

Before the
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
Washington, DC 20230

In the Matter of)	
)	
Request for Public Comment on Advancement)	Docket No. NTIA-2024-0001
Of 6G Telecommunications Technology)	

**COMMENTS OF THE
TELECOMMUNICATIONS INDUSTRY ASSOCIATION**

The Telecommunications Industry Association (“TIA”) appreciates the opportunity to provide input regarding the National Telecommunications and Information Administration (“NTIA”) request for comment on the Advancement of 6G Telecommunications Technology (“RFC”). TIA is a U.S.-based trade association representing more than 400 trusted global telecommunications equipment and services manufacturers. From fiber optic systems on the ground to wireless in the air to satellites in orbit – TIA members design, produce, market, and manage the information communications technology (“ICT”) equipment and services that connect Americans across the nation with high-speed broadband networks. TIA is also a standards-developing organization with a long history of developing technical standards that allow ICT equipment and networks to operate efficiently and effectively. As such, TIA and our members appreciate NTIA’s efforts to solicit input from industry government policies that will affect the next-generation networks built by TIA members.

As a threshold matter, TIA understands that this RFC is “not focused on spectrum issues surrounding 6G.”¹ TIA believes that no conversation on the future of 6G can occur without

¹ See Request for Comment NTIA-2024-0001, *the Advancement of 6G Telecommunications Technology* (May 23, 2024).

recognizing that for 6G to succeed, the U.S. government must work with interested stakeholders to ensure that viable commercial spectrum will be made available for new and innovative wireless operations in a manner that also allows national security, public safety, and scientific incumbents sufficient spectrum to serve these critical interests. TIA and our members look forward to working with NTIA's Office of Spectrum Management and the Federal Communications Commission to implement the 2023 National Spectrum Strategy and with the Administration and Congress to restore the FCC's spectrum auction authority.

That said, TIA appreciates the critical questions NTIA raises in the RFC. Given our work as a standards-developing organization, TIA will focus on questions raised in the *6G and Beyond Research and Development* section, as NTIA and U.S. Government stakeholders have an essential role in promoting harmonized policies for trusted 6G development.

- 1. What areas of foundational research will accelerate 6G and beyond technology development? What advances in related technologies, such as artificial intelligence, machine learning, satellite communication, energy storage and transmission, semiconductor fabrication, etc., will be essential for successful development and deployment of 6G technologies and those for subsequent generations? Do developments in these or other emerging technologies such as quantum computing have the potential to substantially change the basic functionality or evolution of 6G or subsequent generations?***

Like the ongoing NTIA effort to fund innovative uses for Open-RAN technology in the Public Wireless Supply Chain Innovation Fund, TIA supports ongoing Department of Commerce efforts led by NIST focused on researching and developing emerging technology that allows the ICT sector to evolve, such as quantum computing and Post Quantum Cryptography. TIA supports the U.S. government in working with industry to ensure these technologies are developed on a foundation of robust, global technical standards to ensure the ICT industry can utilize

innovations and prevent the misuse of technologies such as quantum computer cryptography, as 6G networks are developed and deployed.

Additionally, 6G networks will require a continued focus from the U.S. government to ensure that the U.S. retains a prominent role in semiconductor production. Passage of the CHIPS Act² and incentivization of U.S. semiconductor fabrication plants is necessary to retain this role. That said, TIA urges NTIA and the administration to consider additional incentives for semiconductor design, as proposed in the Semiconductor Advancement and Research Act, which could further incentivize U.S. leadership in semiconductor design and production.³

4. What standards development organizations, industry consortia, and stakeholder groups have taken up important topics related to 6G? Conversely, are there industries, stakeholders, or other groups whose perspectives are necessary to help ensure that 6G research is interdisciplinary and extends across all necessary industry sectors?

TIA appreciates the government's desire to understand the landscape of relevant stakeholders involved with 6G and related technologies. Other commenters will no doubt provide their perspectives on the identities of appropriate stakeholders, likely emphasizing the technologies with which they are involved. Our comments will avoid reduplicating their work.

Instead, we share our perspective more broadly on how the development of 6G technology will impact the standardization efforts. TIA's perspective is that any exercise to compile a list of relevant organizations or stakeholders should be written in pencil, not pen. Standards-developing organizations and the technologies that they support are constantly evolving. An SDO relevant in 4G may not be relevant in 5G, and a forum that led in 5G may not be relevant in 6G. Participants may find that a particular organization does not serve its needs, and the focus of relevant work may shift elsewhere. This is a feature and not a bug of a de-

² CHIPS And Science Act, Pub. L. 117-167 (Aug. 9, 2022).

