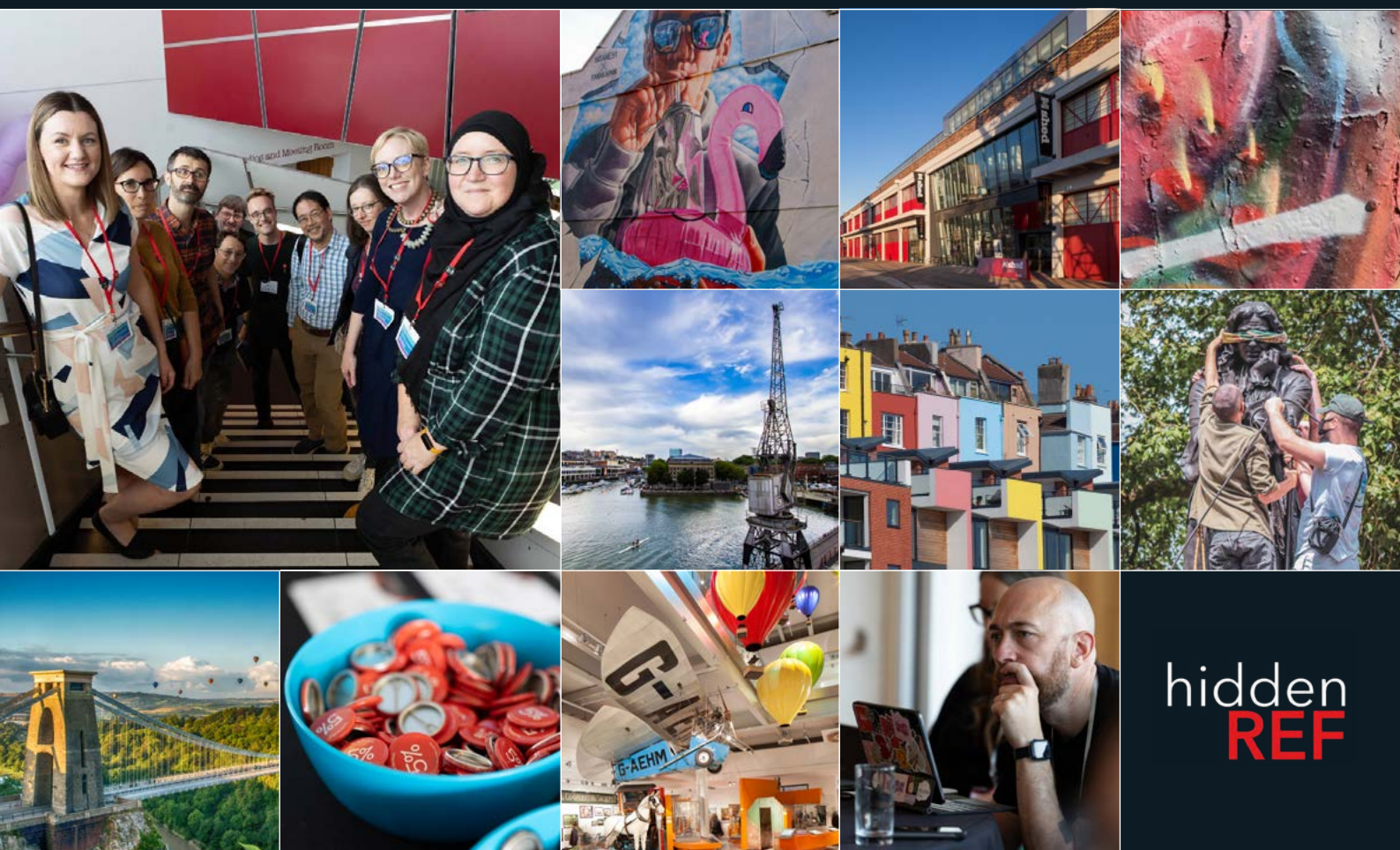# Shaping the future of research evaluation

Insights from The Festival of Hidden REF

April, 2024

hidden REF

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Executive Summary

Since 2019, the [Hidden REF](#) has been a grassroots research movement that campaigns for the wider recognition, celebration, and evaluation of important yet underrepresented research outputs, along with the people who create them.

In underscoring the value of a wide range of contributions, the Hidden REF has become a driver for equity, inclusion, and diversity in research. Central to the Hidden REF's mission is the recognition of the various ways in which high-quality research is disseminated (which we term "non-traditional outputs") and enabled (which we term "hidden roles").

This White Paper on Shaping the Future of Research Evaluation is based on two aspects of the Hidden REF; (1) Experiences and processes underpinning the first Hidden REF exercise in 2021; and, (2) Discussions held at the inaugural Festival of Hidden REF in Bristol, UK, on 21 September 2023.

This White Paper is organised around two themes:

1. Defining and evaluating non-traditional outputs in order to promote their inclusion in the mainstream Research Excellence Framework (REF 2029).

2. Determining the structure of the next Hidden REF exercise, currently envisioned for 2024.

1. Non-traditional outputs and implications for mainstream REF 2029

Non-traditional research outputs are those that, for a variety of reasons, are not communicated through "traditional" platforms such as journal articles, conference proceedings, monographs, and books. The conservative approach to submissions engendered by REF assessment processes necessitates the creation of new thinking around the evaluation of non-traditional outputs. Discussions at the Festival of Hidden REF covered the need for supporting documents, the use of peer review, and the future role of the Hidden REF towards REF 2029.

Supporting documents could provide narrative to support how a non-traditional output has met its aims.

Peer review is still considered the most effective method of evaluation, provided that serious consideration is given to the expertise and diversity of assessment panel members.

The Hidden REF can play a key role in advising and training REF 2029 on the responsible evaluation of non-traditional outputs, while encouraging the UK research and university sectors to recognise non-traditional outputs in their own institutions by submitting them to REF 2029. The Hidden REF's model for evaluating non-traditional outputs can act as a starting template for developing panellist guidelines.

2. Planning Hidden REF 2024

The Hidden REF has become (1) a celebration of diversity in research outputs and culture, and (2) a movement to seek greater recognition and inclusion of these outputs in mainstream REF assessment processes These principles are enshrined in the [Hidden REF 5% Manifesto](#).

To strengthen the Hidden REF, Festival of Hidden REF attendees proposed practical changes in the areas of criteria, categories, submissions, and evaluation.

Hidden REF criteria: Several new criteria were proposed. During Hidden REF 2021, evaluators had difficulty applying the "invisibility/visibility" criterion. Suggestions for the Hidden REF 2024 exercise included simplifying this criterion to "invisibility".

Evolving categories: Regardless of the success of the 5% Manifesto, aspects of research culture will always remain hidden from mainstream evaluation exercises. Therefore, Hidden REF categories should continue to evolve to celebrate research that remains hidden. This is particularly relevant for hidden roles (colleagues).

Alternative submissions: Submissions to the Hidden REF should be accepted in a variety of media to reflect the movement's commitment to inclusivity and diversity.

Evaluation: An innovation-centred approach is recommended for the evaluation of Hidden REF submissions. This would include experimenting with alternative evaluation approaches, panel compositions, reviewer training, and criteria.

Hidden REF community: Developing and maintaining an active Hidden REF community is vital to the future of the Hidden REF celebration (Hidden REF Community of Practice). There are many ways to build this community using exercises, discussion spaces, and events.

Positioning the Hidden REF: The Hidden REF should not be positioned as a consolation prize to the mainstream REF. Nor should it create perverse incentives not to be recognised by the mainstream REF, so as to qualify as "Hidden REF-able".

"The Hidden REF can play a key role in advising and training REF 2029 on the responsible evaluation of non-traditional outputs."

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Introduction

Widespread reliance on publications as the soul indicator of research importance has created a disjuncture between modern research practices and the academic culture around recognising success. Academic reward is blind to much work that is critical to research, and to roles that make this research possible. The Hidden REF campaigns for a system of recognition that incentivises the creation of novel outputs that are vital to research, advocating towards an academic environment in which the skilled roles needed in the modern world can flourish.

