Greta Cutulenco

# Predictive Quality is the Key to EV Production Scaling

Acerta


error
error
error


error

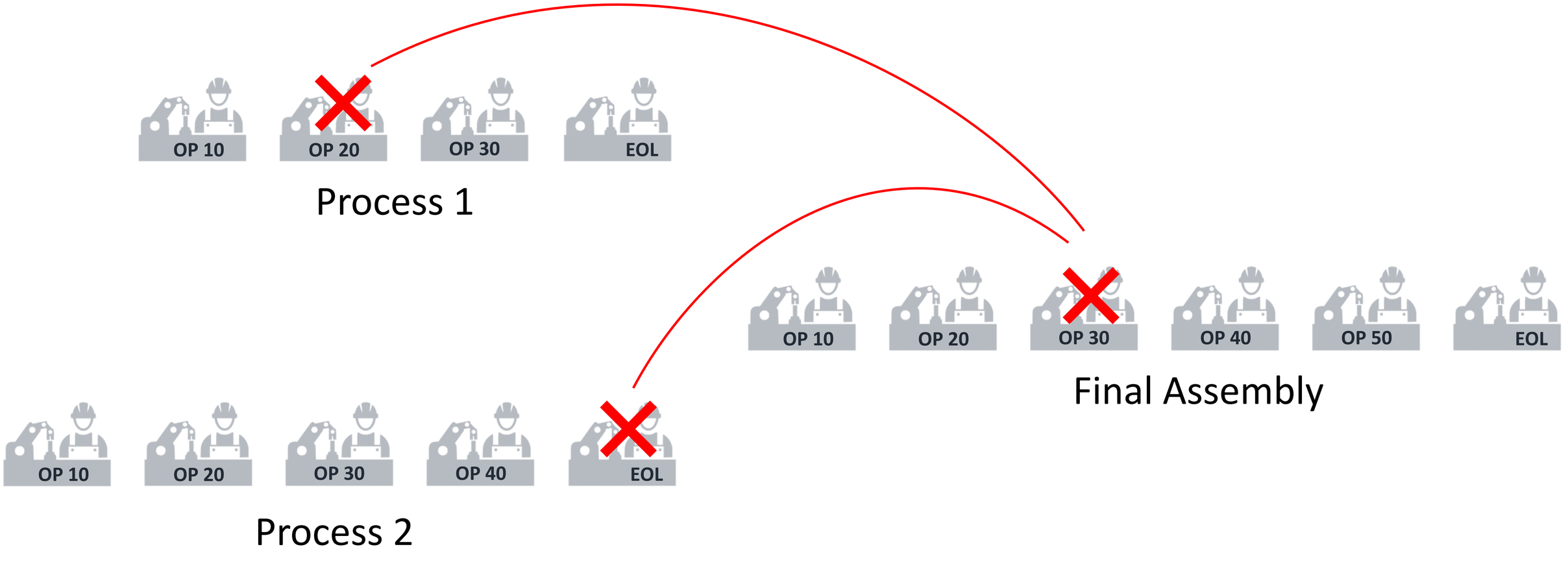

Scrap
Rework
Warranty
claims
What you see

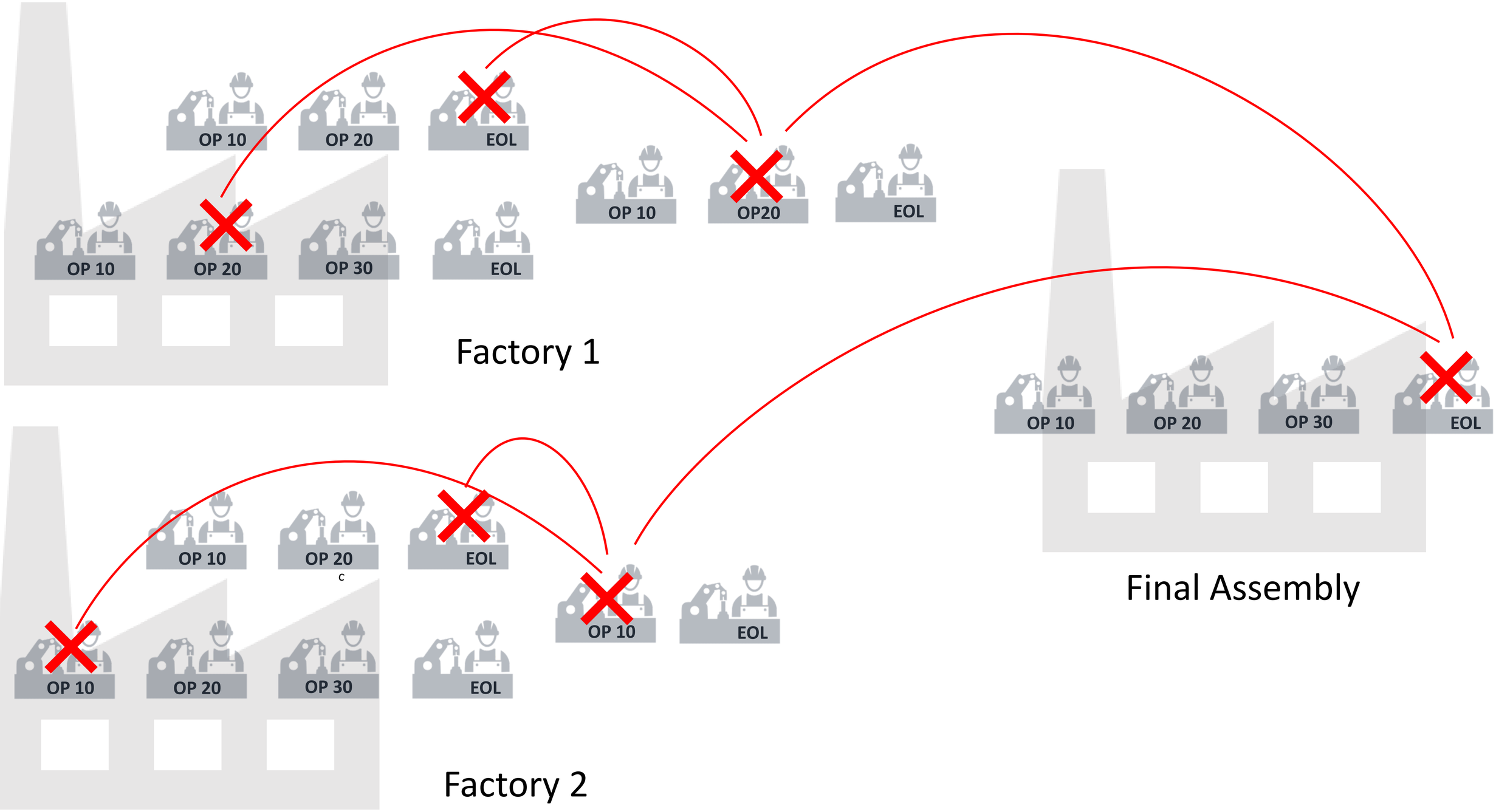
# What is predictive quality?

Minitab®

QMS

Power BI


OP 10
OP 20
OP 30
EOL
Process 1
OP 10
OP 20
OP 30
OP 40
OP 50
EOL
Final Assembly
OP 10
OP 20
OP 30
OP 40
EOL
Process 2


OP 10
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Factory 1
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OP 10
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OP 30
EOL
Final Assembly
OP 10
OP 20
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OP 10
EOL
OP 10
OP 20
OP 30
EOL
Factory 2

