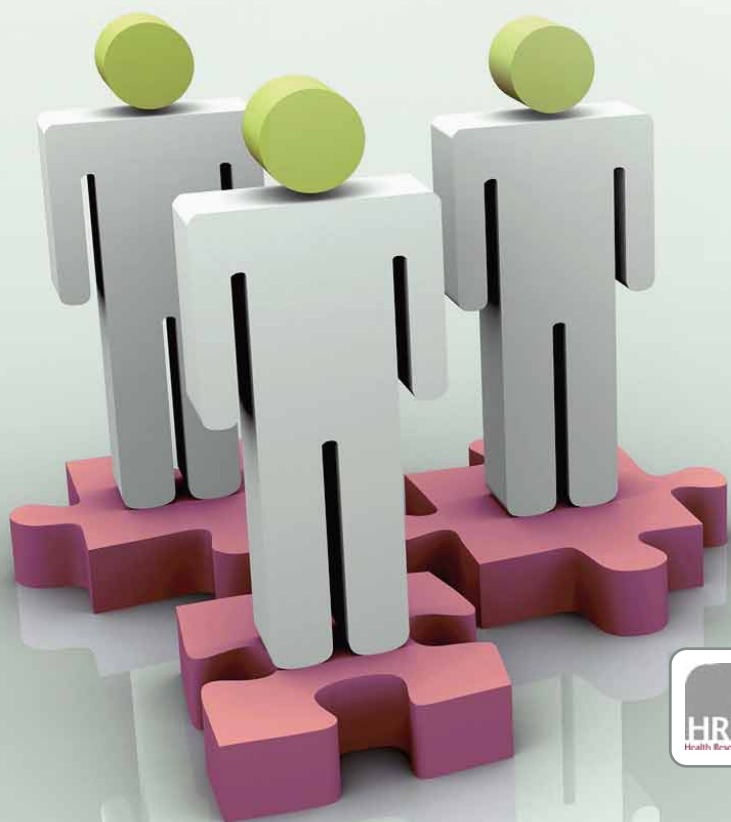


# ENSURING INTEGRITY IN IRISH RESEARCH

A Discussion Document





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## 1. Introduction

On 24 September 2009, a broad coalition of Irish agencies and organisations representing researchers, research funding agencies and universities, convened a workshop at the Royal Irish Academy in Dublin to discuss the development of a national approach to the promotion of research integrity and the effective and fair investigation of research misconduct allegations. The principal organisers were the Health Research Board, Irish Universities Association, Higher Education Authority, Science Foundation Ireland and the Royal Irish Academy.

Speakers included: Professor Nicholas Canny, President, Royal Irish Academy; Professor Pieter Drenth, Honorary President, ALLEA; Mr. Torkild Vinter, Director, Norwegian National Commission for the Investigation of Scientific Misconduct; Dr. Maura Hiney, Head of Policy, Evaluation and External Relations Health Research Board; Professor Alan Donnelly, University of Limerick and Member, Irish Council for Bioethics. Dr. Conor O'Carroll, Irish Universities Association, chaired a panel discussion involving Mr Tom Boland, Chief Executive, Higher Education Authority, Professor Nicholas Canny, President, Royal Irish Academy, Dr Gavin Collins, Lecturer, NUI Galway, Mr Enda Connolly, Chief Executive Officer, Health Research Board and Mr Frank Gannon, Director General, Science Foundation Ireland. Closing remarks were made by Professor Ray O'Neill, Vice President for Research, NUI Maynooth. This discussion document addresses issues that are considered especially urgent by the bodies that sponsored the workshop. However, its authors intend for and hope that, where relevant, its recommendations will be adopted or adapted by other agencies that support research, to suit their own needs. It should also be noted that where many examples in this document come from laboratory-based research, the concern to promote research integrity extends to the humanities, social science and behavioural science disciplines.

Informed by the meeting's speakers and the discussions held, a working group (see Appendix One) was established to develop this paper, which outlines the key concepts, principles and elements of research integrity structures; identifies relevant international initiatives; surveys selected international models; describes existing national practice; and suggests possible models and next steps to develop Irish research integrity structures.

The report makes practical recommendations with the understanding that in a more favourable economic climate support for institutional harmonisation, policy implementation and more concerted promotion of research integrity might all be addressed more energetically.



## 2. Ensuring the integrity of Irish research

During the last decade, very significant public investment has allowed Irish universities to evolve from being primarily teaching institutions to being teaching and research centres of international importance and prominence, undertaking research in all disciplines. This investment occurred within the wider policy objective of effecting Ireland's transformation to a 'smart economy', attracting and creating high-value, high-skilled employment, based, in part, upon research-driven innovation and the successful generation and application of research-generated knowledge. Ireland's success in achieving these goals rests on many factors, not least the integrity of its research system.

