

Day & Ross Accelerates Freight Throughput and Scalability with Google Gemini Generative AI

Pythian assists trucking giant to ensure real-time data visibility and data accuracy for a better customer experience.

Overview

Founded in 1950, Day & Ross is a North American transportation and logistics firm and one of the largest in Canada. With over 7,500 team members, the company specializes in cross-border, truckload, and less-than-truckload (LTL) (which consolidates smaller shipments from multiple shippers to the same destination), as well as dedicated fleets and residential delivery.

The challenge

With a multi-year technology and business transformation underway, Day & Ross had an urgent need to ensure the smooth implementation of their new Transportation Management System (TMS). Any need for manual processing of paperwork posed a challenge for the real-time data feature of the new TMS.

The team recognized the need to adjust their approach for the full trailer loads of shipments from customers who didn't provide advanced electronic visibility to the trailer contents. The time-consuming and complex manual data entry required for those shipments would create a backlog of freight in their terminals and delay drivers.

These full trailer loads contain between 20 and 120 Bills of Lading (BOL), each representing a shipment. The manual processing of BOLs—which contain vital shipment data such as ship-to address, tracking number, total weight and number of pieces—required significant data entry into the company's TMS to label, unload and track shipments.

Industry

Transportation & Logistics

Location(s)

Canada

Technologies

- Cloud Operations Suite
- Google Vertex AI (Gemini 1.5 Pro multimodal AI model)
- Cloud Functions
- Cloud Run
- Cloud Storage
- Identity and Access Management (IAM)
- BigQuery
- Pub/Sub
- Eventarc
- Secret Manager
- Cloud Logging
- Cloud Monitoring

Overview

By supporting a significant reduction in the need to manually enter data, Pythian dramatically reduced the time and effort required for Day & Ross to process inbound shipments. This initiative enabled operations teams to start unloading freight on their dock faster, allowing for quicker customer visibility into the status of shipments.

The time required to manually enter the data from these BOL documents would accumulate quickly—with each document taking one minute or more to enter.

The inconsistent formatting of most BOLs—which arrive at shipping terminals in a variety of formats, including handwritten or upside-down notes—led to large numbers of variations within each document. This made document processing automation a huge challenge, which typically relies on clean source data with fixed and predictable formats.

The solution

Pythian, a Premier Google Cloud and Vertex AI implementation partner with rich experience in automated data extraction and the transportation business, suggested the implementation of Google Cloud Platform (GCP) and key Google AI tools, technologies and infrastructure to shrink the driver dwell time and improve shipment throughput via data extraction automation. Based on years of process design expertise along with deep experience combining various Google solutions to tackle unique challenges, the Pythian team brought an innovative approach that directly addressed Day & Ross' challenges and complemented their agility, responsiveness, and tradition of innovation.

Pythian used Google's Gemini 1.5 Pro multimodal LLM, which can accommodate a range of inputs, such as video and images, and not just predictable text. Vertex AI was used to create an all-in-one solution to automate data extraction from scanned BOLs, persist with the extracted data, validate the data against a labeled dataset provided by the client, and interface with the company's TMS to validate accuracy and create real-time shipment data.

"Day & Ross are implementing a significant technology transformation to improve how we serve our customers and ensure we continue to innovate in our market. Pythian served as a trustworthy and reliable guide in integrating key AI tools and technologies. The strong partnerships they hold with large platforms like Google Cloud have been valuable in accelerating our efforts."

Jeff Schnarr, Chief Information Officer, Day & Ross



Business need

As Day & Ross progressed through a significant technical and business transformation, they saw an urgent need to proactively address an issue that could impact their ability to keep shipping commitments to customers. Their desire to provide real-time visibility to customer shipments required shipping paperwork to be processed in real-time in their new Transportation Management System (TMS). The nature of some full trailer shipments was resulting in time-consuming and complex manual data entry that would create a backlog of freight in their terminals and delay drivers. Day & Ross and Pythian partnered to find an innovative solution to this challenge.

This approach embodied several steps:

- The LLM was prompted with a set of text and formatting instructions, business context, and sample BOL images, then asked to perform a set of tasks.
- These tasks include scanning documents to locate specific pieces of information such as delivery status or tracking number, regardless of their location in the document image.
- After Gemini processes the BOLs, they're then converted into structured data and ingested into the TMS using Cloud Functions to automatically create a freight bill and either populate an existing record or create a new record.

After running a successful proof of concept (PoC) for Day & Ross, the Pythian team then created a new [Google Cloud landing zone](#)—a scalable configuration of various Google Cloud products into a coherent, effective, business-ready system—to transform it into a production-ready application.

This successful engagement and production-ready environment allowed Day & Ross to explore many future use cases.

Business outcome

Executives at Day & Ross immediately understood the value of Pythian's automated data extraction solution to improve freight throughput. The solution had an immediate impact, supporting the real-time visibility requirements, while also reducing driver wait times and improving accuracy from the manual process.

"With support from Pythian's seasoned AI experts, Day & Ross was able to leverage innovative AI technologies to automate a previously manually intensive document process. We expect the Pythian AI experts will continue to serve a critical role as we continue to innovate at Day & Ross."

Jeff Schnarr, Chief Information Officer, Day & Ross



With Pythian's data extraction system in place, data entry staff are now much more effective and scalable through generative AI. The automated system was key to ensuring a smooth implementation of the TMS in their high-volume terminals. Indeed, given that they deal with thousands of BOLs across their terminal network every day, Day & Ross expects to continue work with Pythian on future additional benefits from AI-powered, scalable document processing.

Solution/What Pythian did

Pythian implemented an automated data extraction system for shipping documents using Google Gemini large language model (LLM), greatly accelerating the document workflow and data processing times at terminals while improving data accuracy. Google's Gemini 1.5 Pro model was used to automatically extract data from shipping documents, capture it and input it into their TMS. The solution was then made production-ready by adding enterprise-grade infrastructure requirements, such as security, IAM, logging, and monitoring tools.

Want to explore a valuable AI use case for your company?

[Learn directly from our experienced AI experts](#) how your organization can prepare for and gain a competitive advantage from the use of AI.

Result/Key outcomes

The Pythian solution improved data accuracy and intake speed to help Day & Ross maintain time-sensitive shipping commitments to customers.

About Pythian

Founded in 1997, Pythian is a data and analytics services company that helps organizations transform how they compete and win by helping them turn data into valuable insights, predictions, and products. From cloud automation to machine learning, Pythian designs, implements, and supports customized solutions to the toughest data challenges.

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