



DECARBONIZING HEAVY TRUCK SHIPPING

**CLASS
6-8
TRUCKS**

**THREE CHALLENGES WITH CITM PARTNERS
ROADRUNNER PRIME LOGISTICS, GEOTAB ITS, AND INOVEX**

CITM Innovation Challenges Program

Decarbonizing Heavy Truck Shipping Stream

Innovation Challenges Background

CITM has launched a series of Innovation Challenges with CITM Industry Partners Geotab ITS, Inovex and Road Runner Prime Logistics. 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.

Road Runner Prime Logistics, Geotab and Inovex, the Industry and two Technology partners in this Innovation Challenge are looking for solutions to plan for and manage the decarbonization of heavy trucks and to collaborate with energy providers to ensure energy infrastructure like charging stations and hydrogen fueling stations are located at optimization areas along common shipping routes.

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.

Road Runner Prime Logistics is the Industry Partners 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).

Geotab ITS and Inovex are the Technology Partners for these Innovation Challenges.

Innovation Challenge Partner's Core Areas of Expertise

[Road Runner Prime Logistics](#) offers emergency expedite service of repair parts for machinery breakdowns where “time and money” are of the essence.

[Inovex](#), a data analytics powerhouse, will support the analytics process and provide supplementary datasets.

[Geotab ITS](#) provides aggregate commercial transportation related data and analytics via its Altitude platform.

Industry Challenge (Problem)

The transportation of heavy and large goods, typically from Class 5 or 6 to Class 8, is on a multi-year journey to adopt electrification powertrains, powered by either batteries or hydrogen fuel cells. Depending on the industry and company, these emissions are either Scope 1, Scope 2, or Scope 3. Various companies manufacturing heavy goods, or using larger Class trucks to ship heavier loads, like Road Runner Prime Logistics, one of the sponsors of this challenge, are looking to understand their options to decarbonize truck shipping.

Other interested parties related to this challenge will be Energy production and distribution companies. They are interested in understanding where to invest in energy supply generation and distribution infrastructure – charging stations, hydrogen fueling stations and the supply chain to support them. To understand where trucking traffic travels through Ontario, primarily along the 401 corridor and the 403/ QEW corridor to border points and ports to establish the correct locations of potential hydrogen fueling stations and fast charging locations for goods traffic (trucks) an analysis of truck routes, driving habits/conditions, fuel consumption, weather and other related factors is required. As well, semi-truck conversions are of interest to many fleet owners and manufacturers as the availability of battery and fuel cell powered vehicles is in its infancy and the need to decarbonize goods transportation increases.

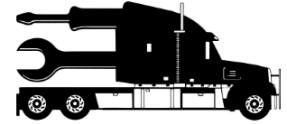
Three challenge statements (problems) have been made from the challenge the industry is facing which are described below.



OPTIMIZING HEAVY GOODS SHIPMENT ON CLASS 6-8 TRUCKS



CONVERTING CLASS 6-8 TRUCKS TO ELECTRIFIED POWERTRAINS USING EITHER BATTERIES OR HYDROGEN FUEL CELLS.



CONVERTING OR REPLACING DIESEL TRUCKS WITH ELECTRIC OR HYDROGEN FUEL CELL VEHICLES

Challenge Statements Explained

Challenge One: Optimizing heavy goods shipment on class 6-8 trucks

CITM is looking for trucking logistics solutions, route optimization solutions, driver monitoring and efficiency solutions and other types of innovative products and solutions that can leverage Road Runner Prime Logistics' data on Geotab's Altitude platform and Inovex's expertise and additional datasets to help optimize the shipment of heavy goods on Class 6 to Class 8 trucks for fuel efficiency, routing and support an analysis of where future energy infrastructure to support battery and fuel cell power vehicles should be located.

A comprehensive analysis is required to understand where larger trucks carrying heavy goods travel through Ontario, primarily along the 401 corridor and the 403/QEW and 402 corridors, to border points and ports. This analysis will:

- enable manufacturers, fleet, and truck owners to understand how to optimize routes and improve driver and vehicle efficiency including driving habits and fuel consumption.
- enable energy infrastructure and energy providers to understand where to locate potential hydrogen fueling stations and fast-charging locations for goods traffic.

Challenge Two: Converting class 6-8 trucks to electrified powertrains using either batteries or hydrogen fuel cells

A comprehensive analysis is required to understand where larger trucks carrying heavy goods travel through Ontario, primarily along the 401 corridor and the 403/ QEW and 402 corridors, to border points and ports.

