Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20230

In the Matter of	)	
	)	
Promoting the Deployment of 5G Open	)	
Radio Access Networks	)	GN Docket No. 21-63

COMMENTS OF THE
TELECOMMUNICATIONS INDUSTRY ASSOCIATION

The Telecommunications Industry Association ("TIA")[1] welcomes the opportunity to file these reply comments on the matter of Promoting the Deployment of 5G Open Radio Access Networks ("Open RAN").[2] As the leading trade association representing the manufacturers and suppliers of communications networks, as an ANSI-accredited standards development organization ("SDO"), and as the only provider of process-based standards that enable communications providers to monitor and improve their business performance[3], this matter is of vital importance to TIA and its member companies. As TIA stated in its initial comments, we support new technologies, including efforts to innovate around network architectures such as Open RAN.[4] The FCC, working with significant input from the Information Communications Technology ("ICT") industry, has an important role to play in promoting policies and processes that secure the supply chain for Open RAN and other ICT technologies.

[1] TIA is the leading trade association for the information and communications technology industry, representing companies that manufacture or supply the products and services used in global communications across all technology platforms. TIA represents its members on the full range of policy issues affecting the ICT industry and forges consensus on voluntary, industry-based standards.
[2] *Promoting the Deployment of 5G Open Radio Access Networks,* Notice of Inquiry, GN Docket No. 21-63 (Mar. 18, 2021) ("NOI").
[3] TIA's TL 9000 Quality Management System (QMS), based on ISO 9001, is the only QMS specifically focused on the communications industry. For more information on TL9000, please visit https://tl9000.org/.
[4] Comments of TIA.

I. THE RECORD SHOWS SUPPORT FOR A TECHNOLOGICALLY NEUTRAL APPROACH WHILE OPEN RAN TECHNOLOGIES CONTINUE TO DEVELOP

The record clearly shows that the ICT industry is not looking for the FCC to create any sort of mandates when it comes to funding programs that would promote the development of Open RAN technologies or pressure operators in their replacement choices.[5] While TIA strongly supports investment into new and emerging technologies, we have been a longstanding proponent of government maintaining a technology neutral approach when it comes to adopting policies involving emerging and existing technologies and solutions. The development of Open RAN does raise exciting possibilities for the future of the ICT market and increased vendor diversity, however the FCC should not put itself in a position where it is picking winners and losers in this market. Instead, the FCC should continue to promote Open RAN solutions as well as existing network components that have been providing trusted connectivity to the country for decades.

Commenters recognize that a mandate would not be appropriate as Open RAN may not be the best-case solution for every given situation and preserving a choice for providers in what technologies they can use allows each individual provider to make the best decision for their individual networks. While Open RAN can be more economical in certain situations, we agree with 5G Americas that the impact on the total cost of ownership will vary case by case.[6] Given this case-by-case nature of U.S. ICT networks, TIA supports commenters' assertions that the government should maintain a technology neutral approach to network deployment policy and

[5] *See e.g.,* U.S. Chamber of Commerce Comments at pp 2-3; Nokia Comments at pp. 7-8, 10, 15; Open Ran Policy Coalition ("ORPC") Comments at pp. 32-33; TIA Comments at p. 8.
[6] 5G Americas Comments at p. 30.

continue to promote operator choice.[7] As such, we agree with commenters who urge the FCC to allow the market to decide on adopting Open RAN solutions, and the FCC should not mandate the use of Open RAN solutions for U.S. providers engaging in the Rip and Replace Fund or any future FCC operated funds focusing on ICT network buildout.[8]

II. AS OPEN-RAN TECHNOLOGIES DEVELOP, IT IS CRITICAL TO ENSURE THAT THESE NEW SOLUTIONS CAN SECURELY INTEGRATE INTO EXISTING NETWORKS.

TIA is excited for the promise Open RAN solutions offer for the ICT industry's future, however integrating Open RAN into existing networks will require a careful approach. As TIA stated in its comments, Open RAN vendors and other ICT vendors would benefit from adopting ICT standards aimed at addressing supply chain risk.[9] The FCC, working with industry experts, can help play a role in ensuring Open RAN solutions are deployed in a secure manner. To that end, we agree with commenters that support extending the scope of the working group on 5G security of the upcoming Communications Security, Reliability and Interoperability Council to include a review of Open RAN security.[10]

As is true with any new ICT technology that is being introduced to the network, it is important that care is taken to assure that existing networks can operate seamlessly and securely with networks utilizing new technologies. These challenges associated with open source technologies are not unique to Open RAN technologies.[11] As has been discussed on the record, Open RAN solutions are in developing stages and will necessitate increased reliance on system

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[7] *See* Ericsson Comments at p. 11 (discussing how past advancements in openness did not come about due to government requirements that suppliers employ a particular technology).
[8] *See e.g.,* Comments of Nokia at 14; Comments of Fujitsu at 11 (arguing for operators to "own" integration with a hands-on approach); Competitive Carriers Association ("CCA") Comments at p. 3; ORPC Comments at p. 39; US Chamber of Commerce Comments at pp. 2-3.
[9] TIA Comments at pp. 3-4.
[10] AT&T Comments at p. 13; CCA Comments at p. 5; Microsoft Comments at pp. 17-18, 22; Palo Alto Networks at p. 2.
[11] *See* ITI Comments at p. 7; ORPC Comments at pp. 29-30.