## Opportunities

Improved quality

Accurate problem solving

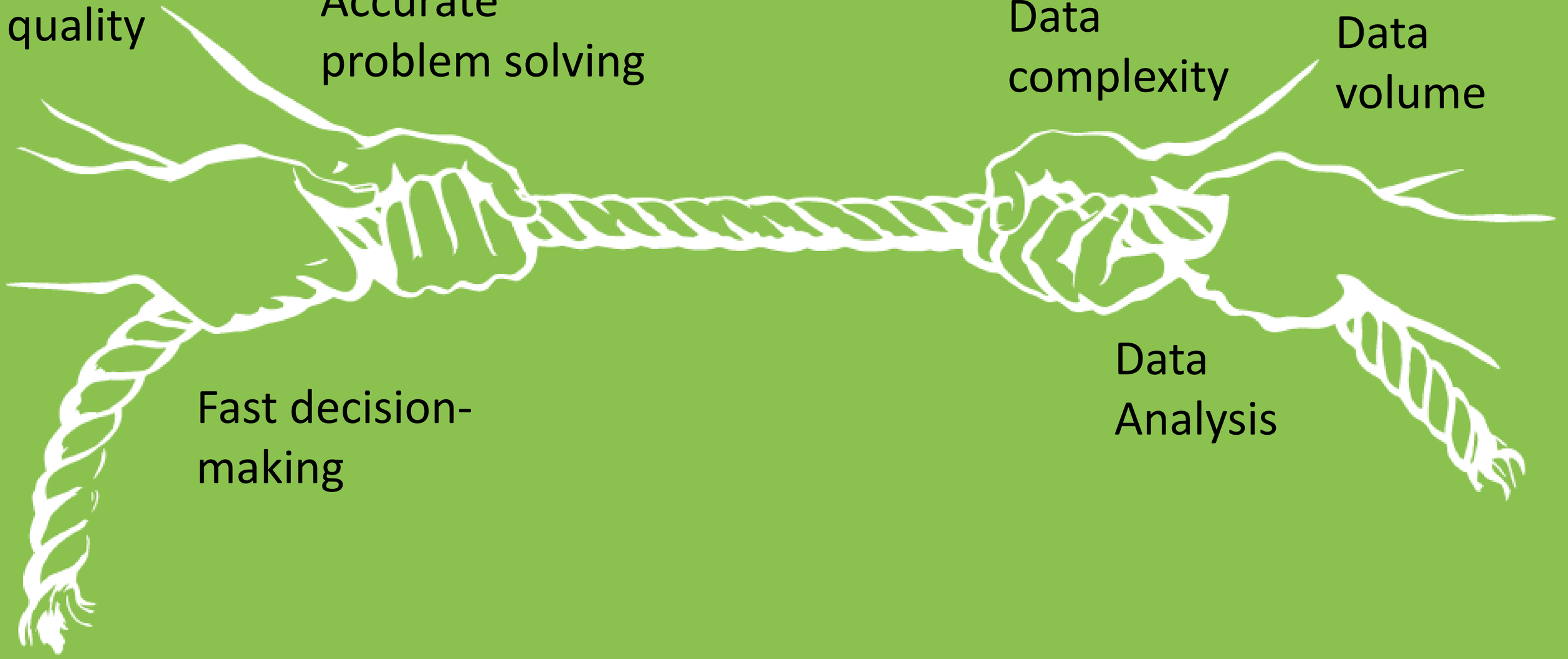
Fast decision-making

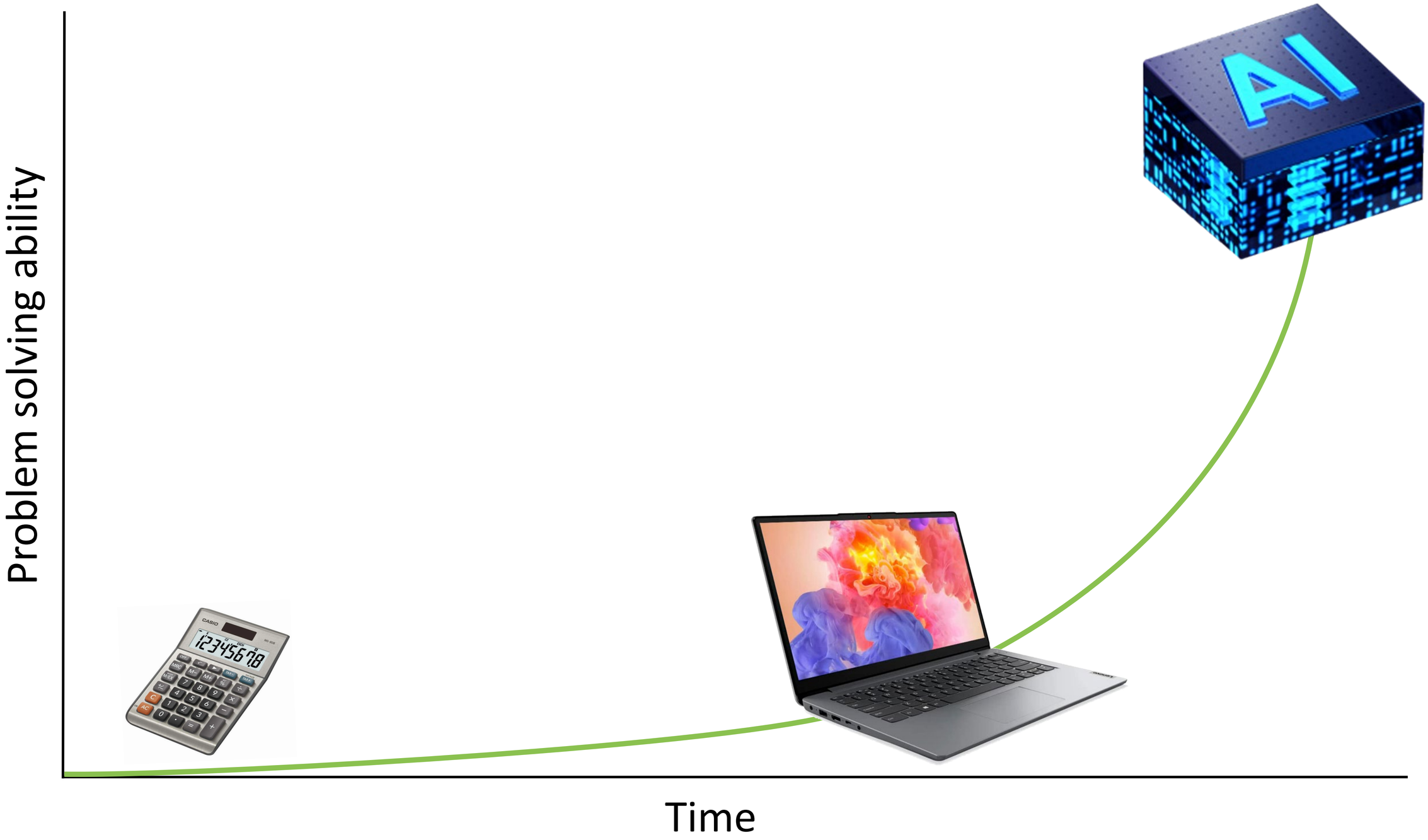
## Obstacles

Data complexity

Data volume

Data Analysis




Problem solving ability
AI
Time

# Case study: axle assemblies

## Challenge

- Dana wanted to optimize production First Time Through rates
- Rework due to NVH and backlash issues was also a challenge
- Existing Industry 4.0 tools were not providing results

## Solution

- Identified downstream processes contributing to rework through data
- Set up proactive monitoring across lines and facilities to avoid quality spills
- Significantly reduced rework and scrap through in-line assembly optimization
- Scalable solution that Dana was able to roll out to 20 plants

