Utilizing Software to Accelerate the Adoption of Preventive Maintenance at NYCT

Wesley Thomas, Sentient Science

Agenda (15 Slides)

- **Challenge:** State of Good Repair Budgeting (1)
- **Opportunity:** NYSERDA Innovation Program (1)
- **Case Study:** Economic Model Insights (7)
- **Case Study:** Grinding Simulation (4)
- **Next Steps:** Enterprise Asset Management (1)
- **Thank You:** Questions and Answers (1)

Challenge: Fund State of Good Repair

In 2018, Sentient Science attended 5 transit conferences to meet 57 end users across 25 transit agencies.

Agencies could not provide evidence to quantify the benefits of preventive maintenance for procurement decision making:

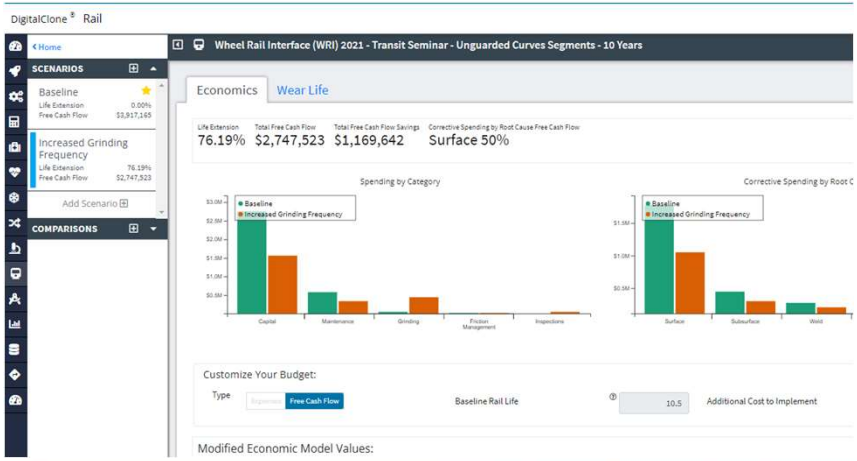
- Request preventive maintenance funding
- Protect existing preventive maintenance budgets
- Differentiate performance of maintenance contractors

