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National Open Research Training Programme

National Open Research Forum Policy Brief

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National Open Research Training Programme

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Introduction

One of the key challenges of implementing the aspirations set out in the *National Framework on the Transition to an Open Research Environment* (NORF, 2019) is a gap in open research skills and competencies across the major stakeholder groups (including researchers, librarians, research supervisors and administrators, etc.). NORF's *National Open Research Landscape Report* identified a number of reasons for this skills gap, including the novelty of open research itself, as both concept and practice, but also including a lack of resources, a deficit of strategic focus at senior management level, a perceived lack of engagement by researchers, and a fragmented and uncoordinated approach to open research training and upskilling across the entire research spectrum.

Taking all these factors into account, but also leveraging the genuine enthusiasm and energy that exists for implementing open research, this policy brief lays out a series of recommendations for closing the open research skills and competencies gap in the short-term through the provision of a National Training Programme. Being also mindful that the *National Framework on the Transition to an Open Research Environment* (hereafter, NFTOPE) envisages open research as a long-term strategic objective for the Irish research community, in the broadest possible definition of that term, we also recommend ways of embedding a culture and ethos of open research at all levels within the Irish education system.

We recommend that these goals be realised through the deployment of both centrally funded, nationally standardised resources, and the promotion of local, bottom-up, peer-to-peer networks and communities of practice. We also strongly advocate for the appointment of a National Programme Lead, Open Research Skills to drive not only the delivery of a National Training Programme, but also the adoption of a national skill framework and the standardisation of accreditation of open research skills and competencies.

Summary

Open research has been identified as a fundamental component of Ireland's future national research strategy, but there are obstacles to its implementation. One of these obstacles is an open research skills gap among both researchers and research support staff.

This policy brief recommends the creation of a National Programme to quickly upskill core personnel in the field, and to act as a template and benchmark for training programmes created at a local level. Mindful of the long-term national research strategy, this policy brief also recommends that, in alignment with the proposals of NORF's Standardised framework subgroup, open research learning outcomes be embedded at every level of the Irish education system, from the Leaving Certificate cycle onwards, with the intention of embedding an ethos and culture of open research within Irish

society general: not only researchers and research support staff in Research Performing Organisations, but also school-leavers, citizen scientists, policy makers, journalists, informed members of the public, etc.

Finally, this brief proposes that the work of implementing its recommendations be overseen by a National Programme Lead, Open Research Skills, to manage the implementation of short-term goals and actions, while also advocating for open research skills more generally in the long-term.

Method and approach

In light of the impetus to drive the adoption of Ireland's open research agenda (as set out in *Innovation 2020*, Ireland's current research and development/science and technology strategy), we choose to define the scope of our remit as broadly as possible, with the aim of embedding a culture of open research at all levels of the Irish education system. We were, however, also cognisant of the immediate skills gap, particularly with researchers and support staff, and of the pressing need to address that in the short-term.

We took a broad view of the stakeholders involved, including, but not limited to, teachers and students at second level; students and teaching staff at third-level; Masters and PhD students; early career researchers; established researchers; principal investigators and other research supervisors; research support staff; citizen scientists; research office managers and administrators; and academic and research librarians.

We worked closely with other subgroups under NORF's Skills and Competencies Working Group (i.e., subgroups on a Standardised framework for Open Research skills, and Accreditation of training programmes) and undertook a comprehensive desk review of existing national, European and international training programmes, held informal discussions with those involved with existing peer-to-peer networks of Open Research educators, and sought out suitable existing qualification frameworks and models. Finally, we were guided by Items 24 and 25 in the *National Framework on the Transition to an Open Research Environment*, and the findings of section 5 of the *NORF Landscape Report*.¹

Recommendations

In order to promote the adoption of an ethos and culture of Open Research across the entire research landscape in Ireland we recommend that Open Research be embedded in the curriculum at every level of the Irish education system from the Leaving Certificate to Doctoral and Postdoctoral studies.

¹ These items read:

24. Standardised and accredited skills for open research will be provided for researchers and required at all career levels, including among research students and supervisors. Equality of opportunity and access to skills training will be available for researchers regardless of discipline, institution, or funder.

25. Library professionals, data stewards, and Information and Communication technology (ICT) personnel who provide support, training, advocacy, and infrastructural development for open research will be included in the national planning and implementation process. Planning for the provision of advanced, specialist professional skills will be considered as part of that process.

The Standardised framework for Open Research skills subgroup is proposing the creation of a standardised national framework for Open Research skills in Ireland, while the Accreditation of training programmes subgroup is proposing that the learning outcomes identified in the national framework be mapped to the National Framework of Qualifications (NFQ), the 10-level framework used to guide the development, recognition and awarding of qualifications in Ireland.² We have nothing further to add to these recommendations, other than that they should be adopted and enacted with some urgency, as they form the basis for the recommendations in this policy brief.

