

August 21, 2024

National Telecommunications and Information Administration
Department of Commerce
Herbert C. Hoover Building
1401 Constitution Ave. NW
Washington, District of Columbia 20230

RE: Comments of ACT | The App Association to the National Telecommunications and Information Administration on *Advancement of 6G Telecommunications Technology* (NTIA-2024-0001)

ACT | The App Association appreciates the opportunity to provide comments to the United States Department of Commerce's National Telecommunications and Information Administration (NTIA) to inform the advancement of 6G telecommunications technology.¹ We support NTIA's commitment to supporting "dynamic connectivity across public and private digital and physical domains that enables intelligent communications while creating conditions for economic growth, enhanced national security, and societal well-being."² The App Association supports coordinated federal policy changes to enable next generation, including 6G, innovations in America, and agree that such a priority is necessary to U.S. economic and national security.

The App Association is a policy trade association for the small business technology developer community. Our members are entrepreneurs, innovators, and independent developers within the global app ecosystem that engage with verticals across every industry. We work with and for our members to promote a policy environment that rewards and inspires innovation while providing resources that help them raise capital, create jobs, and continue to build incredible technology. Across consumer and enterprise verticals, App Association members build and leverage standards to innovate and compete and rely on a balanced and reliable standards and patent ecosystem. The value of the ecosystem the App Association represents—which we call the app ecosystem—is approximately \$1.8 trillion and is responsible for 6.1 million American jobs, while serving as a key driver of the \$8 trillion internet of things (IoT) revolution.³

Key 6G use cases App Association members are contributing to include, but are not limited to:

- **Precision Agriculture:** Today, high-precision automated tractor control delivers accuracy to within a few centimeters. This accuracy reduces unnecessary waste of critical resources, including water, seed, and fertilizer. High-speed connectivity, such as satellite-based broadband, licensed terrestrial service or low-band unlicensed airwaves, could enable the high-rate data transfer needed to better leverage centimeter-level accurate information in Precision Farming.

¹ 89 FR 45648.

² Supra note 1.

³ ACT | The App Association, State of the App Economy (2022), <https://actonline.org/wp-content/uploads/APP-Economy-Report-FINAL.pdf>.

- **Smart Cities:** Local officials leverage a variety of data-hungry applications including traffic management and waste disposal. Even trash can become “smart”—with the addition of sensors and connectivity—by relaying pickup route updates, which trash cans are full, and other useful information in real-time. Increasingly, cities are drawing on IoT capabilities to efficiently route vehicles, which in turn will save cities time and money, while increasing efficiency.
- **Smart Grids:** High-speed connectivity ensures the synchronization of smart grid infrastructure critical to communities nationwide. 6G will enhance this synchronization by making it faster and more fail-safe.
- **Augmented and Autonomous Vehicles:** 6G connectivity combined with other technologies will complement embedded sensors to enable vehicles to determine their precise location, identifying not just what lane a vehicle is in, but where in the lane it is located.
- **Public Safety:** First responders use connectivity in dispatch and monitoring (e.g., of ambulances to respond to 911 calls). In the context of public safety, advanced 6G capabilities are likely to serve as vital solutions for locating wireless calls made to 911 and for coordinating public safety responses reliably.
- **Accessibility:** New technologies have already brought untold benefits to people with conditions that make day-to-day activities challenging. As 6G is deployed, additional accessibility will be available to the blind and visually impaired, for example, as well as those with limited mobility, hearing impairments, and in virtually any other circumstance where high-speed connectivity and precision matter.

App Association economic analysis shows that deployment of next generation wireless networks will create 8.5 million jobs in the United States over the coming years, enabling improvements in economic productivity, employment, and consumer value.⁴ 6G will affect the labor market through direct and indirect means; while the additional labor required to build out the network to deploy next generation will certainly create the most immediate demand for new jobs, the broadest impact on the labor market comes from new employment opportunities through the way access to 6G will enable new applications, services, ways of doing business, and general growth of businesses. Workers enabled by this will earn more than \$560 billion during that time, create \$1.7 trillion in additional output, and add over \$900 billion to U.S. gross domestic product (GDP).⁵

The App Association continues to support coordinated federal efforts to bring next generation connectivity capabilities to Americans. The small business tech developer community we represent is committed to advancing an equitable digital ecosystem that provides the opportunities for entrepreneurship for, and enhanced access to, America’s underserved communities.

⁴ James Prieger, “An Economic Analysis of 5G Wireless Deployment: Impact on U.S. and Local Economies” (Feb. 2020), *available at* <https://ecfsapi.fcc.gov/file/10417521421416/ACT%20Ex%20Parte%20Notice%20re%205G%20Economic%20Analysis%202020.pdf>.

⁵ *Id.*

I. **ACT | The App Association Response to Questions Posed in Request for Comment**

- a. **What existing or future policies should the U.S. Government promote to support 6G development beyond spectrum use? What existing or future U.S. Government policies or initiatives could potentially stifle 6G development and deployment, or harm the ability of companies in the U.S. or its like-minded partners to compete in international markets? (Question #2)**

Infrastructure: The future of the app economy depends on the strength and density of America’s wireless and wired backhaul networks. As noted above, the deployment of 6G has the potential to add three million new jobs and \$501 billion in economic growth, as well as contribute at least \$200 billion to the app economy and network-supported industries. Moreover, 6G can provide fixed wireless service—which would compete directly with the traditional means of home internet access most consumers use now. While broadband supports a majority of Americans who own a smartphone, and tens of billions internet of things (IoT) devices depend on internet connectivity, legacy telecommunications infrastructure will not be sufficient to manage this burgeoning network traffic. 6G capabilities will require both enhancing existing, and building new, physical infrastructure (both small cell and macro cell deployment) across the country, particularly for underserved communities. NTIA, along with the Federal Communications Commission (FCC) and other agencies, must take action to remove these barriers to support greater 6G deployment in a way that serves both rural and urban communities equitably. Needed policy updates include ensuring that states and localities facilitate 6G deployment without undue delay; further, NTIA should work with Congress to include 6G deployment incentives in relevant infrastructure legislation.

