XCOM Labs appreciates the opportunity to respond to the National Telecommunications and Information Administration's Request for Comment. We believe that strong public-private partnerships are the key to ensuring a fulsome deployment of 5G in the U.S. The U.S. government should work closely with private sector leaders to drive Open Radio Access Network (RAN) deployment and position the U.S. to play a leading role in international standards-setting activities for 5G technologies. We look forward to continuing this dialogue on such a critical and timely issue.

How can the U.S. Government best lead the responsible international development and deployment of 5G technology and promote the availability of secure and reliable equipment and services in the market?

The United States Government (USG) is in a position to foster innovation, market opportunity and healthy competition by providing incentives and priorities to the private sector as the primary driver for Open RAN deployment. Actions the USG can take to further such aims include:

a. Help boost the Open RAN supplier ecosystem through direct investment to innovative suppliers, especially smaller companies with smaller R&D teams, to minimize development risk and boost R&D development.
b. Adopt policies and incentives to encourage mobile carriers to deploy and use Open RAN supported equipment. This will also help grow the ecosystem of solution providers with open and innovative frameworks and environments.
c. Encourage private investment in Open RAN suppliers.
d. Identify and deploy, through cooperation and coordination of the USG and the Federal Communications Commission (FCC), more 5G spectrum, both at sub-7 and mmW, to enable early deployment of new 5G technologies.
   XCOM Labs believes that dynamic spectrum uses enable vertical industry and private service operators to deploy and use 5G as connectivity to enable new use cases with high quality. While the C-band auction is a positive step towards increasing 5G spectrum, dynamic sharing uses like CBRS also can help avoid unintended interference and contention. These bands also need to be free of Wi-Fi like interferences or define a clear method to coexist. The present 6-GHz band is going to suffer from that problem because Wi-Fi will interfere and limit the performance given the requirement for listen before talk (LBT).
e. Support academia and industry through government funded projects to develop advanced 5G and pre-6G technology to enable new use cases such as industrial IoT, automation, robotics, drones, security, XR, V2V/V2X and mmW backhaul with multi-hop relay. The goal is to enable a new wave of technology innovation and startups in the US to drive evolution of the technology.
f. Reject mandates and allow industry, rather than the USG, to determine the best technology.
g. Support open interfaces to enable competition, which is critical for reducing prices, improving quality and customer service and fueling innovation by companies in the areas in which they can add the most value.
   Today, there are limited suppliers, which creates high prices, slows innovation, and limits deployment and access to service because it is too costly (for consumers). 5G services must

be affordable to the consumer and the best way to drive prices down is by enabling competition throughout the 5G supply chain.

How can the U.S. Government best encourage and support U.S. private sector participation in standards development for 5G technologies?

Currently, the 5G standardization is primarily led by large standards setting bodies such as 3GPP and GSMA in Europe. Most of the participants are large companies and the rules are structured in a way that makes it very difficult for small companies to effectively participate and contribute technology even if it is superior to the technology contributed by large companies. The USG should advocate for changes to these rules that create a more level playing field for smaller, new entrants or the creation of alternative standards setting organizations with such rules/policies. These could focus, for example, on the development of a new set of complementary standards bodies that target private vertical industries such as industrial IoT, retail, education, agriculture, medicine, and satellite. This will motivate a larger portion of the private sector to actively participate.

Also, in order to build a more robust and diverse supply chain, the USG should support new innovative designers and suppliers through funded innovative research programs. By supporting the creation of open interface standards, which allow new functions to be more easily integrated into 5G networks, the market will drive innovation that will lead to network optimization and scale. The USG can best support this through incentives for the public and private operators to deploy such new innovations in their networks.

What tools or approaches could be used to mitigate risk from other countries' 5G infrastructure? How should the U.S. Government measure success in this activity?

The government should use a risk-based approach and not outright ban infrastructure components from other countries. Critical software and hardware should be developed by US vendors when possible, but the hardware often can be safely manufactured/sourced from outside of the U.S. There should be a clearly outlined process to validate certain vendor components for core network (EPC, NGC), network management functions, centralized units (CU), distributed units (DU), switches and gateways, as well as associated chipsets from any country.

Are there market or other incentives the U.S. Government should promote or foster to encourage international cooperation around secure and trusted 5G infrastructure deployment?

The USG should promote Open RAN, where open interfaces are critical to enable different components to work together in a transparent and well-defined manner, with data signaling between components carrying a well-defined format that can be monitored systematically. US companies should take a lead in Open RAN plugfests and IoDT activities.

What other actions should the U.S. Government take to fulfill the policy goals outlined in the Act and the Strategy?

5G delivers very high-performance wireless access. To incent 5G adoption, the USG should equally be focused on, and supportive of, adoption of new services that demand this high-performance access.

These include use of edge computing, AR/VR, real-time vehicle and machine control, and advanced multi-media services. The policies should also support 5G technologies that enable the most efficient use of valuable and scarce spectrum.

While we continue to discuss the different opportunities to support and incentivize ubiquitous 5G deployment, it is equally important to look to the future. We must begin to invest in research programs for 6G technologies, with projects and funding to academia and businesses, especially small business, enabling them to invest early and provide fundamental innovation.