

Goldex Mine

Cost Savings Through Machine Learning



Background

1

**The
Challenge**

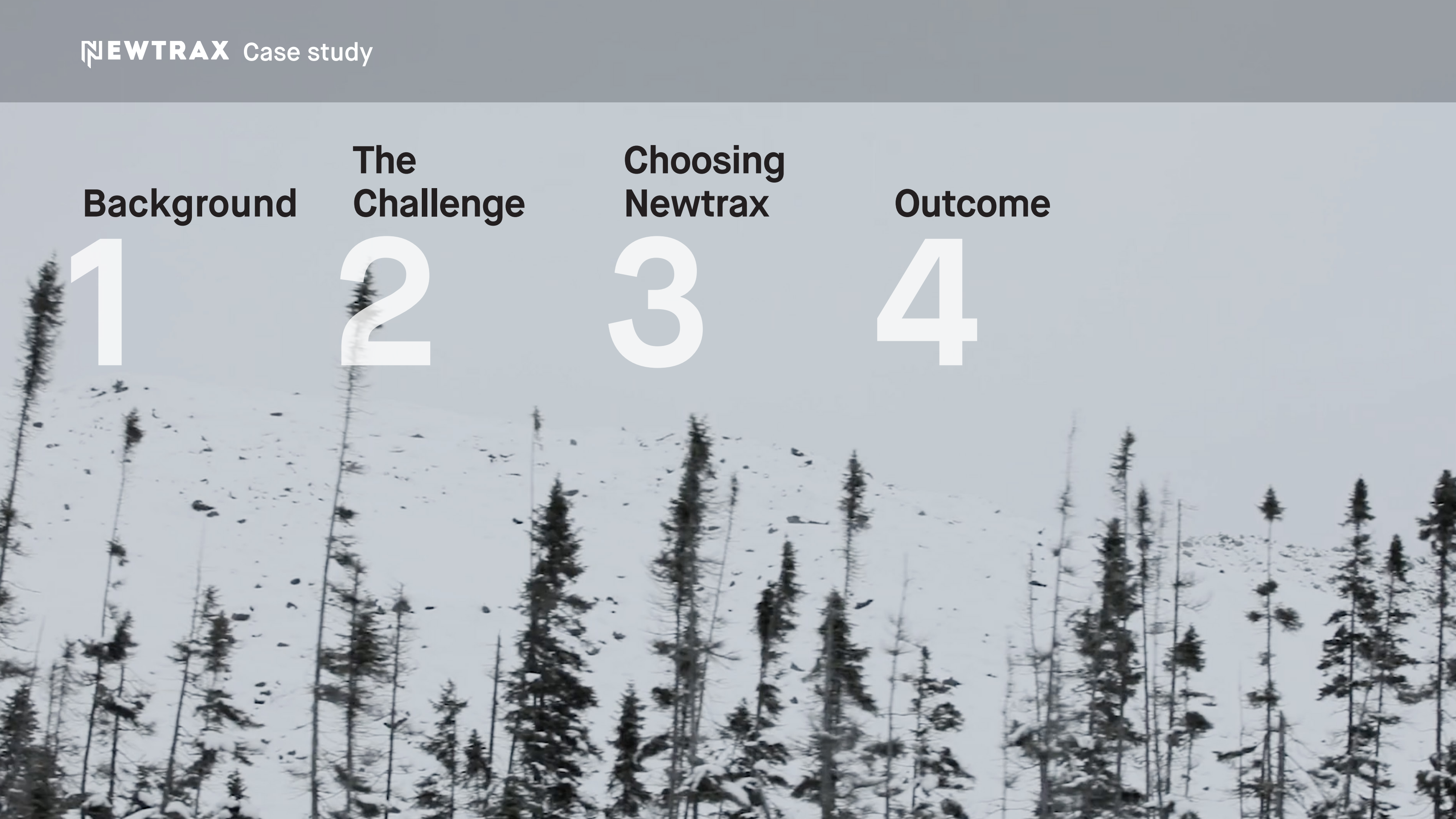
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**Choosing
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Outcome

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Background

Goldex Mine is an Agnico Eagle Mines operation in the Val d'Or region of Québec. It first began commercial production in 2013.

