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Issue No. 3 / FALL 2024

Expanding Our Reach: Supporting Innovative Marine Technologies

Advancing Indigenous Innovators in the Blue Economy

Empowering Educators Across Canada with COVE's Deep Dive into Data Program

Engage. Expand. Accelerate.

Connecting international marine technology innovators to the North American market.

Unlock international business growth with COVE and Innovate UK's Global Incubator Programme: Ocean ScaleUp Accelerator. This exclusive 12–18 month program immerses UK marine tech enterprises in the vibrant Canadian market, featuring high-impact in-market visits and showcasing opportunities. COVE's strategic support ensures participants gain invaluable connections, access to project financing, and tailored guidance for commercializing their innovations in Canada and beyond.

Propel your business forward with COVE's expertise and unlock the full potential of your marine technology solutions.

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CONTENTS

Cover photo: Launching COVE Demo Day 2024: The CH149 Cormorant Search and Rescue helicopter, demonstrating a collaborative effort between the Canadian Armed Forces, Halifax Regional Police, Halifax Regional Fire & Emergency, and Dominion Diving, on June 5th in the Halifax Harbour.

Photo credit: Saltwire/Tim Krochak

INTERNATIONAL PERSPECTIVE

Expanding Our Reach: Supporting Innovative Marine Technologies

COVE is pleased to announce a significant expansion in its efforts to support companies in developing and commercializing innovative marine technologies. This initiative is part of COVE's ongoing commitment to fostering innovation and excellence in the marine sector.

"Joining forces with MITRE in this transformative partnership allows us to pool our resources and expertise, enhancing support for innovative marine technologies and accelerating their path to commercialization," said Melanie Nadeau, Chief Executive Officer of COVE. "This collaboration is a crucial step in driving forward our mission to foster sustainable growth and innovation in the global marine sector."

In line with this expansion, COVE has forged a new partnership with MITRE, a renowned leader in research and development with dual headquarters in Massachusetts and Virginia. This collaboration was solidified through the signing of a memorandum of understanding (MOU), aimed at hosting comprehensive testing and training programs for our respective communities.

"Collaboration is the only way we will create impactful advances in maritime technology," said Nicholas Rotker, MITRE Chief BlueTech Strategist. "This work with COVE will catalyze and jumpstart important BlueTech innovations."

Key highlights of this partnership include:

- **Shared Testing Infrastructure**
  Both COVE and MITRE will leverage our advanced facilities to provide a robust testing environment for emerging marine technologies.

- **Workforce Development Training**
  COVE and MITRE are dedicated to cultivating a skilled workforce by offering specialized training programs that address the needs of the marine sector.

- **Mutual Interests**
  The collaboration will focus on areas of shared interest, ensuring that their combined efforts yield significant advancements in marine technology.

The new partnership with MITRE marks a significant milestone in COVE's mission to drive innovation and support the growth of marine technology companies. Anticipation is high for the impactful outcomes that will emerge from this collaboration, further solidifying COVE's commitment to excellence in the global marine sector.

Innovating marine technology at the MITRE BlueTech Lab in Bedford, Massachusetts, USA.

Image Source: MITRE

Canadian Edge: Unlocking the Potential of Dual-Use Technologies

COVE has long connected people, ideas, and resources to advance Canada's marine sector. As the ocean tech landscape evolves, COVE is now focusing on dual-use technologies, which serve both commercial and defence applications. These technologies present significant opportunities for innovation, national security, and economic growth. Autonomous vessels, sonar, and acoustics are examples of dual-use applications that can monitor both subsea infrastructure and submarine activity.

Canada's increasing defence spending can be leveraged to develop sovereign capabilities that benefit broader markets, strengthening companies' economic bases and resilience. The National Shipbuilding Strategy offers Canadian firms the chance to integrate into global supply chains.

COVE, along with NATO's DIANA program, supports innovators by providing funding, training, and access to defence expertise. By investing in dual-use technologies, Canada can safeguard its maritime and Arctic territories, drive economic growth, and lead in environmental stewardship. Strategic investments and collaborations are key to unlocking these opportunities, ensuring a sustainable future for Canada's oceans while maintaining a competitive edge globally.

