DEVELOPING A NATIONAL SYSTEM FOR UNDERSTANDING CAREER OUTCOMES OF POSTGRADUATE RESEARCHERS FROM THE IRISH SYSTEM

Recommendations of the National Framework for Doctoral Education (NFDE) Advisory Forum Career Tracking Working Group

Contents

1

- Executive Summary
 - 1.1 Project Initiation
 - 1.2 Project Overview
 - 1.3 Key Recommendations for a National Re Acknowledgements
- 2 Introduction
 - 2.1 Project Context
 - 2.1.1 Guiding Principles
 - 2.1.2 Career Tracking Working Group
 - 2.2 Postgraduate Students in the Irish Syster
 - 2.3 Purpose of Establishing Graduate Career
 - 2.3.1 Consultation on International Approache
 - 2.3.2 Benefits of a Longitudinal Graduate Care
- 3 Recommendations for a National Care
 - 3.1 Project Scope and Timelines
 - 3.2 Key Actors and Relationship Building
 - 3.3 Methodological Approach
 - 3.3.1 Evaluation of the Administrative Dataset
 - 3.3.2 Complementing the Administrative Data
 - 3.4 Data Collection and Protection
 - 3.5 Outputs and Reports
- 4 Concluding Remarks

Appendix 1: Overview of Career-tracking Initiative Approaches within Ireland International Approaches

	4
	5
	6
esearcher Career Tracking Project	7
	10
	11
	12
	13
m	14
r Tracking Systems	16
es to Graduate Career Tracking	16
eer Tracking System	17
eer-tracking Initiative	18
0	19
	19
	21
Pilot Project	21
aset Pilot Project	22
	23
	24
	25
es	27
	28
	29

EXECUTIVE SUMMARY

1.1 Project Initiation

The National Framework for Doctoral Education (NFDE) Advisory Forum (hereafter Advisory Forum) is co-Chaired by the Higher Education Authority (HEA) and Quality and Qualifications Ireland (QQI). In 2020 a review of the National Framework for Doctoral Education 2015 (NFDE) was commissioned by the Advisory Forum and carried out by EUA Solutions. The final report, published in 2021, included a recommendation that "building on already on-going data collection, career tracking should be further developed."¹ As a result, a working group consisting of members of the Advisory Forum was established and tasked with carrying out a scoping exercise, it set out to develop a proposal for the development of a national postgraduate researcher career tracking project.

Impact 2030², Ireland's Research and Innovation Strategy, places talent at the heart of the research, higher education and innovation ecosystem. It emphasises the significance of research talent in strengthening links between and across society and industry, the importance of nurturing and attracting research and innovation talent at all stages and of preparing postgraduate research students for a diversity of career opportunities. Moreover, a specific action for "systematic collection of information on the outcomes of further education and training graduates" was recommended in the OECD Skills Strategy Ireland 2023³. Work is being initiated in this space at the European level by the OECD/EU Research and Innovation Careers Observatory which aims to co-develop data for monitoring research and innovation careers.

Currently in Ireland, the HEA's Graduate Outcomes Survey captures data graduate destinations nine months post-graduation. Its focus relates mainly to employment and further studies outcomes. Data produced by the Central Statistics Office (CSO), via the Educational Longitudinal Database, is also employment-focused and links HEA graduation records with Revenue and Social Protection administrative data. Ten years of this data is available to the survey through the CSO and HEA.

However, there is no dedicated central national, long-term career tracking mechanism in place for tracking the outcomes of research postgraduate students. While the impact of a postgraduate research degree is broadly acknowledged,⁴ there is a need to further develop the supports that capture the 'value-added' dimension of a postgraduate research qualification across all disciplines.

Quantifying and elucidating this value-added dimension is seen as important in attracting talent into research and indeed for the system to collectively make the case for investment in research and innovation⁵.

The systematic tracking of research postgraduate degree holders (hereafter postgraduate researchers) employment destinations and career development, presents challenges identified internationally, at national level and at institutional level. Engagement with leaders working on such systems informed the work of the group. The working group also identified the same challenges to developing a system for Ireland.

- 2 Impact 2030: Ireland's Research and Innovation Strategy
- 3 OECD Skills Strategy Ireland
- 4 Academy of Finland, 2017.
- 5 Department of Further and Higher Education, Research, Innovation and Science, 2022

¹ EUA Solutions The National Framework for Doctoral Education in Ireland: Report on its Implementation by Irish Higher Education Institutions (2021)

1.2 Project Overview

In line with the agreed Terms of Reference for the working group, members met throughout 2022 and 2023.

The working group particularly welcomed the holistic and intersectoral approach requested by the Advisory Forum for this proposal, with particular emphasis placed on issues pertaining to appropriate data collection and management. The complexity posed by challenges identified at international, national and institutional level can be best addressed by drawing on the following:

- the diversity of knowledge, skills and experience of stakeholders that form the cornerstones of the > higher education and research sector,
- existing knowledge of postgraduate training and development in Ireland, and >
- a broad range of external and international expertise. >

The group's work was informed by:

- data available through the HEA and the Central Statistics Office, >
- an internal pilot project undertaken by the CSO and the HEA in 2023 considering how available data >could be further utilised,
- consultation with those delivering career tracking systems internationally, and >
- the extensive knowledge and expertise of the group membership. >

1.3 Key Recommendations for a National Researcher Career Tracking Project

The working group agreed that achieving a systematic approach to collecting enhanced quantitative and gualitative information in Ireland would involve moving beyond once-off surveys of particular cohorts to ongoing longitudinal collection of data on the roles, employment sectors and locations of postgraduates from the Irish system as their careers develop. As such it is recommended that any system that may be developed will focus on career outcomes rather than tracking.