The mine produced more than **120,000 oz** of gold in 2018 and employs nearly **400 people**.





The Challenge

Agnico Eagle management has collected a large amount of data on their operation in the last 6 years—about 10 billion data points—but wasn't sure to do with all that information.

It's a daunting amount of data, that can be hard to comb through. That's where machine learning algorithms from Newtrax come in.

“We approached Newtrax in the fall to discuss the data we had collected for the last six-and-a-half years, and what we could do with it, how we could add value to Agnico. We were able to collect over 10 billion data points using the Newtrax sensors. This provided Newtrax with data in order to achieve quick wins.”

— Terry Reid, Corporate Business Process Owner: Maintenance

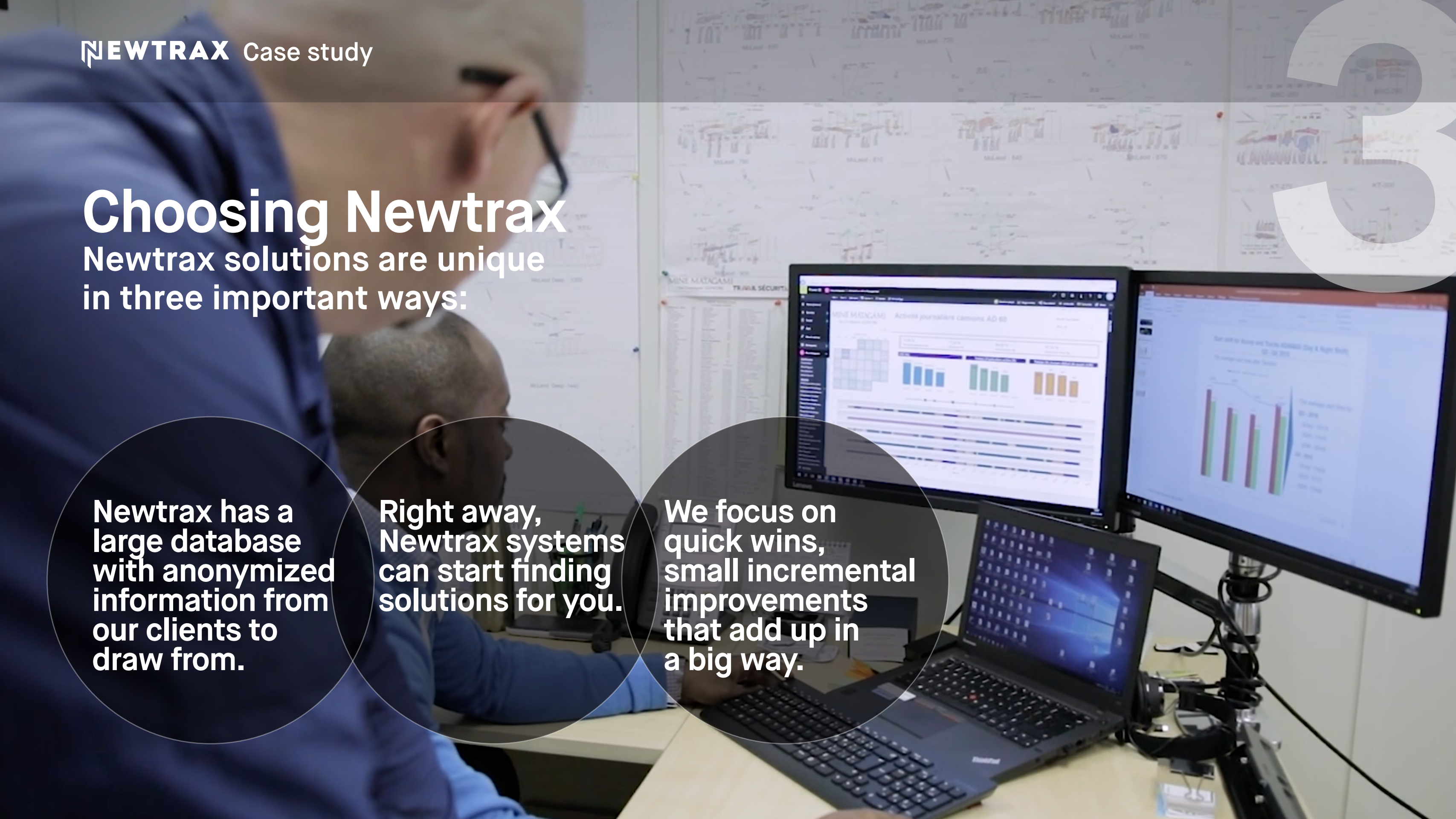
Choosing Newtrax


Newtrax solutions are unique in three important ways:

Newtrax has a large database with anonymized information from our clients to draw from.

Right away, Newtrax systems can start finding solutions for you.

We focus on quick wins, small incremental improvements that add up in a big way.





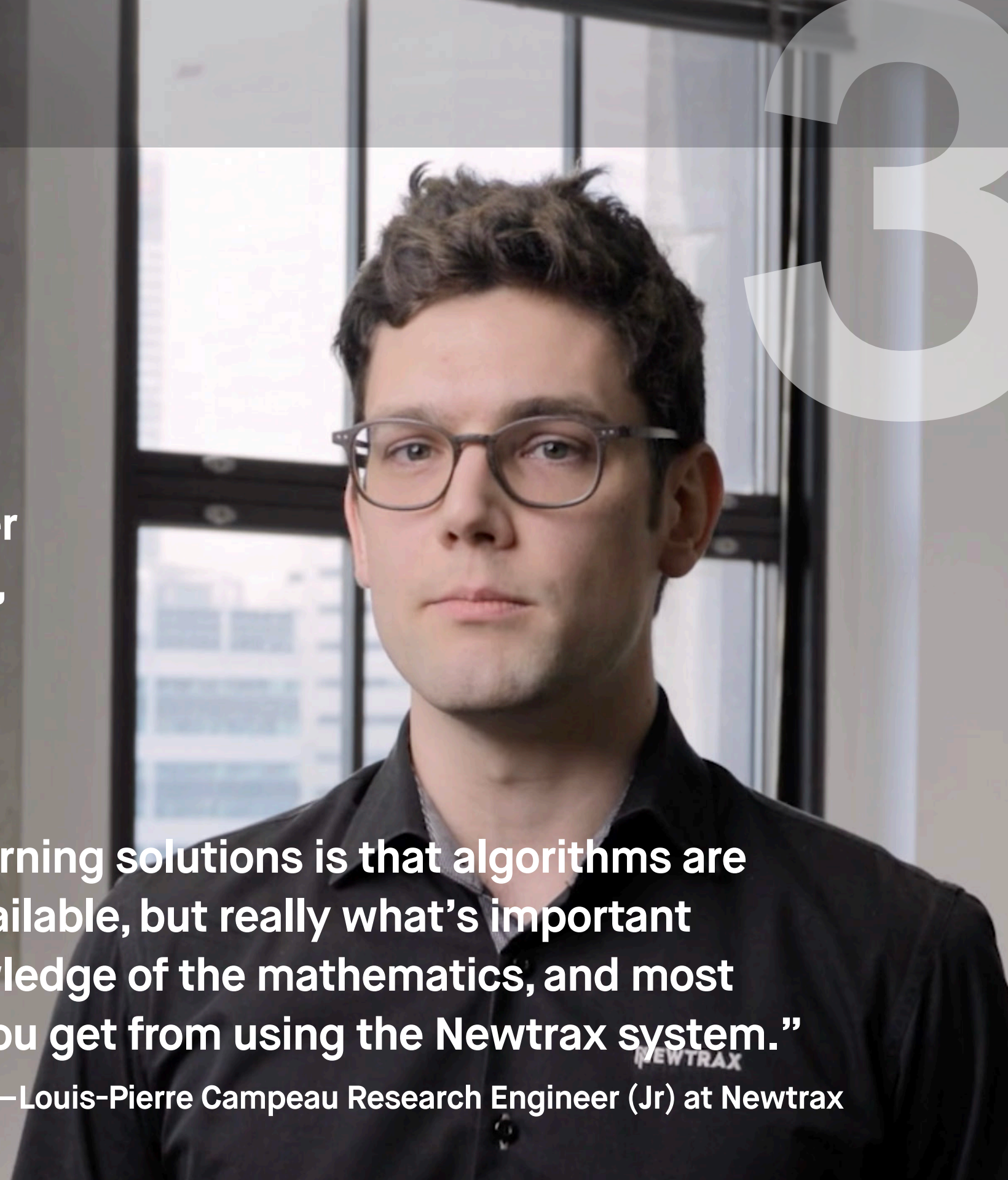
“First, Newtrax has years of unique data that is extremely well-suited for Machine Learning, and that creates a source of training data for machine learning that is unique in the world, and it grows every time a mining company decides to join in.”

