



MULTIMODAL FREIGHT SOLUTIONS



**THREE CHALLENGES WITH CITM PARTNERS
NOKIA AND INOVEX**

CITM Innovation Challenges Program

Multimodal Freight Solutions Stream

Innovation Challenges Background

CITM has launched a series of Innovation Challenges with CITM Industry Partners Nokia and Inovex. The goal of these innovation challenges is to bring together innovation technology start-up companies based in Ontario with larger Technology or Platform companies with partner ecosystems and their Industry / Enterprise partners who need solutions to critical technology or business challenges. The Innovation Challenge “challenge statements”, are created by the Industry/Enterprise and Technology partners. The challenge statements stem from real-world issues. The Industry/Enterprise partners will, once a “winner” of the Innovation Challenge is selected, support a pilot or simulation to test and evaluate the successful entrant’s technology, product, or solution. Applicants entering the Innovation Challenges Program are invited to register to be a client of the Innovation Factory and access Innovation Factory business development support and resources. Those applicants who are successful winners of the Innovation Challenges Program are **required** to register both with the Innovation Factory as well as The Ontario Vehicle Innovation Network (OVIN).

The registration portal can be found [here](#) for information reference. Note this does not need to be completed to apply for the Innovation Challenge Program and you will be notified by e-mail when you are required to fill out this registration form.

Nokia and Inovex, the Industry and Technology partners in this Innovation Challenge are looking for innovative multimodal freight tracking solutions, freight management solutions (particularly those requiring or benefitting from 5G connectivity leveraging Nokia’s NDAC platform), vehicle, operator and personnel safety solutions, vehicle emissions reduction technologies and solutions and energy distribution system management and optimization solutions.

Who You Work With

Industry Partners – are the partners who become the end customer for applicant solutions. These partners also bring forward problems that form the core of the Innovation Challenges statements detailed below. Industry partners work alongside applicants whose solutions win each challenge to test pilot and iterate solutions with the hope of full-scale adoption.

Nokia is the Industry Partner for these Innovation Challenges

Technology Partners – are partners who typically provide technological services to industry partners and whose products form a core component or act as a foundation that applicants must

build from or include in their scope of solution. In some instances, technology partners will also double as the industry partner (this will be made clear when applicable).

Inovex is the Technology Partner for these Innovation Challenges

Innovation Challenge Partner's Core Areas of Expertise

Nokia is CITM's intelligent communications infrastructure solution program partner, providing access to the NDAC 5G wireless platform and data marketplace. NDAC 5G is a high-performance, end-to-end private wireless networking and edge computing platform.

Inovex a data analytics powerhouse, will support the analytics process and provide supplementary datasets.

Industry Challenge (Problem)

The transportation of heavy and large goods, on trucks of various sizes (typically from Class 6 to Class 8) and trains is increasing as supply chains evolve and optimize, delivery routes and modes of shipping change and as vehicles evolve from carbon-fuel based to Battery and Fuel-Cell based powertrains. Depending on the industry, company, and type of good, maintaining a clear view of where a good is at any point in its journey from one point to another. As well, during goods handling, safety of personnel, automation of goods handling to address labour shortages and always-on 5G connectivity are becoming increasingly important. Finally, as vehicle powertrains change, the needs for vehicle related issues such as predictive maintenance, where to locate recharge and refueling areas, as well as monitoring and managing the energy distribution and supply chains, also require new solutions.

CITM and our partners Nokia and Inovex, are looking for innovative multi-modal freight tracking solutions, freight management solutions, particularly those requiring or benefitting from 5G connectivity, leveraging Nokia's NDAC platform, vehicle, operator and personnel safety solutions, vehicle emissions reduction technologies and solutions and energy distribution system management and optimization solutions.

Three challenge statements (problems) have been made from the challenge the industry is facing which are described below.



*FREIGHT MONITORING AND TRACKING,
MULTIMODAL ROUTE OPTIMIZATIONS,
CARRIER AND DRIVER MONITORING AND
EFFICIENCY SOLUTIONS*



*OPTIMIZATION FOR THE SAFETY OF
PERSONNEL AT PORT, AIRPORT,
DISTRIBUTION CENTRE AND OTHER
FREIGHT HANDLING POINTS*



*LEVERAGE VEHICLE DATA TO
OPTIMIZE FOR VEHICLE SAFETY,
OPERATOR SAFETY, AND EMISSIONS
REDUCITON*

Challenge Statements Explained

Challenge One: Freight monitoring and tracking, multi-modal route optimization, carrier and driver monitoring and efficiency solutions

Solutions for freight monitoring and tracking, multi-modal route optimization, carrier and driver monitoring and efficiency particularly for ports and airports, but also for distribution centres, transfer stations and other key points of freight shipping.