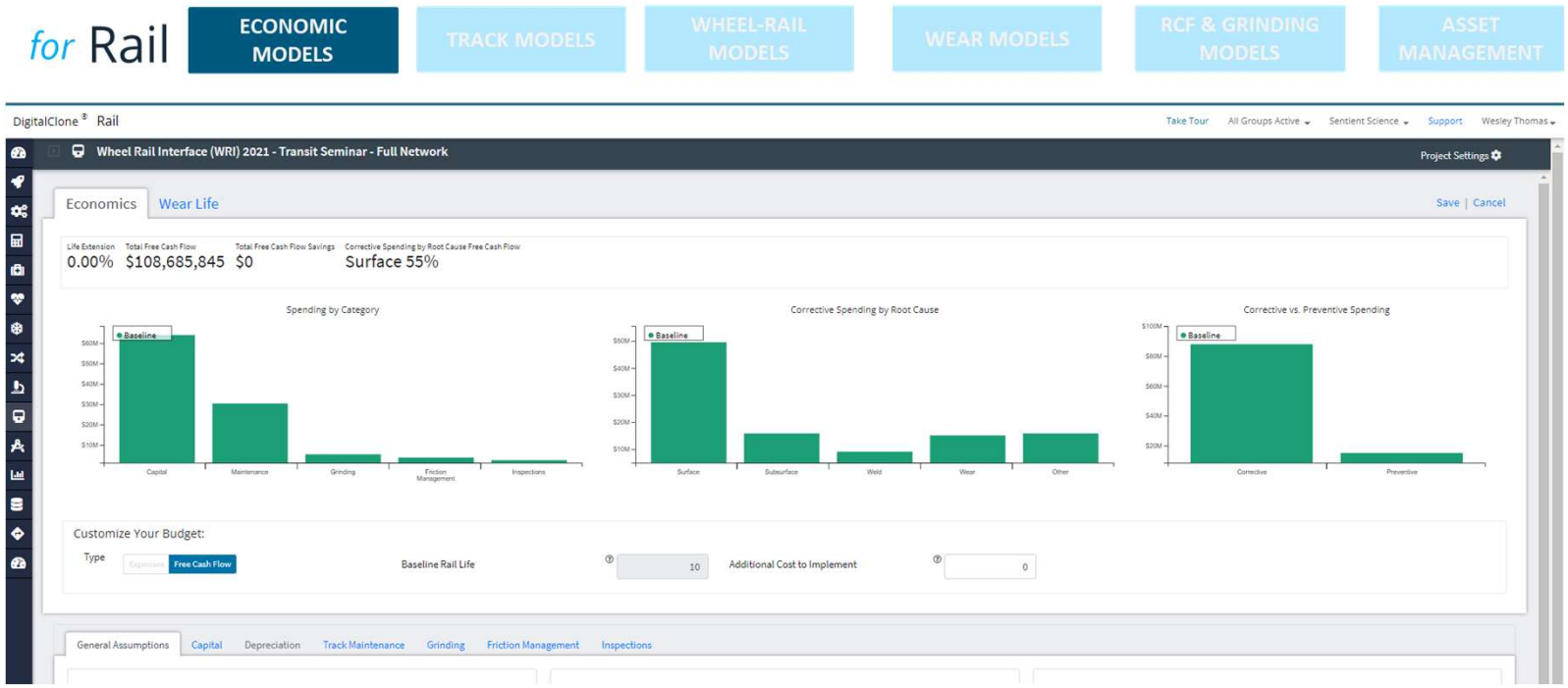
Opportunity: NYSERDA PON3914

- NYSERDA Public Transit Technology and Innovation Program

- Demonstrate at New York City Transit (NYCT)
  - Support from 5+

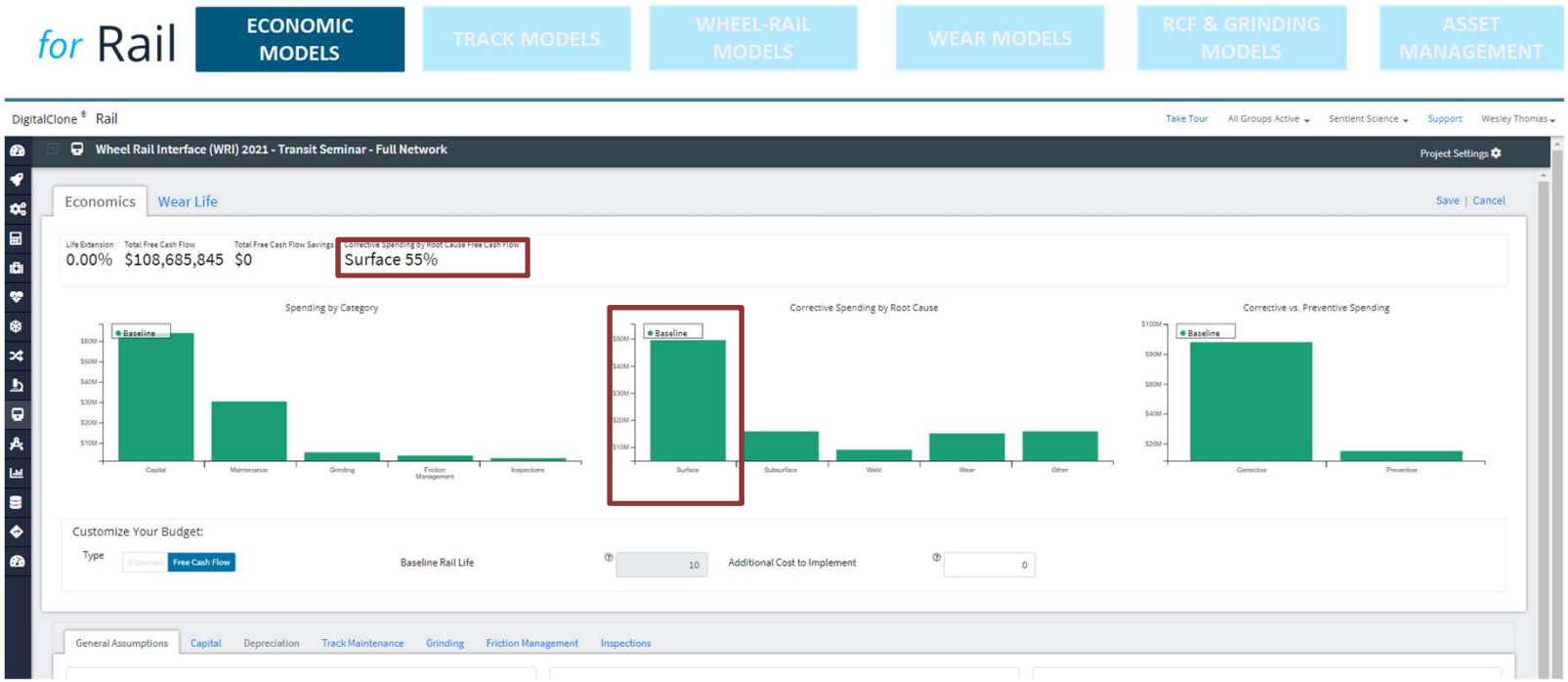
DigitalClone® for Rail





Economic Model – Full Network

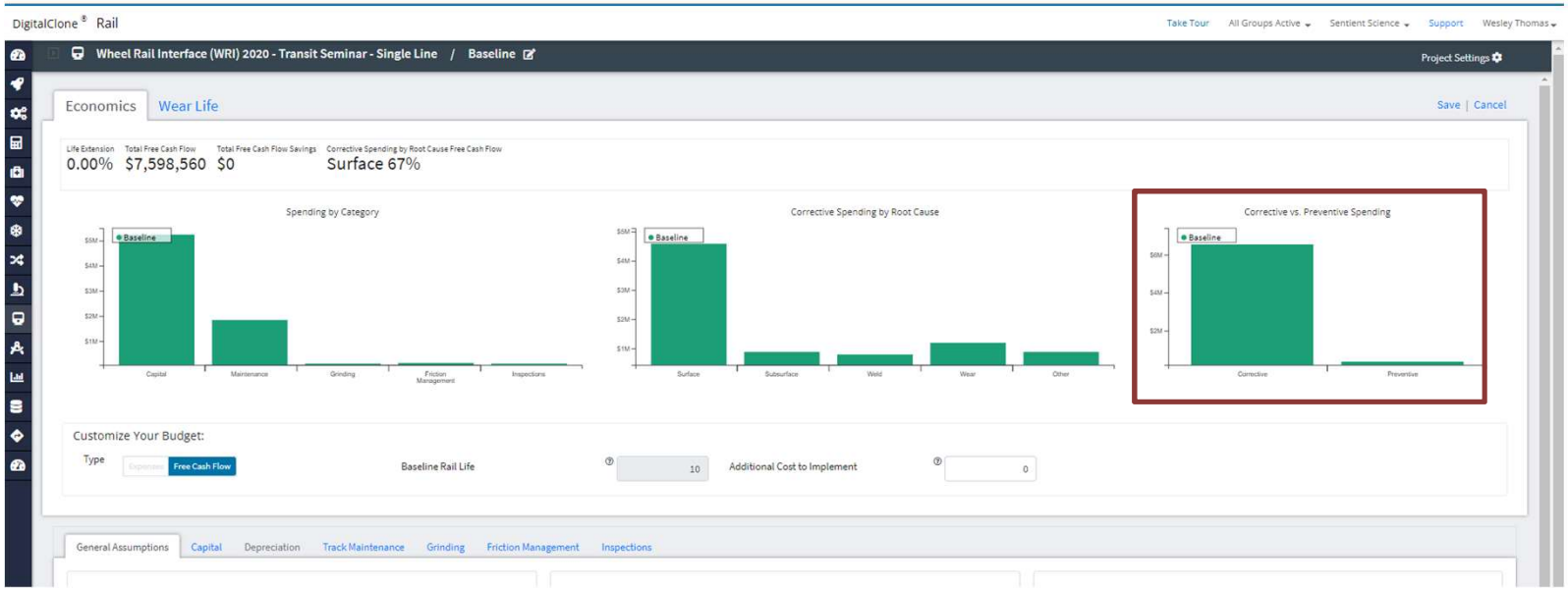
Identify **Total Rail Spending** and **Root Causes**



