

Before the
DEPARTMENT OF COMMERCE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
Washington, DC 20230

In the Matter of)
)
Public Wireless Supply Chain) Docket No. 221202-0260
Innovation Fund Implementation) RIN 0693-XC053
)

COMMENTS OF ERICSSON

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As a trusted supplier to broadband network providers and a leader in the deployment of 5G networks in the United States and across the globe, Ericsson submits these comments in response to the National Telecommunications and Information Administration’s (“NTIA”) Request for Comment (“RFC”) on implementation of the Public Wireless Supply Chain Innovation Fund (“Innovation Fund”), as directed by the CHIPS and Science Act of 2022.¹

INTRODUCTION AND SUMMARY

Ericsson is an active driver of efforts to develop Open Radio Access Networks (“Open RAN”) standards and has developed various cloud-based solutions and other key elements critical to open 5G networks.² We welcome the opportunity to provide input into how the Innovation Fund can be used most effectively to support the promotion and development of open, interoperable, and standards-based radio access networks.

¹ Department of Commerce, National Telecommunications and Information Administration, *Public Wireless Supply Chain Innovation Fund Implementation*, Docket No. 221202-0260, RIN 0693-XC053, 87 Fed. Reg. 76,182 (rel. Dec. 13, 2022) (“RFC”).

² See, e.g., Cloud RAN Acceleration Technology, available at <https://www.ericsson.com/4ae403/assets/local/ran/doc/cloud-ran-acceleration-technology-positioning-paper.pdf>.

At the outset, we note that the RFC considers the Innovation Fund a “critical investment” to “unlock opportunities for U.S. companies, particularly small and medium enterprises,” to compete against “a few foreign suppliers, including high-risk suppliers that raise security concerns.”³ Ericsson fully supports open network evolution and open competition, including competition from U.S.-headquartered companies. We are proud of Ericsson’s significant presence in the United States, including a 5G manufacturing factory and nearly 9,000 employees. U.S. government policy, including the Innovation Fund program, should promote a diverse and competitive ecosystem of trusted suppliers that combines the resources and expertise of companies in both the U.S. and, critically, its partner countries, in order to maintain and advance a global marketplace that can meet the growing needs of U.S. wireless providers and the 5G market.

Our comments identify three specific areas for Innovation Fund investment:

- ***Security.*** 5G is the most secure generation of technology to date, and operators and their customers expect to achieve this baseline of security. Security should be a top-level requirement when deploying any network architecture, including Open RAN, and we describe several security considerations that would benefit from Innovation Fund support.
- ***Interoperability.*** Open RAN presents an interoperability challenge for managing the service with consistent performance, feature, and roadmap alignment. This challenge also would benefit from Innovation Fund support.
- ***Performance.*** Current Open RAN standards offer limited performance capabilities due to the technical, ecosystem, security, and integration challenges mentioned above. To enhance the performance of Open RAN, NTIA should consider funding toward advancing newer specifications to move toward the highest performance specifications possible.

Fundamentally, NTIA should apply Innovation Fund funds to research in these areas, not vendor-specific product development. NTIA should also be open to funding existing initiatives

³ RFC at 76,183.

that are already focusing on advances in open, interoperable, and standards-based radio access networks. Finally, Ericsson sees the next generation of wireless technologies as an opportunity to improve performance while maintaining security and privacy, and with this in mind, we offer several specific suggestions that are ripe for advances in the analysis and design of network control with Innovation Fund funding.

DISCUSSION

I. U.S. GOVERNMENT POLICY SHOULD SUPPORT A MULTI-VENDOR ECOSYSTEM OF TRUSTED SUPPLIERS FROM THE U.S. AND PARTNER NATIONS, INCLUDING COMPANIES LIKE ERICSSON WITH A STRONG U.S. PRESENCE

A. Ericsson is at the Forefront of 5G Technologies as a Trusted Supplier and Has a Longstanding and Expanding Commitment to the United States.

Ericsson participated in many of the 5G “firsts,” both in the U.S. and abroad. Ericsson has led the way in developing wireless technologies for 5G, supplying equipment for innovative networks and uses, and collaborating with public and private sector partners on 5G standards. Notably, the very first 5G network in the world to go live with 5G was powered by Ericsson equipment. The world’s first stand-alone 5G network was launched in the United States using Ericsson equipment, and Ericsson has launched 5G with the largest service providers in the United States. Globally, Ericsson powers 141 5G networks in 61 countries. The first Cloud RAN deployment around the globe is here in the United States using Ericsson cloud-native RAN software. In addition, we are very proud to have been the first company to deliver 5G base stations manufactured at scale in the U.S. And in every nation state that has conducted a national security 5G assessment, Ericsson has been designated as both a secure and trusted 5G supplier.

