How Maerospace, a radar tech company, uses real-time information to help customers

The firm (No. 74 on the Growth 2020) helps customers guard the borders, protect the environment, enhance trade and save lives. No big deal.

Dave Zarum
October 15, 2020
Waves crash against the rocky shores of Hartlen Point, N.S. The bellow of air horns from fishing boats, cargo ships and vessels of all shapes and sizes echo across the harbour. Their transponders send signals across the waters to a skyline of antennas stretching 500 m wide along the shoreline. Two thousand kilometres above, constellations of satellites monitor the ships’ movements, snapping images and relaying that information back down to Earth. And in Waterloo, Ont., Maerospace, the company founded by CEO Eric Meger, is supplying the data that allows countries like Canada to protect government waters, with advanced precision.

Combatting everything from illegal fishing to piracy and potential terrorism threats, the stakes couldn’t be higher. One potential customer in the South Pacific is concerned with illegal fishing. Another is interested in protecting off-shore oil platform assets, while another suffered two terrorist attacks on their waters in the last year alone.

“Fundamentally, we’re enhancing maritime intelligence,” says Meger from his Ontario home. More specifically, Maerospace—No. 74 on the Growth 2020 and the primary supplier of ship-tracking data to the government of Canada since 2017—is using its patented radar technologies to “help our customers save lives, guard the borders, protect the environment and enhance trade.” No big deal.

The key, Meger insists, is access to real-time information. Maerospace takes predictive analytics and state-of-the-art surface radar to provide a current picture of every ship in the world, every 10 minutes. Each day, Maerospace
provides a staggering 120 million messages. They provide the world’s most accurate map of real-time locations for ocean vessels.

The floodgates didn’t truly open for Maerospace until Meger spotted a rare opportunity in late 2017: he learned that radar tech company Raytheon Canada Ltd. was set to close its Waterloo offices for good. For the past 25 years, Raytheon had been developing high-frequency surface wave radar (HFSWR) technology with the Canadian government’s Defence Research and Development Canada (DRDC) branch. The HFSWR tech was a dramatic improvement on traditional maritime surveillance, allowing radar to detect ships as far as 200 km away; its superior vision is able to follow the curvature of the Earth past the horizon.

“I realized we would be the perfect company to rescue that technology,” Meger says.

Meger set about negotiating with both Raytheon and the DRDC to license the proprietary HFSWR tech. On June 10, 2019, after what Meger calls “the most sophisticated and difficult” negotiation of his colourful career, the three sides reached an agreement and Maerospace acquired the rights. The company paired its robust analytics capabilities with Raytheon’s radar, establishing an unprecedented intelligence tool, branded “PASE”—persistent active surveillance of the EEZ (or exclusive economic zone).

Now ships could be tracked with more accuracy than ever. “Every other radar in the world, the signal looks out and bounces off a big hunk of metal floating in the ocean,” Meger explains. A dot appears on a radar that tells you the ship’s approximate coordinates. “The question is: ‘Who are they?’ Our analytics can answer that question.”

Meger, 62, has always had a fascination with space, the ocean and science fiction—the thousands of sci-fi books collecting in his basement are a testament. His favourite is Robert A. Heinlein’s Time Enough For Love, which tells the story of a 20th-century naval officer. “Had I been smart enough, I would have been a cosmologist,” he says. “But I realized I was much more of a businessman.”

He did not begin his career in the maritime realm. After obtaining a degree in physics, he went to work as a systems engineer with the Hughes Aircraft Company in the United States, where he worked on radar systems. From Hughes he went to Harvard Business School, taking a particular interest in the world of corporate negotiations. “Your opponent is never a villain in their own eyes,” he quotes from Heinlein.
Meger then embarked on a career in the space industry, and in 1984 received the Space Foundation's National Excellence Recognition award for his work advising NASA. But in the wake of the Challenger spacecraft disaster in 1986, Meger saw an industry crumble. “The space industry was dead,” he says, “and I needed to pay rent and put food on the table.”

He pivoted to telecommunications, where he went through the wringer as an entrepreneur. “Not the best timing,” he admits of starting a telecom company in the wake of the dot-com crash during the fall of 2000. But he managed to take it public, a valuable experience. In 2007, he then co-founded exactEarth Ltd., which also had to do with maritime vessel tracking.

When he left exactEarth in 2013 to found Maerospace, he recognized the need to improve on existing radar data analytics. Satellite radars took too long to receive a signal, says Meger, and could only account for ships that were well-behaved. “It’s a very misleading picture,” he says of traditional radar.

Getting Maerospace off the ground proved a harsh lesson in patience. After securing its first contract with the Canadian government in 2017, Maerospace had to wait 49 weeks before the contract was actually issued, the company “staying lean and living within [its] means” as it waited.

Meger has found Canada to be difficult when it comes to capital investment—especially if you have an unproven business model. “Why haven’t investors come beating down our door?” he asks. “[Because] it’s hard to wrap your head around us as an investment, despite the fact we have billions of dollars in potential,” admits Meger. And so he bootstrapped Maerospace and went through just one round of angel investors—mainly family and friends.

Two “hot areas” have already emerged for Maerospace: national security and illegal fishing. It’s the latter that has the fisheries community watching closely.

Dr. Daniel Pauly is a world-renowned oceanographer and the principal investigator of the Sea Around Us initiative at the University of British Columbia, which assesses the impact of fisheries on marine ecosystems. He has spent the past 50 years travelling the globe. According to the UN, 20% of all fish removed from the sea are caught illegally. In regions like West Africa and Asia, where illegal fishing is rampant, Pauly sees radar surveillance technology like Maerospace’s as the “optimal” tool to protect vulnerable fishing reserves.

“The world would benefit immensely from that,” he says, adamantly.
“Radar has long played an enormous role on our waters,” says Pauly. “They have saved England from the Luftwaffe—we’re all in favour of radar. But their potential is not used.”

Meger knows that there are obstacles to breaking into the foreign market. It's why, when he secured the deal with Raytheon, he also made sure to hire their business development lead, Maureen Ramsden, who has spent the past 15 years building an international sales pipeline. As a result, Maerospace already has sales reps in 25 countries. "What we have over our competition," Ramsden explains, "is that we are the most current generation.” While other companies in the space are running Gen 2 radar systems, Maerospace is already working on Gen 5. “It just feels like we are exponentially exploding.”

Like with any growing business, Maerospace and Meger met with roadblocks every step of the way. Before the Raytheon deal, Meger’s closest friends questioned why he left exactEarth in order to build a better mousetrap, and how his small company could possibly pull off the lofty goal of providing best-in-class maritime security intelligence for the entire planet.

Meger kept coming back to a quote he once heard from a grade school student studying antonyms. When asked what the opposite of success is, the student didn’t say “failure.” He said “giving up.” “That’s the wisdom of a six-year-old right there,” he notes.