Economic Model – Full Network

Surface Related Defects are #1 **Root Cause**

for Rail | ECONOMIC MODELS | TRACK MODELS | WHEEL-RAIL MODELS | WEAR MODELS | RCF & GRINDING MODELS | ASSET MANAGEMENT



Economic Model – Specific Line

Higher Replacement, **Lower Preventive Funding**

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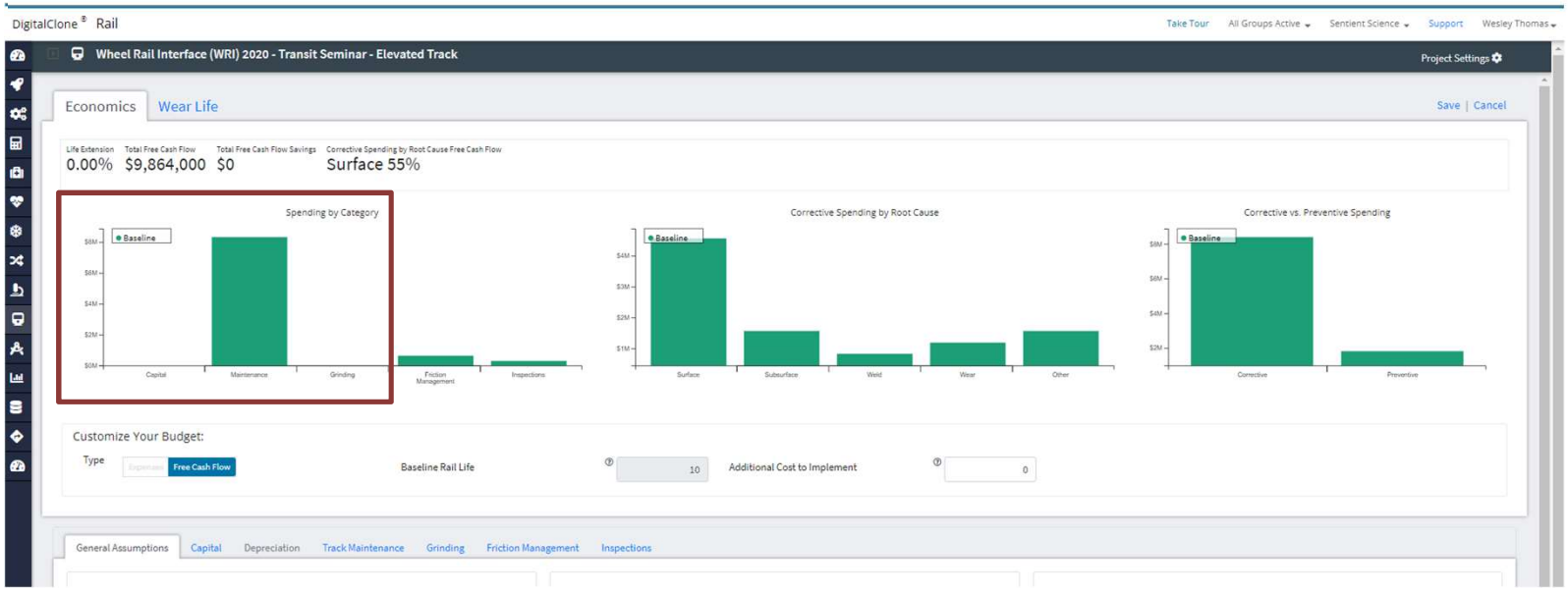

