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Report of Expert Panel on the Quality Assurance of Research Degree Programmes in Irish Higher Education Institutions

2016

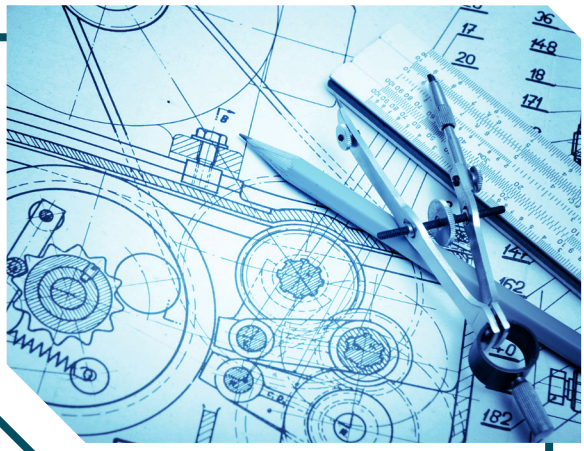



TABLE OF CONTENTS



ACKNOWLEDGEMENTS

Quality and Qualifications Ireland (QQI) would like to acknowledge the significant work undertaken by the Expert Panel and their enduring dedication to the project. QQI is appreciative of the assistance and participation of all of the stakeholders who contributed to the project, including the institutions, agencies, representative bodies, students and graduates. In particular, QQI would like to thank Dr Thomas Jørgensen of the EUA for his ongoing contributions and support.

FOREWORD / CHAIR'S MESSAGE

It has been my privilege to have the opportunity to be a frequent observer of Irish higher education for the past two decades. This has been a period of rapid growth and positive change at every level reflective of a national consensus about the role and importance of colleges, institutes, and universities both as economic drivers and as a means of preserving and promoting Irish culture, among other things. The results have been remarkable and are worthy of celebration.

During this time, I have been consistently impressed at the purposefulness with which Ireland has sought to foster the expansion and maturation of higher education while also encouraging and elevating its quality both at the system and institutional levels. Any number of examples of this might be cited: the promulgation of compelling strategic vision(s) for higher education, statutory improvements, the creation and development of effective quality assurance entities, a framework for qualifications, not to mention numerous impactful analyses and reports on a wide variety of topics. The latest such endeavour is the one before you, the Report of Expert Panel on the Quality Assurance of Research Degree Programmes in Irish Higher Education Institutions. It was my great honour to chair this effort.

The panel was convened by Quality and Qualifications Ireland (QQI) to build on and seek to advance the goals of the recently issued National Framework for Doctoral Education. We were charged with undertaking a thorough review of research degree programmes offered in Ireland with an eye to their improvement through the identification of gaps in current pertinent policies, criteria, and guidelines, and making recommendations for the enhancement of quality assurance in such degree programmes. The panel was also tasked with the preparation of National Guidelines for the Quality Assurance of Research Degree Programmes in Irish Higher Education, forthcoming.

Engaged for several months in this undertaking, we made every effort to become well informed as to the current realities and future possibilities of research degree programming in Ireland as well as to appreciate and apply international best practice in this arena. This included the review of voluminous documentation, interaction with and the substantive input of relevant stakeholders, discussion and debate among ourselves, and the drafting and redrafting of this report so that it accurately reflects our findings and conclusions and that it might have the positive impact we desire. We now commend the results of our effort to the Irish higher education community.

As the Panel's Chair, I wish to thank my colleagues for their extraordinary efforts. Each member brought to our work complementary knowledge, relevant experience, and enviable expertise; each reflected their commitment to the panel's success through hard work. Always showing uncommon courtesy and thoughtfulness in our discussions, they made the Chair's task an easy one.

The Panel would like to acknowledge with thanks the efforts and contributions of all those who participated in this project in providing documentation, giving of their time and expertise to meet with us, and providing additional support. Their involvement helped to ensure that this Report reflects current realities in Ireland and that the projected Code of Practice will likewise reflect the highest standards of practice.

On behalf of the panel, I also wish to express appreciation to the staff of QQI who supported our efforts, particularly Karena Maguire and Wendy Mathews. We appreciate their encouragement, insights and cautions.

While a great deal has been accomplished at the highest degree level among Irish institutions of higher education and while there is much to be proud of there, work remains to be done as we have sought to identify. We hope that our efforts as expressed in the content of this report help not only to give direction to ongoing improvement, but also provide the stimulus to do so.

Charles M. Cook
Panel Chair

GLOSSARY OF TERMS

EUA European University Association

HE Higher Education

HEA Higher Education Authority

HEI Higher Education Institution

IoT Institute of Technology

IOTI Institutes of Technology Ireland

IUA Irish Universities Association

NFDE National Framework for Doctoral Education

NFQ National Framework of Qualifications

NUI National University of Ireland

QQI Quality and Qualifications Ireland

RDPs Research Degree Programmes

SUMMARY

This Report, by an Expert Panel appointed by QQI, is part of the implementation of the National Framework for Doctoral Education, 2015[1] (NFDE). It is the first step in the development of a *National Code of Practice on the Quality Assurance of Research Degree Programmes* in Irish Higher Education Institutions. While focused on study programmes leading to research Masters and Doctoral Degrees, this Report, and the planned Code, are also of relevance to all postgraduate degree programmes that have research projects as major components.

Within higher education, research degrees are exceptional as they expose students to prolonged engagements with important issues and problems. For many research students, the experience can be intense and life-changing, making the quality assurance of research degree programmes particularly important.

The Panel assessed examples of current effective practice internationally in research degree provision. They then reviewed the policies, regulations and procedures from Irish higher education institutions offering research Masters and Doctoral Degree programmes, and discussed current practices with senior officers, research supervisors, research students and recent research degree graduates. The Panel also met with other relevant stakeholders, including policy makers, funders, research partners and employers.

Overall, the Panel was impressed by the reforms and improvements already made by the universities, colleges and institutes in line with changing international effective practice – this against a background of significant reductions in state funding for higher education. Most, if not all, institutions provided some examples of effective practice related to the management and implementation of research degree programmes. However, this Report is also concerned with gaps that may exist with respect to the comprehensive implementation of effective procedures for research degree provision, and with identifying areas for inclusion or emphasis in the new Code of Practice for research degree provision – the statutory quality assurance guidelines for research degrees.

In this Report, the Panel also makes a number of recommendations to Government, government agencies and funders on issues that should be tackled to ensure adequacy within the higher education institutions in their provision of research degree programmes. Guidance to the institutions is contained in the new Code of Practice, which will detail what is necessary for the institutions to do to assure consistent high levels of quality in the administration, supervision, monitoring and assessment of research students, who, after graduation, will contribute to Ireland's future as an economically, socially and culturally vibrant society.

1. Further information about the National Framework for Doctoral Education is available at: http://www.hea.ie/news/national-framework-doctoral-education-0

1. INTRODUCTION

The development of Irish higher education in the past fifty years has been enormous, and its support of economic and social development has been no less significant. Higher education, research and innovation continue to be vital to this small open economy with an increasingly diverse population; an economy that is hugely dependent on a combination of global businesses and indigenous enterprise. In recent years, higher education has matured in many ways, not least of which is its systematic development and implementation of quality assessment procedures. In addition, as economic development increasingly became 'knowledge-based' and dependent on research and development, higher education institutions responded by expanding postgraduate education; for example, the rate of doctoral degree graduations more than doubled in the ten years up to 2012. To continue to be effective, higher education needs constant vigilance and frequent measures to preserve and enhance quality.

This is the Report of an independent, international Expert Panel, convened by Quality and Qualifications Ireland (QQI) to undertake a review of relevant current quality assurance guidelines, policies and procedures so as to identify effective practice as well as opportunities for improvement regarding research degree programmes (RDPs) in Irish higher education institutions (HEIs). The Panel was also requested to develop a Code of Practice for research degrees in Ireland that will become the new statutory quality assurance guidelines for research degrees applicable to all HEIs awarding such degrees.

This Report is based on a comprehensive and inclusive review of relevant documents, including national and international policies, guidelines and procedures, as well as on meetings with all core stakeholders. Its conclusions include recommendations that, along with a further collaborative review and enhancement exercise, are intended to facilitate the finalisation and implementation of the planned Code of Practice. The cooperation of the HEIs and their contributions to the engagements and deliberations of the Panel are a critical success factor for this project.

The project is part of the implementation of the National Framework for Doctoral Education, 2015 (NFDE) and builds on previous Irish guidelines, policy and other documents, and international effective practice, for example, the Salzburg II Recommendations 2010 (see Bibliography). These initiatives, along with a range of other reports and programmes, have already helped to transform practice in the support and provision of research degree programmes in Irish HEIs, making the formulation of a new Code of Practice much less difficult than would have been the case otherwise. Although much can be assumed or stated simply at the outset, the challenge is to identify and promote straightforward and consistent yet flexible practices that, when implemented, will ensure recognisably high standards in research degree provision in all HEIs as articulated in the NFDE.

The NFDE is a concise but detailed statement of purpose, principles and learning outcomes designed to ensure doctoral degree programmes in Ireland comply with highest international standards. Overseen by the HEA and QQI, it was agreed between all main stakeholders in doctoral education, including the IUA, the universities, IOTI and the institutes of technology, and DIT. Most importantly, it commits the key stakeholders in Irish graduate education and research, including the research

funders, to sets of fundamental purposes, principles and expected outcomes. In particular, one of the key principles in this Framework, "A robust quality assurance system underpins all doctoral provision", led to the initiation of the present project by QQI; although with a wider remit that includes all research degrees, research Masters in particular.

1.1 Background and Objectives

In 2015, QQI commissioned an independent Expert Panel to:

> conduct a comprehensive and inclusive review of the existing policies, criteria and guidelines for quality assurance of research degree programmes in use in Irish Higher Education with a view to developing a national Code of Practice for quality assurance of research provision which will have national and international acceptance and understanding

(*Review and Enhancement of Quality Assurance Resources for Research Degree Programmes: Terms of Reference, 2015* [hereafter ToR] see Appendix 1).

The Expert Panel members are:

Dr Charles Cook, USA (Chairperson)
Mr Martin Galevski, University of Oxford
Dr Barbara Haering, econcept AG, Switzerland
Dr Andrée Sursock, EUA, Belgium
Dr Kenneth Carroll, Institute of Technology Tallaght
Professor Alan Kelly, University College Cork
Professor James Gosling, formerly NUI Galway (Secretary)

Brief biographies of the Panel members are included in Appendix 2. Throughout the project, QQI acted as a secretariat to the Panel, sourced important additional information and data, and provided invaluable updates on national policies and legislation.

Objectives of the Project

The project aims to accomplish five main objectives, listed in the Terms of Reference (ToR) as follows:

1. To understand the purpose and intended outcomes of the quality assurance of research degree programmes (RDPs).
2. To compile a comprehensive directory of resources, in particular guidelines and criteria, for quality assurance of research degree programmes available to and referenced by Irish HEIs in the variety of contexts in which they operate, which they have found to support effective provision in research degree programmes at Levels 9 and 10 of the National Framework of Qualifications (NFQ[2]).
3. To identify gaps in current policies, criteria and guidelines for the quality assurance of RDPs, taking into account the most recent national and international experience, stakeholder views and the evolving higher education landscape in Ireland.
4. To make recommendations for enhancement of current policies, criteria and guidelines for quality assurance of RDPs.
5. To establish a national Code of Practice for Irish HEIs in the quality assurance of RDPs.

2. Further information about the National Framework of Qualifications is available at: http://www.qqi.ie/Pages/National-Framework-of-Qualifications-%28NFQ%29.aspx

The Expert Panel envisages a clear, concise and well-grounded 'Code of Practice' that provides for a consistent system-wide approach to the quality assurance of research degree provision. In order for this Code to be supportive to students, supervisors and diverse institutions over a significant term, it will need to be consistent in the application of basic principles and standards, while allowing flexibility and room for unanticipated developments. Moreover, it should see research competence as the core element of research degree programmes, ensure high standards that are recognisable internationally, clarify the conditions and structures required to match these high standards, and promote a full national understanding of the value of research degree graduates to society and the economy.

1.2 Research Degrees

In the interest of clarity, the following subsections present short descriptions of the range of research degrees awarded by recognised awarding authorities in Ireland.

The word *research* is used in the Irish National Framework of Qualifications (NFQ) in a way comparable to the usage of the Dublin descriptors. It covers a wide variety of activities, with the context often being related to a field of study, and is used to represent a careful study or investigation based on a systematic understanding and critical awareness of knowledge. Also, *research* is used in an inclusive way to accommodate the range of activities that support original and innovative work in the whole range of academic, professional and technological fields, including the humanities and traditional, performing, and other creative arts. It is not used in any limited or restricted sense, or relating solely to a traditional 'scientific method', but is understood to involve the integration of rigour, reflection and critique.

The NFQ includes three research-related award-types: Masters, Doctoral and Higher Doctoral.

1.2.1 Masters Degrees, NFQ Level 9

There are different types of Masters Degrees in Ireland: taught Masters Degrees (advanced, professional or practice) and research Masters Degrees, where the integral research project is much more substantial and is the dominant component. Both are compatible with completion of the Bologna Second Cycle. Examples include MSc, MPhil, MA and MEng. Research Masters programmes are typically of two years (full time) duration, during which students conduct a research project through independent study and often take some, independently assessed 'taught' elements. Overall assessment is specific to the individual. The purpose of research Masters programmes is to enable students to carry out substantial research in a particular area or discipline, or to prepare for the next stage in their careers, whether pursuing further research or immediate employment in a range of other roles.

1.2.2 Doctoral Degrees, NFQ Level 10

Since its evolution in Germany in the early nineteenth century and its adoption by Yale University in 1861, the Doctor of Philosophy degree (Latin Doctor Philosophiae, PhD, or DPhil at Oxford University) has become the predominant doctoral-level degree world-wide. According to the descriptor of the NFQ, normally those entering PhD programmes, which are three to four years in duration, with a Level 8 degree, initially register for a research Masters Degree or provisional doctoral candidature. Upon successful completion of this initial stage, the candidate acquires full doctoral candidature.

ECTS[3] credits are used in PhD programmes for taught elements only and, if these are assessed, this is done independently of final assessment, which always includes a viva voce defence or examination.

3. European Credit Transfer and Accumulation System (ECTS) is a standard for comparing the study attainment and performance of students of higher education across the European Union and other collaborating European countries.

In addition to PhDs in the sciences and humanities, awarded on submission of theses related to research projects, there are equivalent awards arising from practice-based research in the creative, media and visual arts.

In Ireland, the UK and Commonwealth countries, the MD (doctor of medicine) is another long established doctoral degree awarded primarily on the basis of a research project. MD programmes may take a shorter time to complete than PhD programmes and are administered and operate under separate regulations and standards. There are also professional doctoral degree programmes that consist of a combination of course work, examination, professional practice, research and a thesis, and these are growing in number. They are awarded in areas such as psychology, education and music performance, and are offered by many Irish HEIs.

1.2.3 Higher Doctoral Degrees

Higher doctorates, including Dlitt, DSc and LLD, are awarded to applicants in recognition of an excellent and distinguished body of contributions to knowledge. They do not derive from a planned programme of education and so are not relevant to the present project.

1.3 Scope of Project

This Report, like the planned Code of Practice, is focused on research Masters and Doctoral Degree programmes. Where the terms 'Masters' and 'Doctoral' are used, they indicate primarily these programmes and the associated degrees. Therefore, the recommendations below, as well as the recommended practices in the Code, concern directly only the quality assurance of research Masters or Doctoral Degrees. Separate national standards and guidance suitable for the quality assurance of other degree programmes that are centred on research are impracticable in the short term. However, persons concerned with the administration and delivery of such programmes (leading to an MD, for example) are advised to consider the recommendations in this Report and the requirements of the planned Code of Practice, and to apply them insofar as is relevant and practicable.

1.4 Methodology

1.4.1 Project Structure

The ToR for the project envisaged its structure and progression with respect to two distinct phases.