Recent high-profile international cases of research misconduct, including Schoen in the US and Hwang in South Korea, illustrate the damage that misconduct inflicts upon the research record, the researcher, the host institution and society. Research misconduct distorts the research record; dispenses of time and resources; erodes public faith and trust in the objectivity of research and consequently in the importance of R&D investment; it can directly harm individuals and damage the reputation of disciplines and institutions.<sup>1</sup>

A pro-active response by the Irish higher education sector to developing a national approach to promoting and securing research integrity will offer significant benefits for Irish research and the national graduate education system. It will ensure consistency, transparency and fairness in the handling of allegations, remove sensitive issues and adjudicative powers from local/institutional politics, protect individuals and institutions from mischievous allegations, and enable public officials to ensure that the public funds invested in research are properly awarded and spent. It will reassure those with an interest in research—global funding organisations, potential international research collaborators, government, the public, industry, and publishers—that Irish researchers conform to the highest standards of research practice and that the Irish research system is equipped to respond in a timely, fair and consistent manner to any misconduct allegations that arise.

### 3. Understanding research integrity and misconduct

**Research integrity** concerns the standards followed when conducting research: in this, it differs from research ethics, which refers to research's socio-ethical context.<sup>2</sup> Widely accepted global principles inform definitions of research integrity: these include honesty, reliability, objectivity, impartiality and independence; open communication, duty of care, fairness and responsibility for future generations of researchers.<sup>3</sup> However, there is significant national variation in the policies and frameworks that exist to implement these principles and similarly there is no universal agreement on what constitutes good research practice.<sup>4</sup>

Neither is there any universally accepted definition of **research misconduct**. For example, the US Office of Research Integrity (ORI) defines research misconduct as 'fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting results'.<sup>5</sup> There is near universal agreement that these violations—fabrication, falsification and plagiarism (FFP)—represent the most serious types of misconduct, although the European approach as evidenced by the European Science Foundation (ESF) sees the latter violation (plagiarism) as a somewhat lesser offence in that they consider it less egregious to the integrity of the scientific record.<sup>6</sup>

#### Box 1: OECD definitions of fabrication, falsification and plagiarism

- **Fabrication** of data i.e. making up results and recording or reporting them.
- **Falsification** of data i.e. manipulating research, materials, equipment or processes; changing or omitting data or results such that the research is not accurately represented in the research record.
- **Plagiarism** i.e. the appropriation of another person's ideas, processes, results, or words without giving due credit, including those obtained through confidential review of others' research proposals and manuscripts.

Source: OECD, 2007, *Unofficial report on best practices for ensuring scientific integrity and preventing misconduct: based on a workshop held on 22-3 February 2007, in Tokyo, Japan, submitted to the First World Conference on Research Integrity, Lisbon, September 2007*

Concepts of negligence and deceit are central to common understandings of misconduct: honest errors in research practice or interpretation of data should not be considered misconduct.<sup>7</sup> While FFP-related incidences represent the most egregious examples of misconduct, there are also additional types of *objectionable practices* which, while they do not damage the research record, can still damage the reputation of research and the research community's integrity. These practices include:

- *Research practice misconduct* e.g. poor research design, using inappropriate research methods.
- *Data-related misconduct* e.g. not preserving primary data, poor data management and/or storage.
- *Publication-related misconduct* e.g. claiming undeserved authorship, denying authorship to contributors, artificially proliferating publications.
- *Personal misconduct* e.g. inadequate leadership/mentoring of next generation of researchers and scholars, inappropriate personal behaviour.

- *Financial and other misconduct* e.g. peer review abuse, non-disclosure of a conflict of interest, misrepresentation of credentials.<sup>8</sup>
- *Failure to meet clear ethical and legal requirements* such as misrepresentation of interests, breach of confidentiality, lack of informed consent, and abuse of research subjects or materials.

Some of these objectionable practices are subject to generally applicable legal and social norms and penalties, including equality legislation or fraud, and existing channels such as the Human Resources office of a university can investigate them. Other practices, while undesirable, would not warrant formal investigations and proper supervision and mentorship could correct them.<sup>9</sup> Misconduct investigations should focus on unacceptable violations of research integrity principles that undermine the research record's integrity.

## INCIDENCE OF RESEARCH MISCONDUCT

The incidence of research misconduct is difficult to determine, partly because of the relative absence of agreed national structures responsible for monitoring research integrity and collecting and collating relevant data.<sup>10</sup> While it is acknowledged that research misconduct is rare relative to the volume of research,<sup>11</sup> there is evidence that suggests it is under-reported both at the individual and institutional level.<sup>12</sup>

- In 2001, 52 cases of major research misconduct were reported to the UK Committee on Publication Ethics (COPE).<sup>13</sup>
- On average, the US ORI receives 24 institutional investigation reports per annum.<sup>14</sup>
- Between 1992 and 2000, the US ORI logged more than 1,500 allegations of misconduct in public health and biomedical research. Of these, about 20 per cent required a formal inquiry, with misconduct proven in about 100 cases or six per cent of the original allegations.<sup>15</sup>
- During the period 1992-2001, 248 institutions submitted their first reports of possible misconduct to the US ORI, reporting 703 cases in total. Of these, 76 institutions found misconduct in 110 cases.<sup>16</sup>

