

Advanced Research and Invention Agency Bill: Second Reading – Summary

URL: <https://hansard.parliament.uk/commons/2021-03-23/debates/6C3027CF-BBC3-4BF9-9A32-B7C90EAEF770/AdvancedResearchAndInventionAgencyBill>

Secretary of State for Business, Energy and Industrial Strategy, Kwasi Kwarteng, begged to move that the Bill be now read a Second time. Referencing the role of Edward Jenner in discovering immunology, Kwarteng thanked the tireless work of scientists at Oxford University and noted that a British vaccine had once again helped the return to a more normal life. He said the Advanced Research and Invention Agency (ARIA) would play a “unique and exciting role in the UK’s research and development system.”

Kwarteng said the new agency would be characterised by funding high-risk, high-reward research with strategic and cultural autonomy. He said that operational freedom and investment in the judgement of able people were features that would make the agency succeed and were part of a concerted effort by the Government to cement the UK as a science superpower. He said £800m had been committed to ARIA by 2024-25, adding that this Bill would grant the agency a freedom and mandate to be bold.

Kwarteng said that the Bill recognised that funding transformational science required “patience and a high-risk appetite.” He said that the “freedom to fail” was fundamental to the Agency’s model, noting that bold actions by the US Advanced Research Projects Agency (ARPA) had developed GPS and the precursor to the internet. He added that the Bill would also include a ten-year grace period before the power to dissolve the agency could be exercised.

On funding, Kwarteng said that ARIA would have inducement prizes and may seek to use seed grants and make investments in companies, noting that different funding methods suited different projects. However, he noted that all would drive innovation and the Agency would have the freedom to take a long-term view and experiment with “new ways of funding the most ambitious research.” He said that key to this was trusting the leadership of ARIA to identify research areas of greatest potential, and so the Bill limited the ability for Ministers to intervene in day-to-day operations or funding decisions. The Agency would have to have regard for the benefits of research to the UK economy and quality of life.

Coronavirus had shown that agility was crucial in funding research in a fast-moving world, Kwarteng said, noting that ARIA would have a streamlined structure and be a “small and nimble agency.” He added that the Bill provided ARIA with some unusual freedoms, such as exemption from public contracting rules that would enable the Agency to procure R&D services and equipment relating to its research goals in a similar way to a private sector organisation. A commitment in the Bill to audit such procurement activities and provide annual reports would ensure transparency, he said, alongside the customary scrutiny by the National Audit Office.

Shadow secretary of state for Business, Energy and Industrial Strategy, Ed Miliband, shared the Secretary of State’s admiration for British science and the vaccine rollout. However, although the Opposition supported the Bill, he noted that they had some issues with it. Miliband said it was “slightly remarkable” that the scientific community did not know its budget two weeks from the start of the new financial year, adding that the Government “appeared to be contemplating significant cuts to its programmes.”

He noted that while ARIA’s budget would be £800m over this Parliament, UK Research and Innovation (UKRI) had an annual budget of £9bn. He said that a recent UKRI letter warned that cuts

were coming, adding that “potential areas include climate change, antimicrobial resistance, pandemics, renewable energy and water sanitation.” He said that “we cannot launch a successful moonshot if we cut off the power supply to the space station.”

He expressed concerns that the threat of cuts may extend further, adding that there was “no clarity on how to cover the huge cost of the UK’s ongoing participation in Horizon Europe programme.” He said that the programme used to be funded from the UK’s EU contributions, rather than from the science budget, adding that it surely could not be right to take money from the science budget to fund our participation. Kwarteng replied that such conversations with the Treasury were ongoing.

Miliband said that the Bill was important, but there was “consensus that there is a lack of a mechanism to identify, build and fund truly ambitious, high-risk, high-reward programmes.” He said while such a high-risk culture was necessary, it was “simply not true” that the US Agency, DARPA, was “somehow totally detached from Government.” He said that DARPA had an obvious client, the Department of Defense, which granted it a “clear mandate around defence-related research.”

He said that there were two different views on ARIA: one that the organisation should be able to do what it wants; and the other where the Government sets a clear mandate and framework for ARIA, but does not intervene in the day-to-day decision-making. Miliband then described the latter as the “more sensible approach” that was also backed by a “democratic case,” given that £800m of spending should be “driven by democratic choices.” He noted that Moonshot R&D, the Japanese agency established in 2019 to fund R&D, had seven goals set by the Japanese Government.

Miliband said that unless ARIA focused on a “single or small number of missions,” it would threaten to dilute its impact. He cited net zero as an example, adding that achieving this target required “political will and imagination.” He questioned why net zero should not be set as ARIA’s mandate for the first five years, given the announcement last week that it was the UK’s primary international challenge.

Richard Fuller (Con, North East Bedfordshire) said that governments tend to direct funding based on political decisions, frameworks and missions. He said that ARIA presented an opportunity for the UK to do something different, “without the sticky fingers of government interfering.” Miliband replied that it was for the government of the day and the House to decide what the national priorities were and that under current planning the chair and chief executive of ARIA would have to decide which government departments to prioritise.

Raising how ARIA would sit within the life cycle of technological innovation, Miliband said that ARIA had been “born of a frustration about the failure to fund high-risk research,” adding that it was vital that the Agency did not duplicate the work of existing funding streams. He said that it was unclear from the Government’s statement of intent what Innovate UK would fund and what would fall under ARIA’s remit. He said that such vagueness of mandate was matched by vagueness about where in the innovation cycle it sat.