Several key challenges were noted by the working group in achieving an ambition of this scale, and their five recommendations, listed below, were cognisant of these potential barriers and included appropriate mitigation factors, where relevant.

- Refocusing the objective of the project on "Career Outcomes", j)
- ii) Developing a dual-pronged approach, building on an administrative dataset approach and qualitative approaches,
- iii) Allocating dedicated resources and personnel to achieve a project of this scale estimated at €80,000 per annum,
- iv) Establishing an Advisory Committee representing key stakeholders in the national system,
- v) Adopting appropriate dissemination channels for promotion of key findings and reports.

i) Refocusing the objective of the project on "Career Outcomes"

In the recommendations of the Working Group, the group identified and emphasised the need to focus on "career outcomes" as the objective of the project, as opposed to "career tracking". This recognises that postgraduate researchers (PGRs) will not be continually tracked and would reflect the capturing of broader data relating to the benefits of pursuing a postgraduate research degree. In sections throughout this report, there are references to "career tracking" in acknowledging the existing literature and policies on this space, as well as the initial request to the working group.

ii) Developing a dual-pronged approach, building on an administrative dataset approach and qualitative approaches

The working group proposed a dual-pronged approach for establishing a national system for understanding career outcomes of PGRs from the Irish system. The approach proposed by the working group stresses the importance of using the available administrative data linked to the Personal Public Service Number (PPSN) of PGRs and the future enhancement and development of what is collected. The enhancement of data collected through HEI's student record systems (SRSs) to include data on funding source/award was identified by the group as something to be considered in any future update of the SRS.

The working group acknowledged the current extent of PPSN coverage and the extensive work done in this area to expand the coverage. It also acknowledged the gaps identified in coverage of international students and the difficulty in tracking international students as a challenge experienced by countries implementing tracking systems outside of Ireland.

It is proposed that the use of the available administrative data, and any additional administrative data that may become available in the future through SRS updates or by other means, be complemented by a qualitative approach, whereby population subsets will be sampled for further in-depth qualitative assessment. The activities of both approaches will be guided by an ongoing Advisory Committee.

iii) Allocating dedicated resources and personnel to achieve a project of this scale – estimated at €80,000 per annum

The working group emphasised the resource-intensive nature of the development and continued implementation of such a system, and the need for dedicated personnel to facilitate developing and sustaining the implementation of the project.

At the initiation phase, it is estimated that these tasks would require sourcing at minimum 0.5 FTE Higher Executive Officer and 0.5 FTE Analyst (noting that the project will benefit from subsequent expansion in the team) dedicated for implementation of this project. Based on point 4 of current salary scales, this is estimated at €59,560 per annum, with an additional €20,440 per annum estimated for software licensing and local travel expenses for continuous stakeholder relationship brokering.

Specific tasks will be delivered by the dedicated personnel, which include working and liaising with the vast range of stakeholders involved, and including designing, developing and administering qualitative assessment, coordinating the analysis of the generated data and to disseminate the findings through various means and channels. The dedicated personnel would also continue to foster a close working relationship with the CSO.

iv) Establishing an Advisory Committee representing key stakeholders in the national system

The group noted the benefits to the national system of establishing a coordinated approach for data collection, information-sharing, strengthening stakeholder networks, and development of resources and guides. Thus, the group recommended establishing an Advisory Committee with representation from key stakeholders in the national system, including the Department of Further and Higher Education, Research, Innovation and Science (DFHERIS), the Higher Education Authority (HEA), the Central Statistics Office (CSO), postgraduate students, Higher Education Institutions (HEIs), research funders including the new agency, Taighde Éireann/Research Ireland, once established, and prospective employers including representation from industry.

The Advisory Committee will work with the NFDE Advisory Forum, the HEA and the CSO in advising on next steps and building on these recommendations. It is expected that the Advisory Committee will meet at a minimum of twice a year and will develop their Terms of Reference with the NFDE Advisory Forum.

v) Adopting appropriate dissemination channels for promotion of key findings and reports

Members of the working group agreed that the value of and outcomes from completing a postgraduate research degree expand beyond the financial aspect. It is recommended that the proposed system should illustrate this by emphasising the:

- > benefit of the degree,
- > journey undertaken,
- > transferable skills learnt,
- knowledge obtained and its application, and
- > diversity of career paths available to PGRs.

In avoiding duplication of efforts, the promotion of outcomes from this project will be linked to existing work including HEA Graduate Outcome Survey and the newly established myphd.ie.



Acknowledgements

This report in summarising the recommendations of the National Framework for Doctoral Education (NFDE) Career Tracking Working Group, reflects the passion and enthusiasm of the working group members to the topic at hand. We thank all the contributing members of this group for their time and dedication to this project.