NATIONAL PERSPECTIVE

Tracking Growth in Canada's Ocean Enterprise Sector

Image Source: Charlie Chesvick

The Ocean Enterprise business cluster, known as the 'New Blue Economy,' involves knowledge-based activities utilizing marine resources for economic growth. This sector is essential in developing innovative solutions to address food security, climate change, and the provision of energy and natural resources.

The Marine Technology Society (MTS) in the United States and the Society for Underwater Technology (SUT) in the United Kingdom conduct comparative studies in this field. The Canadian Ocean Enterprise Study follows similar methodologies, enhancing global understanding of the marine technology sector's impact on the Blue Economy.

COVE began studying the Ocean Enterprise sector shortly after opening, releasing its initial whitepaper in 2020, followed by a bi-annual report in 2022. The 2022 report highlighted substantial growth in Canada's Ocean Enterprise sector. Building on the 2020 benchmark study, the 2022 follow-up report revealed a 31% increase in Canadian Ocean Enterprise companies, growing from 122 in 2020 to 160 in 2022. This growth is expected to continue, demonstrating the sector's resilience and potential.

A 2024 study is currently underway to continue tracking the progress and trends within Canada's Ocean Enterprise sector. This study aims to provide further insights into this dynamic and growing industry.

"Between 2020 and 2024, we've witnessed remarkable growth across Canada's Ocean Enterprise sector, from coast to coast to coast. As we approach the release of our 2024 report, we're excited to explore further advancements, particularly in challenging environments like the Arctic and Antarctic," said James Kesten, Director of Venture Growth and lead of the 2024 study. "COVE's focus remains on fostering innovation and expanding our global impact in marine technology."

Key findings from the 2022 report include the predominance of export-focused Canadian Ocean Enterprise companies, with significant markets in the Arctic and Antarctic. There has been an increase in intermediary activities and value-added products, such as ocean observation technology and autonomous underwater vehicles. The 2022 study found that the sector did not stagnate during the pandemic, with companies expressing confidence in continued revenue and headcount growth.

The complete 2020 and 2022 studies are available on COVE's website, and the 2024 study is expected to be released this fall.

OPERATIONAL EXCELLENCE

Behind the Scenes of COVE's State-of-the-Art Marine Terminal

COVE stands as a beacon of progress for the marine industry. Nestled on the shores of Halifax Harbour, the world's second-largest natural harbour, COVE's state-of-the-art marine terminal is designed to support and nurture budding entrepreneurs and established companies alike. COVE's impressive facility is not just about its physical infrastructure but also about fostering a culture of creativity and sustainability.

The facility features 51,000 square metres of wharf face, including two finger piers and a small boat facility with depths of up to 15 metres. The 32,400 square metre site offers extensive storage for commercial, research, and military vessels, equipped with up to 600 VDC electrical stations for industrial and electric-powered vessels, crane access up to 200 tons, and year-round internet, electricity, and potable water.

COVE is dedicated to environmental stewardship, evidenced by its Green Marine Certification. The site includes 5,000 square metres of office, workshop, and shared spaces, encouraging collaboration among SMEs and larger companies to promote innovation and sustainability in the marine sector.

The Operations team at COVE, under the leadership of Sheila King, Vice President of Operations, ensures that all activities align with the organization's goals and standards.

Mitch Owen, the Director of Operations, is pivotal in maintaining smooth and efficient terminal operations. He oversees client experiences, manages technical projects, and implements safety and operational efficiency initiatives. With over a decade of marine experience, Mitch is also instrumental in developing training programs, managing vessel refits, and leading the team.

Marine Technical Specialists Kennedy Sittler and Kirklen Johnson, along with Site Technician Josh Squires, further contribute to COVE's success. Kennedy, with a Bachelor of Science from Dalhousie University and an Advanced Diploma in Ocean Technology from NSCC, and Kirklen, with a background in marine mammal conservation and diplomas from NSCC, offer valuable technical expertise. Josh brings extensive experience from the Navy and waterfront maintenance.

COVE stands as a beacon of progress, supported by a dedicated team committed to operational excellence and sustainability in the marine industry. Its state-of-the-art marine terminal is a testament to Canada's commitment to innovation, sustainability, and entrepreneurship in the marine industry. With robust infrastructure, a focus on environmental stewardship, and a dedicated team, COVE is set to continue driving forward the global marine sector, turning innovative ideas into tangible opportunities.