The Hidden REF was first conceived as a competition to raise the profile of research outputs other than publications. Software, data, citizen science, training materials, and a broad range of other outputs were submitted to the Hidden REF exercise by members of the UK research community. We also received numerous requests to recognise, often for the first time, the roles that are producing many of these vital outputs (The Hidden role category). Some, like Librarians and Technicians, have existed for as long as research itself, while roles such as research software managers and administrators, Research Software Engineers and Data Managers, have arisen more recently (Kerridge et al., 2023). These "hidden roles" have been overlooked by a culture that fails to look beyond publications as a means of identifying and rewarding value in research culture.

By uncovering these overlooked outputs and roles, the Hidden REF is working to overturn years of socialised perspectives about what is research 'excellence' and who is valued in research culture. We are far from alone in this pursuit – there is a huge appetite for a more effective and equitable system of recognition across the research community.

"These 'Hidden Roles' have been overlooked by a culture that fails to look beyond publications as a means of identifying the people who matter in research."

We have been joined by 20 organisations, from the Technician Commitment to the Royal Society of Chemistry. We are using the combined experience of our community to identify and describe the changes needed in academia, before testing these changes through our competitions (the next of which takes place in 2024). We will share our conclusions with academic policymakers to help drive recognition across the sector.

In this White Paper, we summarise the history of the Hidden REF and the discussions that took place at the Festival of Hidden REF, which was the first in-person meeting with our community.

The Hidden REF is a grassroots community-driven campaign led almost entirely by volunteers. We thank our community and our volunteers for their hard work and dedication to building a more effective academic culture.

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Background

History and objectives of the Hidden REF

The Hidden REF began in 2019 with an idea, born from discussions with the research community for a competition to celebrate research outputs and roles that are crucial to the wellbeing of UK research but overlooked by the mainstream REF. Having conceived the idea we formed a committee, devised a strategy, and recruited supporters and sponsors. This work culminated in a 2021 competition celebrating non-traditional outputs and research-related roles not hitherto recognised by the mainstream REF. While this was a competition with winners, it was primarily a celebration of all the submissions received.

Report on the first Hidden REF 2021 exercise

The Hidden REF 2021 received 120 submissions from more than 60 universities. A third of those submissions were made in the Hidden Role category. Submissions were diverse and included a proposal concerning 18 street children from Ghana, the Democratic Republic of Congo, and Zimbabwe who had described their experiences of living on the streets; a crowd-sourcing platform for increasing access to collections at the British Library; and an open-source project to make data science reproducible, ethical, collaborative, and inclusive.

"If we don't recognise all the work that is vital to research, then we harm our ability to conduct research."

Testimonials from Hidden REF winners

The following section includes testimonials from winners and entrants in the Hidden REF 2021 exercise. Each testimonial demonstrates the importance of these contributions and contributors, and how recognition by the Hidden REF 2021 celebrated formally unseen, or 'hidden', aspects of research culture.

Dr Mia Ridge, Digital Curator for the British Library's Western Heritage Collections, was the winner in the Hidden REF's Contexts category. Her LibCrowds project aims to improve access to the British Library's diverse collections by providing a platform for experimental crowdsourcing projects.

"Library work is often extremely collaborative and multi-disciplinary," she says. "It doesn't fit into a world view tied to the traditional REF. The Hidden REF award is a celebration of this collaboration between curators, software engineers and volunteers".

The University of Dundee's Lorraine van Blerk was Highly Commended by the Hidden Role panel for her work with youth researchers involved in the innovative Growing up on the Streets project.

"It is fantastic to be able to go back to our youth researchers and tell them they have been recognised alongside technicians and other support staff at top universities….One of our partners talked about being humbled by this recognition, which really is richly deserved".

David Creighton-Offord, winner in the Contexts panel for his work with the Edinburgh Race Equality Network (EREN), spoke in lyrical terms of the recognition delivered by the Hidden REF.

"That our work is seen and recognised. That we have value. That we must continue our work. We have come a long way in five years. Let's celebrate our successes and use them to keep us moving forward, as the work is far from over".

Evaluator feedback

The Hidden REF's evaluators were equally impressed with the work being put before them (both the evaluators and the projects in question have been anonymised). All evaluators reportedly enjoyed the experience as it gave them an opportunity to highlight and celebrate aspects of research culture that they had not previously had to privilege of formally valuing. One evaluator in particular remarked how;

"[This submission] has clearly been the driving force behind lots of practical changes that have benefited others," said one, while another evaluator observed that the submission they examined, "has a central role in helping the next generation of scholars and this should be recognised".

Highlighting the importance of collaborative working, another evaluator praised a submission's, "emphasis on recognition of the need for networking, bridge-building and listening; skills that are not often recognised or rewarded in academia", while another recognised the impact of a single person's contribution.

"[It's] clear that this individual has materially contributed not only to the success of the project, but simultaneously created an environment in which others can thrive too".

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5% Manifesto

The Hidden REF 5% Manifesto was published in July 2023. It grew from the findings of the Hidden REF 2021 exercise, our analysis of data on "non-traditional" outputs submitted to mainstream REF exercises, and sector-wide consultations on the future of research evaluation in the UK. In June 2023, UKRI published its early decisions for REF 2029 (which, as ARMA Director of Professional Development Saskia Walcott remarked, showed that, "the Hidden REF [...] is a quiet revolutionary change to REF 2029 rules").

The Hidden REF 5% Manifesto is intended to both widen and sustain that impact.

For previous UK Research Excellence Frameworks (REF), and the Research Assessment Exercises (RAE) that preceded them, research outputs had to be "authored" by members of staff on academic contracts who were expected to carry out research under the terms of their employment. Following recent moves to decouple outputs from individuals (research is now very much a team activity), the next REF, planned for 2029

(Research England, 2023), will consider all outputs from a department – a change in policy influenced by the Hidden REF.

The 5% Manifesto specifically addresses hidden contributions. While the REF and previous exercises have allowed a wide variety of research outputs, risk-averse institutions have tended to favour traditional outputs specifically journal articles, conference proceedings, and books. (See the section on "What is a non-traditional output?" for further details and context.)

Submissions to the REF 2021 exercise show that of the 180,509 outputs submitted, only 4,844 (2.6%) were non-traditional. However, the distribution is not even across submissions, with proportions of non-traditional outputs from institutions ranging from 0.0% to 78.9%. While most of those submitting a high proportion of non-traditional outputs are small arts-focused institutions, some larger (>1,000 outputs) institutions managed to exceed 5% non-traditional outputs.

Figure 1 shows the proportional distribution of non-traditional outputs submitted by the number of outputs submitted. Blue dots represent submissions of greater than or equal to 5% and orange blobs indicate less than 5%.