³ Semiconductor Technology Advancement and Research Act (118th) (*available at https://blakemoore.house.gov/imo/media/doc/star_act.pdf*)

centralized, private-sector-driven, market-responsive approach to standards, and a snapshot of the relevant SDOs or consortia are at may not be telling of who is ultimately the most relevant.

This is particularly true for 6G, where the commercially viable end uses are not yet clear. For instance, while technology like VR/AR currently seems a compelling use case for 6G, time, innovation, and the expression of consumer preferences may ultimately result in new technologies and associated SDO forums becoming more relevant. NTIA can more effectively track and engage with developing 6G technologies by remaining nimble and non-doctrinal about the involvement of various stakeholders. By maintaining this level of flexibility, the U.S. government can work with the ICT industry and allies to ensure technical standards are developed in the most effective forum for contributing to 6G.

6. What roadmaps for development, standardization, and rollout currently exist? To what extent, if any, do these roadmaps conflict with each other, and how will these conflicts be reconciled?

The rollout of 6G networks will be a global effort, and the U.S. will need to work closely with our trusted partners to ensure a harmonized approach to 6G deployment. TIA has worked closely with the Administration in promoting trusted ICT vendors and supports the White House’s efforts to work with our allies to ensure 6G is developed in an “interoperable, reliable, resilient, and secure” manner.⁴ TIA appreciates the administration’s focus on incentivizing collaboration with our trusted partners within the global supply chain and urges the administration to continue adopting policies that align with existing roadmaps that build on shared, global principles.⁵ In working with these like-minded partners, TIA urges the U.S.

⁴ White House, Joint Statement Endorsing Principles for 6G: Secure, Open, and Resilient by Design (Feb. 26, 2024) (available at <https://www.whitehouse.gov/briefing-room/statements-releases/2024/02/26/joint-statement-endorsing-principles-for-6g-secure-open-and-resilient-by-design/>).

⁵ See eg. EU-US Beyond 5G/6G Roadmap, ATIS and 6GSNS, (available at <https://6g-ia.eu/wp-content/uploads/2024/01/eu-us-aligned-6g-roadmap-joint-paper.pdf?x44222>).

government to partner with the ICT industry to advocate for a harmonized, global technical standard for 6G created through an existing standardization body. This would allow the ICT industry to innovate on 6G development without being hampered by a patchwork of differing country-specific variations of the global standard.

For the U.S. to lead in these discussions, it is essential to adopt domestic policies that incentivize U.S. and stakeholders' participation in standards-setting forums. TIA believes more work can be done to incentivize U.S. participation in standardization efforts abroad and has been advocating for the passage of Congress's Promoting United States Leadership in Standards Act of 2024. For the U.S. to be a leader in 6G, it must actively promote and fund domestic projects that contribute to 6G's development. U.S. stakeholders should be prepared to match our allies' investment in 6G research and test beds. TIA again cites NTIA's existing work on the Public Wireless Supply Chain Innovation Fund as a model that should be replicated in the future.

7. What can the U.S. Government do to more effectively to engage on 6G standards development through IMT-2030?

The framing of this question raises questions for the industry, given its reference to the IMT-2030 process, which goes through ITU-R. Because ITU-R's involvement in this process is comparatively limited and technical in scope, TIA has no substantive comments related to IMT-2030 beyond ensuring that the U.S. remains an active and involved participant at the ITU.

However, TIA takes this opportunity to discuss actions the U.S. government could take to lead in the development of 6G standards more effectively:

- *Maintaining legal clarity regarding U.S. participation in standards activities:* When the U.S. Bureau of Industry and Security ("BIS") initially added Huawei to the Entity List and effectively expanded the scope of the Export Administration Regulations to include standards development, it had a ripple effect that led a significant number of U.S. entities to withdraw from some standardization activities where Huawei or ZTE were

participants, leaving the leadership in such standards-setting bodies to those companies and contributors who were not bound by the BIS regulations rather than U.S. entities. This was primarily subsequently corrected with further guidance from BIS two years later.⁶ Nevertheless, some political stakeholders have suggested removing these license exemptions.⁷ Accordingly, TIA believes that removing these exemptions and restoring this harmful policy would significantly damage the U.S.'s ability to influence global standards for 6G and give entities on the Entity List a significant advantage in influencing and even leading in developing a wide range of standards.

