

Science and Technology Committee: A new UK research funding agency - 7 October 2020

Summary prepared by [Dods](#)

First Session

Witnesses:

- Professor Mariana Mazzucato, chair in the economics of innovation and public value, University College London
- Professor Richard Jones, chair in materials physics and innovation policy, University of Manchester

Overview

The session focused on the need for/potential structure of a new UK research funding agency, broadly modelled on the US Advanced Research Projects Agency (ARPA) and its successor, the Defense Advanced Research Projects Agency (DARPA).

Rationale for UK ARPA

Chair Greg Clark (Con, Tunbridge Wells) asked if the Government was right to create a new ARPA-style research agency for the UK.

In response, Professor Mariana Mazzucato, chair in the economics of innovation and public value, University College London, agreed that there was currently a gap in the UK for high-risk basic R&D. However, she added that **whether a new body was needed to address this would depend on how it was designed and how it connected to the wider activities of different parts of government.**

Professor Richard Jones, chair in materials physics and innovation policy, University of Manchester, said in principle it was good to look at overseas models such as DARPA. **He felt there was not a problem with the Government seeking to set broad strategic goals for research which was needed for the long-term.**

Purpose of UK ARPA(s)

Mark Logan (Con, Bolton North East) asked what the purpose of a UK ARPA should be. In response, Mazzucato said she **saw a role for 'different ARPAs', centred around specific challenges such as various aspects of health, energy and defence policies.** The key thing for Mazzucato was **how any new Government grant schemes would interact with these various ARPAs.**

Asked by Logan if the UK faced specific problems with silo-based working on research issues, Mazzucato noted US funding of innovation had historically been cross-sectoral - this approach had been historically lacking in the UK. Mazzucato said **the key issue was the need for a strong government focus on what was to be achieved.**

Jones agreed that **the key element was specificity on what was wanted** (such as for example an aircraft which reflected radar) **and what academic/industry inputs needed to be drawn down to make the intended outcomes happen.**

Asked by Clark if a UK-style ARPA should choose its own remit, Jones said no. **He felt there was the need for some governmental coordinating body to set its long-term technological goals.** Asked by Clark if there should be **some national conversation on the purpose of a UK ARPA,** Jones said **he would not wait for any**

consultation outcome – purpose-setting could be done in parallel with the process of creation of the new body.

Mazzucato noted a lot of innovation in the US was driven by the wider green agenda coming from civil society.

US experience

Graham Stringer (Lab, Blackley and Broughton) questioned Jones about the context in which the US had been able to set up and sustain ARPA/DARPA. Jones stressed the overriding context of the Cold War, which had led to cross-party support and leveraged cross-sectoral private R&D efforts. Jones said people often did not grasp the size of the US private R&D sector and how much this was supported by the US Government.

Lessons from National Graphene Institute

Stringer said previous witnesses had been very critical of the way in which money had been given to the National Graphene Institute, saying the grant had been restricted to bricks and mortar rather than research issues. He asked what could be learned from this experience.

Jones said one lesson to be learned was that **focusing on a single material was not enough by itself, and there was a need to look at how a wide range of different technologies were integrated.** Mazzucato said in this regard that **there was a need to ensure some institution able to provide long-term patient capital, which was lacking in the UK.**

Governance and sponsorship

Andrew Griffith (Con, Arundel and South Downs) asked **if a UK-style ARPA should sit within or outside the 'conventional' UK research establishment** (he said this implied either being within or outside UK Research and Innovation - UKRI) and how it should be sponsored. In response, Mazzucato said she had recently been advising the European Commission on a similar question. She noted these discussions had led to the creation of a new research institution within the EU Directorate-General (DG) for Innovation. However, she said on reflection that this new body was too siloed and that it should sit above the DGs; **in a UK context, this suggested the body should sit at a fairly-high governmental level.** Mazzucato went on that in the context of the UK, **if a DARPA model was about stimulating innovation, it would be more successful the more cross-departmental and cross-sectoral it was.** She added that this implied a UK ARPA located within the Cabinet Office, or if there was more than one, within respective Government departments.

Jones said UKRI was quite a new model; **in an ideal world, he felt there were valid reasons to put a UK ARPA within UKRI. However, he doubted whether it actually made much difference where in government it was located.**

Dawn Butler (Lab, Brent Central) said she did not understand why a UK ARPA was needed when UKRI already existed. In response, Mazzucato said it was right to ask such a question. She felt the way to proceed was to look at **the key gaps in the UK system, which in her own view was the ability to set challenge or mission-orientated work.** At present, Mazzucato said **UKRI did not seem to see itself as having such a challenge-setting role,** which was why there was the need for another body to sit above it.

