

DEPARTMENT OF THE NAVY  
**SBIR/STTR TRANSITION PROGRAM**  
**SPOTLIGHT**

## Mercury, Physical Optics are a Natural Fit: “We’re Better Together”

By Edward Lundquist



Image Courtesy of Physical Optics Corporation – A Mercury Company

A company that once benefited from SBIR investments just acquired another company with a strong SBIR pedigree.

Mercury Systems of Andover, Mass., announced its \$310 million purchase of Torrance, Calif.-based Physical Optics Corporation (POC) on Dec. 30, 2020. “The acquisition is directly aligned with our strategy and will enable us to deliver more complete, pre-integrated avionics subsystems to our customers,” said Mark Aslett, Mercury’s president and chief executive officer.

“The acquisition of Physical Optics Corporation adds important capabilities on new and existing airborne programs in the platform and mission management market,” Aslett continued. “The combination of Mercury’s safety-certifiable and secure avionics processing solutions with POC’s deep portfolio of data storage, transfer, and encryption technologies will enable us to deliver more complete, pre-integrated avionics subsystems to our customers. POC has a similar

growth profile to Mercury, supported by several key design wins that are transitioning into production.”

### A lot in common

The two companies have a lot in common. Both took advantage of and benefited from SBIR investments.

Back in 1985, POC founder Dr. Joanna Jansson wrote out her first SBIR proposals in long-hand at her kitchen table.

“Because of those initial SBIR investments, and, more importantly, the commercialization of those technologies, POC grew to be a \$100-million company,” said Kevin Walter, VP, Mission



Kevin Walter, VP, Mission Division, Mercury Systems, former CEO of Physical Optics

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Division, Mercury Systems (and former CEO of POC).

At the time of the acquisition, POC was an employee-owned company of about 350 people, including more than 160 highly skilled engineers with more than \$120 million in revenue for 2020. The company held more than 160 patents worldwide, covering 60 technologies.

POC received a Phase I SBIR in 2000 to develop a crash-survivable video recorder for naval aircraft. According to Walter, the resulting Phase III awards led to 11 product lines being put aboard about 7,500 aircraft.

Other POC SBIR-to-transition successes include the Joint Avionics Reconfigurable Virtual Information System (JARVIS) mission computer and the Digital Data Set (DDS) Systems for the Navy's T-45 trainer aircraft.

"SBIR has not only been good for POC, where we grew from two people to more than 300 people, and from a few hundred thousand dollars a year to \$100 million, but it's also been good for our DoD customers," Walter said. "And that's particularly true for the Navy, which has told us that our technologies have saved more than \$800 million in lifecycle costs based on the SBIR-developed products we've delivered."

Walter said that POC became a one-stop shop for research, development and production for systems developed under the SBIR program.

The Navy posts a list of topics describing specific technology needs that small companies are invited to address and solve. "We don't have to guess what the Navy wants," said Walter. "They tell us what they want. And we take our shot—we propose the best technologies we think we can develop to solve those problems."

### Acquisition philosophy

Over the past five years, Mercury has acquired 11 other companies. Dr. Amela Wilson, Mercury Systems senior vice president and general manager for the Mission Division, said that Mercury's merger and acquisition

(M&A) strategy is helping to drive its rapid growth. The company's M&A philosophy has been two-pronged. "We want to expand our capability set; and we want access to new markets and to continuously penetrate some of those markets over time. We are also looking for companies similar to us in terms of how we approach markets, of cultures and values, and of how we innovate."



Amela Wilson, SVP & GM, Mission Division, Mercury Systems

But, she said, "Our position was to broaden our avionics product line and technology portfolio to help our prime customers as well as the military services. As we looked at our own organic growth, we could see that POC has a very important capability for new and existing airborne platforms and in the mission management market just as we did. We want to help develop, produce and deploy the next generation open architecture mission computing subsystems, ready to receive applications from our customers."

According to Wilson, "This acquisition broadens our avionics product and technology portfolio to help our defense prime customers, the U.S. Navy, Army and Air Force to deploy next-generation open-architecture mission computing solutions. Similar to Mercury, POC is well-positioned in faster-growing segments of the defense market and benefits from secular growth drivers, such as supply chain delayering. Together, Mercury and POC can provide customers new capabilities and subsystem solutions."

Wilson said Mercury was impressed with POC's innovation. "They had a great reputation of rapidly solving technology problems for their customers. We were really impressed with their proven track record of starting and incubating

new technologies and transitioning them through SBIR. We analyzed the innovation that came through their SBIRs, their engineering talent and the business they have established; it became a very synergetic acquisition for us,” Wilson said.

“We liked the innovation, and how POC’s approach to the market was complementary to our way of thinking. When we compared our ethos of innovation—ours is ‘Innovation that Matters By and For People Who Matter’—we realized they shared the very same vision,” she said. “It was the continuum of technological promise that resonated with us.”

### **Lessons learned**

Over the years, POC gained a lot of insight about leveraging the SBIR program for success, said Walter. “If you are a Phase II SBIR company, and you want to continue and grow success, it’s about customer satisfaction and engagement. Sometimes people working on SBIRs get enamored with their own technology—and it’s important to be dedicated to the completion of that technology—but they really need to listen to the customers and give them what they need. Our founder told us, ‘Never leave the customer with a problem.’ Trying to live up to that standard has really served us well. I think that’s our secret.”

Finding partners for collaboration takes some effort, Walter said. But, he said, there are many different ways to find out that there could be a mutual benefit from working with someone else.

Events such as the DoN Forum for SBIR/ STTR Transition (Navy FST) have been good opportunities for POC to find new customers for technologies and new places to apply what the company had learned under Phase Is and Phase IIs. “That was our goal. We didn’t necessarily go to those events to find business partners; we went to expand our customer base.”

Walter said POC leadership had been interested in exploring possibilities to add liquidity and equity. “What we found was a very receptive

market. From our point of view, we believed we would be attractive for an acquisition to a larger company because of our reputation and strong relationship with our customers. It worked out well for everyone.”

Mercury and POC became aware of each other when they found themselves competing for some of the same opportunities, said Walter. “That evolved into conversations about how we could collaborate, and this goes back years before the acquisition.”

Among the services, Walter said the Navy is most successful in transitioning technologies from the SBIR program, and there’s a reason for that. “The Navy infrastructure supports their TPOCs, and is in favor of transitioning and commercializing SBIR-developed technologies. That’s not equally true for every agency.”

From a small company perspective, Walter said the key to being successful is not giving up. “There is a tremendous number of opportunities, and a lot of people who are interested in working with small companies. And if you don’t succeed first time, just keep trying.”

Wilson added that Mercury was established in 1981 as an embedded computing company. “Earlier in our history, we did take advantage of SBIR-funded development ourselves. Through development and acquisitions of companies that have specialized in RF, security, mission computing and other technologies, we now span more of the sensor chain, from the antenna, and what’s behind it, all the way to the end user.”

Wilson said small, agile and innovative companies can complement the big primes.

Mercury is a commercial, high technology company whose end-market is defense, Wilson said. “A lot of our technologies come directly from the commercial sector, and then we modify them and adapt them for defense needs. Looking at POC, it was a natural fit.”

Walter agrees. “It’s been a great experience for Physical Optics. We think we’re ‘better together’ since we joined Mercury.”