Figure 1: Proportion of Non-Traditional Outputs submitted to REF2021, by institution size
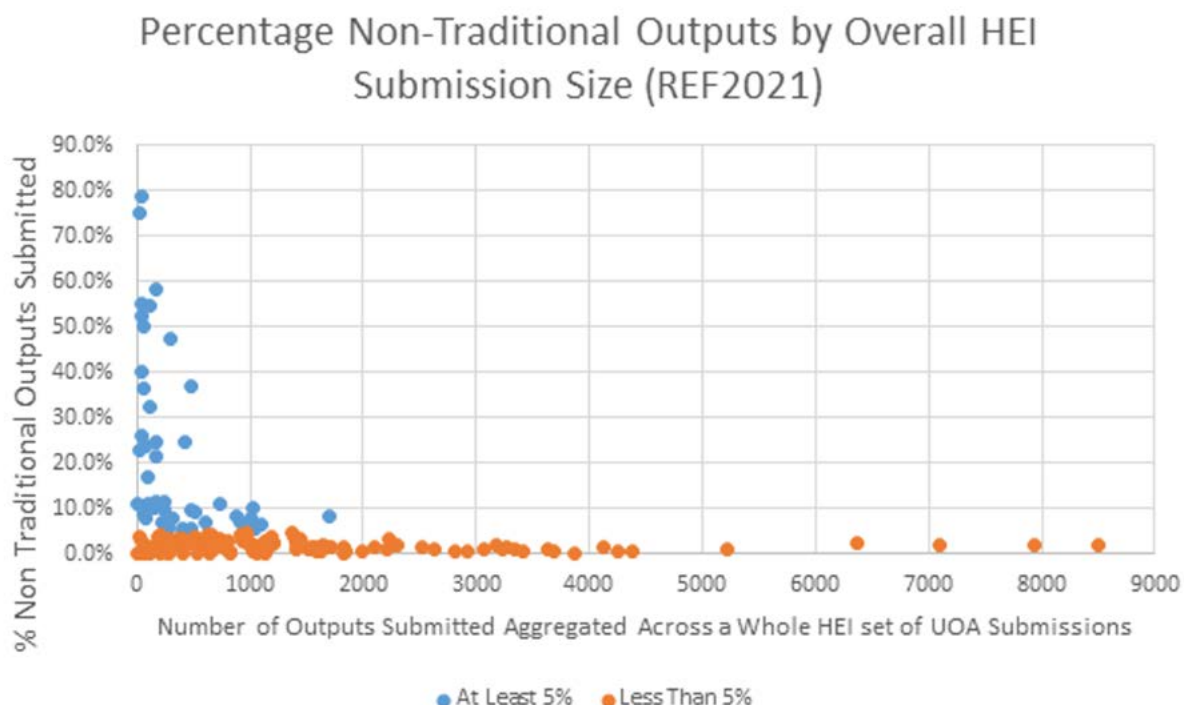
The Hidden REF proposes a challenging but achievable target of 5% non-traditional outputs to be submitted to REF 2029 for assessment (a little under twice the 2.6% submitted to REF 2021). Not only does an increase in diversity of output signal a more supportive, inclusive research culture (perhaps helping to boost a submitting institution's People, Culture and Environment score), but it is also likely to result in greater success in the REF's Contribution to Knowledge and Understanding [Outputs] category. The latter is evidenced by the fact that non-traditional outputs often score more highly than traditional ones (The Hidden REF Committee, LSE Impact Blog, 2023). While Books score most highly, non-traditional outputs such as Digital Artefacts and Other, are more likely to be awarded the top 4* grade than the near ubiquitous Journal Article, which accounts for 82.1% of all submissions (REF 2021, 2023).

Given the success of many non-traditional outputs, it is unclear why so few are selected for submission. Institutions may lack confidence in their own ability to select high-quality non-traditional outputs, or they may fear negative reactions on panels – an evidently misguided anxiety given our analysis of REF 2021 (The Hidden REF Committee, LSE Impact Blog, 2023) and the response to the first Hidden REF competition in 2021 (Hidden REF, 2021).

Hence, in the 5% manifesto, we call on universities to be bolder in their selection processes, and to submit a wider diversity of output types.

Clearly, this will be easier for some than others. Although 11.3% non-traditional outputs were submitted to main panel D, the corresponding percentages for panels C, B, and A were 1.2%, 0.4%, and 0.2%, respectively. However, it should be noted that every single unit of assessment (UOA) contained non-traditional outputs. This work may be hidden, but it's hidden in plain sight.

"We call on universities to be bolder in their selection processes and to submit a wider diversity of output types."

In summary, we passionately believe that expanding the range of outputs being assessed and formally recognised by the REF will result in a richer and more inclusive research culture. Moreover, institutions submitting these outputs may well be rewarded with higher output gradings.

We urge the 111 institutions that submitted fewer than 5% non-traditional outputs in 2021 (The Hidden REF Committee, LSE Impact Blog, 2023) to sign up to the Hidden REF 5% Manifesto (Hidden REF, 2023) and work towards submitting a broader portfolio of work. Regarding those 46 institutions that have already reached our modest 5% target, 26 of which surpassed 10%, we hope they will reaffirm their position by joining our movement.

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The Festival of Hidden REF

The key aims of the Festival of Hidden REF were to grow and strengthen the community that passionately shares our belief in the importance of celebrating non-traditional research outputs, roles, and practices. We were also keen to hear a wider range of views from the community on how to refine our approach for the Hidden REF 2024 competition. Together we examined The Hidden REF's co-working methods in the 2021 competition, discussed our common interests in recognising hidden roles and expanding recognition of a wider range of outputs, and gathered thoughts on how the categories and structure could be revised for the 2024 competition.

It was also our objective to create an openly shared working document, co-owned by all participants at the Festival and curated during the event, ensuring that the ideas, enthusiasm and energy shared during the day informs the next Hidden REF. This White Paper is the result of our community's contributions to the openly shared working document.

Overview of the event

A diverse and engaged community of 106 participants, representing 54 institutions, gathered on the 21 September 2023 at the M Shed in Bristol for the inaugural Festival of Hidden REF. This inclusive assembly included individuals from all four Home Nations and the Republic of Ireland, embracing over 30 distinct job roles and professional families.

Since many of the vital-but-unrecognised roles in research do not have access to travel funds, we designed the event to be as accessible as possible. We did not charge a registration fee and, with the help of our generous sponsors (Box 1), we were able to provide 7 travel bursaries for the attendees who needed it.

Box 1: Festival of Hidden REF 2023 Sponsors

> Thanks to our generous Sponsors; Software Sustainability Institute, Society of Research Software Engineering, Emerald Publishing, The Alan Turing Institute, The Turing Way, University of Bristol and Elsevier.

Structure of the day

The day consisted of morning and afternoon lightning talks from invited speakers and those who submitted talk proposals (Box 2); morning and afternoon guerrilla groups (Box 3) and a summative panel discussion on the issues raised during the Festival.

The Festival was oriented around the guerrilla groups, which sought to change the structure of research evaluation by drilling down into discrete topics and feeding into the future development of the Hidden REF. Throughout the day, a sticker board was available for thoughts and ideas on the direction the campaign should take. An online Miro board was also made available after the Festival for additional suggestions.

A list of lightning talks and speakers' slides can be found here.

Box 2: Lightning talks from invited speakers (Session 1)

> - Stephen Hill, Research England
> - Kelly Vere, TALENT & The Technician Commitment – "Visibility, recognition & opportunity for Technicians"
> - Emma Karoune, The Alan Turing Institute – "Hidden Roles: Why they need to be recognised"
> - Lizzie Gadd, Loughborough University – "Transitioning to recognising broader contributions"

Box 3: Lightning talks from submitted proposals (Session 2)

> - Julie Bayley, University of Lincoln – "The hidden world of (REF) impact: unicorns, sausages, and the wonder of Jessica Fletcher"
> - Pen-Yuan Hsing, University of Bristol – "Evaluating research culture"
> - Cara Rodway, British Library – "The British Library as independent research organisation"
> - Katie Osgood, University of Portsmouth – "Does the Hidden REF also mean the Hidden Research Strategy?"
> - Hollydawn Murray, Health Data Research UK – "Hidden roles in health data science"

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Box 4: Guerrilla groups

- Hidden Roles: Perspectives, paths, and lived experiences
- Hidden REF categories 2020 and 2024
- How do we evaluate non-traditional outputs?
- How do we engage with communities to get them to submit non-traditional outputs?
- Preparing for the Hidden REF 2024 competition
- How do we evaluate non-traditional outputs? Towards panel working methods

Throughout the day, participants were encouraged to use sticker boards to suggest ways to further the goals of the Hidden REF campaign. These contributions included numerous insights on research assessment and suggestions about new groups to work with.

The day finished with a lively panel session featuring Katie Osgood, Julie Bayley, Kalpana Shankar, and Simon Kerridge, and facilitated by Gemma Derrick. The discussion centred on shaping (1) The Hidden REF 2024 and (2) REF 2029, with a particular focus on the submission and evaluation of non-traditional outputs and research roles.