COMPANY FEATURE: SPIRI ROBOTICS

Spiri's Autonomous Systems Propelled to Resolve Global Ocean Challenges

Patrick Edwards-Daugherty founded Spiri Robotics with a vision to leverage autonomous systems for addressing global challenges. Initially drawn to robotics through sensor miniaturization in 2011, he saw potential in autonomous technology for tackling a wide array of issues including climate, defence, ecological, and economic challenges.

"I knew as a way to approach our own planet, the climate, the challenges here, defence and government but also ecological and economic, we needed more than just humans to do it," said Edwards-Daughtery. "We needed a way to actually interact with the real world that we live in. The autonomous systems seemed to be the way to do it."

In 2015, Edwards-Daugherty restructured the company, giving birth to the current Spiri Robotics, which focuses on autonomous systems for air, sea, and land. Shortly afterward, he learned about the development of COVE and was eager to be involved from an early stage. "This is a water planet, and dealing with the environment means dealing with the ocean," he noted. Spiri's robots now deploy sensors and extract readings from water, benefitting significantly from COVE's collaborative environment.

By collaborating with other tenants that specialize in sensors and equipment, Spiri has been able to enhance its robotic systems. "The challenges in the ocean are too vast for any single organization. Here, we can form coalitions where everyone contributes," Edwards-Daugherty emphasized. He views COVE as a unique hub where diverse companies—ranging from drone manufacturers to sensor developers and underwater cable experts—work together to solve complex ocean challenges.

Beyond the innovative collaborations, Edwards-Daugherty pointed out the strategic advantage of COVE's location in Nova Scotia. Having experienced various global ocean tech hubs, he believes Nova Scotia stands out as a global leader in ocean technology development. "For every global ocean issue, you find a concerned entity in Nova Scotia needing a solution or mitigation strategy," he stated. "Nova Scotia is well-balanced. If you can make it here, you can make it anywhere."

SAMQWANE'JK IMPACT REPORT

Advancing Indigenous Innovators in the Blue Economy

Samqwane'jk (pronounced suhm•kwan•āj•ka) translates to "Those who love the water." The project's whale logo, inspired by the Kluskap legend "How Glooscap Found Summer," symbolizes Whale as a loyal guide and wise friend. This imagery reflects the deep connection between people and the ocean, highlighting our roles both above and below the surface.

Launched in 2021, Samqwane'jk connects Indigenous businesses with ocean technology companies in Atlantic Canada to enhance sustainability and foster innovation. Led by Ulnooweg, in partnership with COVE and Upswing Solutions, Samqwane'jk's objectives include:

- Forge partnerships to boost competitiveness.
- Encourage innovation and knowledge sharing between Indigenous and non-Indigenous ocean businesses.
- Provide training and support for Indigenous ocean enterprises.
- Advance progress towards the United Nations Sustainable Development Goals (SDGs).

Supported by a grant from Employment and Social Development Canada (ESDC) under the Sustainable Development Goals (SDGs) Program, Samqwane'jk initiated three demonstrator projects. These projects align with the SDGs, which seek to end poverty, protect the planet, and ensure peace and prosperity by 2030. Canada supports these goals through its National Strategy.

The initiative focuses on SDGs pertinent to Indigenous and coastal communities and the Atlantic Canada blue economy. Key SDGs were selected through consultations with Indigenous representatives, and project applicants were evaluated on impact, scalability, technological needs, feasibility, timelines, and costs.

Highlights of the educational, environmental, and economic impact achieved by the three companies through Samqwane'jk are:

GOAL 4:
ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

IMPACT HIGHLIGHTS:
3D Wave Design developed an accessible 3D interactive tool to map sea-level rise and climate impacts, aiding community education and long-term mitigation efforts.

Miawpukek Horizon provided personalized support for Indigenous community members pursuing seafarer training and certification.

GOAL 8:
PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

IMPACT HIGHLIGHTS:
With support from Miawpukek Horizon, 14 Indigenous community members gained seafarer certifications, with six undertaking advanced training for piloting vessels.

The Samqwane'jk project represents a significant step forward for Indigenous innovation in the marine sector, breaking down traditional barriers and fostering sustainable growth. By connecting Indigenous businesses with new collaborators, investors, and markets, it aligns with global development goals, promoting environmental and economic sustainability. This targeted support has driven measurable outcomes in sustainability and community resilience.

