

Kraken Robotics Inc - The Royal Dutch Navy Contract

Background:

From their website: Kraken Robotics Inc. (PNG: TSX-V) is a marine technology company supplying advanced sonar and optical sensors, batteries, and underwater robotics equipment for military and commercial applications. The Company is recognized as world leading innovators of Synthetic Aperture Sonar (SAS) - a revolutionary underwater imaging technology that dramatically improves seabed surveys by providing ultra-high-resolution imagery at superior coverage rates. Both military and commercial markets are showing encouraging growth as they are now incorporating unmanned vehicles and intelligent sensors in their procurement plans and budgets.

Products (and now Services):

Data Gathering Products:

- Synthetic Aperture Sonar - Kraken has industry leading sonar products with ultra-high-resolution scanning and imaging capabilities. Resolution is as tight as 1.9 x 2.1 cm. Synthetic Aperture Sonar is Kraken's original and core product and remains an industry leader.
- Seavision - 3D laser system for underwater vehicles. Generates 3D images of underwater infrastructure critical for underwater asset integrity evaluation and maintenance.

Platform Products:

- KATFISH - Towed unmanned underwater vehicles. Data gathering products are attached.
- THUNDERFISH - Autonomous unmanned underwater vehicle (drone). Data gathering products are attached. Payloads can be delivered. Ability to park and recharge underwater. One can imagine a military fleet of these.

Power Products:

- Kraken Power – Research and manufacture batteries designed to withstand water pressure to a depth of 6,000 meters. Power moves the vehicle, runs the tech, and transmits the data to the surface.

Services:

- Robotics as a Service – Kraken evolved from a developer, manufacturer, and seller of high-tech underwater sensor equipment to a company that performs the work for clients. Examples of the work are underwater ship hull inspection, mooring chain inspection, and underwater oil & gas asset inspection. This is a recent undertaking facilitated by the development of KATFISH & THUNDERFISH.
- Data as a Service – Map the ocean floor and sell the data. We can imagine a subscription service where clients pay for updated seabed floor maps in areas of concern such as harbours and waters around heavily populated areas.

Investment Theme:

Robotics have proven their worth on and above ground and it is expected that robotics will play an ever-increasing role in the subsea world. More activities undersea will be completed in whole or in part without submersing humans. As crazy as this sounds, people are trying it. <https://www.mining.com/nautilus-minerals-plans-to-mine-the-seafloor-sink-deeper/>

Air drones have proven their value in both military and commercial operations. It is expected that unmanned underwater vehicles and robotics will do the same. Military applications of unmanned autonomous or towed vehicles gathering data and detecting threats is enormous. Commercial entities have an interest in unobstructed commerce. A few well-placed naval mines can wreak havoc on international trade. Kraken is a world leader in SAS technology and underwater battery technology.

Kraken's business strategy and market penetration has evolved and grown (see appendix).

Timing

The underwater marine market was supposed to take off after air drones proved their value. The progress has been slower than expected. This may be a positive for investors entering a trade in Kraken. We could be on the verge of significant market compound growth and Kraken should get their share.

The global underwater drone market is valued at \$74 million and is expected to grow to close to \$2 billion by 2026 according to market research firm 360 Market Updates. According to Industry ARC, the market was \$2.7 billion in 2017 and will grow to \$4.7 billion in 2023. Kraken's total addressable market is \$5 billion now according to Kraken (See Appendix).

Kraken Specific

Kraken Robotics is well situated within the growing underwater marine technology industry due to its superior SAS technology. Superior SAS technology is defined by a higher image resolution. For many potential clients, but not all, the greater the resolution, the more valuable the data (images). The greater the resolution, the clearer the image. The greater the resolution, the more intense the power requirement. This is the tradeoff. Kraken has overcome the problem of intense power requirements

Kraken's customers are military, commercial, and scientific/academic. Military interest is obvious and is expected to grow. Drones have been a growing component of air fleets globally. It is expected that underwater drones, like Kraken's THUNDERFISH, will comprise a growing component of NAVY fleets. Underwater mine detection is a traditional line of business for Kraken. High resolution images are necessary. An undetected mine is catastrophic. False positives lead to costly man or robotic dives.

Commercial operations have a growing interest in underwater drones. Man-dives are expensive and dangerous. Underwater assets such as cables, pipeline infrastructure, and offshore drilling platforms need to be constantly monitored, evaluated and maintained. Scanning and images are an increasing part of the monitor and evaluation process.

