April 18, 2016

United States House of Representatives
The Honorable Michael C. Burgess, Chairman
The Honorable Jan Schakowsky, Ranking Member
Committee on Energy and Commerce - Subcommittee on Commerce, Manufacturing, and Trade
2125 Rayburn House Office Building
Washington, DC 20515

Re: response to additional questions

Dear Chairman Burgess, dear Ranking Member Schakowsky,

With regard to the additional questions presented in connection with my recent testimony in the "Disruptor Series" on wearable technology, I wish to present for your consideration the following responses. The original questions are included below.

Questions presented by Congressman Burgess:

1. What are the biggest challenges that you've seen to businesses and consumers in the adoption of wearable devices?

Response:

Challenges to consumers are less than with businesses as this is where the primary adoption of wearables is today. But if you compare wearable adoption to that of something like smartphones, there is a long way to go before we can consider wearables mainstream. This is attributed to the usefulness of the wearable in moving beyond just a simple activity tracker to either something that is a great extension of the smartphone, or can standalone in the eyes of the user. Adding features such as alarms and messaging that extends from the smartphone to the wearable, bringing price points down, and enhancing the industrial design appeal of wearables are all factors that support the expansion of the market. Businesses are adopting wearables either as extensions of their health care plans, to get their employees fit, or as perks to enhance the social aspect of team challenges. With either business or consumer, security and privacy are central points of much of the buying criteria.

2. Mr. Palliparambil, given NXP's presence in many of the wearable devices on the market today, do we currently have the infrastructure to support the rapidly growing wearables market and accommodate multiple users? If not, where do we need to see greater support and investment to help drive this market forward?

Response:

Two things were catalysts for wearables to emerge, the smartphone and the cloud, so we certainly do have the infrastructure to support the growth of wearables. What we lack is standards that are enforcing best practices, such as authentication of data at rest or in transit, encryption of the same data to ensure user privacy. As we can see with smart devices today, there are always actors with malicious intent whether to inflict financial harm or just to burden others for fun, which in turn means that we should be mindful of this from the creation of a wearable to delivery of the same to the consumers, and what we need to protect against.

3. What do you think is the most significant cybersecurity concern facing wearable devices and how is NXP addressing it?

Response:

Cybersecurity is broad reaching and the risks of wearables is in how they can be utilized. Imagine a wearable that is used as an activity tracker and also to unlock one's home. This would be more of a target to hackers because they will get personal data on the user that could indicate when they are away from home and also the keys to the home, such that a burglar can have easy access with lower risk of getting caught. This is just one extreme example, where another less extreme is a hacker posts the users wearable data online in public, and an insurance company gets ahold of the data and then uses it to change the premiums for a user, or even worse, deny coverage.

Questions presented by Congressman Harper:

1. What enhanced capabilities do you see wearable devices providing in the next five to 10 years, beyond what they are providing to consumers and businesses today?

Response:

Much like smartphones, wearables will continue to see evolutions thru the benefits of semiconductor integration and innovation followed by enhance software evolutions such as Android and iOS. Similar features on smartphones can find their way to wearables and thus untether the wearable from the smartphone, making it a standalone device. We already see cellular connectivity on wearables today in 2016 as an example of this

trend. Pricing and usefulness of these extra features will keep this transition on a slow pace in the interim, but in 5-10 years, all bets are off as one can see the drastic changes in smartphones that happened in the same short period.

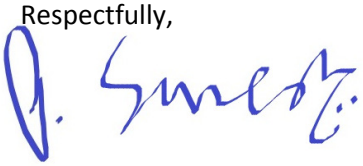
2. What does this fast pace of innovation mean for policymakers in terms of how we should be thinking about the technology?

Response:

Policy makers also benefit from innovation both as consumers and business owners. These wearable enhancements can drive a more physically fit work force, which in turn can lead to more productivity. The ability to make ourselves smarter about our own health and fitness can allow us to make better choices faster. The caveat is that the privilege of this information is what is important and this is where policy makers can make a mark, but advocating for the users and balancing the relationship of this data between the user and the business. As we move to a smarter world with wearables and the Internet of Things, we need to lay down a foundation that encourages innovation while ensuring some boundary conditions around security and privacy are well established principles of the industry.

On behalf of NXP Semiconductors, I again thank you for the opportunity to present the company's views and hope that the foregoing responses are adequate and helpful. I welcome further questions at any time.

Respectfully,



Suresh Palliparambi