Department for Science, Innovation & Technology

A guide to the Department for Science, Innovation and Technology's (DSIT) telecoms research, development and innovation current funding and opportunities

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Department for Science, Innovation & Technology

Contents

Introduction

The Digital Infrastructure (DI) directorate in the Department for Science, Innovation, and Technology (DSIT) sets policies to promote investment, protect national security, grow the UK telecoms ecosystem, and run innovative programmes for the next generation of telecoms technology.

The Wireless Infrastructure Strategy,[1] published in 2023, set out the UK government's long-term vision for 5G and other advanced wireless connectivity. It contributes to a broad range of strategic objectives, supporting improved productivity and growth, Levelling Up and net zero. It also set a new ambition of introducing standalone 5G coverage to all UK populated areas by 2030.

Spectrum underpins wireless mobile connectivity and is pivotal to developments in the digital economy, including 5G roll-out, WiFi, the Internet of Things (IoT) and new wireless services. Government's aim is to maximise the overall value of spectrum use to the UK, while supporting wider policy objectives.

The government's 5G Supply Chain Diversification Strategy[2] was published in November 2020 and sets out a plan to deliver a healthy supply market for telecoms. The strategy sets out where the government will remove barriers to diversification, invest in emerging telecoms technologies, and work with like-minded countries to achieve the shared aim for secure and resilient telecoms supply chains. It is guided by the recommendations of the independent Telecoms Supply Chain Diversification Advisory Council. The strategy has three key areas: supporting remaining incumbent vendors in the UK; attracting new scale vendors to our market; and promoting the development of new open and interoperable technologies.

The government's Science and Technology Framework,[3] launched in 2023, identifies future telecoms as one of five critical technologies to grow the UK economy, alongside artificial intelligence, engineering biology, semiconductors and quantum technologies. Its aim is to cement the UK as a science and technology superpower by 2030, by increasing research development and innovation investment.

1 https://www.gov.uk/government/publications/uk-wireless-infrastructure-strategy/uk-wireless-infrastructure-strategy
2 https://www.gov.uk/government/publications/5g-supply-chain-diversification-strategy/5g-supply-chain-diversification-strategy
3 https://www.gov.uk/government/publications/uk-science-and-technology-framework

To advance and inform our policy ambitions, we intervene directly by sponsoring research, development and innovation (RDI) and developing new facilities with industry, academia and public sector partners. These large, complex interventions are run by an integrated team in DSIT called the Future Network Programmes (FNP) team. This is in addition to some interventions which are being delivered through Innovate UK and Engineering & Physical Sciences Research Council (EPSRC) (figure 1).

RDI is vital in enhancing digital infrastructure in the UK, which is why the government has invested £500m into telecoms related RDI programmes in the last three years.

RDI fosters technological advancement, allowing for the creation of more efficient, secure, and accessible digital networks. This enables the development of faster internet speeds, improved connectivity, and technologies like 5G. It drives economic growth by creating opportunities for new industries and jobs. It attracts businesses, encourages entrepreneurship, and stimulates productivity across various sectors. It also positions the UK as a global leader in technology, attracting foreign investment and fostering international collaborations.

Telecoms RDI can also contribute to societal advancements, enhancing the quality of life for UK citizens. Improved digital infrastructure supports better healthcare systems, efficient transportation, smarter cities, and enhanced educational platforms. It facilitates access to information, services, and resources, narrowing the digital divide and ensuring inclusivity across different demographics.

Furthermore, the UKs association with Horizon Europe means the UK telecoms R&D ecosystem has access to the £80 billion Horizon funds again, strengthening UK innovation even more.

The Digital Infrastructure RDI interventions supported by DSIT fall into four categories:

- Delivering better coverage, particularly to hard-to-reach areas
- Stimulating the adoption of 5G and demonstrating the benefits it can bring
- Diversifying the supplier base in the 5G Radio Access Network, to boost the resilience of our networks
- Building UK's capability to shape the next generation of communications networks

This publication focuses on RDI programmes that are supported by the DI directorate within DSIT.

Investment into research and development and innovation in Digital Infrastructure

Figure 1: The below diagram outlines the programmes of funding which are supported by the DSIT Digital Infrastructure directorate.

Delivery models	R&D/ Capital Spend interventions across DI
DSIT Delivery Function	
Future Network Programmes (£452m) • A high degree of control over the shape of the intervention through internal governance processes in DSIT • A high degree of visibility of the in-life R&D to inform Policy or to change direction • Continuous engagement with telecoms industry and policy and Telecoms Ministers as part of the detailed decision making • Opportunities for Department comms and events and to shape collaboration • To make use of prior investment in industry engagement • A technical team to interact constantly with the projects Enduring facilities (labs, industry bodies) TRLs from 3-8	**5G Testbeds and Trials Programme (5GTT) £200m** (2017 to 2023) **Digital Connectivity Infrastructure Accelerator (DCIA) £4m** (2021 to 2023) **Fibre in Water £3m** (2022 to 2023) **Spectrum Sandboxes £5m** (2023 to 2025) **Open Networks Research and Development Fund (ONP) £250m** (2022 to 2025) **5G Innovation Regions (5GIR) £40m** (2023 to 2025) **Rural Accelerator £5m** (2023 to 2025) **Smart Infrastructure Pilots Programme (SIPP) £1.4m** (2023 to 2025)
Ad-Hoc (£8m)	**Satellite Grants up to £8m** (2023 to 2025)
External Delivery Function	
Innovate UK • Support for business in the adoption and development of innovative technology • Funding available for business led projects and collaborative projects with research institutions • Mid- to higher-TRLs and support for commercialisation	**Future Telecoms (Technology Missions Fund) Programme** • SBRI: Future Telecommunications Challenge (at least £22m) • A4I competition (up to £700k) • ICURe competition (£1m) • Fast Start £1m
Research Council (EPSRC) • Early stage foundational to applied research • Academic defined research programme with alignment to UK Government strategy and relevance to telecoms sector • Collaboration and coordination between academics and industry • Enhancing UK tested capability and interoperability by building on the existing National Dark Fibre Facility • Funding distributed to research organisation and public sector research establishments (PRSE) covering TRL 1-5	**Future Telecoms (Technology Missions Fund) Programme** • Future Telecoms Research Hubs (£39m)