Andrew Griffith (Con, Arundel and South Downs) asked what incentive the Agency would have to duplicate the work of Innovate UK. Miliband replied that it would be a good idea for ARIA to share information with UKRI and work together under a memorandum of understanding. He added that while the Opposition believed that ARIA should be given operational independence, the challenge for public policy was how to establish a tolerance of failure. He said that there would need to be answers on who else from the scientific and research community would have a say in who should be appointed to senior leadership positions.

Chair of the Science and Technology Committee, Greg Clark (Con, Tunbridge Wells), said that the question of what the Agency's focus would be was a legitimate one, because it would be easy to dissipate £800m on many projects that do not deliver the transformation that was in prospect. He noted that his Committee had recommended that ARIA should have no more than two focal points for this reason.

Clark added that ARIA accounted for one percent of the UK's annual research funding and given that the Agency had been heralded as an answer to criticisms of bureaucracy and micromanagement, we must not forget about the other 99 percent. He noted that the chief executive of UKRI, Sir Mark Walport, had commented that some of the procedures of the UKRI should be refreshed too.

He said that while he welcomed ARIA and rising science funding, it was "paradoxical" that just at the point that we have the biggest increase by far in science funding and the whole scientific community is rejoicing at this country embarking on a golden age of scientific research, we should unexpectedly have the prospect of cuts to the science budget for the next year or two.

Chris Skidmore (Con, Kingswood), former science and universities minister, welcomed the Bill and stressed the need for certainty in and stability of funding for the R&D sector. He was pleased with the structure of ARIA, but thought that £800m was a modest amount of funding. "We can supercharge that, just as we need to supercharge our 2.4 percent target by leveraging private investment", for instance by using prizes, such as the \$10m Ansari X Prize, which had leveraged \$100m.

With regards to whether ARIA should have a mission-oriented approach or moonshots approach, he said that ARIA should have "the purpose of creating an organisation that will prioritise disruptive innovation. There are plenty of other opportunities for moonshots elsewhere within the R and D ecosystem. ARIA's sole purpose will be to look at how we can create paradigm shifts in technologies or, indeed, in technologies that do not even exist at the moment."

John Redwood (Con, Wokingham) thought it was too early to tell how much money ARIA would need, but what was key was have well defined objectives.

Nick Fletcher (Con, Don Valley) argued that "research and innovation projects must not be hindered by bureaucracy and slow decision making. Only then can the real risk-takers go ahead so that our innovators can be set free and get on with formulating and envisioning the next great technological changes of the 21st century. With the budget being offered to ARIA, I know they will be able to."

Jane Hunt (Con, Loughborough) asked the minister how they would ensure that ARIA would not be constrained by the bureaucracy that currently inhibited R&D funding.

Antony Higginbotham (Con, Burnley) said "The thing that set DARPA apart and led to its success was having a client—a customer who could ask the questions and show the problems that DARPA then went on to fix, and who could flag the programmes that it needed. We have lots of Departments and organisations that could be that client. It could be the NHS and healthcare. Do we want to be a leader in healthcare, asking the difficult questions and looking for solutions for treating an ageing population and dealing with remote healthcare?"

Jerome Mayhew (Con, Broadland) also noted that DARPA had in the US military a guaranteed customer, helping with the development of commercial products from its technological advances. "Close attention will need to be given to this process of commercial exploitation. Is there a role for

Government to create markets and prime industries?" he asked and called for shortening the supply chain to respond to offshoring production.

Imran Ahmad Khan (Con, Wakefield) welcomed that ARIA was based on the DARPA model and added "DARPA's success has also stemmed from the culture it has fostered and the connections it maintains with industries and academia. Project managers are recruited on a temporary basis from a permanent position in the academic or industrial research community and given tremendous autonomy in their duties." He warned against haste.

Andy Carter (Con, Warrington South) drew attention to a Nesta report which estimated that the regions outside London and the south-east had missed out on Government R&D funding of about £4bn each year, which could have leveraged a further £8bn from the private sector.

Chi Onwurah, Shadow Minister for Business, Energy and Industrial Strategy, pointed out that research by Oxford Economics commissioned by the Department for Business, Energy and Industrial Strategy had found that each £1 of public research and development stimulates between £1.96 and £2.34 of private research and development in the long run.

She added that Labour recognised that the UK needed new mechanisms to support high-risk/high-reward research and ARIA was a step in the right direction.

However, she expressed some concern, such as the lack of direction for ARIA, and quoted stakeholders stressing the importance of a mission for the institution. She also noted that but ARIA seemed "entirely dependent on its CEO and chair, with little external accountability or ministerial direction" and noted that "however great the initial CEO and chair are, they will move on".

She also pointed out that the Government were reportedly on course to miss their target of spending 2.4 percent of GDP on R&D by 2027 following cuts to overseas research. She had been told by the vice-chancellor of Newcastle University, Chris Day, that this may lead to immediate redundancies in the north-east.

The Government also failed to support medical research charities and early career researchers, she added and expressed concern about how ARIA would work with other bodies considering it had no mission.

The Minister for Science, Research and Innovation, Amanda Solloway, said that that ARIA would be at a greater distance from central Government than other bodies and that was based on international experience.

On freedom of information exemptions, she said since the organisation would have few employees and "because of the load that FOI requests would place on the organisation we do not think they are the right way to provide scrutiny."

On procurement, she said "procurement decisions will be taken by ARIA, not by Ministers. It is because it is one step removed from Government that the exemption will empower ARIA's talented programme managers and directors."

Question put and agreed to.

Bill accordingly read a Second time.



Advanced Research and Invention Agency Bill (Programme)

Motion made, and Question put forthwith (Standing Order No. 83A(7)),