

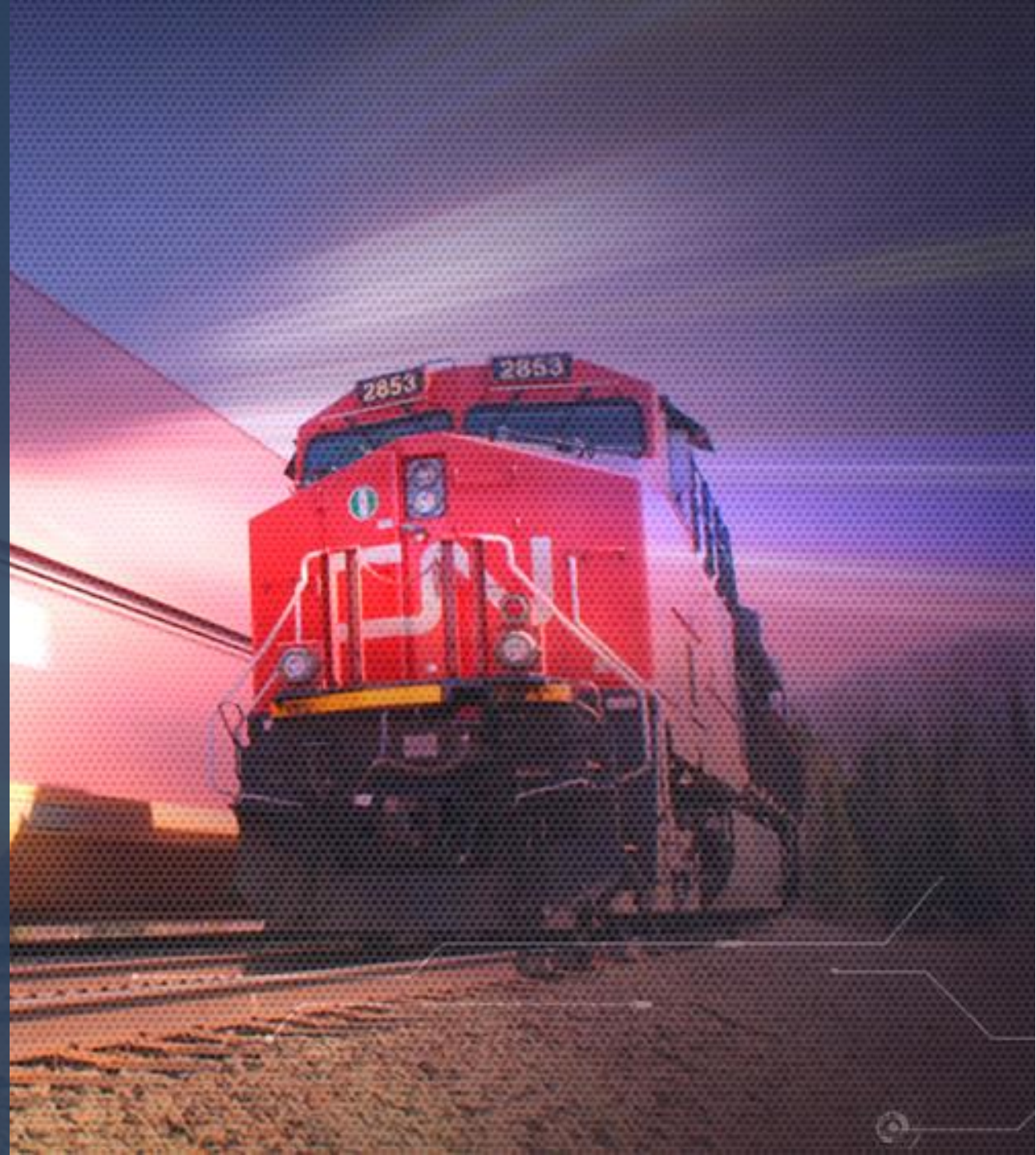


AI in the Rail Industry

Past, Present and Future

Dominique Malenfant

Executive Vice-President and Chief Information and Technology Officer



Who we are

2021 HIGHLIGHTS

22,600

employees

C\$14.5B

in revenue

C\$109.7B

market capitalization

C\$2.9B

in capital investments

19,500

route miles

5.7 million

carloads

2,311

locomotives

4x

less emissions than
trucking industry



CN's bold vision: **Build the digital railroad of the future**

Data is the new currency and the most important strategic asset in CN's digital transformation.