Phase 1
The directory of resources was created by QQI and was available to the Panel from the beginning of the project. This included research degree programme guidelines and other relevant documents from Irish HEIs. An examination of this documentation was followed by meetings with relevant deans, directors and other senior representatives from HEIs involved in the provision of RDPs, research supervisors and research students and other key stakeholders including policy makers; research funders; partners and employers. These provided further information on current policies and practices, as well as feedback on their effectiveness. They also helped to identify effective practices and opportunities for improvements (see Appendix 3 for a list of the documentation examined; Appendix 4 contains the schedule of meetings). The Panel also looked at examples of international practice in research degree provision, and in particular recent developments and national level projects in countries with systems broadly comparable to that in Ireland. The Panel then prepared this Report on the fitness for purpose of current quality assurance policies and procedures for research programmes, including recommendations for their enhancement.

Phase 2
This phase represents the development of the national Code of Practice for statutory quality assurance guidelines for research degrees.

1.4.2 Document Review and Meetings

The Expert Panel started its work by reviewing documentation related to research degree programmes supplied by 22 HEIs (Appendix 3) including institutional policies; regulations; guidelines; protocols; student handbooks; and sample templates and forms. It should be emphasised that it is possible that some of the perceived gaps are covered in other institutional material that was not submitted or on sections of websites that were not explored fully.

The Panel met in separate sessions with officers, supervisors and students from the HEIs (Appendix 4). The first meetings were with responsible deans/heads/directors and other senior officers from the universities and RCSI, and from the institutes of technology, at which the Irish Universities Association (IUA) or Institutes of Technology Ireland (IOTI) were also represented. At the start of these sessions, each institution made a brief oral presentation on its research degree provision.

1.5 Higher Education in Ireland

Higher education in Ireland expanded greatly in the late twentieth century and now consists of both public and private sectors. The private sector is very small and represents a low level of research output. The public sector consists of seven universities, a number of mostly former teacher training colleges now all linked to various universities, and the institutes of technology. The Royal College of Surgeons in Ireland (RCSI), although in many respects a private institution, is a recognised college of the National University of Ireland (NUI).

The universities are: Trinity College Dublin (TCD, University of Dublin), University College Cork (UCC), University College Dublin (UCD), National University of Ireland Galway (NUIG), Maynooth University, Dublin City University (DCU) and the University of Limerick (UL).

In addition, there are the Dublin Institute of Technology (DIT) and 13 other institutes of technology (IoTs): located in Athlone; Blanchardstown - Dublin; Carlow; Cork; Dundalk; Galway/Mayo; Letterkenny; Limerick; Sligo; Tallaght - Dublin; Tralee; and Waterford, and the Institute of Art Design and Technology in Dún Laoghaire - Dublin.

The universities, RCSI and DIT are autonomous awarding bodies. The IoTs are also awarding bodies and have been going through a lengthy process of research accreditation to achieve delegated authority for research degrees over the past decade, in association with the national external quality assurance and qualifications agency - a statutory agency that is now part of QQI. Institutes of technology have achieved full authority to make their own awards at Level 9 (taught and research Masters Degrees), and many have full or partial authority to make their own research awards at Level 10 (doctoral). QQI is in the process of developing institutional review and evaluation procedures that will be applicable to the whole higher education sector.

Strategies of expansion and consolidation of higher education in the late twentieth century were, in general, very successful and underpinned significant economic expansion – especially the dramatic export-led developments of the late 1990s. Since 2000, there has been an enormous rise in research investment (bolstered by huge grants from Atlantic Philanthropies), much further general growth and development, and increased levels of cooperation and collaborative provision between institutions that would have been unthinkable in earlier decades. In later years, to protect quality and promote systematic improvement, these developments were supported by the creation of oversight bodies by the government and by the universities themselves, which, in 2012, were legally consolidated to create

QQI. QQI maintains the ten-level NFQ and has a Quality Assurance (QA) remit/responsibilities that apply to all further and higher education, including the provision of research degrees.

Over the last ten years, changes from traditional practices in the operation of research degree programmes in Ireland have been steady. However, they have been slow and largely piecemeal – even within individual HEIs. Throughout Europe, change has been recognised as well as promoted by the Salzburg Principles of 2005 and the Salzburg II Recommendations of 2010. In Ireland, an extensive two-year consultation process led to the 'IUQB Good Practice in the Organisation of PhD Programmes in Irish Universities' of late 2005, which was updated, with consultation extended to include the IoTs, to give the second edition in 2009. The Health Research Board Training Site Award scheme of 2007, although limited to just a few HEIs, accelerated change by making four-year funding standard and supporting generic skills training. Other research degree funders, including Teagasc's Walsh Fellowships scheme, quickly followed this example. All of these were given better focus by a range of other reports and guides in support of research supervisors, and not least the IUA's PhD graduate skill statements of 2008 and 2015.

1.6 Funding Research in HEIs

Research activity in Ireland is largely based in HEIs and mostly concentrated in the universities. Other research centres are important in certain pure and applied discipline areas. These include the Dublin Institute for Advanced Studies (Celtic studies and applied physics) and Teagasc (agricultural research). These centres host research students who are registered at specific HEIs. In the HEIs, state funding for research and development, via a variety of schemes, doubled to €640m in the ten years from 2002, while the number of researchers increased by 215% (Survey of Research & Development in the Higher Education Sector 2012/2013). However, after initial strong increases, expenditure has been falling from 2008 to date.

The large number of IoTs together accounted for a small portion of the total state funding – 9% in 2012, with the best funded IoT having about half the state research income of the university with the least. There was also great disparity in state funding *among* IoTs: in 2012 the best funded each had 10 or more times greater income than the IoT with the lowest funding (among the universities, the range was three to four-fold). While such figures do not take into account bilateral projects with local companies, undervalue some low-cost areas as in the environmental and social sciences and the humanities, and do not represent what is more important i.e. research outputs, they are broadly indicative of levels of research activity.

After a period of more constrained research funding (2009 to date), the prospect for better research funding for the whole HEI sector is improving; the policy document *Innovation 2020: Ireland's Strategy for Research and Development, Science and Technology* launched in December 2015 envisages national research spending by state and industry increasing to 2.5% of gross national product in 2020 from 1.8% in 2015, or to €5 billion from the present rate of €2.9 billion per year.

Over the last twenty years, a range of schemes have provided competitive funding for research (Masters and Doctoral) Degree students to the universities, colleges and institutes of technology. Combined with other funding mechanisms this has led to a dramatic increase in numbers of PhD graduates in Ireland, by >250% between 2004 and 2012. Enrolments since 2012, particularly for research Masters Degrees, have since been declining (by ~10% since the peak in 2008/2009). In 2012/2013, 84.7% of these enrolments were in the universities, 10.6% in the IoTs, and 4.6% in the higher education colleges (HEA: Trends in Postgraduate Research Education, 2013). The discipline areas for research degrees in the IoTs have been regulated, and thereby limited, by the procedures for the delegation of awarding authority now operated by QQI. The current situation with respect

Research Degree Programmes: Enrolments and Awards in Irish HEIs

PhD and Research Master Enrolments at 1 March 2015

	Full-time	Part-time	Total
Research Masters	1145	303	1448
PhD	6800	1358	8158
Total enrolments	**7945**	**1661**	**9606**

PhD and Research Master Enrolments in HEA-funded Institutions at 1 March 2015

	Full-time	Part-time	Total
Universities and Colleges	7017	1396	8413
Institutes of Technology	928	265	1193
Total enrolments	**7945**	**1661**	**9606**

PhD and Research Master Awards (per calendar year)

	2010	2014
Universities and Colleges	1516	1971
Institutes of Technology	143	184
	1659	**2155**

Source: HEA statistics.

to numbers enrolled and recently graduated is shown in Table 1 above. *Innovation 2020* foresees increases in enrolment for research degree programmes "in disciplines aligned to enterprise and other national needs" from 1,750 in 2015 to 2,250 in 2020.

In this context it may be relevant to cite the 2015 *Interim Strategy Report* of the Irish Humanities Alliance, which considered inter alia graduate education in the humanities in Irish HEIs. Key points made in the report included:

- The need to build greater 'critical mass' in graduate education in the humanities through enhanced inter-institutional collaboration;
- The complementary roles of both Masters and PhD level research degree programmes;
- A greater focus on preparation of graduates for careers outside academia, including: training modules contributing to (eventual) professional qualifications, employment-based activities, and internships for students in research, as well as in taught, degree programmes;
- A prioritisation of even greater 'open' access to research materials and facilities; and
- The importance of specific funding to enable research students widen their experiences, including conference attendance and study abroad periods.

The report also recommended increased openness to innovative types of qualification in professional and performance areas, and in emerging fields of study.

2. A GOOD PRACTICE FRAMEWORK FOR RESEARCH DEGREES

2.1 Basic Principles and International Practice

In this section, the Panel places its work in the developing Irish context and begins an exploration of what are considered to be effective policies and practices internationally.

While all teaching should promote curiosity, and research-informed teaching is desirable for all third-level study programmes, research is at the core of the learning experience for many higher degrees. Moreover, research degrees are exceptional as they provide opportunities for prolonged engagement with important issues and problems, and, for the degree candidate/student, often for the first time. The experience can be exciting and life-changing. The intensity of this experience for many students is not the least of the many factors that make the quality assurance of research degree programmes particularly important.

2.1.1 National Context

Principles

As a starting point, and while having research Masters Degrees in mind, the Expert Panel finds it appropriate to emphasise the fundamental principles of the *National Framework for Doctoral Education* (2014):

1. The core of doctoral education is deep engagement with a question, problem or hypothesis at the frontier of knowledge, and advancement of this frontier under the guidance of expert and committed supervision. To be awarded a doctoral degree, the candidate must have made an original contribution to knowledge.
2. Successful completion and examination of the research thesis, comprising work of publishable quality, is the basis for the award of the doctoral degree. The thesis can be presented in a variety of formats.
3. Doctoral education increases significantly students' depth and breadth of knowledge of their discipline and develops their expertise in research methodology which is applicable to both a specific project and a wider context. It provides a high-quality research experience, training (including a formalised integrated programme of personal and professional development) and output consistent with international norms and best practice.
4. Doctoral education is conducted in a learning community where sufficient critical mass of internationally recognised research activity exists to allow students to gain access to a training programme of appropriate breadth and to interact with peers engaged in their field, nationally and internationally.
5. Recognising that each doctorate is unique, doctoral education is also flexible so as to support students within individual disciplines or within interdisciplinary or multidisciplinary groups.
6. Doctoral education is conducted in a research environment with a high degree of academic quality and infrastructure and where it is consistent with institutional strategies. Academic quality includes quality supervision and training for supervisors.
7. The admission of doctoral students takes into account preparedness of the applicant, the availability of qualified, competent and accessible supervision and the resources necessary to conduct the research.
8. Doctoral education is supported by established structures with:
   i. supervision by a principal supervisor(s), normally with a supporting panel approved by the institution;
   ii. formal monitoring of progress to completion against published criteria, supported by institutional arrangements;

iii. clearly defined examination processes, involving external examiners, assessment criteria and declared outcomes.

9. A robust quality assurance system underpins all doctoral provision.

National Policy

In 2008, the Government recognised the central role that the higher education institutions could play in the creation of what were termed 'a smart economy' and 'an innovation island'. To this end, a high level group, chaired by Dr Colin Hunt and assisted by an international Expert Panel, was established to develop what became the *National Strategy for Higher Education to 2030* (2011), referred to as the Hunt Report.

The 'Hunt Report' proposed a general strategy that has at its heart a "recognition that a diverse range of strong, autonomous institutions is essential if the overall system is to respond effectively to evolving and unpredictable societal needs". Given that in 2012, 27 institutions offer[ed] research programmes at Level 9 and/or 10 (*Towards a Future Higher Education Landscape*, HEA 2012), the achievement of adequate *strength* with respect to research degree programmes in all relevant discipline areas in all of these institutions is a concern that shaped the recommendations for partnerships and mergers in the Hunt Report. Of course strength as it applies to the provision and quality assurance of research degree programmes has many aspects, among them human and physical resources, research capacity and performance, external partnerships and links, and administrative capacity.

2.1.2 Effective Practices Internationally

The creation of an appropriate new Code of Practice for the Quality Assurance of Research Degree Programmes requires familiarity with international effective practices. Therefore, the Panel saw the need for a systematic consideration of a sample of relevant documents on good practice in Europe and beyond. These largely focus on doctoral (PhD) programmes and allowances must be made when interpreting their relevance to research Masters Degree programmes.

Beyond the differences between these documents, there is a common assumption of what a research degree is, but somewhat different policies with respect to research degree programmes. The following quote expresses the consensus international view about what doctoral education is for, and on the requirement to ensure "*breadth and consistency of training*":

> Doctoral training has changed significantly in recent years. It is now widely recognised that doctoral graduates make significant contributions to innovation and that they need both a thorough and broad skill set to do so. With many graduates gaining employment outside of academia, the tradition of doctoral training only for replenishment of academia belongs to the past. This recognition has resulted in the growth of structured doctorates and institutional structures to ensure breadth and consistency of training at universities.

(*Good Practice elements in doctoral training*, Advice paper no.15, 2014, League of European Research Universities (LERU) [hereafter LERU], P 3.)

The discussions below draw more extensively from the documents consulted and from the experience of the Panel members pertaining to current standards of international effective practice.

2.2 Fundamentals

In HEIs, a range of provisions are necessary for successful research degree programmes. Having considered national and international existing and evolving effective practice and debate, the Panel has identified a few matters of fundamental importance. Although all aspects of the administration of research degree programmes are important at one stage or another, in the opinion of the Panel, and supported by the international reports examined, three areas are of fundamental importance:

- Research environment,
- Supervision, and
- A system of governance that incorporates quality assurance.

2.2.1 Research Environment

The research environment is of crucial importance to students on research degree programmes, and this topic area is considered repeatedly in the international documents consulted:

> Doctoral research takes place in a research environment with doctoral candidates as fellow researchers; this demands that institutions base their strategies for doctoral education on their research capacity, critical mass, diversity, and ability to create inclusive environments that will make doctoral candidates active participants in ongoing research (Salzburg II Recommendations 2010 [hereafter Salzburg II], 2.3 Supervision).

At the core, is the requirement that the environments in which students undertake research Masters and Doctoral Degree programmes be intellectually stimulating, supportive and conducive to their graduating with the relevant skills and attributes. This is also made clear in the *Irish Universities' PhD Graduates' Skills Statement*, IUA 2008.

The QAA Quality Code - Research Degrees, 2013, (hereafter QAA) provides expansive guidelines on suitable research environments. Basic provisions are expected to include "providing an adequate amount of academic and, if relevant, work or practice-based supervision of an appropriate quality". In addition, QAA considers that the primary research environment and infrastructure can be located in industry or across several higher education providers, all of whom are expected to provide:

> a suitable context for the conduct of the kind of research in question and is capable of supporting the range of research students being recruited. The environment allows for research students' changing needs and requirements as the programme develops, including providing an adequate amount of academic and, if relevant, work or practice-based supervision of an appropriate quality. The environment is enabling and instructional, and is conceived of as a place of learning as well as of research productivity (QAA, p. 11).

Therefore, supplementary arrangements may be necessary to compensate for research environments that may be deemed to be not fully adequate or satisfactory with respect to a particular research project. If a student is largely geographically isolated from kindred researchers, significant periods in a complementary environment may be needed. Even if his/her research environment is in a large group in a research intensive setting, whether in an HEI, a separate research institute or an industry, understanding particular contexts or approaches, or learning a new technique, could require spending time in a different setting, whether in another HEI or elsewhere.

2.2.2 Supervision

From the perspective of the research degree student, the quality of the supervision is perhaps even more important than the research 'environment'. According to the European Universities Association

Council for Doctoral Education (EUA – CDE):

> **Supervision must be a collective effort** with clearly defined and written responsibilities of the main supervisor, supervisory team, doctoral candidate, doctoral school, research group and the institution, leaving room for the individual development of the doctoral candidate. Providing professional development to supervisors is an institutional responsibility, whether organised through formal training or informal sharing of experiences among staff. Developing a common supervision culture shared by supervisors, doctoral school leaders and doctoral candidates must be a priority for doctoral schools. **Supervisors must be active researchers** (Salzburg II, 2.3 Supervision).