Security: Security must also be a core component of any 6G policy. For years, communications networks have depended on advanced communications capabilities for key functions like synchronization, including global fiber networks and global wireless networks. Intentionally blocking, jamming, or otherwise interfering with any radio service can disrupt these vital services and communications networks, including future 6G services. The App Association therefore support efforts by the NTIA, in coordination with the FCC and other government agencies, to investigate and take the necessary enforcement action to preserve the security of 6G communications in partnership with the private sector.

Trade Policies to Support a 6G Future: Realizing a 6G future will require harmonized approaches across U.S. trading partners to support App Association members’ export of 6G innovations. The App Association remains concerned with the Administration’s imposition of, and proposals to maintain, tariffs on IoT technologies that will be critical to realizing a 6G-enabled future, including the Administration’s proposal to increase duties on lithium-ion non-electrical vehicle batteries. Given that the U.S. Trade Representative has acknowledged that its use of tariffs have not produced an improved approach in trading partners with respect to its policies that harm U.S. trade and innovation; and that such policies have had a demonstrable negative impact on the U.S.’ economic welfare and real incomes;⁶⁷ and the U.S. International Trade

⁶ 89 Fed. Reg. 46252.

⁷ U.S. Trade Representative, *Four-Year Review of Actions Taken in Section 301 Investigation: China’s Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation* (May 14, 2024), available at

Commission has further indicated that the U.S.' approach to tariffs has raised prices on covered goods, contributing to inflation⁸ – all policies and impacts that undermine NTIA's stated 6G goals – we call on NTIA, in coordination with the Administration, to shift away from imposing tariffs on IoT technologies.

As a prime example, lithium-ion non-electrical vehicle batteries are an important part of the supply chain for a wide array of IoT products. Through these devices, countless consumer and enterprise customers access our members' innovations. The proposed additional tariff of up to 25 percent on key components would increase the price of this equipment, reduce our members' ability to reach American consumers and enterprise customers, and ultimately inhibiting our members' ability to invest, innovate, and create more American jobs. The App Association is concerned that an additional tariff of up to 25 percent on batteries essential to the manufacture of ICT products will make them unaffordable to average U.S. families. A decrease in ICT sales would mean less demand for the software apps developed and sold by our thousands of small business members. Their apps, which provide cutting-edge innovations across consumer and enterprise use cases, are used and accessed extensively via ICTs. A vibrant ICT market is therefore critical to our members' ability to provide good jobs, create new content, and continue to position the U.S. as a leader in the technology economy. The App Association therefore respectfully requests that USTR prevent injury to our small business members by removing the Harmonized Tariff Schedule subheadings 8507.60.0020 from the final tariff list.

We urge the Administration to broadly reconsider its approach to tariffs as a means of addressing harmful policies adopted by trading partners that impact U.S. small business innovators and their supply chains (and the supply chains they are vital parts of).

Standards and Standard Essential Patent Licensing: For the App Association's innovative developers, leveraging standardized 6G solutions will require their ability to participate in the development of, and leverage as needed, those standardized solutions. NTIA should therefore support the development of a national standard-essential patent (SEP) policy statement that provides U.S. stakeholders with the transparency, reliability, and clarity to participate in and leverage international technical standards, including 6G, in their technologies; further, relevant enforcement agencies should act consistent with that policy.

Efforts to advance U.S. leadership in 6G-based technologies cannot be effective when U.S. laws and policies work against the standards system by not recognizing demonstrated bottlenecks to standards participation and use. The largest and most well-known barrier to the use of international standards is SEP licensing abuse perpetrated by SEP holders that seek to maximize licensing profits by pursuing unreasonable and, often, discriminatory royalty rates from technology developers that need to use the standard. This abuse is carried out by some SEP holders who, despite offering to license their SEPs on fair, reasonable, and non-discriminatory (FRAND) terms in exchange for their patents' inclusion in standards, abuse their inherent market power gained through standardization to demand excessive royalties, threaten market exclusion through injunctions or exclusion orders, or otherwise exclude potential licensees, holding up standards-based innovation for critical U.S.-based markets. SEP licensing abuse is a significant threat to the success of national standard efforts, including the

<https://ustr.gov/sites/default/files/USTR%20Report%20Four%20Year%20Review%20of%20China%20Tech%20Transfer%20Section%20301.pdf>.

⁸ U.S. International Trade Commission, *Economic Impact of Section 232 and 301 Tariffs on U.S. Industries* (Mar 2023), available at <https://www.usitc.gov/publications/332/pub5405.pdf>.

implementation of the United States Government National Standards Strategy for Critical and Emerging Technology (USG NSSCET). In a study by Charles River Associates (CRA) asking a sample of U.S. businesses about the current SEP landscape, 73 percent of respondents stated that they would support government intervention to ensure that SEPs are being licensed on FRAND terms.⁹

In 2022, the United States Patent and Trademark Office (USPTO), the National Institute of Standards and Technology (NIST), and the Department of Justice (DOJ) withdrew their well-balanced 2021 draft SEP Policy Statement. This decision left a policy vacuum where the government had addressed SEP licensing abuses as being a bottleneck for innovation. Therefore, we believe that the reinstatement of a national SEP Policy Statement will help guide standard-setting organization (SSO) intellectual property rights (IPR) and patent policies on principles that the United States considers to be FRAND and allow the country to inform stakeholders about U.S. policies and legal mechanisms in place in the case that two licensing parties are unable to conclude a fair negotiation. A national SEP Policy Statement provides standardized technology developers with more transparency to operate within the standard-setting process. A successful and strong national SEP Policy Statement should consider historical evidence of SEP licensing abuse. The App Association urges the Joint Agencies to reach out to us for assistance on this effort.