Economic Model – Elevated Track

No **CWR or Grinding** Available

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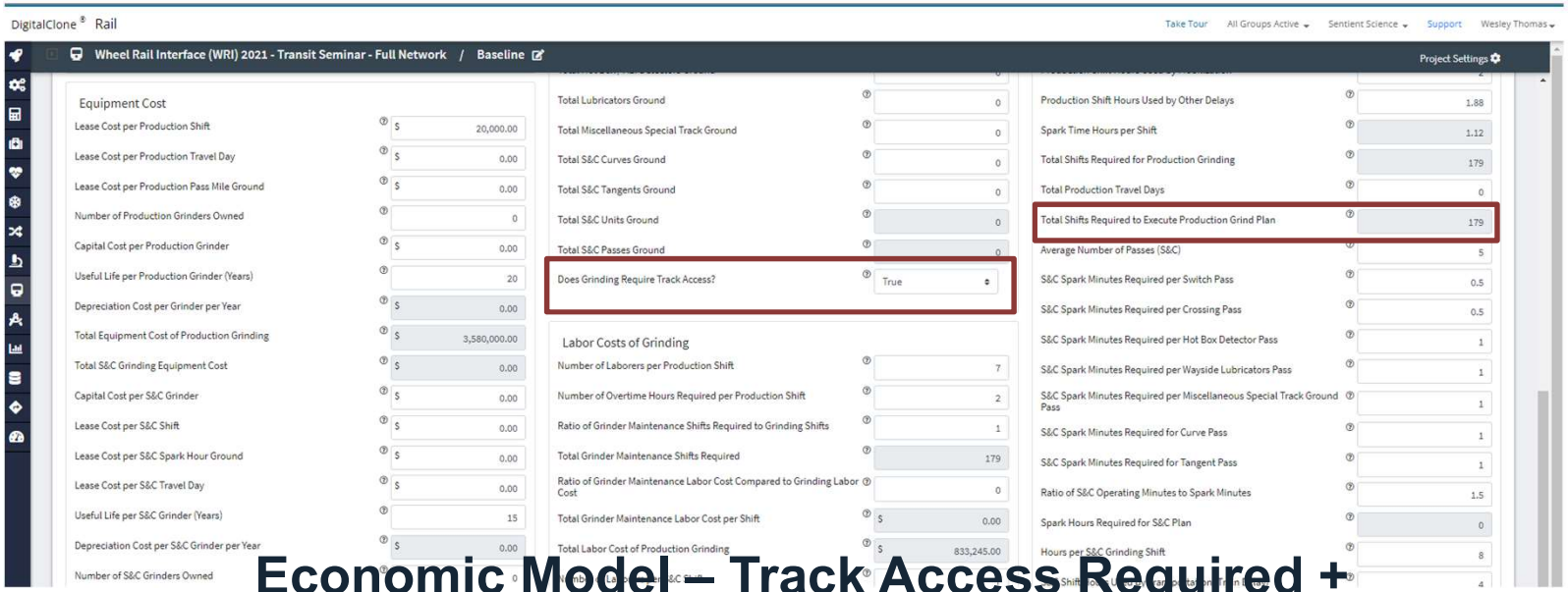