Ericsson’s commitment to the U.S. is real, tangible, and stretches back more than a century – to 1902. Ericsson has approximately 9,000 employees in the U.S. with five R&D centers in Austin, Texas, Boise, Idaho, and in Los Gatos, Playa Vista, and Santa Clara,

California. In addition, we invested over \$100 million in our state-of-the-art, Industry 4.0, 5G Smart Factory in Lewisville, Texas, which started shipping the first 5G radios in May 2020.

Further, to address the shortage of 5G workers and speed up network buildout, Ericsson continues to invest in its Centers of Excellence to recruit, train, and develop 5G field workers.

Although our global headquarters is in Sweden – a nation that has longstanding defense cooperation with the U.S. – the United States is Ericsson’s *de facto* home market. The United States is our largest market, and we are committed to enabling U.S. 5G leadership ambitions. Our North America headquarters is located in Plano, Texas.

Ericsson’s U.S. investments include:

- ***Investment in U.S, manufacturing.*** Ericsson recognized early that the scale of 5G meant that radio manufacturing would have to reside in the United States to maintain security and speed up 5G deployment. Ericsson invested over \$100 million in its smart factory in Lewisville, Texas, which has been in operation since 2020, and where it showcases the many opportunities arising from 5G connectivity that powers capabilities including autonomous robots, augmented reality training, and many others. At Ericsson’s smart factory, we are building the 5G radio equipment powering digital transformation in the U.S. – including all of our baseband units for the three largest U.S. operators and all of the mmwave radios for U.S. demand.
- ***Investment in U.S. jobs and the U.S. workforce.*** Approximately 9,000 Ericsson employees work in the United States.⁴ The deployment of 5G requires a large number of new small-cell sites, which creates unprecedented demand on a limited supply of 5G workers in the U.S. Ericsson has taken an active role in addressing this situation through its four state-of-the-art Center of Excellence facilities, which train and hire new qualified technicians and upskill current workers.
- ***Investment in domestic design.*** Ericsson invests and supports technology development in the United States, including hardware, software, and Artificial Intelligence (AI)—areas in which the U.S. is at the forefront. Ericsson operates an application specific integrated circuit (“ASIC”) and software design center in Austin, Texas, which designs software and hardware for 5G radios which are now deployed in the U.S. and the rest of the world. Ericsson’s commitment to the United States will continue as Ericsson seeks to invest in research and development of new

⁴ Ericsson in the United States, <https://www.ericsson.com/en/about-us/company-facts/ericsson-worldwide/united-states>.

use cases for 5G and for the next generation of wireless technologies. Ericsson has five research and development locations in the United States, as noted above.

- ***Investment in U.S. suppliers.*** In general, all active “intelligent” third-party electronics (e.g., digital semiconductors, silicon-based technology, application-specific integrated circuits (“ASICs”), field programmable gate arrays (“FPGAs”), etc.) for the Ericsson Radio System are predominantly sourced from U.S. companies, with a minor portion from companies located in partner countries. Indeed, Ericsson’s own key suppliers are U.S.-based companies. For example, we have partnered with Dell, VMWare, Intel, Red Hat, and others.⁵
- ***Investment in open network solutions.*** Ericsson is a leading contributor to 3GPP standards, which define open interoperable interfaces between devices and the network. Ericsson was the #1 contributor to O-RAN Alliance specifications in 2022, chaired two working groups, and is the editor of several O-RAN specifications. Ericsson is also actively involved in the Security Work Group, including multiple rapporteur roles, Architecture Work Group, and O-RAN Governance.

[Q5] Ericsson also has extensive expertise with managing and securing complex global supply chains. Ericsson has a global, flexible supply chain to work closely with customers throughout European, Asian, and North and South American operations to respond quickly to market and customer needs. Ericsson teams take proactive measures across the whole supply chain from production to logistics, in close cooperation with suppliers and customers, to meet customer demand. This has enabled us to secure global supply flexibility and resilience even when times are tough, and ensure limited impact on our customers.

B. U.S. Government Policy Should Embrace All Trusted Vendors to Enhance Competition and Innovation, Increase Capacity and Security of Supply Chains, and Support U.S. Partners.