Overall, the Festival was very inspiring, and participants left feeling motivated having found a community of like-minded souls who were committed and motivated to re-configure research assessment in the UK to better reflect modern-day academia. Change felt like it was in the air...

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Outcomes from Guerrilla Groups

Evaluation of non-traditional outputs – REF and beyond

Evaluation

Evaluation was considered a topic relevant to both Hidden REF 2024 and REF 2029. Therefore, these discussions are included as a separate topic in this White Paper.

What is a non-traditional output?

Conversations explored how to evaluate non-traditional outputs, rather than on evaluation as it currently occurs in the REF.

There was considerable debate concerning the definition of non-traditional output, with some concluding that term encompasses every form of output other than peer-reviewed publications, conference proceedings, books, and monographs.

Significantly, these traditional outputs not only permeate research communities but also conform to widespread expectations regarding the quality and reliability of data. Traditional outputs are subject to various academic quality control exercises prior to publication, while even preprints exist within publication and peer review lifecycles, granting them a quasi-traditional output status in many research communities.

Conversely, non-traditional outputs are not typically subject to these controls, and it's difficult to establish whether they conform to other aspects of responsible research and innovation (RRI) such as transparency and reproducibility. Whether an output is considered non-traditional can also depend on factors such as local practices, the perspective of the researcher, the scale of the work, and its application.

These differences between non-traditional and traditional outputs entail that different approaches to evaluation and criteria must be formulated.

What characteristics of non-traditional outputs can be used as proxies for traditional assessment criteria?

There are many possible proxies, although it was generally acknowledged that traditional outputs are better designed to meet current mainstream REF evaluation criteria. For this reason, alternative evaluation criteria are required.

Proposed markers of excellence include:

1. "Creativity" as an alternative to "novelty" for traditional outputs.
2. "Appropriateness" in cases where the quality of the non-traditional output cannot be replicated or adequately explained through traditional means, such as a peer-reviewed articles.
3. "Translation quality", where there is an evaluation of how well a project's research aims are met and communicated through a non-traditional output.
4. "Usability", which aims to evaluate how effectively a non-traditional output has been used post-publication. This applies mainly to data, databases, software, and patents. In these cases, there is a parallel concern of how to evidence this "usability".
5. "Suitability", or how well a non-traditional output captures and communicates the process of research, how the process of research planning fed into its creation, and – where appropriate – how question-led or question-generating the output is.
6. "Enabling", as some non-traditional outputs, such as software, patents, datasets, and designs, function primarily as enablers of other research. Evidencing their impact presents a significant challenge.

These markers all present the same difficulty: where an output has been created to enable other research (e.g., datasets), it can be difficult to identify and isolate that output's own markers of excellence. It is crucial that assessments do not overlap. Likewise, it is important to avoid requiring higher standards of "excellence" and "proof of excellence" in non-traditional than traditional outputs. Doing so would increase the workload involved in mainstream REF submission preparations, potentially working against the goal of encouraging HEIs to submit a larger proportion of non-traditional outputs in their mainstream REF submissions, and by extension the objectives of the Hidden REF's own 5% Manifesto.

For these reasons, it was argued, non-traditional outputs should be presented alongside separate explanations as to how they satisfy the criteria associated with four-star outputs.

It was acknowledged that documentation outlining the ways that a research project meets the REF's requirements for excellence/esteem are rarely used in relation to traditional outputs. However in the absence of evaluator training, the group felt that supplementary information would be necessary, in the short term at least, to encourage reform in the assessment of non-traditional outputs.

Any additions or changes to the guidance provided to mainstream REF panels concerning the evaluation of non-traditional outputs should be made available well in advance of REF 2029 to help the sector prepare submissions, evaluate their own research cultures, and understand the role of non-traditional output in developing a more effective research culture. This would feed onto not just the Outputs criterion, but also the People, Culture and Environment (PCE) criterion for REF 2029.

hidden REF

Is peer review an appropriate tool for evaluating non-traditional outputs?

Participants supported the use of peer review in the evaluation of non-traditional outputs, assuming that the review panel is sufficiently diverse, has clear criteria to work from, and is moderated appropriately.

Researchers still play a central role in operationalising peer review, so an effort should be made in the short-to-medium term to emphasise the value of non-traditional outputs among the wider research community.

Despite broad support for peer review, the group identified a potentially serious shortcoming of this approach in relation to certain non-traditional outputs. In the case of exhibitions and performances, a recording may be assessed rather than a show in its entirety. Similarly, an assessment of a generative music model may involve evaluating a single piece of music rather than the capabilities of the model. In both cases, the assessment would necessarily be incomplete.

Despite these concerns, there was a consensus that peer review is the least bad option for evaluating non-traditional outputs, provided that panels are sufficiently calibrated and moderated.

What is a "peer" for non-traditional outputs?

There was broad discussion within the group around the definition of who, and even what, should be considered a "peer". Who is involved in the evaluation, how they are recruited, and how can we ensure that a panel includes enough peers to carry out its assessment fairly and transparently?

The group argued that there must be both sufficient representation (defined as visibility and community appreciation) and sufficient expertise on REF 2029 panels. Moreover, it is important to acknowledge the difference between a subject specialist evaluating an unfamiliar output format and, conversely, a non-subject specialist evaluating an output format that is familiar to them (as well as the many intersections between the two).

It was agreed that pre-evaluation training (calibration exercises) should be used to advise panels of approaches to evaluating non-traditional outputs in a manner that is transparent and considered fair by the research-community.

The groups argued that a suitable peer for reviewing traditional outputs may not be qualified to review non-traditional outputs. Therefore, care must be taken to ensure that peers are appointed to suitable panels, in order to encourage confidence on the part of institutions in submitting non-traditional outputs. Because the REF 2029 panel memberships will be published prior to the exercise, it is possible in principle to petition for necessary changes.

Instructions for panels

Group participants suggested some instructions for REF 2029 panels was necessary, to help them fairly evaluate non-traditional outputs. These included the following cautions;

Avoiding hero narratives: While an accompanying narrative is recommended for non-traditional outputs submitted to REF 2029, such "hero narratives" may distort the evaluation process by unduly influencing panellists. Specific guidelines should be given to panels, and tested during calibration exercises, directing panellists to restrict their attention to the relevant features of the work.

Overuse of indicators: For non-traditional outputs that are amenable to proxy measurements and indicators, it is important that panellists be discouraged from the overuse and misapplication of these indicators. Instead, panellists should consider "generation" and "communication" (see Table 1).

Acknowledging limitations: Panels should acknowledge the limitations of evaluation on non-traditional outputs, stressing that there is no such thing as like-for-like evaluation between output types in terms of approach and value.

A model for evaluating non-traditional outputs

The Hidden REF competition has developed a model for evaluating non-traditional outputs that can act as a starting point for developing instructions to panellists.

The group recommended that a separate, overarching panel be created to ensure the fair and equitable assessment of non-traditional outputs across all REF 2029 panels. Where this is not possible, REF 2029 should consider implementing secondary, external reviews of non-traditional outputs when the panel cannot reach a decision based on UOA panel membership.

Designing the Hidden REF 2024

Four groups were convened around four aspects of the prospective Hidden REF 2024 event: categories, competition, communities, and colleagues (Hidden Role). Discussions were open and some parallels with REF 2029 were drawn.

A number of "prompt" questions were given to groups in order to steer discussions. The objective of these discussions was to reflect on the Hidden REF 2021 event and suggest changes ahead of Hidden REF 2024. The deliberative manner in which they took place is characteristic of the movement's grassroots ethos.

The section that follows comprises a review of the structure and function of the Hidden REF competition; an exploration of additional categories for inclusion this year, with a particular focus on expanding the Hidden Role category; thoughts on how Hidden REF can build a community and encourage greater participation in its events; and views on how the evaluation process should be managed in Hidden REF 2024.