Economic Model – Track Access Required + Costs

Calculate the cost/benefit of additional track time & shift efficiency

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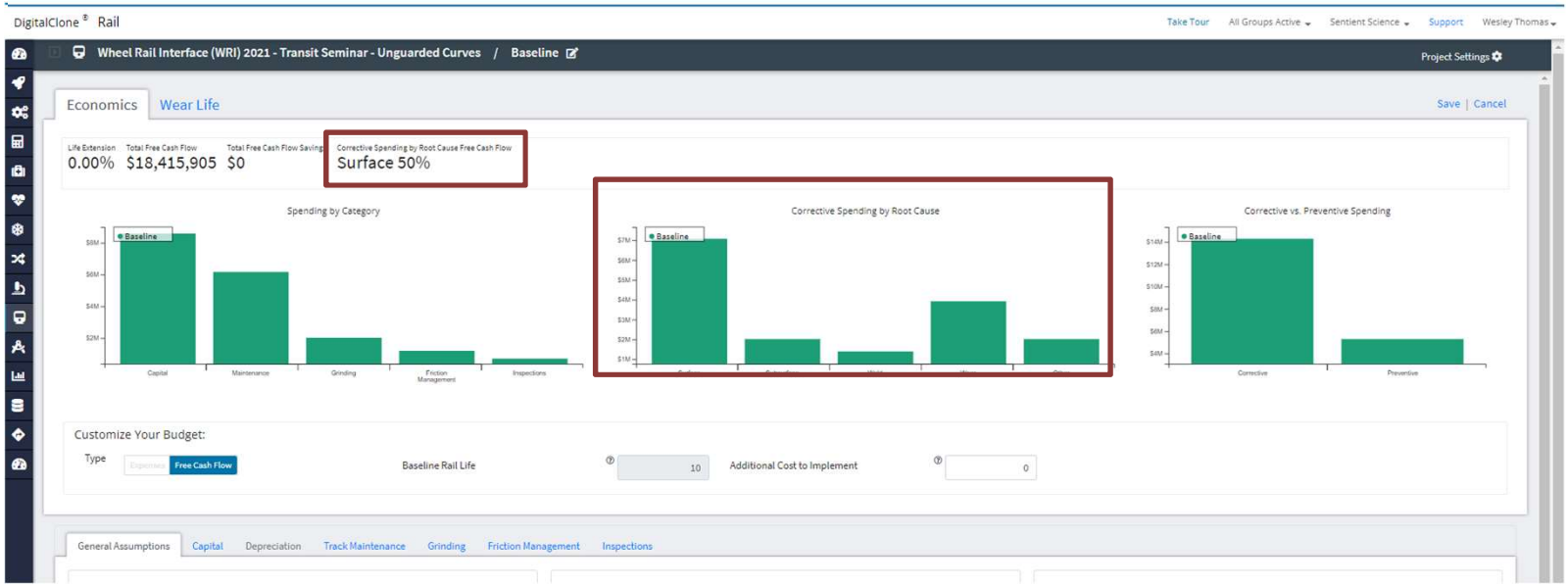

Economic Model – Unguarded Curves

Wear is higher % of root cause, but Surface is #1

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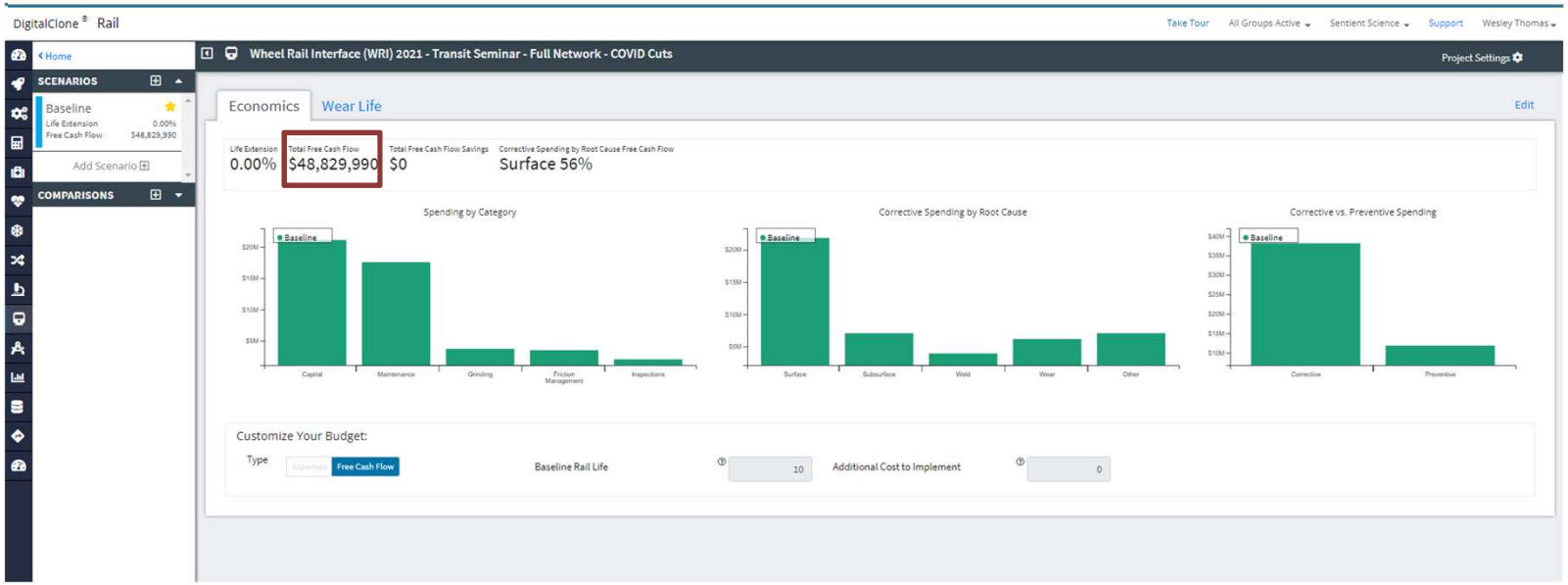
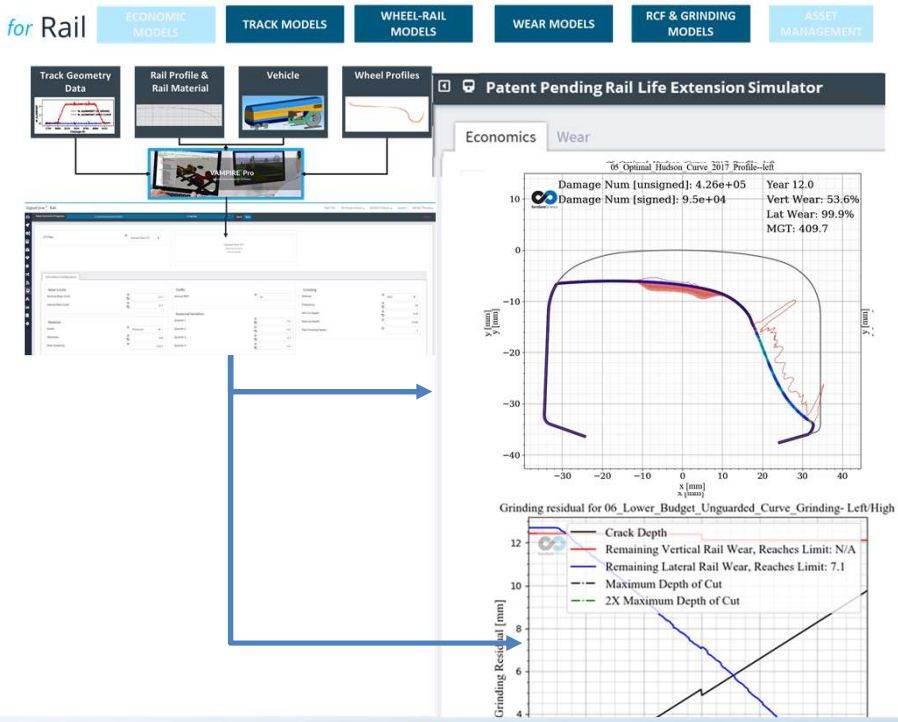


