Fees	88,636	82,643
Other Income	20,897	23,365
	214,925	209,267
Research Grants and Projects	89,715	71,167
Total	304,640	280,434
Expenditure		
Academic Faculties	109,141	111,149
Academic and Other Services	22,958	25,170
Premises	27,955	27,339
Amount Allocated for Capital Purposes	13,507	9,482
Central Administration and Services	15,350	16,185
General Educational Expenditure	9,127	8,658
Student Services	5,626	6,445
Miscellaneous Expenditure	11,063	8,884
Academic and Related Services	214,727	213,312
Research Grants and Projects	80,165	68,040
Total	294,892	281,352
Surplus/(Deficit) on Activities before Amortisation of Capital Reserves and Grants, Ancillary Services and Depreciation of Fixed Assets	9,748	(918)
Surplus on Ancillary Services	2,934	2,789
Depreciation of Fixed Assets	(31,005)	(27,116)
General Reserve Transfer	28,071	24,327
Net Surplus/(Deficit) for year	9,748	(918)

**Appendix II:
Balance Sheet**
At 30 September 2009

	2009	2008
	€'000	€'000
Fixed Assets	747,470	707,357
Current Assets		
Bank and cash balances	163,739	167,969
Debtors and prepayments	39,450	37,155
Stocks	328	372
	203,517	205,496
Current Liabilities		
Creditors and accrued expenditure	(195,409)	(202,161)
Bank balances	(99)	(3,357)
	(195,508)	(205,518)
Net Current Assets/ (Liabilities)	8,009	(22)
Long Term Liabilities		
Creditors due after more than one year	(78,904)	(57,211)
	676,575	650,124
Represented By:		
General reserve	676,606	659,903
Revenue reserve	(31)	(9,779)
	676,575	650,124



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