



Critical Industrial Technologies Sector Adoption Program

Critical Technology for Industrial Innovation: Advancing Robotics-Driven Transformation and Sector Leadership

Challenge Launch	January 17, 2025	Challenge Deadline	February 14, 2025
Available Funding	Up to \$500,000 2:1 match from applicant	Timeline	Maximum project duration of up to 1 year
Eligible Sectors	<ul style="list-style-type: none"> Advanced Manufacturing Agri-Food Construction Mining 	Eligible Technologies	<ul style="list-style-type: none"> Robotics Solutions incorporating additional Critical Technologies below are eligible and encouraged, provided they are seamlessly integrated with the robot-driven solution. These technologies should enhance and extend the proposed robotic functionality: <ul style="list-style-type: none"> AI/ML 5G & Advanced Networks Blockchain Cybersecurity Quantum
Challenge Info Webinar	<ul style="list-style-type: none"> January 22 2025, at 11:00am REGISTER 		
Challenge Statement	<p>In the era of Industry 4.0, robotics technology stands as a cornerstone of industrial transformation. Ontario's key sectors - Advanced Manufacturing, Agri-Food, Construction, and Mining - present unique opportunities for pioneering robotics applications. This challenge calls upon Ontario-based SMEs to spearhead consortia-driven projects that leverage advanced robotics to revolutionize sector-specific processes, enhance operational excellence, and catalyze widespread adoption across these critical industries. We seek projects that implement advanced robotics applications, with a clear focus on scalability, real-world deployment, and sector-wide impact that disrupts the status quo.</p>		

Key Project Examples

Successful projects will demonstrate breakthrough applications in robotics technology, emphasizing commercial viability and sector-wide implementation. Project areas of focus include, but are not limited to:

Automated Material Handling: Deploy physics enabled robotics to optimize the sorting, movement, storage, and management of material, including raw, work in process, and finished goods - focusing on reducing costs, improving efficiency, and increasing inventory accuracy across operations, especially in a mixed product environment.

Precision Robotics for Quality Control: Utilize vision guided robotics for real-time quality inspection and monitoring to enhance product quality, ensure safety compliance, and minimize losses through early detection, and prevention.

Robotic Process Automation (RPA): Implement robotics for automating repetitive, labor-intensive, or hazardous tasks, increasing operational efficiency and freeing up workforce capacity for higher-value, and/or safer activities.

Advanced Robotics for Construction Automation: Integrate robotics for tasks such as site inspection, welding, and bricklaying, improving precision, productivity, and safety on worksites.

Advanced Collaborative Robotic Infrastructure: Integrate capabilities into a collaborative robotic platform to allow for automation use cases where space constraints make a traditional robotic cell unviable.

Mobile Robotics: Develop commercial applications for Autonomous Mobile Robots (AMR), Unmanned Aerial Vehicles (UAV), and Advanced Humanoid Robots (AHR)

Expected Impact and Adoption

Selected SMEs are encouraged to partner and collaborate with industry partners who are committed to deploying and scaling advanced robotic solutions to transform sectoral practices. Projects should aim to improve:

Scalability and sectoral impact: solutions have applicability across multiple sites within a sector, or across multiple sectors, with the potential for adoption as industry standards.

Operational Equipment Effectiveness and Resource Management: Robotics should directly contribute to lowering costs, driving uptime, improving output quality and/or speed.

Workforce Augmentation and Skills Development: Solutions should enhance human capabilities, either by upskilling workers with new easier to use robotic tools, or automating repetitive tasks to allow the workforce to focus on higher-value activities, especially in hazardous operations such as deburring or sanding.

The [Critical Industrial Technologies](#) initiative is dedicated to supporting Ontario-led consortia focused on developing advanced robotic solutions, driving greater innovation, productivity, and resilience across multiple sectors. Proposals integrating additional Critical Technologies -

	<p>including 5G & Advanced Networks, AI, Blockchain, Cybersecurity, and Quantum – are strongly encouraged. These technologies must complement and extend the capabilities of the proposed robotic solutions, driving greater innovation, productivity, and resilience across the sector.</p> <p>We invite Ontario-based SMEs to collaborate by forming a consortium to develop and implement Robotic sector transforming solutions.</p>
<p>Project Details</p>	<ul style="list-style-type: none"> • The lead applicant MUST be an Ontario-based SME and must meet the requirements identified in the Sector Adoption Program Guidelines, with a consortium that includes at least one end-user or industry partner who can validate the solution’s commercial readiness and impact. • The primary project partner MUST be an end user or customer of the proposed solution, with operations of significance in one of the sectors and should exhibit market “pull” for the robotic solution that addresses pressing sector needs. • Additional project partners with specific robotics capabilities are encouraged to provide robotic platforms, software, tools, or overall competency to the project • Project should aim for demonstrable outcomes within a one-year timeframe, laying the groundwork for wider industry adoption and longer-term economic growth. • Proposed projects can be enhancements to existing products/services or new products/services. • Project partners will be required to sign a letter of support and if approved the OCI project funding agreement. • Applicant must have annual revenues exceeding \$200,000 and 10 full time employees • Project activities need to be carried out in Ontario. • The Project partner consortia will be required to present to an External Review Panel as part of the full application process. • SMEs and their partners will position Ontario’s strategic industrial sectors at the forefront of global innovation.
<p>Project Outcomes and Participation Benefits</p>	<ul style="list-style-type: none"> • Projects must clearly demonstrate how their robotic solutions will significantly advance one of the four sectors in Ontario, and what the role of the primary project partner is both in the sector, and in the project • Selected projects will serve to drive sustainable growth by increasing precision, quality, manufacturing complexity, and product mix, while minimizing inputs, as well as infrastructure costs traditionally associated with robotic investment. • Proposals should prioritize sectoral impact, enhanced operational efficiency, resource optimization, safety impact, and/or integration of sustainable operational practices. • Projects should focus on augmenting processes for these purposes, rather than replacement of human capital. • Participating SMEs will cultivate robust partnerships with Ontario-based companies and industry leaders, leveraging collective expertise and resources to fuel innovation. • Approved projects are expected to create new employment opportunities and contribute to economic growth within the partner organization and broader sector.