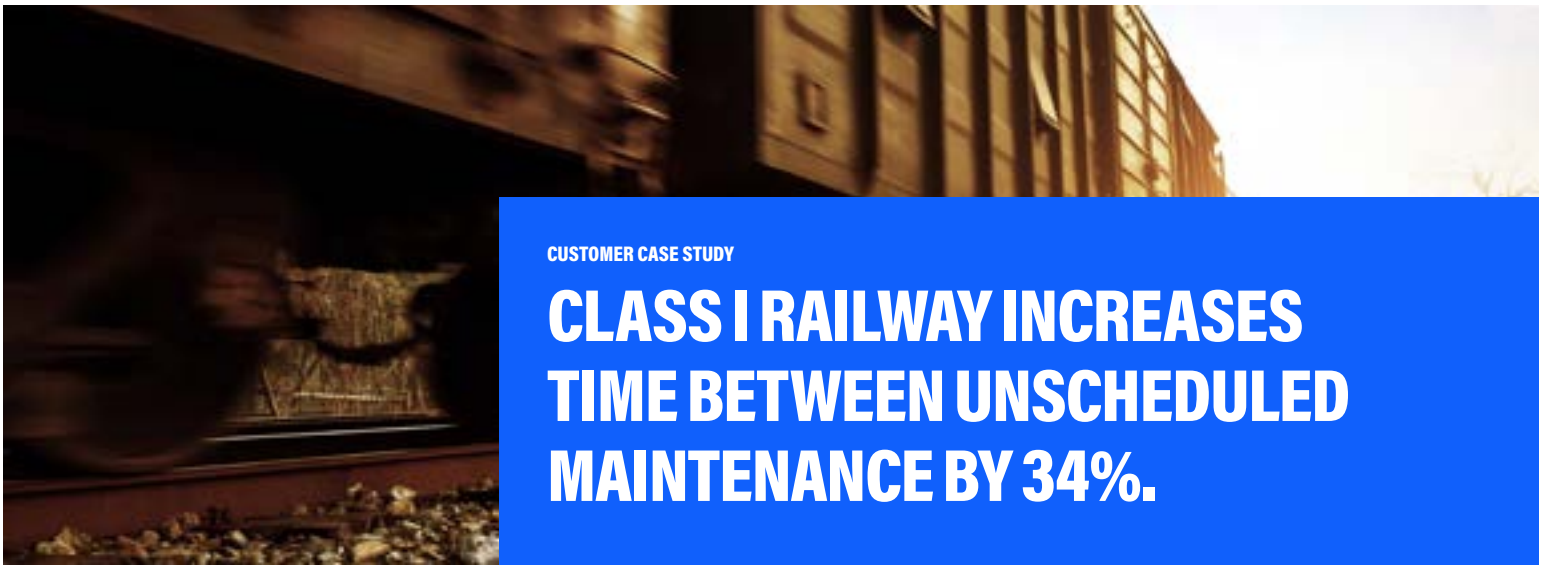

CUSTOMER CASE STUDY

CLASS I RAILWAY INCREASES TIME BETWEEN UNSCHEDULED MAINTENANCE BY 34%.

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A Class I freight railway saved time and money by partnering with Uptake to automate the organization of often messy and mislabeled maintenance work order data using Uptake Compass. The result was higher-quality cost analysis and a more effective preventative maintenance program.

OVERVIEW

A major North American freight railway sought to improve the visibility and cost-effectiveness of its maintenance operations. By automating the organization and categorization of work order data with artificial intelligence (AI), Uptake surfaced the untapped value hidden in maintenance records.

CHALLENGE

MACRO VIEW

Today's industrial organizations are sitting on mountains of unused data. Significant value is often hidden in that data and very difficult to extract because records are poorly labeled or mistagged — including work orders, which can provide invaluable views into asset health and maintenance history when they are properly categorized and all relevant fields are correctly filled. When harnessed to its full potential, that data can signal the best path forward for an individual asset, typically unlocking maintenance cost reductions of up to 40% and increased equipment availability. Addressing data quality issues at scale and the required speed is a challenge that most industrial operations are not equipped to handle.

MICRO VIEW

A Class I freight railway company with transcontinental operations spanning North America had limited visibility into the performance and efficiency of its maintenance operations. The company was trapped in a cycle of reactive maintenance, sending locomotives to the repair shop (known as shopping) for failures every month - much more than the typically required 90 days. The railway evaluated options to evolve its maintenance program from a reactive to proactive strategy. As a first step, the quality of insights into locomotive health needed to improve. While many critical locomotive systems are equipped with sophisticated

sensors that transmit signal readings over the internet, the full benefit of a more advanced maintenance program can only be achieved with a holistic approach that covers all systems, whether or not they are transmitting live data. Once locomotive health can be determined with such an approach, the effectiveness of performed repairs can be optimized.

SOLUTION

After initial efforts by the railway to manually address the data quality issues, the sheer volume of data suggested that an automated system was required to get this done within a reasonable time frame.

As the railway started to explore options for a technology solution that automatically inspects, corrects, and validates maintenance work order data at scale, they decided to try Uptake Compass. In addition to all the data quality features, Uptake's ability to quickly uncover insights from clean and reliable data addressed all the relevant concerns.

Uptake ability to automatically address data quality issues using natural language processing (NLP) and immediately generate insights proved to be a winning combination.

OUTCOMES

Uptake Compass played a crucial role in transforming the railway's maintenance program from reactive to proactive. Instead of responding to locomotive failures after they occur, the railway is now able to proactively prevent failures by making smaller, planned repairs ahead of bigger issues.

KEY PROJECT OUTCOMES INCLUDE:

- Sorting and cost-analyzing millions of work order records by failure mode categories (e.g., dynamic brake problem) and inspecting descriptions to pinpoint the root cause of a failure (e.g., ground relay, grid blower, distributed power, wheel slip, load test, Federal Railroad Administration [FRA] defect, improper loading, throttle problems, electrical fire).
- Turning non-categorized work order data (i.e., information that does not add value) into labeled data (i.e., useful context) for higher-quality analysis. Examples include re-categorizing unassigned failure codes into specific events like positive train control, event recorder communication, Automatic Engine Stop/Start (AESS), truck, turbo, FRA defect, main engine ch/out, electrical fire, horn, air dryer and cab comfort.
- Leveraging clean and reliable work order data to inform the ideal balance between low-risk & low-reward maintenance tasks and high-risk & high-reward maintenance tasks — without incurring additional risk. In plain English: Using data-driven recommendations to make the right repair for the job.
- Creating a closed feedback loop with data to track how implemented maintenance practices contribute to improving asset health and performance.

IN TERMS OF VALUE, UPTAKE HELPED THE RAILWAY:

- Drastically reduce the time it takes to cleanse, correct, and analyze work order data via AI automation compared to previous manual approaches — freeing up analysts' time for higher-value work.
- Rescue 75% of data that was unused or only marginally used for analytics while improving data quality to enable more reliable analytics and produce more accurate insights at the locomotive level.
- Minimize unscheduled maintenance downtime (each unplanned downtime event causes 80 hours of locomotive dwell time and 24 man hours of additional labor) by getting ahead of failures.
- Turn costly reactive repairs into scheduled maintenance events to proactively perform smaller maintenance tasks that prevent more significant repairs. Unplanned downtime typically costs about ten times more than planned downtime; using Uptake Compass, the railway increased mean time between unscheduled downtime by 34%.

75%

Unused or marginally used data rescued for analytics.

34%

Increase in mean time between unscheduled downtime

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