This approach is becoming standard worldwide. For example, the Australian *Higher Degree Research Training Excellence: A Good Practice Framework* (hereafter AGPF) describes very similar requirements for good supervision. In summary, they require that research degree supervisors be appropriately qualified, be active researchers with relevant expertise, and that they work in accordance with procedures that manage their appointment, performance and conduct. They are professionally trained as supervisors and their contributions are recognised as part of their academic functions and workload. Supervisors work in teams of at least two, each member with a defined role (AGPF p. 38.)

When supervision is shared, the assessment of supervisory workloads becomes more complex and each recognised role (primary, joint, mentor; as determined by a HEI) may best be assessed with respect to the anticipated workload involved and be 'weighted' to take account of these. Adequate oversight would require, for each supervisor, up-to-date records of weighted supervisory loads, student completion times and rates; notes on formally notified issues may also be important.

2.2.3 Governance and Quality Assurance

Even well-supervised research students developing projects in an intellectually stimulating environment, and their supervisors, need appropriate institutional supports. This is a primary concern of the Salzburg I, Principles (2005) and II, Recommendations (2010). To summarise:

- Embedding in institutional strategies and policies: [U]niversities as institutions need to assume responsibility for ensuring that the doctoral programmes and research training they offer are designed to meet new challenges [...] (Salzburg II, 1.ii).
- Structuring doctoral education is to create a supportive environment (Salzburg II, 1).
- When establishing structures, the importance of diversity as stressed in the third Salzburg Principle is crucial. Many different structures and diverse strategies will enrich doctoral education in Europe. [¶] Structures should be developed at the appropriate level of governance and not be imposed on or within the institution. It is essential that academic staff takes responsibility and ownership of these structures through inclusive procedures (Salzburg II, 1).

It is notable that, while specific governance of research degree programmes is seen as fundamentally important to ensure linkage with institutional policies and to support supervisors and students, no opinion as to the form it should take is stated in the Salzburg documents.

In Ireland, such governance typically takes the form of a 'graduate' or 'research degree' 'school', (or 'centre' or other unit); or 'schools' that may be located at different levels within HEIs. There is also typically a senior institutional officer (often a 'head', 'dean' or 'director' or 'vice president') with specific overall responsibilities.

Institutional officers, supported by governance structures, have as a primary responsibility the preparation of clear, comprehensive and up-to-date policies, regulations and codes of practice on

research degree programmes that may be supplemented by subject-specific guidance, and are readily and openly available to staff, students and potential students, online and, as necessary, in printed form. The QAA gives detailed guidance on what may be necessary (QAA, pp 9–10). All else, including quality assurance, follows from, or is facilitated by these policies and documents.

Some of the international documents examined discussed the issue of third-party arrangements with respect to students on research degree programmes. For example:

> The university ensures that any third party arrangements that affect the [student] and the proposed research are stipulated prior to enrolment and that the [student] is advised of any changes that will impact on the conduct of a research project (AGPF p. 41).

Where such arrangements are common, appropriate regulations and guidelines should be available. The assurance of the quality of all stages of students' progression through research degree programmes is also seen internationally as being very important. Procedures and processes will, out of necessity, be shorter and more concise for research Masters than for Doctoral Degrees. Therefore, integrated quality assurance is an essential component of structured research degree programmes. According to Salzburg II, 2.7:

> It is necessary to develop specific systems for quality assurance in doctoral education based on the diverse institutional missions and, crucially, linked to the institutional research strategy. For this reason, there is a strong link between the assessment of the research of the institution and the assessment of the research environments that form the basis of doctoral education. Assessment of the academic quality of doctoral education should be based on peer review and be sensitive to disciplinary differences.
>
> In order to be accountable for the quality of doctoral programmes, institutions should develop indicators based on institutional priorities such as individual progression, net research time, completion rate, transferable skills, career tracking and dissemination of research results for early stage researchers, taking into consideration the professional development of the researcher as well as the progress of the research project.

In the Panel's view, given that the quality of research theses forms a considerable part of the assessments of individual research students, periodic evaluations of batches of Masters and doctoral theses generated in individual disciplines or large research groups in institutions would also assure on-going quality and contribute to institutional accountability.

With respect to external and formal quality evaluation, the EUA's report, Accountable Research Environments for Doctoral Education, 2013 (hereafter, ARDE), also recognises that research degree education is fundamentally different in comparison to most of the rest of higher education, and recommends that its evaluation takes its:

> point of departure in the specific needs of [research degree] education. These processes must ensure that the necessary research capacity is at hand, that the research environment is inclusive and inspiring and that supervision is adequate.

It recommends that evaluations be context-sensitive (including disciplinary differences) and consist of a mix of complementary instruments, such as performance indicators, surveys and peer reviews, and warns against over-reliance on key performance indicators (ARDE, pp 9, 24, 27, 42).

The ARDE report also identifies the key factor for developing the doctoral candidate as lying in the relationship with the supervisor and that this is immensely difficult to evaluate:

> This particular relationship is often highly personal and very delicate. Enhancing quality in supervision goes beyond developing didactics and relates to the much more intimate relationship between supervisor and supervisee, which can be inspirational as well as conflict-ridden (ARDE p. 43).

2.3 Research Degree Programme Management Internationally

At all programme stages, diverse regulations and procedures are needed to facilitate student learning, progress and success – or timely exit. Together, these help to ensure good management of research degree programmes.

2.3.1 Selection, Admission and Induction

Institutions need "a clear description of admission criteria for entry into each graduate research program" and

> policies and procedures that are consistently applied and ensure the admission of candidates only where there is an appropriate fit between the applicant, research environment, available resources and supervision capacity (AGPF, p. 38).

On the selection and admission of candidates/students QAA states that:

> Only appropriately qualified and prepared applicants are admitted [...]. Admissions decisions involve at least two members of [...] staff who have received [relevant] training and guidance [...] (QAA, Indicator 6, p. 14).

According to Salzburg II: "Institutions should accept risk in admitting doctoral candidates and allow them to demonstrate potential through a monitoring system."

The importance of proper induction for new students is also recognised in other international documents.

> The university provides an induction to all new candidates that includes information about the expectations and responsibilities of supervisors and candidates, degree requirements, progress procedures, research integrity and ethics, grievance procedures, health and safety procedures and the availability of support services (AGPF, p. 39).

QAA considers the provision of information and guidance to students from two angles: Their (the students') "responsibilities and entitlements", and "[A]n understanding of the environment in which they will be working" (QAA, pp 15–16). Therefore, adequate induction and familiarisation activities should be available; registered students should avail of them with their participation recorded.

2.3.2 Generic Skills and Career Preparation

Following a survey which found that approximately 50 per cent of new doctorate holders were expected to be working in industry, the EUA report on Collaborative Doctoral Education: DOC-CAREER Project II noted:

> However, occasionally the deep technical focus of doctorate holders was indicated as a weakness. For companies, the most important aspect seemed to be the balance between the deep technical focus and the breadth of knowledge of doctorate holders, coupled with an understanding of business processes and priorities. The principal areas of weakness

> of doctoral candidates highlighted by companies were social skills, namely difficulties in teamwork, communication or organisational skills (DOC-CAREER Project II, 2015, p. 52).

Today, the importance of transferable skills as part of research degree training is widely accepted. Transferable skills are understood to include subject-specific knowledge that embraces inter-disciplinary studies and such soft skills as: "problem solving, communication, self-management, initiative and enterprise, and teamwork" (*Defining Quality for Research Training in Australia,* p. 20).

'Ethics and research integrity' and their importance during and after a research degree programme are discussed briefly in many of the documents examined. However, one gives them particular attention:

> *Research Integrity*
>
> Candidates must meet the standards of conduct set for research professionals in their disciplinary field, including, but not limited to:
>
> - Intellectual honesty in attributing the authorship of shared works;
> - Avoiding plagiarism and research fraud;
> - Obtaining ethical clearance; and
> - Storing and retaining data.
>
> (*Best Practice Guideline: Research Doctorates*, CDDGSA, 2010, p. 4.)

Depending on their projects and possible outcomes from their research findings, the above guidelines also advise that research students should also be aware of issues related to copyright and Intellectual property (IP).

Internationally, probably most, if not all, research intensive HEIs now have distinct policies addressing these topics, which apply to all researchers, including doctoral candidates. Dr Thomas Jørgensen of the EUA, who was a significant participant in the Salzburg II process, notes that ethics was not part of the Salzburg discussions but that this topic has grown in importance in the past few years to become a high priority today (direct communication with the Panel). These priorities are reflected in the Irish higher education system with the development of the *National Policy Statement on Ensuring Research Integrity in Ireland*[4]. This is an essential new resource, as is the National Forum on Research Integrity, established in June 2015. The Forum membership is drawn from research funders, research performing institutions and other relevant organisations and it is coordinated by the Irish Universities Association.

According to international effective practice, the training of students in ethics, other relevant research skills and key generic skills should be tailored to the needs and prospects of each student and be readily accessible. Ideally, research students should "take ownership and responsibility for their own learning, during and after their programme of study, and [...] recognise the value of developing transferable skills" (QAA, P 22).

In the interests of recognising the totality of the student workload, it is best if constituent courses have ECTS weightings with totals not normally falling outside defined minimum and maximum numbers of credits. Formally accredited validated modules with ECTS weightings provide an excellent opportunity to identify student workload. Relevant records should be maintained to ensure compliance with programme requirements and objectives.

4. National Policy Statement on Ensuring Research Integrity in Ireland, available at http://www.iua.ie/wp-content/uploads/2014/06/National-Policy-Statement-on-Ensuring-Research-Integrity-in-Ireland-2014.pdf

In the view of the Panel, informed advice on employment possibilities and prospects should also be available to research students. This should include information on realistic pathways to achieving preferred options.

2.3.3 Advice and Complaints

The international documents examined, are consistent in acknowledging the need for fair, safe, clear and robust grievance and appeals procedures that are applied consistently. QAA gives some explanations and useful definitions:

> It is in the interests of research students and higher education providers to resolve problems at an early stage. To facilitate this, higher education providers ensure that research students and staff understand the difference between informal ways of resolving problems and routes they can use to make formal complaints or appeals. It is also important to distinguish between complaints, which relate to general matters (including conduct), and appeals, which concern procedures leading to specific outcomes or decisions. Research degree-awarding bodies develop their own definitions of complaints and appeals, and assure themselves that staff and students are aware of the different procedures. [...] The acceptable grounds for complaints and appeals are clearly defined (QAA, P 27).

Appeal procedures are discussed further under 2.4 Monitoring and Assessments.

Given the importance of suitable relations and rapport between (main) supervisors and students, in cases where issues are grave or recur, mediation has failed, and the student is seen as capable of progressing to successful completion and graduation, one option is a change of supervisor, provided, of course, that another with appropriate expertise is available and willing.

> Voluntary guidelines, however, will not necessarily be enough to resolve cases of serious conflicts between a supervisor and supervisee. The possibility to change supervisor should for instance be inscribed in binding regulations so as to not enchain the supervisee to the whims of the supervisor and his or her willingness to follow voluntary guidelines (ARDE, P 33).

The Panel is of a strong view that research students need to have easy access to independent advice and complaints procedures that recognise the conditions that make them distinct from students taking taught programmes. This was reinforced by the opinions of students that the Panel met. When initial informal measures are unsuccessful and more procedural formality is necessary, adequate records should be maintained.

2.4 Monitoring and Assessment

While thorough examination of each individual research degree thesis and candidate, by means of a *viva voce* examination by a board of two examiners, is long established practice, widespread requirements for the systematic monitoring of student progress are relatively recent.

2.4.1 Monitoring Progress

Apart from provisions that enable wider participation in supervision and decision making, it is the inclusion of systematic protocols for the monitoring of student development and the progress of the research that most characterise the 'structured' PhD or 'structured' research Masters programme.

QAA states that:

> Regular and structured interaction is necessary between research students and supervisors to enable research students to progress satisfactorily. Higher education providers alert research students and their supervisors to the requirements of the progress and review process, including knowledge of their respective responsibilities (QAA, p. 21).

These requirements involve formal and informal meetings and the higher education (HE) provider is required to

> put in place clearly defined mechanisms for monitoring and supporting research student progress, including formal and explicit reviews of progress at different stages. Research students, supervisors and other relevant staff are made aware of progress monitoring mechanisms, including the importance of keeping appropriate records of the outcomes of meetings and related activities (QAA, p. 21).

The approach is similar in Australia, where it is described as follows.

> Support for graduate research candidates focuses on facilitating a successful completion within a reasonable timeframe.

Therefore,

> [t]he university has a formal procedure to review the progress of candidates against clear criteria and to identify and address issues that may require additional attention, resources and other support (AGPF, p. 39).

In summary, the regular formal monitoring of student progress is an essential component of modern research degree programmes. Formal assessment meetings should be sufficiently regular and timed to facilitate formative feedback, notifications of possible decisions and balanced decisions. These meetings should conform to agreed procedures, with adequate records prepared and safeguarded.

2.4.2 Assessments

The topic of examination or assessment is crucial to research degree training as evidenced by the detailed guidance focused on this aspect in the relevant documents examined.

QAA has two separate indicators for this area:

> Higher education providers that are research degree awarding bodies use criteria for assessing research degrees that enable them to define their academic standards and the achievements of their graduates. The criteria used to assess research degrees are clear and readily available to research students, staff and examiners (QAA, Indicator 16, P 24).

> Research degree final assessment procedures are clear and are operated rigorously, fairly and consistently. They include input from an external examiner and are carried out to a reasonable timescale. Assessment procedures are communicated clearly to research students, supervisors and examiners (QAA, Indicator 17, P 25).

The New Zealand Academic Quality Agency Handbook specifies:

> Universities' thesis examination processes should ensure thesis standards are nationally and internationally benchmarked (NZAQA, p. 74).

The assessment of research degree candidates (especially doctoral candidates), may involve a number of formal stages in the final phase of training. Therefore, procedures for 'advice on readiness to submit' and/or 'permission to submit' guidelines on thesis formats etc., may be necessary.

2.4.3 Appeals

As already quoted above: "It is also important to distinguish between complaints, which relate to general matters (including conduct) and appeals, which concern procedures leading to specific outcomes or decisions" (QAA, P 27). Therefore, appeal mechanisms related to research degree programmes are appropriate and necessary whenever significant formal decisions are made. Since decisions may adversely affect supervisors, in the opinion of the Panel, they should also be able to make appeals, although these may be in accordance with standard appeal procedures for academic staff.

3. CURRENT POLICIES AND PRACTICES IN IRISH HEIS

In the context of the present project, many HEIs providing research degrees submitted documentation related to current research degree provision in their institutions. In this section, the Panel considers the policies, procedures and systems described in these documents. Facilitated by meetings and interviews with officers, research supervisors and with research students and recent graduates, they also considered current practices in Irish HEIs with respect to research degree provision. In addition, in exploring areas of interest, they discovered that additional procedures were sometimes available on institutional websites in formats easily accessible to students. Therefore, the Panel is mindful that full sets of institutional policies and procedures may not have been fully represented in the submitted documents.

The opinion that the Code of Practice for the Quality Assurance of Research Degree Provision is needed was expressed repeatedly, and by a wide variety of stakeholders.

3.1 Overviews

3.1.1 Universities and RCSI

In the discussions, significant inter-institutional cooperation was evident (e.g. the 4th Level Network and also several inter-institutional graduate programmes funded through the Graduate Research Education Programme scheme or PRTLI funding[5]); there was also a clear openness to the expansion of cooperation and a wish for further direction and incentives in this respect. Some senior officers saw the planned Code of Practice as necessary to help overcome obstacles and ensure compliance with effective practices already introduced or envisaged. They saw a clear difference between existing guidelines and the national approach to the quality assurance of research degrees to be reflected in the planned Code of Practice. Their concern related to the adequacy of research cultures and overall standards. This was coupled with a belief that many Irish employers had perhaps a narrow perspective as to the potential contributions of doctoral degree graduates to their businesses. The deans and senior officers would also like to see activation of the Advisory Forum envisaged in the Doctoral Framework to provide occasions for the discussion of related trans-sectoral issues, as well as actions by the HEA in support of tracking student registrations, transfers and graduations.