The Digital Infrastructure RDI interventions supported by DSIT fall into four categories:

1. **Delivering better coverage, particularly to hard-to-reach areas**
2. **Stimulating the adoption of 5G and demonstrating the benefits it can bring**
3. **Diversifying the supplier base in the 5G Radio Access Network to boost the resilience or our network**
4. **Building UK's capability to shape the next generation of communications network**

1 Delivering better coverage, particularly to hard-to-reach areas

To help people and businesses take advantage of the projects and interventions funded through the DI directorate, the UK needs high quality coverage. Through the Wireless Infrastructure Strategy published in 2023, the UK announced its ambition to deliver nationwide coverage of standalone 5G to all populated areas by 2030. This will bring its full benefits to villages and rural communities well beyond cities and towns. As well as initiatives like Project Gigabit which is a investing £5 billion of to bring gigabit - capable broadband to at least 85% of premises in the UK by 2025, and nationwide coverage by 2030.

There are several programmes which focus on improving coverage which DSIT has funded or is currently funding:

- **Very Hard to Reach premises programme**
  - A premises is classified as 'very hard to reach' when it is out of scope to be built commercially or through a government funded intervention scheme. This could be for one of several reasons, such as being in a remote location. DSIT analysis shows that potentially less than 100,000 premises are likely to be too costly to connect to a gigabit-capable connection. As such, they may require government intervention to provide them with an ultrafast broadband connection.
  - We announced the Very Hard to Reach alpha trials in December 2022, to be deployed in 12-15 locations around the UK.
  - In April 2023, the government announced £8m to address the most very hard to reach premises, through a satellite grant scheme to help up to 35,000 premises access low Earth orbit (LEO) satellite connectivity. DSIT is currently in discussion with suppliers on delivery.
- **Shared Outcomes fund - DSIT supported projects**
  - This government fund was developed to provide funding to pilot projects, to test innovative ways of working across the public sector.
  - The DI projects which DSIT supported included the Digital Connectivity Infrastructure Accelerator (DCIA), Fibre in Water (FiW) and the Rural Connectivity Accelerator, now in delivery in conjunction with DEFRA and DSIT.

Alpha trials

Aims

The Very Hard to Reach alpha trials aim to assess the extent to which new low Earth orbit (LEO) satellites can be used to deliver high-speed, low latency broadband connections to more than a dozen 'very hard to reach' locations. LEO satellites are positioned around 550 - 1,000km above the earth's surface. The fact they are closer to earth than previous generations of satellites make more applications possible, including video calls and real-time collaboration, while also making activities like web browsing much smoother. The trials also test the capabilities of suppliers, distributors and project partner stakeholders.

Outputs

These trials show that in these locations, satellites can deliver speeds of up to 200 megabits per second - well above the speeds capable via copper cables commonly used in hard-to-reach areas today. DSIT are using these trials to inform further policy work.

Investment

The government has funded the alpha trials projects from 2023-2025 in advance of the £8m Capital Grant Scheme.

Find out more

For more information about the alpha trials and to read case studies about the projects supported please follow the QR code.

Case study: Papa Stour

At its peak in the 19th century, Papa Stour's population was around 380 people, supported by a strong fishing sector. However, the population has since declined and many residents have to work on the mainland.

The alpha trial here gives improved connectivity at Papa Stour's unused school and is expected to help the community engage with online services and resources. Previously, the residents had limited cellular data and slow speed internet speeds in their homes. The new satellite broadband achieves lightning-fast speeds, allowing residents and businesses to confidently video call and stream in HD, and manage large downloads.

This alpha trial site uses OneWeb's satellite constellation and was the first Kymeta Flat Panel terminal to be commercially deployed in Europe.

Speaking about the connection, Liz Peterson, Councillor for Shetland West said: "We welcome this investment in a satellite broadband trial for Papa Stour, where residents have been disadvantaged for many years due to the lack of a broadband network on the island. This hopefully paves the way for further investment in better broadband services for other rural parts of Shetland. We want our smaller communities to thrive and good broadband is a part of modern life to help maintain populations and to attract more people to live, work and invest in Shetland."

In 2022, Shetland residents lost some telephone and internet services for a period when subsea cables were damaged. The alpha trials aim to show how low Earth orbit satellites could be a solution when island locations and rugged scenery make cable installation and maintenance challenging, and when higher resilience is required.

