Indicators of Research Integrity

UKCORI
UK Committee on
Research Integrity

Contents

Foreword

In this report, the UK Committee on Research Integrity presents our work on the development of indicators of research integrity for use by higher education institutions (HEIs) in the UK.

The Committee undertook this project with two key objectives in mind:

- **to build the evidence base for research integrity on a UK-wide scale**
- **support HEIs to self assess and improve their support for research integrity**

To achieve these objectives, we worked collaboratively with diverse stakeholders across HEIs and the wider research sector. We convened discussions about quantitative and qualitative indicators of research integrity in the context of contributing to fairer and more inclusive approaches to evaluation of research integrity.

As we highlight in the Committee's 2024 annual statement, it is of vital importance that we maintain and support the integrity of research conducted in the UK. Transparency about research integrity safeguards trust and confidence in UK research and helps to build the evidence base about research integrity across the UK. This evidence base can highlight exemplary practice and areas for further work.

We thank all those who contributed to this project, particularly stakeholders who took part in workshops and the project's Advisory Group. We look forward to our continued collaboration with the sector as we work together to strengthen research integrity in the UK.

Executive Summary

The UK Committee on Research Integrity has responsibility for promoting research integrity in all environments and disciplines across the UK. Research has integrity when it is carried out in a way that is trustworthy, ethical, and responsible. The Committee's work is framed by the UK's Concordat to Support Research Integrity which contains five principles of research integrity: honesty, rigour, transparency and open communication, care and respect, and accountability.

The Committee champions an evidence-based approach to research integrity efforts. Evidence is needed as the whole sector works to maintain and support research integrity. Despite the need for an evidence-base that can inform research integrity practice, ways of assessing the presence or impact of research integrity activities are neither fully developed, consistent, nor widely available. To address this need, we developed tools—indicators— that can assess conditions that underpin research integrity within organisations.

We focused on UK higher education as a vital part of our internationally connected and vibrant research sector. The UK's HEIs are innovative and express interest in understanding their own practice in research integrity. Our work identified potential indicators to identify presence of conditions that foster research integrity in UK HEIs.

In 2023-2024, we carried out multi-stakeholder workshops with over 120 stakeholders from around the UK and received advice from a dedicated expert, external Advisory Group. These workshops generated and reflected on 115 potential indicators spread across five domains: leadership, strategy, procedures, practices, and skills. Through further consideration we developed a list of 16 potential indicators (shown below) identified as most important for HEIs to consider using. These reflect input from diverse stakeholders and recognise differences in institutional size, resources, and disciplinary focus.

The 16 potential indicators can be used to understand the status and trajectory of the conditions that support research integrity. The indicators include items that can be demonstrated through a range of approaches that might be qualitative, quantitative or a combination of the two.

We acknowledge that there may be unintended and unanticipated consequences relating to the use of the suggested indicators. Therefore, there is likely to be need for their further refinement and development of guidance on their responsible use.

Looking ahead, it will be important for the research sector to assess whether this prioritised set of indicators support recognition of the conditions that foster research integrity. Equally, it will be useful to understand the extent to which they provide an evidence-base about the UK now and into the future.

Shortlisted indicators and possible ways to evidence these[1].

Domain	Shortlisted indicators	Possible sources of evidence
LEADERSHIP	1. Research integrity is on the appropriate risk register or equivalent document at an HEI and the owner of that risk is clearly identified.	HEI can evidence on a risk register or appropriate document, and link or refer to it in their annual statement on research integrity[2].
	2. HEI provides infrastructure and staff with the appropriate expertise needed to support open research.	HEI can provide narrative account of open research provision and uptake by research staff and include it in their annual statement.
	3. HEI's HR processes set expectations for research integrity, as laid out in policies, research-related job descriptions, recruitment, annual review, and promotion processes (including outcomes).	HEI can evidence research integrity is present in HR documentation and processes in these areas.
	4. Within HEIs, those in research leadership roles prioritise and advocate for research integrity.	HEI can gather evidence from existing or planned staff survey processes and from CEDARS[3], if conducted. HEI can provide narrative account from research leaders about how they have advocated for and prioritised research integrity.
STRATEGY	5. A) HEI institutional strategy mentions research integrity, and (B) staff in research-related roles have high levels of awareness of, and confidence in, research integrity related strategies.	HEI institutional strategy can be referenced in their annual statement and evidenced with a link to the strategy. HEI can gather evidence from staff survey or equivalent.
	6. HEI institutional research integrity strategies have an associated action plan with clear lines of responsibility.	HEI institutional action plan for research integrity can be referenced in their annual statement and evidenced with a link to the plan.
	7. HEI regularly evaluates the quality, accessibility, appropriateness, and impact of research integrity-related training and generates recommendations for development.	HEI can gather evidence on quality, impact, appropriateness, and accessibility of research integrity training provision from staff survey or equivalent.
PROCEDURES	8. HEI has a published mapping of relevant codes of good research practice that applies to all research-active (internal and visiting) staff that includes as a minimum codes and guidelines on research ethics, research misconduct, authorship, open research, and data management.	HEI can evidence signposting to relevant codes of good research practice.
	9. HEI can demonstrate that procedures are in place to provide sufficient time for staff to perform their research with integrity.	HEI procedures can be referenced in their annual statement and evidenced with a link to the relevant procedures.
	10. HEI has published procedures for investigating allegations of research misconduct that align with Concordat expectations, publicly available, appropriately resourced, and regularly evaluated.	HEI procedures can be referenced in their annual statement detailing the number and outcome of cases investigated and lessons learnt.

1 Table 11 on page 30 and 31 in the main body of the report.

2 Signatories to the Concordat to Support Research Integrity expect HEIs to complete an annual statement on research integrity as set out in Commitment 5 of the Concordat. These annual statements on research integrity are referred to as 'annual statements' throughout the report.

3 The Culture, Employment and Development of Academic Researchers Survey (CEDARS) is a biennial survey carried out by career and professional development organisation CRAC-Vitae, to seek the views and experiences of individuals engaged in research within UK universities. The question set is designed to support institutions' evaluation of their progress in implementing the Principles of the Concordat to Support the Career Development of Researchers.

Shortlisted indicators and possible ways to evidence these cont.

Domain	Shortlisted indicators	Possible sources of evidence
PRACTICES	11. HEI can evidence that it undertakes continuous improvement in relation to RI-related practices, policies, training outcomes and procedures.	HEI can provide narrative account of support for continuous improvement in their annual statement. Evidence can be gathered from staff survey.
	12. HEI monitors compliance with institutional and external research integrity related requirements.	HEI can evidence internal audits, risk review or self-monitoring where appropriate.
	13. HEI provides, and clearly signposts for staff, best practice guidelines related to research integrity that are discipline specific where appropriate.	HEI best practice guidelines can be referenced in their annual statement and evidenced with a link to the relevant procedures.
	14. HEI showcases exemplary research integrity practice and related activities.	HEI can evidence this with research integrity-related awards or share narrative accounts internally and externally of exemplary research integrity-related practice.
SKILLS	15. HEI provides accessible, research integrity skills-related training and/or professional development to suit different roles, disciplines, and career stages, undertaken by all research-active students and staff.	HEI can gather evidence from staff survey, pre- and post-training evaluations. Evidence could include uptake of training (number/percentage of staff), reach of training (percentage of uptake by discipline/department/career stage). Qualitative and quantitative evidence can be referenced in their annual statement.
	16. HEI provides support, training and/ or professional development for those conducting research misconduct investigations.	HEI can gather evidence from pre- and post-training evaluations. Quantitative evidence could include uptake of training by those on research misconduct investigatory panels (number/percentage of staff). Qualitative and quantitative evidence can be referenced in their annual statement.

Introduction

Background

The UK Committee on Research Integrity sought to determine whether indicators and evidence of activities that enable high levels of research integrity can be identified, to support our mission to promote and drive research integrity in the UK. In this context, we conducted a project to identify potential indicators that can support UK HEIs to foster the conditions for research integrity and to enable the Committee to monitor progress on these matters at the national scale, while minimising reporting burdens.
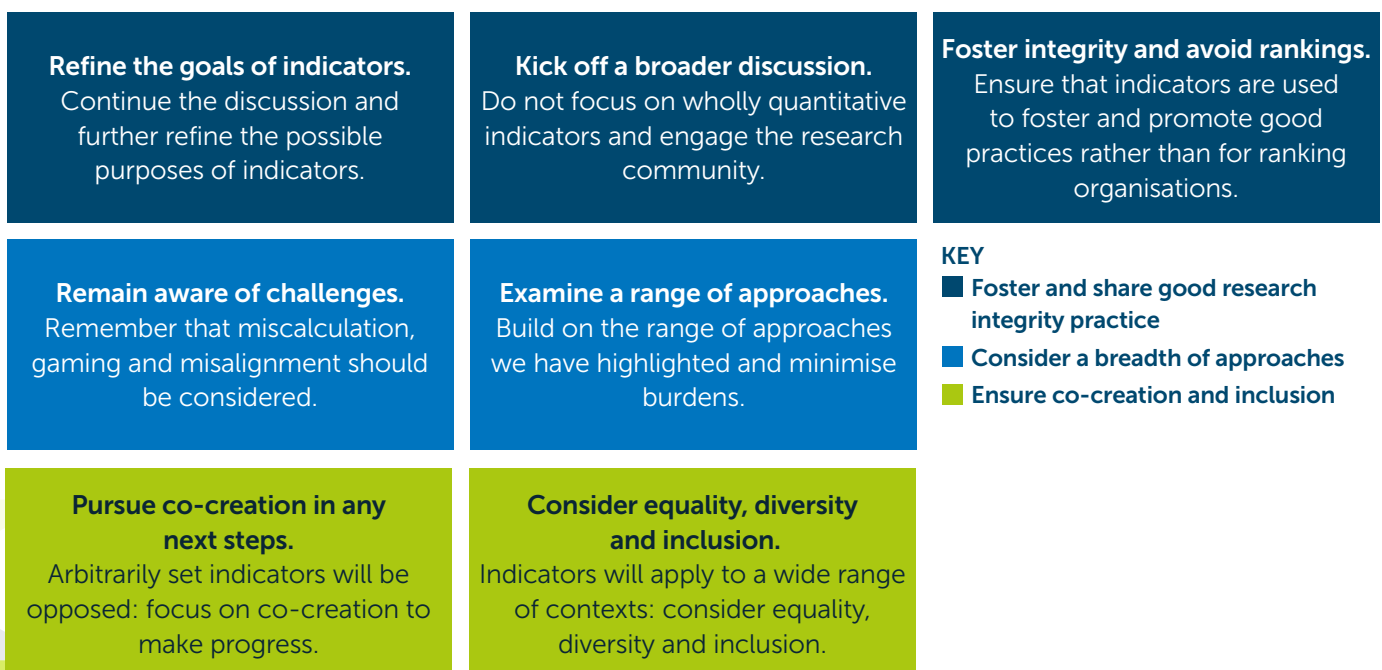
This report summarises the work of this project, which sits in a landscape of related indicator projects (see Appendix B) across the UK higher education landscape and beyond, including:

- the development of approaches for the assessment of People, Culture and Environment (PCE) in the next REF exercise (REF2029).

