

Giving the public sector the edge

How the Small Business
Research Initiative has driven
public sector innovation

Why SBRI should be adopted more widely?

Foreword by Indro Mukerjee Chief Executive Officer, Innovate UK

It's not often you can genuinely call an initiative a 'win-win'. That is the conclusion of this evaluation of the Small Business Research Initiative (SBRI), which has been running for over 20 years.

SBRI – a way of acquiring R&D services from providers who develop, in competition, solutions for the public sector – has been a success for a variety of Government departments, agencies and devolved administrations.

SBRI provides a mechanism for the public sector to show it is innovative, dynamic and working in partnership with the private sector to deliver positive outcomes for society. It is responsible for some of the most exciting and innovative projects that have made the public sector more efficient and effective. Take the pandemic, for example. SBRI funding backed Hygiene Pro Clean to develop a system to disinfect ambulances more quickly.

SBRI has generated additional turnover of over

£1 billion

This resulted in an 86% reduction in time taken to do the job, and an 82% reduction in costs. Moreover, it is good news for the business which has grown its turnover and headcount due to the support provided by numerous public sector bodies.

Examples like this are why we say that SBRI is a win for the public sector, in that it can invest in innovative solutions that save money and benefit society.

It's a win for the private sector, too. It provides secure backing for businesses – often small and micro firms – who have great ideas but need financial support to invest in R&D and access to public sector opportunities. They can commercialise their products which in the longer term can lead to increased turnover and headcount.

While SBRI differs from typical grant projects, in that it's 100% funded, it provides a real opportunity for the public sector to work alongside innovative organisations to develop solutions which fully meet their needs. It's this approach to funding which makes SBRI so favourable to SMEs.



“SBRI is a win for the public sector, in that it can invest in innovative solutions that save money and benefit society.”

A big advantage is that payments to businesses are made in stages, dependent on the completion of agreed milestones.

This staged approach, and the close working relationship with the applicant, means that innovative ideas can be explored quickly. And if they don't work, investment can be redirected.

While many people in Government departments and the NHS are convinced of its unique advantages, there is still a lack of awareness and understanding of the programme, in both the public and private sector.

We hope that this report allows the public sector to take a fresh look at SBRI and make sure it is seriously considered when making decisions to invest in innovation.

If we are to reach the Government's target of 2.4% of GDP spent on R&D by 2027, an increased role for SBRI will be key.

The team at Innovate UK are ready to work with our partners in Government so that more people can take advantage of this successful funding model.

About SBRI

SBRI helps public sector organisations solve challenges by connecting them with innovative businesses to develop cutting-edge and cost-effective solutions.

From a small start-up with a great idea, all the way to larger companies, a range of organisations can benefit from SBRI.

At Innovate UK, we are the experts in the application and delivery of SBRI in the UK, supporting over 100 public sector organisations to successfully use this unique, mutually beneficial funding mechanism.

Organisations that have used the programme include the Ministry of Defence and the Defence and Security Accelerator, Department for Health and Social Care, Department for Transport and the NHS, with agencies across the public sector encouraged to participate in the recent Spending Review and Innovation Strategy.

**SBRI awarded over
£1 billion**
in funding since
it began 2001



SBRI has awarded over £1bn in funding since it began in 2001. Businesses can then develop products and services that are improving lives and livelihoods across the UK.

It gives innovators the chance to win a significant Government contract from £50,000 to £10 million. This can help them develop their new technologies in partnership with the public sector, in turn scaling up UK businesses.

**Innovators have the chance to win
a Government contract worth
£50,000 to £10 million**

SBRI has a long track record. It was established by the UK Government as a version of the European Union's pre-commercial procurement mechanism, targeted at SMEs. It is similar to the US's successful Small Business Innovation Research (SBIR) programme, which has been running since 1982.

It aims to:

Stimulate innovations by supporting businesses to develop and commercialise new technology-based products and solutions for public sector organisations

Provide government departments and their agencies with new, cost-effective, technical, and scientific options and solutions.