**$2.5-3M**

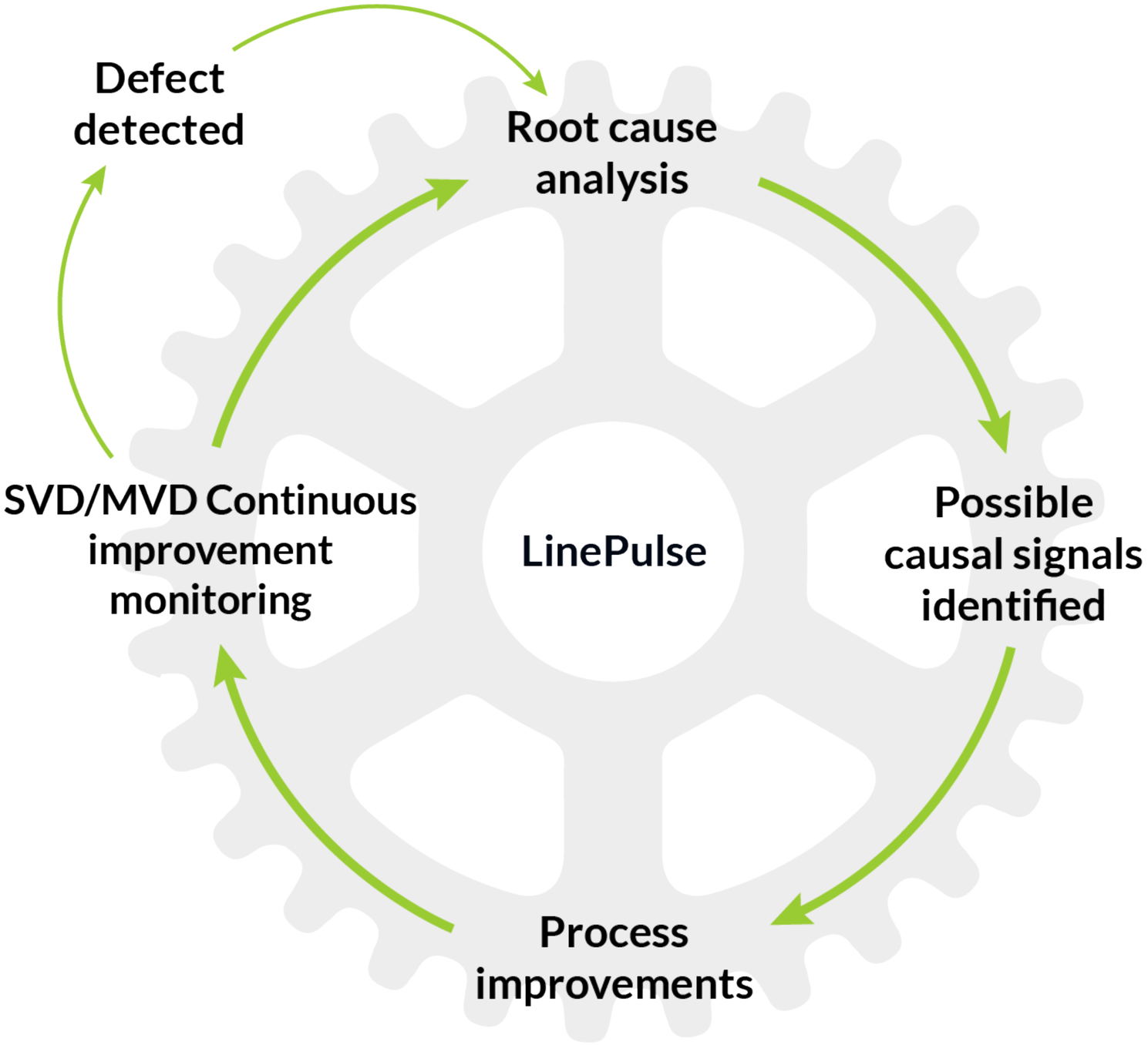
One-time savings at a single plant

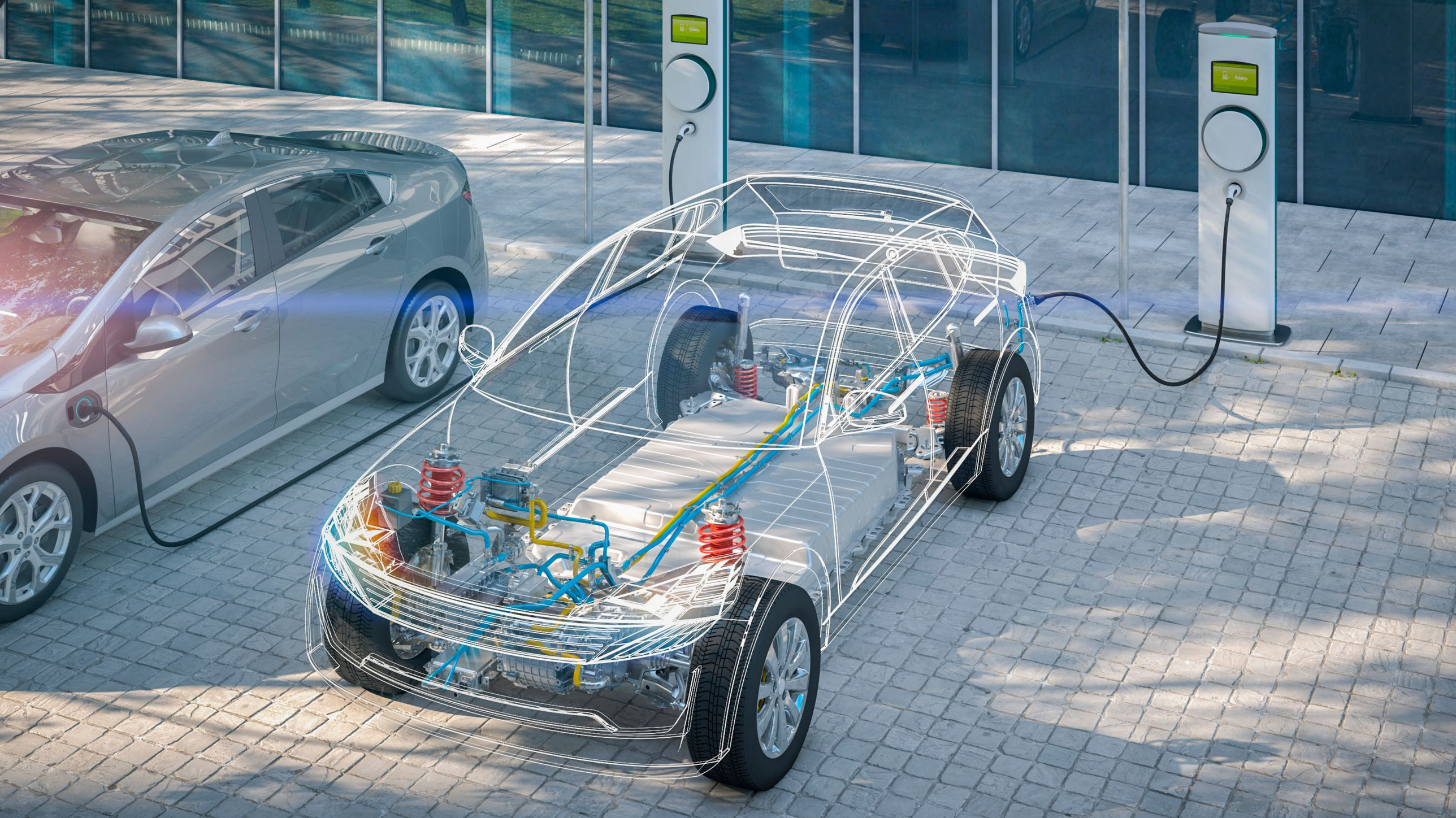
**500 hours**

Per quality spill saved

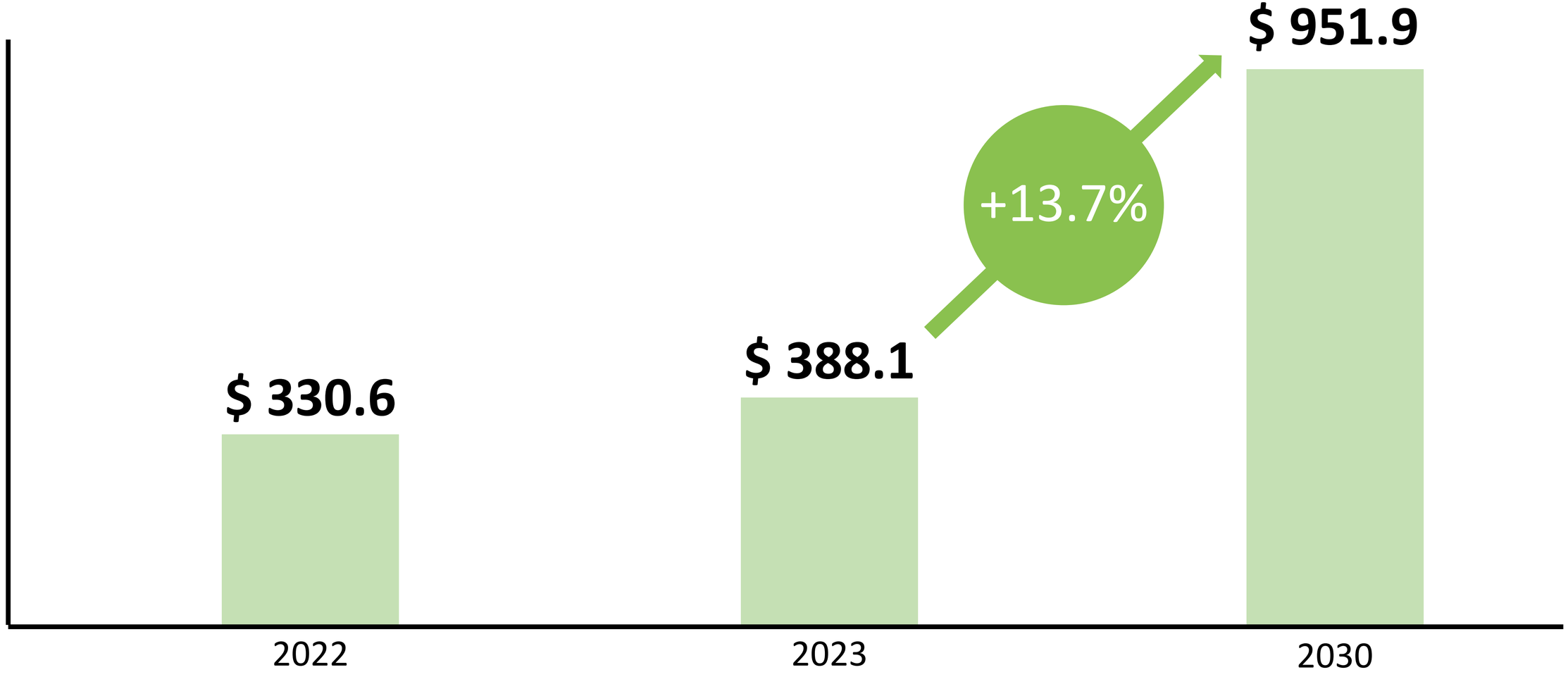
**$75,000**

Annual savings per line in predictive avoidance


Defect detected
Root cause analysis
Possible causal signals identified
Process improvements
SVD/MVD Continuous improvement monitoring
LinePulse