Economic Model – Budget Cuts

33% to 50% Cuts due to COVID-19 challenges

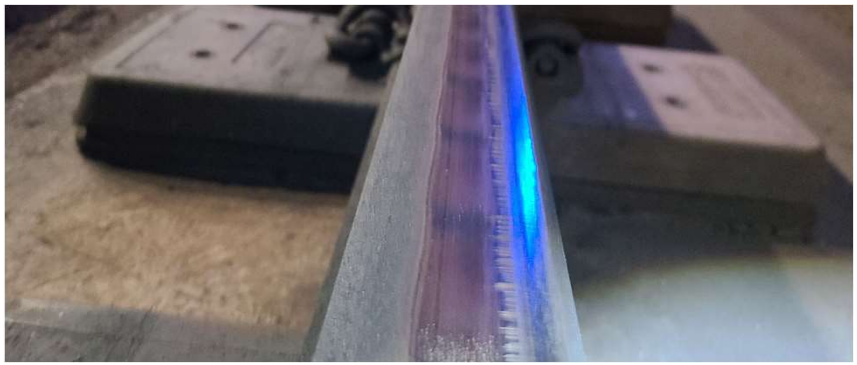
Case Study: Grinding Simulation

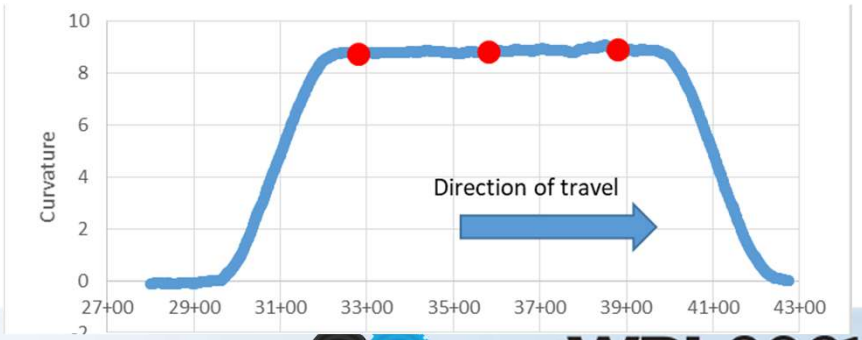
- Identified 4 locations
- Identified 8 use cases
- Started by comparing grind freq. and budget