GOAL 10:
PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

IMPACT HIGHLIGHTS:
Indigenous seafarers supported by Miawpukek Horizon are gaining expertise in emerging ocean technologies, enhancing career prospects and promoting equality in opportunities.

GOAL 11:
MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

IMPACT HIGHLIGHTS:
3D Wave Design's modeling helped Miawpukek First Nation mitigate forest fire risks through improved community planning and investment in fire prevention measures.

Additionally, 3D Wave Design's technology has assisted other municipalities in Atlantic Canada, such as Lunenburg and Mahone Bay, in planning resilient infrastructure and adapting to climate change impacts.

GOAL 13:
TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

IMPACT HIGHLIGHTS:
3D Wave Design's climate modeling supports Indigenous communities in understanding and preparing for climate risks like sea-level rise, empowering them with critical environmental data.

The project has also addressed historical, social, and economic barriers faced by Indigenous communities, encouraging inclusive participation in the marine sector. Ulnooweg, as the lead partner, is exploring ways to sustain and expand Samqwane'jk. This includes seeking continued support from agencies such as Employment and Social Development Canada (ESDC) and the Atlantic Canada Opportunities Agency (ACOA), as well as private-sector funding, and maintaining collaboration with innovative organizations like COVE.

As Samqwane'jk looks ahead, expanding this successful model and continuing to dismantle barriers for Indigenous participation will be crucial for creating a more inclusive, sustainable, and innovative marine sector.

For more information, read the Samqwane'jk Impact Report at **coveocean.com/reports-insights/**.

COMMUNITY NEWS

SEATAC Secures Investment to Boost Ocean Tech Innovation

SEATAC, Nova Scotia Community College's ocean-focused Technology Access Centre, has secured a $1.75 million renewal grant from the Natural Sciences and Engineering Research Council of Canada. This funding, part of a $30.6 million federal investment through the College and Community Innovation program, will support ocean tech R&D over the next five years. SEATAC, Nova Scotia's first TAC, aids small and medium-sized ocean tech businesses and provides students with hands-on experience. This renewal underscores the growing competition and importance of these centers in advancing innovation and industry competitiveness.

Source: seatacsolutions.ca

Image Source: SEATAC

Government of Canada Boosts Larus Technologies' Product Development and Growth

The Government of Canada has announced a $1.5 million repayable investment in Larus Technologies, an Ottawa-based AI software company and COVE resident. Funded through FedDev Ontario, this investment will boost Larus's job creation and software development, focusing on a SaaS product for retail, e-commerce, and supply chain B2B markets.

This move highlights Canada's commitment to technological innovation and economic growth, enhancing its global AI competitiveness. Ministers Jenna Sudds and Yasir Naqvi emphasized the role of this support in maintaining Ottawa's tech hub status and creating skilled jobs. The funding will help Larus develop new intellectual properties, improve user experience, and scale operations, aiming to establish itself as a global leader. George Di Nardo, President and CEO of Larus Technologies, noted the funding's role in accelerating their AI SaaS platform's development. This reflects the Canadian government's dedication to advancing technology and supporting high-tech businesses.

Source: larus.com

Image Source: Larus Technologies

BlueGrid, Evoy and ABCO Announce World's First Successful Vessel-to-Grid

BlueGrid, Evoy, and ABCO have successfully demonstrated the world's first high-power vessel-to-grid (V2G) technology. This innovation enables bi-directional power transfer between electric vessel batteries and electricity grids, offering new revenue streams for vessel owners and critical energy storage for grids.

According to Evoy CEO Leif Stavøstrand, this milestone is crucial for the maritime sector's transition to electric, allowing vessels to support the grid and amplify renewable energy use. BlueGrid CEO Andrew Boswell highlighted the financial and environmental benefits, underscoring the potential for scaling V2G technology to accelerate the adoption of electric vessels.

Image Source: BlueGrid

This V2G success integrates Evoy's electric propulsion system, ABCO's boat-building expertise, and BorgWarner's bi-directional charger, overseen by BlueGrid for optimal grid interaction. With 17.9 million carbon-powered vessels in the US and Europe, scaling V2G technology can unlock significant financial and environmental benefits, driving the adoption of electric vessels worldwide.

