Telecom Infra Project

Response to Public Consultation on the Review of the Broadband Cost Reduction Directive[1]

The Telecom Infra Project (TIP) welcomes the consultation on updating the Broadband Cost Reduction Directive (BCRD).[2] TIP is the leading organization supporting the development, testing, and deployment of network infrastructure that is open, disaggregated, and standards-based. We thank the European Commission for the opportunity to provide input on this important issue.

The movement towards open network architectures, especially in the radio access network (RAN) space, has been accelerating significantly in recent years. As described below, this trend will significantly reduce the costs of network deployment, which directly advances the objective of the BCRD. We therefore encourage the European Commission to safeguard and encourage the deployment of open and disaggregated solutions when it revises the BCRD.

I. About the Telecom Infra Project

Launched in 2016, TIP is a community of diverse members that includes hundreds of telecom companies, from hardware manufacturers and software makers to mobile network operators, edge service providers, system integrators, start-ups and many others involved in the telecommunications supply chain. TIP and its members work together to *design*, *build*, *test*, and *deploy* end-to-end solutions that are **open, disaggregated, and standards-based.** Over 500 member companies and institutions from around the world and from all backgrounds have come together at TIP to build a more vibrant, collaborative telecom ecosystem that delivers solutions.

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[1] https://ec.europa.eu/digital-single-market/en/news/public-consultation-review-broadband-cost-reduction-directive

[2] Directive 2014/61/EU, on measures to reduce the cost of deploying high-speed electronic communications networks, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex%3A32014L0061

TIP has a heavy presence in Europe, with member companies driving initiatives at both member state and European levels. Our European members include Telefonica, BT, Orange, Deutsche Telekom, Vodafone, European Space Agency, Nokia, Telenor, Cork Institute of Technology, Ghent University-IMEC, Schneider Electric and SNCF, among others.

II. Open and Disaggregated Network Architectures Provide Operators with Flexibility and Stimulate Competition

Open network architectures are designed to permit operators to disaggregate traditional components of their networks, such as separating a mobile "base station" into its constituent functions. Disaggregating network infrastructure into smaller elements, each connected across standards-based interfaces, provides operators with flexibility as they deploy their networks. This is particularly important as 5G networks are seeing ever-greater amounts of network technology being shifted either from the network core closer to the edge, or vice-versa, facilitating performance improvements in lower latency and lower energy consumption, among other benefits.

By using standards-based interfaces and specifications from groups like 3GPP or the O-RAN Alliance, and by adhering to productization, testing, validation, and delivery requirements from TIP, the result is a more competitive ecosystem that provides operators with flexibility to mix-and-match equipment from different vendors.

III. Open and Disaggregated Architectures Reduce the Costs of Network Infrastructure Deployment

Open and disaggregated network architectures, including OpenRAN and other disaggregated systems, will significantly reduce costs for operators, both in the short term and over time.

Increased vendor competition. As noted above, competition among vendors is currently very limited, especially in the 5G RAN infrastructure space. Open architectures will significantly lower the barriers for new entrants, enabling more competition, more innovation in product and service offerings, and ultimately lower costs for operators to deploy infrastructure.

Gradual upgrades over time. When using a traditional vendor, many network operators may perform significant upgrades to their networks very infrequently, perhaps only every 10 years as major new generations of wireless technology have been released (2G → 3G → 4G). However, as 5G deployments become more common, the trend is toward new features being released more frequently, with major new 3GPP releases being finalized (for

example) more often than once per decade. Open architectures allow vendors to respond to these trends by upgrading their systems gradually. Importantly, this spreads out an operator's deployment costs over time, significantly lowering costs compared to conducting a once-per-decade complete overhaul of equipment.

Software-based upgrading through NFV. An important trend facilitated by open architectures is the movement toward software-based network solutions, or network function virtualization (NFV). This typically involves deploying networking software that runs on general-purpose processors (i.e., x86 chips) rather than custom chipsets. Significantly, moving away from purpose-built hardware lowers the costs of network deployment, as software-based solutions can be far more easily upgraded remotely, potentially **without need to modify or replace any physical infrastructure.** In addition, to the extent that disaggregation is permitting to be moved closer to the core, network operators may also benefit from the rapid scalability that cloud computing affords.

Design flexibility. Disaggregation of network components providers operators with much greater flexibility to design and deploy their network architectures to meet specific use cases. Rather than being tied to one-size-fits-all solutions (such as a traditional "base station") from a traditional operator, open architectures allow operators to make creative decisions about where to place various network operations. This design flexibility will enable operators to lower their deployment costs.

IV. A Revised BCRD Should Safeguard and Encourage Open and Disaggregated Network Architectures

The BCRD should be modified in two potential ways to encourage open and disaggregated network architectures.   **First,** language should be added to ensure that physical infrastructure deployment is compatible with open network architectures. For example, some passive infrastructure may be designed for the traditional paradigm of a complete base station connected by fiber backhaul to the core, while disaggregation of elements permits more flexibility in where certain elements are located – on the tower, in a shelter at the base, in a nearby facility, etc.

In addition, if antenna installations – which are included within the BCRD's definition of "physical infrastructure"[3] – are designed to be compatible with active electronics from only a single vendor, it may be difficult for an operator to make changes later on. Even the design of apparently all-passive elements like towers and poles could potentially be better

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[3] BCRD art. 2(2).

suited for some vendors than others. Explicitly referencing open and disaggregated technologies would address this issue.

Second, the scope of the BCRD should be expanded beyond the current definition of "physical infrastructure" to encourage other steps that will reduce the costs of network deployment. Indeed, even the current BCRD's ultimate goal is to "facilitate and incentivise the roll-out of high-speed electronic communications networks ... so that such networks can be rolled out at lower cost."[4] Thus, the focus on non-active physical infrastructure, while important, is simply one means to achieving the goal. During the workshop held on 27 January 2021, some participants highlighted (for example) the need to harmonise electromagnetic fields limits for 5G across the EU, and for further investments in skills and training.[5] If those elements are in scope to the revised BCRD, then so should it include encouragement of open and disaggregated network architecture.

Finally, we note that encouraging disaggregation will benefit the telecoms ecosystem in Europe, since it will ensure that European companies can lead connectivity supply chains now and in the future. Thus, taking steps to promote this in the revised BCRD would serve the larger aims that the directive seeks to advance.

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TIP appreciates the opportunity to provide comments in response to this consultation. We look forward to working with the EU in future as further steps are taken toward revision of the BCRD.

Sincerely,

Attilio Zani

Executive Director

Telecom Infra Project

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[4] BCRD art. 1.1.

[5] https://ec.europa.eu/digital-single-market/en/news/online-workshop-network-deployment-drivers-and-barriers