Investment in UK Telecom R&D: A Strategic Imperative

Why the UK Must Invest in Wireless Communication Research & Development

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Strategic Framework

The UK stands at a critical juncture where investment in sovereign wireless communication technology is essential to ensure national security, economic growth, and digital inclusion. Given recent geopolitical lessons, every nation must prioritise the development of sovereign radio technologies for both civilian and military infrastructure. The UK possesses a world-class research ecosystem, spanning hardware systems, components, and devices to all layers of the telecom protocol stack (wired and wireless). A nationwide collaborative effort can establish the UK as a leader in next-generation wireless communications.

Policy Priorities

1. **Sovereign Wireless Technology for Security & Resilience**
    - A robust domestic telecom sector reduces dependency on foreign entities and mitigates supply chain vulnerabilities.
    - Investment in UK-led innovation ensures secure, reliable, and future-proof infrastructure for both civilian and military applications.
2. **Nationwide Digital Inclusion: A Political & Economic Win**
    - Equitable and ubiquitous connectivity is essential to overcoming digital, educational, health, and employment disparities.
    - Low-cost-to-deploy and low-cost-to-operate networks will eliminate postcode-based access inequalities.
    - Closing the digital divide is a direct investment in voter trust, improving socio-economic mobility, and national cohesion.
3. **Private 5G & Agile Spectrum Use for Industry & Defence**
    - Specialised private 5G networks require flexible spectrum policies to cater to industrial, healthcare, and defence applications.

Key Technologies

1. **Non-Terrestrial Technologies for Ubiquitous Connectivity**
    - The UK has a strong foundation and well established ecosystem in satellite and high-altitude platform communications.
    - Investing in non-terrestrial technologies will enhance connectivity in remote and underserved areas in the UK, aligning with global 6G ambitions for ubiquitous connectivity.
    - The UK has expertise in dynamic spectrum management, positioning itself as a leader in private 5G deployment for mission-critical sectors.
2. **ORAN: A Catalyst for UK's Telecom Supply Chain & SMEs**
    - The Open RAN (ORAN) ecosystem presents a unique opportunity to nurture local SMEs and startups within the telecom supply chain, building the UK's sovereign radio capabilities.
    - Targeted funding for mid-tier Technology Readiness Levels (TRLs) will bridge the 'valley of death' between academic innovation and commercial deployment.
    - Strategic support for ORAN will enable the UK to establish a self-sufficient and globally competitive telecom industry, supporting both 6G and defence markets.
3. **AI for Telecom: Automation & Network Intelligence**
    - AI-driven network automation will improve efficiency, reduce operational costs, and enable self-optimizing telecom infrastructure.
    - AI-powered predictive analytics will enhance network security, fault detection, and traffic management for 5G and 6G networks.

- AI integration in telecom will accelerate innovation in autonomous network management, reducing human intervention and improving service reliability.

Implementation Aspects and Opportunities

In line with the UK Government Agenda, we would be delighted to work with DSIT to promote the following:

Growth and Job Creation

- We would support spinouts and company formation, working closely with start-ups to drive innovation.
- The **Ayrshire Digital Economy Ecosystem (ADEE)** will be expanded at the UK level to support businesses in adopting **5G and beyond**, offering opportunities for **capacity building through test & trial program** for emerging telecom solutions.
- Our extensive experience with SMEs will be leveraged to foster sustainable growth and high-value job creation in the telecom sector. . We have experience of building the world's largest Private 5G network at the Olympics with intel, cisco, orange, Samsung partners.

Support for Industry

- We will actively promote the **triple-helix nexus** of **industry-government-academia engagement** to advance the UK's 'Future Communications' vision.
- The **ADEE ecosystem** will serve as a hub for **education, collaboration, and innovation**, offering tailored programmes that enable businesses to **learn, innovate, and collaborate** towards shared industry goals.
- We will work towards establishing **training programmes and workforce development initiatives** focused on **Emerging Telecom Technologies**, ensuring the UK remains at the forefront of global telecom advancements.

Inclusiveness

- We have significant experience in deploying **communication systems for remote areas** such as the Orkneys and will build upon this to enhance broadband access.
- We will promote inclusive connectivity solutions through approaches like **shared spectrum strategies** and other next-generation broadband technologies.

International Engagement

- Through strategic events such as **IEEE ICC 2026 in Glasgow**, we will provide a **global platform** to showcase the UK's leadership in **Advanced Communications**, featuring keynote speeches, expert panels, and exhibition spaces.
- Glasgow in May 2026 is also expected to host the **Inter-Academy International Workshop on 'Future Communications'**, following the success of the **June 2024 Workshop**, presenting further opportunities for **international collaboration and knowledge exchange**