We believe that guidance on the anti-competitive implications of breaches of FRAND commitments can increase competition by reducing IP abuse and deterring unnecessary and burdensome litigation, supporting ingenuity in the market. Specifically, the App Association believes clarifications on the meaning of FRAND commitments are beneficial to both SEP holders and standard implementers as well as the consumers of technology. The negative effects of abusive licensing of SEPs can be particularly harmful to the App Association's members, which include thousands of small and medium-sized businesses (SMBs) that both hold SEPs and implement standards in their products. These SMBs often do not have the resources to deal with larger enterprises holding numerous SEPs. As a result, they face potential financially debilitating litigation with no predictable outcome or are forced to accept excessive royalty demands made by the SEP holders. In the worst case, the SMB may be forced to change their product, or abandon their business plan altogether, if they cannot afford the litigation or the supra-FRAND SEP licenses. Patent licensing abuses pose a major threat to any industry that relies on standards in its innovation cycle.

SEP licensing has a long history that has unveiled foundational principles that underlie the FRAND commitment to ensure a system that is competitive and beneficial to consumers. These principles have been identified in the CEN/CENELEC Workshop Agreement, *Core Principles and Approaches for Licensing of Standard Essential Patents* (CWA 95000), developed by a broad cross-section of companies operating in different industries.¹⁰ The CWA 95000 was established in response to growing problems of abuse of both standardization and SEP licensing now affecting a range of sectors and market segments. Therefore, we believe that the CWA 95000 is best positioned to inform the Agencies on how to establish an equitable SEP licensing ecosystem for both experienced and inexperienced SEP negotiators that promotes the goals and interests of

⁹ Buehler, Dr Benno and Zimmermann, Samuel, SEP Licensing in the United States: Understanding the impact on U.S. business: U.S. Business Survey (March 9, 2023), Charles River Associates, <https://media.crai.com/wp-content/uploads/2023/03/10163335/ACT-US-Business-Survey-Report-2023-03-09.pdf>.

¹⁰ See <https://www.cencenelec.eu/media/CEN-CENELEC/CWAs/ICT/cwa95000.pdf>.

industry, standardization and, ultimately, consumers.¹¹ In accordance with Section 5(d) of President Biden's July 9, 2021, Executive Order to avoid "the potential for anticompetitive extension of market power beyond the scope of granted patents, and to protect standard-setting processes from abuse"¹² and the U.S. National Standards Strategy on Critical and Emerging Technology (NSSCET)¹³ for American participation and leadership in international standards, a U.S. SEP Policy statement should include the following principles reflected in the CWA 95000:

1. **The FRAND Commitment Means All Can License** – A holder of a FRAND-committed SEP must license that SEP to all companies, organizations, and individuals who use or wish to use the standard on FRAND terms.
2. **Prohibitive Orders on FRAND-Committed SEPs Should Only Be Allowed in Rare Circumstances** – Prohibitive orders (federal district court injunctions and U.S. International Trade Commission exclusion orders) should not be sought by SEP holders or allowed for FRAND-committed SEPs except in rare circumstances where monetary remedies are not available.
3. **FRAND Royalties** – A reasonable rate for a valid, infringed, and enforceable FRAND-committed SEP should be based on the value of the actual patented invention itself, which is separate from purported value due to its inclusion in the standard, hypothetical uses downstream from the smallest saleable patent practicing unit, or other factors unrelated to invention's value.
4. **FRAND-committed SEPs Should Respect Patent Territoriality** – Patents are creatures of domestic law, and national courts should respect the jurisdiction of foreign patent laws to avoid overreach with respect to SEP remedies. Absent agreement by both parties, no court should impose global licensing terms on pain of a national injunction.
5. **The FRAND Commitment Prohibits Harmful Tying Practices** – While some licensees may wish to get broader licenses, a SEP holder that has made a FRAND commitment cannot require licensees to take or grant licenses to other patents not essential to the standard, invalid, unenforceable, and/or not infringed.
6. **The FRAND Commitment Follows the Transfer of a SEP** – As many jurisdictions have recognized, if a FRAND-committed SEP is transferred, the FRAND commitments follow the SEP in that and all subsequent transfers.

Due to excessive enforcement of prohibitive orders, the Agencies should also consider the 2013 Policy Statement as a foundation for a new multi-agency SEP policy statement. Specifically, the new statement should:

- Recognize that injunctions for FRAND-committed SEPs should be available under exceptional circumstances based on the standard set forth for injunctive relief in *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006) because in almost all, if not all, cases monetary compensation through damages at law is a sufficient remedy for infringement of such SEPs by users of the relevant standard, and that the nature of the FRAND commitment precludes irreparable harm.

¹¹ *Id.*

¹² E.O. 14036 of Jul 9, 2021.

¹³ United States Government National Standards Strategy on Critical and Emerging Technology (May 2023), <https://www.whitehouse.gov/wp-content/uploads/2023/05/US-Gov-National-Standards-Strategy-2023.pdf>.