**— Michel Dubois,
VP of Artificial Intelligence at Newtrax**

One of the best advantages you can find with Newtrax systems is the company's large database. The machine learning algorithms we use are able to draw on not just your own data, but the carefully anonymized data of many other mines as well. This gives your mine a head start, and the AI the ability to pick out problems and solutions right out of the gate.

“The reason to go with Newtrax for machine learning solutions is that algorithms are everywhere, there are plenty of them freely available, but really what's important in those cases is the mining insights, the knowledge of the mathematics, and most importantly the data size and quality of data you get from using the Newtrax system.”

—Louis-Pierre Campeau Research Engineer (Jr) at Newtrax



Newtrax is able to give you out-of-the-box results, so you're able to turn the data you have from your mine into quick-turnaround solutions.

“Second, we have a unique AI team that knows how to generate actionable results using existing AI algorithms.”

—Michel Dubois VP of Artificial Intelligence at Newtrax





“Third, we have a unique approach. So, what we do is our AI specialists, they go underground. And they focus on quick wins and they leverage those existing algorithms to solve high-value problems.”

—Michel Dubois VP of Artificial Intelligence at Newtrax

Newtrax aims for quick wins. By building on a series of small, incremental improvements, you're able to see definite results, without having to turn your operation upside-down overnight.