- the open research indicators project, led by the UK Reproducibility Network (UKRN), which aims to support and establish good practice in institutional monitoring of open research.

- the review of the Concordat to Support Research Integrity.

Previous work on indicators of research integrity

This project builds on explorative work commissioned by UK Research and Innovation (UKRI), Cancer Research UK (CRUK) and GuildHE in 2022, to consider potential indicators of research integrity. This previous work, led by Research Consulting, sought to explore whether indicators of research integrity are being used, if they are effective, and if they offer an opportunity for the UK to develop a national strategy to support research integrity. The work identified seven working principles for developing research integrity indicators, which informed the work undertaken in this project (see Figure 1).

Figure 1. Principles for the creation of research integrity indicators (adapted from Indicators of research integrity - An initial exploration of the landscape, opportunities, and challenges)

Refine the goals of indicators.
Continue the discussion and further refine the possible purposes of indicators.

Kick off a broader discussion.
Do not focus on wholly quantitative indicators and engage the research community.

Foster integrity and avoid rankings.
Ensure that indicators are used to foster and promote good practices rather than for ranking organisations.

Remain aware of challenges.
Remember that miscalculation, gaming and misalignment should be considered.

Examine a range of approaches.
Build on the range of approaches we have highlighted and minimise burdens.

KEY
■ Foster and share good research integrity practice
■ Consider a breadth of approaches
■ Ensure co-creation and inclusion

Pursue co-creation in any next steps.
Arbitrarily set indicators will be opposed: focus on co-creation to make progress.

Consider equality, diversity and inclusion.
Indicators will apply to a wide range of contexts: consider equality, diversity and inclusion.

Project scope and objectives

This project was initiated by the UK Committee on Research Integrity and delivered by a subgroup of the Committee, the Project Working Group, with support from the Committee's Secretariat. Input from the community was moderated and synthesised by the Project Working Group with oversight from the Advisory Group[3].

For the purposes of this project, we defined an indicator as 'a quantitative or qualitative factor or variable, which provides a reliable means to evaluate achievement, to reflect the changes connected to an intervention, or to help assess the performance or state of play of an actor or system'. This definition was based on that used in the previous research integrity indicator report. The project's primary objective was to determine whether indicators and evidence could be identified that would support HEIs to self-assess and improve their support for research integrity, and to provide the Committee with evidence on research integrity at a national (UK-wide) scale.

The project focused its work on exploring the conditions that enable and support research integrity at UK HEIs. This framing was chosen to reflect the roles and responsibilities HEIs have for supporting and improving research integrity. This approach enables research integrity to be seen in relation to a healthy research environment, as fostered by an institution. By contrast, indicators used to evidence the integrity of research outputs can place a greater emphasis on the responsibilities of individual researchers.

Acknowledgements

3 Appendix A includes membership of the UK Committee on Research Integrity, the Project Working Group and the project's Advisory Group

Methodology

Community consultation

The consultation process on indicators of research integrity began with an initial workshop of Committee members, followed by a series of five multi-stakeholder co-creation workshops, which took place between October 2023 and March 2024 as follows:

■ **Workshop 1: Belfast, 18 October 2023**

■ **Workshop 2: London, 15 January 2024**

■ **Workshop 3: Online (General), 24 January 2024**

■ **Workshop 4: Manchester, 26 February 2024**

■ **Workshop 5: Online (Arts, Humanities and Social Sciences), 8 March 2024**

The SCOPE framework was used to inform and guide stakeholder engagement. SCOPE was developed by the International Network of Research Management Societies (INORMS). This approach aims to bridge the gap between responsible research assessment principles and their practical implementation, and provides a high-level, simplified approach applicable across various settings, disciplines, and evaluation purposes.

The SCOPE framework is based on three key principles:

1. Evaluate only when truly necessary to avoid over-evaluation and bureaucracy.

2. Involve those being evaluated in the assessment process using co-design principles to ensure better outcomes, buy-in, and reflection of real-world complexity.

3. Draw upon evaluation experts to design rigorous evaluations, just as one would for academic research itself.

It provides a structured five-stage process for evaluating research responsibly which is shown below:

Stage 1: START with what you value

The starting point of the process was to identify what is truly valued by stakeholders when it comes to research integrity. This is in contrast to simply relying on readily available data or externally imposed values.

Stage 2: CONTEXT considerations

The second stage was to clearly define what or who is being evaluated and why. As noted above, the Committee sought to focus on the institutional perspective (rather than on individual responsibilities around research integrity), so this stage considered HEIs of different sizes, disciplinary focus, research intensity and more.

Stage 3: OPTIONS for evaluating

The third stage required the consideration of both quantitative and qualitative options for assessing levels of research integrity. This meant exploring aspects that can be objectively assessed (e.g., categorical, numerical, or yes/no answers), as well as aspects that require narrative discussion for evaluation purposes.

Stage 4: PROBE deeply

The fourth stage involved a critical examination of the evaluation options by asking questions about potential biases, gaming, unintended consequences, and cost-benefits. To effectively probe the potential indicators, the Committee engaged with stakeholders from different fields, disciplines, career stages and professions, both in-person and online.

Stage 5: EVALUATE your evaluation

The fifth stage will require an assessment of whether the set of potential indicators identified in this project has achieved their intended aims. This stage of SCOPE was not within the project remit.

The overall approach to this project was designed to engage a broad community of experts and to ensure diversity of views, in line with the principles illustrated in Figure 1 (page 10).

Workshop delivery

Three in-person stakeholder workshops were conducted using a World Café format in which participants were free to choose which table to sit at. After 10 minutes, they could move to another table of their choice. At each table, participants were asked to discuss, suggest, or amend characteristics of a particular domain (see project definitions in Appendix C), and, after the pilot workshop, to additionally suggest evidence for these characteristics. Following a break, participants were then asked to choose a domain to remain at for a more in-depth discussion of the proposed characteristics and evidence, and their potential impacts. For the two online workshops, participants were assigned to discussion groups, discussed 2-3 domains in the first part, and were then allocated to a group for the more in-depth discussion.

At each workshop, participants discussed, added to, and amended the characteristics and evidence produced by previous stakeholder workshops. They were also asked to place the evidence for each characteristic on a maturity scale to identify it as a marker of healthy, strong, or optimal/exemplary practice. Maturity scales were included in stakeholder workshops with a view to enabling participants, and later HEIs, to identify research integrity related activities as being essential or exemplars of developing or improving practice. We discuss the strengths and limitations of this approach later in this report.

The following factors and constraints characterised the delivery of our workshops:

- The time we had for stakeholder discussions was limited to 3 hours for the in-person workshops and to 2 hours for the online workshops. As a result, some participants might have run out of time to discuss all topics to their satisfaction.

- Two stakeholder workshops were delivered virtually; the different format may have affected participant engagement and the effectiveness of interactive discussions compared to the three in-person sessions.

- Some indicators received no feedback over the course of the stakeholder workshops. The reasons for this are likely to vary. For example, an indicator may have received no feedback because it was considered uncontroversial or standard practice; in other cases, an indicator may have received no feedback as participants did not have sufficient time to discuss it and/or decided to prioritise the discussion of more controversial indicators.

- A range of stakeholder groups were consulted, which led to a diversity of views across the workshops. Consequently, commentary from contributors varied significantly and only a small number of considerations were raised multiple times during the project.

Developing a set of indicators

Domains

This project began with a workshop in which Committee members discussed and explored what they value about research integrity (the S in SCOPE – start with what you value). This highlighted the value placed on environments in which research integrity can thrive. The Project Working Group next identified seven areas over which HEIs have control that can influence research integrity, within a context of internal and external factors and conditions that HEIs operate within. We refer to these seven areas (Strategy, Investment, Leadership, Procedures, Research Culture, Practices and Skills) as domains (see Appendix C). The domain areas were inspired by the UK Reproducibility Network's response to the Committee's call for sector reflection on the previous Indicators work in January 2023.

Characteristics and evidence

In October 2023, the project's co-creation work initiated with a pilot stakeholder workshop in Belfast, where participants were asked to consider the question, 'What evidence would you look for to indicate the presence of high levels of research integrity within a higher education institution?' The aim of this exercise was not primarily to identify indicators, but to encourage participants to consider which strategies, priorities, procedures and practices would characterise a research environment that is conducive to high levels of research integrity. This workshop yielded 34 characteristics, which formed the basis for discussions at the in-person and online workshops in January 2024.