- Recognize that injunctive relief has never been awarded for FRAND-committed SEPs under *eBay*.
- Clarify injunctions for FRAND-committed SEPs may be merited if at all only where the defendant is bankrupt, is beyond the jurisdiction of the U.S. courts, or a defendant refuses to pay a FRAND royalty awarded in a final judgment of a U.S. court. Absent these circumstances where damages at law are at least arguably insufficient, injunctive relief is used inappropriately to gain leverage in licensing negotiations that the SEP licensee has foresworn when making a FRAND licensing commitment.
- Clarify that exclusion orders issued by ITC on SEPs should also be rare because of their negative effects on competition. They should only issue under the public interest factors set forth in 19 U.S.C. § 1337(d)(1) if the defendant is not subject to the jurisdiction of a U.S. court that could award FRAND royalties for the use of a valid and infringed SEP. Otherwise, they are used to leverage a SEP owner's power in licensing negotiations beyond what is contemplated by the FRAND licensing commitment.
- Recognize the procompetitive benefits of the voluntary collaborative standard-setting activities, but that those benefits must be balanced against the anticompetitive risks associated with standard setting, including opportunities to assert SEPs to hold up users of standards who are locked into a specific standard.
- Clarify that the alleged SEP "hold-out" theory perpetuated by the previous Administration is almost always simply the outcome of negotiations where the licensee disagrees with the demands unilaterally set by the patentee. In those few cases where the licensee is acting maliciously and unreasonably, the courts can fully compensate a SEP holder for willful infringement as it would any patent holder, including by awarding interest to compensate the patentee for any delay in realizing payment for infringed patents.
- Reject the primacy of the goal of "efficiency" in licensing negotiations that favors monetizing SEP asserters and reject the privileging of dynamic competition from patents over other dynamic competitive harms.
- Clarify that like all patent owners, SEP owners bear the burden of proving their patents infringed and must withstand any validity or enforceability challenges before any entitlement to an injunction, exclusion order, or other remedies.
- Reject the previous Administration's erroneous assertion that SEP owners may recover lost profits for infringement of a FRAND-encumbered SEP.

b. What new challenges will arise from 6G regarding privacy, equity, and civil liberties? How can the U.S. Government ensure that the benefits of 6G technology extend to all segments of society? (Question #3)

Protection of consumers' data and trust is of the utmost importance to the small business community. Now more than ever, the small businesses and startup innovators we represent rely on a competitive, trustworthy, and secure ecosystem to reach millions of potential users across consumer and enterprise opportunities so they can grow their businesses and create new jobs. Today, the "tech sector" no longer exists as a separate, unique vertical. Rather, it has expanded and taken root as part of other industries, and in the process, it has been democratized into a startup economy that thrives across the nation, mostly outside of Silicon Valley. As cars begin to drive themselves and physicians adopt clinical decision tools that utilize artificial intelligence (AI), the United States is fast evolving into a "tech economy." Moreover, companies thought of

as tech heavyweights often have more in common with traditional economy players from a business model standpoint; the former just happens to use newer technologies and find ways to make them useful for people.

As regulators from across key markets abroad continue to rush to utilize approaches to regulation of the digital economy which are often heavy handed, the United States has remained the greatest market in the world for building a startup due to its evidence-based and light-touch approach to regulating new industries. Across the world, other governments struggle to incent and sustain the digital economy growth seen only in this country because companies elsewhere often face great barriers to bringing novel products and services to market, slowing technological innovations to the pace of government approval.

The American approach to privacy remains a work in progress, and the App Association agrees that the time for changes to the U.S. approach to privacy regulation has arrived. Federal sector-specific regulation of privacy, along with a patchwork of state-level laws and regulations, presents a challenging scenario for a small business innovator. The App Association is supportive of a new federal privacy framework that will clarify the obligations of our members and pre-empts the fractured state-by-state privacy compliance environment, and generally urges that the U.S. approach to privacy provide robust privacy protections that correspond to Americans' expectations, as well as leverage competition and innovation. We believe a comprehensive federal privacy legislation can address the issues raised by NTIA in the context of 6G. A federal law more intentionally focused on curbing privacy harms should empower consumers to exert more control over their sensitive personal information, including the rights to access, correction, and deletion of such information. Sensitive personal information should also be subject to some flexible limits on processing activities that pose too great a risk to consumers, especially in the context of businesses using personal data to discriminate based on nationality, race, gender, religion, or disability. As online risks continue to expand, federal privacy legislation could constitute an expansion of Americans' civil rights in the digital age.

As NTIA has already noted, substantive amounts of research have demonstrated that marginalized or underserved communities are at heightened risk of privacy violations and data loss or misuse. We agree with NTIA that all communities must be able to trust and safely access digital services, including in the context of 6G, to realize their full potential and increase adoption of beneficial digital services. Enabling all Americans to enjoy robust privacy protections will help to accomplish that goal and increase trust in the digital economy. Trust is the linchpin of App Association members' economic viability. Even as more and more of our member companies take advantage of opportunities in the enterprise space, trust is just as—if not more—important as it is for companies that serve consumers directly.

The App Association has provided its views on advanced technologies and privacy, equity, and civil liberties in separate comments to NTIA,¹⁴ which we incorporate in full as a response to this question.

- c. How should the U.S. Government cooperate with like-minded countries on enabling 6G success globally? Are there existing international initiatives on 6G that the U.S. Government should consider? Are U.S. companies and those of likeminded countries positioned to be global leaders in 6G development,**

¹⁴ See <https://www.regulations.gov/comment/NTIA-2023-0001-0051>.

standardization, adoption, and deployment? What other countries or regions represent the strongest challenges to U.S. leadership in 6G? What can the U.S. Government do to enable success of U.S. companies in the global 6G market? (Question #4)

The communities we represent and support are the U.S. startups and small businesses that are the driving force behind equitable economic growth, competition, innovation, and export of countless consumer and enterprise products and services. They make software, hardware, and internet of things (IoT) solutions and systems for agriculture, education, healthcare, manufacturing, public safety, and countless other examples. They employ tens of millions of Americans who live and work in communities in every state of the nation and are responsible for adding more than \$2.41 trillion to the American gross domestic product.