PRECISION SCHEDULED RAILROADING



DIGITAL SCHEDULED RAILROADING

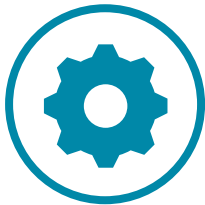
Advanced technology deployment is the core of DSR

Our strategic pillars



AI / ML IN ACTION Using data with purpose

Accelerate the
reliability and
efficiency of our
operations



Help
customers
win in their
markets



Feed and
expand our
rail
network



Innovate
to
support
growth



CN's AI landscape = *Challenges to solve*



Improving safety, efficiency, productivity and creating network capacity

PAST



Autonomous Track Inspection Program (ATIP)



Automated Inspection Portals (AIP)

PRESENT



Commodities Forecasting



Rail Movement Optimization

FUTURE

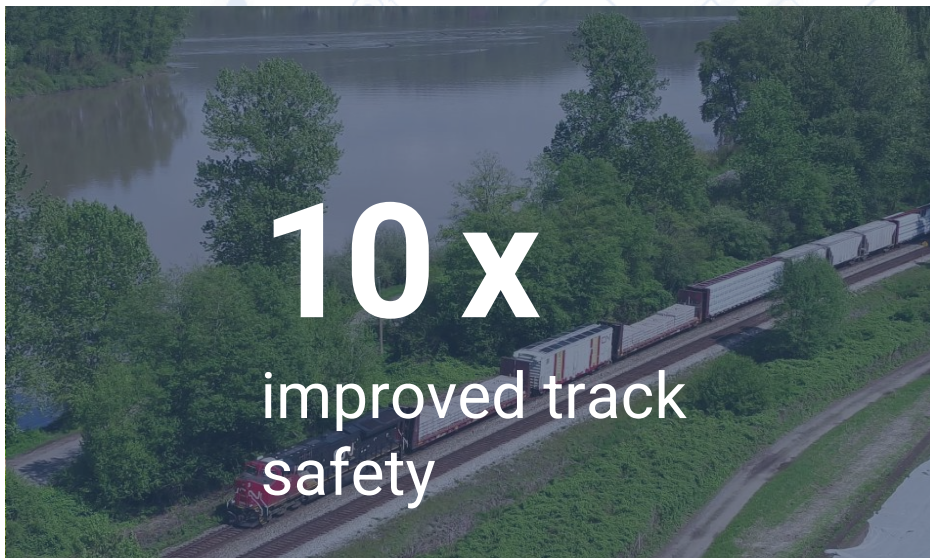
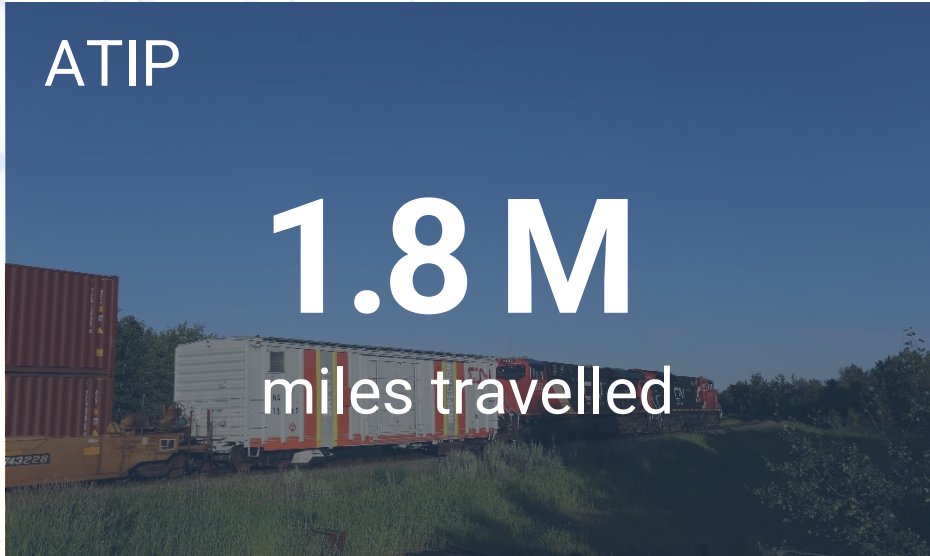


