

The House of Commons Science and Technology Committee.
A new UK research funding agency based on the ARPA
model:

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Noddir gan
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The House of Commons Science and Technology Committee

Background

The December 2019 Queen's Speech set out the Government's intention for:

A new approach to funding emerging fields of research and technology. It will provide long term funding to support visionary high-risk, high-pay off scientific, engineering, and technology ideas.

The October 2019 Queen's Speech briefing note explained that this would be "broadly modelled" on the US ARPA. The US Government's 'Defense Advanced Research Projects Agency' (DARPA), which evolved from ARPA, employs 'programme managers' on 3–5 year contracts to fund high-risk, high-reward research. Its budget in financial year 2019–20 was approximately £2.65bn.

The March 2020 Budget stated that the Government would "invest at least £800 million" in this "blue skies" funding agency, which would fund "high risk, high reward science".

This inquiry requests views on the nature and purpose of this new UK research funding agency.

About HEFCW

The Higher Education Funding Council for Wales – HEFCW – is the public body operating between Welsh Government and higher education providers. We regulate fee levels at higher education providers, ensure a framework is in place for assessing the quality of higher education and scrutinise the performance of universities and other designated providers. We also provide funding for higher education teaching and research, and apply our influence and expertise to help deliver Welsh Government priorities for higher education that also have wider societal and economic benefits.

Currently, as there is little detail about the proposed new agency, modelled on the US ARPA, we have focussed on highlighting the potential opportunities and impact on Wales and its universities in particular.

What gaps in the current UK research and development system might be addressed by an ARPA style approach?

- Translating basic and applied research into innovative and transformative commercial technologies.
- Significant increase in support to encourage closer collaboration between academia and industry.

- The potential for ARPA to fund groups and consortia across the UK to tackle really large scale, game changing projects, could drive a new level of coherence and connectivity for the UK research eco-system.

What are the implications of the new funding agency for existing funding bodies and their approach?

- If ARPA was to be created within UKRI, its mandate needs to be clear in how its purpose differs from those bodies that already exist within UKRI, and define how those relationships should interact. Recognising the particular remit of Research England within UKRI, consideration would be needed of the relationships with, and the capacity to influence of, the equivalent HE funding bodies that sit outside this structure.
- If ARPA was created as a separate entity, it will need to build strong relationships with all existing HE funding bodies across the UK to ensure a coordinated approach and to ensure that funds complement rather than duplicate efforts already being made elsewhere.
- Consideration must be made for the specific policies and agendas of devolved governments as published for example in their respective economic strategies and statements of priority. Any approach should involve a collaboration and effective communication with devolved governments to ensure that there is no clash with these agendas and that R&D strategies are complementary across the UK.

What should be the focus be of the new research funding agency and how should it be structured?

- Funding for specific projects addressing a major societal challenge or scientific area – but only if the above is followed re UK-wide join-up.
- Early stage blue sky research and later stage development and commercialisation – involvement in the entire pathway of the innovation system, provided this is joined up with existing organisations e.g. UKRI and policy makers, and with clear references devolved government priorities, to ensure complementarity.
- Consideration should be given to representing the interests of the devolved governments within the new ARPA structure in order that high quality research across the country is represented and harnessed effectively.

What funding should ARPA receive, and how should it distribute this funding to maximise effectiveness?

- Funding should be given to the highest quality research and the most talented researchers, wherever they may be across the UK in universities and industry. Consideration should be given to the fact that the most talented researchers

may not always be those who have been most successful in winning UKRI grants.

What can be learned from ARPA equivalents in other countries?

- Cooperation and coordination between funding bodies is vital.
- A comprehensive common strategy and a buy-in to ARPA's mission.
- There needs to be a clear "customer" in the commercialisation and uptake of any new technology.
- Despite the need to be fast moving and agile in the short-term, the impact of a successful innovation may not be seen in the market or environment for many years, hence a need to manage expectations in measuring progress against its mission.
- Success is dependent on the talent of the individuals carrying out research projects.
- ARPA is a part of a broader innovation system which complements rather than substitutes other sources of R&D support.

What benefits might be gained from basing UK ARPA outside of the 'Golden Triangle' (London, Oxford and Cambridge)?

- Strong benefits and alignment with the UK Government's "place" agenda.
- Boosting innovation and associated spill over in parts of the country where the economy isn't as strong as the 'Golden Triangle'.
- Potentially more "buy-in" and engagement from the rest of the UK and, in particular, devolved nations, if the breadth of regional capabilities and expertise outside of the Golden Triangle were recognised.
- A physical presence or facility in a devolved nation would engender a greater understanding of the vitally important role that "place" has in developing R&D and in the levelling up agenda and would attract expertise and talent to build capacity in regions that need it most.