FiW

Aims

The Fibre in Water (FiW) programme was awarded funding through the Shared Outcomes Fund. Some of the key aims for the project were to: connect hard to reach areas with advanced fixed and mobile services; reduce the amount of clean water leakage from the water mains; and support the digital transformation for the UK water industry.

Outputs

During phase 1, TAWCO investigated the commercial, operational, economic, safety and other factors of deploying a FiW solution in the UK. Following a gateway decision by the project partners in May 2023, the project decided not to move into Phase 2 where a deployment of the solution would have taken place.

Investment

The FiW project was awarded to Project TAWCO (Telecoms and Water Combined Operations), led by Yorkshire Water, in April 2022. £1.7m was allocated for Phase 1 of the project.

Find out more

To hear more about the project please see their summary on their site through the QR code.

DCIA

Aims

The Digital Connectivity Infrastructure Accelerator (DCIA) programme helped accelerate deployment of advanced wireless connectivity by improving the ability to access and acquire sites, and by building evidence to understand the benefits and feasibility of using public sector assets to host multiple technologies.

Outputs

The DCIA programme had five workstreams: Digital Asset Management, Standard Contracts for Small Cell Providers and Local Authorities, Standards for Smart Infrastructure, PFI Contract Analysis and Recommendations and Data Integration Toolkit. DCIA enabled a more seamless way for operators, telecoms providers and local authorities to work together and reduce the friction in building digital infrastructure across the UK.

Investment

As part of the 2019 Spending Review, DCMS in collaboration with the Department for Transport (DfT) were allocated £7 million from the Shared Outcomes Fund to deliver the DCIA project. Following a successful bid in 2023 for Shared Outcomes Fund continuation funding, five pilots were agreed to continue activity for an additional six months.

Find out more

To hear more about DCIA and read the write ups from the collaboration events which took place throughout the duration of the projects follow the QR code.

Rural Connectivity Accelerator

Aims

The Rural Connectivity Accelerator will explore how it could be made easier for rural sectors to access the connectivity they need in the quickest and most cost-effective way. Through the Accelerator, the UK government will support a set of 'rural connectivity pilots' which enhance our understanding of the connectivity needs of businesses in rural and 'very hard to reach' areas of the UK and explore the best ways to address barriers to deployment and adoption.

Outputs

The programme will be beginning with a 'discovery and development phase. This discovery phase will last from November 2023 to March 2024. The discovery phase will also help shape the approach to implementation, delivery and funding of the most impactful portfolio of pilots.

Investment

This £7.3m initiative was announced in June 2023. Pilots will be delivered between summer 2024 and March 2025.

Find out more

To stay informed on progress and hear about how to get involved please sign up to the UKTIN mailing list.

Smart Infrastructure Pilots Programme (SIPP)

Aims

Smart Infrastructure Pilots Programme (SIPP) funding helps projects to procure and test 'smart' multipurpose columns for mobile and wireless connectivity services and other relevant uses. This will help them make efficiency savings and increase connectivity for their local communities.

Outputs

The programme is designed to help promote greater knowledge of future demand and requirements for infrastructure and services. It will also help create efficiencies in network rollout, new opportunities across the supply chain, and innovative commercial models for deploying infrastructure. Projects will help improve wireless connectivity services for local communities, by promoting the use of publicly owned assets for new advanced digital networks.

Investment

In September 2023, six projects from around the UK were announced to receive £1.4m to deliver Smart Infrastructure Pilots.

Find out more

To find out more about the SIPP projects as they progress, please scan the QR code.

2 Stimulating the adoption of 5G and demonstrating the benefits it can bring

Improving digital connectivity is also one of the government's Levelling Up priorities. The UK government wants communities to share in the benefits of good connectivity, enriching lives and driving local growth. Advanced wireless networks such as 5G have the potential to drive economic and social benefits, with research estimating that widespread 5G adoption could create a cumulative productivity benefit of £159 billion in 2035[4].

The Wireless Infrastructure Strategy sets out the government's ambition to deliver nationwide coverage of standalone 5G to all populated areas by 2030, and for people, businesses and public services across the UK to realise the full benefits of 5G.

This work builds on the success of the £200 million 5G Testbeds and Trials (5GTT) programme, which began in 2017 and fostered the development of the 5G ecosystem in the UK, building the business case for investment to support 5G use cases. The programme helped to establish the UK's leadership and supported industry, academic institutions and local authorities to realise the benefits of 5G.

5GTT has shown how and where the government could stimulate commercial investment to drive deployment and accelerate 5G adoption, especially in key sectors such as agriculture, manufacturing, transport and logistics. The government will build on 5GTT to drive innovative applications powered by advanced wireless connectivity, from proof of concept to widespread adoption.

4 Realising the benefits of 5G (https://www.gov.uk/government/publications/realising-the-benefits-of-5g)

5G Innovation Regions (5GIR)

Aims

This programme aims to develop digital ecosystems that build on a local area's sector expertise and capability. It works to unlock opportunities, through stimulating investment in and stimulating the adoption of innovative wireless technologies.