Embedding Open Research in Irish Education

Leaving Certificate (Level 5)

We propose that level-appropriate Open Research learning outcomes be integrated into the curricula of the various science subjects offered during the Leaving Certificate cycle. As a first step, we recommend that a group of representatives from the various stakeholders (Department of Education and Skills, teachers' unions, parents' groups, science advocacy bodies, etc.) be tasked with reviewing the scope for, and possible timelines involved in, integrating Open Research learning outcomes into the Leaving Certificate curriculum.

Action: *review the scope and possible timelines for integrating Open Research learning outcomes into the curricula of Leaving Certificate science subjects.*

Timeframe: *medium- to long-term.*

Undergraduate Programmes (Levels 6 to 8)

Existing Programmes

Likewise, in all undergraduate programmes (levels 6 to 8), we recommend that level-appropriate Open Research learning outcomes be incorporated into the curricula of existing third-level programmes, especially where such programmes expect students to generate their own research outputs. To ensure that such learning outcomes align with the indicators expected of a QQI-approved programme, we further propose that their integration be tied to the existing cyclical review schedules that exist for the relevant Designated Awarding Body (DAB). The cyclical review process evaluates the effectiveness of institution-wide quality assurance procedures for the purposes of establishing, ascertaining, maintaining and enhancing the quality of education, training, research and related services the institution provides. Such reviews are coordinated by QQI and underpinned by the relevant sections of the 2012 Act.

New Programmes

Additionally, as part of the QQI approval process for new undergraduate programmes in DABs, we propose that Open Research learning outcomes be incorporated into the matrices used to determine approval or not.

Action: *integrate Open Research learning outcomes into the curricula of new and existing undergraduate programmes across the HEI sector, as part of the existing Cyclical Review process and/or the approval workflows for new programmes.*

² The NFQ is promoted, maintained, and developed by Quality and Qualifications Ireland (QQI), an independent State agency responsible for promoting quality and accountability in education and training services in Ireland. QQI was established by the Qualifications and Quality Assurance (Education and Training) Act 2012.

Timeframe: medium- to long-term.

Taught Postgraduate Programmes (Levels 9 and 10)

Similarly, we would advise that Open Research be incorporated into formal curricula at levels 9 (Masters) and 10 (PhD) of the NFQ – again, with a similar medium- to long-term timeframe.

Action: integrate Open Research learning outcomes into the curricula of new and existing taught postgraduate programmes across the HEI sector, as part of the existing Cyclical Review process.

Timeframe: medium- to long-term.

Across Research Performing Organisations

The NORF Skills Working Group makes no recommendations or prescriptions as to how Open Research learning outcomes should be delivered in taught programmes at levels 6 to 10. We foresee a wide range of scenarios, extending from Open Research learning outcomes being delivered in the form of discrete modules to their being incorporated into revised versions of existing modules, such as, for example, “Introduction to Research Integrity”, “Conducting Research”, etc. Indeed, we are already aware of a range of initiatives across the HEI sector in Ireland that have sought to meet the challenge of delivering Open Research materials to students at various levels. We wish to acknowledge and recognise the innovation and inspiration behind these initiatives, which are the fruit not only of activity within individual institutions, but also of collaboration between networks of peers in Ireland’s HEIs and other Research Performing Organisations (RPOs).

Network of Irish Open Research Trainers

In the spirit of this collaborative effort, we propose that NORF – or another mandated State agency or body – be tasked with establishing and sponsoring a network of Irish Open Research Trainers, in order to leverage the expertise and enthusiasm that exists in the sector. This network or community of practice (CoP) will have the remit of promoting the exchange of ideas and best practice among Open Research Trainers; as a specific action, and to align the proposal still further with the Open Research agenda, we recommend that this IORT be a hub for the exchange of Open Education Resources (OERs) in the area of Open Research. UNESCO defines OERs as “teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions.”³

Action: establishment of a network of Irish Open Research Trainers (IORT) to exchange best practice and teaching and learning materials; specifically, to act as a hub for the exchange of OERs that relate to the teaching of Open Research.

Timeframe: short- to medium-term.

National Training Programme in Open Research

In parallel with the creation of a network of Irish Open Research Trainers, the NORF Skills Working Group also recommends that a National Training Programme (NTP) in Open Research be created.

This programme would meet two needs:

³ <https://en.unesco.org/themes/building-knowledge-societies/oer>

First, the recommendations above with regard to embedding Open Research into curricula at levels 5 to 10 of the NQF are realistically proposed to happen over the medium- to long-term. However, we recognise that there is a need to embed Open Research into the research culture of Ireland's HEIs and RPOs urgently. This is true both as a matter of policy and as a matter of pragmatism. Researchers at all stages of their careers are currently being required to meet more and more Open Research mandates as part of their research activity, especially in the context of the Horizon Europe programme. A NTP in Open Research would, in the short-term, allow researchers at all stages of their career, from early to late, as well as interested postgraduate students, to quickly upskill in response to these mandates.