In general, the institutional arrangements outlined during the meeting with the senior officers of the universities and RCSI, appeared to be more developed than was apparent from the documentation supplied. However, further analysis, as detailed in Sections 3.2, 3.3 and 3.4 below, is mainly based on the written (and usually online) documentation, which is where information is most readily obtainable, internally as well as externally.

3.1.2 Institutes of Technology

Discussions and actions are underway between some institutes of technology (IoTs) including DIT that may lead to institutional mergers, with the merged entities then possibly seeking designation as Technological Universities. In addition, some IoTs have entered, or are about to enter, into formal agreements to integrate their research degree programmes with those of a neighbouring university. As yet, clear indications of such alliances and partnerships are not evident in the documentation relating to research degree programmes, that was supplied, indicating that even the most advanced of these 'cooperations' are still in their formative stages.

The documentation supplied ranged from very short and concise to very long and complex. This prompts questions with regard to the amount of detail included (too much or too little) as well as

5. The Programme for Research in Third-Level Institutions (PRTLI) provides integrated financial support for institutional strategies, programmes and infrastructure in key areas of research spread across all disciplines: http://www.hea.ie/en/funding/research-funding/programme-for-research-in-third-level-institutions

accessibility and ease of use. Most of the documents were strongly grounded in national practice and circumstance, and referred extensively to national policy and guideline documents. In almost all IoTs, the practices described appeared to be suited to the intensive management of small numbers of research degree students, involving complex and staff-intensive procedures, sometimes involving one or more members of senior management.

The face-to-face presentations by officers (including registrars, heads of research, heads of graduate school/studies etc.) complemented and supported the impressions gained from the documents supplied. IoTs face many restrictions (not least of which are employment contracts for academic staff), and work very hard to overcome or circumvent them. For example, they voiced the opinion that the HEA does not recognise in practical terms that, with respect to many of their activities, the IoTs are on the same 'playing field' as the universities. Partnerships and mergers will help in the longer term, but it is already clear that achieving shared documentation and procedures by blending existing ones will not be easy. Strange anomalies can also arise, for example, in IoT-university partnerships, students of the IoT may have full access to the library facilities of the university, while their supervisors do not.

Particular concerns raised by institutes of technology senior officers included:

- How can 'critical mass' (the term sometimes used to describe adequacy with respect to a combination of research 'track-record' of supervisors, numbers of co-researchers and research or intellectual environment) or its opposite 'research isolation' be assessed?
- What is the future for research Masters Degrees? They are good for developing relationships with industry, but a range of pressures act in favour of PhD programmes.
- Ensuring that a student's capabilities and previous education match the anticipated needs associated with a proposed research project.
- The management of student expectations and ambitions; achieving a balance between realism and motivation, while respecting their need to be nurtured and protected.

3.2 Irish HEIs and Fundamental Requirements

3.2.1 HEI Research Environment

Although all those met by the Panel were very aware of the critical importance of good research environments, the Panel considered that the concept of 'research environments needed to successfully accomplish specific research studies' was not addressed adequately in the documentation supplied by most of the universities and IoTs. Matters that were covered to some extent, but were sometimes absent, included general minimum standards for personal space such as a desk in a suitable environment, access to equipment and facilities, library and electronic publications, as well as 'soft factors' like opportunities for research students to have contacts with relevant research communities or develop peer networks within the institution and beyond. Observing the lack of formal attention provided to the important matter of research environment, the Panel would be concerned for research students operating in very small research groups in situations removed from related research communities. This could apply to students in smaller discipline areas not linked to research clusters in the universities as much as in non-research-intensive small institutions. Perhaps in recognition of this, some IOTs do make explicit provision for students undertaking research in another institution or industry.

3.2.2 Supervisory Practices

In the documents from the universities, the roles of the supervisors and degree candidates are clearly defined. In most IoTs, team supervision with clearly defined roles and responsibilities of the supervisor(s) and the student is the dominant model. However, a small number of IoTs seem to regard sole supervision as the norm. In many universities, it is not always evident how supervisors are

prepared for these tasks, and are provided with professional development support as necessary. Not all HEI guidelines state that supervisors and/or students should keep written records of meetings and progress.

Responsibilities of Students and Supervisors

Many HEIs have readily accessible lists of defined responsibilities for both supervisors and students, with some differentiating clearly between the responsibilities of primary supervisors, other supervisors and persons who are members of supervisory panels. In some IoTs, new supervisors undertake a compulsory 'Licence to Supervise' course offered by a graduate research school or equivalent. The Panel see this as an example of effective practice.

It must be noted that the normal teaching workloads required are routinely much greater in the IoTs in comparison to the universities. In some IoTs, the contribution of research supervision to individual academic teaching loads may be recognised subject to local arrangements, for example, by a reduction of two hours per week per research student, pro rata for shared supervision, often up to a maximum of six hours per week. Some had a maximum supervision workload; for example, a principal supervisor is not allowed to supervise more than six research students at any one time.

The Views of Supervisors

The Panel met with 19 supervisors, 7 from the universities and RCSI, and 12 from the IoTs and DIT, in two separate sessions. Their commitment to research and to their research students was palpable. IoT supervisors were clearly committed to working around restrictive employment contracts and sometimes in unsympathetic environments. While there were some common concerns, the greatly differing systems in the universities and in the IoTs lead to different priorities with respect to needed improvements.

Opinions, issues and needs raised by supervisors from the universities and RCSI included the following:

- They strongly support the new model of research degrees including four-year funding, shared supervision, rigorous monitoring and generic skills training.
- The need for and importance of single general handbooks and more streamlined administrative processes that are online and automated was stressed. Where international students are concerned, this approach is of particular importance.
- They would appreciate expanded training and supports, and continuing professional development (CPD) opportunities for supervisors facilitated by more inter-institutional cooperation.
- The need for better mechanisms to deal with student complaints related to their research progress and issues raised by supervisory panels, and to identify and remedy sub-standard supervision.
- They find that some students who are self-funded are at risk of missing out on measures (e.g. travel supports) that are becoming normal practice for funded students in research degree provision. These students are mainly in the arts, humanities and social sciences and are still a small minority, but are growing in number.
- Administrative systems need to be better at calculating 'time to completion' by allowing for periods when students must be absent/temporarily de-registered, and at tracking student progression. Also, although students within a given HEI have a unique number, they normally have a different number assigned when temporarily registered in another HEI for a credit bearing module, leading to multiple ID numbers when HEIs cooperate in providing supports. They favour introduction by the HEA of a unique student numbering system that would also facilitate transfers and more accurate estimates of completion rates.

- They also favour and would like more pre-graduation surveys and better tracking of graduate careers.

Across the IoTs, there is clearly a lot of diversity with respect to administrative and other supports related to research degree programmes, the research students and their supervisors. The main needs and issues brought to the Panel's attention included the following:

- In committing to research and research degrees, an IoT embarks on a transition that involves a clash of work practices and even cultures. Research-active staff find themselves with a timetable and workload appropriate to a teaching-only institution combined with commitments appropriate to a research-led third level college. Although research is identified as one of the contractual duties of academic staff in IoTs, active researchers are aware that it is not seen as an integral activity in agreements, documents or procedures. Supervisors, who should be research active before taking on supervision, may be so constrained that they can only do research by having research students. In some cases, research income allows the buying out of teaching hours.
- Sabbatical leave is not available and research activity does not improve chances of promotion, with 'senior lecturer' being the highest grade. The opinion was also expressed that lack of a professorship grade can inhibit nomination as a principal investigator (PI) when research funding is being sought.
- IoT supervisors would like to participate in a joint forum for IoTs and universities dedicated to the sharing of best supervisory practice.
- Access to laboratories in evenings and at weekends is difficult in some IoTs, and the defined summer holiday period can also present limitations.
- With respect to the monitoring of student progress and making definitive decisions on progression or exit, decision points can be too late (> 18-24 months may be too late for PhD students). Independent systems are needed to provide advice and help for research students who have grievances or experience personal difficulties.

3.2.3 Governance and Quality Assurance in the HEIs

Governance

Especially since 2007, the universities have appointed deans of graduate studies and established graduate schools to manage and assure the quality of research degree programmes, and to support four-year structured PhD programmes that include generic skills training components. Graduate schools and deans (or their equivalents) also provide or coordinate centralised services to support the administration of research programmes, organise admissions, induct new students and provide general skills training. Information on these matters is generally clear and publically accessible via university websites.

Most IoTs have a number of high-level committees, with names such as Doctoral Programme Panel, Graduate Research School Board, Directorate of Creativity, Innovation and Research, Postgraduate Research Advisory Board and Research Postgraduate Enrolment Group. The term 'graduate school', as an administrative structure to manage research degrees, is used in a few cases. As with the universities, descriptions of the roles and levels of participation of students in decision-making processes related to the planning and implementation of research degree programmes is noticeably absent from the documents supplied. Across all HEIs, research students appear to have few effective opportunities to influence the development and revision of policies and procedures affecting research degree programmes.

Quality Assurance Guidelines

Where university guidelines are strongest, they focus on the mechanisms of research management, and seek to ensure protection of general standards, both academic and management, and to define expectations for the roles and responsibilities of supervisors, supervisory teams/boards, examiners and doctoral candidates. Where they are weakest is in addressing the assessment of minimum or threshold parameters required for research degree projects, and the expected supporting research environments. There is insufficient information available to inform research students of what they need to achieve to graduate and have successful careers. For example, there are few references to the descriptors provided in the NFQ for Masters and Doctoral Degrees, or to the IUA's 'PhD Graduates' Skills statements.

For the IoTs also, the supplied documents provide little information regarding the standards or quality assurance of research studies. However, there is much that is implicit to suggest a real concern to protect academic and administrative standards. Throughout, and in general, expectations of supervisors, supervisory teams/boards, examiners and doctoral candidates are clearly defined.

Documentation provided by both the IoTs and the universities did not extend to information on the collection and collation of data on doctoral candidate completion rates and times, research outputs, or societal impacts, although some of these may be recorded in the normal course of academic and research management and reporting. There was also little evidence of processes that effectively capture the concerns of current candidates as well as exit interviews and/or surveys of graduates to help inform process enhancement.

Throughout the HEI sector, more processes may be necessary to effectively capture the concerns of current students and recent graduates to inform process enhancement. It was noted that one IoT describes how it includes postgraduate satisfaction and exit surveys as part of its quality control mechanism for research degree programmes. The Panel sees this as an example of effective practice.

The Panel is of the opinion that quality assurance should be seen as integral to the governance of research degree programmes and their associated policies and procedures and, therefore, should be evident in the standard accounts of research degree programmes that are easily accessible to students and other stakeholders. This is most easily achieved by means of a comprehensive central repository, or a well-designed set of web pages, reproduced in a single booklet, with dates of last revision clearly displayed. A designated officer should be explicitly responsible for their revision and updating.

3.3 Managing Research Degree Programmes

3.3.1 Practices in the Selection, Admission and Induction of Students

Prospective university applicants should have access to adequate information on the university websites and/or in brochures to inform them of research opportunities, the application process, and supports for researchers including locating accommodation, travel, visa requirements etc. Minimum entry requirements for students coming onto research degree programmes are defined, including provision for non-standard entry; at least one university has a specific policy to deal with Recognition of Prior Learning (RPL).

All seven universities have more or less complete sets of guidelines describing procedures for research degree programmes. They address all the main issues, including student recruitment, selection, supervision, monitoring progress, regulations for deferral, exams, etc. However, within the same institution, formats, levels of detail etc. were sometimes quite different from document to document. This may reflect a lack of central control that ensures consistency and regular updating.

Having one set of guidelines presented in a single user-friendly document would, in the Panel's view, correspond to current effective practice.

From the IoT documentation available to them, potential research degree students have access to sufficient information on programmes available, the application process, fees and other administrative requirements.

Most IoTs detail how, in order to qualify for entry to the 'master's register', an applicant is normally required to possess an honours bachelor degree (NFQ Level 8) with a performance equivalent to at least a second class honours in a relevant field of study from a recognised degree-awarding institution. In many cases, direct registration for doctoral degrees is not possible, and candidates register for a Masters or PhD-track programme, with a robust procedure described for transfer from the Masters to PhD register. The Panel sees this as an example of effective practice.

As regards the admissions process, there are notable differences among IoTs in terms of the relevant decision-makers. In some cases, the decision is made by an independent expert assessor, potential supervisors or a panel. While preserving adequate oversight and with due regard to the requirements of funders, much greater harmonisation of admission and progression procedures across all HEIs would promote clarity and understanding for applicants.

Induction practices differ considerably in scope and duration across the HEIs, and in some cases are described quite vaguely. However, there are examples of substantial induction programmes that combine guidance and information relevant to all research students with significant discipline-relevant elements. In the Panel's view, this would correspond to effective practice.

3.3.2 Generic Skills Training and Career Preparation

Early models of generic skills training provision by groups of HEIs that were initially supported by nationally funded schemes, still exist to some extent, but are now typically supported by core resources and budgets. Policy statements from the universities on 'structured' PhDs, make strong provision for the rounded development of the doctoral candidate through generic and professional development modules addressing domain specific and transferable skills. However, while the documents from most universities refer to internal suites of modules available for the doctoral candidates to select from, references to mobility, sharing of modules and appropriate credit transfer systems are less frequent.

Nonetheless, a reading of university documentation on PhD provision reveals requirements to achieve a minimum of 15 ECTS in one programme up to a maximum of 90 ECTS in others; most require achievement of a minimum of 30 ECTS. Such wide variation could indicate a lack of differentiation between generic skills training and courses that compensate for gaps in the earlier academic preparation of individual students.

While it is commonly the case in the universities that research degree candidates are required to undertake some teaching/tutor/demonstrating activity in relevant discipline areas, such matters, including requirements for suitable pedagogic training, are not given significant attention in the documentation they supplied.

Most IoTs describe a programme of structured training for doctoral candidates in line with recent national developments and expectations in this regard. In some IoTs, what appear to be very large ECTS totals are required, greatly in excess of 30, which seems closer to the norms applied in other HEIs. Several IoTs make reference to students completing a research and professional development plan, with some presenting examples of how this can be done. In the Panel's view, this corresponds to effective practice.

Taking all of the HEIs, the ethics of research and professional integrity are well addressed in the documentation from some, but not mentioned by others, at least not in the documents submitted for review. This area includes issues of which all research students should be highly aware - including avoiding research misconduct, plagiarism, respect for legislation and conventions concerning data collection, storage and management, clarity of and respect for authorship, intellectual property rights, the roles of ethical approval committees and what constitute good professional standards in relevant areas.

In general, not many of the sets of documents from the HEIs examined described support for research degree graduates seeking employment, within or outside academia. Neither is there evidence of personalised career development advice being available. Perhaps these details are found in material other than that reviewed. However, some HEIs make specific reference to future careers in detailing their training programmes. From the comments of the students met by the Panel, it seems clear that provisions for career preparation may not be generally adequate.

3.3.3 Advice and Complaints Procedures

Generally, HEIs see the provision of advice to registered research students as the responsibility of the persons more or less directly involved: the primary and other supervisors, heads of department or discipline and relevant deans. Information with respect to complaint or grievance procedures is often not easy to find in the documentation supplied. In other cases, including at least three IoTs, handbooks have specific sections giving guidance on the importance of informal resolutions and on more formal paths to general procedures available to all students or, in at least one institution, to the possibility of a specifically constituted panel charged with finding a solution. If restricted to serious or intractable issues, the Panel sees this option as an example of effective practice.

However, at least one HEI has a dedicated service charged with advising postgraduate students and initially dealing with complaints. The Panel was told that this service is appreciated greatly by research students, but its existence was not evident in the documents supplied. In practice, it is easy to find it online and the site includes detailed practical advice. The Panel sees this service as an example of effective practice.