The first three workshops (including the pilot workshop) yielded 70 characteristics in total, together with their associated evidence, across the seven original domains (Strategy, Investment, Leadership, Procedures, Research Culture, Practices and Skills). This list of 70 characteristics was sense checked and rationalised, and 20 were selected to take forward to the next two workshops. During this process, redundant characteristics (and associated evidence) were removed or amalgamated, some characteristics were moved to a more appropriate domain, and others were sense checked and rewritten for clarity. As part of this streamlining process, two domains were removed: investment and research culture. The characteristics for these two domains were rationalised and then distributed across the five remaining domains. These domains were removed at this stage because stakeholders and Advisory Group members were of the view that investment is needed across all domains. Research culture was viewed as being similarly embedded across all domains. In response to stakeholder discussions, the Project Working Group concluded that a positive research culture was not a separate domain but rather a readout of having things right in terms of research integrity across the remaining five domains of Leadership, Strategy, Procedures, Practices and Skills.

As part of this rationalisation and sense checking work, the Project Working Group and secretariat team identified gaps in characteristics and evidence that would enable HEIs to demonstrate that they are meeting expectations set out in the Concordat to Support Research Integrity. These gaps were filled using UKRIO's concordat self-assessment tool as a framework.

Also at this stage, the terms used to describe the maturity levels for evidence of research integrity were revised from healthy, strong and optimal, to healthy, strong and exemplary, as discussed later in this report, to respond to stakeholder concerns. While the term optimal might imply obtaining a 'perfect standard', the term exemplary reflects and recognises that there might be different forms of exemplary practice that could be used to evidence a research integrity indicator.

The resulting rationalised list of 20 characteristics and their associated evidence (from which indicators could be developed) was discussed and further expanded at the in-person workshop in Manchester, and at the online workshop for members of the Arts, Humanities and Social Science (AHSS) communities, who probed these indicators for impacts specific to AHSS disciplines.

During workshop discussions, participants generally highlighted evidence they considered to be problematic (for example, owing to lack of resources, or because of disciplinary differences or institution type), identified evidence they agreed with, shared opportunities for improvement, and highlighted less appropriate evidence for indicating research integrity. Some evidence was broadly and consistently agreed on across workshops, and so underwent little discussion.

Indicators

Following the five stakeholder workshops, the resulting indicators were collated into a single list of 115 indicators that represents a co-developed, cumulative, and iterated set of characteristics and their associated evidence that can be used to create indicators for research integrity.
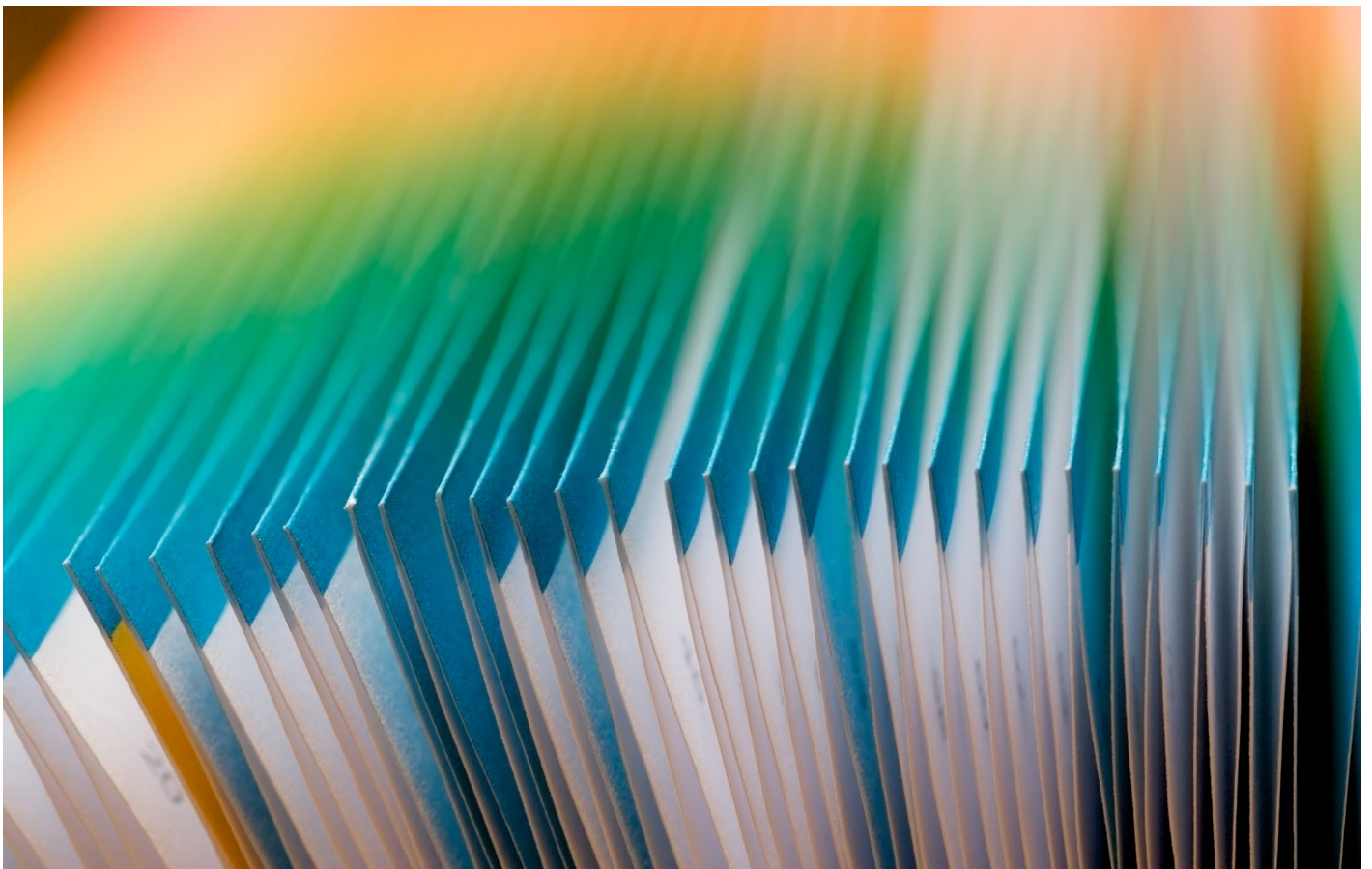
Identified indicators

The full set of 115 indicators that emerged from this project's iterative indicator development process is provided in Appendix D. Each indicator is based on a type of evidence for a particular characteristic and is classified according to its associated domain and characteristic (see Appendix C). The domain with the greatest number of indicators is Procedures, reflecting the many ways in which the four characteristics under this domain can be evidenced (see Figure 2).

Working from this full set of indicators, the Project Working Group developed a shortlist of 16 potential indicators, which are discussed further below and are summarised in Table 11.
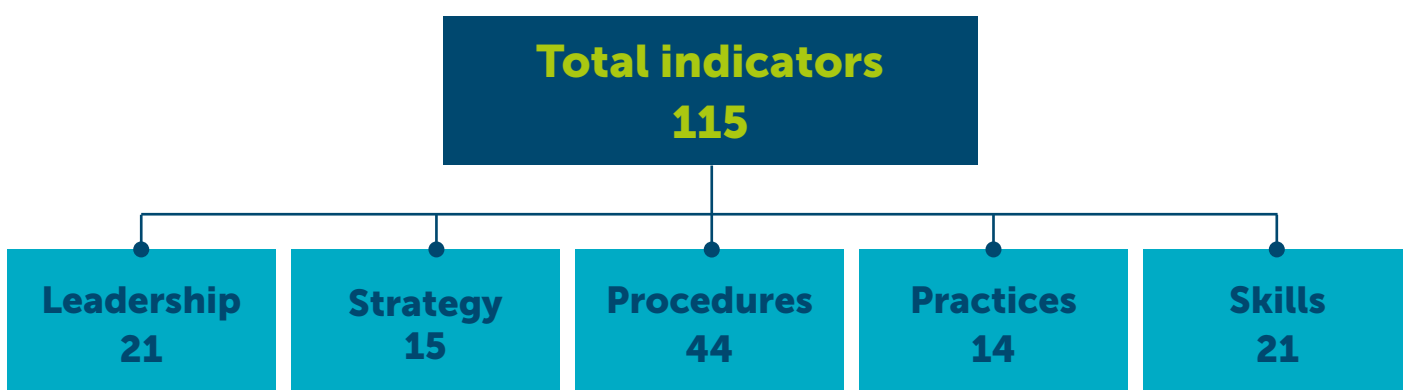
**Total indicators
115**

Leadership	Strategy	Procedures	Practices	Skills
21	15	44	14	21

Figure 2. Numbers of indicators by domain.

Shortlisting indicators

The Project Working Group, working together with the project Advisory group and committee members, has created a shortlist of integrity indicators (see Table 11). We hope that this shortlist will enable both individual HEIs and the UK research sector to assess the status and trajectory of research integrity in the UK.

The creation of this shortlist was informed and inspired by discussions with the project's stakeholders, and by the inputs of the project's Advisory Group. On the basis of this work, we have considered, combined and consolidated more than 100 suggestions of evidence that arose from the stakeholder workshops (see Appendix D) to create a shortlist of 16 potential research integrity indicators within the domains of leadership, strategy, procedures, practices and skills (see Table 11). The Project Working Group has also drawn on the outputs of the workshops to identify possible ways to evidence these indicators (to reduce the potential administrative burden of reporting on these).

It is important to note the handling of two specific areas in the production of the shortlist below. As noted above, the domain that produced the most evidence for research integrity was that of Procedures. HEIs' provision of research ethics review systems is an important characteristic within this domain, but much of the evidence identified for this characteristic relates to activities and processes that are already part of a well-established formal, regulatory, legal framework that HEIs would be expected to have in place. We have therefore left this particular well-developed characteristic out of the shortlist highlighted here. We also decided not to shortlist specific indicators for characteristics around appropriate structures for whistleblowing and raising concerns, since these are included within the remit of another indicator selected for the shortlist: that HEIs are meeting expectations within the Concordat in relation to handling and investigating allegations of research misconduct. Enabling whistle-blowers to liaise confidentially with an HEI and protecting whistle-blowers from reprisals are expected activities under the Concordat.