The scientific and academic communities appreciate Kraken's products. Only 3% to 6% of the ocean floor has been scanned and mapped. We know as much about space as we do the ocean floor. Kraken's THUNDERFISH can descend to 6,000 meters and gather data. Scientists and academia can explore to greater depths with superior technology.

Working Capital

Current assets = \$11.4 million and current liabilities = \$4.6 at the end of Q3. The company raised \$10.4 million in October and has ample liquidity.

What headlines do we want to see?

More contracts signed and progress on RaaS and Data Analytics.

News Flow

News flow has been positive. Smaller contracts have been signed and prospective customers are sampling the equipment.

News Flow 2020													
	Sept	Kraken Completes Successful Sea Trials of SeaScout® System Onboard Ocean Seeker											
		Kraken to Supply Minehunting Systems to Polish Navy											
	August	Kraken Announces Funding for ThunderFish® XL Development											
		Offshore Energy Industry Executive Joins Kraken as Strategic Advisor											
	July	Kraken Announces Ultra High Definition Gap Filler											
		Kraken Announces \$1 Million of Defense Contracts											
	April	Kraken Announces Partnership Agreement with Greensea Systems											
	March	Kraken Announces Ultra High Definition Upgrade for AquaPix® Imaging Sonars											
		Kraken Announces \$2.8 Million of Contracts and Provides Corporate Update											
	Feb	Kraken Chosen for 2020 TSX Venture Top 50 List											
	Jan	Kraken Signs 8 Year Framework Agreement with International Defense Contractor											
		Kraken Finalizes OceanVision Contract with Ocean Supercluster and Industry Partners											
		Kraken Awarded \$0.5 Million SeaVision® Contract from Government of Canada											
New Flow 2019													
	Dec	Kraken Acquires Remaining 25% of Kraken Power											
	Nov	Kraken To Supply Thrusters To Leader in Robotic Net Cleaners for the Aquaculture Industry											
	Oct	Kraken Announces Major Subsea Battery Milestone With Ocean Infinity											
		Kraken Receives \$750,000 of Innovation Funding											
		Kraken Notified of Successful Bid on International Mine Hunting Upgrade Program											
	Sept	Kraken to Establish Robotics-as-a-Service Joint Venture											
		Kraken Awarded \$2.9 Million KATFISH Contract from ThayerMahan Inc.											
	Aug	Kraken Awarded \$2 Million Deep Sea Battery Contract											
	All the rest	https://krakenrobotics.com/investors/news-releases/2019-press-releases/											

<https://www.cantechletter.com/2016/02/underwater-drones-a-market-easy-to-fathom/>

Disclosure: I am long Kraken Robotics Inc shares.

Appendix



US\$5B Maritime Robotics Market – Key Drivers

Military

- Mine Warfare - 500,000 underwater mines
- Anti-Submarine Warfare - 400 operational submarines
- Intelligence, Surveillance, Recon - Special forces, covert operations, environmental assessment
- Resurgence in underwater warfare and emergence of seabed warfare driving demand for unmanned systems for “dull, dirty, dangerous” missions.
- Unmanned Systems budget growing rapidly but still just 1.4% of US DOD F19 budget. F19 Budget for Unmanned Maritime Systems \$1.3 billion.



Offshore Energy

- >7,000 fixed platforms; >200 floating platforms
- >4,000 subsea wells; >650 offshore drilling rigs
- >200,000 km subsea pipelines
- >4,000 offshore wind turbines
- >600,000 subsea connectors
- Maintenance of existing infrastructure is a major driver for underwater sensors and robotics.
- Sensor data key for data analytics and digital twins



Other Areas

- Ocean Science, fisheries, hydrography, treasure hunting, ocean mining

Kraken's Business Strategy



DATA ANALYTICS

- Recurring Revenue from Data Analytics

ROBOTICS as a SERVICE

- Recurring Revenue from Subsea Data Acquisition

UNDERWATER PLATFORMS

- KATFISH™ – High Speed Towed SAS System
- THUNDERFISH® - Untethered AUV System
- JELLYFISH™ - Hybrid-ROV System
- TENTACLE™ - Winch and ALAR Systems

COMPONENTS

- Pressure Tolerant Batteries
- Rim Driven Thrusters

SENSORS

- AquaPix® - Synthetic Aperture Sonar
- SeaVision® - 3D Laser Scanner
- SmartCam™ - High Res Camera