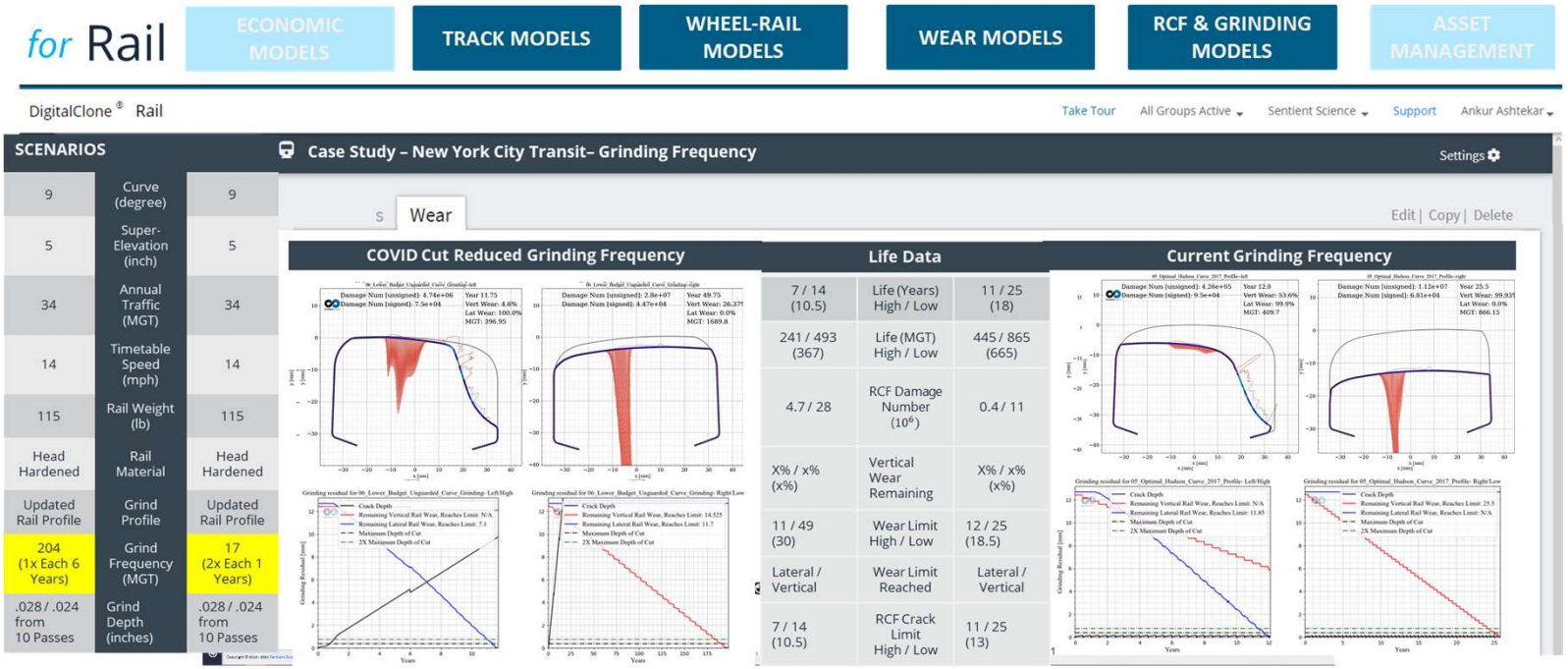


Case Study: Grinding Simulation

- Sharp unguarded curve
- Wear and defects leading to replacement
- Grind for corrugation