The working group also extends its sincere gratitude to the contacts that generously shared their experiences and resources in career-tracking through the consultation sessions:

- > Dr Anneleen Mortier, Senior Researcher & Project Manager in ECOOM (UGent), team leader of the PhD career survey project.
- > Dr Antje Wegner, Research Area, Research System and Science Dynamics Researcher, co-lead of the National Academics Panel Study (NACAPS).
- > Dr Claudine Lysinger, Head Graduate Campus at University of Zurich, Chair of the EUA-CDE Thematic Peer Group Report *Tracking the Careers of Doctorate Holders*.
- Ms Eva Steenberghs, Research Data Coordinator, University of Ghent, manager of the ECOOM (UGent)
 Human Resources in Research Flanders (HRRF) database which monitors researchers and their
 academic careers in Flanders.
- Ms Julia Boman, Science Officer, Development Coordinator Grant Evaluation, European Science Foundation, co-author of the DocEnhance document, What comes after a PhD? Finding from the DocEnhance survey of doctorate holders on their employment situation, skills match and the value of the doctorate.

We would also like to thank the Higher Education Authority and Central Statistics Office for the pilot project that was immensely valuable for the recommendations of the working group, with special thanks to the following:

- > Mr Brian Stanley, Statistician, Central Statistics Office;
- > Mr David Reilly, Senior Executive Officer, Statistics Section, Higher Education Authority;
- > Mr Kieran Culhane, Senior Statistician, Central Statistics Office;
- > Mr Paddy Furlong, Statistician, Central Statistics Office; and
- > Ms Valerie Harvey, Head of Performance Evaluation, Statistics Section, Higher Education Authority.

2 INTRODUCTION

2.1 Project Context

In Autumn 2020, a study on the level of implementation of the National Framework for Doctoral Education (NFDE)⁶ within Irish Higher Education Institutions was commissioned by the HEA, Quality Qualifications Ireland (QQI), Irish Universities Association and Technological Higher Education Association. The study, which was undertaken by European University Association (EUA Solutions), provided useful and tangible recommendations to strengthen implementation of the NFDE, and strengthen postgraduate education in general. Among the key findings of the report, it was recommended that consideration be given to how a researcher career tracking system could be put in place in Ireland. This project has been identified by the NFDE Advisory Forum as one of several priorities for action.

Systematic tracking of postgraduate researchers (PGRs) employment destinations and career development is a challenge identified by the national research systems and institutions around the world. The level of knowledge and data about the career development of post graduate researchers' post-qualification has been developed in recent years by the HEA⁷ together with the CSO⁸ by delivering the Graduate Outcomes Survey which captures graduate destinations nine months post-graduation (Appendix 1). Its focus relates mainly to employment and further studies outcomes. Data produced by the CSO, via the Educational Longitudinal Database (ELD), is also employment-focused, linking HEA graduation records with Revenue and Social Protection administrative data. Ten years of this data is available to the survey through the CSO and HEA.

However, there is no dedicated central national, long-term career tracking mechanism in place for the same graduates. While the benefits of a postgraduate research degree are broadly acknowledged, there is a need to further develop mechanisms to evidence and communicate the 'value-added' dimension of a postgraduate research qualification' across all disciplines⁹. Quantifying and elucidating this value-added dimension is seen as important in attracting talent into research and indeed for the higher education and research system to collectively make the case for investment in research and innovation.

Accordingly, a Working Group consisting of members of the NFDE Advisory Forum was established. The Working Group was tasked with carrying out a scoping exercise, and subsequently developing a proposal for the NFDE Advisory Forum on the development of a national researcher career tracking project. The working group particularly welcomed the request for this proposal, with emphasis on the need to draw on the diversity of stakeholders within the national system and their broad range of expertise to address questions of such complexity.

6 The National Framework for Doctoral Education in Ireland: Report on its Implementation by Irish Higher Education Institutions

- HEA Graduate Outcomes
- 8 Higher Education Outcomes

The NFDE Advisory Forum Postgraduate Career Profiling Group established a dedicated site to illustrate the 'value-added 9 dimension of postgraduate research qualification' called MyPhD.ie

2.1.1 Guiding Principles

A working group was tasked with developing a proposal by November 2023 for a national researcher career tracking project, with a view to the proposal being developed further through tendered work. The aim of the project is to be a sustainable longitudinal approach for the collection of data on the roles, sectors and locations of PGRs from the Irish system as their careers develop.

2.1.2 Career Tracking Working Group

The National Framework for Doctoral Education Advisory Forum (NFDE) invited members of its Advisory Forum to join a Career-Tracking Working Group in 2021. The initial membership of the Working Group was agreed in 2021, and the Terms of Reference was progressed in November 2022, followed by subsequent meetings of the working group that led to the development of the recommendations summarised in this report. The working group was asked to consider how a national career tracking system can be developed for the Irish national system, in order to better understand and support the career development of postgraduate researchers. They shared views on different career-tracking approaches, both nationally and internationally, and exchanged examples of good practices with the aim to provide a recommendation to the NFDE Advisory Forum.