3.4 Monitoring and Assessment

3.4.1 Practices in Monitoring Progress

The monitoring of students' progress as they develop or validate methodology or approaches, and embark on investigations or explorations, has both informal and formal aspects. Formal monitoring may take the form of periodic reviews attended by all supervisors and others directly responsible. Generally, in the university documentation, these aspects of doctoral provision are very well addressed. There are references to regular meetings between supervisors and candidates to review progress, plan next steps, and to record any difficulties and proposed solutions. However, procedures in some cases are not clearly adequate as there are no explicit references to the recording of minutes of formal meetings, where substantial issues can arise. In the Panel's discussions with supervisors, there was general agreement that when progress monitoring and consequent decision making (progression or not) are effective, the outcomes of final examinations are almost always positive.

In most IoTs, it seems clear that the progress of the students' research work is monitored on a regular basis. The monitoring of progression is mainly done annually or bi-annually and is normally considered a formal and mandatory requirement. The guidelines from one IoT state explicitly that annual permission to renew registration is only given based on evidence of satisfactory progress and include a related student appeal procedure. In most cases, a review panel decides on the student's

progress, however, the composition of the review panel varies across institutes. What is less clear from the documentation is how the monitoring system assists institutes in identifying problematic cases and taking corrective actions.

3.4.2 Assessment of Research Degree Candidates

Both the university and IoT guidelines adequately cover the formats of thesis submissions. Some provide details on alternate formats, notably with respect to the 'PhD by publication'. All provide protocols on the appointment of examiners, their eligibility, and the roles and responsibilities they are expected to fulfil. Both internal and external examiners are always used. Examiners have proven expertise in the field and particular interest in the relevant research topic, as well as experience of the type of degree to be awarded. Examiners are often academic researchers from overseas universities, sometimes from another Irish university or IoT, or, if relevant and sufficiently experienced and qualified, from an industrial or other professional environment. Examiners in some institutions are required to submit separate, independent reports after evaluating the candidate's thesis (which are exchanged immediately prior to the viva voce examination), and a joint report is always prepared following the viva.

Few IoTs make reference to publication requirements as standards for master or Doctoral Degrees, other than generic statements that it is expected that the research leading to a doctoral degree must make a significant contribution to original knowledge in the field. Examination expectations are generally couched in terms referring to NFQ levels 9 and 10. The lengths of theses are not defined in many IoTs, but where they are defined, upper limits are 80,000 to 100,000 words for a PhD and 30,000 for a Masters.

In all the HEIs, theses are defended by the candidates at a private oral viva voce examination. At least two examiners, one internal and one external, examine the candidate's research. The appointment of examiners is clearly defined for most HEIs, with particular attention being paid to the independence of the external examiner. In general, reasonable statements about potential conflicts of interest of examiners are included. In most cases, the scenario where the candidate is a member of staff of the institution is recognised explicitly in terms of the need for different criteria for the appointment of examiners (e.g. the avoidance of internal examiners).

The viva voce examination in IoTs is, in almost every case, described in considerable detail, with a maximum length of three hours being noted in several cases. A further almost universal feature of the PhD examination process in the IoTs (as well as in some universities) is a requirement for the presence of an independent chair to oversee and guide the process, but not participate directly in the examination or in the final decision. In cases where QQI and not the IoT itself is the awarding body, it is made clear that the examiners complete a QQI examination form.

Most HEIs list the possible outcomes from the assessment of a research degree candidate. Clarity in this respect is important, as is clarity with respect to subsequent actions or options arising from each of the primary outcomes.

3.4.3 Appeal Mechanisms

In all HEIs, appeals processes are available to candidates who are not satisfied with the outcome of the final assessment or examination of their theses and of their defence.

3.5 The Views of Research Students and Graduates

In recognition of the importance of students' experiences of research degree programmes, the Panel met with a combination of 27 students and graduates, in two groups. Both groups included students and graduates from the institutes of technology (15 total) and from the universities and RCSI (12 representatives altogether). There was much they were happy about – and indeed proud of – regarding how their institution administers (or administered) their programme and supports (or supported) their projects. In many institutions, new practices and procedures have been introduced or old ones improved, sometimes in response to student feedback or pressure. Nevertheless, they raised the following matters, some of which may have widespread relevance:

- Induction in some cases was extensive and very good, or had been recently improved, and may consist of general activities combined with area or discipline specific activities. However, in some institutions induction can be nominal or inadequate and poor with respect to advice on student-supervisor relations.
- Most of the students and recent graduates that the Panel met were either satisfied or very satisfied with the quality of the supervision they have or had, but single supervision (up to 50% had just one supervisor) was sometimes problematic. They favoured shared supervision and decision making but there were also complaints about how well or how fairly supervisory panels operate, about lack of clarity on individual roles when there are multiple supervisors, and about supervisors with too many students. All of the students met were aware of individual discontent with supervision among circles of friends, even resulting in movement to another HEI, and felt the need for, or valued the existence of, a dedicated, independent, objective complaints process.
- Student progress monitoring was routine in many institutions and was seen as fair and effective by many. A variety of procedures are used, described by different terms. However, there were some reservations related to how panels take supervisor performance into account when assessing student progress, and on the adequacy or pertinence of feedback from monitoring procedures.
- In IoTs where students act as substitute teachers for their supervisors (two hours per week), it can be an enjoyable and valuable experience. However, if not in an area close to their expertise, this can be overly onerous and time-consuming.
- Where in place, generic skills training is much appreciated in general, however some generic skills modules were considered to be irrelevant from the perspective of students.
- Although research students feel much better represented in some institutions than in others, in general, they were of the opinion that undergraduate students are more strongly represented and their voices more clearly heard than research students.
- Electronic access to journals is dramatically more limited in IoTs than in the universities.
- Access to laboratories etc. in evenings and weekends can be limited, especially in some IoTs.
- Most of the students were anxious about their future careers. Some had expectations of careers in academia that they found out to be unrealistic as they progressed. Some felt that they should have been made aware of the difficulties of eventually getting a third-level academic position before undertaking a research degree. An example was cited whereby in one institution, the students themselves initiated and organised a conference, with invitees from companies, to show what they were doing.
- There was a general opinion among the students who the Panel met, that there should be more cooperation and pooling of resources between institutions.

4. EXTERNAL STAKEHOLDERS

In order to capture a balanced perspective from all those operating within, impacting upon, or depending on research degree programmes, the Panel recognises the importance of having inputs from a broad representation of external stakeholders. Although not all stakeholders identified by the Panel were available to meet on the set dates, feedback was obtained from representatives of others at later times, in person or by other means. Employers of research degree graduates are key stakeholders but they are a particularly diverse group. Companies and businesses may come to mind first, but the views of most of the bodies the Panel received feedback from are also relevant in this respect as they too are employers of research degree graduates.

The Panel met in person with representatives of the Department of Education and Skills and the Department of Jobs, Enterprise and Innovation; the Higher Education Authority (HEA); the Irish Research Council (IRC); Science Foundation Ireland (SFI); the Health Research Board (HRB); Teagasc (the Irish Agriculture and Food Development Authority); the Irish Business and Employers' Confederation (IBEC); Astellas Ireland (a Japanese multinational pharmaceutical company); and Enterprise Ireland (Appendix 4).

The document *Ireland's Research and Development Funders* (SFI, 2015) presented a clear overview of relative financial importance of the bodies by which state funding is delivered to HEIs and others in support of research, of which differing portions directly support research students and their projects. The organisations listed include all of the public bodies considered below indicating the ad hoc nature of the headings under which they are considered.

4.1 National Policy Makers

4.1.1 Departments of Education and Skills (DES), and Jobs, Enterprise and Innovation (DJEI)

The Panel met with representatives from each department. Both departments are clearly actively interested in research degree policies and guidelines and both play key roles in research degree provision; the DES via the HEA as the policy maker and funder for all public higher education, and the DJEI as a funder via Science Foundation Ireland (SFI) and Enterprise Ireland, and as a driver of research and innovation in support of job creation.

The Government launched *Innovation 2020 - Ireland's Strategy for Research and Development: Science and Technology* in early December 2015. This strategy recognises the importance of research degrees and the upskilling of new and present employees, and hence the competitiveness of indigenous companies. Facilitating more interdisciplinary doctoral degrees is also considered as a priority for the future. In particular, DJEI see masters research projects as providing starting points for small and medium-sized companies initiating research and development and being of equal significance in such contexts as doctoral projects. The DJEI also emphasised that *Innovation 2020* recognises the importance of research degrees for attracting foreign-owned multinationals and facilitating their progression to higher value-added activities.

The DES is supportive of a reorganisation of the HE sector through the formation and consolidation of clusters of HEIs (including both IoTs and universities). They favour an evolution of policies to support strengths in the system, including capacities in the provision of research degrees up to Level 10, and view this as a critical matter in future research provision. The DES is also mindful of the great importance of diverse missions among the HEIs, and of the infrastructure required (including academic staff work contracts) to support robust research environments. It was acknowledged that

all HEIs now define strategic goals with respect to research and development through 'compacts[6]' and by means of strategic dialogues with the HEA. Both the DES and the DJEI agreed there was a need to protect the research brand for research degrees in Ireland while maintaining expectations with respect to graduate numbers, for which they see the comprehensive and effective quality assurance of research degree programmes in all HEIs as a precondition.

4.1.2 Higher Education Authority (HEA)

The HEA is the statutory body which advises the Minister for Education and Skills and the Government on higher education policy. It is also the funding body for the universities, institutes of technology and a number of other institutions. Its objectives include the enhancement of teaching and learning, the promotion of equity of access to higher education, the enhancement of institutions' responsiveness to the needs of wider society, research capacity-building, and the internationalisation of Irish higher education.

The Panel met three senior managers from the HEA at two separate meetings. The Panel was informed that the HEA strongly supports the National Framework for Doctoral Education and sees the planned Code on quality assurance as necessary to guide consistent practice across the whole system. The Panel also learned that HEA objectives in future will be focused on the quality of research graduates, including the quality of research environments, as well as on quantity, with a view to even greater future success ultimately in developing Ireland's public research system and in winning international research funding. Furthermore, the HEA sees research Master Degrees as being an important component in the achievement of national strategy. The HEA recognises that state funding to support HEIs has fallen significantly and is working to closely with the DES and other stakeholders, including the institutions themselves, to improve the institutional financial sustainability.

4.2 Funders of Research Students

4.2.1 Irish Research Council (IRC)

The Council, which has an annual budget of >€30m and funds "excellent research" within and between all disciplines, is the most important provider of direct support to research degree students in the State, making >250 new awards in 2014. The IRC also has a national policy advisory role on postgraduate education and research. Grants are made solely by means of international peer review and on the basis of the 'quality of proposals'. Aspects related to the preparedness of the student applicant, the track record of the proposed supervisor, the research environment(s) and collaborations, are graded by the independent reviewers in the context of the whole application. Members of the Expert Panel, by means of an interview with the Director and an Assistant Director of the Council, identified the following matters and issues:

- Applicants choose the length of the project to be funded and some disciplines, such as Law, still see the three-year PhD as the norm. The IRC does not insist that research degree programmes be 'structured' with respect to shared supervision and systematic monitoring, or that generic skill training be included. However, it definitely favours these and sees them becoming the norm.
- A few practice-based research degree applicants in the fine arts and cognate fields are funded each year.
- The Council values research Masters programmes, would like to support more of them, and all their funding schemes will accept applications for two-year funding. For example, Masters programmes suit SMEs participating in their Employment-based Graduate Scheme. However, they do not have Masters-only schemes.

6. The compact provides a strategic framework for the relationship between the Higher Education Authority each higher education institution. It sets out how the higher education institutions' mission and goals align with national goals for higher education. Further information is available at: http://www.hea.ie/en/policy/national-strategy/cycle-1-strategic-dialogue

- Although all funded scholars and supervisors make annual and final reports, these are difficult to analyse so as to draw general conclusions, so they are presently moving to online reporting systems that support data analysis. A multi-year follow-up survey of past graduates carried out last year (~30% response rate) proved very difficult to analyse, but it clearly showed that a large number of respondents were then employed at high levels in academic institutions.
- Students funded by the IRC find the variety of registration protocols for PhD students, used by HEIs, to be confusing; for example, (i) all registered for Masters Degree then promoted to PhD if progress is satisfactory, (ii) Master-PhD track with an assessment of progress leading to PhD, or continued MSc, registration or, (iii) PhD registration from start but demotion a possibility.
- They recognise the importance of supplementary academic courses (not generic skills training) for students in some research areas doing specific projects. For example, some industrial partners hosting research students would like their students to have more opportunities to widen knowledge and perspectives. They find that the Irish HE sector itself is opposed to any formal requirements for general academic topping-up (US-style course requirements).

4.2.2 Science Foundation Ireland (SFI)

The Panel met with one representative of SFI, which is by far the largest funding agency for research in Ireland. Their awards can be for up to €2.5m over six years, or up to €15m and more for thematic research centres that usually have multiple partners. They have no schemes to fund individual research students, but their grants are used to support many research students, normally for four years. Students may be registered initially at Masters level but most transfer to PhD registers if the funding period suits. Progress reports require information on the quantity and quality of training opportunities being afforded to research students.

- In evaluating smaller awards, SFI favours generic skills training opportunities and a broad experience for research students but does not mandate these. They support the opinion that three-year PhDs do not allow enough time for everything that is needed for rounded graduates.
- They track the first and second destinations of graduates annually, by means of addresses supplied by the awardees, and are in the process of analysing the data collected to date and will publish a report in 2016.
- SFI envisages the projected 'Code of Practice' as helping to accelerate improvement in standards in:
  - How HEIs support research degree provision, for example, there is often insufficient clarity as to who does what.
  - Student training centred on competency in conducting research, broader experiences and specific skills such as the maintenance of laboratory records and notebooks.
  - Supervisor competence.
- In the near future, SFI sees a need for less emphasis on numbers of graduates and more on diversification of PhD training programmes. They want more bespoke schemes that may be analogous to their 12-month Technology Integrated Development Awards.

4.2.3 Health Research Board (HRB)

The Panel met two representatives of the HRB, which funds PhD studentships in a number of ways. Starting in 2007, they were pioneers in supporting four-year explicitly structured PhD programmes in specific areas in two universities and in the RCSI. However, when partnering with the Welcome Foundation to offer support to individual PhD students, funding is limited to three years. They also fund specialised research initiatives that can be used by the awardees to fund research Masters students.

They raised the following matters, concerns and issues:

- The HRB favours four-year funding for candidates undertaking structured PhDs and wishes to do this consistently, but presently can be constrained to three years when a programme involves an external partner.
- They also favour formal memoranda of understanding (MOUs) with funded HEIs, including sets of HEIs, but these are not easy to achieve.
- They support the National Doctoral Framework but see significant disparity between its principles and requirements and much of current practice in HEIs. Research funding agencies can only do so much; there is an urgent need for national or coordinated training programmes and infrastructure to support supervisors and students.
- The HRB finds that some supervisors are of the opinion that systematic generic skills training for PhD students is not important.

4.3 Partners

The four organisations listed below are included here because, on a small or large scale, they host and provide research facilities to research students undertaking Masters and Doctoral Degrees. This is by no means a complete list but these four are largely representative of partners working with a number of HEIs; the research students located in multiple Teagasc centres are easily the most numerous.

These bodies may be regarded as partners to HEIs in the provision of research degree programmes because, normally, the supported students are jointly supervised by researchers in the external body and members of academic staff in the HEIs where they are registered. These bodies may also be seen as 'funders', as most, if not all, also fund other research projects and students, who are accommodated for all or much of their projects in their home HEIs.

4.3.1 Dublin Institute of Advanced Studies

The Dublin Institute for Advanced Studies (DIAS) has three constituent Schools, viz. Celtic Studies, Theoretical Physics and Cosmic Physics. DIAS is not a teaching institution; it does not provide set courses of lectures and has no power to award degrees. A defined function of each school is the training of advanced students in methods of original research and the Institute funds both Masters and PhD students. These students or scholars pursue a definite line of research under the direction of one of the Senior Professors of the Institute and are required to be in full-time attendance in the Schools.

Over the last ten years, DIAS funded 59 research Masters and Doctoral Degree students, of these 42 completed their projects, prepared theses and graduated; 13 are presently active; and 4 left without completing their projects. These students were/are registered at DCU, UCD, NUIG, Maynooth University and TCD.