SBRI competitions are run by a diverse range of public sector departments and agencies across the UK to achieve the above aims. They do this by securing R&D services from providers who develop – in competition – innovative solutions to address public sector challenges.

Competitions and applicants



85%

of applicants are private companies. 63% of these are small or micro firms.



25%

Phase 1 firms were shortlisted to Phase 2 with average awards of £492k, resulting in £420m Phase 2 awards across 854 participants.



£788m

awarded through SBRI competitions between 2008 and 2020.



9%

of applicants are from academia, while 2% are not-for-profits.



36%

Over a 3rd of all competitions are run by The Ministry of Defence and the Defence and Security Accelerator.



55%

of applicants are outside London and the South East.



30%

of competitions accounted for by Devolved administrations (20%) and the NHS (10%).



Figures

All figures are for 2008-2020 covered by the evaluation.

What the evaluation of SBRI found

SBRI is good value for money.

While this evaluation had a relatively small sample size, the benefits to businesses are clear. The programme helps firms to take risks and to design, develop and commercialise new products and services. These in turn help to grow their businesses.

The benefits to the businesses awarded the funding, and therefore to the economy, amount to around 1.5 to 4 times the costs of the public sector investment.

For Government departments and agencies that have championed and embedded SBRI, it has helped to improve public service and reduce costs. It has also had positive benefits for society, although these have not been quantified.

There is a diversity of delivery models and resourcing arrangements for how SBRI is used. This reflects big differences in the scale of resource and expertise across SBRI sponsor departments.

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However, the benefits could be greater still. If SBRI was scaled up, the benefits for the public and private sectors would scale up too, while still being good value for money.

SBRI projects can go faster, bigger and drive up the quality of their work. They can hire or retain people to develop projects that could end up being procured or commercialised. They can develop and sell the solution to a wider market than they previously could have accessed.

While not all projects evaluated were a success, they did positively impact business performance overall. SBRI generated additional turnover of over £1 billion. As expected most benefits were realised by a small number of businesses, particularly young, small firms in the professional or digital sectors.

Other benefits include access to new markets, increased public sector collaboration, more publicity and recognition for innovation, and follow-on funding to further develop and commercialise their products.

* Footnote: The 1.5 value uses self-reported turnover impacts which have been converted to GVA.

The 4 times figure uses ONS data and econometric analysis to translate the observed employment effects into GVA changes. It estimates employment growth per firm per year for up to 3 years, which is then aggregated across the sample.

Benefits to business, in numbers



£127k

Gross additional turnover impact per firm per year.



3 out of 5

beneficiaries surveyed said project would not have happened without SBRI.



4 years

Beneficiaries expected turnover impacts to last for more than 4 years on average.



1 out of 4

beneficiaries said project would have happened, but in reduced form.



3 years

Employment benefits expected to last for more than 3 years on average.



9%

growth of businesses who had received SBRI funding compared with firms who had not in 2019-20.



£290m

Of private investment had been leveraged. Follow-on funding is not quantified across the board, but the 2019/20 SBRI Healthcare Annual Review confirmed this.



How the evaluation was conducted

The evaluation was commissioned in spring 2020 and took 18 months to complete. It was conducted by Steer Economic Development on behalf of UK Research and Innovation (UKRI).

Steer’s evaluation included 677 computer assisted telephone interviews, development of 12 case studies and consultations with 31 UKRI and independent experts.

Steer’s evaluation included:

677

computer assisted telephone interviews



Development of 12 case studies and consultations with 31 UKRI and independent experts. It evaluated the SBRI programme from 2008-2020.

PROS

It’s quick

Setting up an SBRI competition is faster than other innovation or grant routes.

Adaptable

Programmes can be designed to suit the public sector’s needs.

Good for businesses

helps them develop ideas and grow turnover and staff numbers.