The group initially developed the Terms of Reference for this project, which was accepted by the NFDE Advisory Forum and set about to thoroughly explore the task at hand. The group was chaired by one participating member, Dr Maysoun Mustafa, and was coordinated by the HEA Secretariat. Meetings were hosted virtually over the period of November 2022 to October 2023, and minutes of meetings held were recorded and stored on a SharePoint accessible to all members.

Composition of the working group (listed alphabetically):

- > Dr Aine Ni She, Munster Technological University,
- Prof Ann MacPhail, University of Limerick / Prof Ann Ledwith, University of Limerick, >
- David Reilly, Higher Education Authority,
- Dr Gráinne Walshe, Irish Research Council,
- Kieran Culhane, Central Statistics Office, >
- Jane Kavanagh, Teagasc,
- Prof Mary McNamara, Technological University Dublin,
- Dr Maysoun Mustafa, Science Foundation Ireland, >
- Dr Michele Glacken, Atlantic Technological University,
- Prof Niamh Moran, Royal College of Surgeons in Ireland,
- Prof Paul McCabe, University College Dublin,
- > Valerie Harvey, Higher Education Authority, and
- Wagar Ahmed, Union of Students in Ireland.

Support and advice was provided by (listed alphabetically):

- Dr Deirdre Quinn, Higher Education Authority,
- Niall Kelly, Higher Education Authority, >
- Shane Walshe, Higher Education Authority, and
- Dr Peter Clifford, Science Foundation Ireland.

2.2 Postgraduate Students in the Irish System

Government investment in higher education over the last 20 years, has transformed Ireland into one of Europe's top innovation nations. Ireland is currently 1st in the world for knowledge diffusion, 6th for university-industry R&D collaboration, and 15th in global scientific ranking¹⁰. Ireland ranks 2nd for Agricultural Sciences, 4th for both Immunology and Neuroscience, and 6th for Microbiology. The CSO reports that Ireland has one of the highest educational attainment rates globally¹¹. In 2021, 62 % of 25–34year-olds in Ireland had tertiary level qualification compared with the EU-27 average of 41%. In the academic year 2022/2023 there were more than 12,000 students registered for research awards, at master's and doctoral level (a number that has been steadily increasing since 2010/2011 with 10,500 students registered¹²), and today 2000 graduate annually with higher awards, an increase of 11 % compared to 2017¹³. But where do our postgraduate research (PGR)¹⁴ graduates go? Analysis of career outcomes by the HEA and CSO answer this question. A dedicated and centralised mechanism for career tracking could address the more detailed questions around career progression raised by the Working Group.

Impact 2030, Ireland's Research and Innovation Strategy, promotes research and innovation to address both the economic and social challenges we face today. One of its five pillars places talent at the centre of the research and innovation ecosystem¹⁵. The recently launched Global Citizen 2030: Ireland's International Talent and Innovation Strategy complements Impact 2030. Other strategies such as Project Ireland 2040 and the National Skills Strategy 2025, also address the need for a talented population, where graduates of our research programmes are well suited to the modern business, commercial and industrial environments, as well as the more traditional careers in academia and research.

Ireland's National Framework for Doctoral Education (NFDE) was first published in 2015 with an aim of supporting excellence in all forms of doctoral education programmes in Ireland (Box 1). All Irish HEIs are committed to implementing the principles of the NFDE and see the quality of the doctorate awarded in Ireland as a vital contributor to the development of human and knowledge capital and more broadly a vibrant talent pool. HEIs have worked with all stakeholders to provide the highest quality research experience and outcomes for our research students. Research degree programmes across the sector are designed to ensure graduates develop the transversal skills necessary to take up careers, not just in academia, but across a broad range of employment sectors. Doctoral graduates are, first and foremost, independent researchers and support existing and emerging industries, at home and abroad. A comprehensive understanding of PGR graduate skills will also enhance Irish competitiveness and prestige at an international level, positioning Ireland at the leading edge of developments. Analysis of career outcomes can help inform further development and continuous improvement of our research programmes, so as to ensure graduates have in-depth discipline-specific knowledge, complemented by a range of transversal skills and can make significant contributions in any field. NFDE Advisory Forum also led a complementary but separate project focused on providing greater clarity on the experiences and career pathways of PGR students, establishing the website myphd.ie. Moreover, analysis of career outcomes could also enable Ireland to benefit further from European and global opportunities, including increased engagement with EU and international research policy and funding.

National Framework for Doctoral Education and its Advisory Forum

National Framework for Doctoral Education (NFDE) was first published in 2015, through a partnership of the HEA, QQI and the HEIs. It set out the main principles underpinning Irish doctoral education and was supported by institutions and research funders. The NFDE articulates four central purposes:

- facilitate consistent excellence in the quality of postgraduate education and training, including research undertaken at master's and doctoral level,
- enable and encourage HEIs to work more closely in the delivery of an improved learner- experience and outcome,
- ensuring that the acquisition of discipline-specific knowledge is complemented by the development of transferable skills, and
- underpin the international standing of the Irish doctoral award.

The NFDE was recently refreshed with the revised version launched in July 2023, incorporating new changes that include recent developments such as progress in equality, diversity and inclusion policies, as well as the Healthy Campus Framework and National Student Mental Health and Suicide Prevention Framework.

