

**Testimony of
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U.S. Senate Committee on Commerce, Science, and Transportation
Subcommittee on Science, Technology and Space**

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Good morning Mr. Chairman and members of the Subcommittee. Thank you for inviting me to testify today. I appreciate the opportunity to provide a perspective on how entrepreneurs and the government can work together in the fight against bioterrorism.

My name is John Edwards, and I am President and Chief Executive Officer of Photonic Sensor. Photonic Sensor is a small, high tech company based in Atlanta, Georgia. We develop and manufacture biological and chemical sensing systems based on the tiny optical sensor chip I am holding in my hand. What I would like to share with you briefly this morning is the promise of this extraordinary optical chip as a tool in our bioterrorism defense arsenal, and how a combination of university scientists, entrepreneurial spirit and government support led to its development.

The creative spark came from Nile Hartman and his co-workers at the Georgia Institute of Technology almost a decade ago. The potential of their optical sensor chip to revolutionize biological and chemical sensing was immediately evident. Sadly, there is often a disconnect between what is exciting for science

and what is exciting for business. Revolutionary technologies mean major changes in the way things are done. But major changes mean big risks, and big risks scare big companies: they have too much to lose. That is where entrepreneurs enter the picture. Photonic Sensor was formed in collaboration with and eventually spun out of Georgia Tech solely for the purpose of commercializing this optical sensor chip. Startup companies are very different from big companies. We like big risks. The bigger the risk, the better our chances of eventually growing into a risk-averse big company, which is what we really want to be.

Without early big company interest, small, high tech companies must turn in other directions for support. The Department of Energy, the Department of Defense and especially the National Institutes of Health have been major sources of support and guidance in bringing our optical sensor chip from laboratory promise to commercial reality. The development path was long and winding, but the outcome was the successful emergence of a developed technology, with the risk reduced to a level where big companies are now willing to get involved.

It turns out that our optical sensor chip has considerable advantages for detecting biowarfare agents such as anthrax, botulism and smallpox. Current bioagent detection systems, and even the advanced instruments under development for the military, are very complex and costly. They are simply not practical for widespread domestic deployment. A place we see a particular chance to help is with so called first responders—the fire departments, police and

medical alert teams in towns from Eugene, Oregon to Albany, Georgia. Photonic Sensor can provide a simple, low cost tool to meet the needs of these first responders.

Photonic Sensor's work on bioagent detection began about a year and a half ago, but the urgency has obviously accelerated since September 11th. We are now responding to calls from the Department of Defense/Technical Support Working Group (BAA 02-Q-4655) and the National Institutes for Health (SB-STRR) for innovative anti-terrorism tools. Our partners in these efforts are Environmental Technologies Group of Baltimore, Maryland, a leading supplier of both biological and chemical agent detection systems (and, I should add, part of a very big company), and the Centers for Disease Control and Prevention, our neighbor and frequent collaborator in Atlanta, Georgia. In addition, Photonic Sensor, Environmental Technologies Group and E.A. Technologies of New York, New York are exploring the development of a bioagent monitoring system for the New York City subway.

Thanks to previous government support, Photonic Sensor is in a position where it can contribute to the fight against bioterrorism. However, I know this Subcommittee is interested in how it can make the process easier for us and others like us. I would like to offer two observations about our experience.

First, it is difficult for small companies like Photonic Sensor to get visibility within large agencies like the Department of Defense. Good contacts are just as important as good technology. However, a small marketing budget and no staff in Washington, DC severely limits our ability to develop good government contacts.

The Small Business Innovative Research (or SBIR) program addresses this problem to some extent. But even the SBIR process is something of a shot in the dark, and its multi-phase solicitation, proposal, review and award cycle can easily out-stretch the financial staying power of a small company.

A second challenge is the many compliance and reporting requirements that come with government grants, especially with multiple agencies each imposing their own rules and regulations. Particularly frustrating for Photonic Sensor has been the seemingly redundant financial audits by each agency—and even being told in the course of these audits that a required financial practice of one agency is absolutely unallowable for another!

Photonic Sensor's story is, of course, just one of many. Nevertheless, I hope it has been helpful. Thank you for your interest.