Contrary to our original intentions, we have ultimately decided not to place these indicators on a maturity scale of healthy, strong, or exemplary. This decision reflects the nuances associated with many of these indicators, and concern amongst the project's stakeholders that such a scale could be used to inappropriately rank HEIs. A key objective of this project was to inform work that can build the evidence base for research integrity in the UK, to enable the mapping of improvements and change over time. In this context, we believe that it would be important and helpful to highlight what, as a minimum, HEIs should have in place to ensure and strengthen research integrity in a way that HEIs find to be acceptable and that allows them to evidence improved research integrity practices over time.

In creating this shortlist of possible integrity indicators, we have sought to represent the considerations and views of our broad and diverse stakeholder community, views that recognised differences in institutional size, resources, and disciplinary focus. In the same way that their work informed and inspired our thinking, we hope that our work will inform and inspire the work of others.

We acknowledge that whilst work began to 'probe' these indicators for unintended consequences with the AHSS community, this stage of the SCOPE process is not yet complete and that there may be a need to refine them further. We encourage other organisations and groups across the research sector to evaluate further, and reflect on and refine their use of, these 16 potential indicators of conditions that support research integrity. We also encourage HEIs and other organisations across the sector to consider the full list of evidence for research integrity indicators to determine which indicators and evidence best suit their purposes with respect to evidencing, monitoring, and improving their research integrity strategies, procedures, and practices.

Stakeholder engagement feedback on potential indicators

The Committee embarked on this exercise under the assumption that developing and implementing indicators would be a complex endeavour, requiring careful consideration of potential unintended consequences both in relation to development and implementation. In recognition of this complexity, and to inform future work and discussions, the following sections therefore seek to provide an impartial overview of the feedback that was provided and to summarise the issues highlighted by workshop participants.

Please note that characteristics, evidence and indicators that did not receive feedback (either supportive or critical) in one workshop might have received feedback in another (either supportive or critical). The lack of discussion in this part of the report does not signify that an indicator is automatically endorsed; participants might have run out of time to discuss it.

Throughout the sections below, specific indicators linked to the discussion are included in brackets (e.g., 'L1'; please refer to the full set of indicators in Appendix D for more information). Where the discussion refers to workshop participants (or similar), this may refer to contributions captured through any of the events facilitated by the Project Working Group and secretariat. Feedback from participants is presented in aggregated form and not by workshop, in acknowledgement of the fact that some comments emerged multiple times across the co-creation process.

Leadership

The leadership domain focuses on evidence related to the actions and activities of those in leadership positions.

Throughout the co-creation process, participants shared a range of guiding principles that the Committee should consider in developing indicators in the Leadership domain:

- Leaders should **set clear expectations through institutional strategy and policies** to recognise and incentivise good research practice and research integrity-related activities.

- Leaders should actively demonstrate a commitment to research integrity as a **core institutional value** and recognise research integrity as a facet of a **strong research culture** more broadly.

- Leaders should be responsible for **setting clear expectations regarding research integrity and ethical conduct in practice.**

- HEIs must be capable of addressing bad leadership and holding leaders accountable.

- Leadership should be **distributed, democratic and decentralised** within HEIs to avoid additional workload being placed on institutional leaders alone.

With regard to the characteristics and evidence covered during workshop discussion, participants agreed with the following:

Table 1. Leadership domain feedback.

Feedback	Relevant indicator in the full dataset (Appendix D)	Corresponding characteristic(s)
Institutional leaders should be able to evidence that **research integrity is a key part of research delivery**, not solely part of institutional strategy as a siloed activity.	Leaders can evidence that research integrity is a key part of delivery, not solely part of strategy (L2).	Leaders that actively demonstrate that they hold research integrity as a core value.
The term 'leaders' should not only refer to senior institutional leadership, but to **all levels of leadership within an institution**. This may include **research integrity champions, academic leaders** with additional responsibilities around research integrity, or **technicians** with additional responsibilities around research integrity.	Senior leaders' support for research integrity is reflected in the level of resourcing of research integrity related roles, support and initiatives (L11). Senior leaders encourage and engage senior researchers/ managers as 'champions' to promote culture of research integrity (L18).	Leaders that actively demonstrate that they hold research integrity as a core value. Leaders create organisational cultures that support research integrity.
Leaders should **role-model appropriate behaviours** that are conducive to creating an institutional culture of openness, both internally and externally.	Senior leaders are active in research integrity related developments and initiatives – driving improvements, reviewing policies, within and outside of their own institution (L12).	Leaders that actively demonstrate that they hold research integrity as a core value.
Leaders could facilitate **clear and open communication**, ensuring that those who are responsible for ethics and integrity are **accessible to other members of the institution** i.e., through open door policies or the provision of contact details.	Senior leaders ensure there are named contacts publicly available and kept up to date at appropriate levels within HEI (e.g., college or divisional level) (L17).	Leaders create organisational cultures that support research integrity.
Leaders should set the expectation that **research integrity should be considered throughout the research lifecycle** and across all research related activities.	Senior and research team leaders actively support the embedding of research integrity throughout the research lifecycle and throughout research related activities (L20).	Leaders create organisational cultures that support research integrity.

Workshop participants shared opportunities to improve and further refine indicators in the following areas:

Table 2. Leadership domain, opportunities to improve and refine indicators.

Feedback	Relevant indicator in the full dataset (Appendix D)	Corresponding characteristic(s)
Research integrity may be recognised through institutional **performance review and appraisal processes**, but the variance in institutional structures and processes should be considered.	HEI incentivises engagement with research integrity through recognition in performance review, workforce/workload model planning and other relevant staff development processes (L1).	Leaders that actively demonstrate that they hold research integrity as a core value.
Undue pressures on the productivity of academic staff may be linked to a focus on outputs rather than process as well as cases of questionable research practices and potentially research misconduct.	Workload allocation acknowledges the time necessary for researchers to do their research with integrity (L4).	Leaders that actively demonstrate that they hold research integrity as a core value.

Strategy

The strategy domain focuses on institutional or faculty/department level plans, priorities and objectives relating to the support of research integrity.

Throughout the co-creation process, participants shared a range of guiding principles that the Committee should consider in developing indicators in the Strategy domain:

- Concerns were raised regarding potential key performance indicators (KPIs) that may accompany action plans. In particular, participants noted there is a risk of incentivising problematic drivers or gaming the system.

- A **broad range of individuals to be involved in the co-creation process**, ensuring that diverse perspectives are considered. They emphasised the importance of consulting on potential outputs and making revisions as necessary to ensure relevance and effectiveness across all disciplines.

- **Change management initiatives** were highlighted as a critical element in implementing research integrity strategies effectively, including ensuring appropriate **communication and awareness of the policy**. There **were some suggestions** for having a research integrity communications strategy that clearly outlines the benefits of adhering to research integrity principles.

With regard to the indicators and evidence covered during workshop discussion, participants agreed with the following:

Table 3. Strategy domain feedback

Feedback	Relevant indicator in the full dataset (Appendix D)	Corresponding characteristic(s)
Policies should be shared publicly, but this should not become a box-ticking exercise.	HEI website publicly reflects that research integrity is a core organisational value, and is valued, rewarded and recognised (S2).	Having a research integrity strategy that is visible in the institutional strategy.
There is a need for HEIs **to invest in strategies that go beyond documentation** and **focus** on how these strategies are implemented and enacted in practice.	HEI has strategy to invest in roles to resource research integrity policy and support research misconduct investigations (S7).	Having a research integrity strategy that is visible in the institutional strategy.
Policies should use **language that speaks to all disciplines and should be written in an accessible manner** as overly technical language could reduce clarity around specific expectations or tasks and deter engagement.	HEI ensures that research integrity-related procedures, policies and practices are written using accessible and inclusive language (S11).	Joined up strategies and policies that support RI across the HEI and that apply beyond research.

Workshop participants shared opportunities to improve and further refine indicators in the following areas:

Table 4. Strategy domain, opportunities to improve and refine indicators

Feedback	Relevant indicator in the full dataset (Appendix D)	Corresponding characteristic(s)
It is important to have a **clear strategy coupled with an actionable plan for research integrity** (e.g., following SMART criteria), but too much of the development and implementation workload for developing policies should not fall on one group (e.g., based on seniority, gender, role profile or other characteristics); cross-stakeholder collaboration is needed, particularly between academic and professional or research services staff.	Research integrity discussed in institutional strategy, with some indication of actions and links to more information (S3).	Having a research integrity strategy that is visible in the institutional strategy.
HEIs should demonstrate their prioritisation of research integrity by **allocating resources such as time for training and development**, thereby fostering a culture where research integrity is valued and rewarded. However, it should be acknowledged that the capacity for HEIs to commit resources to research integrity is likely to differ.	HEI ensures that research integrity procedures are supported with appropriate training, and link policy requirements to training (S9). HEI has a strategy to ensure it has appropriate investment in roles to implement research integrity procedures and policies (S10). HEI skills training and development strategy is integrated with the activities of other groups responsible for staff and for research student development, so research integrity is not seen as something in isolation or as an 'add-on' (e.g., staff development, central student support departments, PGR tutors, support programmes for postdocs and new PI/CIs.) (S13).	Joined up strategies and policies that support RI across the HEI and that apply beyond research.

Procedures

Procedures capture the necessary steps of a practice, policy, activity or process, as planned.

Throughout the co-creation process, participants shared a range of guiding principles that the Committee should consider in developing indicators in the Procedures domain:

Early career researchers should be safeguarded against potential misconduct or exploitation by senior colleagues. Less experienced members often hesitate to voice concerns due to apprehension about possible repercussions or negative consequences for their careers.

Clear communication and messaging are essential, and embedding these concepts within institutional governance was considered to be important.

There is a need for clear guidelines on authorship and on author contribution statements, given the varying requirements across different journals and disciplines, as well as issues regarding the equitable allocation of authorship (with a particular focus on appropriately acknowledging the input and role of early career researchers in disciplines where multiple authorship is the norm).

Investment in systems and training for staff conducting research misconduct investigations is needed, including to manage workloads and avoid overburdening staff in potentially under-resourced teams.

Recognition and reward for training is valuable, but what this recognition and reward looks like may vary by institution and would need further consideration.