Outputs

5G Innovation Regions will:

- Drive economic growth supporting places in adopting wireless connectivity for services, based around local opportunities for growth.
- Accelerate commercial investment in 5G and other advanced wireless technologies by aggregating and demonstrating demand.
- Foster the emergent 5G ecosystem by enabling 'learning by doing'.
- UKTIN will be working closely to support the 5G Innovation Regions initiative.

Investment

In November 2023, 10 areas were announced to receive a share of £36 million. Spread across the projects will accelerate 5G-enabled innovation.

Find out more

To find out more about the 5GIR projects as they progress, please scan the QR code here.

Spectrum sandboxes

Aims

Spectrum sandboxes, facilitated through Ofcom's sandbox framework, will test and demonstrate enhanced sharing between networks. This will inform government and Ofcom on the role of more intensive spectrum sharing, supported by appropriate authorisation models.

Outputs

The spectrum sandboxes will allow the regulator, Ofcom, to work with industry and academia, in a defined geographic area, to explore how equipment can coexist in the real world. Participants will be given scope to experiment with different approaches and algorithms for sharing spectrum, laying the basis for a quicker and more innovative approach to agreeing sharing conditions.

For example, the sandbox could explore whether less restrictive technical conditions could be enabled, such as higher power transmission, in an environment where there is more intelligent coordination between users.

Investment

In November 2023, as part of the Autumn statement, the government announced a £5m investment to support research into enhanced spectrum sharing.

Find out more

To stay informed on progress and hear about how to get involved, please sign up to the UKTIN mailing list.

5G Testbeds and Trials Programme (5GTT)

Aims

The 5G Testbeds and Trials Programme (5GTT) was a nationally coordinated programme of 5G testbed facilities and application trials. Projects across the UK tested deployment models of new wireless infrastructure and 5G technologies. The programmes vision was to:

- Foster the development of the UK's 5G ecosystem and help boost the UK's digital infrastructure.
- Build the business case for 5G and the ideal conditions needed to deploy it efficiently.
- Lead the way in 5G R&D to drive UK 5G leadership.

Outputs

- 5GTT improved TRL levels on average by 1.7, equalling 13.3 months. This represents a speeding up of technology adoption.
- Numerous technical barriers were reduced and possible reforms were highlighted.
- 94% of respondents found 5GTT useful to their business and 50% say 5GTT has helped improve the UK's international reputation as a leading 5G nation.
- The closure event for 5GTT in Birmingham had 910 attendees, with 74% taking findings back to their organisations.

Investment

The Government allocated £200 million from the National Productivity Investment Fund (NPIF) to the Programme. The programme ran from March 2017 to March 2022. A small number of projects continued until March 2023.

Find out more

The 5GTT programme has now closed. Its work has gone on to help inform future interventions through the Wireless Infrastructure Strategy.

To read more about the impact, benefits and learnings from the programme, please scan to see the reports available:

3 Diversifying the supplier base in the 5G Radio Access Network to boost the resilience of our networks

The Open Networks Programme was developed as the government's £250m R&D programme focused on supporting the delivery of the 5G Supply Chain Diversification Strategy. The programme is being run over three years, from April 2022 to March 2025.

Investments have focussed on developing the performance, economics and security of open interface solutions, so that they become competitive and viable for scale commercial deployments. This R&D programme is a key contributor to driving progress against the joint ambition between the government and UK mobile operators to carry 35% of the UK's mobile network traffic over open and interoperable RAN architectures by 2030.

The programme has been specifically designed to target the following areas:

- Accelerating open-interface products and solutions - ensuring they are truly interoperable, performing and sustainable, supporting our long term vision for a more open and innovative telecoms market.
- Incentivising and removing risk from accelerated deployment in the UK - to encourage and accelerate network operators to adopt open network solutions.
- Developing an internationally recognised UK telecoms ecosystem - positioning the UK as a leading global market and focal point for research into open network technology.

The programme has sought to cover the full breadth of the system development cycle, from conception through to deployment. This began with an R&D fund which is developing a range of solutions in key areas such as energy efficiency, security, and automation. A global approach is critical to solving the challenge of embedding openness and interoperability in the networks of the future including 6G, with an international partnership of industry leaders. There is also a direct bilateral R&D project with the Republic of Korea, helping to foster greater collaboration between the two nations' industries and academia.

Individual products and subsystems are being supported beyond early funding development, through to neutral labs. The 'SmartRAN Open Network Interoperability Centre ('SONIC' labs) have helped four cohorts of participants to test and build end to end interoperable systems from their respective products, while the UK Telecoms Lab is supporting carrier-grade performance and security and interoperability testing for market-ready solutions. The UK Telecoms Innovation Network also has a role to play in developing these emerging solutions, by acting as a convener of the industry and supporting the growth of smaller vendors.

Recent investment has focused on the higher Technology Readiness Levels (TRLs), with a more targeted approach on areas the market has highlighted. This includes, for example, the development of RIC and x/rApps and a tranche of trials in high demand density environments to demonstrate Open RAN's capabilities in a range of high-performance use cases and encourage further adoption of market-ready systems. This includes key roles for MNOs, Systems Integrators and Neutral Hosts, as we explore the range of deployment options for open architectures.

The programme has attracted a mass influx of private investment to the UK, with numerous suppliers setting up, or expanding their existing capability, in the UK. This ecosystem is creating new partnerships, more innovative solutions, and readying the UK to be able to support widespread Open RAN deployments, such as the commitment to 2500 sites made by Vodafone.