We encourage harmonization of pro-innovation policies and commitments across trading partners, which can and should be accomplished through both bilateral and multilateral agreements. The U.S. government's consistent support for policies that reduce artificial barriers to digital trade has long provided an important foundation for even the smallest American companies' competitiveness abroad. As the digital transition has continued and regulators abroad have increasingly sought to exclude American small business and startup innovators from their markets, this support has never been more important. Unlike larger companies, smaller businesses with few product or service lines usually cannot shoulder the superfluous costs of data localization, technology transfer, prohibitions on encryption, and arbitrary application of regulation to American firms.

We are therefore significantly concerned with the USTR's October 25, 2023, announcement in a press statement of its withdrawal of support for foundational digital trade policies, including with respect to enabling cross-border data flows, avoiding forced data localization mandates, protecting source code, and ensuring that digital products are not unduly discriminated against. Stepping away from the negotiating table weakens the global competitiveness of U.S. startups and small businesses and cedes leadership to countries like China that remain at the table, buoying anti-democratic and oppressive governance proposals and policies that directly contradict U.S. policies, including those just agreed to by the United States in the G7. The contradictory announcement also damages U.S. leadership and standing across multilateral policy fora like the WTO as well as in bilateral negotiations with important trading partners. The decision further sets a concerning precedent that may not end with digital trade priorities, including affecting enforcement of the United States-Mexico-Canada Agreement (USMCA) and creating a potential path for USTR's reversal on advancing American trade interests in other areas.

At this pivotal moment, it is vital that the Administration reassure the American small business community, trading partners, and others that its support for digital trade policies will continue. At minimum, the Administration should complete appropriate interagency processes and formally seek public input before initiating sweeping policy changes on digital trade.

We also call on NTIA, and the Administration, to champion open standardization approaches, such as the efforts of the O-RAN Alliance, which has developed an architecture for building the virtualized radio access network (RAN) on open hardware and cloud with embedded AI-powered radio control.¹⁵ O-RAN, and open standardization processes like it, stand to

¹⁵ <https://www.o-ran.org/>.

revolutionize America's communications networks by enabling network virtualization capabilities and removing vulnerabilities in the networks.¹⁶

In addition, NTIA should consider country-specific goals to invoke U.S. participation and leadership in international technical standards, like 6G, as we have detailed in our comments to the NIST.¹⁷ On a global level, jurisdictions that are new venues for SEP disputes are looking to countries with more developed and experienced SEP landscapes, including the European Union, United Kingdom, and the United States, to further improve their laws and policies around the issue. Jurisdictions with less disintegration in their SEP-related laws and policies are likely to be a greater influence on jurisdictions with an underdeveloped landscape for standards development and standard setting. Since the SEP landscape is global in nature, the United States should consider its influence on other jurisdictions as it develops a national approach to standards development and encouraging standards participation. For example, shortly after SEP disputes began to plague India, the Centre of Development of Telematics (C-DOT) was appointed to facilitate SEP negotiations,¹⁸ a pillar mechanism proposed under the EUIPO in the EU SEP Regulation.

d. What public-private partnerships would help enable U.S. leadership in global 6G development? (Question #7)

The United States has consistently followed a private sector-led standard development approach that allows private U.S. entities to participate and lead in international standards. Therefore, considering critical barriers along the standard-setting process is a significant opportunity for public-private partnership. Such barriers include information and resource asymmetries for small U.S. stakeholders, a lack of international standards activity held in the United States, and evidenced abuse in SEP licensing negotiations.

It is the App Association's view that the successful advancement of 6G telecommunications technology must consider visible barriers to stakeholder participation in international standard-setting processes, which may be addressed by the following strategies:

1. Increasing Participation in Standardization Activities: The United States should work with SSOs and private-sector groups to develop a pipeline and augment resources and tools to regularly provide U.S. stakeholders, including SMBs, with public information about standardization activities more quickly and efficiently. While larger companies may be more involved and educated about all stages of the standards-setting process, many small and medium-sized U.S. innovators face resource asymmetries that prevent them from being informed about important standardization activities, including in the standards development process. SMBs generally have a more difficult time tracking the standards process, including what standards are applicable to them. SMBs require direct outreach and educational opportunities from government and private-sector groups.

The App Association urges, in collaboration with the Joint Agencies, to create a database for CET standards that provides basic information regarding relevant SSOs, standards activities, and contributed SEPs. The goal of this database would be to ensure that U.S.

¹⁶ See, e.g., <https://www.fcc.gov/news-events/events/forum-5g-virtual-radio-access-networks>.

¹⁷ See <https://www.regulations.gov/comment/NIST-2023-0005-0106>.

¹⁸ See <https://telecom.economicstimes.indiatimes.com/news/industry/cdot-to-be-the-nodal-agency-for-telecom-ipsr/102087057>.

stakeholders, including SMBs, are more equipped to participate in standards development and make informed decisions in the SEP licensing process. We strongly encourage this database to be developed openly by seeking stakeholder input on how the system can be accessible to all stakeholders and improve further transparency in the SEP licensing process.

The App Association believes that a crucial part of this public database is allowing stakeholders access to base level information that a SEP licensor should provide to licensees, notwithstanding restrictive non-disclosure agreements (NDAs). We consider the following information to be “base level:”

- Information (e.g., patent list) to enable a licensee and entities within its supply chain to understand the SEPs being enforced;
- Detailed specification (e.g., claim charts) on the nature of the patent’s alleged infringement by the licensee’s technology, and ancillary information necessary for the licensee to assess claims of infringement, validity, and essentiality;
- FRAND licensing terms;
- Aspects of prior licensing history and any other information are needed to evaluate to offered and potential FRAND terms.