Lower risk

for public sector partners payments made only when milestones have been reached.

Attractive

Attracts a wide range of applicants and encourages them to move into new sectors.

CONS

Funding method

Not a familiar funding method for some procurement officials and programme teams.

Requires experts

May require expert admin support if a team is unfamiliar with the process.

Inconsistent data

Impact data collection can be inconsistent across public sector. Better data could lead to improved stakeholder engagement.

Barriers to take-up

Structural and cultural barriers to innovation across Government affects take-up. Can be difficult to scale up solutions from a prototype to full commercial production.



Innovation impacts: Case studies

SBRI is deployed in many different contexts, stimulating a diverse portfolio of technological innovations and the development of new products and services to address wide-ranging public sector challenges and societal needs.



Societal needs: COVID-19 Speed-cleaning ambulances (2020)

**Challenge Owner: Welsh SBRI
Centre of Excellence on behalf of
Welsh Ambulance Service**

Coronavirus placed immense pressure on the Ambulance Service. Ambulances need to be thoroughly cleaned once a patient with suspected Covid-19 has been transported, leaving ambulances off the road and out of use. Hygiene Pro Clean developed an effective decontamination system that uses ultrasonic atomisation to kill Covid-19 at pace without damage to the ambulance equipment.

"We were confident we could help solve the challenge which will make a significant contribution to both the safety of patients and NHS staff and the efficiency of NHS Wales."

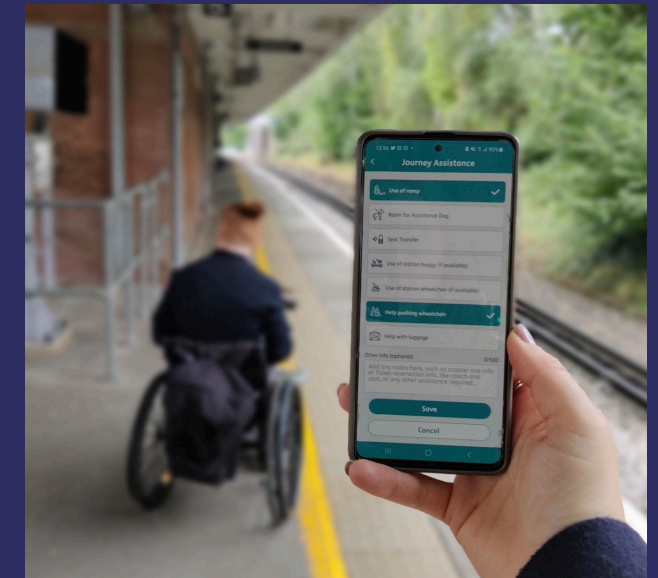
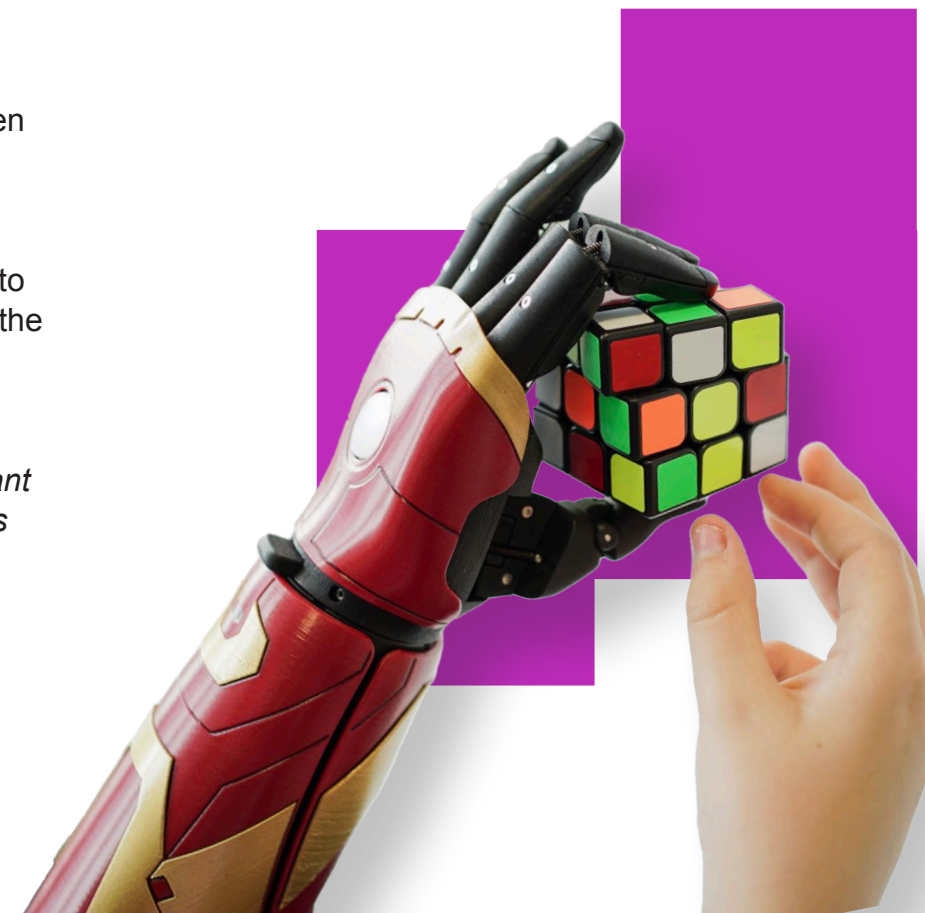
**Jamie Borgeat, Managing Director,
Hygiene Pro Clean**