Preparing for future Hidden REFs

To begin with, it was argued that future Hidden REF evaluation exercises should ensure that the burden of effort is distributed evenly among evaluators and submitters. Evaluator recruitment, meanwhile, should comprise a mix of open, targeted, and strategic approaches, defined below.

Open recruitment is available to all applicants, regardless of expertise (self-nominated) and experience with the mainstream REF or Hidden REF. This approach to recruitment has the advantage of conforming to the objectives and values of the Hidden REF and benefitting from a wider range of perspectives, but it runs the risk of creating panels without sufficient expertise to make reliable deliberations.

Targeted recruitment, the approach used for Hidden REF 2021, sees specific evaluators being invited to participate. This ensures that panels contain an appropriate level of expertise, but it is a time-consuming process with no guarantee of success – though a potential nomination scheme could reduce the workload of the Hidden REF's organisers.

Strategic recruitment is form of targeted recruitment that places a greater emphasis on the strategic signalling or positioning of the candidate than on their subject expertise.

Group participants felt that a combination of the above was advisable. In addition, they recommended recruiting evaluators from organisations that have enjoyed success in the mainstream REF 2021 and the previous Hidden REF competition, as well as experienced individuals from outside the HE sector.

There was agreement that there should be an even ratio of "academic" versus "user/external" evaluators.

Crucially, the Hidden REF must build a cohort of evaluators who are able not only to identify in what ways a submission demonstrates the qualities that the Hidden REF is seeking to celebrate, but can also provide insightful feedback for the benefit of applicants to both the Hidden REF and the mainstream REF.

Competition

Though it started – and continues to be – a competition, the Hidden REF is also a campaigning movement that seeks to promote the inclusion of non-traditional outputs in formalised audits such as the REF 2029. The discussion outlined below reflects the dual role of the Hidden REF.

Group participants suggested that the Hidden REF, in its broader role, could advise institutions on how to identify and work with non-traditional research outputs and prepare them for the mainstream REF. This is in keeping with the Hidden REF's commitment to aiding researchers and institutions at a grassroots level.

The Hidden REF committee should pursue both objectives, but their execution should be managed by separate teams working in parallel.

There was broad agreement that the next Hidden REF exercise should be used to explore inclusion criteria for non-traditional outputs, the inclusion of diverse research roles, and the different evaluation methods available. The exercise should aim to give HEIs and REF 2029 panels the confidence to assess this wider set of outputs. The Hidden REF 5% Manifesto was judged to be an effective vehicle for bringing about this change.

Participants stressed that the Hidden REF should not be used to privilege HEIs that have the skills and capacity necessary to produce highly polished case studies at Hidden REF 2029. Diversity and equity should be prioritised at every stage.

Submissions

Group members suggested that the submission process for Hidden REF 2024 could eschew the REF's existing category-based structure in favour of long-term development approach, highlighting diverse contributions at every stage of the research. This is in line with the movement's commitment to celebrating the entire research project, team, and approach, and could become a stepping stone towards inclusion in the mainstream REF, which has already indicated a willingness to develop new approaches to the assessment of People, Culture and Environment (PCE) for REF 2029.

Case studies should consider contributions at every stage of a research project (funded or unfunded) to demonstrate the importance of teams and collaboration, especially where non-research roles, such as professional services and/or support staff, are integral to the development and practice of research. This approach might also be effective in demonstrating the importance of team science and international collaboration.

There was concern over the potential difficulty of recognising the contributions of people such as technical staff who contribute to many projects simultaneously. Consideration must be given to this type of input and how it relates to interdisciplinarity.

It was suggested that submissions should be accepted in a wide range of media. An output is not necessarily the endpoint of a research project, and what is "hidden" may relate to the ways that research is translated and adapted. Evaluation should be based on submissions made in the format that best illustrates the value of the work. For example, only first-hand experience can convey the value of an artistic performance.

Reflecting on the Hidden REF 2021 competition

The international cohort of evaluators for the Hidden REF 2021 competition were crucial to its success. Many were highly esteemed academics in subject fields associated with non-traditional outputs. Others had research evaluation specialities. Motivated by the values of the Hidden REF, evaluators were not paid for their time.

Figure 2: Evaluation quadrant from Hidden REF 2021
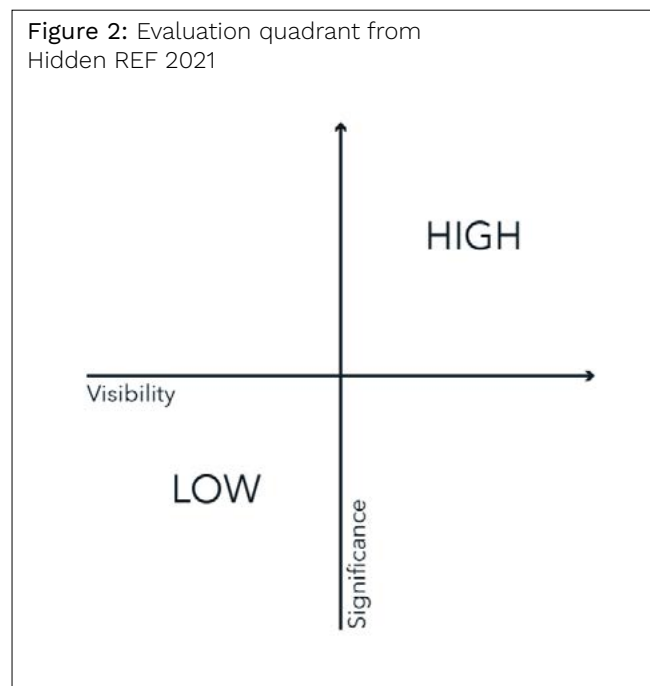
Evaluators were asked to pre-read and score submissions before meeting in panels to arrive at a consensus on final awards. They used two criteria: Significance ("To assess contribution across the diversity, richness, and variety of UK research") and Visibility ("To include everyone and everything and leave nothing behind"). These criteria were devised by the organising committee to reflect the values of objectives of the Hidden REF committee.

Further details on assessment can be found on the Hidden Ref website.

Categories

The questions used to guide the discussion in this group were:

1. How representative were the Hidden REF 2021 categories?
2. How can Hidden REF 2021 categories be altered/combined?
3. What other categories would you like to see in Hidden REF 2024?

The group put forward a list of suggestions for new categories and offered ideas on how the competition should run. In terms of categories, they felt that there needed to be a review of the non-traditional outputs that were submitted to mainstream REF 2021, prior to determining what was "hidden" and therefore what should be the focus of the next Hidden REF competition.

There were many suggestions for new categories, given below. It was also recommended that categories be crowdsourced ahead of the next Hidden REF, just as they were in 2020.

It was remarked that there are many overlaps between categories, and the terminology for different roles varies across the sector and between countries. Questions remain as to the value of recognising these roles, and to the risk of creating additional research hierarchies.

New category suggestions included:

- A "catch all" category for projects that defy categorisation. This would allow people to submit outputs that they don't believe fit into other categories. Whether or not it attracts submissions, this category underlines the message that the Hidden REF accepts any non-traditional output.
- Multi-format output comprising a combination of different outputs that share a common goal.
- Repository infrastructure and the ability to record and preserve. Presently, this is underdeveloped as a standalone category.
- Best use of AI in research.
- Focus on, and celebration of, research teams.
- Is "Hidden REF?" an appropriate name. Suggested alternatives include "Open REF" and "Team REF".

It was also recommended that the Hidden REF contact the creators of overlooked outputs to ask what measures could be taken to make it easier for them to submit in the future. It is important to note that only those outputs and roles that were already submitted would be "visible" in this approach. The "hidden" ones would remain hidden.

During the competition, regardless of the category, it was agreed that care must be taken to ensure that submissions are archived correctly and given digital object identifiers (DOI).

There was also some discussion on how the Hidden REF competition should be organised – and whether it should be a competition at all. A competition creates winners and losers, arguably undermining the enterprise's ethos of celebration. Future Hidden REF exercises could simply highlight good or exceptional submissions in a range of categories (though, it was noted, these submissions would inescapably be understood as winners by another name).