This analysis will:

1. enable manufacturers, fleet, and truck owners to understand how to optimize routes and improve driver and vehicle efficiency including driving habits and fuel consumption.

2. enable energy infrastructure and energy providers to understand where to locate potential hydrogen fueling stations and fast-charging locations for goods traffic.

Challenge Three: Converting or replacing diesel trucks with electric or hydrogen fuel cell vehicles

Provide a solution(s) — optimized for operating costs, utility and fuel costs and other fleet operation parameters — that helps fleet operators plan for and manage the conversion and/or replacement of diesel engine large trucks with electric or hydrogen fuel-cell-based vehicles.

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](#).



The score card questions and weighting for applicant reference is found below.

Innovation Challenges Scorecard and Weighting to Application Questions

70% INNOVATION & TECHNOLOGY QUESTIONS



Describe how the solution benefits from telematics data or data from connected city or highway infrastructure or other data regarding vehicle movement?

Describe, how your solution help utility and energy providing companies to gather, analyze and process data to understand potential locations for hydrogen fueling stations and fast electric charging for trucks transporting heavy goods, along the 401 corridor and the 403/QEW corridor.

Describe how the solution can help fleet and truck owners convert their exiting vehicles to lower emission vehicles, specifically conversion platforms for class 6-8 trucks.

Describe how your solution can help fleet operators best plan for and manage the conversion and replacement of diesel engine large trucks to electric or hydrogen fuel cell-based vehicles and optimize to operating costs, utility and fuel costs and other fleet optimization parameters.

15% INNOVATION & LOGISTICS QUESTIONS



Describe at a high-level your proposed solution.

Would you describe your solution as a service or as a technology implementation?

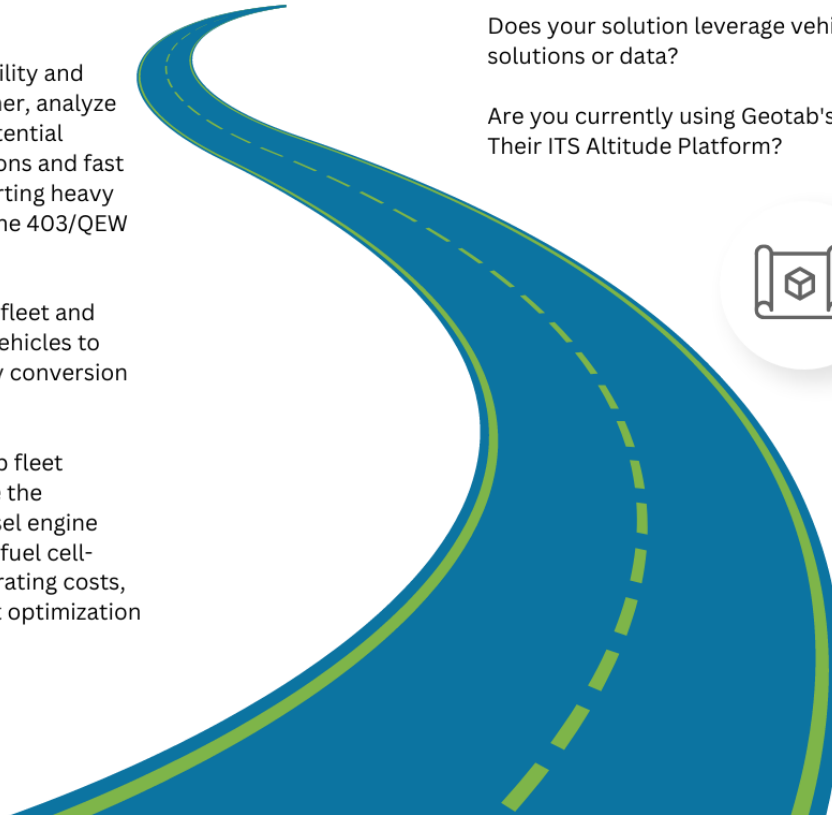
Does your solution leverage vehicle telematics solutions or data?

Are you currently using Geotab's telematics solution? Their ITS Altitude Platform?



15% ADDITIONAL INFORMATION QUESTIONS

Provide and information that would help better understand your solution.



Innovation Challenges Timeline and Key Dates