Source: bluegrid.energy

How AI Could Speed Up Search and Rescue Missions at Sea

At COVE Demo Day in Dartmouth, over 50 marine tech companies showcased innovations, including Zelim, an Edinburgh-based firm unveiling AI software for ocean search and rescue. With a database of over 5 million images of a person floating in the ocean, Zelim's AI surpasses human visual capabilities. Melanie Nadeau, CEO of COVE, highlighted its impact: "This is real-time innovation."

Sam Mayall, CEO of Zelim, noted applications in offshore oil, gas, and cruise sectors. Although not yet used for rescues, contracts with US oil companies and cruise lines are pending. Mayall suggested benefits for coast guards, aiming to expedite searches and reduce their duration. The AI excels in identifying ocean surface objects consistently but cannot detect submerged items. Mayall admitted AI's consistency but noted imperfections.


Image Source: Michelle Doucette Photography

Zelim CEO, Sam Mayall, presents his AI technology at COVE Demo Day.

At Dartmouth's live demo, the AI identified a dummy floating in the harbour, showcasing its reliability. COVE's Demo Day event highlighted its role in advancing marine tech to solve oceanic challenges globally.

Source: CBC.ca

COVE NEWS

Empowering Educators Across Canada with COVE's Deep Dive into Data Program

In 2022, COVE unveiled a groundbreaking initiative to enrich high school education across Canada with real-world ocean data. Known as Deep Dive into Data, this program empowers educators to integrate cutting-edge ocean technology into their curriculum, fostering hands-on learning experiences for students.

Deep Dive into Data is tailored for high school educators nationwide, including those in diverse communities such as Black and First Nations. This initiative centres on ocean data collected from COVE's advanced multi-sensor seabed platform, a critical component of the Stella Maris Testing Solution. Through immersive workshops, teachers gain proficiency in analyzing ocean technology data, equipping them to develop engaging data projects within their classrooms.

Melanie Nadeau, Chief Executive Officer of COVE, emphasizes the transformative impact of Deep Dive into Data: "This program bridges educational gaps by providing Canadian students with practical exposure to real ocean data, opening pathways to diverse career opportunities within the sector."

Funded by the Government of Canada through CanCode, Deep Dive into Data is a collaborative

effort involving key partners across the country. DeepSense and SuperNOVA in Nova Scotia, Women in Resource Development Corporation and OceansAdvance in Newfoundland and Labrador, and Ocean Wise in British Columbia contribute to the program's success, ensuring widespread implementation and support.

The Honourable François-Philippe Champagne, Minister of Innovation, Science and Industry, underscores the program's strategic importance:

> "Investing in resources that equip students with skills like coding and data analytics is essential for Canada's future economic prosperity. These skills are crucial for students as they prepare to enter the dynamic 21st century economy."

Deep Dive into Data exemplifies COVE's dedication to bolstering Canada's marine technology sector by nurturing a highly skilled and innovative workforce. By offering a digital toolkit accessible on the COVE website, the program ensures continuous accessibility and scalability for educators nationwide.

Through Deep Dive into Data, COVE is not only advancing educational opportunities but also fortifying Canada's leadership in ocean innovation, paving the way for a brighter future in marine technology.

This program demonstrates how COVE is transforming high school education by integrating real ocean data into classrooms across Canada, supported by strategic partnerships and government funding.

COVE Showcases Marine Defence Innovation, Strengthening National Security and Sustainability

The Honourable Bill Blair, Minister of National Defence, and Darren Fisher, Member of Parliament for Dartmouth-Cole Harbour, visited COVE to emphasize the critical role of COVE's collaboration with Defence Research and Development Canada (DRDC) and its function as an accelerator site for the NATO Defence Innovation Accelerator for the North Atlantic (DIANA). Their visit highlighted the significant advancements in marine technology being developed at COVE, which are crucial for Canada's security and environmental sustainability.

Below: Dalhousie University's glider program

Above: Kraken Robotics (left),The Honourable Bill Blair, Minister of National Defence, meets with Melanie Nadeau, CEO of COVE, and members of COVE staff (right)

During the visit, Minister Blair toured COVE's facility and interacted with leading companies in marine technology. These companies are advancing solutions that enhance national security, promote environmental sustainability, and drive economic growth. Their innovations address complex marine sector challenges and play a vital role in Canada's economy and security. With increasing maritime operations importance for national defence, the technologies developed at COVE ensure Canada's naval forces are equipped to respond effectively to emerging threats. Additionally, these sustainable technologies contribute to protecting marine ecosystems, essential for the planet's long-term health.