There was a suggestion that the panel outcomes be run alongside a popular vote (like Eurovision) to imbue winners with a sense of community recognition.

The group also discussed making submissions open access under a Creative Commons attribution licence (CC-BY licence), and this is already under consideration.

On promoting inclusivity, and in line the Hidden REF's objectives, the group agreed that submissions should be accepted in any medium, rather than restricted to short textual summaries. This aligns with the movement's aims of encouraging inclusion and celebrating the multifarious ways in which research findings can be disseminated. CRedIT (Contributor Role Taxonomy – https://credit.niso.org) can be used to categorise individual contributions within team submissions. This can be implemented regardless of the medium used for the submission.

Discussions also identified a need for consideration to be given to interdisciplinary research, especially where a contribution has been made across multiple Hidden REF categories. This can inform recommendations of how REF 2029 can consider and accommodate interdisciplinarity in non-traditional outputs in its own assessments.

Narrative CVs were proposed as an example of how to best record the research underpinning the creation of non-traditional outputs. However, the utility and influence of narrative CVs within research evaluation is currently contested (Bordignon et al, 2023). Their use in the Hidden REF must be rigorously examined and tested before implementation.

Colleagues: Hidden Roles

In Hidden REF 2021, there were 40 entries in the Hidden Roles category. While respectable, this total does not reflect the large number of people who work in these roles across UK research organisations, and we aim to increase submissions in this category.

A wide range of roles was represented (Figure 3). The largest number of entries came from Technicians, followed by Research Managers and Administrators.

After them came Data Stewards/Managers, Research Software Engineers, and Community Managers. Entries under "other" included Postdoctoral Researchers, Education Professionals, and Participatory Researchers.

The winner in this category was Tayah Hopes, a Research Technician from the University of Leeds, while a further five submissions were highly commended.

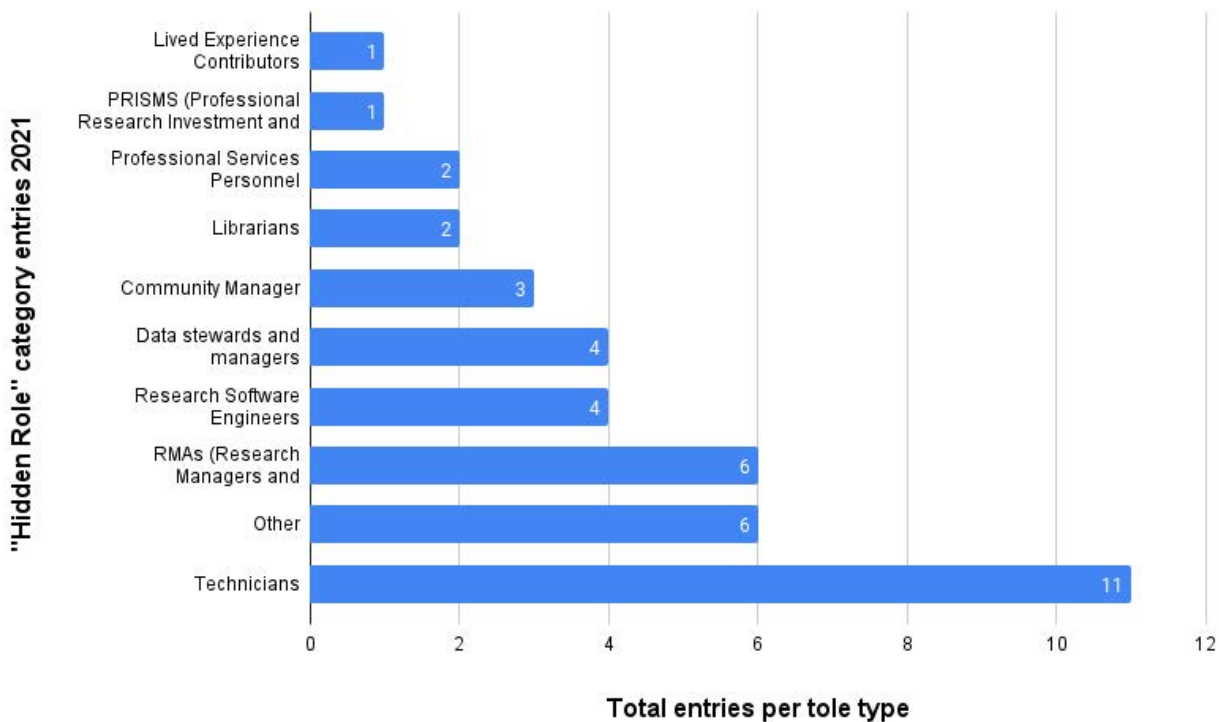**Figure 3:** Hidden role entrants for Hidden REF 2021

Towards understanding the diversity of hidden roles

The Hidden Roles session started with an icebreaker question: "What research roles exist that are overlooked and/or hidden?" Discussions then continued in smaller groups where further questions were explored.

The first of these attempted to understand individuals' paths into research infrastructure roles/hidden roles – e.g., "How have these roles been formalised – give examples? If not formalised, how do you hope for these roles to be formalised?"

The second question focused on career progression: "What do career pathways for progress look like for hidden roles in your organisation?"

One group suggested that a degree of formalisation exists around roles linked to open access (OA) research, due to the requirement for OA among funders. Some roles, such as Research Software Engineers and Technicians, enjoy broad recognition and defined career pathways. However, these personnel may not always be treated in the same way as academics. Other roles are formalised within individual institutions but not across the sector, making career progression difficult. Many roles, including Librarians, Research Community Managers, and Technicians, have the same skills and do the same work as academic researchers but are classified as support staff.

The group also discussed the largely unrecognised community and infrastructure roles that do a lot of the "glue work" involved in research. Professional support staff, which is the label given to many of these hidden roles, do not have the same opportunities for promotion and recognition as their academic counterparts, even though their input is integral to the success, quality, and impact of research.

Many groups raised the issue of short-term contracts, arguing that this mode of employment leads to loss of knowledge for projects and organisations, and professional insecurity for employees. Postdoctoral positions are similarly precarious due to their reliance on short-term research funding. Many hidden roles exist on this form of funding, impacting career development. In addition, many roles lack clear pathways for progression beyond relatively junior positions.

Finally, participants discussed the question, "How can these Hidden roles be celebrated as new categories for Hidden REF 2024?"

Figure 4: Word clouds of hidden roles from Festival of Hidden REF session

The initial icebreaker question ("What research roles exist that are overlooked and/or hidden?") prompted a flurry of discussions and produced a wonderful display of colourful post-it notes (see Figure 5) describing everything from relatively well-known research infrastructure roles, such as Research Software Engineer and Community Manager, to hidden roles, such as Data Archivist and Tech Transfer staff.

A number of roles came to light through this activity that were not submitted in Hidden Roles category during Hidden REF 2021. These included Policy Advisors, Artists and Designers, Ethics Officers/Experts, EDI Diversity Lead/ officers, Public Engagement staff, and Web and Digital Content staff.

The response to this starter activity made it clear that there are many specialists and experts working in research who feel under-recognised. There is still much to do to integrate their work into a fuller and fairer picture of practice within research culture.