4.3.2 Marine Institute

The Marine Institute promotes the sustainable development of Ireland's marine resources and co-ordinates national research strategy, and as such it invests between €8m and €10m in research each year across fisheries and aquaculture, marine environment, oceanography and modelling, seabed mapping, seafood safety and catchment science. The Institute co-funds strategic marine research with other funding agencies, with European Research Area networks and Joint Programming Initiatives.

Marine research supported by the Institute is carried out in 13 Irish HEIs (seven universities and six institutes of technology) across the full spectrum of its themes.

Ireland has an active marine research community supported by a growing marine research infrastructure. Ireland's marine research sector secured over €71m in EU grant-aid funding through competitive calls from 2007 to 2013. Over the same period, Marine Institute competitive research awards supported 264 researchers, of which 72 were postgraduate students. The others were career researchers, including 5 principal investigators.

4.3.3 Royal Irish Academy (RIA)

The RIA is an all-island (Northern Ireland as well as the Republic of Ireland) independent forum of peer-elected experts. The Academy supports scholarship and promotes awareness of how science and the humanities enrich lives and benefit society.

The Academy leads important national research projects, particularly in areas relating to Ireland and its heritage, and funded 40 research projects in 2015. Some small research supports are available to students working in Irish universities, through a number of external grants schemes. Awards are made on the basis of excellence in fundamental research across all disciplinary areas.

4.3.4 Teagasc

The Panel met with one representative from Teagasc, the agriculture and food development authority in Ireland. The Authority's mission is to support science-based innovation in the agri-food sector and the broader bio-economy that will underpin profitability, competitiveness and sustainability. Of all the institutes that provide accommodation, resources, joint supervision and sometimes scholarships to research Masters and Doctoral students registered at HEIs (in Ireland but sometimes abroad), Teagasc is the most significant in terms of scale.

Teagasc has seven geographically scattered research centres and funds two-year MSc and four-year PhD studentships by means of the Walsh Fellowship Scheme. At any one time, more than 200 Walsh fellows (research students) are supported by a budget of about €5 million per annum. Training is available to the in-house supervisors who initiate projects and identify a co-supervisor with suitable expertise and who is a permanent member of academic staff in a HEI, usually reasonably nearby. The HEIs participating to the greatest extent are UCC and UCD. External evaluations of the Walsh Fellowship scheme were carried out in 2004 and 2014.

4.3.5 General Comments

The Panel identified the following issues concerning the participation of external partners in research degree programmes. To greater or lesser extents, they may also apply to joint research projects with industry and public bodies.

There are clear, and often huge, benefits to students being based for a significant proportion of their time in a non-academic environment and with facilities closely related to their projects. However, some research students, who are located full-time or for prolonged periods with a research partner, may fail to benefit fully from the broader intellectual environment of a HEI campus. For example, they may miss out on opportunities to contribute as demonstrators and/or tutors to teaching in the HEIs at which they are registered. At the management level, the engagement of external partners with HEIs could benefit from more opportunities for interactions, including regular scheduled meetings between partner representatives and relevant directors/deans/heads in cooperating HEIs to discuss student progress and welfare in general, and possibilities for greater effectiveness.

4.4 Employers

The employer representatives and employer, that the Panel met, expressed general satisfaction with the value brought to business by research degree graduates. In research areas, PhD graduates are often preferred because they become independent more quickly and are often self-starters with respect to technical aspects. Small and medium-sized industries often prefer Masters graduates. However, the focus of the discussion was on opportunities for improvement:

- Overall, greater multi-disciplinarity and awareness of business realities and practices by research degree graduates would be very useful. The oral and written communication skills of even some doctoral graduates can be weak and their general focus too narrow; employers like well-rounded employees at that level. These capacities can be very important because a research graduate may be hired with a view to her/his contribution to the 'up-skilling' or enhancement of a small company.
- Some HEI-industry collaborative projects are seen as being highly successful, but companies need more and better connections with HEIs. They see HEIs as potentially much more useful 'meeting places' than they are at present.
- Investment in non-EU PhD graduates from Irish HEIs is sometimes lost unnecessarily; they have to return home because of visa difficulties.

5. OVERVIEW OF IRISH SYSTEMS AND PRACTICES

With respect to the provision of research degree programmes, Irish HEIs are diverse, and need to be in order to support the realisation of national goals and aspirations. These goals and aspirations are varied, but many relate to consolidating and expanding high standards of social wellbeing, production and innovation in an increasingly knowledge-based society that is located in an open economy. However, some aspects of the present diversity are sub-optimal because, while the universities are relatively well equipped (if less so in many respects than ten years ago) to achieve their missions with respect to research degree programmes, the IoTs are hampered by a range of restrictions that are cultural as well as operational and financial. IoTs with visions that are appropriate to their contexts and potential capacities have much to offer with respect to research partnerships with businesses and industries in their localities and further afield. Much of this cooperation can take the form of projects suited to Masters and PhD level degree programmes. For smaller companies embarking on, or expanding, research and development, this is often at the Masters level.

Overall, the Expert Panel is impressed by how research degree programmes in Ireland have evolved over the last decade. The progress made is particularly striking given the fact that the associated reforms and improvements were implemented during a time of significant reductions in state funding for higher education. The key comments of the Expert Panel can be summarised as follows:

- *Irish HEIs are following international good practice.*
- *The Irish research environment is attractive for research studies.*
- *Good supervision is key for research studies.*
- *The importance of research degree programmes is growing.*
- *Effective practice must be shared and deficiencies addressed.*
- *There is a very strong commitment to quality management.*

Irish HEIs are following international good practice.

These developments in Ireland took place in line with changing good practice internationally. There are many examples of effective practice at international-standard but there is still much to do. To paraphrase William Gibson: 'Good practice in the quality assessment of research degree programmes in Irish HEIs is already here - it's just not evenly distributed.'[7]

The Irish research environment is attractive for research studies.

In terms of international standards of research, there are many examples of vibrant creative and research environments throughout Ireland. Nationally, performance and practice in many of the creative arts, such as writing, theatre, film and music, much of which is associated with HEIs and their graduates, is admired widely. Overall, many discipline areas in the arts and humanities in HEIs are highly ranked internationally and contribute significantly and positively to Irish higher education institution rankings (Annual Report, 2014, Irish Research Council).

> For scientific excellence, as measured by citation rankings, Ireland has moved from 36th place [internationally] in 2003 to 16th in 2014 with higher rankings in specific fields – 1st in nanoscience, 2nd in immunology and computer science, 3rd in animal and dairy and 5th in material science (*Ireland's Research and Development Funders*, Chief Scientific Adviser to the Government of Ireland, 2015).

7. "The future is already here — it's just not very evenly distributed." Stated by William Gibson during a broadcast, The Science in Science Fiction on Talk of the Nation, NPR (30 November 1999, Timecode 11:55), listen at http://www.npr.org/templates/story/story.php?storyId=1067220

Irish HEIs have done exceptionally well in winning research funds in the EU's Horizon 2020 programme. Four Irish universities are among the 50 top performing HEI 'host' applicants, making Ireland fifth in this respect, ahead of many countries with much greater populations and resources[8].

Often, closer to application or in the development phase, and in cooperation with local industry, there are also many innovative 'research centres of scale' located across HEIs nationally and supported by DJEI (*Directory of Innovation, Research and Technology Centres*, DJEI, 2016).

With these international levels of excellence and supports in many discipline areas in the HEIs, it may be safe to assume that many research students in Ireland benefit from working in the associated stimulating intellectual and research environments. However, without definitions and formal attention in all HEIs (and by funders) to minimum standards with respect to research environments, there is a risk that some research students may find themselves unnecessarily isolated and unable to achieve their full potential as early researchers.

Good supervision is key for research studies.

The quality and quantity of research outputs in the HEIs is due to the work of many active and productive researchers. Individual HEIs can contain small as well as large and diverse communities of active researchers, some of whom are undoubtedly stimulating and diligent supervisors of research students. As is common internationally, in large, well-organised research groups in Irish HEIs, the detailed guidance of individual students may be delegated to many others with specific expertise and experience, thereby simplifying the technical roles of specific supervisors. In small groups, as was more common in the past and is still the norm in excellent research centres in many areas of scholarship internationally, the relative exclusiveness of the association of the student with an actively-researching-supervisor can be intellectually highly stimulating.

The quality of research supervision is critical, whether in small research groups or large centres. Whatever the research environment, the costs of poor supervisory practice or neglect (including poor supervisor availability, delayed feedback, missed timely interventions and an absence of shared decision making) can be very high in personal terms for individual students. For a HEI with large numbers of research students, deficiencies in the quality and quality assessment of research supervision may have very important accumulated effects. As the Panel learned from students, recent graduates and supervisors from Irish HEIs, some supervisors and relevant staff may tolerate or exercise poor practice, and be resistant to change or to participating in training. Therefore, research supervision in itself (including shared supervision with distinct roles) should always be seen as a professional competence, requiring training and on-going sharing of experiences with peers.

Final assessment or examination procedures are well documented in the HEIs and appear to correspond in general terms with international good practice.

The importance of research degree programmes is growing.

In terms of the governance and management of research degree programmes, the universities, with many decades of practice and experience behind them have, in general, the most complete systems, practices and experience. The IoTs, having shorter histories of research activity and more limited general resources, have, on the whole, invested much time and effort in developing and supporting research degree programmes. All HEIs recognise the need for continuous improvement. Both IoTs and universities clearly give attention to the monitoring of student progress, although some concern was expressed to the Panel that decisions on student progression may sometimes be taken too late during their programmes. In terms of managing both Doctoral and Masters research degree programmes,

8. University World News, 30 October 2015, Issue No:388, http://www.universityworldnews.com/article.php?story=20151029192346710#.VjZFpEPuk5l.facebook

some IoTs may just be trying to do too much on their own, with too restricted resources, combined with the serious constraints that apply to the whole IoT sector.

Effective practice must be shared and deficiencies addressed.

Overall, there are many aspects of both good practice as well as gaps in documentation and practice in the institutions. Specific examples of *effective practice* include:

- Documentation on research degree programmes that is combined in a single clear and accessible document available online and in print form;
- Combinations of substantial, general and discipline-specific induction processes;
- Personal development and training plans for research students;
- Formal generic skills training opportunities shared across institutions;
- Supervisor training/licence-to-supervise procedures;
- Multi-supervisor/mentor arrangements;
- Independent fora for advice and complaints for postgraduate students;
- Systematic monitoring of student progress; and
- Detailed guidance on examiner appointments and examination procedures.

However, deficiencies or *gaps* in effective practice are also evident. Many of these deficiencies – the persistence of sole supervision and the absence of an effective complaints forum are two important examples – represent mirror images of the effective practices listed above, but in some cases, such gaps may be combined with deficiencies in general institutional arrangements or a culture that has permitted resistance to change. Moreover, there are insufficient capacities and resources for all individual HEIs (even allowing for planned IoT-university and IoT-IoT partnerships) to support the development and regular updating of large numbers of independently developed and refined documentation and procedures. Deficiencies that apply in general to the documentation may sometimes mean that applicant students may not be as aware as they should be, of all aspects of the examination process, in particular appeals procedures (or complaints procedures earlier in their progress).

Comparing documentation from Irish HEIs, and the opinions of stakeholders on actual practices, to the guidelines and reports concerning other countries discussed above is not to compare like with like. Most of the concerns expressed by 'Irish' students, supervisors and others may be just as evident in other jurisdictions; the point is that some of these are incompatible with effective practice and endanger the success and, possibly, the wellbeing of students and supervisors. This situation represents a challenge and an opportunity. The opportunity is to learn from effective practice here and abroad in order to ensure full and effective quality assessment of research degree education in all HEIs.

There is a very strong commitment to quality management.

The Panel saw the commitment of the HEI officers and supervisors and the active interest of other stakeholders as constituting a valuable articulation of, and support for, a national 'robust quality assurance system [to underpin] all doctoral provision [including Masters Research degrees]'. This commitment was underpinned by the balanced and considered views of the research students and recent graduates.

The Panel saw, in the present consultation exercise, another expression of the sentiments of the National Doctoral Framework (2014), which, after a period of serious consideration, was endorsed by all HEIs, funders, government departments and agencies involved in research policy. In essence, this National Framework is a strategic commitment to the long-term maintenance and development of the quality and reputational standing, both nationally and internationally, of Irish research degrees.

6. RECOMMENDATIONS

There are many aspects to research degree programmes, particularly in the Irish context, where at least two sub-systems of higher education must be taken into consideration. It is also clear from the above sections of this Report that, while there are effective practices in all HEIs, there is much room for increased consistency not just across the whole HE sector but also within individual universities and IoTs. Therefore, there are many opportunities for recommendations.

In this context, it is relevant to consider the breadth of the ToR for the work of the Panel in making recommendations. Clearly, the focus of both this Report and the Code of Practice is on the quality assurance of research degree programmes. However, without adequate resources, human and physical, capital and recurring, and appropriate institutional arrangements, research degree programmes that are adequately quality assured are not feasible – particularly over the longer term. Therefore, in addition to preparing the ground for a Code of Practice that will focus on what is required of HEIs, this Report has a wider focus in support of improved conditions than, in the Panel's view, may be essential for the new Code to be fully effective.

The recommendations that follow are intended to enable a single robust quality assurance system for research degrees.

1. Government, public agencies and relevant partners should act to ensure that parity of opportunity and esteem are afforded to all disciplines within research degree education – from the sciences to the arts and humanities, in order to achieve and maintain a balanced mix of highly trained graduates to support cultural and social development, as well as the oft-stated ambitions with respect to innovation and economic development.
2. In recognition of the *present* diversity among Irish HEIs with respect to their capacities to host research degree programmes, Government and the HEA should act to ensure that all HEIs with the authority to operate research degree programmes have the conditions and resources necessary for their continued operation in accordance with the imminent Code of Practice – statutory quality assurance guidelines for research degrees.
3. Bodies funding research studentships should require applicants to provide information on the adequacy of the research environments in which the proposed students will carry out their projects.
4. In recognition that both research Masters and Doctoral Degree programmes are needed to meet the needs of students and society, all funding bodies, institutions and researchers in the HEIs should actively and effectively promote the importance of research master programmes to students who want to move more quickly into employment, and to potential external partners (particularly in SMEs) with relevant and suitable research needs.
5. Funding by all responsible bodies for all research degree programmes, should be standardised to cover time periods that allow for appropriate and adequate training in research skills, generic skills and ethics, and for career preparation as integral parts of these programmes.
6. To support the implementation of the new Code of Practice through cooperation among HEIs in the provision of research degree programmes:
    a. The HEA and QQI should establish the National Advisory Forum for collaboration with a range of stakeholders and HEIs to embed the National Doctoral Framework (2015), and
    b. Together, policy makers and the relevant HEIs should establish a cross-sectoral network of research degree programme providers to share effective practice and enhance consistency in all matters relating to research degrees.
7. The HEA should support the effective management of research degree programmes by all relevant HEIs in the following ways:
    a. Their adoption of institutional information systems suited to research degree programmes and to research student records and associated data.

   b. The development of a tracking system (perhaps with a single student ID that operates across all HEIs) to facilitate monitoring, enhance research student mobility within their programmes and transfers between programmes. Such a system would also facilitate relevant cooperation between HEIs, including the sharing of training opportunities across multiple institutions.
8. QQI should facilitate a sharing of expertise and experience to support HEIs planning for and embarking on partnerships, mergers or strategic alliances, including arrangements for the joint oversight or provision of research degree programmes. Such supports could include workshops and technical sessions with participants from 'successful' coalitions abroad.
9. Policy makers should ensure that there is national agreement on the recognition of prior learning (RPL) with respect to what might constitute adequate preparation for undertaking a research degree, but leaving implementation to the HEIs.
10. Research students should be included in the Irish Survey of Student Engagement.
11. In anticipation of the requirements of the Code of Practice for the Quality Assurance of Research Degree Programmes:
    a. HEIs should recognise the importance and utility of the effective involvement of postgraduate research student representatives in the governance and management of research degree programmes.
    b. There should be an agreement between HEIs on the calculation and assignment of ECTS units for generic skills and related training courses for research degree students, and on normal maxima.
    c. HEIs should differentiate between generic skills training and additional programme requirements related to a new or more focused discipline area. Such requirements should be accredited and limited separately.