The Future Radio Access Network Competition (FRANC)

Accelerating maturity

Aims

FRANC was designed to accelerate the development of high-performance 5G Open RAN solutions, attract new 5G RAN suppliers to conduct R&D in the UK and foster professional collaborations between potential new entrants into the UK's public network.

Outputs

Many of the FRANC projects have now come to the end of their funding through DSIT, developing several exciting outputs, including:

- Developing a commercial and technically viable Radio Access Network architecture which was designed, developed and manufactured in the UK.
- Realising a carrier-grade cloud solution, enabling operators to deploy Open RAN network functions securely.
- Realising a complete 5G SA network that can scale for use in larger mobile operator 5G network deployments.

Investment

The intervention attracted many bids including key stakeholders such as BT, Virgin Media O2, Microsoft, Toshiba and University of Surrey leading to 14 successful projects - totalling almost £70m across DSIT and partner match funding.

Find out more

To hear more about the FRANC projects, please scan here:

5G Drive

The 5G DRIVE project, under the FRANC has developed a low-cost, secure 5G Diversified Open RAN Integration solution for private mobile networks. This solution integrates seamlessly with public networks using modern internet protocols.

The collaborating partners are Virgin Media O2, Wavemobile Ltd, Cisco, Ori Industries, and the University of Warwick (WMG), the project bridges industry and academia.

In October 2023, the project was showcased at Harwell Science Park in Didcot. This event highlighted the SEPP (Security Edge Protection Proxy) and N32 interface – a network edge proxy and interlink that ensures secure inter-network communications using modern internet protocols.

The showcase also featured presentations, holographic panellists, and trials of an Autonomous Transport System.

The project is now extended to July 2024, during which 5G Drive aims to:

- Deploy 30 sites in remote rural UK areas, connected via the SEPP/N32 interface, which allows multiple operators to connect to the sites.
- Provide advanced 2G & 4G digital connectivity, including a 5G layer, Wi-Fi, and IoT, to previously unserved locations.
- Conduct advanced research on SEPP/N32 resilience and security using edge Artificial Intelligence and Machine Learning.
- Enable emergency traffic across all four MNOs' networks.
- LoRaWan IOT connectivity[5] to help monitor the environment, and nature to aid local communities & businesses.

5 LoRaWAN is a low-power, wide area networking protocol built on top of the LoRa radio modulation technique. It wirelessly connects devices to the internet and manages communication between end-node devices and network gateways.

The Future Open Networks Research Challenge (FONRC)

Accelerating maturity

Aims

FONRC enables universities to work with large RAN vendors, and other telecoms organisations, to conduct research and development to drive openness and interoperability in future technologies, beyond Open RAN.

Outputs

- REASON - developing a roadmap for open 6G, which will set the framework for new developments across the entire technology stack.
- TUDOR – researching open network components and their interoperability in the wider RAN, core, and transport network environment and service platforms.
- YO-RAN - creating Open RAN components and a RAN Intelligent Controller (RIC) for Neutral Host Networks.

Investment

In December 2022, the UK government announced it had selected three projects as recipients of funding for the challenge totalling over £40m of investment across DSIT and partner match funding. Three projects were selected REASON (Realising Enabling Architectures and Solutions for Open Networks) which is led by the University of Bristol; TUDOR (Towards Ubiquitous 3D Open Resilient Network) led by the University of Surrey; and YO-RAN (York Open RAN) led by the University of York. These projects are joining together academia with major telecoms companies Nokia, Ericsson and Samsung.

Find out more

To hear more about the FONRC projects as they develop, please here:

UK -RoK collaboration (Flexi-DAS)

Accelerating maturity / International

Aims

The RoK project was sponsored by DSIT and the Korean Institute for Information and Communication Technology Promotion (IITP). Flexi-DAS was set up to examine a range of opportunities to improve the power efficiency of 5G Open RAN systems. It conducted a joint assessment of the overall power budget of O-RAN base stations vs traditional base stations, to determine the critical items and make sure any progress impacts meaningfully on energy consumption.

Outputs

- Encourage commercial appetite of Republic of Korea vendors to work with UK entities and research organisations to collaborate on Open RAN R&D and develop new products and solutions for the market.
- To move power efficiency of Open RAN solutions closer to the benchmark set by incumbents.

Investment

Totalling almost £2m including contributions to costs. The Flexi-DAS project kicked off in early 2023 and includes partners: AWTG Limited, LIME Microsystems LTD, University of Surrey, Virgin Media O2 (VMED O2 UK LIMITED), BAI Communications Infrastructure Limited. Korean Partners (not in receipt of UK government grant) included SOLiD Inc and RFHIC Corporation.

Find out more

To hear more about the Flexi-DAS project please scan here:

SONIC Labs

Facilities and demonstration

Aims

SONIC is an independent telecoms laboratory delivered by Digital Catapult and Ofcom. The facility provides end-to-end testing for groups of telecoms equipment vendors and their products. This allows them to understand the challenges and possibilities of Open RAN, growing the UK's open network ecosystem and supporting the building blocks for a more diversified supply chain.