Figure 5: Exercise by group participants of hidden roles in research culture

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Table 1: Table of roles from the icebreaker activity in the Hidden Roles session at the Festival of Hidden Ref 2023

Sub-category from Hidden REF 2021	Roles from Festival icebreaker question
Community Manager	Community partners Community manager Cross initiative staff Public Health/NHS interface role
Data Stewards/Managers	Data archivist Data management advisor Data Officer
Librarians	Archivist Digital preservation staff Librarian
Lived Experience Contributors	Not written
Professional Research Investment Strategy Managers (PRISMs)	Business development lead Grant writers/coordinators/managers Impact administrator Impact lead Impact officer Impact support REF support team Research development manager Research funding officer/managers Research impact manager Research partnerships manager
Professional Services Personnel	Doctoral support managers
Research Managers and Administrators	Clinical trial manager Core facility staff Finance manager Health and safety officer Legal officer/lead/manager Operations manager Project officer Project managers Research administrators Research managers Research systems manager/officer
Research Software Engineers	Data analyst Research software engineer
Technicians	Electronic specialists Technicians Technical leads
Other	Artists Designers Careers staff Commercialisation/tech transfer staff Creative practitioners Curator EDI/Diversity lead/manager/officer Engineers Ethics officers Events manager Experts Method author Museum and gallery staff Policy advisor Public/community engagement experts Public engagement professional Public engagement staff Research assistant Translators Web and digital content staff

How can hidden roles be celebrated as new categories for Hidden REF 2024?

The discussion in the last part of this session was wide-ranging and explored how we can celebrate under-recognised roles in the Hidden REF 2024 exercise. Some participants suggested keeping the category vague and open, as before, while providing more guidance on the event website, such as a list of hidden roles based on survey data.

The group discussed the merits of celebrating the work of hidden roles rather than the hidden roles themselves. Another proposed taking a holistic view, capturing the whole story of a piece of research from start to finish to ensure that every contributor is celebrated.

The idea of a "team" category came up in several group discussions and seemed to enjoy broad support, and institutional support was frequently cited as an important factor in securing the recognition of hidden roles.

As the Hidden REF inevitably becomes less hidden, it was suggested that we could change the category name to "Open REF" or "Not-so-Hidden REF".

Communities

The objective of the Communities session was to examine how the Hidden REF could engage with existing research communities to encourage them to submit non-traditional outputs to the next Hidden REF competition.

The Hidden REF Community of Practice

There was broad agreement that the Hidden REF should work alongside the mainstream REF 2029 while maintaining impartiality around its preparations and decisions. This impartiality is necessary to ensure the continued integrity and transparency of the Hidden REF's methods and evaluation processes.

"The Hidden REF should influence the REF; the REF should not influence the Hidden REF."

The Hidden REF needs to create its own community of practice around the evaluation of non-traditional research outputs. This community must be as open and inclusive as possible, to avoid the trap of creating research silos. It should be based around common objectives (above) and principles that are already embodied in the Hidden REF: transparency, honesty, reciprocity, genuineness, and recognition.

Ahead of mainstream REF 2029, the Hidden REF should inform the creation of institutional REF 2029 Codes of Conduct, promote the Hidden REF competition, motivate HEIs to submit more non-traditional outputs for consideration, and work to fulfil the objectives of the Hidden REF's 5% Manifesto.

The categories that make up the Hidden REF may differ from year to year, since many of the outputs and roles highlighted in the exercise are likely to be implemented in the mainstream REF 2029. Indeed, the ultimate goal of the Hidden REF is to make itself obsolete.

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Communities to engage ahead of the next Hidden REF competition

The Hidden REF should ensure that several routes are available for the research community to learn about and engage with the Hidden REF exercise.

The possibility was raised of inviting industry or even the armed forces to take part in the Hidden REF competition. Universities frequently engage professionals from the private sector to teach industry-leading fields such as AI and digital marketing. These professionals will not be traditionally REF-able, but they would serve to demonstrate the technical skills and pastoral care associated with teaching as a non-traditional output.

Table 2: List of communities invited to participate in Hidden REF 2024

Name of organisation	Website/contact
RLUK – Research Libraries UK	https://www.rluk.ac.uk/
Jisc	https://www.jisc.ac.uk/
UKCORR - United Kingdom Council of Open Research and Repositories	https://www.ukcorr.org/
CILIP – The Library and Information Association	https://www.cilip.org.uk/default.aspx
Technicians	https://www.technicians.org.uk/
DORA - The Declaration on Research Assessment	https://sfdora.org/
CoARA - Coalition for Advancing Research Assessment	https://coara.eu/
IARLA - International Alliance of Research Library Associations	https://iarla.org/
COPE - Committee on Publication Ethics	https://publicationethics.org/
OASPA - Open Access Scholarly Publishing Association	https://oaspa.org/
ALPSP - Association of Learned and Professional Society Publishers	https://www.alpsp.org/
Learned societies	
Professional bodies	
Unions (trade unions such as UNITE and UCU)	
Student alumni bodies	
Organisations that promote under-represented groups in research, e.g. • Blacks in STEM • Women in STEM • Disability advocacy groups • UKRI EDI Caucus • COPE • DORA and CoARA	

How to encourage participation

An elevator pitch is required for persuading communities to submit entries to the next Hidden REF competition. This message must explain the benefits of taking part (past winners and evaluators can play a role here) while emphasising that the competition is an opportunity for unseen members of the research community to tell their stories.

It is also necessary to promote the esteem of the exercise to top HEI management, stressing that securing a nomination from Hidden REF is a significant achievement.

To remain a grassroots organisation, the Hidden REF should consciously pursue a "lack of structure" model, encouraging non-traditional research roles – e.g., technical staff – to define their own pathways, career progression, and standards of recognition. These can then be interrogated through the Hidden REF competition.

It was agreed that there must be a point of contact to help with submissions. This person should steer applicants toward the correct categories and give advice on how to craft a successful application. Critically, this role should not restrict the ability of applicants to define new categories with their submissions.

The Hidden REF should also publicise relevant information such as (1) how to join common movements of research community members (grassroots) who want to advocate for change in how the benefits and outcomes from research are evaluated, and (2) how to select non-traditional outputs for submission to REF 2029.

There was some discussion on how to identify potential advocates within institutions, with REF Leads, Research Culture leads, Research Managers, Deans of Research and equivalent as well as the researchers themselves all proposed.
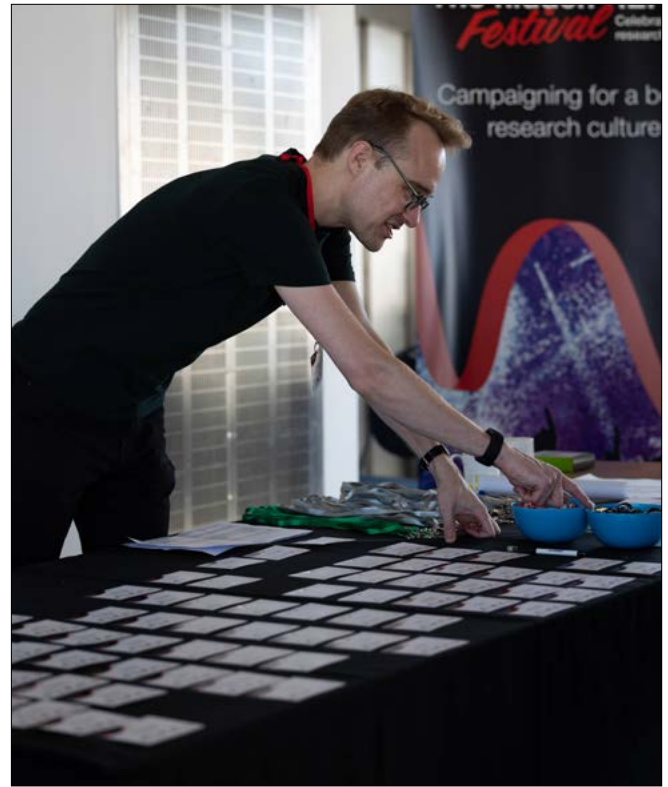
Building awareness of initiatives such as the 5% Manifesto should be seen as a first step towards encouraging institutions to engage with the Hidden REF and its values. Meanwhile, the Hidden REF must not neglect its advocacy role. Researchers must be encouraged to understand that engaging with the values of Hidden REF will lead to systematic change in their institutions, leading to better recognition for non-traditional outputs.

Providing this type of support through a full-time role would require more a permanent funding allocation. The Hidden REF committee is pursuing this possibility.