7. CONCLUDING REMARKS

In the view of the Expert Panel, general standards for research degree programmes in Irish HEIs are good, and in line with international standards. The research supervisors who came to meet the Panel were enthusiastic and anxious for the consolidation and expansion of reforms already in place. The research students and recent graduates were vocal both in acknowledging what appeared to be widespread satisfaction and in highlighting deficiencies they had encountered. They, and others, expressed a need for the planned Code of Practice which was seen as being necessary to ensure the widespread implementation of the oversights and safeguards necessary to preserve and enhance standards.

Clearly all research degree equivalent qualifications from every Irish HEI in every discipline area should be deserving of the respect given to such degrees from admired international institutions – as they generally are at present. Maintaining, or enhancing, and consolidating standards over the longer term – even as conditions change and numbers of students increase further – is necessary to support novice researchers becoming well rounded, research competent, career-ready graduates who have already generated important findings and insights – and who can contribute substantially to Ireland's future as an economically, socially and culturally vibrant society.

APPENDIX 1:
TERMS OF REFERENCE

Review and Enhancement of Quality Assurance Resources for Research Degree Programmes: Terms of Reference

1. Introduction

The purpose of this document is to specify the Terms of Reference (ToR) for a review and enhancement project to be carried out by Quality and Qualifications Ireland (QQI) on the quality assurance policies, criteria and related guidelines currently in use by HEIs for research degree programmes (RDP) at levels 9 and 10 on the Irish National Framework of Qualifications. The review will comprise one element of the National Doctoral Framework being implemented jointly by the Higher Education Authority (HEA) and QQI in conjunction with the higher education sector.

In collaboration with the sector, QQI will conduct a comprehensive and inclusive review of the existing policies, criteria and guidelines for quality assurance of research degree programmes in use in Irish Higher Education with a view to developing a national Code of Practice for quality assurance of research provision which will have national and international acceptance and understanding.

QQI recognises that research provision at levels 9 and 10 is delivered and quality assured by a variety of HEIs in a range of different contexts. Many HEIs have well developed procedures and, in addition, have adopted international guidelines to suit the particular context in which they operate and which they have found to support effective practice. Any such guidelines should be included in the review so as to ensure that all existing resources which will inform future good practice are identified and can contribute to the Code of Practice.

This will be a collaborative project and recognises that quality assurance in this context is the responsibility of the HEIs. Its success will depend on the involvement and contribution of HEIs and other stakeholders involved in research provision.

This is not a review of research practice itself but, similar to the QQI Review of Reviews[9], is a meta-review, the subject of which is the quality assurance resources supporting research practice.

2. Objectives of the Project

The objectives of this project are as follows:

2.1. To understand the purpose and intended outcomes of the quality assurance of research degree programmes (RDPs).
2.2. To compile a comprehensive directory of resources, in particular guidelines and criteria, for quality assurance of research degree programmes available to and referenced by Irish HEIs in the variety of contexts in which they operate, which they have found to support effective provision in research degree programmes at levels 9 and 10 on the National Framework of Qualifications (NFQ).
2.3. To identify gaps in current policies, criteria and guidelines for the quality assurance of RDPs, taking into account the most recent national and international experience, stakeholder views and the evolving higher education landscape in Ireland.
2.4. To make recommendations for enhancement of current policies, criteria and guidelines for quality assurance of RDPs.
2.5. To establish a national Code of Practice for Irish HEIs in the quality assurance of RDPs.

9. The Review of Reviews report published in 2014 is available at: http://www.qqi.ie/Pages/Other-Reviews.aspx

3. Scope and Structure of the Project

The following is an outline of the staged structure and the scope of this project:

3.1 Phase 1: Panel review of fitness for purpose of existing national policies, criteria and guidelines for QA of Research Degree Programmes

QQI, with the collaboration of HEIs and other stakeholders, will compile a listing of current quality assurance resources i.e. policies, criteria and guidelines, currently in use to support research provision at levels 9 and 10 on the NFQ.

QQI will establish a panel of suitably qualified persons, with national and international recognition in a range of research disciplines and in quality assurance, to evaluate the relevance, currency and comprehensiveness of these resources and to provide recommendations for the development of a Code of Practice for quality assurance of RDPs to incorporate best current national and international practice.

It is critical that the panel appointed to this role has the academic standing necessary for meaningful engagement with the higher education sector and for impactful recommendations. HEIs and other stakeholders will be consulted on the composition of the panel.

All HEIs involved in provision of RDPs and other stakeholders will be asked to contribute and engage with the panel to provide feedback on the effectiveness of current policies and criteria and to provide suggestions for enhancement. It is the intention of QQI to involve a wide a range of stakeholders, to include:

a. Thesis supervisors, researchers, principal investigators and Deans of Research
b. HEI Registrars and Deans of Graduate Studies
c. Doctoral student representatives
d. Other quality assurance practitioners
e. Research funding bodies
f. Advisory committee for the National Doctoral Framework
g. Agencies that influence research policy and criteria
h. Government departments
i. Employers of research graduates
j. Professional bodies
k. International organisations with relevant input e.g. European University Association (EUA)

A range of methodologies will be used to gather stakeholder views, including meetings, focus groups, web consultation etc.

The panel will be requested to focus on specific aspects of the current national quality assurance resources, taking into consideration the national HE landscape, the international and inter-sectoral context of provision and drivers such as the Innovative Training Networks (ITN) funding instrument. i.e.

1. The purpose of QA of RDPs i.e. what it is that quality assurance of RDPs is intended to deliver.
2. Fitness for purpose of existing guidelines, policy and criteria of HEA and former agencies such as Irish Universities Quality Board (IUQB) and the Higher Education and Training Awards Council (HETAC) as well as any other such guidelines in use in the context of existing research practices.
3. Conflicts, if any, between the requirements and criteria of funding and other agencies and the quality assurance criteria for RDPs.
4. International developments and effective practice in quality assurance of RDPs that could be usefully incorporated into national policies and criteria.

Deliverable: QQI will publish a report of the Expert Panel's findings and recommendations.

3.2 Phase 2: Development of Code of Practice for Quality Assurance of Research Degree Programmes

It is intended that the panel review will deliver comprehensive and objective findings on the fitness for purpose of current resources for quality assurance of research programmes and provide recommendations for their enhancement. These findings will be incorporated into a Code of Practice reflecting the contributions of all core stakeholders.

The Code of Practice will:

i. Be consistent with the principles for research education set out in the National Doctoral Framework.
ii. Be of relevance to and accepted by all sectors within Irish higher education QQI, as the national agency with responsibility for quality assurance in education and training, undertakes to develop this Code of Practice in collaboration with the HEIs and other stakeholders and using external independent expertise as appropriate and necessary.

In the development of the future Code of Practice, due cognisance shall be taken of existing good quality assurance practice across Ireland's universities and institutes of technology.

It is intended that the new Code of Practice will form the basis against which QQI, within its remit, will review the quality of research degree programmes in the future. HEIs will have regard to the Code of Practice when developing / amending their procedures for quality assurance.

Deliverable: QQI will publish a Code of Practice for Quality Assurance of Research Degree Programmes

4. The Expert Panel

QQI will appoint a panel of independent experts to carry out the review i.e. Phase 1. The experts will be selected based on their ability to demonstrate current or recent senior level experience in most of the categories outlined below:

- Engagement with effective practice in quality assurance of RDPs at a senior policy level in a national and / or international setting.
- Extensive direct knowledge and experience of RDP quality assurance processes in more than one country.
- Extensive experience of supervision of research degree programmes.
- Extensive experience of assimilating a large amount of disparate information as the basis for making judgments.

A range of research discipline expertise will be sought for the panel.

5. Indicative Schedule

As an established part of the National Doctoral Framework, this QQI initiative will have national significance. The approach to be taken by QQI in facilitating this work will be highly collaborative and the core HE stakeholders will be involved to ensure national ownership and acceptance of the new QA guidelines and Code of Practice for RDPs which emerge.

An indicative schedule for the project is outlined in the table below. It is important that the timelines remain indicative as the panel will be provided the opportunity to determine its own schedule of meetings and methodologies as it deems appropriate.

Stage	Indicative Dates
Phase 1	
Draft Terms of Reference devised	October 2014
Consultation on the draft ToR with HEA, HE representative bodies and other stakeholders	December 2014
Adoption of Terms of Reference by QQI	January 2015
Appointment of Expert Panel	May 2015
Planning Meetings for Expert Panel	2 September 2015
Expert Panel Activity:	
Research (blended methodology)	
Consultation	27 -30 October 2015
Report writing, including consultation	October 2015 – March 2016
Report adopted by QQI	April 2016
Phase 2	
Development of Code of Practice for Research Degree Programmes	March – May 2016
Consultation and further development	June – October 2016
Code of Practice published by QQI	November 2016

QQI will provide full support and guidance to the Expert Panel in carrying out its work.

ToR Appendix A –National Policy and Guidelines for QA of RDP

QQI	Research Degree Programme Policy and Criteria 2013
QQI	Core Validation Policy and Criteria 2013
QQI	NFQ Award Standards 2014
QQI	Policy for Collaborative programmes transnational programmes and Joint Awards 2012
IUA and others	Policy Statement on Ensuring Research Integrity in Ireland
IUA	Irish Universities' PhD Graduates' Skills 2008
DJEI	Putting Public Research to Work for Ireland: Policies and Procedures to help industry make good use of Ireland's public research institutions
Forfás	The Role of PhDs in the Smart Economy December 2009
Forfás	Research Prioritisation Steering Group Report 2012
HEA	Towards a Future Higher Education Landscape 2012
HEA	Towards a Performance Evaluation Framework 2013
IOTI	Sustaining and Growing the Delivery of Strategically Oriented, Impact Focused Research, Development and Innovation in the Institutes of Technology 2013
SFI	Funding Agency Requirements and Guidelines for Managing Research-Generated Intellectual Property 2006
IHEQN	IHEQN Guidelines on Collaborative Provision 2013
IOTI	Technological Universities Quality Framework 2013
IUQB	Good Practice Guide - in the Organisation of PhD Programmes in Irish Higher Education 2009
QQI	Good Practice Guide - For Institutional Research in Irish Higher Education 2009

ToR Appendix B – Other Policy and Guidelines for QA of RDP

ENQA	Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) 2015
European Commission	European Charter for Researchers and Code of Conduct for the Recruitment of Researchers 2005
European Commission	Principles for Innovative Doctoral Training 2011
European University Association	Salzburg Principles: Doctoral Programmes for the European Knowledge Society 2005
European University Association	Salzburg II Recommendations European Universities' since 2005 in implementing the Salzburg Principles 2010
European University Association	Doctoral Programmes in Europe's Universities: Achievements and Challenges 2007
European University Association	EUA DOC-CAREERS Report: Collaborative Doctoral Education 2009
European University Association	Quality Assurance in Doctoral Education – results of the ARDE project 2012
European Science Foundation and ALLEA (European Federation of Academies of Sciences and Humanities)	European Code of Conduct for Research Integrity
QAA	UK Quality Code for Higher Education - Research Degrees

ToR Appendix C – Stakeholders in Irish Research Degree provision

Higher Education Institutions and Representative Bodies

Athlone Institute of Technology
Carlow College*
Coláiste Mhuire Marino
Cork Institute of Technology
Dublin City University
Dublin Institute of Technology
Dun Laoghaire Institute of Art Design and Technology
Dundalk Institute of Technology
Froebel College of Education
Galway-Mayo Institute of Technology
Institute of Technology Blanchardstown
Institute of Technology Carlow
Institute of Technology Sligo
Institute of Technology Tallaght
Institute of Technology Tralee
Letterkenny Institute of Technology
Limerick Institute of Technology
Mary Immaculate College
Mater Dei Institute of Education
National College of Art and Design
National College of Ireland*
National University of Ireland Galway
Maynooth University
Royal College of Surgeons in Ireland
St. Angela's College
St. Patrick's College
Trinity College
University College Cork
University College Dublin
University of Limerick
Waterford Institute of Technology
Irish Universities Association (IUA)
Institutes of Technology Ireland (IoTI)
Union of Students in Ireland

* Research degrees currently awarded by QQI

Agencies with a role in Research

Dublin Institute of Advanced Studies
Enterprise Ireland
Environmental Protection Agency
Forfás
Health Research Board
Industrial Development Authority
Irish Research Council
Royal Irish Academy
Science Foundation Ireland
Sustainable Energy Authority of Ireland
Teagasc
The Marine Institute

Government Departments

Department of Agriculture, Food and the Marine
Department of Communications, Energy and Natural Resources
Department of Education and Skills
Department of Environment, Community and Local Government
Department of Jobs, Enterprise and Innovation
Department of Health

Other significant stakeholders

Irish Business and Employers' Confederation
Health Service Executive

QQI will welcome feedback from any other stakeholder with an interest / role in research education.

APPENDIX 2:
PROFILES OF THE PANEL

Dr Charles Cook
Chairperson

Dr Charles Cook is the former Senior Vice President for University Affairs for Johnson & Wales University (JWU). His portfolio included assisting in strategic planning and strengthening both institution wide governance and quality assurance.

Charles served for 24 years as a Director of the Commission on Institutions of Higher Education, the regional accrediting body for the six New England states. As Director, Charles was responsible for providing leadership to and administering the New England accreditation process. He has been a member of the board of the Council on Postsecondary Accreditation and has served on the Committee on Recognition of the Commission on the Recognition Postsecondary Accreditation, as well as numerous national committees dealing with accreditation and matters related to quality assurance.

Charles is a former Council member of the Higher Education and Training Awards Council (HETAC) and acted as an accreditation evaluator for HETAC. He is a frequent speaker on issues related to institutional quality assurance and accreditation, regionally, nationally and internationally and has been a consultant to the United States Department of Justice.

Prof. Jim Gosling
Secretary

Professor Jim Gosling is the former Director of Quality at the National University of Ireland, Galway (NUIG). During that time, Jim organised 120 evaluations of academic and administrative units and instigated the establishment of the teaching centre (CELT) and the Institutional Research Function as well as coordinating the self-study exercise for the institutional review of NUIG by the European University Association (EUA).

Jim also worked with the Irish Universities Quality Board (IUQB) either leading or being a principle contributor to a number of projects on new national guidelines of quality evaluations for Irish universities, the Administration of PhD Programmes, Institutional Research and the Approval and Monitoring of Study Programmes. Jim has also been a Team Coordinator for IEP reviews and follow-up reviews of universities in Portugal, Turkey, Slovenia, Romania and the Czech Republic and participated fully as an observer in the 1998 ten-year re-accreditation review of the University of Massachusetts at Amherst, USA.

Previously Jim was Head of Department and a contributor to, or a co-founder of, a wide range of Biochemistry programmes and courses for science and medical students. He is the co-author, author or editor of three books, over 40 research and review papers in referenced journals, seventeen chapters in books and 5 proceedings papers. Jim has supervised or co-supervised eleven PhD and ten M.Sc. projects.

Dr Kenneth Carroll

Dr Kenneth Carroll is the Head of Research at the Institute of Technology Tallaght. His responsibilities include strategic development of college R&D activity, the coordination and management of research programmes, and providing supports in the identification and development of competitive research funding applications and international collaborations. He has held leadership roles in a number of large-scale PRTLI-funded programmes, was involved in the developing Structured PhD provision at ITT Dublin of collaborative Structured PhD programmes including the PRTLI-4 funded BioAT (Bioanalysis and Therapeutics) programme, and more recently a joint Structured PhD with Dublin Institute of Technology and Institute of Technology Blanchardstown which will underpin PhD provision for the three colleges as they prepare for merger under the banner of Technological University for Dublin (TU4Dublin).

Previously, Kenneth was the Head of Department of Science at ITT Dublin (2000 - 2008) and in that role managed the development and implementation of numerous taught educational programmes across levels 6 to 9 with particular focus on meeting the skills needs of the healthcare, bio & pharmaceutical sectors. He also has extensive experience in the delivery of course and modules in subject areas such as upstream processing, downstream processing, protein purification, cleanroom management and contamination control.