# Electric vehicle market global forecast
*(USD Billion)*

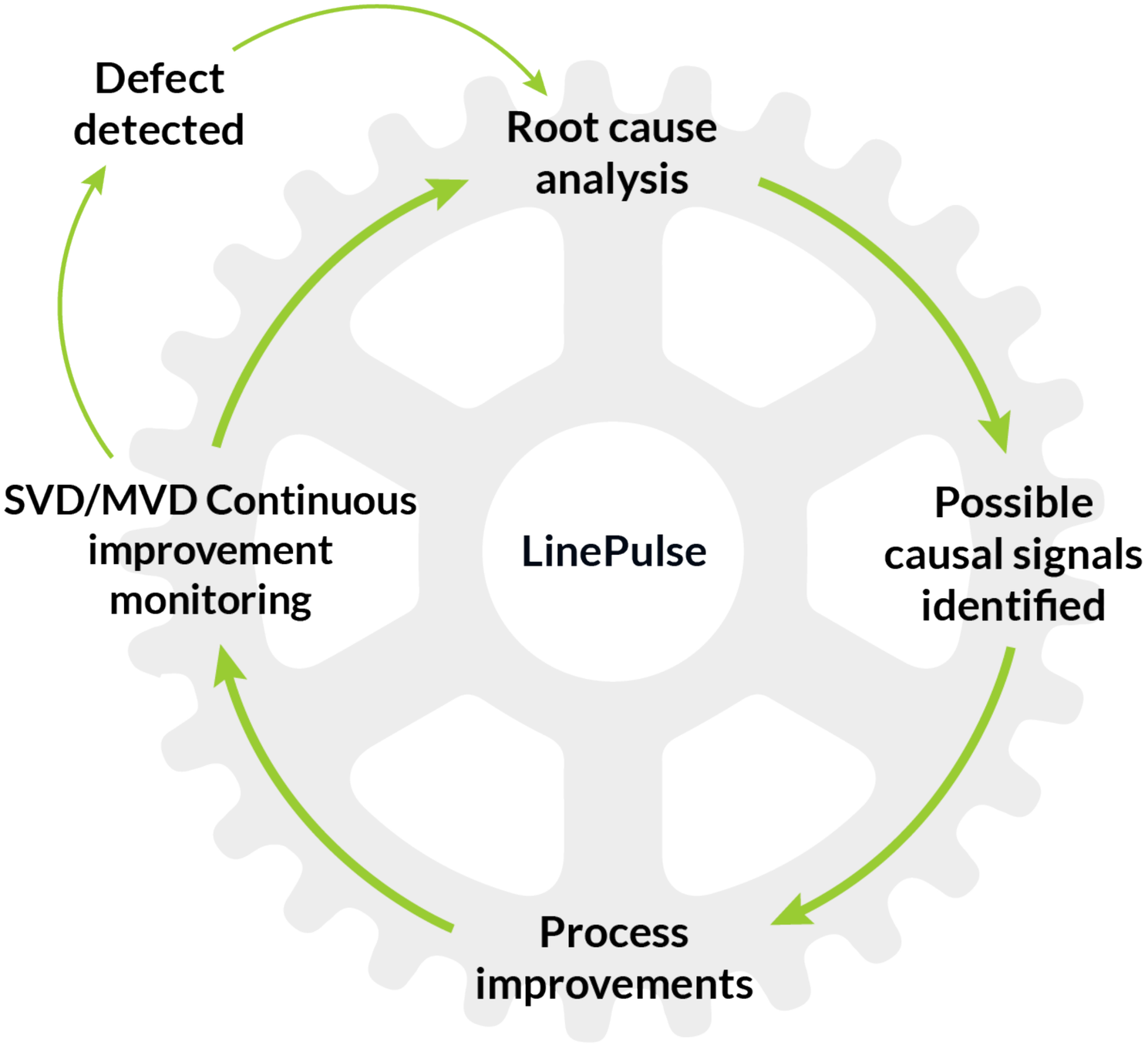


# Why is the EV transition different?

**Massive Spend**

**Unprecedented Speed**

**Data