Continuous improvement should be driven by stakeholder feedback and an awareness of evolving best practices or sector-wide changes (e.g., changes in Research Excellence Framework procedures that significantly impact institutional practices). It was acknowledged that mechanisms for receiving feedback would likely be challenging to design, particularly to avoid overburdening staff with high workloads.

With regard to the indicators and evidence covered during workshop discussion, participants agreed with the following:

Table 5. Procedures domain feedback.

Feedback	Relevant indicator in the full dataset (Appendix D)	Corresponding characteristic(s)
Distinct disciplinary differences should be considered as research in the Arts, Humanities and Social Sciences often involves non-traditional research outputs and partnerships with entities like film companies and museums, requiring specific guidance and risk management.	HEI reflects research integrity standards in research policies, practices and decision-making and policies and practice are sensitive to, and support, the working practices and disciplinary norms of colleges/ faculties/ schools/ etc (PR1).	High research integrity is supported, rewarded and made visible.
It is important to **distinguish between research ethics and research integrity**, because while research ethics often encompasses legal requirements and transparent practices, research integrity focuses on values, as well as broader compliance and governance issues.	HEI research integrity procedures and processes consider issues beyond research e.g., ethics and governance of grants and finances, appropriate stakeholder engagement, service evaluation (PR3).	High research integrity is supported, rewarded and made visible.
Reflective practices and processes should be in place to evaluate and update procedures within HEIs.	Time and resources available for continuous evaluation and improvement of ethics review systems and policies (PR25).	High research integrity is supported, rewarded and made visible.
Institutional processes around misconduct must be clearly communicated, including to stakeholders external to the institution as current university procedures can feel like a "black box" that lacks clarity. There is a need for more **transparent, consistent, and efficient procedures** when it comes to research misconduct.	HEI publicises and communicates its research misconduct policies and processes for reporting concerns, to ensure they are made known to all staff and externally (PR37).	Appropriate structures for handling research misconduct investigations.

Workshop participants shared opportunities to improve and further refine indicators in the following areas:

Table 6. Procedures domain, opportunities to improve and refine indicators

Feedback	Relevant indicator in the full dataset (Appendix D)	Corresponding characteristic(s)
Effective whistleblowing procedures are critical for HEIs. Participants broadly agreed that any procedures should **ensure anonymity and manage conflicts of interest** while being well-communicated and transparent. However, it was recognised that **balancing anonymity, confidentiality and transparency is challenging in practice** particularly when dealing with complaints of a sensitive nature.	HEI has a "whistleblowing" procedure that is made publicly available and allows for concerns to be raised anonymously with the named person via, or with the assistance of, an intermediary (PR26). HEI regularly solicits feedback on whistleblowing procedures to evaluate awareness of and confidence in these procedures and has processes to update accordingly (PR27).	Appropriate structures for 'whistleblowing' and raising concerns.

Practices

This domain refers to an activity or a process (a series of activities) as carried out, relating to the support of research integrity.

Throughout the co-creation process, participants shared a range of guiding principles that the Committee should consider in developing indicators in the Practices domain:

■ Support for open and transparent research practices is important, such as **open data sharing and advocating or rewarding the publication of negative or null result**. This could include recognition and reward practices that explicitly encourage open and transparent information sharing, potential investment in reproducibility checks as well as greater and better use of electronic notebooks.

■ **Recognition and reward practices focusing on integrity should extend beyond academics**, to include technicians, professional services staff and research managers across all levels of research. This could include explicit promotion criteria, as well as improved recruitment practices, plus greater consideration of technical roles as authors in research articles.

■ **Promotion criteria should recognise team research and different roles within research teams**. This could include support for, and policies that apply to, all members of a research team (e.g., regular discussions or forums with a focus on research integrity, with open sharing of research successes and setbacks), plus team-wide recognition and reward practices that acknowledge research integrity expectations.

■ Training or support should reach **all researchers, from undergraduates through to established/ senior academics**, signalling a departure from current approaches that often target early-career researchers.

■ Training or support should be inclusive and reach **a broad set of audiences**, although acknowledging that different HEIs would have varying levels of resources to commit to these efforts.

■ **Co-creation of policies, training materials and guidance** should be considered, particularly through collaboration between academics and non-academic groups involved in research, recognising diversity in representation on committees and groups.

With regard to the indicators and evidence covered during workshop discussion, participants agreed with the following:

Table 7. Practices domain feedback.

Feedback	Relevant indicator in the full dataset (Appendix D)	Corresponding characteristic(s)
Developing a **no-blame culture** is essential.	HEI has explicit policies around 'no blame cultures' (where acknowledging errors/retracting papers are explicitly identified as 'not negative' things) (P1). HEI puts in place policies and shares examples/case studies around 'no blame cultures' (where someone has acknowledged a 'good faith' error and that has been rewarded) (P8).	Having a 'no blame culture', with practices to reflect, learn, and continuously improve research practice.
Safe and open spaces should exist within HEIs to develop relevant skills that are conducive to research integrity.	Research leaders participate in open discussions about mistakes to support researchers to improve resilience and research skills (P4).	Having a 'no blame culture', with practices to reflect, learn, and continuously improve research practice.

Workshop participants shared opportunities to improve and further refine indicators in the following areas:

Table 8. Practices domain, opportunities to improve and refine indicators

Feedback	Relevant indicator in the full dataset (Appendix D)	Corresponding characteristic(s)
HEIs should **share best practice guidelines** recognising that these may vary across researchers and that a flexible approach is needed. This might include guidance that is specific to research methods rather than to disciplines.	HEI provides best practice guidelines that are discipline specific where appropriate (P10).	Practices to support integrity in the research process and to ensure the appropriate evaluation of research processes, governance and leadership.

Skills

The skills domain focuses on evidence and indicators relating to the competencies, experience and expertise of staff.

Throughout the co-creation process, participants shared a range of guiding principles that the Committee should consider in developing indicators in the Skills domain:

■ While the value of research integrity skills and training was broadly recognised as relevant to a range of stakeholders, **workshop participants highlighted that institutional size and resource should be considered and it was highlighted that smaller HEIs may face challenges in delivering comprehensive training** due to limited financial and human resources, and that bringing in external training providers can be equally challenging.

■ Research **producers and research enablers should be supported to develop the necessary skills relevant to research integrity**. Within this, an element of training the trainers was discussed, potentially achieved through internal mentoring and review schemes.

■ A broad range of relevant skills were discussed in relation to research integrity, including **people management, mentorship, communication, research methods, open research, thesis writing, meta-research** and more. In this context, workshop attendees discussed the need for **transparent communication within HEIs around training needs**.

■ The **identification of impartial individuals or bodies that would be required to conduct evaluations** of training and its impact could be a particular challenge for smaller HEIs.

With regard to the indicators and evidence covered during workshop discussion, participants agreed that:

Table 9. Skills domain feedback

Feedback	Relevant indicator in the full dataset (Appendix D)	Corresponding characteristic(s)
Investment from HEIs in continuing professional development and training would support the development of a research culture that is conducive to good research practice and research integrity.	HEI treats investment in research integrity related training as a priority (SK3).	Research integrity related training and support that is accessible, inclusive, provided at all career levels, and across a range of roles.
Training and skill development was discussed in relation to individual appraisal and professional development.	Research leaders encourage staff to take research integrity related training (measured through mid-year and annual appraisals) (SK4).	Research integrity related training and support that is accessible, inclusive, provided at all career levels, and across a range of roles.
Research integrity training should be provided for a broad range of research-active roles within an HEI, including researchers (from undergraduate students through to academic staff and research team leaders), technicians, professional services staff, and institutional leadership.	HEI has a wide range of accessible, research integrity skills related training options to suit different roles, disciplines, and career stages (SK5). HEI provides opportunities for staff in research support roles (such as in technical, facilities, research governance and research support staff roles) to undertake research integrity related training (SK13).	Research integrity related training and support that is accessible, inclusive, provided at all career levels, and across a range of roles.
The broad range of topics under research integrity **training should be reviewed to ensure that it reflects current developments in research and** to ensure that it is relevant and appropriate to users.	HEI provides research integrity refresher training to keep staff skills up to date (SK12).	Research integrity related training and support that is accessible, inclusive, provided at all career levels, and across a range of roles.
That **it is important to evaluate research integrity training and training-related activities for their effectiveness, accessibility, quality and impact.**	Evidence of evaluation/design and delivery being based on wider evidence of effective practice (SK17).	Research integrity-related training is high quality and well evaluated.

Workshop participants shared opportunities to improve and further refine indicators in the following areas:

Table 10. Skills domain, opportunities to improve and refine indicators.

Feedback	Relevant indicator in the full dataset (Appendix D)	Corresponding characteristic(s)
Training should be **in line with continuing professional development activities.** However, in this context, questions were raised around the practicality of designing training that lends itself to being monitored and evaluated, which is likely to require some institutional effort and resource.	HEI offers research integrity related training that fits with continuing professional development practices within the institution (SK6).	Research integrity related training and support that is accessible, inclusive, provided at all career levels, and across a range of roles.

Recognising the importance of discipline inclusive language

The significance of inclusive language emerged as a key consideration in the development of research integrity indicators. Workshop participants highlighted that inclusive language may help to foster equitable uptake of indicators across a diverse range of disciplines. In this context, workshop participants highlighted that any potential indicators should be written in discipline-inclusive language to ensure their relevance to a broad range of stakeholders.

Workshop participants also highlighted the importance of designing indicators using language that is both accessible and inclusive across all academic disciplines. In particular, stakeholders from the AHSS raised concerns about the unintentional exclusion of certain disciplines that might result from the use of discipline-specific terminology and language originating from the Science, Technology, Engineering, and Mathematics disciplines.