An Advisory Forum on the NFDE is co-chaired by HEA and QQI, with representatives from the different stakeholders involved in the NFDE. The Advisory Forum meets throughout the year to discuss new and innovative ways to expand on the Framework and ensure its standards and quality are kept at the highest level.

maximise the employability of doctoral graduates across a broad range of employment sectors by

¹⁰ Science Foundation Ireland Annual Report 2022

¹¹ Central Statistics Office Educational Attainment Thematic Report 2022

¹² https://hea.ie/assets/uploads/2017/06/Towards-a-Performance-Evaluation-Framework-Profiling-Irish-Higher-Education.pdf

¹³ Higher Education Authority Statistics

¹⁴ Level 9 and Level 10 of Ireland's National Framework of Qualifications

¹⁵ Impact 2030: Ireland's Research and Innovation Strategy

2.3 Purpose of Establishing Graduate Career Tracking Systems

Investment in career tracking systems may take place at national, regional or institutional level¹⁶. Establishing initiatives that follow up on PGR careers over a certain time period to understand their career pathways are various in nature¹⁷. Such initiatives work towards collecting and aggregating data on PGR career aspirations and outcomes from HEIs and provide insights on the experiences and outcomes of postgraduate training at the national level. Career tracking initiatives are multi-phased processes that aim to improve PGR education through data collection, information-sharing, university networks, and resource development.

Current data¹⁸ shows that PGRs careers do not always follow a linear trajectory, with an increase in intersectoral mobility of graduates regularly moving between academia and other sectors¹⁹. While this could present a challenge in preparing prospective students for lifelong learning, it also presents an opportunity and the possibility of multiple career pathways. Collecting and sharing data and information on the careers of PGRs helps both prospective and current students make more informed decisions about their career plan. Furthermore, the number of PGR degree holders is increasing each year. There is an increasing trend of doctorate degree holders moving into careers outside of the higher education sector, the sector which usually hosts the highest number of doctorate degree holders²⁰ (albeit in diverse roles within the sector). Particularly, given the significant investment of time and money in doctoral programmes by individuals and funding bodies (both private and public), there is growing policy interest in the contributions of doctorate holders across a diverse range of sectors.

2.3.1 Consultation on International Approaches to Graduate Career Tracking

Consultation meetings took place in Q2 of 2023 with international experts in career tracking to help aid with the development of recommendations for a national PhD career tracking system. Representatives from the CTWG including the Chair met with project leaders from the University of Zurich (Switzerland), National Academics Panel Study (Germany), Human Resources in Research Flanders (Belgium), PhD Career Survey (Belgium) and European Science Foundation (ESF) to discuss their approaches to career tracking.

The consultation meetings were beneficial to the CTWG as it gave the group an understanding of the different approaches to career tracking taken across Europe and outlined the strengths and weaknesses of these approaches. For the most part, countries focused on surveys to obtain data on PhD career tracking and in one instance a combination of administration and survey data was used. Overall, the consultation meetings outlined the resource-intensive nature of career tracking, GDPR barriers to tracking PhD graduates, the importance of relationship management and buy-in from HEIs and the necessity of having up-to-date contact details from the respondents to facilitate the gathering of longitudinal outcomes. The meetings also underscored the considerable amount of data already collected in Ireland by the CSO's Educational Longitudinal Database (ELD) and The HEA's Graduate Outcomes Survey and that this data could be further leveraged for a national PhD career tracking system.

- 19 Employment Outcomes for Doctoral Graduates 2017, 2018 and 2020
- 20 Graduate Outcomes All Years 2018 2023

A summary of these meetings was presented by the CTWG Chair to the wider CTWG group at its May 2023 meeting. Insights from the consultation meetings were key in providing an international evidence base which to work from in the development of the group's recommendations report. Further information on the consultation meetings can be found in Appendix 1.

2.3.2 Benefits Of A Longitudinal Graduate Career Tracking System

The opportunities offered by implementing a longitudinal career tracking system include:

Transparency on the diversity of PGR career pathways

A longitudinal system can provide the figures and insights needed for a better understanding of the employment landscape and potential PGR career pathways. It can enhance the information on the contribution doctorate holders make across a diverse range of sectors and inform current students and prospective candidates about how their future careers could unfold. An expansion on the current tracking that is done can also provide better insight into the impact of Level 10 qualifications on professional development, on the need to consider additional upskilling opportunities and inform the trajectory of future policies in the area.

Quality of research training and skills

Long term tracking would also provide better understanding of the diverse skills training and needs addressed through PGR programmes. It would play a pivotal role in strengthening student support systems that operate across the various phases of students' (and graduates') journeys. Additional advantages would also include the opportunity to strengthen links to alumni and better understand their motivation / satisfaction with the degree and the extent to which their skill needs were addressed, and plan for future student cohorts.

Accountability and impact assessment

Through better understanding of the career outcomes of PGRs, there are opportunities for evidence- based information that can support decision-making within institutions as well as informing policy of relevance to postgraduate training and education. It would be instrumental in supporting activities within and between higher education institutions and setting goals and indicators to further enhance management, teaching and services. Moreover, this could also impact on the ability to potentially increase the participation and success of diverse groups in graduate programmes.