Other posts included Senior Lecturer in Science (1992 – 2000) and a Senior Postdoctoral Researcher position at BioResearch Ireland at the National Cell & Tissue Culture Centre at Dublin City University (1987 - 1992) in the development and commercialisation of cell culture related products.

Dr Barbara Haering

Dr Barbara Haering has a doctorate in environmental sciences from the Federal Institute of Technology in Zurich, Switzerland and received a honoree doctorate in political science from the University of Lausanne, Switzerland. Barbara chairs the Board of Directors of econcept Inc., a private think tank and consultancy she has been building up over the last twenty years with 35 co-workers based in Zurich specialising in strategic planning, evaluation and project management for public administrations, ministries, universities and research institutions. Barbara is also a lecturer at the University of Lausanne for the MA programme “Public Management and Policies”.

Barbara has been a member of the European Research and Innovation Board (RISE) from 2008 to 2015. Barbara is a member of the boards of the Federal Institutes of Technology (ETH Domain), the University of Geneva, the Technical University of Dresden and of the Swiss Science Foundation. She chairs the Board of Foundation of the Institute for Advanced Studies in Public Administration in Lausanne (IDHEAP) as well as the Council of Foundation of the Geneva International Center for Humanitarian Demining (GICHD). She is also member of the Board of Directors of Ernst Schweizer Metallbau AG. She has been appointed Professor (professuer titulaire) of the University of Lausanne as of August 2016.

Barbara has been a member of the National Parliament of Switzerland from 1990 to 2007. In this capacity she chaired the Committee on Science, Education and Culture as well as the Defense Committee and was Vice-President of the Parliamentary Assembly of the OSCE.

Prof. Alan Kelly

Professor Alan Kelly is a graduate of Dublin City University (BSc Biotechnology, 1990) and UCC (PhD Food Technology, 1995) and is a Professor in the School of Food and Nutritional Sciences at University College Cork (UCC), with teaching responsibilities in food processing and preservation, dairy product technology and new food product development. He leads an active research group on the chemistry and processing of milk and dairy products and has published over 200 research papers, review articles and book chapters (H-index of 42, with over 3500 citations) and supervised over 25 MSc and PhD students to completion. Alan has been an Editor of the International Dairy Journal since 2005 and has acted as External Examiner in universities in the UK, France, Sweden, Australia, the Netherlands, Denmark, Finland and New Zealand. In July 2009, Alan received the Danisco International Dairy Science award from the American Dairy Science Association and he has also won awards in UCC for Excellence in Teaching (2004) and Leadership (2011).

From 2006-2013, Alan was Dean of Graduate Studies of UCC, with responsibility for institutional graduate education strategy. In this capacity, he led the reform of academic policies and procedures for the realisation of Fourth-Level Ireland at UCC, and introduced a wide range of measures relating to student recruitment, training and support, supervisor support, development of postgraduate programmes, and creation of inter-institutional graduate education networks. His role as Dean also involved considerable interaction and representation of UCC at National and international levels. In July 2015, Alan was appointed as Interim Director of the Quality Promotion Unit at UCC.

Dr Andrée Sursock

Dr Andrée Sursock is Senior Adviser at the European University Association (EUA). Her recent publications include the 2015 Trends report, which analyses developments in learning and teaching in Europe, and a report titled "Ten Priorities for Romanian Higher Education", which is based on 70 evaluations carried out in Romania by EUA's Institutional Evaluation Programme (IEP).

Andrée serves on a variety of boards and committees, including the governing board of Montpellier SupAgro, the appeals committee of A3ES (Portuguese accreditation agency), the steering committee of AEQES (the quality assurance agency of the French Community of Belgium) and the University Quality Assurance International Board (UQAIB) in Dubai.

Between 2001 and 2009, Andrée was Deputy Secretary General at EUA, with responsibilities for developing EUA's quality assurance policy positions and activities and representing the EUA in European and international discussions. Before joining EUA, Andrée was Director of Development at the Centre for Higher Education Research and Information (Open University, UK), and worked on several European projects related to quality assurance. She taught at a variety of institutions in the USA and held an administrative post at Stanford University.

Andrée earned a first degree in philosophy from the Université Panthéon-Sorbonne (Paris 1) and a PhD in social-cultural anthropology from the University of California, Berkeley.

Martin Galevski

Martin Galevski is a DPhil student at the Department of Education, University of Oxford. He holds an MPhil degree in Education from the University of Cambridge and a MSc degree in Research and Innovation in Higher Education (MaRIHE) jointly implemented by the Danube University Krems (Austria), the University of Tampere (Finland) and the Beijing Normal University (China). His research focus is in the area of higher education studies, with specific interest in issues related to the conditions of academic work, governance of higher education institutions and quality assurance. Martin has previously been a team member of the international quality assessment of the University of Helsinki, carried out by the Finnish Education Evaluation Council, while currently he participates in the evaluation team of three study programmes in Lithuania, carried out by the Lithuanian Centre for Quality Assessment in Higher Education.

He is also an administrator and member of the editorial board of Working Papers in Higher Education Studies (WPHES). Before embarking on a research career, he was part of the Youth Education Forum - the largest youth-led NGO in Macedonia - working on regional initiatives related to student participation and corruption in higher education.

APPENDIX 3:
DOCUMENTATION REVIEWED BY THE PANEL

Quality assurance documentation in current use by higher education research schools was provided by the institutions for the Panel's consideration as part of the identification of best practice. This included documentation used by institutions as part of their quality assurance of Masters and Doctoral Degree programmes, including institutional, national and international policy, guidelines, regulations, protocols, student handbooks, sample templates and forms.

Documentation was received from the following institutions:

Athlone Institute of Technology
Cork Institute of Technology
Dublin City University
Dublin Institute of Technology
Dundalk Institute of Technology
Dun Laoghaire Institute of Art Design and Technology
Galway Mayo Institute of Technology
Institute of Technology Blanchardstown
Institute of Technology Carlow
Institute of Technology Sligo
Institute of Technology Tallaght
Institute of Technology Tralee
Letterkenny Institute of Technology
Limerick Institute of Technology
Maynooth University
National University of Ireland Galway
Royal College of Surgeons in Ireland
Trinity College Dublin
University College Cork
University College Dublin
University of Limerick
Waterford Institute of Technology

APPENDIX 4:
MEETINGS OF THE PANEL

Wednesday 2 September 2015

09.00-17.00 Expert Panel Planning Meeting, including briefings from members of the Doctoral framework working group:
Muiris O'Connor, Higher Education Authority (HEA), provided a presentation on the Irish Higher Education Context
Prof Lisa Looney, Dublin City University, provided a presentation on the National Doctoral Framework

Tuesday 27 October 2015

09.30-13.00 Private meeting of Expert Panel

14.00-15.30 Nominated representatives of the universities and RCSI with quality assurance / research expertise, including Directors, Deans of Graduate Studies, Heads of School, and representatives of the quality office.

Dr Lucy Byrnes	National University of Ireland Galway
Dr Anthony Chubb	Royal College of Surgeons in Ireland
Prof David Croke	Royal College of Surgeons in Ireland
Dr Emer Cunningham	University College Dublin
Prof Honor Fagan	Maynooth University
Michael Frain	University of Limerick
Dr Huw Lewis	University of Limerick
Prof Liam Marnane	University College Cork
Dr Enda McGlynn	Dublin City University
Lewis Purser	Irish Universities Association (IUA)
Roisin Smith	Trinity College Dublin
Helen Thornbury	Trinity College Dublin
Prof Jim Walsh	Maynooth University

15.45-17.00 Research Supervisors from the universities and RCSI, including existing research supervisors across a range of disciplines with experience of formal roles/ engagement or representation as part of the institution's quality assurance system for research.

Dr Marian Brennan	Royal College of Surgeons in Ireland
Prof Marc Devocelle	Royal College of Surgeons in Ireland
Dr Marcin Gradziel	Maynooth University
Prof David Hevey	Trinity College Dublin
Dr Mary Kelly-Quinn	University College Dublin
Dr Conor McCarthy	University of Limerick
Prof Orla Shiels	Trinity College Dublin

Wednesday 28 October 2015

09.30-11.00 Nominated representatives of the institutes of technology with quality assurance / research expertise, including Directors, Registrars, Heads of Department and Deans of Graduate studies and Research.

Dr John Bartlett	Institute of Technology Sligo
William Bennett	Letterkenny Institute of Technology
Dr Stephen Cassidy	Cork Institute of Technology
Michael Hannon	Galway Mayo Institute of Technology

Dr Brian Jackson	Institute of Technology Carlow
Dr Brendan Jennings	Waterford Institute of Technology
Dr Siobhan Mac Sweeney	Institute of Technology Tralee
Dr Tim McCormac	Dundalk Institute of Technology
Prof Mary McNamara	Dublin Institute of Technology
Dr Jim Murray	Institutes of Technology Ireland (IOTI)
Dr Patrick Murray	Limerick Institute of Technology
Dr Rick Officer	Galway Mayo Institute of Technology
Dr Mark Riordan	Dun Laoghaire Institute of Art, Design & Technology
John Vickery	Institute of Technology Tallaght

11.30-13.00 Research Supervisors from the institutes of technology, including existing research supervisors across a range of disciplines with experience of formal roles/ engagement or representation as part of the institution's quality assurance system for research.

Dr John Barrett	Cork Institute of Technology
Dr Geraldine Gray	Institute of Technology Blanchardstown
Dr Eleanor Jennings	Dundalk Institute of Technology
Dr Frances Lucy	Institute of Technology Sligo
Dr Fergal McCaffery	Dundalk Institute of Technology
Barry McMillan	Galway Mayo Institute of Technology
Dr Ken Monaghan	Institute of Technology Sligo
Dr Patrick Murray	Limerick Institute of Technology
Dr Paul O'Leary	Waterford IT Institute of Technology
Dr Dorel Picovici	Institute of Technology Carlow
Dr Marek Rebow	Dublin Institute of Technology
Dr David Ryan	Institute of Technology Carlow

14.00-15.30 Representatives from agencies where postgraduate research students are working

Dr Lance O'Brien	Teagasc

Thursday 29 October 2015

09.30-11.00 Representatives of agencies funding research degree programmes

Dr Marion Boland	Science Foundation Ireland
Dr Annalisa Montesanti	Health Research Board
Dr Donna Tedstone	Health Research Board

11.30-13.00 Meeting with Postgraduate Research Students and graduates, including recent research graduates and current research students, and those with experience of a student representative role to present the views of a range of research students across the disciplines within his or her institution.

QQI contacted each institution to request nominations of a representative postgraduate research student and a graduate to meet with the Panel.

14.00-15.30 Representatives of employers of research graduates

Dr Matthew Boylan	Astellas Ireland
Conor Minogue	IBEC
Gearoid Mooney	Enterprise Ireland

16.00-16.30 Representatives of the Higher Education Authority (HEA)

Andrew Brownlee	HEA
Nicki O'Connor	HEA

16.30-17.00 Representatives of the Department of Jobs, Enterprise and Innovation; and the Department of Education and Skills

Dr Eamonn Cahill	Department of Jobs, Enterprise and Innovation
Tim Cullinane	Department of Education and Skills
Tony Gaynor	Department of Education and Skills
Christy Mannion	Department of Education and Skills

Thursday 19 November 2015

10.30-11.30 Representatives of the Irish Research Council

Peter Brown	Irish Research Council
Dr. Eucharia Meehan	Irish Research Council

Wednesday 13 January 2016

08.00-16.00 Private meeting of Expert Panel

Friday 11 March 2016

08.00-16.00 Private meeting of Expert Panel

Wednesday 20 April 2016

08.30-16.00 Private meeting of Expert Panel

BIBLIOGRAPHY

1. AQA (Academic Quality Agency for New Zealand Universities) Cycle 5 Academic Audit Handbook for Universities, Cameron, J., 2013
2. Bologna Seminar: Doctoral Programmes for the European Knowledge Society, Salzburg 3-5 February 2005
3. CODOC- cooperation on doctoral education between Africa, Asia, Latin America and Europe, by Thomas Ekman Jorgensen. 2012, EUA, Brussels
4. Council of Deans and Directors of Graduate Studies in Australia, Best Practice Guidelines: Research Doctorates, November 2010
5. CUAP Handbook 2015, Universities New Zealand- Te Pokai Tara, Committee on University Academic Programmes, (*approval and accreditation procedures for the QA of academic programmes in NZ universities*)
6. Defining Quality for Research training in Australia: A consultation paper: Australian Government, Department of Innovation, Industry, Science and Research, October 2011,
7. Department of Jobs, Enterprise and Innovation, 2016: Directory of Innovation, Research and Technology Centres
8. EUA Publications 2007: Doctoral Programmes in Europe's Universities: Achievements and Challenges, report prepared for European Universities and Ministers of Higher Education
9. EUA Publications 2009: Collaborative Doctoral Education, University-Industry partnerships for enhancing Knowledge exchange, Doc-Careers Project by Lidia Borell-Damian
10. EUA Publications 2013: Quality Assurance in Doctoral Education – results of the ARDE project by Joanne Byrne, Thomas Jorgensen, Tia Loukkola, EUA: Brussels
11. EUA Publications 2014: Europe's Universities: Main drivers in achieving the European Research Area (ERA) EUA, Brussels
12. European Science Foundation: Career tracking of doctorate holders, pilot project report
13. HEFCE Sector Impact Study: Sector impact assessment 2011
14. Innovation 2020: Ireland's Strategy for Research and Development, Science and Technology: Department of Jobs, Enterprise and Innovation
15. *Ireland's Research and Development Funders*, Chief Scientific Adviser to the Government of Ireland, 2015
16. Irish Humanities Alliance (2015) IHA Humanities Interim Strategy Report. Dublin: Irish Humanities Alliance
17. Irish Research Council Annual Report, 2014
18. Irish Universities' PhD Graduates' Skills statement, IUA 2008
19. IUQB Good Practice in the organisation of PhD programmes in Irish higher education, 2nd edition, 2009
20. LERU (League of European Research Universities): Advice paper no.15 January 2014: Good Practice Elements in Doctoral Training (The excellent Advice Paper no. 19 March 2016: Maintaining a quality culture in doctoral education at research-intensive universities became available too late to be taken into consideration.)
21. NAIRTL Developing an institutional framework for supporting supervisors of research students, a practical guide
22. National Framework for Doctoral Education, (2015)
23. National Policy Statement on Ensuring Research Integrity in Ireland
24. National Strategy for Higher Education to 2030, Report of the Strategy Group, January 2011, Department of Education and Skills
25. Nerad, M and Evans, B. (2014) Globalisation and its impacts on the quality of PhD education, forces and dorms in doctoral education worldwide, Sense Publishers: The Netherlands
26. Office for Learning and Teaching: Higher Degree Research Training Excellence: A Good Practice Framework, Final report 2013, Edith Cowan University, J. Luca, T. Wolski
27. Principles for Innovative Doctoral Training, European Commission, Brussels, 2011

28. QAA: UK Quality Code for Higher Education, Part B: Assuring and enhancing Academic Quality (2013)
29. QQI Research Degree Programme Policy and Criteria
30. RCUK- Statement of expectations for postgraduate training, revised January 2015
31. Research Council UK Conditions of Research Council Training Grants, Revised January 2015
32. Salzburg II recommendations European universities achievements since 2005 in implementing the Salzburg Principles
33. Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). (2015). Brussels, Belgium
34. Survey of Research and Development in the Higher Education Sector 2012/2013, Department of Jobs, Enterprise and Innovation
35. The doctorate and the talent pipeline, outcomes from the 3rd Global Strategic Forum on Doctoral Education, EUA-CDE EUA Council for Doctoral Education
36. The European Charter for Researchers, the Code of Conduct for the Recruitment of Researchers, European Commission, 2005, Brussels
37. Trends in Postgraduate Research Education, 2013, HEA
38. University of Oxford, Academic integrity in research: Code of practice and procedure
39. University World News, Issue No:388, 30 October 2015: '*UK and Ireland gain in Horizon 2020 top 50 performers*' Jan Petter Myklebust



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