A 2006 ORI survey of 2,212 researchers found that these researchers observed 201 likely instances of misconduct over three years; i.e. three incidents per 100 researchers, a considerably higher rate than the annual number of investigations submitted to the ORI.<sup>17</sup>

## CAUSES OF RESEARCH MISCONDUCT

The most commonly cited causes of research misconduct are performance related; namely, greater domestic and international competition to attract research funding and publish in prestigious publications and journals, and the career system and metrics used to assess research quality and excellence.<sup>18</sup> These pressures can, collectively or individually, increase the temptation to eschew proper procedures. In a 2005 survey of US scientists, a third admitted to engaging in one or more types of unethical research behaviour, and 15.5 per cent admitted to changing trial design, methodology and results in response to pressure from research funders.<sup>19</sup> Hwang Woo Suk, a South Korean researcher who falsely claimed to have made significant breakthroughs in human cloning, cited such pressures as having been influential in his fraudulent actions.

## 4. Approaches to tackling research misconduct and securing research integrity: an overview of selected international models and initiatives

A significant number of international organisations, representing researchers, research funding organisations, publishers and policymakers, engage with research integrity issues. These include the OECD Global Science Forum, the European Science Foundation (ESF), the Committee on Publication Ethics (COPE), the International Council for Science (ICSU), ALLEA (All European Academies), the European Commission and the recently formed European Network of Research Integrity Offices (ENRIO). These organisations prioritise awareness promotion, information exchange and the identification of general principles relevant to misconduct investigations, particularly cross-border investigations.

The 2007 Lisbon *World Conference on Research Integrity: Fostering Responsible Research*; a joint initiative of the ESF and the US ORI, provided a forum for research leaders to address the challenges and harmonisation efforts made to promote integrity in research.<sup>20</sup> It favoured a greater role for national oversight mechanisms in monitoring research integrity and collecting and collating relevant data. It also focused on the role of scientific journals, arguing that these should strengthen their publication practices to improve detection and facilitate correction of errors.<sup>21</sup> The second *World Conference on Research Integrity* took place in Singapore on 21–25 July 2010.

### 4.1. SELECTED INTERNATIONAL ARRANGEMENTS FOR RESEARCH INTEGRITY OVERSIGHT STRUCTURES

There is considerable global, national and institutional diversity in the definition of misconduct and in the preventive measures and practices applied to ensure the integrity of a country's national research system. Preventive measures range from mandatory research integrity education at undergraduate and postgraduate levels (e.g. Denmark) to plagiarism education for undergraduates only. Investigation procedures and coordinating structures also vary widely. Typically, the primary responsibility for promoting integrity and investigating and handling issues of research misconduct rests with the institution that hosted the research and/or the employer of the researcher against whom an allegation of misconduct is made.<sup>22</sup>

National guidelines to promote research integrity and formal structures to investigate allegations of misconduct are relatively few with Australia, Canada, Denmark, Finland, Germany, Norway and the US, among the small number of countries with established national research integrity procedures/guidelines and national offices to oversee their application. These offices vary in size and remit with the most formal and developed structures found in the US and Scandinavia.

In the **US**, the National Science Fund (NSF), Office of Inspector General (OIG) and the National Institute of Health (NIH), Office of Research Integrity (ORI) are responsible for the research integrity of health and biomedical research funded by the NSF and the NIH. The OIG and ORI provide policy guidance and technical assistance to research institutions and perform a review and oversight function of those cases referred to them by institutions. Responsibility for the preliminary investigation of misconduct allegations rests with the host institution in which the research is conducted, but institutions must report all allegations and investigations to the national oversight office. Institutions conducting federally funded research must also meet a list of compliance requirements, including maintaining written policies and procedures for addressing research misconduct allegations. Institutions are required to foster a research environment that promotes responsible research and training, and discourages misconduct.<sup>23</sup>

A greater diversity of approaches is followed across Europe with the Scandinavian countries among the first to develop national research integrity structures. In **Denmark** the Danish Committee on Scientific Dishonesty, an eight member committee including a high court judge, was established in 1992. In 2004,



11 cases were reported, with one found proven as misconduct. The Committee retains the anonymity of those on whom it has made findings and those subjected to investigation can appeal decisions to the Danish Agency for Science, Technology and Innovation. **Norway** established the National Commission for the Investigation of Scientific Misconduct in 2007.<sup>24</sup> Primary responsibility for preventing and handling allegations of research misconduct rests with the institution. However, the institution may redirect an investigation to the Commission if, for example, a case is deemed particularly complicated, has received considerable public attention or involves possible conflicts of interest. In such instances, the Commission will assess the allegations, decide whether they need further investigation and issue a statement on whether research misconduct has occurred. Responsibility for sanctions rests with the research institution. Appeals can be addressed to the Norwegian Ministry of Research, which appoints an ad hoc commission to handle the appeal. The Commission can also start investigations on its own initiative and investigate cases abroad, if researchers employed by a Norwegian institution have conducted the research or if significant funding originated in Norway.<sup>25</sup> In **Finland** the National Research Ethics Council of Finland publishes guidelines for the prevention, handling and investigation of fraud and misconduct in scientific research; it does not investigate misconduct allegations, which are considered the responsibility of institutions.