Child Health Restoring function (2017)

**Challenge Owner:
SBRI Healthcare**

This competition was launched to support self-care and independence for children with long term conditions, specifically through restoring limb function. Open Bionics developed the Hero Arm, a multi-grip myoelectric bionic hand using 3D scanning and printing technology.

It comes in three sizes to fit children aged 8–17 and with customisable prosthetic covers based on characters from films such as Frozen, Iron Man and Star Wars. Not only is the technology a great improvement on what was previously available, but it also offers considerable savings, bringing the cost of a prosthetic arm down from £60k to £10k. It is now available in the UK, US and EU and is in use within the NHS.



First of a kind 1 Demonstrating tomorrow's trains today (2017)

**Challenge Owner:
Department for Transport (DfT)**

DfT uses first of a kind competitions to boost innovation and commercialisation of new railway technology. Transreport developed an app called Passenger Assistance. It allows passengers with specific needs to ask for help in advance, either at stations or on trains, creating a smoother travel experience.

"Early adopters and trial participants have shared nothing but positivity on how this technology will transform their lives. Innovate UK funding helped the company grow, and enabled us to recruit, adding to our already talented team."

**Jay Shen, Managing Director,
Transreport Limited**



Public sector impacts

Quantifying the public sector impacts of SBRI is a big challenge due to a range of complex factors that have hampered previous, similar evaluations in the UK and US.

Difficulties arise because the impacts are usually long-term, not monitored systematically, dependent on projects being adopted, and often indirect. On top of this, any impacts need to account for other non-SBRI funding.

Due to these challenges, public sector impacts have not been quantified in this evaluation. If these impacts could be taken into account within cost-benefit calculations, the value for money position of SBRI would be significantly improved.

What evidence does exist suggests SBRI can help the public sector to save money and, in some cases, to increase public revenue streams.

There was strong qualitative evidence of improved outcomes for people through higher quality or better targeted services. They could help to reduce demand for other public services, leading to indirect cost savings.

SBRI



**Healthcare cost savings of:
£1.2bn - £1.8bn**

For example, SBRI Healthcare has evidence of future cumulative cost savings of £1.2bn - £1.8bn in ten years.