¹⁶ Tracking Learners' and Graduates' Progression Paths TRACKIT tracking learners and graduates progression paths trackit (eua.eu)

¹⁷ Tracking the careers of doctorate holders (EUA-CDE Thematic Peer Group Report)

¹⁸ Education at a Glance (OECD 2019)

RECOMMENDATIONS FOR A NATIONAL CAREER-TRACKING INITIATIVE



3.1 Project Scope and Timelines

A systematic approach was proposed by the working group for understanding career outcomes of PGRs through longitudinal collection of data on the roles, sectors and locations of PGRs from the Irish system as their careers develop. The group emphasised the need to focus on "career outcomes" in the project's scope, as opposed to "career tracking". This recognises that graduates will not be continually tracked and reflects the aim of this project in capturing broader data relating to the benefits of pursuing a postgraduate degree.

3.2 Key Actors and Relationship Building

Career tracking initiatives can have impacts across diverse stakeholder groups and multiple spheres, such as supporting the development and delivery of learning and teaching, support services for postgraduate students, and support in strategic dialogue and objective setting in the national policy landscape. As such, diverse groups of actors are impacted by any career tracking initiative, and it is important that their perspectives are appropriately reflected. Building appropriate stakeholder relations is key to the success of such an initiative.

There is a need for dedicated personnel to facilitate liaising and working with the vast range of stakeholders involved, including fostering a close working relationship with the CSO, and including designing, developing and administering qualitative assessment, coordinating the analysis of the generated data and disseminating it through various means and channels. At the initiation phase, it is estimated that these tasks would require sourcing at minimum 0.5 FTE Higher Executive Officer and 0.5 FTE Analyst (noting that the project will benefit from subsequent expansion in the team) dedicated for implementation of this project. Based on point 4 of current salary scales, this is estimated at €59,560 per annum, with an additional €20,440 per annum estimated for software licensing and local travel expenses for continued relationship brokering with relevant stakeholders.

In its recommendations, the working group emphasized the importance of developing an ongoing Advisory Committee that guides the subsequent outputs of this project, reflecting the diverse perspectives and interests of the diverse stakeholders. While the development of the Terms of Reference for the engagement of this Advisory Committee was not within the scope of this working group, it is recommended that the group work to advise the HEA and dedicated personnel on the development of the mechanism including any qualitative engagement with students and HEIs that may arise, its continued implementation, assists with and advises on the dissemination of the analysis of data. It is also proposed that the committee include representatives from:



3.3 Methodological Approach

A pilot project for extracting administrative data from the CSO database on doctoral graduate outcomes was proposed and implemented by CSO and HEA over three months during the summer of 2023. This pilot project was conducted to highlight data already present within the system, and for the working group to evaluate the potential in utilising the available data for developing a national system for understanding career outcomes. The data findings²¹ were shared with the working group for their evaluation and consideration.

3.3.1 Evaluation of the Administrative Dataset Pilot Project

An initial analysis of Personal Public Service Number (PPSN) coverage, conducted by the CSO, of both Irish and international students in possession of PPSN between 2013 to 2021. PPSN coverage was found to be significantly higher in 2021, with 82% of graduates registering a valid PPSN compared to 53% in 2010. This is a critical factor, as the ability to track graduates is dependent on the graduates having a valid PPSN. The working group noted the positive trend towards significant improvement in PPSN coverage. The data findings of this pilot project showcased the ability to gather insights on various aspects, that include:

- > Graduate age, across different disciplines,
- > Employment outcomes at five years after graduation,
- Intersectoral mobility noting that this data does not provide visibility on career progression within the > same sector as data on internal promotions is not captured, and
- International mobility while employment outside of Ireland cannot be tracked, the data available > shows movement outside Ireland and the return of graduates who are employed within the Irish economy.

The working group evaluated these findings and were satisfied that the data being collected facilitates the identification of potential differences in gender pay bands, variations in graduate outcomes with respect to different fields of study and differentiating between international mobility of Irish and international students.

Funding source/award received and PPSN coverage of international students were identified as two areas where data was lacking. Data on funding source/award could potentially be captured through an updated system student record system and the working group recommended this enhancement acknowledging that it will take additional time to implement such a change and for the data to be included as part of any analysis. While the members noted the impact of lower PPSN coverage for international students on capturing a complete picture of postgraduate outcomes, they were satisfied with the data provided.

²¹ Refer to report on Findings from CSO Analysis of Doctoral Graduate Outcomes



3.3.2 Complementing the Administrative Dataset Pilot Project

To complement the administrative approach, the working group recommended that career tracking include a qualitative aspect to help to address gaps in the administrative data, specifically qualitative questions such as understanding perceptions and motivations of PGR students and alumni. The group agreed that rather than developing a longitudinal qualitative survey which would have diminished returns over a long period of time, the inclusion of qualitative information could be achieved through a targeted qualitative study utilising interviews, focus groups and other complementary methods that may be recommended by the Advisory Committee (section 3.2). Moreover, the group also recognised the importance of existing behaviour and attitudinal surveys primarily administered by the CSO, as well as other sources of data such as the Census, that would provide important complementary sources of information.

