

Comment

Supplementary information to:

Research integrity: nine ways to move from talk to walk

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This document comprises three supplementary tables and a supplementary note.

The supplementary tables include:

Table S1: Topics to address in organizational research integrity promotion plans

Table S2: Institutional initiatives to promote research integrity mentioned in the comment

Table S3: Declarations, statements, codes and project outputs mentioned in the comment

The supplementary note is a funding acknowledgement.

Table S1: Topics to address in organizational research integrity promotion plans

Nine topics that Research Performing Organizations (RPOs) must address in their Research Integrity Promotion Plan (RIPP)	
<i>Prioritizing people and enhancing capabilities</i>	
Research environment	To foster research integrity and minimize research misconduct and questionable research practices, RPOs need to nurture a supportive environment. Hyper-competition, harmful publication pressure, detrimental power imbalances, and conflicts should be explicitly addressed and adequately handled. Fair, transparent, and responsible policies for assessing, appointing, and promoting researchers must be in place. Diversity and inclusion must be actively promoted. Collegiality, openness, reflection, and shared responsibility are vital elements of a working environment where the risk of major and minor breaches of research integrity is minimized.
Supervision and mentoring	Competent supervision and mentoring must be offered to researchers at all stages of their career development. The RIPP should specify procedures and criteria for qualifying as a supervisor or mentor and should include guidelines for supervision and mentoring of researchers at different career stages, with due attention to responsible research practices.
Research integrity training	Adequate training in research integrity must be provided to researchers at all career stages by qualified trainers. Specific training and opportunities for exchanging experiences should be offered to staff handling research integrity issues and to those teaching research integrity courses. The RPO should also ensure that researchers have access to adequate online information about research integrity and responsible research practices.
<i>Building research integrity into organizational structure</i>	
Research ethics structures	To ensure that researchers in the organization can adhere to research ethics requirements, RPOs must develop and maintain suitable supportive mechanisms. Research ethics structures should include dedicated and adequately trained research ethics committees reflecting the character of research activities within the organization. The RIPP should include procedures for ethics reviews relevant to the various research areas and disciplines within the organization.
Dealing with breaches of research integrity	Even in environments with a strong research integrity culture, breaches of responsible research practices occur. RPOs must set up transparent procedures to receive, detect, handle, and sanction research integrity breaches. Procedures to ensure that researchers can consult research integrity officers or councilors in confidence should be part of the RIPP. To ensure that whistle-blowers as well as those accused of research misconduct are protected and that allegations are investigated fairly, RPOs should establish research integrity bodies and standardized procedures within the organization or draw on national arrangements. The RIPP should also outline remedies following detection of breaches of research integrity, such as correction or retraction of papers, sanctioning of researchers who engaged in misconduct, and appropriate steps towards prevention in the future.
Data practices and management	RPOs must provide guidance, training, and adequate infrastructures related to data management and ensure that practices are compliant with legislation and applicable codes of conduct. Specific policies and procedures included in the RIPP must address legitimate concerns such as data protection, privacy, and Intellectual Property Rights, and ensure compliance with national and international regulations such as the General Data Protection Regulation (GDPR) of the European Union. The organization must provide adequate infrastructures for secure data collection, storage, retention, archiving, and sharing. Moreover, RPOs must facilitate data management and curation procedures aligned with FAIR principles with a view to making data findable, accessible, interoperable, and reusable.
<i>Ensuring clarity and transparency</i>	
Research collaboration	Collaboration across disciplines, sectors and countries is an integral part of research. RPOs must have policies and procedures for ensuring that research collaboration can be done responsibly in situations that demand specific attention, e.g. when researchers from different disciplines or with different professional backgrounds collaborate, when EU-based researchers collaborate with researchers from countries not covered by the GDPR and the European Code of Conduct for Research Integrity, or when RPOs collaborate across sectors.
Declaration of interests	It is important that RPOs enable researchers to provide transparent declarations of interests and ensure that conflicts of interests are handled adequately. Researchers must be supported by policies and procedures in the RIPP that specify the organization's approach to declaring interests and handling conflicts of interests in relation to research conduct, funding, peer review, evaluation, assessment, promotions, and collaboration across different sectors. In relation to commissioned research and consultancy work, the RIPP must outline the steps that the organization takes to be transparent and clear about potential conflicts of interests.
Publication and communication	RPOs must specify their expectations about procedures related to the publication and communication of research results. Specific policies and procedures to be included in the RIPP should address the use of preregistration, preprints, and online repositories, guidelines for the attribution of authorship, procedures for handling authorship disputes, the organizational approach to open access, FAIR data curation, expectations about the use of reporting guidelines, procedures for avoiding predatory journals, strategies for responsible peer review practices, and mechanisms to support and acknowledge public communication of research findings.