[Q22, 25] The RFC asks whether Innovation Fund grants should be limited to projects that take place in the U.S. and how NTIA should address potential grantees based in the U.S.

⁵ See “How Ericsson, VMware and Dell Technologies support a CSPs’ BSS cloud journey,” <https://www.ericsson.com/en/blog/2022/9/ericsson-dell-and-vmware-a-cloud-journey-partnership>; “Ericsson and Intel partnership in 5G and Cloud,” <https://www.ericsson.com/en/partners/our-partners/intel>; “Ericsson and Red Hat collaborate to deliver multivendor solutions to Communication Service Providers (CSPs),” <https://www.ericsson.com/en/partners/our-partners/redhat>.

with extensive overseas operations and non-U.S. based companies with significant U.S. operations.⁶ American success in 5G can and should involve vendors from around the globe, so long as they are *trusted* vendors. The facts and figures noting Ericsson's commitment to the U.S. in Section I.A. above should make clear that the location of a company's headquarters does not alone determine its contributions to American competitiveness or success.

[Q22] All companies should be eligible for Innovation Fund support if they are trusted partners and will invest in research and development that promotes U.S. innovation or otherwise benefits the United States by meeting the purposes of the Innovation Fund.

[Q5] Further, promoting a global marketplace will bolster the security, resiliency, and capacity of supply chains for the U.S. marketplace. Companies with supply chains that have diverse vendors are more resilient and adaptable to interferences in the chain. Only a multinational, diverse vendor base of trusted suppliers will have the capacity to provision components and software capable of servicing the U.S. and other partner countries' markets. Investing in a global trusted market also supports U.S. companies' supplying global vendors – including Ericsson, as noted above.

[Q25] If NTIA does decide to limit Innovation Fund support to companies with operations in the United States, it should ensure eligibility for companies with significant investments in the United States or those that support jobs in the United States, not just those headquartered here. These metrics are more indicative of a company's commitment to U.S. leadership than where a company's global headquarters is located.

⁶ RFC at 76,185.

II. INNOVATION FUND SUPPORT SHOULD FOCUS ON IMPROVING THE SECURITY, INTEROPERABILITY, AND PERFORMANCE OF OPEN RAN

[Q1] As the RFC recognizes, the success of Open RAN adoption will depend on how secure the networks are, whether the systems are sufficiently interoperable, and whether their performance matches that of traditional RAN networks.⁷ NTIA should direct funding toward making improvements in these three areas.

A. Security Remains a Top-Level Priority as Open RAN Expands the Threat Surface

[Q17] Security should be a top-level requirement when deploying any network architecture, including Open RAN. 5G is the most secure generation of technology to date, and operators and their customers expect to achieve this baseline level of security. However, security challenges in Open RAN have been documented by U.S. and other European national bodies. Open RAN deployments must be secured with zero-trust at all layers of the networking and technology stack to ensure only trusted entities can have access and move internally within the network. Innovation Fund support can advance the ongoing work to mitigate the risk in bodies such as O-RAN Alliance, where Ericsson is spearheading the Security Work Group efforts.

[Q20] Open RAN introduces new internal threats. RAN deployments have traditionally been on operator premises, which inherently provide protection from internal threats and lead to RAN security architectures focused on perimeter security (a castle-and-moat approach) to protect against external threats. As Open RAN migrates to the cloud, this introduces the potential for new internal threats. The O-RAN Alliance has also publicly acknowledged such threats.⁸ Specifically, new security risks for attacks on confidentiality, integrity, and availability include:

⁷ RFC at 76,184-85.

⁸ See, "The O-RAN ALLIANCE Security Task Group Tackles Security Challenges on All O-RAN Interfaces and Components," <https://www.o-ran.org/blog/the-o-ran-alliance-security-task-group-tackles-security-challenges-on-all-o-ran-interfaces-and-components>.

(i) an attack surface with more functions and interfaces; (ii) vulnerabilities in the Near Real-Time RAN Intelligent Controller (“Near-RT RIC”) and xApps that could be exploited; and (iii) non-secure management interfaces that do not follow industry best practices. Innovation Fund support would be helpful to hone more effective solutions to these issues.