Two qualitative designs are proposed as potential considerations for the collection of data that further explores, and provides context to, the substantial level of quantitative data. One design would be an indepth qualitative survey completed by sampling the population whose data had been captured from the CSO database and seeking detailed responses to open-ended questions focused on topics captured by the database. Prompts might include questions such as 'How do you explain ...?', 'What do you expect ...?' The qualitative survey would act as a precursor to interviews and/or focus groups that would include questions that were informed by initial themes or issues raised from the qualitative survey responses.

A second design would be to consider what data from the CSO database would be meaningful to explore further and to construct and pilot interview/focus group protocols before conducting the agreed protocols with a sample of the population. In both design instances, a decision would need to be made on how often data was to be collected if it was to make a contribution to the understanding of career tracking. Potentially, there could be more return from identifying a relatively small population to track over several years with a view that an investment in the same would be more feasible and meaningful. A balance of how long each data collection point would be, would need to be balanced with the duration over which data was to be collected keeping in mind the tracking nature of the interviews/focus groups, i.e., 50-minutes interviews/focus groups every six months over a three-year period may be more feasible and attractive to participants that one two-hour interview over three years.

3.4 Data Collection and Protection

In their recommendations, the working group notes that smaller datasets cannot be made public because of GDPR restrictions and the risk they pose to exposing individual identities. Certain principles would need to be adhered to, such as ensuring data handling is fully compliant with GDPR regulations and that data is anonymized. Moreover, the group emphasised the need for transparency in any system that may be adopted. Postgraduate students will need to be informed that data will be used for statistical purposes which may be used for publications and presentations of the findings.

Regarding the qualitative approach, access to participants is now heightened given the prevalence of social media as a recruitment method and the reliance on online interviews/focus groups over the recent years with well-established protocols on conducting, storing and analysing the same. It would be prudent to consider from the outset the intended audience and output that is envisaged from the collection and analysis of qualitative data as this can inform the most meaningful, relevant and worthwhile way in which to collect the qualitative data and subsequently the presentation of qualitative data.

Strong messaging would also need to accompany the implementation of this system, noting that the data is part of a larger evidence base that can be used to fill a much-needed knowledge gap on researcher destinations and inform the further development of postgraduate research education in Ireland. In relation to qualitative data that may be collected, it is of the utmost importance that PGRs be informed of data retention policies and have the option to withdraw or opt out from such collection.

3.5 Outputs and Reports

An important consideration of any career-tracking initiative is the development of resources that are accessible and meaningful to the relevant stakeholders. There are fascinating stories to share, and learn from, related to graduate career pathways. Capturing the related nuances of these stories can be powerful in convincing stakeholders of the realities that need to be addressed and supported. Such outputs can directly contribute towards supporting greater transparency about PGR career aspirations, both for current and prospective students. It can also provide a useful resource for HEIs in informing the development of relevant curricula for PGRs, as well in development of career services, mentoring and other professional development opportunities. Prudently, it would be valuable to build on and link with existing resources (such as HEA Graduate Outcomes Survey and the newly established MyPhD.ie website) for disseminating outputs and findings.

There is a very strong value as well of such outputs in informing policy briefs pertaining to PGRs and various aspects of relevance to them. Other valuable resources, such as communication guides, could also be developed and can be useful for anyone who works to communicate about postgraduate education. The value of such outputs could be particularly useful when reflecting on the career diversity of graduates and closing the loop on communication of career pathways. Moreover, the qualitative reflective component of this project, and related outputs, could also offer meaningful information on how to support greater diversity within the cohort of postgraduate students, or subsequent career destinations. Such information would be valuable in the development of guides on closing gaps for the increased participation of underrepresented groups.



CONCLUDING REMARKS

As outlined in sections above, the working group acknowledges the work already done in this area and the requirement for students to possess an active PPSN to facilitate tracking and the significant increase in PPSN coverage over the past decade (83% at 2021), and the ongoing efforts within the Irish higher education system to further improve on PPSN coverage. The working group welcomes ongoing efforts in this space, noting that this lies beyond the scope of the working group.

Moreover, the group recognised the importance of valuing existing efforts in data collection through other approaches, including behaviour and attitudinal surveys primarily administered by CSO, that could complement the proposed approach. These could be utilised to provide relevant data.

In their recommendations, the working group showed an appreciation for the diversity of career trajectories and pathways, emphasising that such a systematic approach to understanding career outcomes should not be interpreted as an instrument for measuring "success" in careers. Equally, the working group agreed that outcomes captured through this system would need to extend beyond the financial aspect, and illustrate the benefit of a postgraduate career, such as through the diversity of skills acquired and learnt, knowledge obtained, diversity of career pathways and level of career satisfaction.

The group also emphasised the significant resources and time that will need to be invested for such an initiative. To encourage the timely uptake of key findings derived from the implementation of a career-tracking system, the group recommended the formation of an ongoing "Advisory Committee" with representation from across the diverse stakeholders. The functions of this committee would include guiding the subsequent qualitative assessment approaches, as well as guiding the development and dissemination of policy briefs and communication guides.