In the **UK** the UK Research Integrity Office (UKRIO) is an independent advisory body hosted by Universities UK and supported by government and the major regulators and funders of health and biomedical research. It is not a regulatory body and has no formal legal powers. It provides independent support, non-mandatory advice and guidance to employers, research organisations, researchers and the public to promote good practice in maintaining research integrity.<sup>26</sup>

## 4.2. A TYPOLOGY OF EUROPEAN RESEARCH INTEGRITY STRUCTURES

Forthcoming work<sup>27</sup> by the ESF (European Science Foundation) Member Organisation Forum on Research Integrity identifies a number of levels of maturity in research integrity oversight structures across Europe (see Table 1, overleaf).

In persuading local and national stakeholders to improve on their current structures (or lack thereof), both the advantages and risks of the current systems in operation need to be considered. The risks are particularly acute where there are no structures in place, or where governance happens at a strictly institutional or local level with no national coordination. Conversely, the advantages increase as a coordinated national system emerges. The challenge for each institution, agency, society or country is to find a considered balance between local responsibility and structures on the one hand, and national research integrity coordination or governance on the other hand.

### SELF-REGULATION, INSTITUTIONAL IMPLEMENTATION AND PEER REVIEW

It is reasonable to argue that the primary responsibility for prevention should lie with the institutions that are the direct employers or educators of research staff and students. In addition, peer review of manuscripts can serve to highlight issues about the integrity of the data or approach being presented, although it should be borne in mind that incidences of misconduct are not confined to publication outputs and may be missed if this approach is relied on exclusively. In many countries, local institutions have responsibility for investigating allegations of misconduct where they arise. Such self-regulation endorses local responsibility and leadership, enhances visibility of integrity issues at an institutional level and ensures that local knowledge of the circumstances of suspected misconduct can inform appropriate action.

However, this approach has a number of inherent risks. Potential reputational damage to an institution, especially where an allegation involves a 'star' researcher or a research area in which the institution prides itself on excellence, could increase the temptation to hide cases or deal with issues behind closed doors. Thus, self-policing could be perceived to militate against impartiality and ad hoc arrangements could increase the risk of public scepticism against research if cases are not adequately handled. The absence of agreed guidelines and procedures could also result in inconsistent outcomes in different institutions.

Table 1: Levels of maturity in research integrity governance structures

Level	Type of structure/ supporting guidelines and policies	Responsibility for implementation
1.No structures	No guidelines on handling of allegations of misconduct	Dependent on peer review to identify issues
2.Individual institutions	Guidelines adopted locally for good research practice (GRP) and handling of allegations of misconduct	Either ad hoc or standing committee within institution
3.Agency/academy/ learned society	Policy/guidelines for GRP and handling of allegations of misconduct proposed by funding agencies/body	Standing committee within institution, with possibility of appeal to agency/academy/ learned society in some instances
4.Local with national oversight	Policy/guidelines agreed nationally for handling of allegations of misconduct.	National body oversight but local implementation (standing committee) with possibility of appeal to regional or national standing committee
5.National	National legislation/charter approach to GRP and handling of allegations of misconduct	National office or standing committees but cases may be initiated locally.

At a practical level, the absence of agreed processes and procedures for investigation of misconduct could result in loss of time when a case occurs, since investigations will essentially be starting from scratch. In addition, individual institutions are unlikely to build breadth and depth of experience in investigating misconduct and there is a lost opportunity for common learning or accumulation and sharing of experience. Furthermore, lack of agreed procedures and clearly stated support may make it difficult to whistle-blow, or may discourage people from coming forward with concerns.

## RESEARCH INTEGRITY OVERSIGHT BY NATIONAL BODIES (FUNDING AGENCIES, ACADEMIC AND LEARNED SOCIETIES)

The risks inherent in self-regulation and research integrity implementation at an institutional level may be countered by oversight structures, which could act to harmonise and coordinate processes and guidelines across institutions and provide consistent advice, guidance and support. Such regional or national oversight can also facilitate a higher appeals mechanism (by accused, accuser or institution) and lessen the opportunities to hide cases.