Outcome

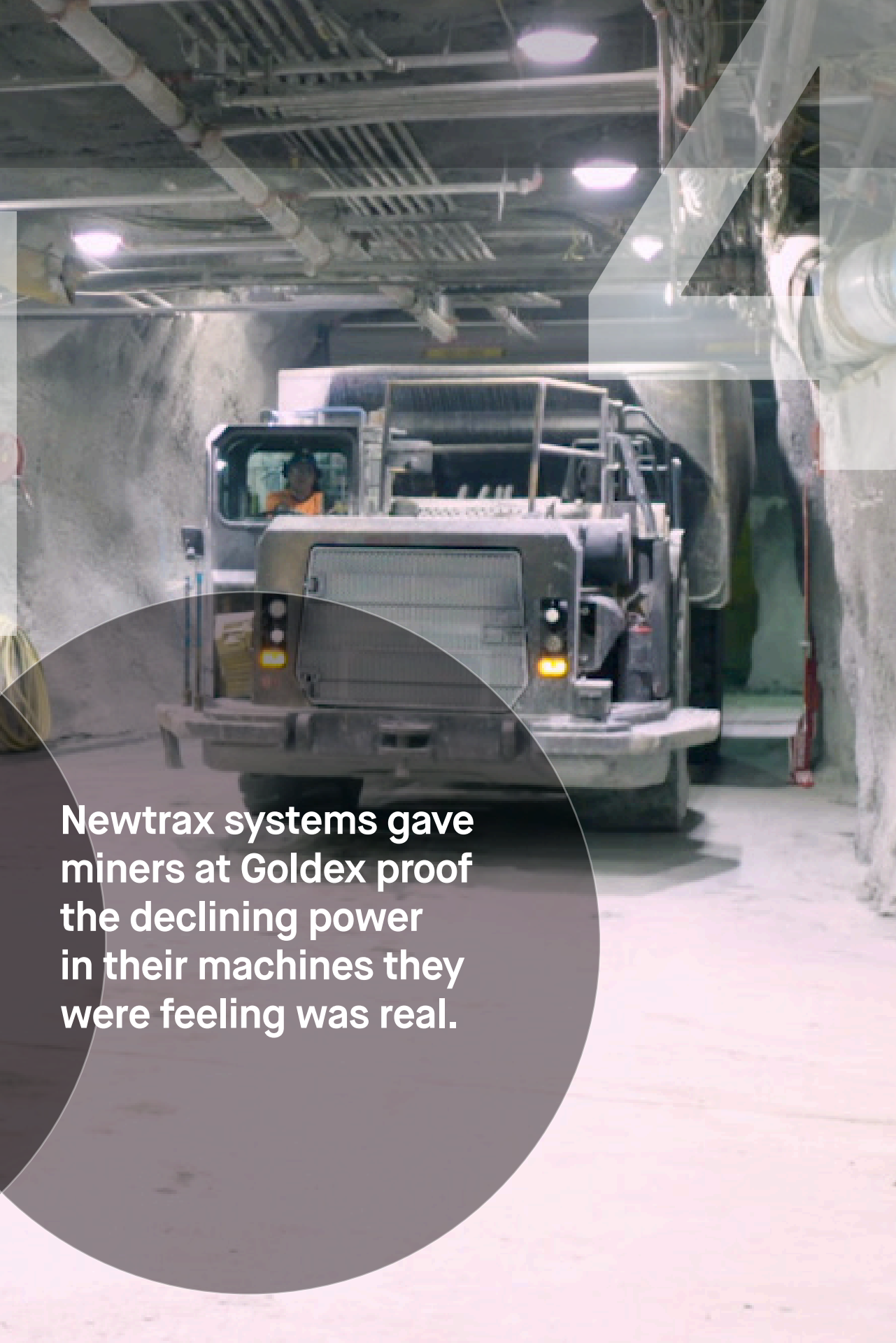
At Goldex, Newtrax gave the mechanical department the ability to fix problems with their equipment, before those problems became critical failures.

Newtrax could predict major engine failures two weeks before they were going to happen.

Instead of spending \$100,000 to replace an engine, Agnico spent a quarter of that by being proactive.

