

Appendix D Background to the SPF.

Paul Nurse's 2016 review of the seven UK Research Councils was a major driver behind the creation of UKRI. Within the UK's world class R&D system, Nurse's report identified a number of weaknesses with the existing funding mechanisms; chiefly that they did not support multi- and interdisciplinary research (MIDRI) and there was not funding to respond to emerging strategic opportunities, whether identified by research/innovation communities or other government departments (OGDs).

The SPF is a new competitive funding scheme that funds:

- i. Multi- and interdisciplinary research and innovation (MIDRI);
- ii. Research and innovation that crosses the boundaries between the seven UKRI Councils, Research England, InnovateUK, and Other Governmental Departments (OGDs) to address Government research and innovation priorities; and
- iii. Strategically important research and innovation that cannot be supported through other mechanisms. This includes:
 - Medium-scale projects which are typically too large to be funded through a Research Council / Innovate UK award, but not large enough to constitute an Industrial Strategy Challenge Fund (ISCF) 'grand challenge'.
 - Emerging opportunities that are not aligned to specific ISCF challenges but are strategically important.

Programmes delivered under SPF must meet at least one of these overarching themes/objectives. Prospective ideas for SPF programmes have been submitted to a board in two waves to date. The programmes were assessed and measures of selection were used, and described in further detail below.

SPF objectives

The high-level objectives of the SPF and the associated selection criteria are:

Objective 1: Drive an increase in high-quality MIDRI:

- i. De-risk the process of preparing/submitting MIDRI proposals for the research and innovation community.
- ii. Improve the efficacy of the funding system in assessing MIDRI proposals.
- iii. Measure for selection: programmes with one or more partner bidding organisations.

Objective 2: Ensure that UKRI's investments link up effectively with cross-departmental research and innovation priorities and opportunities:

- i. Improve join up across Departments to establish consensus on key Government priorities for R&D.
- ii. Increase understanding of Government priorities among research and innovation funders.
- iii. Improve the ability of the R&D funding system to deliver cross-Government R&D priorities through enabling PSREs to bid for open competitions funded through the SPF.
- iv. Measure for selection: a letter of support from one or more Chief Scientific Advisers (CSAs) offering policy and/or governance support.

Objective 3: Ensure the system is able to respond to strategic priorities and opportunities

- i. Provide a funding route for high quality medium scale projects.
- ii. Improve the agility of the funding system to respond to emerging opportunities.
- iii. Measure for selection: bidding organisations identified proposals which meet this objective at proposal stage. This factored into the SPF assessment panel's evaluation of each bid.

i. Multi- and interdisciplinary research and innovation

There are a number of reasons for why MIDRI can deliver benefits that single field research cannot. The nature of the problems research and innovation are tackling become more complex over time. A MIDRI approach is needed to address many of the challenges that society will face over time. Research and innovation can be made more rigorous by bringing together researchers and innovators from different fields or sectors with different skills. Indeed, the variety of approaches taken can increase the probability of solving complex problems.

There are a number of barriers to MIDRI which have been identified that the SPF is intended to address, including:

- Researchers and funding bodies often tend to identify problems from a single-discipline angle, which can affect the framing of programmes, and hinder the identification of appropriate partners from other disciplines and the communication and language between researchers from different disciplines;
- Risk aversion in bringing forward MIDRI proposals as they can require greater work and cost to develop because the peer review process is extremely competitive. MIDRI proposals are more likely to be novel and untested. Assessments of MIDRI require a wider range of reviewer expertise, which is lacking in the current system, leading to a bias towards single disciplinary projects;
- A lack of MIDRI remit in the UK (according to the Higher Education Funding Council England (HEFCE) landscape review of inter-disciplinary research in the UK, 2016); and
- A perception that MIDRI projects were less likely to be funded (2016 Landscape Review).

ii. Cross-Government R&D priorities

The National Audit Office's 2017 report on cross-government funding of R&D identified the need for greater leadership, coordination and priority setting, particularly in less mature areas of research and technology. It clearly identified UKRI as being well-positioned to drive improvements. Similarly, the Nurse review emphasised that interactions between research leaders in Government Departments and Research Councils are currently ad hoc and of variable quality, and that the "Research Councils and Government need to do more to create the most favourable circumstances for these conversations to develop".

The creation of UKRI is expected to act as a catalyst to ensure that a proper understanding of departments' R&D requirements informs funding decisions. It is also expected to help to breakdown artificial barriers to cooperation and foster coordination and collaboration to support cross-Government coordination of research priorities. The SPF aims to provide a mechanism to ensure that OGD research priorities inform funding decisions in two ways:

- UKRI will work with OGDs to draw up a list of key Government priorities. Bidders into the SPF were and are encouraged to consider submitting proposals that meet these priorities.
- Where Councils or other bodies use SPF funding to run a competitive call, other Departments' Public Sector Research Establishments (PSREs) are eligible to bid for competitive funding alongside universities, businesses and research establishments.

iii. Flexibility and agility of the research and innovation funding system to respond to strategic priorities and opportunities

The Nurse review concluded that the current funding system lacked the flexibility to respond to emerging issues and priorities. This is in large part due to the fact that investment in research and innovation has long lead-in times, with funding committed or earmarked significantly in advance of expenditure, leaving funders with little flexibility to respond to

developing opportunities. The SPF will, therefore, aim to provide the mechanism necessary to create agility in the system.

In addition to supporting emerging opportunities, there is a further gap in the current system in relation to support for medium scale projects; that is, projects which are typically too large to be funded through a Research Council / Innovate UK award, but not large enough to constitute an ISCF 'grand challenge'.