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Evaluation approaches

Hidden REF 2024 presents an opportunity to experiment with evaluation approaches that would not be possible in the mainstream REF 2029. As such, Hidden REF 2024 is uniquely well-placed to assess what works in the evaluation of non-traditional outputs. If these conclusions are implemented in REF 2029, sectoral confidence in the fair and robust evaluation on non-traditional outputs will grow, and HEIs will include more non-traditional outputs in their REF 2029 output submissions.

Evaluation approaches must therefore have an "innovation outlook", whereby (1) established ideas are tested to challenge conventions, (2) there is a system of learning from failed ideas, and (3) the practice is modified and rapidly implemented. Lessons from all three of these stages should be shared. Under this innovation-led approach, evaluator policy must be developed in-situ. Evaluators must be given an opportunity to learn from submissions, and willing to change their minds where appropriate. Research culture reform in the long-term depends on this open-minded ethos.

Experiments concerning the evaluation of non-traditional outputs as part of the Hidden REF 2024 could include the following:

- Experimentation with peer review panel representation and levels of expertise:
  - Open and/or real-time peer review. This would entail finding a platform that allows this agility.
  - Broadening the constituency of a "panel", making sure to include a minimum number of practitioners (experts in the non-traditional output type).
  - Utilise overarching non-traditional output panels to ensure the equitable application of evaluation criteria across all panels.
- Proxies used by panels to aid the assessment of non-traditional outputs.
- Experiment with the advice and training offered to panellists prior to the evaluation of Hidden REF 2024 categories.
- Establish the applicability of mainstream REF 2029 standards of quality (originality, rigour, and significance) to non-traditional outputs and, if needed, offer alternative criteria for assessment. Options for alternative criteria for Hidden REF or mainstream REF 2029 are offered in Table 3.
- Explore the relevance of the 4* scale (used for traditional outputs) in the evaluation of non-traditional outputs. Would a smaller number of categories increase reproducibility across panels?

Evaluation criteria: building on lessons from Hidden REF 2021

At first, participants in this discussion had difficulty envisioning new criteria other than the criteria used for mainstream REF 2021 outputs ("originality, significance and rigour") in relation to international research quality standards. However, it was considered essential that HEIs feel more confident about submitting non-traditional outputs.

One means of achieving this would be to consult with HEIs, including a significant number of small/specialist HEIs who have determined their own internal criteria for the evaluation of outputs. Establishing whether these HEIs have considered submitting non-traditional outputs would allow us to understand whether their criteria can be applied to the mainstream REF 2029. In developing criteria, an institution only needs to establish what kind of work the Hidden REF is aiming to celebrate.

Meanwhile, the group argued that hidden people should have the option to remain hidden from assessment. Submitting to the mainstream REF 2029 or Hidden REF 2024 should not be seen as an obligation.

Equally, it is important not to create a perverse incentive for HEIs to deliberately "hide" people and research. This principle is more relevant to Hidden REF 2024 than to REF 2029, as changes to mainstream REF 2029 have removed the minimum FTE required for individuals to submit their outputs for assessment. This will, theoretically, increase the number of outputs (traditional and non-traditional) available to HEIs to consider for their submissions.

Panellists for the Hidden Role category of the Hidden REF 2021 exercise had difficulty isolating contributions to research (significance) when these contributions were in line with their job expectations. The value of the hidden role was difficult to disentangle from the notion of simply "going above and beyond". The group argued that in situations such as these, the panel should consider how the individual has implemented new objects (outputs, programmes, ways of thinking) that are under-recognised. The success of these objects should also be considered when evaluating the Hidden Role category.

In addition, the group felt that the "cost to career" to the individual should be considered as a "hidden" factor, where the individual has not made academic career contributions because they have dedicated time to something that is, from the perspective of the Hidden REF, more important.

The panel also recommended that there be recognition of hidden roles that involve being "the nicest person", in accordance with the values of collegiality and solidarity.

For the Hidden REF 2021, the criterion of "visibility/ invisibility" was felt to be difficult to apply in an assessment. However, given the centrality of this criterion to the ethos of the Hidden REF, it must remain a consideration. Therefore, it was proposed that "visibility/ invisibility" be used as an eligibility criterion rather than an assessment tool. This would involve a declaration of "invisibility" as a tick-box criterion at the time of submission.

In assessing non-traditional outputs, the panel underscored the significance of maintaining a focus on the excellence of these outputs.

For inspiration, Hidden REF should look to criteria used outside of research for ideas – e.g. literary prizes, charity awards, BBC public awards, etc.

A list of proposed criteria for the evaluation on non-traditional outputs (see Table 3) was proposed by the guerrilla group in advance of a potential trial as part of the Hidden REF 2024.

Table 3: List of criteria for the assessment on non-traditional outputs for non-traditional research outputs

Criteria name	Definition
Rigour	Similar to the mainstream REF definition but within the context of submission. Inherent robustness and resilience of an idea, process etc., especially in the face of pressure to be made 'traditional'.
Excellence	An academic-based term but should be applied throughout the research lifecycle.
Relevance	Appropriate within context and with a knowledge need in mind.
Leadership	Leading in a place-based sense.
Generation & Communication	Phases of research (whereas traditional research evaluation focuses on insights).
Reflexive & Positional	Value to be implied for all criteria. Relevant to the audience. 'Reflectiveness' is based on the capacity of the research team and based on an open reflection of its strengths and weaknesses.
Temporality	Valuing outputs as a result of ongoing relationships. Continuity of contribution over a long period of time.
Visibility	Hidden REF 2021 definition, but tricky to evaluate.
Cost	What was missed because the non-traditional output was being produced. This could be an alternative to the 'invisibility/visibility' criterion.
Local Importance	Leading in a place-based sense and relation to the journey of the project, person, output etc.
Responsibility	The extent that the submission is created within the spirit of research responsibility and integrity.
Originality/Creativity	Similar to significance, but more applicable to creative outputs such as performances or exhibitions.
Appropriateness	Coherent, cohesive, and ethical, and reflecting the best research practice.

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Hidden REF in the media

View all articles, here.

1. Shaking Up The Status Quo: The Festival of Hidden REF And The 5% Manifesto, Saskia Walcott, November 2023, ARMA (UK) Ltd.

2. Opposition to changing the REF shows why change is needed, Gemma Derrick, October 2023, Research Professional News, Political Science Blog.

3. Hidden no more on the Code for Thought Podcast, Peter Schmidt, October 2023, Code for Thought podcast, Season 6 Episode 6.

4. How can the Festival of Hidden REF influence REF 2028? Penny Trees, September 2023, Emerald Publishing.

5. UK HEIs must embrace the REF's invitation to improve research culture, Hidden REF Committee, August 2023, Times Higher Education.

6. Submissions to REF 2028 should comprise at least 5% non-traditional outputs, Hidden REF Committee, July 2023, LSE blog.

7. Cultural consequences: How will REF2028 affect our research environment? Cat Davies, June 2023, University of Leeds blog.

8. REF 2028: Impact becomes more valuable, Simon Kerridge, June 2023, Research Professional News.

9. Time to celebrate science's 'hidden' contributors', Gemma Derrick, S. Hettrick, Nature 2022, Feb 14. doi: 10.1038/d41586-022-00454-3

10. Last chance to celebrate the staff the REF doesn't reach, Andy Dixon, April 2021, Research Professional News.

11. The 'Hidden REF' will highlight research's unacknowledged heroes, Simon Hettrick, April 2021, Times Higher Education.

12. On the Importance of Software to Research, Mike Croucher, April 2021, MATLAB Community blog.

13. Why it matters who seeks to change how we celebrate research: the people behind the Hidden REF, James Baker, March 2021, Transforming Society.

14. The Hidden REF celebrates the whole research ecosystem, Gemma Derrick & Simon Hettrick, February 2021, WONKHE.

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Society of Research Software Engineering

Software Sustainability Institute

Technician Commitment

The Alan Turing Institute

The Royal Society of Chemistry

The Turing Way

The University of Bristol

UK Reproducibility Network

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