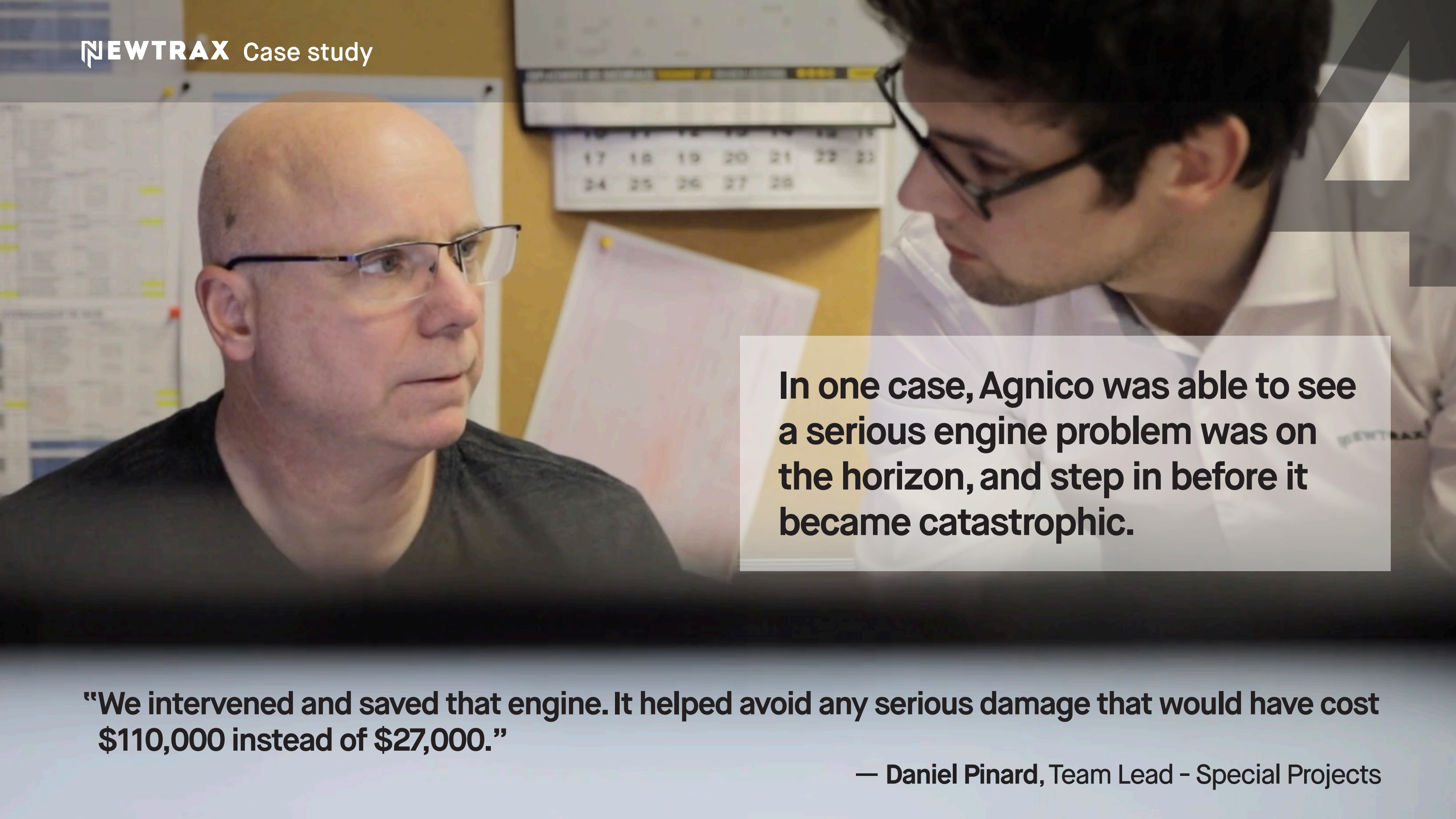
Keeping a truck in service kept 500 tonnes of capacity per day in operation.

Newtrax systems gave miners at Goldex proof the declining power in their machines they were feeling was real.



“[Newtrax] was able to develop a system that enables us to predict issues at least two weeks in advance, even before the alarms, so we can intervene before we incur problems that break our engines.”

— Daniel Pinard, Team Lead - Special Projects

A photograph of two men in an office setting. The man on the left is bald, wearing glasses and a dark t-shirt, looking towards the right. The man on the right has dark hair, wears glasses and a light-colored button-down shirt, and is looking down at a document. In the background, there is a calendar on a bulletin board with dates 17 through 28 visible. A semi-transparent white box with black text is overlaid on the right side of the image.

In one case, Agnico was able to see a serious engine problem was on the horizon, and step in before it became catastrophic.

“We intervened and saved that engine. It helped avoid any serious damage that would have cost \$110,000 instead of \$27,000.”

— Daniel Pinard, Team Lead - Special Projects

Not only were they able to save money by doing a repair on the engine, but they were able to keep the truck from needing service over multiple shifts.

“Changing a motor on a 45-ton truck takes about four shifts. The loss that we incur is about 500 tonnes per day, per truck.”

— Daniel Pinard, Team Lead - Special Projects

With the Newtrax software, they were also able to confirm what their operators were feeling with the equipment, then critically track down the source of the problem.

“Some operators notified us that some of the loaders were less powerful than they were in the past. With Artificial Intelligence, we were able to prove that some of the engines had lost 20% of their power. Which led us to make some diagnostics for the turbo and injectors, which helps us see we had problems caused by the aging of these components.”

— Daniel Pinard, Team Lead - Special Projects

With the Newtrax software, they were also able to confirm what their operators were feeling with the equipment, then critically track down the source of the problem.

“We have other projects in AI, however Newtrax was able to deliver quick results based on the 10 billion data points we have on our server.”

— Terry Reid, Corporate Business Process Owner: Maintenance



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