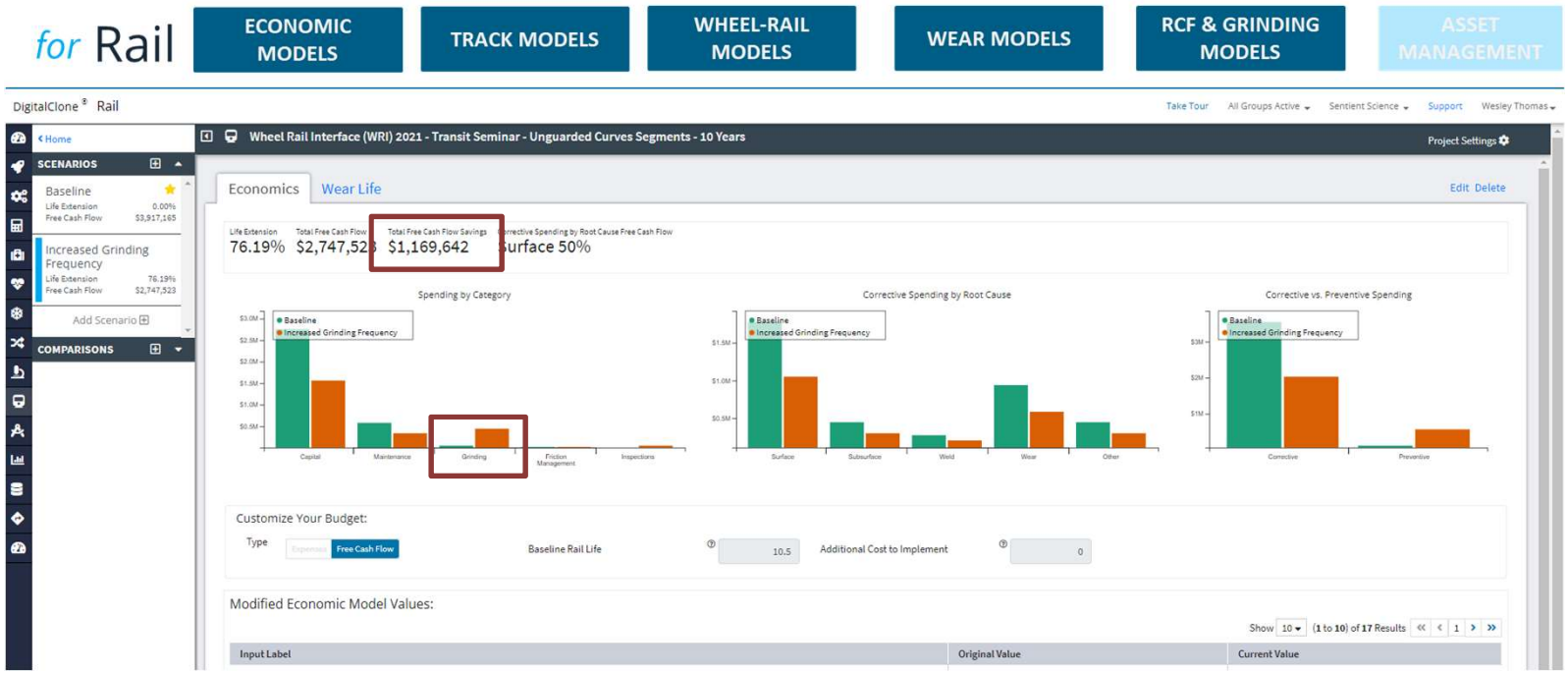






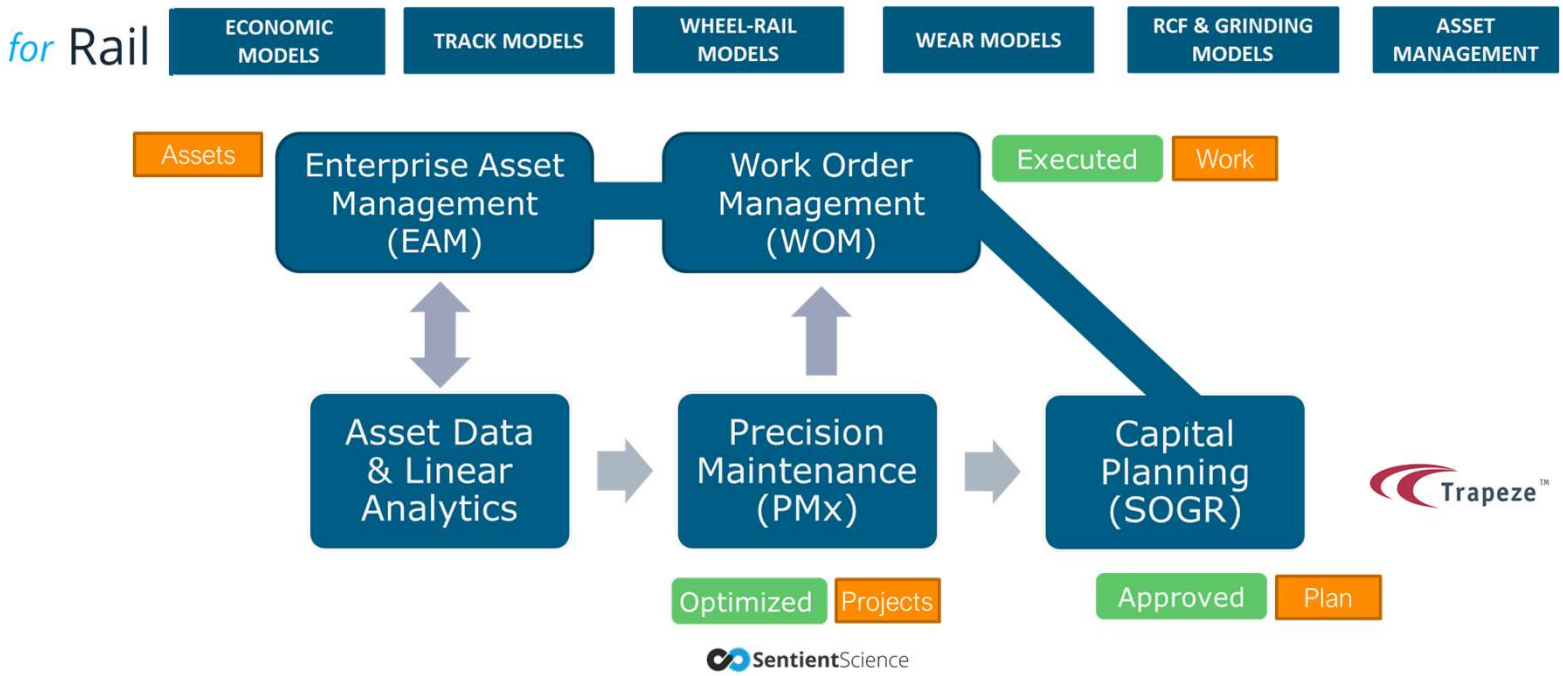
Case Study: Grinding Simulation - Increased Grind Frequency

75% Life Extension due to 2x per year grinding



Case Study: Grinding Simulation - Increased Grind Frequency

$1M Savings over 10 years on single curve due to 2x year grinding



Trapeze Group and Sentient Science Announce EAM Partnership

Get the Rail Maintenance Evidence to Show the Business Case

Thank you!

Reach Out:

- **Free** Economic Tools
- **Data** Quality Guidance
- Program **Updates**

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