[Q20] There are ongoing efforts to make Open RAN secure. Zero trust architecture (“ZTA”) is a new paradigm for RAN that provides protection from external and internal threats at multiple layers. 3GPP security specifications for 5G RAN align well with NIST’s seven tenets for a ZTA, and 3GPP is now studying further enhancements that can be made to achieve a ZTA. The O-RAN Alliance has stated that it is pursuing a ZTA in accordance with NIST, and this endeavor will guide its security work to be performed over the next couple of years. ATIS is currently studying Zero Trust for 5G based upon U.S. government guidance and will provide recommendations to the standards bodies. NTIA should use the Innovation Fund to invest in real-world tests and trials to demonstrate the viability of these ZTA solutions.

[Q17-18] The key objective with security in any RAN is ensuring privacy, performance, and resiliency. Operators should perform risk analyses prior to deploying Open RAN to understand the likelihood and impact of risks, and to implement appropriate security controls. RAN deployments should meet 3GPP specifications and implement the recommendations made by the FCC’s Communications Security, Reliability, and Interoperability Council (“CSRIC”). NTIA should also consider promoting DHS CISA’s “Security Guidance for 5G Cloud Infrastructures” as a playbook for secure RAN and core deployments in the cloud. Supply chain security guidelines from ATIS and DHS ICT SCRM should also be followed, and industry should continue to evolve O-RAN security specifications to meet the expected security baseline.

Again, NTIA can use the Innovation Fund to fund lab environments that will facilitate the implementation of these solutions in the real world.

B. Interoperability is Critical and Should be Addressed through Certification and in Some Circumstances, Plugfests.

[Q1] NTIA should prioritize interoperability in directing Innovation Fund resources. The oversight and management burden costs for operators have made some Open RAN operators prefer using the same vendors for Open RAN as for systems. Brownfield operators also have additional costs, as Open RAN deployment means massive operational transformation, tooling, and upskilling burdens. Introducing a completely new technology and way of deploying and managing the service with consistent performance, feature, and roadmap alignment is a challenge that would be amenable to the sort of funding envisioned by the Innovation Fund.

[Q7] Certain criteria should be used to define equipment as compliant with open standards for multi-vendor network equipment interoperability. An Open RAN network involves Radio, Baseband, Transport, and Server Management Object components (apart from mobile core functions not included here), with some network elements having disaggregated software and hardware parts from different vendors. When a solution includes such multi-vendor components compliant with relevant 3GPP and O-RAN specifications, the equipment should comply with open standards for multi-vendor network equipment interoperability.

[Q6, 9] In certain circumstances, plugfests can be an effective mechanism to support promoting and deploying new 5G equipment with future interoperable equipment. Plugfests in mobile networks are typically more effective when addressing interoperability requirements at higher layers (e.g., IP layer/L3) than at lower layers (e.g., MAC or PHY layers). This is because latency and performance have stringent requirements and how efficiently these are met in each product differs between vendor implementations. Higher layers have much relaxed requirements

on latency, which opens up larger interoperability testing opportunities between different vendor implementations. To advance the performance of Open RAN, NTIA should consider funding toward advancing newer specifications (whether for testing or research on simulations).

C. Network Performance Must be a Key Criterion for Open RAN.

[Q7, 9] NTIA should expand its interest from the narrower focus on interface compatibility to network performance. Performance is not just a matter of competition among vendors, but also ensures good utilization of limited spectrum resources, a primary concern to both NTIA and the FCC. Performance capabilities of current open RAN standards can be improved by addressing the technical, ecosystem, security, and integration challenges mentioned above.

[Q1-2] To improve performance and potential use cases, a focus on next generation standards is necessary. Performance and feature parity are reduced to and limited by the lowest performing/ lowest-featured vendor implementation. As a result, current Open RAN standards only operate at a baseline lower performance level than the 5G networks currently deployed in the United States. New standards are under development to improve Open RAN performance.

[Q6] To advance performance of Open RAN, NTIA should consider funding (whether for testing or research on simulations) toward advancing newer specifications to move toward the highest performance specifications possible.

[Q7] To improve Open RAN performance and potential use cases, focus on evolving O-RAN specifications will be required. For RAN disaggregation, the current lower-layer split (LLS) needs to be evolved to support high performance deployments of 5G-Advanced (and eventually 6G). The first step of this evolution is the ongoing work item on “Uplink Performance Improvement” in O-RAN Alliance. For network automation, while the first priority is to complete the specifications of both Non-Real Time and Near-Real Time RAN Intelligent

Controllers (Non-RT RIC and Near-RT RIC), the future evolution should aim to unify and integrate different RICs to avoid market fragmentation.