Predictive Maintenance for Rail Assets



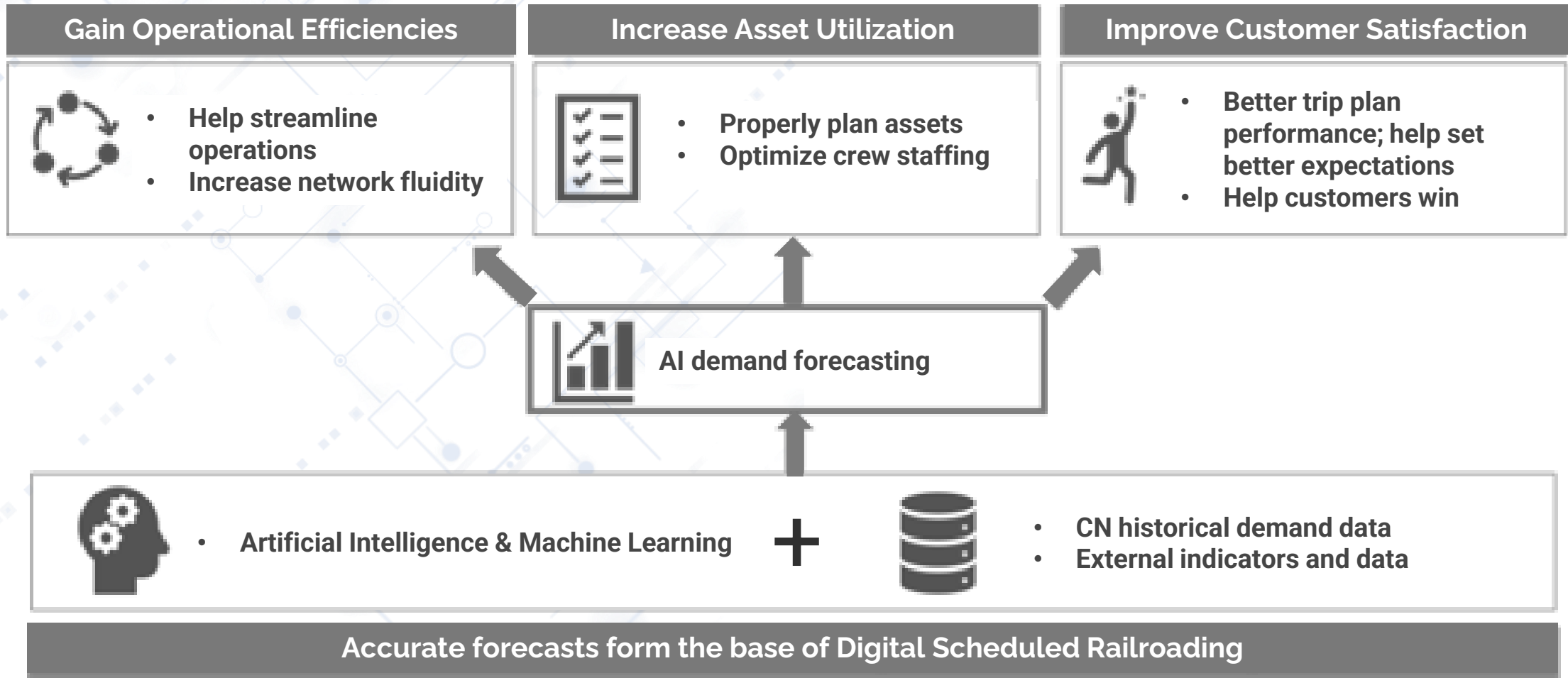
Climate Risk Modeling

AI in action: *Past success in use today*



AI in action: *Present*

Commodities Forecasting



AI in action: *Present*

Rail Movement Optimization



Smart Network

Digital twin that enhances capacity planning relative to changing demand.



Terminal AI

Optimize how we receive and handle containers and assign them to trains.

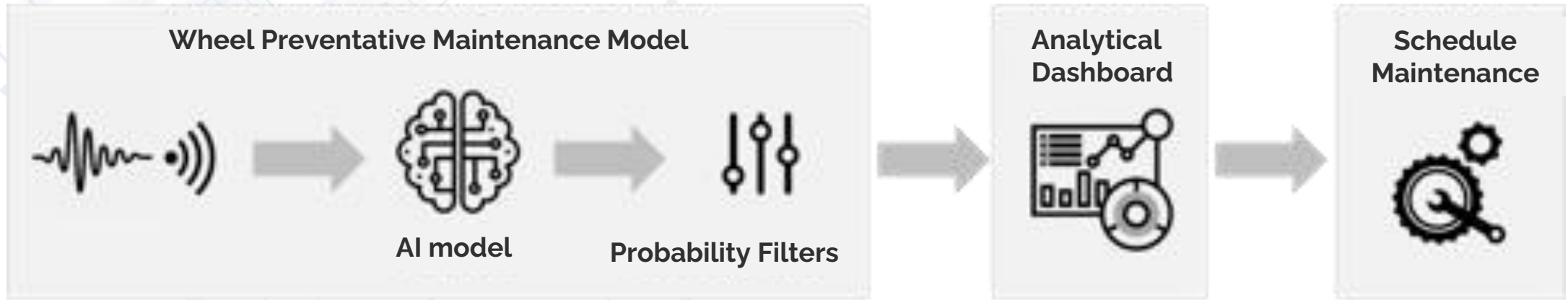


Yard AI

Optimize how we classify and sort railcars for building trains.

AI in action: *Future*

Predictive Maintenance



AI in action: *Future*



Climate risk modeling



Leveraging a diverse partnership ecosystem

Helping the global supply chain succeed



Key Partners

The Google logo, featuring its characteristic multi-colored letters.

The IBM logo, consisting of the letters 'IBM' in a blue, striped font.

The Microsoft logo, featuring a four-colored square (red, green, blue, yellow) followed by the word 'Microsoft'.

The Databricks logo, featuring a red cube icon followed by the word 'databricks'.

The logo for Université de Montréal, featuring a blue 'U' and 'M' icon above the text 'Université de Montréal'.

The IVADO logo, featuring a green and blue circular icon with dots and the word 'IVADO'.

The Mila logo, featuring a purple circular icon with dots and the word 'Mila'.

The techlab logo, featuring a blue triangle with a white 't' and a '3' above it, followed by the word 'techlab'.

The VECTOR INSTITUTE logo, featuring a black 'V' with a pink arrow pointing up and to the right, followed by the words 'VECTOR INSTITUTE'.

Benefits

- ✓ Best practices
- ✓ Latest technologies
- ✓ Accelerate deliveries
- ✓ Keep up with trends
- ✓ Share learnings

*CN is evolving from a traditional railway to the **digital, connected railway of the future**, and is leading the next railway industry transformation.*