Stakeholders, and AHSS stakeholders in particular, emphasised that indicators should accommodate the diverse methodologies and approaches that are common to different disciplines. Specifically, in the AHSS, it was recommended that any potential indicators should be sufficiently broad to enable unique methodological and epistemological diversity in these fields to be accommodated, by allowing HEIs to tailor their approaches accordingly. Alternatively, dedicated indicators could be devised with a focus on STEM or AHSS disciplines, to ensure that they are only applied by HEIs (or parts of HEIs) where they are relevant and applicable. This approach may be beneficial in enabling comparisons and the ensuing mutual learning, mitigating the fact that overly broad indicators may lose specificity and direct applicability across institutional settings.

Beyond disciplinary differences, workshop discussions also highlighted certain terms, such as "mandate", as being potentially counterproductive. These discussions signalled a need for language that fosters collaboration and engagement rather than the imposition of regulations and increasing bureaucracy.

Acknowledging the diversity of institutional types and sizes

The discussions held across all of the stakeholder workshops emphasised the need to recognise and uphold research integrity across HEIs of different types, sizes, resources and disciplinary specialisms. It was broadly agreed that the size, resources and disciplinary focus of an HEI will ultimately influence its approach to supporting and promoting research integrity. In this context, participants highlighted as essential the need to consider this variation among HEIs, and to recognise that a one-size-fits-all approach to promoting research integrity is unlikely to be effective. Rather, strategies and initiatives must be adaptable to accommodate the unique needs and challenges faced by each HEI.

Additionally, participants highlighted that poor management practices within HEIs can contribute significantly to the emergence of questionable research practices, research misconduct, to the creation of environments in which researchers do not feel safe to admit to errors or mistake, and to failures to safeguard research integrity. The effective management of research teams can also be affected by broader considerations, such as organisational structure, leadership styles, governance frameworks and the broader institutional research culture.

While sharing best practices among HEIs was identified as a beneficial activity, stakeholders also noted that this is often only feasible for those HEIs that have higher levels of financial and human resources. It was therefore agreed that sharing best practices should not be recommended as an explicit indicator of research integrity due to the significant resource disparities that exist among HEIs.

Finally, it was noted that any references to management and leadership levels should be inclusive and flexible, acknowledging the diverse organisational structures present in HEIs of varying size and scope. Rather than prescribing specific hierarchical structures, indicators should encompass a range of departmental set-ups, ensuring their relevance across different types of HEIs.

Framing research integrity positively

Stakeholders highlighted the significance of framing discussions around research integrity in a positive light, emphasising good practices and acknowledging the importance of transparency and openness. Such an approach reframes the discourse from a focus on punitive measures for misconduct, which can lead to limited reporting and the continuation of issues, towards an open recognition of integrity-driven action. In their workshop discussions, stakeholders suggested that recognising exemplary research practices could inspire researchers to uphold high standards in their work.

Central to a positive framing of research integrity is the promotion of transparency and openness in research practices, where appropriate and feasible. While open research practices are generally seen as conducive to research integrity and good research practice, their relevance and applicability tend to vary across different disciplines and research contexts. In particular, discussions with the AHSS community highlighted that the nature of work in these disciplines, which often involves qualitative data, sensitive topics, and intellectual property considerations, may limit the extent to which research can be made fully open.

While stakeholders recognised the value of promoting good research practices, they also acknowledged as valuable the sharing of lessons learned from challenging experiences. It was suggested that HEIs should foster a culture of continuous improvement and accountability. By addressing challenges openly and constructively, HEIs can identify areas for improvement and can implement strategies to prevent the occurrence of similar issues in the future.

Open and inclusive spaces for dialogue were also highlighted across all workshops and all domains as essential for the promotion of good research practices and for addressing concerns related to research integrity. By creating a supportive environment that encourages dialogue and collaboration, it was suggested that HEIs could empower researchers to navigate complex issues with confidence and integrity.

A key objective of this project was to support the creation of an evidence base for research integrity in the UK, to understand changes over time. In this context, the Committee believes it would be important and helpful to highlight what, as a minimum, HEIs should consider is needed to understand research integrity in a way that is acceptable and allows them to evidence improved research integrity practices over time (Table 11).

Through the multi-stakeholder workshops, and discussions between the Project Working Group and the Advisory Group, the Committee has identified a shortlist of 16 potential indicators of research integrity. These cross the five domains discussed above and offer a range of approaches, including qualitative, quantitative and a combination of the two. These indicators reflect the input received from attendees of the workshops and recognise institutional size, resources, and disciplinary focus differences explored during the project.

Table 11. Shortlist of potential research integrity indicators.

Domain	Shortlisted indicators	Possible sources of evidence
LEADERSHIP	1. Research integrity is on the appropriate risk register or equivalent document at an HEI and the owner of that risk is clearly identified.	HEI can evidence on a risk register or appropriate document, and link or refer to it in their annual statement on research integrity.
	2. HEI provides infrastructure and staff with the appropriate expertise needed to support open research.	HEI can provide narrative account of open research provision and uptake by research staff and include it in their annual statement.
	3. HEI's HR processes set expectations for research integrity, as laid out in policies, research-related job descriptions, recruitment, annual review, and promotion processes (including outcomes).	HEI can evidence research integrity is present in HR documentation and processes in these areas.
	4. Within HEIs, those in research leadership roles prioritise and advocate for research integrity.	HEI can gather evidence from existing or planned staff survey processes and from CEDARS, if conducted. HEI can provide narrative account from research leaders about how they have advocated for and prioritised research integrity.
STRATEGY	5. A) HEI institutional strategy mentions research integrity, and (B) staff in research-related roles have high levels of awareness of, and confidence in, research integrity related strategies.	HEI institutional strategy can be referenced in their annual statement and evidenced with a link to the strategy. HEI can gather evidence from staff survey or equivalent.
	6. HEI institutional research integrity strategies have an associated action plan with clear lines of responsibility.	HEI institutional action plan for research integrity can be referenced in their annual statement and evidenced with a link to the plan.
	7. HEI regularly evaluates the quality, accessibility, appropriateness, and impact of research integrity-related training and generates recommendations for development.	HEI can gather evidence on quality, impact, appropriateness, and accessibility of research integrity training provision from staff survey or equivalent.
PROCEDURES	8. HEI has a published mapping of relevant codes of good research practice that applies to all research-active (internal and visiting) staff that includes as a minimum codes and guidelines on research ethics, research misconduct, authorship, open research, and data management.	HEI can evidence signposting to relevant codes of good research practice.
	9. HEI can demonstrate that procedures are in place to provide sufficient time for staff to perform their research with integrity.	HEI procedures can be referenced in their annual statement and evidenced with a link to the relevant procedures.
	10. HEI has published procedures for investigating allegations of research misconduct that align with Concordat expectations, publicly available, appropriately resourced, and regularly evaluated.	HEI procedures can be referenced in their annual statement detailing the number and outcome of cases investigated and lessons learnt.

Table 11. Shortlist of potential research integrity indicators cont.

Domain	Shortlisted indicators	Possible sources of evidence
PRACTICES	11. HEI can evidence that it undertakes continuous improvement in relation to RI-related practices, policies, training outcomes and procedures.	HEI can provide narrative account of support for continuous improvement in their annual statement. Evidence can be gathered from staff survey.
	12. HEI monitors compliance with institutional and external research integrity related requirements.	HEI can evidence internal audits, risk review or self-monitoring where appropriate.
	13. HEI provides, and clearly signposts for staff, best practice guidelines related to research integrity that are discipline specific where appropriate.	HEI best practice guidelines can be referenced in their annual statement and evidenced with a link to the relevant procedures.
	14. HEI showcases exemplary research integrity practice and related activities.	HEI can evidence this with research integrity-related awards or share narrative accounts internally and externally of exemplary research integrity-related practice.
SKILLS	15. HEI provides accessible, research integrity skills-related training and/or professional development to suit different roles, disciplines, and career stages, undertaken by all research-active students and staff.	HEI can gather evidence from staff survey, pre- and post-training evaluations. Evidence could include uptake of training (number/percentage of staff), reach of training (percentage of uptake by discipline/department/career stage). Qualitative and quantitative evidence can be referenced in their annual statement.
	16. HEI provides support, training and/or professional development for those conducting research misconduct investigations.	HEI can gather evidence from pre- and post-training evaluations. Quantitative evidence could include uptake of training by those on research misconduct investigatory panels (number/percentage of staff). Qualitative and quantitative evidence can be referenced in their annual statement.

Conclusions

Looking to the future, our hope is that the shortlist of 16 potential indicators that we have created across the five domains of leadership, strategy, procedures, practices, and skills will inform and inspire different groups and organisations across the research sector that are actively developing assessment and assurance systems covering research integrity.

As described earlier, in establishing this shortlist of possible indicators, we followed the SCOPE methodology, the final stage of which is 'Evaluate your evaluation'. Ultimately, this evaluation will require the research sector to assess whether the set of potential indicators identified in this project can achieve their intended aims, recognising and supporting research integrity at HEIs in the near term, and improving it over the long term.

The Committee would like to thank again those members of the community that volunteered to participate in our workshops, our secretariat team and their UKRI colleagues who organised and supported the stakeholder workshops, and the members of the project's Advisory Group.

Appendices

Appendix A – Committee and group membership

The current membership of the UK Committee on Research Integrity is below. We want to specifically acknowledge the Committee members involved in the project working group, whose leadership and commitment made this project possible. We would also like to thank the project's Advisory Group who provided valuable insights throughout the project.

The members of the UK Committee on Research Integrity are:

- Professor Andrew George MBE (Co-chair)
- Professor Rachael Gooberman-Hill (Co-chair)
- Dr Jane Alfred*
- Professor Nandini Das*
- Professor Maria Delgado
- Louise Dunlop
- Professor Ian Gilmore FMedSci
- Chris Graf*
- Dr Ralitsa Madsen*
- Dame Jil Matheson DCB
- Professor Miles Padgett OBE FRS*
- Professor Jeremy Watson CBE FREng

*Denotes committee members that were part of the working group, chaired by Dr Jane Alfred.

We also wish to thank Dr Elizabeth Gadd, who was a consultant on this project, for her contributions to the working group.

Advisory Group

Throughout the project, the Advisory Group provided feedback, and challenge, at various stages.