III. THE INNOVATION FUND SHOULD INVEST IN RESEARCH PROJECTS AND FUND PROJECTS FOCUSED ON THE CORE CHALLENGES OF SECURITY, INTEROPERABILITY, AND PERFORMANCE

[Q6] NTIA should focus on research projects to advance the complete wireless ecosystem, rather than any vendor-specific product development. Projects that align with this purpose and the goals of the Innovation Fund include plugfests that bring vendors together to test the interoperability and performance of components in the 5G stack, address workforce concerns through reskilling the workforce and standardizing processes, and set standards to improve security and performance in the next generation of wireless technologies.

A. Innovation Fund Should Support Research to Promote Ambitious Goals for the Next Generation of Wireless.

[Q6] The Innovation Fund is a unique opportunity to invest in and advance the development of the Open RAN wireless ecosystem writ large. NTIA should direct Innovation Fund support for research and simulations, not product development. The Innovation Fund is best used to advance an open ecosystem rather than individual companies' particular products. Focusing funding in the research area is a better way of ensuring vibrant technological development.

[Q2] Wireless generations go through lifecycles spanning decades where R&D is essential to support movement and acceleration into the next generation. The current lifecycle position, where 5G is well established in deployments around the world, presents the need for research to steer the industry in the direction for the next generation of infrastructure.

Supporting the ecosystem for R&D particularly in performance advancements and research for what 6G will entail can support the industry through a lifecycle “dip” into the next stage of

innovation. Funding should support research, testing, and simulations, not new vendor-specific product development that would grant advantages to particular vendors.

[Q8] NTIA can use Innovation Fund support to fund ambitious and game-changing projects. For example, the advent of 6G provides an opportunity to revisit network control to improve network performance. Network control involves a crucial type of interface called a control interface, which exposes data from network elements to a “control loop.” The latter processes the data, possibly along with external data, and produces control commands. The control interface then feeds those commands back into network elements. In the 5G context, there are multiple control loops at different levels of the network, operating with different time scales as well as with different granularity and type of information. The sheer complexity of the overall system makes it difficult to analyze and design such processes together to produce the best network performance overall.

[Q8] While we now have a chance to take a fresh look at network control, including the crucial role of interfaces that enable control loops, more research is needed into how to improve performance and maintain privacy and security. For example, one emerging area of interest is allowing third parties to access interfaces and control the network. In such a case, the network operator would need to fully understand how control loops can produce conflicting actions and how to arbitrate such conflicts. In addition, interfaces add complexity, in terms of computation and storage, and increase the vulnerability surface of the network in terms of security and privacy. The knowledge gained from funding network control projects would serve as a basis for the definition of standardized interfaces. Standards bodies should define interfaces to guarantee compatibility among network elements, but the actual control loop processing should be left to proprietary design by vendors, incentivizing vendors to make enhancements that allow for a

faster pace of innovation in performance than would be allowed by standardizing processes. Research on improving the interfaces and methods of securely exposing interfaces to third parties, augmenting the control loop information from external data sources, etc. is likely to yield higher value for the overall Open RAN industry as opposed to investing in specific products developed by a vendor or group of vendors.

[Q8] NTIA should direct Innovation Fund support to projects that address the analysis and design of network control, with particular emphasis on these and related topics:

- the interaction among control loops and their joint optimization;
- the arbitration of conflicting actions from control loops, especially with third party involvement;
- the interplay between control loops and interfaces in and out of the network;
- the merging of external information into control loops, and the associated external interfaces;
- signal processing techniques for control loops, drawing on solid theoretical background from, e.g., information theory, control theory, and machine learning; and
- control loop computational complexity and latency, and implications for network interfaces.

[Q8] While industry is best suited to address short and medium term issues closer to standards, development and deployment, academia can lead the way on long term forward leaning research and topics, often in collaboration with industry and government. The U.S. is fortunate to have the best universities in the world, and engaging with them will tap into their enormous potential for research and innovation. Energizing the academic community requires large funding over many years. The benefits are well worth the expense, in both research outcomes that industry can pick up and reduce to practice, and in well trained students who are ready to enrich the work force. Academia can engage in addressing research topics such as those

detailed in Question 8, which may involve many approaches from theoretical to experimental research. Programs such as NSF PAWR, mentioned in Question 2, have the capability to build and maintain large research testbed facilities. They are also well versed in the specific capabilities related to open source and Open RAN. One recent example is the PAWR POWDER tested in Salt Lake City, which has deployed an outdoor 5G network using open source software.⁹ Another recent example is the PAWR COSMOS testbed in New York City, which was approved as an Open Testing and Integration Center for O-RAN.¹⁰

B. Innovation Fund Funding Should Leverage Existing Initiatives.

[Q2] The RFC asks what ongoing public and private sector initiatives may be relevant to the Innovation Fund.¹¹ There are several key initiatives that NTIA could be interacting with, in a variety of possible ways, ranging from consulting on topics of interest, to engaging as a partner in executing on projects.