Secondly, the NTP would provide postgraduate students with an alternative avenue for acquiring Open Research skills, knowledge, and competencies, especially where they are attending an institute which does not have the resources to create its own Open Research training materials or is at the beginning of the process of generating them. Due to the short timeframe involved, we propose that, in its first iterations, the NTP will be based on the existing FOSTER+ framework for Open Research training, and that it will, primarily, expose researchers to the general principles of Open Research, Research Integrity, Research Data Management, FAIR, Open Access Publishing, etc. In the long-term, we envisage that the NTP would be brought into alignment with the standardised national framework of Open Research skills proposed by the standardised framework sub-group.

Additionally, in order to support the widest possible adoption of the principles of Open Research, and to embed a culture of Open Research not only in STEM disciplines, but also in the social sciences and the humanities, we further propose that outside a collection of general core modules, the NTP provide electives in more specialised areas such as Open Research for STEM, Open Research for the Social Sciences, Open Research for the Humanities, Open Software, etc.

Accreditation

This programme would be accredited in line with the recommendations of the Accreditation subgroup.

Specialised Open Research Training

Finally, as an adjunct to the NTP, we would propose – as a “nice to have” rather than necessarily as a mandatory option – that NORF be given the responsibility of organising more domain-specific, expert level Open Research training programmes. These would cover those gaps that arise when it is impossible to define the Open Research learning outcomes in any generalised way, and when training needs arise in response to the interests of those working in specialised fields. These training programmes could be delivered in the form of online programmes, summer schools, intensive seminars, etc.

Action: *design a National Training Programme in Open Research, based on the FOSTER Learning Objectives, to upskill existing researchers, and to provide an alternative avenue for postgraduate students to acquire Open Research knowledge, skills, and competencies.*

Timeframe: *short-term.*

Training for Professional Support Staff

With regard to the training of the professional stream of Open Research support staff, the NORF Skills Working Group proposes that a mandated professional organisation be charged with defining standards for Open Research support staff roles and with designing graduated training materials to equip people to perform these functions across various levels and at different stages of their careers. By necessity, this is a medium- to long-term goal.

Action: *establish a mandated professional organisation to define standards for Open Research support staff roles and to design training materials to train support staff at various levels and at different career stages.*

Action: *alternatively, task an existing professional body with the same responsibility.*

Time-frame: *medium- to long-term.*

In the short-term, we will recommend that a national training programme be created to upskill a cohort of Open Research support staff, targeted at an area where the most pressing skills gap has been identified. This programme will lead to a Special Purpose Award.

Action: *perform a gaps analysis with input from across Ireland's HEIs and RPOs to identify where the most pressing skills gap is for Open Research support staff.*

Time-frame: *short-term.*

Action: *create a targeted online training programme to upskill Open Research support staff in the identified area(s).*

Time-frame: *short-term.*

Coordination and resourcing

All of the above recommendations are made against the background of the broader issue of promoting open skills and competencies in general within an appropriate national skills framework and a proper system of quality assurance and accreditation. The Standardised framework and Accreditation subgroups have proposed the creation of a National Programme Lead, Open Research Skills, to oversee the implementation of their respective recommendations. We support this proposal. The interconnected nature of the issue of open research skills and competencies, which requires interventions not only in terms of embedding open research at multiple levels in the Irish education system, and the provision of National Training Programmes for researchers and research support staff, but also the creation of a national skills framework and the establishment of a robust regime of accreditation, means that a national role, properly resourced and with a strong mandate, is a necessity. Otherwise, there is likely to be a piecemeal approach that fails to meet not only the needs of stakeholders, but also the strategic national objectives set out in the NFTOPE.

Action: *appoint a National Programme Lead, Open Research Skills, with a remit for the creation of a national skills framework, the establishment of a regime of accreditation, the provision of national training programmes, the coordination of communities of practice, and to act as an advocate for the adoption of open research at all levels of the Irish education system.*

Time-frame: *short-term, priority.*

Conclusion

The success of the implementation of the Open Research agenda in Ireland depends in the short-term on the upskilling of those researchers, administrators, supervisors, and support staff who are currently actively engaged in research projects. In the long-term, Open Research will thrive only if there is an acceptance of its ethos and culture across the broadest possible spectrum of research stakeholders in Ireland. We believe that the recommendations we have set forth in this policy brief will, if implemented, go some way to addressing both the short-term Open Research skills gaps in Ireland, as well as helping to foster a sustainable, vibrant culture of Open Research in Ireland that is inclusive of everyone from Leaving Certificate students through to career researchers, from policy makers to citizen scientists.