2. Providing SMB Support: Despite being important innovators in CET standards, SMBs face financial, bandwidth, and experience constraints, which prevent them from participating in the standards process. SMBs are stunted in the standardization process without further support from the U.S. government. The Joint Agencies should devise a plan to provide SMBs with greater support to alleviate resource barriers in this space. For example, the agencies should provide SMBs with free training and assistance programs that will significantly mitigate their disproportionate challenges in the standard-setting process. These programs will not only reduce noticeable barriers for SMBs, but also ensure that they are able to make informed decisions during a SEP licensing negotiation without making a difficult cost-efficiency analysis on whether to incur access fees and hire outside legal and professional help.
3. Developing an Initiative to Enable U.S.-Hosted Standard-Setting Meetings: U.S. agencies and private-sector stakeholders are more likely to participate in international standards where relevant standards meetings are accessible. The Joint Agencies should work with Congress to enable international SSOs to host standards meetings and activities in the United States by identifying what international standards are critical for U.S. innovation, how to support their activities in the United States, and what obstacles SSOs might face to host standards meetings and activities in the United States, including visa and other travel restrictions.

e. How are standards being set or developed to ensure that 6G supports interoperability between multiple telecommunications infrastructure suppliers? (Question #8)

International standards are set through an industry-led, consensus-based, and open-participation approach that provides an efficient and interoperable base for technology developers to create new and patentable inventions across multiple market sectors. This

process involves patent holders voluntarily contributing their technology to a technical standard based on the understanding and agreement that they are using their patent to enable reasonable access to the standard and provide SSOs with a commitment that they will license their SEP on FRAND terms to gain access to a wider pool of licensees. Therefore, by contributing to the standardization process, a SEP holder understands and agrees to not unduly exclude competitors from a standard inconsistent with a FRAND license.

The success of this system to standards development is that industry participants are providing competing patent contributions and approaches. This system enables the market to determine a company's success and incents standardized technology development. This system ensures that internationally adopted standards are high quality, incorporate U.S. stakeholder input, and benefit all standards users. The consensus-based, open-participation technology standards system must be preserved in order to protect competitive standards that include U.S. leadership and involvement.

NTIA should consider a balance between a SEP holder's exclusive patent rights and reasonable access to technical standards. This balance is best supported through recognizing defined principles of the FRAND commitment. NTIA should urge the implementation of a national SEP Policy Statement consistent with our comments and which provides U.S. stakeholders, including SMBs, with guidance, reliance, and predictability on the SEP licensing process.

f. What supply chain issues currently present in 5G deployment and operation could potentially also impact 6G development and deployment? How will the 6G supply chain, for both hardware and software, differ from the 5G supply chain? (Question #10)

App Association members reside at every link in such supply chains and utilize them to cost-effectively bring new and innovative products to the marketplace. We support U.S. government efforts to strengthen domestic manufacturing and to secure supply chains through strategic arrangements with trusted and regional partners. We commit to working with NTIA and other stakeholders to reduce or eliminate trade barriers that disrupt supply chains and impede small business growth and job creation.

Generally, the small business innovators we represent prioritize the following principles:

- **Enabling Cross-Border Data Flows:** The seamless flow of data between economies and across political borders is essential to the functioning of the global economy. Small business technology developers must be able to rely on unfettered data flows as they seek access to new markets.
- **Prohibiting Data Localization Policies:** American companies looking to expand into new markets often face regulations that force them and other foreign providers to build and/or use local infrastructure in the country. Data localization requirements seriously hinder imports and exports, reduce an economy's international competitiveness, and undermine domestic economic diversification. Our members do not have the resources to build or maintain unique infrastructure in every country in which they do business, and these requirements effectively exclude them from commerce.
- **Prohibiting Customs Duties and Digital Service Taxes on Digital Content:** American app developers and technology companies must take advantage of the internet's global nature to reach the 95 percent of customers who live outside of the United States. However, the tolling of data crossing political borders with the purpose of collecting customs duties directly contributes to the balkanization of the internet. These practices

jeopardize the efficiency of the internet and effectively block innovative products and services from market entry.

- ***Ensuring Market Entry is Not Contingent on Source Code Transfer or Inspection:*** Some governments have proposed policies that require companies to transfer, or provide access to, proprietary source code as a requirement for legal market entry. Intellectual property is the lifeblood of app developers' and tech companies' innovation; the transfer of source code presents an untenable risk of theft and piracy. Government policies that pose these requirements are serious disincentives to international trade and a non-starter for the App Association's members.
- ***Preserving the Ability to Utilize Strong Encryption Techniques to Protect End User Security and Privacy:*** Global digital trade depends on the use of strong encryption techniques to keep users safe from harms like identity theft. However, some governments continue to demand that backdoors be built into encryption keys for the purpose of government access. These policies jeopardize the safety and security of data, as well as the trust of end users, by creating known vulnerabilities that unauthorized parties can exploit. From a privacy and security standpoint, the viability of an app company's product depends on the trust of its end users.
- ***Securing Intellectual Property Protections:*** The infringement and theft of intellectual property and trade secrets threatens the success of the App Association's members and hurts the billions of consumers who rely on these app-based digital products and services. These intellectual property violations can lead to customer data loss, interruption of service, revenue loss, and reputational damage – each alone a potential “end-of-life” occurrence for a small app development company. The adequate and effective protection and enforcement of intellectual property rights is critical to the digital economy innovation and growth.
- ***Avoiding the Misapplication of Competition Laws to New and Emerging Technology Markets:*** Various regulators, including key trading partners, are currently considering or implementing policies that jeopardize the functionality of mobile operating systems and software distribution platforms that have enabled countless American small businesses to grow. Since its inception, the app economy has successfully operated under an agency-sale relationship that has yielded lower overhead costs, greater consumer access, simplified market entry, and strengthened intellectual property protections for app developers with little-to-no government influence. Foreign governments regulating digital platforms inconsistent with U.S. law will upend this harmonious relationship enjoyed by small-business app developers and mobile platforms, undermine consumer privacy, and ultimately serve as significant trade barriers.