Outputs

- SONIC Labs has worked with 13 vendors as part of SONIC-1, cohorts 1 and 2, with 32 different products, including introducing ARM based systems.
- The project has established a Strategic Advisory Board and three Industry Groups that are bringing together core stakeholders, providing expert insights and alignment from across the ecosystem.
- Events and workshops have been held to share the insights and results, as well as specific engagements with earlier stage innovators.

Investment

DSIT has allocated £20m of funding for SONIC Labs. Programme participants have been able to access state-of-the-art technical facilities and Open RAN experts to help them collaborate, develop, integrate and test their products and solutions.

Find out more

To hear more about SONIC Labs, read their annual report on progress or enquire about using their services, scan here:

The UK Telecoms Lab (UKTL)

Facilities and demonstration

Aims

UKTL is the government's state-of-the-art telecoms facility. It aims to:

- Support broader UK standards activity by enhancing expertise and capability of testing services in the telecoms industry;
- Provide a near representative laboratory capability for security experts to work on new and existing technologies;
- Reduce barriers to entry for new vendors, encouraging supply chain diversification and innovation;
- Nurture telecoms and cyber skills nationwide as a national capability;
- Help drive innovation for UK industry.

UKTL is based in Solihull, at the heart of the fast-growing West Midlands tech hub.

Outputs

UKTL will:

- Support critical national infrastructure by delivering state-of-the-art security testing of telecoms network equipment. Testing will be delivered in-line with the UK's new regulatory environment and will be closely coordinated with industry stakeholders to disseminate best practice.
- Work in partnership with industry, academia and the region to produce ground-breaking security research into vulnerabilities and threats which may affect the UK's telecoms networks today or in the future.
- Support vendor diversification through functional and security testing of Open RAN equipment. UKTL will test new interfaces that arise in disaggregated networks, helping the industry deploy and operate new equipment securely.
- Play a leading role in shaping the future of the UK's telecoms infrastructure through coordinating standards activities and leading international engagement with the global industry.
- Develop and nurture cyber security skills for the region and the nation to raise cyber security standards in telecoms. UKTL will work with industry and academia to respond to knowledge and capability gaps and enhance the expertise and capacity of security work in the UK's telecoms industry.

Investment

Government is providing up to £80m of funding for UKTL as part of its security and diversification policy. The National Physical Laboratory (NPL) was awarded the contract to operate the UKTL on behalf of DSIT. NPL is a world-leading centre of excellence that provides cutting-edge measurement science, engineering and technology to underpin prosperity and quality of life in the UK.

Find out more

For information on UKTL and to find out how to get involved please scan here:

Open Networks Ecosystem (ONE)

Accelerating maturity / Driving adoption

Aims

The 20 projects funded through this competition will use developing technologies to improve the readiness and availability of interoperable network products and services. The funding will focus on three main areas to accelerate deployments and narrow performance gaps: High Demand Density Demonstrations; RIC and other RAN Software Automation, and Processors, RF, and other RAN Hardware.

Outputs

- Develop, demonstrate and test approaches to optimising Open RAN network performance in High Demand Density (HDD) environments.
- Develop open and interoperable software, including RIC technologies.
- Develop hardware solutions for open interface infrastructure and reduce/remove barriers to scaled market adoption.

Investment

20 projects have been selected to receive a total of £91.3m of grant funding through this competition.

Find out more

To hear more about the ONE winners and their projects as they develop, please scan here:

Future Network Programmes – Market Collaboration

Collaboration between government and industry has been an integral part of the DI mission. By engaging constantly with industry both in the UK and overseas, DSIT department has been able to keep abreast of market developments whilst also keeping industry fully aware of government policy objectives.

Collaboration involves holding regular events and meetings with key industry stakeholders, sitting on various group advisory boards, and encouraging wider involvement in industry by reaching out to smaller telecoms businesses. This collaboration has meant that both the government and the telecoms industry have aligned as closely as possible on mutual objectives.

Examples of collaboration include The UK's 5G Showcase Event in Birmingham 2022, which brought together leading industry and Government policy makers to share knowledge and celebrate the success of the 5G Testbeds and Trials programme.

More recently the Open Networks Collaboration event was held at the Barbican in September 2023, with over 250 industry executives from over telecoms and public sector organisations gathered to share ideas and learnings with each other.

Successful collaboration has meant that the DI directorate has attracted global businesses such as Microsoft, ARM, NEC, AWS, Cisco alongside operators such as VM02 and Vodafone, in addition to many SMEs who would not have had the opportunity to work together otherwise. In addition, local authorities and councils have worked together with business to further public sector objectives.

The collaboration that DI has managed to foster for UK telecoms is a remarkable achievement, demonstrating what can be achieved when government and industry work together to advance policy objectives.

4 Building UK's capability to shape the next generation of communications network

In 2023, the government identified future telecoms as one of the five critical technologies in the Science and Technology Framework – making a long-term commitment to foster next generation connectivity solutions in the UK as a key pillar for future prosperity, security and resilience.

Alongside this, the government announced a package of measures to drive the deployment and adoption of fixed and wireless networks and to invest in the next generation of connectivity.

This included an initial investment of up to £100 million in a new Future Telecoms mission that fits within the wider DSIT Technology Mission Fund (TMF) missions. This ensures the UK is at the cutting-edge of future telecoms and 6G technologies – supporting domestic and international companies to build their portfolio of exciting solutions through the UK's world-leading innovation ecosystem.

