Open Networks Ecosystem Competition Supplementary Information

Software Theme

Background

The Open Networks Ecosystem competition is designed to build on what we have learned in the first year of the Open Networks R&D fund and support trends and tackle challenges emerging from the fast developing open networks ecosystem taking shape in the UK and around the world. In the first year of the Open Networks R&D fund we have learned from the Programme's early investments and also undertaken extensive research and market engagement to find out what are the most significant challenges facing the ecosystem. That research has been informed in large part by industry and we have designed this competition with that information in mind. This supplementary information document summarises what that research has shown in regards to open networking software development focused on the RIC.

The Open Networks Ecosystem Competition has been designed to encompass all of the priorities and challenges that have emerged in one competitive grant funding process to maximise the time available for delivery and give the market an opportunity to help determine how funding is targeted through the proposals that the market develops. The Programme's grant funding is available only through March 2025 so it is important to maximise this by making it available across all priority and challenge areas at the earliest opportunity. By having one application process we hope the process will be simplified for consortia tackling multiple challenges and allow for larger scale and more ambitious projects. We recognise the broad range of challenges across the open networks ecosystem and appreciate that we are not able to determine for certain which are the most important so we intend for this wide ranging competition to enable the market to guide us towards investing in the most crucial areas by making compelling cases through their proposals and the broad scope of this competition is intended to facilitate that.

Research and Stakeholder Engagement

Government's stated ambition is for 35% of the nation's mobile network traffic to be carried over open and interoperable radio access network architectures by 2030. DCMS conducted intensive research, both direct and drawing on external services, to engage the market, perform analysis and compile reports to inform intervention options that will support that stated ambition and the strategic objectives set out in the Diversification Strategy. The research attempts to identify which areas of the ecosystem are in most need of support. The research highlights the key challenges raised by the market through stakeholder interviews and expert analysis. The stakeholders engaged during the market research includes both small and large companies across equipment vendors, systems integrators, and operators.

DCMS is already supporting a range of diversification focused projects funded through the Future Radio Access Networks Competition. Although conclusive findings from these projects are not yet available, their experience of working at the leading edge of the ecosystem is still informative. We engaged particular FRANC projects to learn from their early experience in RIC development.

The Open Telecoms R&D Workshop, an in-person event held in January brought together stakeholders from across the ecosystem with our Programme Development team and technical experts. We discussed in detail our approach to supporting the Software ecosystem focused on the RIC and recorded a great deal of feedback which has gone into designing this competition.

DCMS also regularly engages with the telecoms industry and we recently completed a stakeholders stocktake where all major stakeholders are engaged 1:1 and invited to share their views on the current state of the ecosystem and government's role in supporting it. This, together with some internal lessons learned and analysis has helped inform the Open Networks Ecosystem competition.

Summary of Findings

Companies in our survey and in 1-1s consistently identified positive use case for the RIC, focused on improved customer experience, performance improvement and RAN optimisation through:

- energy reduction;
- advanced traffic steering;
- RAN slicing management;
- mMIMO management;
- automation in the context of Private 5G;
- dynamically sharing radio resources across multiple services (e.g. neutral host, private/public network coexistence);
- interference mitigation;
- coordination of heterogeneous networks (hetnets, particularly multi-vendor hetnets); and
- AI/ML features to provide value added features like predictive maintenance and capacity planning.

We also discussed the barriers that stakeholders had raised in our engagement. These included:

- **Proprietary and closed RIC implementations.** Stakeholders overwhelmingly identified closed (proprietary) implementations of the RIC by Telcos as a major barrier to development, stressing the need to make solutions open and multi-vendor interoperability while ensuring their security.

- **Limited portability of apps across platforms.** A consequence of closed RIC implementation is that apps developed for one RIC platform cannot be ported across others, increasing development and integration expenses.

- **Underdeveloped E2 interoperability standards.** The E2 interface drives interaction between the RIC, CU and DU.

- **Complexity of implementation and lack of support for smaller Software vendors.** Complexity of operations acted as a barrier to engagement of smaller vendors supporting these can reduce platform dependence on heavyweight RAN vendors.

- **Challenges with data sharing from MNOs.** App developers working on the real-time RIC need access to operational live data from MNOs to train their algorithms and develop new products.

Our research, strategic development and engagement pointed strongly to the need to focus on a specific technology, albeit flexibly so that other innovations in open networks Software development that can support diversification are allowable.

It was clear that there is a need in the market for government support to accelerate the development of an open and interoperable Near or Real-Time RIC platform and xApps, as the market will not coalesce to produce this in the appropriate way and at the appropriate timescales without public funding.

The Full Guidance for Applicants sets out in more detail our views on what the Department is seeking to achieve by funding this technology.