A large number of the digital trade barriers the App Association raised in its last comment to USTR on the National Trade Estimate¹⁹ capture how, across the different forms they take, these barriers disrupt supply chains and reduce their resiliency. This dynamic is made worse by the fact that modern supply chains are themselves digital supply chains in many ways. Across industries, many of which use the products and services of App Association members, cloud applications and new developments in artificial intelligence (AI) are being used to make supply chains more efficient. Digital trade barriers therefore have real-world effects on physical supply chains as well. We urge USTR to recognize the overall impact that digital trade barriers have on supply chain resiliency and to act to mitigate them in trade negotiations, enforcement, and other initiatives. We strongly encourage NTIA to recognize and leverage standards of excellence for supply chain integrity and resiliency, several of which the U.S. government itself has developed, as well as the adequacy of software vetting programs employed by leading app stores today.²⁰ These standards, which represent leading approaches to supply chain risk management, are based on extensive engagement with and contributions from the U.S. government as well as leading private sector interests. In the context of the Department of Commerce (DoC) supply chain security rules, the App Association has requested that parties who attest to adherence to such standards be provided with safe harbor from enforcement; in the alternative, use of such standards should provide a strong presumption of compliance with the rule. These standards for resiliency include, but are not necessarily limited to:

- ISO 28001 (Security management systems for the supply chain — Best practices for implementing supply chain security, assessments and plans — Requirements and guidance);²¹
- ISO/IEC 20243-2:2018 [ISO/IEC 20243-2:2018] (Information technology — Open Trusted Technology Provider Standard (O-TTPS) — Mitigating maliciously tainted and counterfeit products — Part 2: Assessment procedures for the O-TTPS and ISO/IEC 20243-1:2018);²²
- ISO/IEC 15408 Common Criteria;²³
- National Institute of Standards and Technology (NIST) standards addressing supply chain security including:
 - The NIST Cybersecurity Framework;²⁴
 - NIST 800-53 (Security and Privacy Controls for Federal Information Systems and Organizations);²⁵
 - NIST 800-171 (Protecting Controlled Unclassified Information in Nonfederal Systems and Organizations);²⁶ and

¹⁹ See <https://actonline.org/wp-content/uploads/ACT-Comments-re-2024-USTR-NTE-23-Oct-202342.pdf>

²⁰ See <https://developer.apple.com/app-store/review/>.

²¹ See <https://www.iso.org/standard/45654.html>.

²² See <https://www.iso.org/standard/74400.html>.

²³ See <https://www.commoncriteriaportal.org/>.

²⁴ See <https://www.nist.gov/cyberframework>.

²⁵ See <http://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-53r4.pdf>.

²⁶ See <http://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-171r1.pdf>.

- NIST 800-161 (Supply Chain Risk Management Practices for Federal Information Systems and Organizations).²⁷
- Department of Defense (DoD) Defense Federal Acquisition Regulations (DFARs) Subpart 239.73 (Requirements for Information Relating to Supply Chain Risk).²⁸

Further, we request that NTIA recognize and address well-documented SEP licensing abuses in its efforts to advance U.S. supply chain resilience in trade negotiations, enforcement, and other initiatives. Long-standing evidence shows that a minority of well-resourced, and opportunistic SEP holders, including non-practicing entities (NPEs), abuse their monopoly positions by discarding the voluntary FRAND commitments they have made in order to attain unreasonable terms and excessive royalty rates. These SEP holders routinely refuse to license to certain upstream entities in the supply chain, while instead licensing to downstream entities, such as end product manufacturers, from whom they can extract additional value for a SEP holder's patented technology from unrelated features of the implementing product. The practice by SEP holders to extract value from components of the implementing technology that do not function based on the SEP has been discouraged on a global scale.²⁹ This evidence is at odds with the position held by certain patent pools that claim they are not beholden to the FRAND commitment attached to the SEPs they license, which causes significant uncertainty in supply chains.³⁰ SEP licensing abuses impact mature supply chains, which is evident in the automotive sector. Opportunistic SEP holders that have patents covering wireless communication standards often choose what manufacturer in the automotive supply chain to license their SEP to, causing uncertainties about indemnification for other manufacturers. The same SEP holders seek licensing fees that extract value out of the end product (the vehicle) beyond the components that function from the SEP. This process slows down innovation in connected vehicles that are geared toward achieving important safety and sustainability goals. Numerous intellectual property rights policies of foreign jurisdictions threaten both U.S. leadership and participation in international standard setting, and the growth of U.S. innovators that rely on the ability to readily license SEPs. A trend of court decisions abroad, starting in the UK,³¹ and European Union EU,³² have distorted the meaning of the FRAND commitment, creating an imbalance that heavily favors SEP holders by, for example, routinely enabling prohibitive orders (injunctions) for FRAND-committed SEPs. These decisions have enabled (and emboldened) SEP holders to systematically abuse their dominant market position as a gatekeeper to the use of the standard to attain supra-FRAND terms (a practice known as hold-

²⁷ <http://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-161.pdf>.