- Professor Paul Allin, Imperial College London
- Dr Jiahong Chen, The University of Sheffield
- Professor Stephen Curry, Imperial College London
- Grace Gottlieb, University College London
- Dr Maura Hiney, University College Dublin
- Rachel Persad, GuildHE
- Kirsi Sumray, National Institute for Health and Care Research
- Professor Nalin Thakkar, The University of Manchester
- Professor Evelyn Welch, University of Bristol
- Dr Catherine Winchester, Cancer Research UK Scotland Institute

Appendix B – Relevant initiatives

This work provides an evidence base for a number of projects currently developing across the sector, as shown in the table below. We encourage these ongoing initiatives to consider our shortlisted indicators, as well as the methodological notes discussed throughout the present document.

Addressing poor research practice and research misconduct (UK Committee on Research Integrity)

The UK Committee on Research Integrity is seeking to develop comprehensive insight into poor research practice and research misconduct in order to make appropriate and informed recommendations aimed at strengthening confidence across the system in how these issues are managed.

People, Culture and Environment Indicators (Research Excellence Framework)

REF 2029 is working with Technopolis and CRAC-Vitae in collaboration with several sector organisations, to develop indicators for the assessment of people, culture and environment (PCE). The project team will co-develop the indicators with the research community. The indicators will then be piloted through example REF PCE submissions. The aim is to create a robust assessment framework for PCE within REF, incorporating feedback and ensuring rigorous testing of the indicators.

UKRN Indicators of Open Research (UK Reproducibility Network)

UKRN is piloting a set of indicators for open research to support policy change, workflow improvements, and highlight the benefits of open research to researchers. This has been informed by a consultation with the sector, and discussions with funders and publishers during 2023. Pilots are running on monitoring data availability statements, open and FAIR data, the effects of sharing data, the use of the CRediT taxonomy and preregistration. The aims are to establish good practice in monitoring these aspects of open research, to document the limits of this, and then in 2025 to enable that good practice to be more widely adopted.

US Strategic Council for Research Excellence, Integrity and Trust working group

The project aims to develop indicators primarily for assessing the trustworthiness of research findings with less emphasis on evaluating the trustworthiness of institutions or researchers. The project's work will integrate academic work across research integrity, transparency, methodology, assessment, and communication, to propose a framework with indicators tailored to actions for researchers, institutions, or characteristics of findings. These indicators are expected to be high-level and adaptable across disciplines.

Appendix C – Glossary

Characteristics
Things that we value because they support or lead to high integrity research.
UK Committee on Research Integrity definition for this project

Concordat to Support Research Integrity
The UK's national policy statement which sets out the core elements of research integrity: honesty, rigour, transparency and open communication, care and respect, accountability.
Concordat to Support Research Integrity

Domains
Areas (leadership, strategy, practice, procedures, skills, investment, and research culture) over which HEIs have control that can influence the integrity of research.
UK Committee on Research Integrity definition for this project

Evidence
A quantitative or qualitative factor that an HEI might put forward to demonstrate they have met the requirements of a given indicator.
UK Committee on Research Integrity definition for this project

Higher Education Institution
Universities and other educational organisations that offer degrees and conduct research.
UK Committee on research Integrity definition for this project

Indicator
A quantitative or qualitative factor or variable that provides a reliable means to evaluate achievement, to reflect the changes connected to an intervention, or to help assess the performance or state of play of an actor or system.
(Modified)
2022 Discussion
Indicators of research integrity - An initial exploration of the landscape, opportunities and challenges

Maturity levels
Descriptive stages used to assess how advanced an institution's approach is to supporting research integrity. Levels include healthy, strong, and exemplary.
UK Committee on Research Integrity definition for this project

Maturity levels - Healthy
Institutional describer indicating what it would be necessary to have in place to be in a good condition.
UK Committee on Research Integrity definition for this project

Maturity levels - Strong
Institutional describer indicating what HEIs might measure as they develop their research integrity activities beyond healthy practice.
UK Committee on Research Integrity definition for this project

Maturity levels - Exemplary
Describing HEIs that have a continuous learning cycle where practice is healthy, strong and evolving
UK Committee on Research Integrity definition for this project

Questionable research practices
A spectrum of behaviours ranging from honest errors and mistakes at one end, through to more serious behaviours at the other.
UK Research Integrity Office

Research environment
The overall setting and conditions under which research is conducted, including institutional policies, culture, and available resources that affect research integrity.
UK Committee on Research Integrity definition for this project

Research integrity
Research has integrity when it's carried out in a way that is trustworthy, ethical, and responsible. It is underpinned by the principles of rigour, honesty, transparency and open communication, care and respect, and accountability, as set out in The Concordat to Support Research Integrity.
UK Committee on Research Integrity strategic plan
Concordat to Support Research Integrity

Research misconduct
Behaviours or actions that fall short of the standards of ethics, research and scholarship required to ensure that the integrity of research is upheld. It can cause harm to people and the environment, wastes resources, undermines the research record and damages the credibility of research.
Concordat to Support Research Integrity

SCOPE Framework
A framework used to inform the development of research integrity indicators, encompassing principles such as starting with what is valued, probing deeply, considering context, and exploring options for evaluation.
International Network of Research Management Societies (INORMS)

Whistleblowing
The act of reporting misconduct or unethical practices within an institution, often protected by policies to ensure the whistle-blower is not subject to retaliation.
UK Committee on Research Integrity definition for this project

Appendix D – Full list of indicators

The following tables present the full list of indicators under each domain.

Leadership

Characteristic	Label	Indicator
Leaders that actively demonstrate that they hold research integrity as a core value	L1	HEI incentivises engagement with research integrity through recognition in performance review, workforce/workload model planning and other relevant staff development processes.
	L2	Leaders can evidence that research integrity is a key part of delivery, not solely part of strategy.
	L3	Senior leaders fulfil commitments set out in the Concordat to Support Research Integrity as employers of researchers and as recipients of research funding.
	L4	Workload allocation acknowledges the time necessary for researchers to do their research with integrity.
	L5	Senior leaders set ethos that research integrity is not seen just as the domain of ethics committees, but of other senior committees as well.
	L6	Research integrity is on the institution's risk register.
	L7	Senior leaders use monitoring activities to implement continuous improvement of research integrity over time.
	L8	Senior leaders invest in infrastructure and knowledge needed to support open research.
	L9	Institutional leaders mandate training in good supervision and mentorship for research team leaders.
	L10	HEI leadership actively make possible (through investment, strategy, prioritisation, etc) good research practice /research integrity training for all research related staff roles.
	L11	Senior leaders' support for research integrity is reflected in the level of resourcing of research integrity related roles, support and initiatives.
	L12	Senior leaders are active in research integrity related developments and initiatives - driving improvements, reviewing policies, within and outside of their own institution.

Characteristic	Label	Indicator
Leaders create organisational cultures that support research integrity	L13	Senior leaders reflect expectations for research integrity in annual appraisals and in 5-year research plans.
	L14	Senior leaders ensure that expectations on research integrity and good research practice are reflected in job descriptions that are reassessed regularly.
	L15	Senior leaders ensure that research integrity strategy includes principles that describe the values and responsibilities relevant to research, the standards required for the conduct of research (aka 'good' practice), a definition of research misconduct and all other unacceptable practices.
	L16	HEI provides management/ communication skills training to all in managerial /leadership roles, academic and non-academic.
	L17	Senior leaders ensure there are named contacts publicly available and kept up to date at appropriate levels within HEI (e.g., college or divisional level).
	L18	Senior leaders encourage and engage senior researchers/ managers as 'champions' to promote culture of research integrity.
	L19	Senior leaders set clear expectations (through investments and policy) that recognise and reward all research team members (e.g., technicians, professional services) for good research practice and research integrity related activities, including in criteria for career advancement.
	L20	Senior and research team leaders actively support the embedding of research integrity throughout the research lifecycle and throughout research related activities.
	L21	Senior leaders regularly resource and encourage research integrity events within and outside their institution that celebrate research integrity and good research practice.

Strategy

Characteristic	Label	Indicator
Having a research integrity strategy that is visible in the institutional strategy	S1	Strategies (and policies) are reviewed against external standards and guidance (e.g., Concordat to Support Research Integrity, funder guidance).
	S2	HEI website publicly reflects that research integrity is a core organisational value, and is valued rewarded and recognised.
	S3	Research integrity discussed in institutional strategy, with some indication of actions and links to more information.
	S4	Research integrity strategy is consulted on across the institution including disciplines and departments to ensure it is applicable to all and sensitive to different disciplinary norms.
	S5	Staff have high levels of awareness of, and confidence in, research integrity related strategies as reflected in staff survey feedback.
	S6	Research integrity is demonstrably considered and integrated into HEI's strategy with clear actions and lines of responsibility.
Joined up strategies and policies that support RI across the HEI and that apply beyond research	S7	HEI has strategy to invest in roles to resource research integrity policy and support research misconduct investigations.
	S8	HEI ensures that research integrity is included in collaborative agreements for research projects undertaken with external collaborating partners.
	S9	HEI ensures that research integrity procedures are supported with appropriate training, and link policy requirements to training.
	S10	HEI has a strategy to ensure it has appropriate investment in roles to implement research integrity procedures and policies.
	S11	HEI ensures that research integrity related procedures, policies and practices are written using accessible and inclusive language.
	S12	Senior leaders consider when setting HEI strategies, the impact of broader issues that can affect research integrity, (e.g., incentives in research; research assessment; promotion criteria; etc).
	S13	HEI skills training and development strategy is integrated with the activities of other groups responsible for staff and for research student development, so research integrity is not seen as something in isolation or as an 'add-on' (e.g., staff development, central student support departments, PGR tutors, support programmes for postdocs and new PI/CIs.).
	S14	HEI professionalises the roles of the people with important key skills to enable good research practice to be embedded.
	S15	Group within the institution with strategic responsibility for the promotion and monitoring of research integrity.