Minister Blair's visit included discussions on advancing marine technology innovation, reinforcing COVE's mission and the role of innovation in enhancing Canada's maritime capabilities.

> "Our collaboration with DRDC and participation in NATO DIANA reflect COVE's commitment to innovation and dual-use technologies benefiting both defence and civilian sectors," said Melanie Nadeau, Chief Executive Officer of COVE. "Minister Blair's support underscores COVE's leadership in marine technology, driven by impactful programs and globally recognized initiatives."

The marine technology sector is a key economic driver, creating high-tech jobs and fostering innovation. COVE's companies are positioning Canada as a global leader in marine technology, attracting investment, promoting international partnerships, and ensuring competitiveness in the evolving field.

COVE expressed appreciation to Minister Blair and MP Fisher for their support, which highlighted the significance of COVE's work and inspired continued innovation in marine technology.

Image Source for Full Article: Department of National Defence

Advancing Ocean-Based Carbon Dioxide Removal

As global interest in climate solutions grows, initiatives like the Joint Learning Opportunity in Halifax play a crucial role in advancing sustainable practices and combating climate change. Backed by philanthropic, private, and academic sectors, these projects drive progress towards a sustainable future.

The Carbon to Sea Initiative (C2S) and COVE have launched a Joint Learning Opportunity to support marine carbon dioxide removal (mCDR) technologies. This initiative aids scientists and companies in overcoming the logistical and financial challenges associated with mCDR research.

> "COVE serves as a hub for academic institutions, private innovators, and technical nonprofits, providing industrial-level support to over 65 organizations," said Melanie Nadeau, Chief Executive Officer of COVE. "Our partnership with C2S positions Halifax as a global leader in climate solutions."

mCDR technologies are crucial for achieving net-zero emissions by addressing ongoing climate change emissions. While reducing emissions is vital, additional measures are needed to meet climate goals.

Dr. Antonius Gagern, Executive Director of C2S, highlighted the initiative's significance: "C2S is evaluating ocean alkalinity enhancement (OAE) as a strategy to complement emissions reductions. This research opportunity, in collaboration with COVE, Planetary, and Dalhousie University, is a significant step forward."

To tackle the climate crisis, it's not enough to reach net-zero emissions; we must also achieve net-negative emissions by removing more carbon from the atmosphere than is emitted. mCDR, including OAE, is key to this effort.

Planetary, a leader in OAE, emphasizes its role in a comprehensive climate strategy. OAE mimics natural processes by using alkaline rocks to neutralize CO2, storing carbon in the ocean for millennia.

With emissions reduction alone insufficient, extensive mCDR efforts are necessary. The Intergovernmental Panel on Climate Change (IPCC) models show that limiting global warming to 1.5°C or 2°C above pre-industrial levels will require significant mCDR implementation.

The Joint Learning Opportunity by C2S and COVE is vital for advancing mCDR technologies, particularly OAE. This initiative fosters collaboration among researchers, innovators, and funding partners to accelerate the development of sustainable climate solutions. For more details on the Joint Learning Opportunity, visit the C2S and COVE websites.

INDUSTRY CHALLENGES

Fostering Innovations Through a Novel Multi-Agency Collaboration

With the success of COVE's Digital Harbour Initiative, interest from external partners for a potential Test and Evaluation program grew. Defence Research and Development Canada's Atlantic Research Centre (DRDC ARC) approached COVE to collaborate on testing that supports their research and development activities, focusing on addressing a backlog and preparing for new funding related to NORAD Modernization and Arctic sovereignty.

To meet this need, DRDC ARC plans to engage companies over the next five to ten years to develop and test innovative solutions through the Innovation Solutions Canada (ISC) Challenge and Testing streams. In December 2023, COVE and DRDC ARC signed a Collaboration Agreement, followed by the first Project Agreement in March 2024, detailing the Seasonal Vessel Tracking Challenge (SVT). The SVT aims to stimulate the development of novel solutions by Canadian industry and entrepreneurs. It involves deploying underwater acoustic arrays in Halifax Harbour to collect data from surface vessels, including Halifax Ferries tracked by GPS, and additional data on current velocity, speed of sound, weather, and AIS.