Provision of oversight and guidance by research funding agencies, professional associations and learned societies is likely to be accepted by the research community as providing independence and credibility in procedures and guidelines. The difficulty with provision of oversight by research funding agencies is that institutions may resist national coordination. Many agencies will not have the resources necessary to monitor compliance with their recommended procedures and will be dependent on buy-in by institutions. Such regional or national oversight will also depend on the willingness and commitment of institutions to exchange information. In addition, such oversight does not provide coverage of both public and commercial activity and this should be borne in mind when considering research integrity governance arrangements. Oversight managed by professional associations and learned societies may experience similar difficulties, although in the Netherlands LOWE has almost universal coverage of research integrity governance in the country. Regardless of who provides regional or national oversight, responsibility for implementation will still reside locally with the attendant challenges and risks described above.

## NATIONAL RESEARCH INTEGRITY OFFICES

Properly constituted national research integrity offices can resolve many of the issues with self-regulation or oversight/regulation by research funding agencies, professional associations and learned societies. National offices can provide consistent advice, support and guidelines across both the public and private research sectors. They can also provide true independence for investigative processes and equality in access and treatment of cases, making conflicts of interest less likely. Importantly, national standing committees can reach professional competence and the authority for GRP and investigations is clear to everyone. Such offices also facilitate international cooperation and learning and provide opportunities to establish links with other national offices through ESF and ENRIO.

The disadvantages of the development of national research integrity offices pertain primarily to institution perceptions and behaviours. Institutions may become defensive about perceived loss of autonomy and interference by national bodies, especially if the resourcing and location of the national office is perceived to be politically influenced. There is also a risk that institutions may not have the resources to provide training and education at the standard set nationally or that they could abdicate their responsibility for GRP to the national office, however, a well-constituted, impartial and professional national office should allay many of these fears over time, especially if the office is seen to be respectful of institutional responsibility and autonomy.



## 5. Research integrity processes and structures in Ireland

The Irish community of scholars and researchers, universities and research funders is increasingly aware of the value and importance of actively working to secure the continued integrity of Irish research. At present, however, Irish institutional policies and procedures for the investigation of allegations of misconduct vary by stakeholder group; giving rise to inconsistencies in the definitions of research misconduct followed, the standards of evidence required and, potentially, the findings and sanctions applied. With reference to the typology offered by the ESF in Table 1, Ireland currently lies somewhere between Level 1 and 3 operating an ad hoc, institutional approach to ensuring research integrity in which research funder guidelines, where they exist, are adopted institutionally.

Universities have made considerable strides in recent years in institutionalising guidelines and structures to ensure good research ethics. The majority of Irish higher-education institutions and some research funding organisations have developed institution-specific Guidelines for Good Research Practice and implemented standing Research Ethics Committees. However, these structures are neither appropriate nor sufficient to either prevent or investigate allegations of misconduct in accordance with international best practice.

To-date, universities have largely focused their preventative efforts on combating plagiarism, particularly at undergraduate level. New researchers have relatively few opportunities to receive research integrity training and there is none for senior academics. Training that does occur is generally on an ad hoc basis, subject to the individual academic/mentor interests.<sup>28</sup>

Investigative processes also vary institutionally. Usually, the appropriate faculty dean initially investigates an allegation of serious research misconduct. The university conducts the inquiry confidentially and it reports findings within a reasonable length of time (usually no longer than 120 days). The Human Resources Department/Office ordinarily applies any sanctions found necessary. Universities currently are not required to report a finding of misconduct to the funding agency and few agencies have specific guidelines on this issue. However, the Health Research Board (HRB) requires institutions in receipt of HRB research funding to adhere to its specific guidelines for Good Research Practice and the investigation of misconduct allegations, and to inform them where a misconduct allegation against a HRB researcher has been proven.



## 6. Core elements of a national research integrity strategy

A national strategy should:

- Protect the core principle of 'mutual trust' necessary for knowledge sharing.
- Provide common standards for everyone involved in research.
- Protect individuals and institutions.
- Ensure public confidence in research outputs.

It should operate in accordance with clearly defined principles, rules and procedures as identified by the ESF and OECD Global Science Forum, including:

- A clear and consistent definition of what constitutes research misconduct.
- A national mandate to underpin the strategy that is consistent with national law and can ensure sign-up by all stakeholders.
- Steps for receiving and processing allegations that enshrine the rights of all individuals involved, in particular whistle-blowers.
- Investigation time limits.
- Clearly defined jurisdictions for hearing and investigation of allegations, imposition of sanctions and rights to appeal.
- Rights of the involved parties to be heard, and rules for the exclusion of conflicts of interest.
- Confidentiality of investigations and agreement on the transparency of outcomes.
- A range of agreed sanctions and jurisdiction for determining sanctions.
- Implicit presumption of innocence until otherwise proven. This presumption should be explicit where the question concerning integrity involves the possibility of criminal activity.<sup>29</sup>
- Mechanisms for prevention, education and awareness at all levels, sharing of best practice and tools for information sharing on training materials, guidelines and misconduct scenarios.