integrators or other entities performing similar functions to ensure integration to existing networks is successful.[12]

In addition to specific actions the FCC can do to facilitate the development of Open-RAN technologies, it is important to keep in mind what industry can do, both on their own and through public-private partnerships, to ensure a smooth Open-RAN deployment. As a standards development organization, TIA agrees with many commenters who said that standards will play a critical role in securely integrating Open RAN technologies into existing networks.[13] While industry remains in the best place to lead the development of standards for the ICT industry, government stakeholders are in a position where they can help reduce burdens on companies that work on these critical standards, for example, by extending tax credits and/or grants to companies to defray the costs of participation in ICT standards development.[14]

Outside of standards setting programs, TIA strongly agrees with commenters that urge industry to adopt a certification program for Open RAN. We agree with Microsoft that an industry certification program for Open RAN where every component provider gets certified to assure the interoperability and security of the new network would be a significant milestone.[15] Similarly, we agree with Nokia's comments that the publication of standards, for example, technical specifications from the O-RAN Alliance that demonstrates the adoption of Open RAN

[12] *See* CommScope Comments at pp. 7-8 (discussing system integration as a key factor for Open RAN deployment and the need for an increased number of neutral system integrators); Ericsson Comments at pp. 22-23 (citing the importance of time and costs for system integrators when it comes to Open RAN technologies); Qualcomm Comments at p. 5 (discussing the need for system integrators for Open RAN technologies).
[13] Nokia Comments at p. 10; Qualcomm Comments at p. 12 (further support for development of specifications is needed to facilitate Open RAN deployment); Fujitsu Comments at p.7 (noting the importance of alignment of industry standards for participating vendors); Juniper Comments at pp. 8-9 (Underrepresentation of U.S. interests in standard-setting organizations is impeding Open RAN development).
[14] AT&T Comments at p. 15; Ericsson Comments at pp. 4, 34; Mavenir Comments at pp. 11-12.
[15] Microsoft Comments at p. 23.

solutions can be done in a secure and interoperable manner, will be a major factor in increasing demand for Open RAN solutions.[16]

III. WHEN DEVELOPING INCENTIVES FOR OPEN-RAN DEVELOPMENT, IT IS CRITICAL TO ADOPT POLICIES THAT RECOGNIZE THE GLOBAL NATURE OF THE ICT MARKET.

As many commenters in this docket stated, the ICT sector is a deeply global industry, and the U.S. is strongest when it works hand-in-hand with global partners and allies, including vendors from these countries. Any action in this docket should follow this path. We agree with commenters that U.S. policy should not focus narrowly on U.S.-headquartered companies or the U.S. market alone.[17] Rather, it should promote a varied, competitive group of suppliers including both companies based in the U.S. and global, trusted vendors.

A multinational vendor base of trusted suppliers will have the capacity to service both the U.S. and international markets,[18] and as other commenters have noted, the campaign against state-affiliated, high-risk vendors is most effective when done in concert with U.S. partners in Europe and Asia.[19] One of the stated policy goals of promoting Open RAN technologies is to decrease the market share that high-risk vendors currently enjoy globally, even though the majority of them have been barred from U.S. networks. We agree with commenters that the FCC and the U.S. government should continue to work with allies, partners and other like-

[16] Nokia comments at p. 10; Fujitsu Comments at p. 7 (discussing the O-RAN Alliance's security design practice).
[17] *See e.g.,* Fujitsu Comments at 2 (discussing companies who are headquartered in trusted and allied companies that comply with Code of Conduct policies and accepted global business standards); AT&T Comments at 16, CTIA Comments at pp. 2, 13-14; Ericsson Comments at pp. 5, 8; ITI Comments at p. 10.
[18] AT&T Comments at p. 16; CTIA Comments at pp. 2, 13-14; DISH Comments at p. 4; Ericsson Comments at pp. 5, 8; ITI Comments at p. 10; ORPC Comments at p. 35; Fujitsu comments at p. 12-13;Samsung Comments at p. 5; U.S. Chamber of Commerce Comments at p. 5.
[19] *See* Juniper Comments at p. 11; Microsoft Comments at pp. 22-23 (Fragmented markets impede the success of American and allied technology providers abroad and undermine efforts to compete with high-risk vendors).

minded countries that embody our shared values such as free trade and open markets, leveraging partnerships like the Quad, the G7, and the Prague Proposals.[20]

IV. THE FCC SHOULD BE COGNIZANT OF THE PUSH BY POTENTIALLY HIGH-RISK ACTORS TO PROVIDE OPEN-RAN SOLUTIONS.

TIA believes that the disaggregated nature of Open RAN will facilitate market entry by additional vendors and subsequently could increase the number of vendors in the ICT supply chain from nations with weak rule of law protections and histories of IP theft. In particular, TIA wants to focus the FCC's attention on specific efforts and participation by potentially high-risk actors in the Open RAN supply chain in order to provide solutions-oriented guidance on how the Commission might be able to mitigate possible risks.