A key element of this mission is support for a series of Future Telecoms Research Hubs. These hubs will bring together multiple universities and institutions around the country to conduct early-stage research into cutting-edge technologies. This work will be coordinated by UK Research and Innovation (UKRI) and the Engineering and Physical Sciences Research Council (EPSRC).

The hubs are:

1. PlaTform DrIving The UltimAte CoNnectivity (TITAN), led by the University of Strathclyde
2. Hub in All-Spectrum Commectivity (HASC), led by the University of Oxford
3. Communications Hub for Empowering Distributed clouD computing Applications and Research (CHEDDAR), led by Imperial College London

For further details, please see EPSRC's Grants on the Web portal:

These hubs will build on EPSRC's £6 million investment for three federated and connected platforms in the communication technologies space. These platforms will engage with the telecoms sector, catapults and internationally around three broad themes: a network of networks; wireless and wired systems and spectrum; and cloud and distributed computing.

The hubs will draw together the existing portfolio of EPSRC investments in telecoms-related areas into a coordinated approach.

These hubs will help to develop the country's intellectual property portfolio to strengthen UK companies' global competitiveness. This will provide the foundation for spinout companies and attract further industry investment in the UK's world-leading research base. Leading UK innovation here will be channelled into international conversations as key global standards for 6G are developed.

Support for early-stage research will be complemented by funding for a range of application focussed 'challenges', delivered via Innovate UK. This will support companies and researchers to accelerate innovative solutions to market, and encourage disruptive collaboration across the UK's diverse Future Telecoms landscape. These competitions will cover challenges such as Network of Networks, Advanced Optical Networks and Next Generation Wireless, while also considering areas like performance, coverage, security, resilience, spectrum efficiency, cost-effective deployment, and energy efficiency.

Four competitions are currently planned or underway as part of the Future Telecoms (TMF) programme:

1. Future Telecoms Challenge SBRI, allowed companies to bid for fully-funded R&D projects up to £7m. The window for applications into this competition closed on 23rd November 2023.
2. The first round of the A4I competition is open until early January. Businesses can apply for a share of up to £2.25 million to resolve productivity and competitiveness issues by working with top scientists and research facilities. An additional round of A4I is expected in the next financial year (2024-2025).
3. The UK Fast Start Net Zero Living Digital competition will open in early January. This will enable small companies to deliver net zero solutions through data driven digital applications. It includes £500,000 specifically for Future Telecoms. An additional round of Fast Start is expected in the next financial year (2024-2025).
4. Applications to join the Future Telecoms ICURe cohort open on 5th December. Successful teams will be able to explore the commercial potential of their research, including expert training and 12 weeks of market discovery to test key market assumptions.

This competition-based approach aims to cement early UK market leadership, additionally attracting follow-on investment for companies to scale-up and grow in the UK.

All funding will be awarded and managed by UKRI on behalf of UK government.

Through adopting this suite of approaches, the government aims to cover the full range of the innovation spectrum, from early-stage technologies through to commercialisation and market-ready products and solutions. As Future Telecoms is a DSIT priority technology, announcements of further support may follow in 2024.

Future Telecoms (TMF) Programme

Aims

Future Telecoms Technology Missions Fund (TMF) Programme will help the UK become a leader in 6G technology and beyond - including new technologies to better connect space-based and terrestrial networks, step changes in capacity/speeds in data transfer and improving energy efficiency of our networks through cloudification.

Outputs

University-led Future Telecoms Research Hubs will facilitate early-stage research - boosting the UK's role in shaping the future of 6G technologies.

In addition to the hubs, Innovate UK will fund application-focused challenges to accelerate market-ready solutions and foster collaboration in the UK's telecoms sector.

Investment

In October 2023 the UK government announced an initial £70 million to develop the next generation of telecommunications technology via the TMF.

Find out more

For more information on the Hubs, contact EPSRC.

To learn more about the Future Telecoms (TMF) competitions and how you can get involved, please visit the UKRI website and sign up to their mailing list to hear more about the Future Telecoms projects as they're announced

UK Telecoms Innovation Network (UKTIN)

UK Telecoms Innovation Network (UKTIN) is the innovation network for the UK telecoms sector, bringing together industry and academia to catalyse R&D investment, cooperation and commercialisation. Funded by DSIT, its aims are to elevate UK telecoms, overcome fragmentation and enable growth and diversification across the sector. Its role is to connect players within – and outside - the industry on a national and international stage.

UKTIN was formally launched in April 2023. More than 20 volunteer groups with leading experts ensure close interactions with the ecosystem and input into the long term future direction of telecoms policy.

Here's how:

- **Connecting the ecosystem:** a marketing and events programme provides a clear front door to UK telecoms. A digital portal provides a one-stop hub for industry news, events, resources and funding opportunities. This is supported by technology and thought leadership events and targeted campaigns designed to raise the profile of the UK on the global stage, and support and broaden the development and mass-market deployment of advanced and open network technologies.
- **A Research Capability Discovery Service:** this will provide an intelligent way for connecting researchers with labs, suppliers with providers, investors with those seeking capital, and making access to telecoms industry insight open, inclusive and informed.
- **Personalised supplier support:** a team of specialist advisers operate both nationally and internationally to help new and established organisations navigate the ecosystem, identify suitable funding routes, find new partners, help build consortiums and facilitate inward investment.