Government departments and agencies that have championed and embedded SBRI in their processes and systems have seen a range of benefits. Culture and behaviours have changed, with more innovation in public service design and delivery and stronger collaboration with the private sector. Teams involved in SBRI have learned more about how innovation works. This has enabled them to deploy new technologies, such as AI and big data, to deliver innovative solutions.

“Culture and behaviours have changed, with more innovation in public service design and delivery and stronger collaboration with the private sector.”

Qualitative evaluation evidence also identified wide-ranging social, economic and environmental impacts having been generated by SBRI, including:

Improved health outcomes – these include faster and more effective diagnosis, improved clinical outcomes and better public health.

Environmental sustainability – supporting Net Zero ambitions through energy efficient technologies, sustainable behaviour change and reducing pollution and congestion.

Reduced inequalities and improving quality of life – improving the quality of services and disadvantaged groups’ access to them.

Covid-19 response and recovery – innovative solutions to help the pandemic response and recovery – and supporting increased economic and social resilience.

Animal welfare - primarily through the NC3R initiatives, reducing the need for and scale of animal testing.

National security and public safety – modernising and strengthening the armed forces, through DASA’s SBRI initiatives, and initiatives to improve emergency services.

A more systematic, embedded SBRI programme management process is needed for its benefits to be fully understood. It could be more intensively and effectively adopted even within those departments and agencies that embrace it, for example, by closer alignment between SBRI and mainstream procurement practice.

Perceptions of SBRI

The vast majority of applicants for SBRI funding spoke positively about the programme.

Applicants liked SBRI because it de-risked the R&D process, often combined with a close working relationship with the funder as they developed a solution. In addition, it allowed applicants to be able to work on a wide range of public sector challenges.

However, businesses taking part in SBRI competitions thought that public sector partners often didn't understand the fact that innovation often happens in stages and takes time to reach commercialisation.

Departments said that SBRI competitions often require extensive admin support, and there were challenges in scaling up the adoption of innovations across the public sector.



“Applicants liked SBRI because it de-risked the R&D process, often combined with a close working relationship with the funder as they developed a solution.”



Both firms and competition promoters agreed that SBRI works effectively over Phase 1 (Feasibility) and Phase 2 (Prototype/Product Development), with the vast majority of competitions covering either or both Phase 1 and 2.

Despite this, there are barriers to more widespread adoption. They include systemic cultural and structural barriers to innovation across Government, a lack of SBRI leadership and data, and low levels of awareness of the model.

5 ways we can move forward



It's clear that SBRI could play a much greater role in delivering the UK Government's Innovation Strategy, while supporting economic recovery and improving public services. With the right leadership, strategy, and funding, SBRI could be a big, positive influence on the public.

1

Greater leadership and funding

The public sector would benefit from greater and more intensive adoption of SBRI. It should be much more deeply embedded, so that it becomes a standard option for the public sector. Leadership from Innovate UK is required, and from across Government departments and agencies, as well as incentives and resources to encourage adoption.

3

Share good practice

One of the key benefits of SBRI is its flexibility as a policy instrument. The benefits would ramp up if good practice was shared in a more joined up fashion.

2

Better data

Improved and more consistent output and outcome data is vital to help achieve greater take-up of SBRI. With a clear definition of what success looks like, and better monitoring and accountability would drive up use and understanding of the programme. We will recommend, and emphasise the importance of, the collection of high quality data to public bodies when starting an SBRI programme.



4

Raise awareness drive up capability

We need to raise awareness of SBRI as a tool for developing innovative public policy and operational solutions. A package of promotional and training activities is required to address skills and resource gaps and siloed working across procurement, policy, and innovation teams.

5

Drive up use of Phase 3 competitions

At present only about 1% of competitions have a Phase 3 element to them, where they develop test products or services. By providing later-stage support, SBRI Phase 3 could help businesses to commercialise their innovation and scale up.

**Find out more
and get involved,
[click here.](#)**