### 6.1. THE ROLE OF PREVENTATIVE AND INVESTIGATIVE MEASURES

A national research integrity strategy should strive to achieve a balance between prevention and investigation/sanction.

**Preventive** measures to promote research integrity are intended to build a healthy research environment. Such measures can include:

- Publication of misconduct policies and guidelines, including a clear definition of research misconduct.
- Creation of an independent, credible organisation to investigate allegations of misconduct.
- Research integrity training for new and experienced researchers.
- Integration of good research practice into teaching at undergraduate and postgraduate levels.
- Monitoring of research personnel by their research project leaders.
- Performance of data audits by the host institution or research funder.
- Robust and effective investigative procedures as a preventative deterrent to deliberate research malpractice.

One of the principal aims of preventive measures is to enhance awareness and facilitate information exchange amongst central research interest groups (junior and senior researchers, funders, university management and publishers) of research conduct best practice. Offering research integrity modules as part of undergraduate and postgraduate education is a popular means of promoting research integrity. However, there is a growing consensus on the need to offer specifically tailored education and support for senior researchers and academics who are very influential in defining acceptable research practice for the next generation of researchers.



**Investigative** procedures and sanctions deal with unacceptable violations of research principles that undermine the research record's integrity. A national strategy should allow for the diversity of misconduct that might occur, and identify the most appropriate methods and procedures for dealing with each type of misconduct.<sup>30</sup>

## 6.2. CORE REQUIREMENTS

Investigative procedures largely concern the determination of facts and an analysis of evidence and records, requiring specialised expertise, rules and procedures.<sup>31</sup> The 2007 OECD Global Science Forum identified three generic ways of investigating allegations:

- 1) **Ad hoc committees established to deal with specific cases:** such committees are usually composed of very senior researchers, and can operate under the aegis of an existing university-based research ethics committee. However, ad hoc processes by their nature are not always consistent, and fairness and consistency are critical. This approach involves multiple challenges to its efficacy, including the lack of an appeal mechanism; likelihood of personal conflicts of interest; institutional desire to preserve its reputation; undermining transparency and the concomitant difficulty for 'whistle-blowers' to express concerns; and the lost opportunity to share procedural knowledge of wider interest.
- 2) **Standing committees in research institutions:** some countries rely on standing entities (e.g. offices, committees) and corresponding institutional procedures where the investigation is required. Typically, these committees are responsible for handling allegations, processing them, undertaking investigations and recommending outcomes. Their work can include cooperation with a government-mandated central authority, including funding agencies.
- 3) **One or more dedicated committees at national level:** countries with smaller research communities where it might be difficult to establish committees of impartial researchers, free of personal conflicts of interest may prefer this model. A national committee is normally composed of members who represent a wide spectrum of relevant expertise (e.g. disciplinary, legal, and administrative).<sup>32</sup>

## 7. Proposed national research integrity model for Ireland

Consensus exists on the value and benefit to the Irish research system of creating a structure that will promote research integrity and ensure consistency, fairness and transparency in the investigation of misconduct allegations. The benefits include safeguarding Ireland's existing reputation for research excellence and recent significant public investment and trust in research. While the proposed structure focuses initially on the university sector, it is suggested that the agreed national guidelines and processes should be devised to account for the issues and challenges faced in ensuring the integrity of increasingly complex multi-institutional, cross-sector research partnerships including industry-academia collaborations.

### 7.1. GENERAL PRINCIPLES

It is proposed that an appropriate Irish structure for promoting and protecting research integrity should be non-burdensome, and implementation should initially take place institutionally with appropriate national oversight. The proposal negates the need to establish a potentially costly national, permanent structure (such as the Danish National Commission), as responsible for initiating the investigation and meeting investigative costs rests with the relevant institution and responsibility for research integrity remains with the research community. It is suggested that the Irish structure should adopt the international definitions and principles agreed by the ESF Members Forum on Research Integrity (reported Autumn 2010) to ensure consistency and alignment with agreed international norms and best practice.

### 7.2. KEY ASPECTS

The structure's key objective is to build consistency, fairness and transparency in the investigative process; application of sanctions, and appeals across the university system. It should facilitate, encourage and, where appropriate, regulate the following aspects of the national research system.

- Development of **national guidelines** and common procedures for the investigation of misconduct, led by a national advisory committee composed of representatives from the academic and research community.
- The initial **investigation** of allegations of misconduct and application of sanctions rests with the university, where each university establishes internal procedures to handle and process allegations, conduct investigations, and recommend outcomes consistent with national guidelines and procedures.
- Universities should be responsible for encouraging awareness of research integrity issues and good research practice; and provide **support** to undergraduate students, graduate students and staff engaged in research.
- **Sharing** best practice and experience is crucial to ensuring a transparent system that can inform the approach to research integrity promotion adopted by national structures, universities, and professional and disciplinary associations. All of the above have a shared responsibility to ensure this.
- Appellants would initially direct **appeals of** institutional decisions to the national structure/committee who will appoint an independent Appeals Panel for each appeal. Membership of the Appeals Panel will be drawn from the Standing Panels of Academic Experts identified by the Royal Irish Academy and include legal and other representation as appropriate.

