

Written Evidence Submitted by Bruntwood SciTech

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Bruntwood SciTech

Bruntwood SciTech is the UK's leading developer of innovation districts. A 50:50 joint venture between leading property company Bruntwood and Legal & General, Bruntwood SciTech is the only property company dedicated to the growth of the UK science and technology sector. With over 1.8m sq ft of assets under management and a development pipeline of over 850,000 sq ft, the Bruntwood SciTech network spans campuses across Manchester, Leeds, Liverpool, Cheshire and Birmingham and includes some of the UK's most important science and tech assets and infrastructure including Manchester Science Park, the Citylabs campus, Innovation Birmingham Campus and Alderley Park which is the home of leading institutes such as the Medicines Discovery Catapult, the UK's AMR Centre, the Cancer Research UK- Manchester Institute and one of the three COVID-19 diagnostic Lighthouse Labs.

Already home to over 500 of the UK's most innovative and disruptive science and tech businesses, Bruntwood SciTech supports companies in Health and Life Sciences and Digital and Tech sectors to form, scale and grow by providing unrivalled access to finance, talent and market.

Reason for Responding

As the UK's leading property provider dedicated to the growth of the science and technology sector, focussed on helping science and technology companies to form, scale and grow, with ambitious targets to create over 20,000 new high value jobs for the UK economy over the next 10 years, Bruntwood SciTech must express its support for the creation of an ARPA style model for the funding of investment in UK innovation, research and development.

So many new and early stage science and tech businesses fail due to lack of investment or the time/complexity it takes to gain investment. The UK must ensure that the funding infrastructure is in place not solely to 'prop up', but support those companies (particularly those requiring funding of a larger magnitude) to realise the potential of their large scale and potentially game changing ideas at pace and scale (or not) .

The response by many companies from across the Bruntwood SciTech network to the recent COVID-19 pandemic has demonstrated the ability, capacity and speed with which our UK science and tech businesses can pivot and adapt to significant levels of change and uncertainty when barriers to innovation are removed. Examples include: Yourgene Health, the Manchester-based molecular diagnostics group, joining forces with Anglo-French biotechnology group Novacyt to support production of COVID-19 diagnostic tests, Place Dashboard using mobile phone GPS data to track social distancing and multiple businesses using 3D printing technology to produce PPE.

Bruntwood SciTech's strong links to UK Government-led initiatives and our portfolio of research-intensive organisations such as the Antimicrobial Resistance (AMR) Centre, the

Medicines Discovery Catapult, QIAGEN, CRUK, HS2 and Cisco means we understand the need to invest and support innovation on a global scale and a new ARPA style approach could be one way in which the UK can achieve that.

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

The UK has long been considered a world leader in scientific research and development, with world-class universities and research institutes and an enviable scientific infrastructure. However the recent Coronavirus pandemic has shone a spotlight on the gaps that exist in the UK's current research and development ecosystem that an ARPA style approach could fill to support the UK's recovery from COVID-19 and Brexit.

Innovation and the associated cutting-edge translational R&D needs to be catalysed to incentivise and encourage high risk and high reward projects. This requires increasing the overall level of funding commitment to innovation R&D initiatives. The current UK funding structure has over time shifted its focus towards grant funding; equitably distributed across a large number of relatively 'safe' projects as opposed to supporting those projects that are capital/cash intensive but have the potential to deliver a much bigger impact on a national or international scale. That is not to say that an ARPA style approach is required to solve this. Consideration must be given to existing funding initiatives and a review of the funding landscape to identify if they can be addressed with the current structure.

An additive ARPA style programme of funding could help to support the development of a wider and more diversified academic research base, creating new opportunities and destinations across the UK (particularly outside of the South East/Golden Triangle) to attract the world's best researchers if positioned so as to add value to current the funding structure and not as a competitor to it.

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

The creation of an ARPA style approach needs to be additive to the funding bodies and R&D investment infrastructure already in place in the UK. Innovate UK (then the Technology Strategy Board) was established to drive innovation and initially did this successfully, investing in high risk and reward R&D and innovation projects, but overtime has shifted its approach and focus more heavily to the awarding of grant funding. ARPA could fill this gap, but it must not look to compete with Innovate UK or UKRI but instead complement it. The purpose and roles of the existing funding bodies needs to be revisited, creating a clear and logical structure of which bodies are responsible for what types of research and development investment, with the remit and focus of any introduction of an ARPA style body clearly being articulated and allowing it to potentially act as a home for mass scale, transformational projects that may in turn catalyse or trigger other smaller projects to be funded as a result.