- *Move forward with grant programs to support U.S. 6G standards development:* The matter of providing targeted incentives to organizations to increase U.S. engagement has been discussed for several years going back to the National Strategy to Secure 5G Implementation Plan, which in 2021 called for the U.S. government to "develop options, such as grants, tax incentive, or other actions to incentivize increased United States private sector and academia engagement in standards development."⁸ Congress established a capacity-building pilot program at NIST in Section 10245(d) of the CHIPS and Science Act to support standards participation by "private sector entities, institutions of higher education, or non-profit institutions based in the United States."⁹ However, funding challenges and competing priorities have led to incomplete implementation. NTIA should partner with NIST to implement this program, focusing on 6G, and supplemented funding for these organizations should not be ignored. In addition to directed funding, NTIA should recognize the normal incentives the private sector has for contributing their best ideas on implementing a 6G standard as it is developed. These natural incentives to the private sector-led standards activities in the U.S. can continue to strengthen U.S. and friendly contributions to the developing 6G technology ecosystem and help keep the U.S. in a leadership role for 6G.
- *Support hosting 6G-related standards meetings in the U.S.:* Hosting meetings in the U.S. decreases costs for U.S. companies participating in standards development and has network effects in terms of stimulating the development of next-generation connectivity technologies. NTIA should consider partnerships and various mechanisms with other agencies to provide financial support to organizations hosting standards development meetings in the U.S.¹⁰
- *Make it easier for standards participants to receive U.S. visas:* Long wait times to obtain U.S. visas have made it exceedingly difficult to convince global stakeholders to host meetings in the U. S. NTIA should work with the State Department to establish priority

⁶ See [89 FR 58265](#) and [87 FR 55241](#).

⁷ See Thomas F. Gilman, "The Department of Commerce," https://static.project2025.org/2025_MandateForLeadership_CHAPTER-21.pdf .

⁸ NTIA, National Strategy to Secure 5G Implementation Plan (Jan. 19, 2021) (available at <https://www.ntia.gov/other-publication/national-strategy-secure-5g-implementation-plan>).

⁹ CHIPS and Science Act, Section 10245(d)

¹⁰ See, for example, the grant program proposed by Senators Warner and Blackburn: <https://www.warner.senate.gov/public/index.cfm/2024/2/warner-blackburn-introduce-legislation-to-reestablish-u-s-leadership-in-international-standards-setting-for-emerging-tech>

access lanes that enable standards participants to travel to the U.S., making global forums more likely to host meetings here.

- *Provide financial and other support to the “Global Standards Collaboration” initiative:* Formal and informal relationships between global telecommunications SDOs support the development of international technology standards. For the telecommunications industry, an inter-SDO group known as "Global Standards Collaboration" meets regularly and includes 11 global SDOs, including TIA. The U.S. has not hosted a meeting of this group for several years due to a combination of the pandemic and financial constraints at U.S. SDOs. Providing financial and other support to restart this initiative with an event in the U.S. would support America’s position in 6G.

For additional perspectives, we recommend that NTIA review the record left by industry stakeholders pursuant to NIST’s Request for Comment on the USG National Strategy for Critical and Emerging Technology.¹¹

8. When is 6G technology expected to begin lab and field trials and then become commercially available? What developments in 6G technology could accelerate replacement of obsolete technologies?

The timeline for the development, standardization, and deployment of 6G is not yet clear. Preliminary estimates from companies or organizations should be taken with a grain of salt because the industry is early on in the process, and the contours and use cases of the technology itself have not been firmly established. That said, some SDOs have given timelines that NTIA should be aware of. For instance, the Third Generation Partnership Project (“3GPP”) is working on potential 6G standardization by the end of 2028.

Before USG moves beyond current “obsolete” technologies, network operators must first make further progress in deploying 5G networks. The successful deployment of 6G will

¹¹Comments from industry, including TIA, available at <https://www.regulations.gov/docket/NIST-2023-0005>

fundamentally rely on the successful deployment of 5G and 5G advanced, which needs strong business models and use cases to thrive and ensure a smooth transition to 6G.

Finally, while the technical standards that will empower 6G networks are still being written, it is important to understand the public safety functions that must operate seamlessly between existing and Next Generation 9-1-1 (“NG911”) networks. As these NG911 standards are developed, 6G implementation must be interoperable to adhere to existing NG911 interfaces and avoid any negative impact on NG911 deployment and operations.

TIA appreciates the opportunity to respond to this RFC, and as always, we appreciate NTIA and its staff’s hard work to ensure that Americans are connected by secure, next-generation networks. TIA and our members look forward to continuing to work with NTIA to ensure U.S. leadership in the research and development of 6G technologies and beyond.

Signed,

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