Second Session

Witnesses:

- Professor Sir Mark Walport, former CEO, UKRI (2017–2020)
- Jo Johnson, former minister of state for universities, science, research and innovation (2016–2018 and July–September 2019)

Overview

The committee spoke to the two people responsible for creating and running one of the main current institutions of UK research funding, UKRI; both of them expressed significant doubts over the merits of a UK-style ARPA body.

Rationale for UK ARPA

Clark asked if the Government was right to want to create a new ARPA-style research agency. In response, Professor Sir Mark Walport, former CEO, UKRI (2017–2020) said he felt form should follow function; however, **UK ARPA was at present 'a form' without a clear definition of function**. Walport noted that in the US ARPA/DARPA had had a very strong customer – the US Department of Defense – from day zero. He noted that **in the UK it was less clear that the various government departments could use their procuring power to solve problems in the same way as in the US**.

Walport went on that attempting to use a US model in a UK context was further complicated by the fact that **in the UK, an ARPA approach was being applied to non- military procurement markets (such as health), which had a less obvious rationale for using such a model**. Walport also disputed the claim by Mazzucato in the previous session that UKRI had not been formed with challenges in mind.

He noted **the Industrial Strategy Challenge Fund had a number of ARPA-like features**, and said its 'challenge directors' had been appointed on the DARPA model (although their pay was nowhere like the level their 'equivalents' received in the US and they had less freedom to take risks). Walport suggested therefore that **UKRI could be guided towards a more ARPA-like model without the need for a new body. This could be achieved by giving UKRI more freedom and money to work on specific challenges**, such as on low-cost nuclear power.

Jo Johnson, former minister of state for universities, science, research and innovation (2016–2018 and July–September 2019), said **a new body could be a useful contribution to the UK R&D ecosystem, but this was with the proviso that it was complementary rather than destructive to existing organisations**. He said there was still **very slow progress on what the purpose of a UK ARPA was**. He said that at minimum, clarifying this would require a new green or white paper. Johnson agreed with Walport **there was no reason why the still-youthful UKRI could not incubate a new ARPA-like body**, which he said would only require some secondary legislation. Setting up a UK ARPA could do damage to the high-performing UK research system by fragmenting the coherence and oversight of UKRI, Johnson concluded.

Asked by Clark why the government appeared to think otherwise, Johnson said new governments 'often want to make a mark'.

UKRI 'weaknesses'

Butler asked what the 'weaknesses' of UKRI were (placed in quotations as Butler said she was playing devil's advocate when asking this question). In response, Walport said he was unclear on what the weaknesses were, other than that UKRI was a new organisation. He added that **one criticism which could probably be made of UKRI was that ministers were constantly seeking to micro-manage every decision it made; it followed that moving forward, UKRI would benefit by being more independent.** Johnson said it had been no small feat to overcome the UK's fragmented and siloed research system; UKRI had worked to give greater coherence and general added value to this landscape, he said.

Location of ARPA

Carol Monaghan (SNP, Glasgow North West) said evidence to the Committee from former science minister Lord Willetts had suggested ARPA should be distinct from UKRI. She suggested **having ARPA outside UKRI might lead to more 'openness and boldness' in research.** In response, Johnson noted that **whilst the existing research councils were clustered in UKRI and sat on a UKRI committee, they were nonetheless autonomous within the organisation and able to respond to the needs of various disciplinary communities.** Johnson said if the research councils were able to be independent within UKRI **there was no reason why a UK ARPA could not also be independent within UKRI;** the main problem was setting out the functions of ARPA so that they complemented existing work, he said.

ARPA within UKRI

Griffith questioned witnesses further on **the benefits of allowing greater operational freedom to UKRI to perform ARPA-like roles.** In response, Walport pointed out to a 634-page long history of ARPA prepared in 1975. He said this pointed to the need for strong office directors, high quality project officers, knowledge of the whereabouts of the best ideas in the public sector and rapidly-identifying problem areas to make interventions. He said all of these features were equivalent to what was needed for Innovate UK and the heads of research councils, both of which sat within UKRI; **the key issue for him was therefore the ability to recruit high calibre people to UKRI, which was a resourcing and freedom issue given the need to recruit from the private sector.**

Dominic Cummings and consultation

Stringer described UK ARPA as 'an idea from Dominic Cummings ', asking if Cummings had spoken to the witnesses about this issue in the past. In response, both witnesses said they had had discussions with Cummings before on this. Johnson said in addition he had 'waded through' Cummings' blogs on the issue.

Location

Asked by Aaron Bell (Con, Newcastle-under-Lyme) **if there was a case for locating the ARPA institution outside of the 'Golden Triangle'** to support the levelling-up agenda, Johnson said he would support this provided there was a competitive process. He said that **the physical imprint of the new body would be less important than whether it could support levelling-up through its research procurement function.**