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

We see the focus of ARPA as being on major, game-changing R&D initiatives in future-facing industries, or sectors that are both of key strategic importance to the evolution of the

UK economy and aligned to the UK Industrial strategy, potentially looking to address global societal/environmental challenges. We see this as having the ability to fund 'high risk and high reward science', therefore less about moonshot challenges where outcomes are defined, but rather about the rapid translation of discoveries deriving from curiosity-driven research. The nature of the research an ARPA-style approach could support would require high-risk funding as it could be a long way from the market-place - it requires lateral thinking to identify commercial potential and then the rapid development of R&D programmes to take it to market. It will require the engagement of scientists/technologist-innovators working alongside entrepreneurs and development scientists to drive the ideas towards the market place. Consideration must again however be given to whether this can only be achieved through the introduction of an ARPA or whether the existing funding landscape can provide this opportunity.

It's important that ARPA does not operate in a vacuum but is connected in to commercial industry, offering a clear and ringfenced role for business and supporting the translation of technologies, even if commercial return is not immediately evident. Equally, ARPA must have a strong relationship with the public sector as a first customer for new products and services and be fundamentally underpinned by a culture of risk and reward, encouraging the academics, researchers and businesses involved in wholesale R&D to fail fast and fail often. The structure needs to be light on people and facilities, drawing on those that are already in existence around the country and instead work as the 'hub' to pull these together and drive collaboration rather than duplication and competition.

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

ARPA should receive new funding, from new levels of investment, not cannibalise or divert funds from existing sources and mechanisms. The Government's commitments to increasing UK investment in R&D to 2.4% of GDP by 2027, alongside increased public funding for R&D to £22 billion per year by 2024/25 are welcomed. As is the £800m funding for ARPA, however, this is still some way short of the £2.65bn committed to DARPA in 2019/20.

ARPA should be arms length from Government and distinct from existing R&D funders. Funding has to be channelled to those projects where it can have the biggest impact, but it also has a role to play in levelling up the UK economy, supporting the growth of UK regional cities, particularly those with strong academic research institutes and research-intensive universities.

Funding must go to support programmes deriving from high quality collaborative R&D environments linked to high-end translational and commercial expertise and experiences to maximise effectiveness and impact, using a team of experts with real world, commercial experience to pull in a wider pool of innovators and encourage the exchange of the best ideas.

What can be learned from ARPA equivalents in other countries?

Much can be learned from the UK's own experience of investing in funding innovation and R&D, what has worked well and not so well and how this can be improved as well as by

looking abroad. The opportunity is already there to reposition Innovate UK and UKRI back to challenge-led funding agencies to drive high risk and reward innovation at a national level, and thus we need to consider what else we can do as part of the overall innovation funding landscape to improve the potential for success as well as looking to the creation of ARPA as a panacea.

In the US, DARPA spends about \$3.5bn a year which is less than 1% of the US public and private research and development budget, therefore it's a small enough proportion of the whole to commit to taking on riskier ideas and having a higher tolerance of failure than other more conventional funding agencies. We must learn from this and not over commit as a % of GDP and R&D spend to moonshot-focussed initiatives, they must be at the apex of our investment in innovation, not the sum total of our investment.

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

The UK has long been too dependent on the academic, research and innovation assets and infrastructure of London, the South East and the Golden Triangle. The UK Government recognising the need to 'level-up' the country to create jobs and encourage inclusive growth has been welcomed but there is more to do. The North has some of the strongest research-led universities in the country, particularly those in the N8, with the ability to attract world leading research talent. Basing ARPA in the Golden Triangle could see a further draining of particularly life science and tech talent, and investment, from the North. It's important that the UK grows the innovation and research ecosystem as a whole, not just the SE in order to be successful on a global scale.

Bruntwood SciTech has recently published a report 'Place Matters: Innovation and growth in the UK' which illustrates the potential of many of the UK's regional towns and cities and demonstrates the power of place-based innovation as a catalyst for productivity. The report recognises the calibre of regional science and tech assets, for example Europe's largest clinical population, a globally recognised medicines manufacturing cluster, the strengths of the digital and creative industries in Leeds. The report also supports the attraction of talent directly into the regions, to ensure the growth of the UK talent pool, not just a movement of existing talent between regions.

The success of basing innovation and R&D focussed initiatives in UK regions can already be witnessed by for example the Catapults (the Medicines Discovery Catapult is based at Alderley Park and the High Value Manufacturing Catapults based across the North and Midlands) and UKRI's Strength in Places funding initiative which showcases the region's best ideas and capabilities. It is imperative that the UK regions work together, whatever the structure of the funding landscape. One recent example that demonstrates this well is the consortium led by Liverpool School of Tropical Medicine, awarded £18m as a result of a successful bid to UKRI's Strength in Places fund, which pulled together and connected public, private, academic and clinical excellence across the Cheshire life science corridor and Liverpool City Region to increase much needed research into AMR and disease prevention.

An organisation, like Bruntwood SciTech with a network of established, world-class science and tech campuses across the North and Midlands in cities such as Manchester, Leeds, Liverpool, Cheshire and Birmingham, which are home to a sector-specialist community of over 500 businesses working in areas such as AI, Cyber, Genomics and Health Innovation can immediately offer a route to identify and access early stage innovation and nurture later stage R&D to improve its chances of success.

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