Procedures

Characteristic	Label	Indicator
High research integrity is supported, rewarded and made visible	PR1	HEI reflects research integrity standards in research policies, practices and decision-making and policies and practice are sensitive to, and support, the working practices and disciplinary norms of colleges/ faculties/ schools/ etc.
	PR2	HEI has a data availability policy.
	PR3	HEI research integrity procedures and processes consider issues beyond research e.g., ethics and governance of grants and finances, appropriate stakeholder engagement, service evaluation.
	PR4	Research integrity related procedures are regularly reviewed and updated.
	PR5	HEI has research integrity procedures and policies that apply to anyone conducting research under auspices of the institution, e.g., contractors, consultants, visiting staff etc and these are publicised and included as part of induction.
	PR6	HEI has procedures in place to support transparent workload allocation.
	PR7	HEI invests in systems and procedures to support open access and open research practices, including appropriate data management resources.
	PR8	HEI has conflict of interest policy that applies to all staff.
	PR9	HEI has procedures on authorship that set clear expectations on good practice in authorship, including fair and transparent criteria for determining authorship, and a policy on author contribution statements.
	PR10	Researchers are recognised and rewarded for improving skills associated with high integrity. Evidenced through the appraisal system.
	PR11	HEI collates evidence that expectations for research integrity have been met and evidence of how they are rewarded.
	PR12	HEI can evidence that it has carefully reviewed the financial investment it needs to support open research and has met these needs.
	PR13	HEI provides point of contact for authorship questions, if not the named person.
	PR14	HEI publicly shares and promotes case studies relating to good research practice/high research integrity.
	PR15	HEI has a procedure to support an independent arbiter for authorship disputes.
	PR16	HEI disseminates examples of expectations met/exceeded relating to research integrity and included in appraisal system.
Appropriate ethical review systems in place	PR17	Evidence of evaluation/design and delivery being based on wider evidence of effective practice.
	PR18	HEI expects trainers to gather evidence / feedback on quality and appropriateness of training provision.

Procedures

Characteristic	Label	Indicator
Appropriate ethical review systems in place	PR19	HEI evaluates the impact of training to assess that researchers are engaging with research integrity related training and that training is improving research skills and practice. (Evidence might include adoption and sharing of good practices, data sharing, open access publishing, accurate reporting, accurate data presentation, that staff are confident with research integrity related practices, and researcher-led activities that demonstrate research integrity related training is effective.).
	PR20	Evidence of a multi-year trend of activity of evaluation/design and delivery being based on wider evidence of effective practice AND internal evaluations.
	PR21	HEI participates in cross institutional networks to share good practice in research integrity related training and its evaluation between institutions.
	PR22	HEI has procedures to ensure ethical conduct in peer review.
	PR23	HEI ethical review procedures make available sufficient time for consistent, appropriate decisions to be made.
	PR24	HEI has clear reporting structure and lines of governance, from local research ethics committees to institution's central research ethics committee (or equivalent body) as reflected in annual report, review meetings, etc.
	PR25	Time and resources available for continuous evaluation and improvement of ethics review systems and policies.
Appropriate structures for 'whistleblowing' and raising concerns	PR26	HEI has a "whistleblowing" procedure that is made publicly available and allows for concerns to be raised anonymously with the named person via, or with the assistance of, an intermediary.
	PR27	HEI regularly solicits feedback on whistleblowing procedures to evaluate awareness of and confidence in these procedures and has processes to update accordingly.
	PR28	HEI policy allows institution to initiate investigation even if the complainant is anonymous, and/or there is no specific complainant. Policy allows complainant to withdraw from the investigation.
	PR29	Institution has a mechanism to seek/obtain feedback from individuals who have raised concerns related to RI.
Appropriate structures for handling research misconduct investigations	PR30	HEI has provisions in place for parties involved in RM investigations to access support, e.g., practical/ specialist help/ advice for panel members and those operating the procedure, pastoral care for complainants, respondents and others.
	PR31	HEI has a procedure to respond to research misconduct allegations relating to shared research outputs (not formally published).
	PR32	HEIs have procedures in place to work in partnership with publishers to investigate misconduct allegations involving research submitted for publication or published.

Characteristic	Label	Indicator
Appropriate structures for handling research misconduct investigations	PR33	HEI procedures set clear expectations for all roles and responsibilities in research misconduct investigation processes.
	PR34	HEI has procedures to investigate complaints that research misconduct investigations have not been conducted in accordance with due process (as distinct from an appeal against the outcome of the investigation).
	PR35	HEI reflects in its research misconduct procedures efforts to balance privacy of complainants & respondents with need for transparency around how concerns are addressed.
	PR36	HEI research misconduct procedure enables appropriate actions to be taken if the allegation is found to be malicious or vexatious.
	PR37	HEI publicises and communicates its research misconduct policies and processes for reporting concerns, to ensure they are made known to all staff and externally.
	PR38	HEI has a mechanism for reflection on learning from cases which is used to inform policies and processes.
	PR39	Research misconduct procedure allows the institution to complete an investigation in the event that the individual concerned leaves the institution and permits the investigation of former employees whose research at the institution becomes subject to research misconduct allegations after they have left the institution.
	PR40	HEI has standard reporting template with which to report outcome of investigation.
	PR41	HEI has procedure in place to ensure that research misconduct investigations carried out at different levels - as appropriate to an institution - (i.e., College / Faculty/ School, etc.), or confidential reports on allegations of research misconduct received at the devolved level, are made known to the institution's 'named person'.
	PR42	HEI regularly solicits feedback and assesses research misconduct procedures to evaluate awareness of and confidence in these procedures and has procedures to update accordingly.
	PR43	HEI makes anonymised learning points from completed investigations available to relevant institutional bodies and takes appropriate action, such as including learning points in training for research staff and students.
	PR44	HEI has multiple routes and options for reporting concerns about research integrity.

Practices

Characteristic	Label	Indicator
Having a 'no blame culture', with practices to reflect, learn, and continuously improve research practice	P1	HEI has explicit policies around 'no blame cultures' (where acknowledging errors/retracting papers are explicitly identified as 'not negative' things).
	P2	HEI has in place practices to ensure 'lessons are learned' from reported concerns and conducts evaluation to assess how they were subsequently addressed. Evidence might include staff annual survey feedback on their perceived ability to have difficult conversations with research leader/within research team.
	P3	HEI has included in its RI related practices, policies that support mental and physical health of staff.
	P4	Research leaders participate in open discussions about mistakes to support researchers to improve resilience and research skills.
	P5	Research leaders and research team members have opportunities to discuss and share their successes and setbacks, informal or formal.
	P6	Research leaders hold regular lab book meetings to encourage open examination of raw materials.
	P7	HEI provides clear guidelines on what constitutes questionable research practice that are discipline-specific and appropriate.
	P8	HEI puts in place policies and shares examples/case studies around 'no blame cultures' (where someone has acknowledged a 'good faith' error and that has been rewarded).
Practices to support integrity in the research process and to ensure the appropriate evaluation of research processes, governance and leadership	P9	HEI has procedures to monitor compliance with institutional and external requirements. These might include internal audits, risk review or self-monitoring where appropriate.
	P10	HEI provides best practice guidelines that are discipline specific where appropriate.
	P11	HEIs evaluate the interest of researchers in research integrity, especially senior researchers.
	P12	HEI regularly evaluates staff engagement with research integrity related procedures and practices.
	P13	HEI liaises effectively with peer organisations to promote consistency and good practice between organisations, in supporting, promoting and managing research integrity.
	P14	Research integrity awards.

Skills

Characteristic	Label	Indicator
Research integrity related training and support that is accessible, inclusive, provided at all career levels, and across a range of roles	SK1	HEI ensures research integrity related training is provided within staff core hours.
	SK2	HEI ensures training provision is flexible and adaptable to different learning needs and styles.
	SK3	HEI treats investment in research integrity related training as a priority.
	SK4	Research leaders encourage staff to take research integrity related training (measured through mid-year and annual appraisals).
	SK5	HEI has a wide range of accessible, research integrity skills related training options to suit different roles, disciplines, and career stages.
	SK6	HEI offers research integrity related training that fits with Continuing Professional Development practices within the institution.
	SK7	HEI has appropriately skilled trainers to provide training to those conducting research misconduct investigations.
	SK8	HEI establishes a formal mentor programme as part of efforts to support staff.
	SK9	HEI provides training and support to those conducting research misconduct investigations to equip them with the required skills.
	SK10	HEI reviews and updates research integrity related training provision.
	SK11	HEI regularly reviews and updates research integrity related training provision.
	SK12	HEI provides research integrity refresher training to keep staff skills up to date.
	SK13	HEI provides opportunities for staff in research support roles (such as in technical, facilities, research governance and research support staff roles) to undertake research integrity related training.
	SK14	Training aligns with a positive and inclusive research culture - recognising that all research contributions are important.
	SK15	HEI provides pathways through training to tailor it to different disciplines, where pathways are co-created by the users.
Research integrity related training is high quality and well evaluated	SK16	HEI regularly evaluates quality and accessibility of research integrity related training provision. (Evidence could include % of staff that take part on the training, attendance for different career levels, training resources being used and adapted differently across an institution, research integrity related training reported as being meaningful by staff, and evidence of competencies in place across research workforce.).
	SK17	Evidence of evaluation/design and delivery being based on wider evidence of effective practice.
	SK18	HEI expects trainers to gather evidence / feedback on quality and appropriateness of training provision.

Skills

Characteristic	Label	Indicator
Research integrity related training is high quality and well evaluated	SK19	HEI evaluates the impact of training to assess that researchers are engaging with research integrity related training and that training is improving research skills and practice. (Evidence might include adoption and sharing of good practices, data sharing, open access publishing, accurate reporting, accurate data presentation, that staff are confident with research integrity related practices, and researcher-led activities that demonstrate research integrity related training is effective.).
	SK20	Evidence of a multi-year trend of activity of evaluation/design and delivery being based on wider evidence of effective practice AND internal evaluations.
	SK21	HEI participates in cross institutional networks to share good practice in research integrity related training and its evaluation between institutions.

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