Challenge Two: Optimization for the safety of personnel at port, airport, distribution centre and other freight handling points

Optimization for the safety of personnel at port, airport, distribution centre and other points of freight handling, including vehicle operators and other personnel. May include infrastructure-based solutions such as sensors and software, vehicle-based solutions, and person-based solutions such as wearables and smart, connected clothing.

Challenge Three: Leveraging vehicle data to optimize for vehicle safety, operator safety and emissions reduction

Connected vehicle monitoring, maintenance, and emission optimization solutions that leverage vehicle-based data and systems to optimize for vehicle safety, operator safety and emissions reduction.

The Application Process

To enter the challenge(s), interested applicants are required to submit a solution to these challenges (like an RFP) which will be presented to a panel of industry partner judges. A score card will be used to judge:

- the alignment to industry partner challenge statement

- technological readiness
- required infrastructure and capital needs
- intellectual property
- schema, data requirements and data flows
- physical testing space needed
- and other essential criteria

A group of **no more than five (5) applicant solutions** will be shortlisted and invited to participate in an in-person pitch and demo day of their proposed solution. A virtual meeting can be available if accommodations are required.

One applicant per challenge statement is selected by the industry partner to move into a test-piloting and demonstration project with the preferred outcome of full-scale adoption (either through strategic partnerships or sales).

The application portal for applicants to submit their solution proposals is now open and accepting applications until January 22, 2023, at 11:59pm. After this date and time, the portal will close for submissions.

The application portal can be found [here](#).



Innovation Challenges Scorecard and Weighting to Application Questions

70%
**INNOVATION &
TECHNOLOGY
QUESTIONS**



Does the solution leverage Nokia's NDAC platform?

How does the solution require or benefit from 5G?

How does the company solve for freight monitoring and tracking, multi-modal route optimization, and/or carrier and drive monitoring and efficiency solutions (if applicable)?

How does the company solve for optimization of the safety of port, airport, distribution center, and other aspects of freight handling, including personnel.

How does the company solve for monitoring, maintenance, and emission optimization in connected vehicles with respect to vehicle safety, and emissions reduction?

15%
**INNOVATION &
LOGISTICS
QUESTIONS**



Is the supplier in Ontario?

Stage of the Company's produce development (TRL)

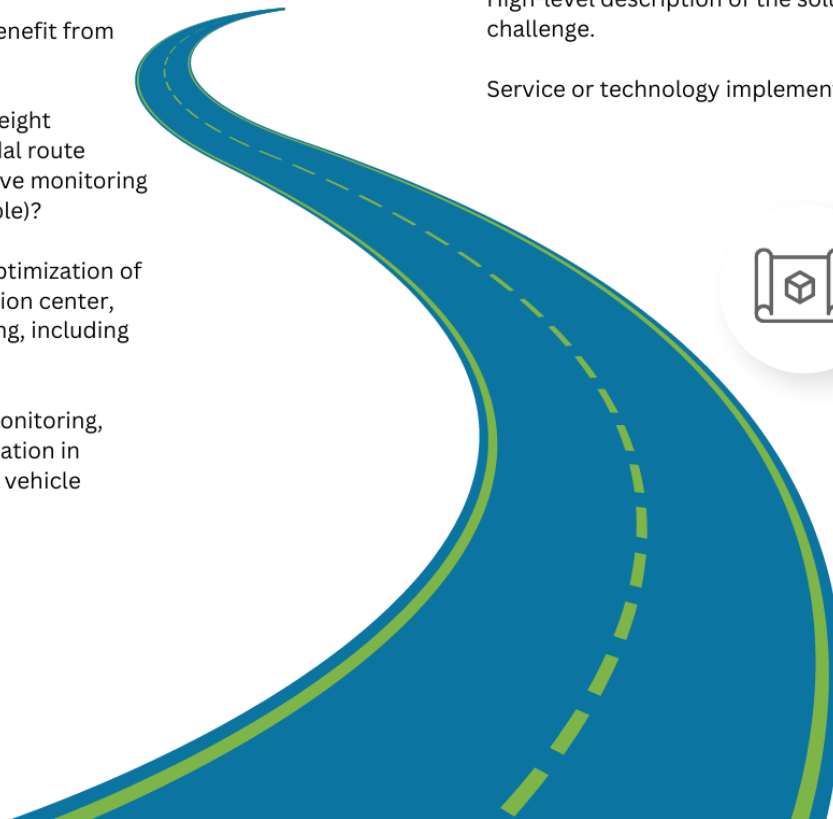
High-level description of the solution for the challenge.

Service or technology implementation plan?



15%
**ADDITIONAL
INFORMATION
QUESTIONS**

Provide and information that would help better understand your solution.



Innovation Challenges Timeline and Key Dates