Table S2: Institutional initiatives to promote research integrity mentioned in the comment

University	Country	Recent initiatives to promote research integrity	Read more
Delft University of Technology	Netherlands	The Data Champions initiative aims to implement good research data management practices. Data Champions can help address discipline-specific research data management issues.	Link Link
Imperial College London	United Kingdom	Following internal review of the use of performance metrics, the university started a process towards implementing evidence-based ways of assessing research, teaching, mentoring and citizenship. This work led to signing the DORA declaration and the establishment of a working group providing guidance on impacts on recruitment, promotion and funding procedures.	Link 1 Link 2 Link 3
Mahidol University	Thailand	The university's code of good governance includes a set of principles but also hosts concrete policies and procedures in areas such as information disclosure, anti-corruption, procurement, and ethics. Signing the code is considered a sign of individual commitment.	Link
Ghent University	Belgium	A new approach to evaluation of staff performance de-emphasizes the role of quantitative metrics in the assessment of researchers for appointment and tenure. Reduced evaluation frequency, individualized targets, increased collegial supervision and emphasis on qualitative assessment are advanced instead.	Link
KU Leuven	Belgium	A more holistic approach to assessment and promotion is being implemented. Among other initiatives, the university requires and weighs in an elaborate bio sketch as part of the dossier submitted by candidates for appointment or tenure.	Link
University of Glasgow	United Kingdom	Collegiality has been introduced as a formal assessment criterion for candidates applying for professorship. For each of six assessment areas, candidates are now required to demonstrate their contributions to other colleagues' work and career, for example by helping securing slots at conferences, sharing data, acting as co-supervisor, enabling co-authorships or contributing to colleagues' projects and grant applications.	Link
University of Copenhagen	Denmark	The university has made research integrity training compulsory for PhD students but also PhD supervisors. Courses are not restricted to issues of misconduct, but involve broader issues of good – and questionable – research practices, and conveys information about local and national governance arrangements around research integrity.	Link
Aarhus University	Denmark	Research integrity courses are mandatory for PhD students, and courses are tailored to the respective faculties. Currently, online courses are being rolled out and will be mandatory for research staff at all levels, followed by workshops for senior management and workshops at departmental level. Appointed research integrity councilors are available at faculty level.	Link
University of Luxembourg	Luxembourg	The university collaborates with the Luxemburg Agency for Research Integrity to institute the role of research integrity coaches, whose role it is to provide guidance, support and encouragement to researchers in their project contexts. The Coaches are members of the university departments or units and can have different roles, depending also on the research discipline.	Link 1 Link 2
University College Cork	Ireland	As part of a broader strengthening of research integrity policies the university has introduced a Digital Badge program that accredits the efforts of individual staff to enhance good research practices in their individual or collective work, through participating in up to 30 hours of training and mentoring. This aligns with efforts by the university to develop online training opportunities and courses in research integrity.	Link
University of Oxford	United Kingdom	The Reproducible Research Oxford (RROx) initiative contributes to upholding research integrity through its promotion of open scholarship and research reproducibility. It entertains a range of activities ranging from training and seminars to meta-research and outreach, and is steered by a cross-university group of researchers at different career stages.	Link 1 Link 2
University of Amsterdam	Netherlands	The university rolled out a comprehensive set of discipline-sensitive policies for promoting research integrity. The process required time and dedication. A cross-departmental working group of experienced researchers committed to two years of analyses, scoping of existing governance arrangements, interaction and consultation, before it delivered a report and implementation could start.	Link 1 Link 2
University College London	United Kingdom	When the university developed a policy on the use of bibliometrics in the context of research assessments, inclusive participation was pursued. Department heads and members of faculty were consulted by the working group in charge, involving 250 individuals representing a majority of the university's departments as contributors to the preparatory work for the policy.	Link 1 Link 2

Table S3: Declarations, statements, codes and project outputs mentioned in the comment

Organization	Title	Link
World Conferences on Research Integrity Foundation (WCRIF)	Singapore Statement	Link
WCRIF	Montreal Statement	Link
WCRIF	Hong Kong Principles	Link 1 Link 2
All European Academies (ALLEA)	European Code of Conduct for Research Integrity	Link
Standard Operating Procedures for Research Integrity (SOPs4RI)	Scoping reviews including multi-level model of research cultures and research conduct	Link
SOPs4RI	Report on the results of the explorative interviews	Link
SOPs4RI	Reports on the rounds on the Delphi procedure	Link 1 Link 2
SOPs4RI	Report on the results of the focus group interviews	Link

Supplementary note:

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