²⁸ http://www.acq.osd.mil/dpap/dars/dfars/html/current/239_73.htm.

²⁹ *Interdigital Technology Co. v. Lenovo Group Ltd.* [2023] EWHC 126, 539 (Pat). Para 247 (“When a mobile phone, tablet or computer uses 3G, 4G or 5G technology covered by SEPs, the royalties payable should not depend on the price of the phone (or tablet or computer), which reflects many other features (e.g. screen size, processor power and other features) which are unrelated to the licensed technology even if dependent on it, as well as the status of the brand of phone or tablet.”).

³⁰ See *Continental Automotive Systems v. Avanci, LLC*, No. 20-11032 (5th Cir. 2022).

³¹ See *Unwired Planet International Ltd v. Huawei Technologies Co. Ltd* (SCUK 2020).

³² See *Sisvel v Haier*, Federal Court of Justice, judgment dated 5 May 2020, Case No. KZR 36/17; see *Koninklijke Philips N.V. v. Wiko SAS*, Court of Appeal of The Hague, judgement dated 2 July 2019, Case No. C/09/511922/HA ZA 16-623.

up).³³ Some foreign courts have concluded that they can force a standards user to agree to a global SEP portfolio on FRAND terms set by the court or SEP holder on pain of a national injunction if the standards user does not agree to the license. In such decisions, the global SEP licenses at issue often include patents issued outside the court's jurisdiction for which validity and essentiality have not been assessed. The precedent set by such decisions has done two things to the landscape of international standards: (1) allowed jurisdictions to exercise extrajudicial authority on patents outside their purview;³⁴ and (2) encouraged certain SEP holders to forum shop to a more favorable jurisdiction to handle the outcome of their disputes when they are unable to force implementing standards users into unreasonable licensing terms, despite their FRAND obligation.

NTIA should work with agencies, including the United States Trade Representative (USTR) and DoC to mitigate established and prevalent bottlenecks in FRAND licensing that are barriers to trade and which threaten the resilience of U.S. supply chains, namely those SEP licensor hold-up practices that have been well-demonstrated with empirical evidence. If U.S. stakeholders are unable to develop technologies in their home country without fear of potential and likely suits from opportunistic SEP holders, many inventors will forgo production.

g. 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 6G research is interdisciplinary and extends across all necessary industry sectors? (Question #15)

There is vast amount of research on standard development and standard setting. We list some important research pieces below. The App Association encourages NTIA to engage with academics that focus on variables of technical standards and SEP licensing. There are some prominent academics that have weighed in on concerns surrounding the standard-setting process. We have provided some of their studies for the Agencies' review:

- Love, Brian J. and Lefouili, Yassine and Helmers, Christian, Do Standard-Essential Patent Owners Behave Opportunistically? Evidence from U.S. District Court Dockets (November 8, 2020), <https://ssrn.com/abstract=3727085>.
- Love, Brian J. and Helmers, Christian, Patent hold-out and licensing frictions: Evidence from litigation of standard essential patents (July 2023). Available at <https://www.sciencedirect.com/science/article/pii/S0167718723000590?dgcid=author>.
- Love, Brian J. and Helmers, Christian, Are Non-Practicing Entities Opportunistic? Evidence from Litigation of Standard Essential Patents (August 4, 2023), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4540908.
- Carrier, Michael A., Innovation, Invention, and Standards (September 28, 2023), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4594882.

³³ Lemley, Mark A. and Shapiro, Carl, Patent Holdup and Royalty Stacking. 85 Texas Law Review 1991 (2007).

³⁴ Bonadio, Enrico, Mohnot, Rishabh, Standard Essential Patents, Global Licensing Approach and the Principle of Territoriality (September 6, 2022), <https://patentblog.kluweriplaw.com/2022/09/06/standard-essential-patents-global-licensing-approach-and-the-principle-of-territoriality/>.

- Simcoe, Timothy S. and Zhang, Qing, Does Patent Monetization Promote SSO Participation? (November 29, 2021), <https://ssrn.com/abstract=3973585>.
- Benno Buehler, Charles River Associates, SEP licensing in the United States: Understanding the impact on US business (March 13, 2023) <https://www.crai.com/insights-events/publications/sep-licensing-in-the-united-states-understanding-the-impact-on-us-business/>.
- John Hayes, Charles River Associates, A Critical Review of 5G SEP Studies (November 8, 2022), <https://www.crai.com/insights-events/publications/a-critical-review-of-5g-sep-studies/>.

We remind NTIA that the small business perspective is critical to consider when conducting interdisciplinary research that affects multiple industries. We invite NTIA to reach out to the App Association for support.

h. What does the intellectual property landscape for 6G technology look like and how does this affect the U.S. Government strategy for 6G development? Do certain companies or regions own a disproportionate share of the Intellectual Property anticipated to be necessary for building 6G systems? (Question #16)

As detailed above, a well-balanced SEP licensing landscape is essential to the advancement of 6G technology. The U.S. government should take critical steps consistent with our comments to ensure that U.S. businesses are enabled to utilize 6G into new technologies. Countries, including China, are packing technical standards, like 5G, with their patented inventions in order to monetize standards against other countries, including the United States. The ability for foreign SEP holders to utilize abusive licensing tactics to control critical standards has a significant impact on American supply chains, innovations, and national security. Therefore, we urge NTIA to take critical steps to promote and support U.S. private sector participation and leadership in 6G.

II. Conclusion

The App Association appreciates the opportunity to provide its comments and recommendations on the advancement of 6G telecommunications technology and looks forward to collaborating with NTIA to ensure American leadership in 6G.

Sincerely,



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