TIA notes that Chinese government officials have stated support for Open RAN, asserting that it expands opportunities for Chinese firms. Yang Jian, Vice President of the state-affiliated Shanghai Institutes for International Studies, pointed to Open RAN as a "much better than the alternative of the U.S. State Department's hegemonic act of undermining multilateralism and market rules" and called it the "digital non-aligned movement" and a "new era of digital governance."[21] China's major state-owned mobile carriers are substantially involved in the development of Open RAN technologies[22], and Chinese firms such as Baicells and Comba Telecommunications are already actively participating in Open RAN RFIs around the world (the

[20] AT&T Comments at p. 16; CTIA Comments at pp. 13-14; Dell Comments at pp. 9-10; Microsoft Comments at pp. 22-26; NEC Comments at p. 5; NTT Comments at pp. 11-12; ORPC Comments at pp. 35-36.

[21] Yang Jian , (杨剑), Damg Quan Qiu Shu Zi Sheng Tai Zao Yu Ba Quan Zheng Zhi: 5G Shi Chang Tan Pan Zhong De Hua Wei Chong Tu (当全球数字生态遭遇霸权政治： 5 G 市场谈判中的'华为冲突') [When the Global Digital Environment Encounters Hegemonic Politics: The "Huawei Conflict" in the 5G Market Negotiation], Tai Ping Yang Xue Bao (太平洋学报) [Pacific Journal], Q1 2021, Number 21-34 页

[22] RWR Advisory Group, "Chinese Companies Active in the Architecture of OpenRAN" (April 1, 2021) (*available at* https://www.rwradvisory.com/wp-content/uploads/2021/04/RWR_ORAN_Report_4-2021.pdf).

two companies were highlighted as "frontrunners" in Vodafone's Open RAN hardware RFI).[23] Although Huawei does not currently publicly discuss participation in Open RAN, ZTE is very involved and in February of 2019 signed an MOU with State-Owned China Mobile Research Institute to jointly "research and develop the architecture, interfaces, and use case scenarios of intelligent RAN under the O-RAN framework."[24] In an Open RAN network environment, these companies will face fewer barriers to competing with established trusted vendors, including in the United States.

As these new vendors enter the market, it is important to note that there is no specific, public methodology for identifying and excluding new, potentially untrusted vendors. As written, the FCC's approach of having the Public Safety and Homeland Security Bureau ("PSHSB") is primarily a post-facto as opposed to a prophylactic system, designating specific entities as issues become known to the PSHSB.[25] In a network architecture with only a few vendors, this is a straightforward task. In an Open RAN paradigm with a larger number of suppliers providing equipment and software, this may be more complex. Without widely used industry standards to provide further transparency, the PSHSB may require additional resources in order to effectively investigate and designate additional entities to the extent the need arises.

Internationally, the Prague Proposals, EU Toolbox for 5G Security, and the CSIS Criteria for Security and Trust in Telecommunications Networks and Services all provide useful

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[23] Linda Hardesty, *Vodafone names top radio companies in its open RAN RFI*, Fierce Wireless (Oct. 8, 2020, 3:45 PM), (*available at* https://www.fiercewireless.com/wireless/vodafone-names-top-radio-companies-its-open-ran-rfi).
[24] ZTE, *ZTE and China Mobile Research Institute Sign the MoU on Operator Defined Next-generation Intelligent RAN (O-RAN)*, (February 26, 2019) (*available at* https://www.zte.com.cn/global/about/news/20190226e5).
[25] *Protecting Against National Security Threats to the Communications Supply Chain Through FCC Programs*, Report and Order, Further Notice of Proposed Rulemaking, WC Docket No. 18-89, FCC 19-121 at 11449 (rel. Nov. 26, 2019).

statements of principle for nations considering risks in the context of their telecommunications networks and are supported by industry. However, these global frameworks are primarily statements of principle and do not constitute specific, measurable standards for vendor trustworthiness. This is a topic that the Europeans have continued to raise including in their call in a December communique to the incoming Biden administration for "wider cooperation on digital supply chain security done through objective risk-based assessments."[26] TIA's SCS 9001 standard, which we discussed in our previous comments, may help bridge this gap, taking these qualitative criteria and making them measurable and third-party certifiable by requiring disclosure and transparency regarding factors related to external interference, commercial practices, and control.

[26] The European Commission, JOINT COMMUNICATION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL AND THE COUNCIL: A new EU-US agenda for global change (Dec. 2, 2020) (*available at* https://ec.europa.eu/info/sites/info/files/joint-communication-eu-us-agenda_en.pdf).

V. CONCLUSION

Open RAN is a natural evolution in network technology, and it has the potential to drive benefits for consumers, network operators, and the environment in the long term. A deliberative, technology-neutral, and network secure approach will ensure that the promise of this technology can be fully realized. TIA looks forward to working with the FCC to help make this happen.

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