### 7.3. SUGGESTED NEXT STEPS

1) Establishment of a National Advisory Committee to develop national guidelines and suggested procedures for a national research integrity system in Ireland. This Committee would be charged with:

- Agreeing a definition of research misconduct and principles of good research practice.
- Developing procedures for handling and processing research misconduct allegations and making recommendations on the respective role of individual researchers, the academic unit, the HEI and the research funding agency relative to the agreed procedures.
- Providing guidance on the preservation of anonymity while investigations are ongoing.
- Determining where and how institutions have a responsibility to report misconduct allegations to the relevant funding agency and/or national structures charged with promoting research integrity.



- Identifying where responsibility will lie for collation of national data on the level and incidence of allegations and investigations of misconduct. Agree terms under which such data are collected, the duration of retention and access.
- Determining of investigation time limits.
- Finding agreed jurisdictions for hearing and investigating allegations and imposing sanctions.
- Asserting and articulating the right of the involved parties for a fair hearing and author rules for the exclusion of conflicts of interest.
- Protecting whistle-blowers.
- Recommending a range of sanctions appropriate and comparable to the offence and jurisdiction for determining sanctions.
- Making recommendations on appeals process procedures.
- Securing agreement from universities to adapt the agreed guidelines and procedures to institutional procedures and policies.

**Who?** Membership of the National Advisory Committee should include representatives of the academic and scholarly research community, Irish Universities Association, individual universities, Royal Irish Academy, research funders, private research institutions and industry bodies.

- 2) Each university to ensure they have appropriate institutional procedures for handling, processing and investigating misconduct allegations as well as recommending outcomes consistent with agreed national guidelines and procedures.

**Who?** Irish Universities Association and individual universities.

- 3) Establish Standing Expert Panels at the national level to investigate appeals against institutional decisions. Membership of the Panels would be drawn from international and national disciplinary cohorts with a number of panels formed to ensure adequate coverage of disciplinary areas.

**Who?** Royal Irish Academy; disciplinary and professional associations.

- 4) Develop mechanisms for embedding good research practice into the culture of scholarship and promote awareness of research integrity issues, including support to promote good research practice to undergraduates, graduates and staff engaged in research. Specifically, it is suggested that a common module on research integrity principles and practices be developed and applied across all universities as part of undergraduate and postgraduate training.

**Who?** Universities, Irish Universities Association.

This model is a proposal at the very early stages of development and will require further review and revision, as discussion and dialogue continues between key stakeholders.

#### 7.4. RESOURCE IMPLICATIONS

The proposed model seeks to avoid a costly standing national commission or research integrity office. Responsibility for investigating misconduct allegations rests primarily with the local institution. Institutions will resource institutional investigations. In the event of an appeal against an institutional finding of misconduct, the institution remains responsible for meeting the costs of the appeal process, including the convening of the panel and site visits.

The preventive aspect of the structure focuses on the development of appropriate research integrity support for researchers; possibly including nationally appropriate modular professional development opportunities for researchers. These opportunities could be part of structured undergraduate and postgraduate education. Senior researchers should also receive this kind of support. The initial costs of developing this common training module should be shared across the universities with the accompanying implementation costs borne institutionally.

# Appendix 1

## MEMBERSHIP OF RESEARCH INTEGRITY WORKING GROUP

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## Endnotes

<sup>1</sup> Maura Hiney, 'Implementing research integrity codes of practice', presentation to the RIA Research Integrity Workshop, 24 September 2009. Available online at: <http://www.ria.ie/policy/working-groups.html#researchintegrity>; OECD, *Unofficial report on best practices for ensuring scientific integrity and preventing misconduct*: based on a workshop held on 22-3 February 2007, in Tokyo, Japan, submitted to the First World Conference on Research Integrity, Lisbon, September 2007, available at: [www.oecd.org](http://www.oecd.org).

<sup>2</sup> Pieter Drenth, 'Scientific integrity: code of conduct', unpublished draft prepared for Working Group 2 of the ESF Member Forum on Research Integrity.

<sup>3</sup> Drenth, 'Scientific integrity'.

<sup>4</sup> European Science Foundation and the Office of Research Integrity, 'Research integrity: global responsibility to foster common standards', ESF Policy Briefing 30, December 2007, 2.

<sup>5</sup> OECD, 2007, 3, available at: <http://ori.hhs.gov/>.

<sup>6</sup> OECD, 2007, 2. See also Drenth, 'Scientific integrity'.