DRDC ARC and the ISC program will work with Canadian industry to create innovative solutions via a funded research challenge.

COVE will manage the project, provide technical infrastructure, and ensure compliance with ISC Challenge conditions. Over 18 months, COVE will assist in data collection and distribution. This data will be compiled into a Public Database, accessible through a COVE-managed web portal. Challenge participants will use this data to develop tracking software for surface vessels under various environmental conditions.

Winners will receive access to both acoustic and non-acoustic data describing environmental and maritime conditions through the COVE-managed portal. This collaboration signifies a major advancement in Canada's technological and defence capabilities. By leveraging COVE's expertise and Canadian industry's innovation, the partnership addresses critical national security and Arctic sovereignty challenges, driving innovation and developing cutting-edge dual-use solutions. Michel Lechmann, COVE's Vice President of Growth, highlighted the initiative's importance, emphasizing COVE's commitment to project success and advancing Canada's dual-use technology and defence strategy.

COVE and Thales Canada Announce the 2024 Naval Technology Innovation Challenges Winners

On June 4th, COVE and Thales Canada proudly announced the winners of the 2024 Naval Technology Innovation Challenges at the H2O: Home to Overseas Conference. Congratulations to Aeon Blue Inc. and Hexsor Scientific Canada Inc. on their outstanding achievements!

As the prime contractor of the AJISS program, Thales Canada partnered with COVE to launch these challenges, providing start-ups and SMEs in Atlantic Canada with the opportunity to address some of the Royal Canadian Navy's most complex issues. These included developing innovative solutions for greenhouse gas capture on naval ships, in line with the Department of National Defence's Climate & Sustainability Strategy, and the automated cleaning of air ventilation systems to enhance onboard air quality.

AEON BLUE

Aeon Blue Inc., in partnership with COVE resident company Enginuity Inc., emerged as the winner of the Capturing Maritime Greenhouse Gases Challenge. This pioneering start-up is dedicated to creating carbon-negative fuel from wind energy, saltwater, and captured carbon dioxide. Their technology, "The Mother," produces eFuel that is highly carbon-negative, capturing and storing up to seven tons of CO_2 per barrel. This sustainable and cost-effective alternative to fossil fuels has the potential to significantly reduce carbon emissions without requiring additional infrastructure. Their collaboration with Thales Canada will focus on advancing carbon capture technologies for naval vessels, contributing to significant environmental benefits.

HEXSOR® SCIENTIFIC Analytical Instruments

Hexsor Scientific Canada Inc., the winner of the Clean Air in Ships Challenge, is known for its expertise in advanced analytical systems that detect and characterize contaminants. Their cutting-edge technology will be instrumental in monitoring and improving air quality on naval ships, ensuring a healthier environment for naval personnel. The collaboration with Thales Canada will enhance the implementation of these solutions, addressing a critical need within the maritime sector.

Above from left to right: James Kesten, Director of Venture Growth at COVE, Cara Salci, Vice President, Strategy & Government Relations for Thales Canada, Dr Jeyan Sreekumar, President of Hexsor Scientific Technologies, and Melanie Nadeau, CEO of COVE.

Hexsor Scientific Canada Inc. was incorporated in March 2024 and is a subsidiary of Hexsor Scientific Inc. which is based in the United Kingdom. The parent company took part in COVE and Innovate UK's first Ocean ScaleUp Accelerator Program in 2023, and has since reached many milestones, positioning itself as a leader in marine technology innovation. This new collaboration with Thales Canada not only highlights Hexsor's rapid growth and technical prowess but also underscores the significant impact of international partnerships in advancing marine technology.

A special thank you is given to COVE's Challenges partner, the Atlantic Canada Opportunities Agency (ACOA), for their invaluable support in funding the Naval Technology Innovation Challenges. Their contribution is instrumental in driving innovation and creating new opportunities within the sector. The success of this initiative underscores the importance of collaborative efforts in addressing environmental and operational challenges faced by the Royal Canadian Navy. COVE and Thales Canada are committed to supporting these groundbreaking technologies, fostering a culture of innovation, and contributing to the sustainability and efficiency of naval operations.

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