Building and Implementing a "Data Refinery" to Enable Intelligent Scheduling

FUNDING DETAILS

Galatea Technologies is developing a system to ingest, aggregate, and clean vast amounts of data to provide regulatory reporting, intelligent analysis, and automated decision-making for transportation logistics in the energy industry. In this project, the "Data Refinery" has captured over 15 datasets including waste, tank, site, and our internal app data and connected it to Power Bi for reporting, and to our app for intelligent scheduling and decision-making of where waste and commodities should be truck to at any given time. This technology increases transparency, reduces OPEX, and decreases emissions on every truck load.

RECIPIENT:
Galatea Technologies

PARTNERS:
NGIF
amii

TOTAL BUDGET:
$950,000

AI FUNDING:
$300,000

PROJECT DATES:
MAR 2022 – SEP 2023

PROJECT TRL:
Start: 6
End: 9

APPLICATION

Energy producers globally transport vast volumes of fluids, often managed via rudimentary workflows. At Galatea, we're digitizing this process, creating an optimized commodity marketplace with real-time market data and automation. Mark Johnson, in Scientific American, introduces the "data refinery" concept. Much like oil needs refining, data in its raw state is unstructured and chaotic. A "Data Refinery" processes large datasets, identifies patterns, and predicts outcomes, bridging the gap between data collection and its actionable value.

PROJECT GOALS

- Scope and build platform (Data Refinery) to ingest commodity, waste, location, and transportation data in any form that can clean and normalize the data so that it is structured and easy to work with.
- Build a machine learning prototype using user input and data from the Data Refinery to predict the best location to ship material at any given time.
- Integrate the prediction workflow with existing UI/UX workflow.
- Integrate the Data Refinery with reporting tools accessible to clients.

BENEFITS TO ALBERTA

The project has ushered significant economic benefits to the transportation and disposal sectors within various industries, especially energy. By efficiently processing data for informed decision-making, it not only enhances operations but also fosters job creation and savings for the industry. Environmentally, the project curtails tailpipe emissions by over 10% and promotes produced water recycling, crucial for Enhanced Oil Recovery (EOR). This approach conserves freshwater, with one client recycling over 30% of their produced water. Socially, the initiative amplifies transparency in waste management, empowering environmental teams to improve regulatory compliance. Finally, fostering innovation capacity, the collaboration between senior and junior team members at Galatea spotlighted Alberta's innovation potential, encouraging local talent to recognize regional opportunities.

3 Students Trained

3-6 Project Jobs

10-20 Future Jobs

2 New Products/Services

5-10 kT/yr Project GHGs Reduced

500-1000 kT/yr Future GHGs

CURRENT STATUS

OCT 2023

Galatea Technologies has completed the Data Refinery and is now using it for both internal and external purposes. Internally, it has dramatically decreased onboarding time as client data is easily ingested and structured to bring on a new client. Externally, the Data Refinery is now being monetized providing clients with on their data on-demand. The data is also now integrated with the app to provide better decision-making for transporting waste and commodities to facilities at any given time.