<sup>7</sup> The Wellcome Trust specifically states that research misconduct does not include honest error or honest differences in the design, execution, interpretation or judgement in evaluating research methods or results. 'Fraud and misconduct in medical research: causes, investigation and prevention: a report of the Royal College of Physicians', *Journal of Royal College Physicians London*, (1991), 25: 89-94, as cited by Council of Science Editors, 2009, 38.

<sup>8</sup> OECD, 2007, 3

<sup>9</sup> Drenth, 'Scientific integrity', 7.

<sup>10</sup> International Committee for Science Committee on Freedom and Responsibility in the Conduct of Science: Statement on promoting the integrity of science and the scientific record, 2008, 1, available at: [http://www.icsu.org/Gestion/img/ICSU\\_DOC\\_DOWNLOAD/2136\\_DD\\_FILE\\_CFRS\\_statement\\_research\\_integrity\\_09\\_2008.pdf](http://www.icsu.org/Gestion/img/ICSU_DOC_DOWNLOAD/2136_DD_FILE_CFRS_statement_research_integrity_09_2008.pdf).

<sup>11</sup> Stefania Mojon-Azzi and Daniel S. Mojon, 'Scientific Misconduct: from salami-slicing to data fabrication', *Ophthalmologica* 36 (1) (2004), 218, 1-3, available at: <http://content.karger.com/ProdukteDB/produkte.asp?Aktion=ShowPDF&ArtikelNr=74559&Ausgabe=229755&ProduktNr=224269&filename=74559.pdf>.

<sup>12</sup> S.L. Titus, J.A. Wells and L.J. Rhoades, 'Commentary: repairing research integrity', *Nature*, (2008) (453), 980-2; Nicholas Steneck, Report to the First World Conference on Research Integrity, 'Fostering responsible research', Lisbon, September 2007.

<sup>13</sup> Roger Jones, 'Research misconduct', *Family Practice* 19 (2002), 123-4: 123.

<sup>14</sup> Titus, Wells and Rhoades 'Commentary'.

<sup>15</sup> European Science Foundation, 'Good Scientific Practice in Research and Scholarship', ESF Policy Briefing 10, December 2000, 14.

<sup>16</sup> Lawrence J. Rhoades, 'New institutional research misconduct activity: 1992-2001', US: Office of Research Integrity, Office of Public Health and Service, Department of Health and Human Services 2004, 5.

<sup>17</sup> Titus, Wells and Rhoades 'Commentary', 980.

<sup>18</sup> Mojon-Azzi and Mojon, 'Scientific Misconduct'.

<sup>19</sup> B.C. Martinson, M.S. Anderson, R. de Vries, 2005, 'Scientists behaving badly', *Nature* 435 (2005), 737-8.

<sup>20</sup> Nicholas Steneck 2009, 'International updates: Europe and Asia embrace the responsible conduct of research', *Journal of the Office of Research Integrity* 17 (2) (2009), 3; available at: <http://ori.hhs.gov>.

<sup>21</sup> ICSU Committee on Freedom and Responsibility in the Conduct of Science, 2008.

<sup>22</sup> ICSU Committee on Freedom and Responsibility in the Conduct of Science, 2008.

<sup>23</sup> G. Goldstein, 'Research misconduct—institutional responsibility and an invisible crisis', briefing prepared for Davis Wright Tremaine LLP, 2008, San Francisco, CA. Available at: <http://www.dwt.com/portalresource/lookup/wosid/intelliun-1501-8806/media.pdf>.

<sup>24</sup> This commission replaced the National Research Misconduct Committee established in 1994.

<sup>25</sup> The Commission is composed of seven members, with four substitutes, nominated for a period of four years (renewable not more than once), who cover different fields of research. Members are appointed by the Ministry of Research based on submissions from the Norwegian Research Council: It draws on external, national or foreign expertise to deal with particular cases. Online source: <http://www.etikkom.no/In-English/ScientificMisconduct/>.

<sup>26</sup> See: [http://www.ukrio.org/sites/ukrio2/uk\\_research\\_integrity\\_office\\_ukrio\\_/index.cfm](http://www.ukrio.org/sites/ukrio2/uk_research_integrity_office_ukrio_/index.cfm).

<sup>27</sup> European Science Foundation/All European Academies, Code of Conduct for Scientific Integrity, unpublished draft, September 2009; outcomes of working group 3 kick-off meeting, Wednesday 6 May 2009, Dublin, made available by working group.

<sup>28</sup> Alan Donnelly, 'Ensuring research integrity: the issues and options for Ireland', presentation to the RIA Research Integrity Workshop, 24 September 2009. Available at: <http://www.ria.ie/policy/working-groups.html>.

<sup>29</sup> OECD Global Science Forum, 2007.

<sup>30</sup> OECD Global Science Forum, 2007.

<sup>31</sup> OECD Global Science Forum, 2007, 6.

<sup>32</sup> OECD Global Science Forum, 2007, 6.