APPENDIX 1

Appendix 1: Overview of Career-tracking Initiatives

There is an increasing number of initiatives for tracking PGRs taking place at both national and institutional levels. This is largely associated with the positive trend seen with regards to growth in number of students undertaking postgraduate research programmes. Moreover, increased emphasis on better understanding of entry into labour market and employability of graduates has been a significant driving force behind the increase in career tracking initiatives. This is particularly important, as the trend for graduate mobility (both intersectoral and international) is seen to increase globally.

Importantly, enhanced technical possibilities as a result of improvement in data capturing, storage and analysis offers unique opportunities that have made career-tracking initiatives increasingly possible and more desirable. Last but not least, the changes in policy scene with a noted increase in the demand for transparency and accountability, as well as a drive towards evidence-based policy making has been an important factor as well.

Predominantly, two approaches towards career-tracking are adopted; Survey approach; and administrative data approach building on a centralised database. Both approaches have strengths and weaknesses that are important to consider when evaluating the suitability of the approach.

The survey approach provides valuable insights into employment situations, experiences and views of respondents, in addition to other valuable information deemed relevant. They are a cost-effective approach and benefit from ease of access to public and support from relevant stakeholders. Some challenges that may exist with this approach include:

- Low response rate and challenges in following up with population, >
- Questions may be generic and lack the ability to address specific issues, and >
- Lower reliability, as it draws from qualitative insights compared to hard data. >

The administrative data approach is usually based on register data and benefits from access to a full sample of graduates within a given population over multiple time series. Unlike the survey approach, this approach is based on quantitative data only. Challenges with this approach may include:

- Covers full sample of population within the host country only, >
- Informal employment sectors may not be fully represented in dataset, and >
- Lacks subjective data, such as motivations for certain decisions.

Approaches within Ireland

Two essential mechanisms for career-tracking within Ireland were identified, and representatives from those groups were invited as part of the Career Tracking Working Group. Additionally, reflections on these two initiatives were conducted as part of the working groups activities.

HEA Graduate Outcomes Survey

Graduate Outcome surveys contact graduates after the 9-month period and gather more qualitative data than the CSO but no further contacts beyond this. HEIs collect and distribute data to the HEA, adhering to GDPR requirements. The survey is voluntary, and graduates are advised at registration that they will be contacted. The HEA and HEIs have data-sharing agreements in place.

CSO Educational Longitudinal Database

The Educational Longitudinal Database (ELD) is a statistical framework for compilation and analysis of learner outcomes across a range of educational levels and programmes over many years. Data is gathered under section 30 of the Statistics Act, 1993, and adheres to GDPR regulations. CSO uses tax records and government-available data to assess their longitudinal data with no contact made directly with the graduates.

ELD use an administrative approach which has both advantages and disadvantages associated to it. The advantages include:

- Negates the need for large population surveys, >
- Offers a capability to capture longitudinal data, as compared to data from single point in time, >
- Response rates would be as high as PPSN coverage (typically >90% for HEA graduates), and >
- Reduces the potential for bias. >

Disadvantages include:

- > Coverage only extends to students in Irish institutions and who work in Ireland,
- Difficult to identify where graduates live and work immediately after graduation, and
- Does not offer the capability to address qualitative research questions.

International Approaches

The working group approached partners in the international sphere who have experience in designing and implementing career tracking initiatives. Representatives from the following institutions / initiatives that implement a career tracking approach agreed to a virtual call with representatives of the working group to share their experiences:



The same set of questions were asked during the consultation sessions, which focused on best practices for developing and deploying career tracking projects. This was then followed by further questions that sought to gain insights into key challenges and opportunities associated with implementing a career tracking project, and understanding any potential bottlenecks. Finally, and in the interest of a key challenge that was highlighted, strategies for ensuring successful uptake and minimizing attrition of respondents were sought.

The existing approaches broadly shared the following key objectives:

- Identifying career paths of postgraduate candidates over a timespan of several years, >
- Systematically collecting data as comprehensively as possible for HEIs, policy makers and researchers, >
- Better understanding of the structure of postgraduate programmes and the training provided, >
- Exploring the motivations for undertaking postgraduate programmes and the satisfaction of graduates > with their programmes and subsequent careers,
- An assessment of skills developed during postgraduate programmes, compared with the skills required > in subsequent careers, and
- Mobility of postgraduate degree holders between different employment sectors and different countries. >

The governance of these approaches centred on management of the career tracking mechanism by one or more of the following institutional bodies:

- Federal Statistics Office, >
- Federal Ministry of Education and Research,
- Regional Government, and
- Specialised Research Centre.

A diverse set of approaches were adopted by the different groups, which either centred on a survey or administrative data set approach. For groups that adopted a survey approach, the following was emphasised:

- > Importance of consent of the postgraduate students before their participation and emphasising the voluntary nature of the participation,
- > Value of strong engagement with the higher education institutions hosting the students, particularly in initiating contact with the graduates. Moreover, there is a strong need for establishing multiple addresses / contact points for the graduates for subsequent contact,
- Only a few questions are compulsory to respond to, and >
- > Limited collection of personal data and focus on the current status of the graduates' doctoral studies, career targets and life goals.

Overall, a key advice from the consultation sessions was the need to recognise the resource-intensive nature of career-tracking initiatives, and plan appropriately for the needs of developing and sustaining a longitudinal approach with value for the broad range of stakeholders involved.