- **Supporting research translation and commercialisation of innovation:** UKTN provides spinouts, start-ups and scale ups from telecoms and adjacent sectors access to industry experts, exclusive growth opportunities and support in navigating the ecosystem. A tailored growth programme focuses on raising investment and developing scalable business models. While a standards programme designed specifically for SMEs aims to educate and support small businesses to engage with relevant bodies.
- **Develop and co-create a medium to long-term strategy for UK telecoms:** an extensive set of expert working groups representing all aspects of the ecosystem brings together leading voices from government, industry and academia to identify the key challenges and opportunities the UK faces. Insights and recommendations are fed into UK Government, bringing the public and private sectors even closer together and helping to inform future policy and interventions.
- **Supporting talent and regionality:** specific UKTIN Talent and Clusters programmes convene the sector, places, training and education providers to raise the profile of telecoms to both jobseekers and entrepreneurs. Ensuring a healthy pipeline of skills and innovation for now and the future.
- **Stimulating demand:** an outreach programme and development of practical toolkits to support the broad adoption of advanced connectivity solutions in places and key vertical sectors, through education and pragmatic guidance for overcoming key barriers - working closely to support the 5G Innovation Regions initiative.

To hear more from UKTIN please sign up as a member following the QR code here

Notes

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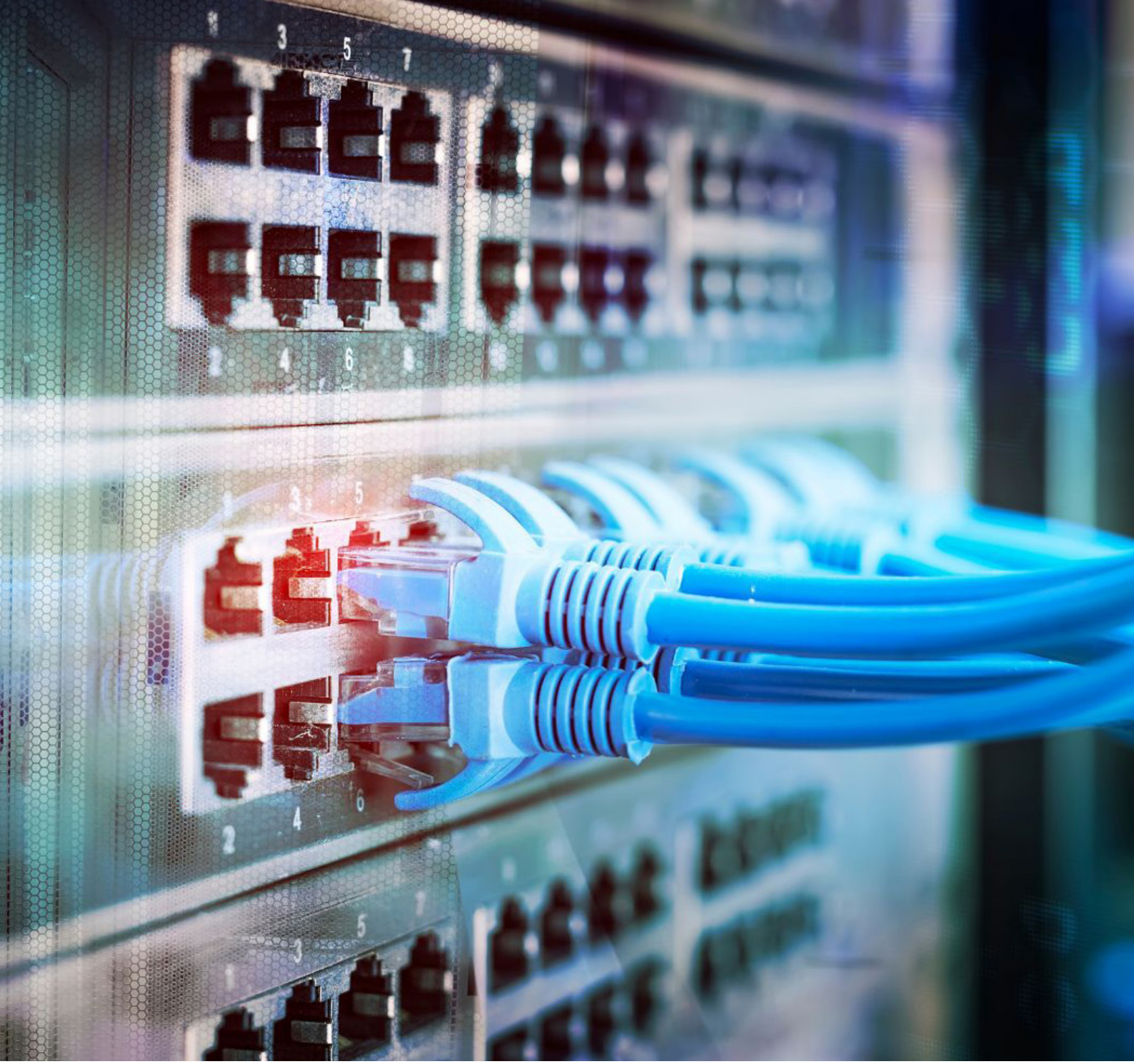

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