The ATIS NGA is one such example, with a wide representation within the private and public sectors of about 100 companies, government agencies, and academic institutions, to advance North American mobile technology leadership in the next decade.

The *National Science Foundation* also plays a pivotal role in funding wireless research and partnering with the mobile industry and operates several initiatives that NTIA can leverage:

- The *Resilient & Intelligent NextG Systems* (“RINGS”) program is a public private partnership with 9 industry leaders, including Ericsson, that funds about 40 projects aimed at the development of intelligent, resilient, and reliable next generation networks.

⁹ See “POWDER, the NSF PAWR Testbed, Unveils Open Source 5G Research Network,” <https://advancedwireless.org/powder-the-nsf-pawr-testbed-unveils-open-source-5g-research-network/>.

¹⁰ See “New Open Testing and Integration Centres (OTIC) approved in Japan and North America,” <https://advancedwireless.org/o-ran-alliance-designates-nsf-pawr-testbed-cosmos-as-2nd-north-american-otic/>.

¹¹ RFC at 76,184.

- The *Platform for Advanced Wireless Research* program is funded by a partnership between the NSF and a consortium of 30 companies, including Ericsson, which supports four large wireless research testbeds.
- The *Convergence Accelerator* program runs yearly cohorts of small teams through a process from ideation to societal impact. Its 2022 cohort includes a track on Securely Operating Through 5G Infrastructure, to which Ericsson contributes.

Further, and as noted above, Ericsson is the leader for security specifications at the O-RAN Alliance, chairing two working groups, and is the editor of several O-RAN specifications.

Additionally, Ericsson is exploring participation in the Semiconductor Research Corporation's Jump 2.0, a large program in cooperation with DARPA focused on the performance, efficiency, and capabilities of broad classes of electronics systems for both commercial and military applications, with several themes highly relevant to mobile networks, including Communications and Connectivity, Cognition, and Intelligent Sensing to Action.

Another area for the Innovation Fund to consider is encouraging programs to increase technology readiness levels "TRL" where there are technology gaps (similar to the \$600M DoD tranche experiments that brought together collaborations from multiple vendors and groups to demonstrate 5G applications for the DoD). Through experimentation, learnings and takeaways can accelerate the development of new technologies such as Open RAN.

C. Workforce Reskilling

[Q3] Open RAN requires significant transformation with new ways of working and methods of procedure, and successful deployment will require reskilling the workforce in the new Open RAN-specific deployment, operational and management tools and processes. In brownfield deployments, this is in addition to the current operational models and tools. NTIA can support the reskilling of the workforce by providing aid in helping to accelerate standardization of common processes and deployment guidelines, fund plugfest initiatives lab for

multi-vendor testing and security testing for cloud infrastructure, and use of as many open-source cloud infrastructure tools as possible so multiple cloud platforms can be leveraged with the least cost for the operators. Research and development can be a particularly challenging area to find the necessary skillsets. It is important to consider when creating projects that time and funding is needed to identify and potentially ramp up the subject matter experts required.

CONCLUSION

As compared to global operators, U.S. operators' investment in accelerated 5G buildout has the potential to drive an unprecedented wave of exponential innovation, critical for U.S. leadership across industries, including the public sector. Open RAN will accelerate the migration to increasingly open and cloud native platforms, better leveraging AI and the broader U.S. developer eco-system. U.S. leadership can ensure the western ecosystem stays aligned, retains critical scale, continues to lead in global standardization efforts, and leads in 5G, 6G and Open RAN development.

The U.S. is effectively the home market for Ericsson, a lead contributor to a vibrant U.S. wireless ecosystem, including the critical global standardization efforts of Open RAN in the O-RAN Alliance and in 3GPP. Ericsson seeks to work closely with the U.S. administration to achieve these goals. As stated above, we believe that the Innovation Fund is best used to advance an open ecosystem rather than individual companies' particular products. Focusing funding in the research area is a better way of ensuring a vibrant technological development. In particular, we ask NTIA to direct Innovation Fund support to projects that will improve the security and interoperability of the entire ecosystem of wireless technologies.

Respectfully submitted,

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