Availability**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# Case study: test time reduction

BALLARD®

## Challenge

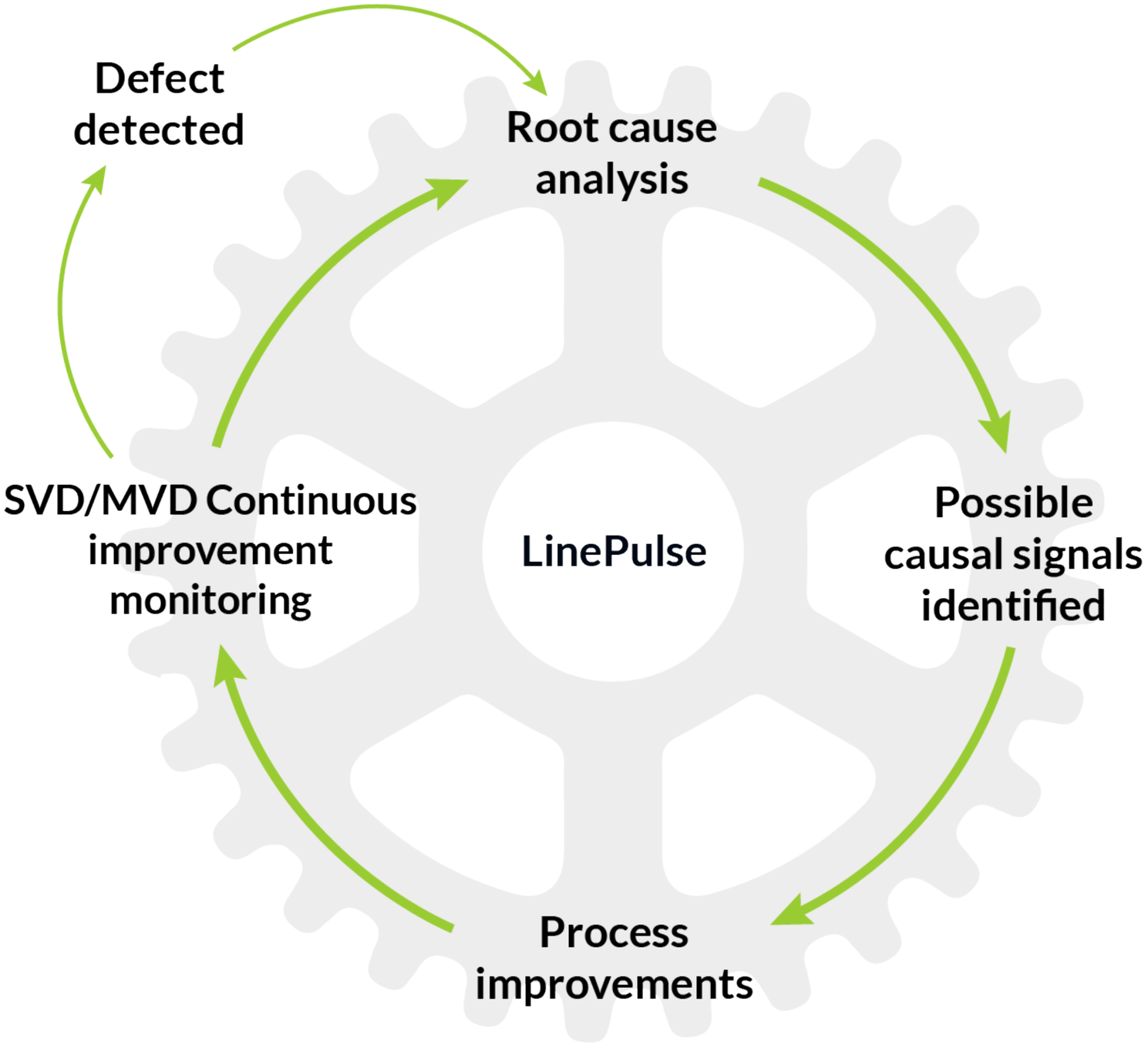
- Factory Acceptance Testing is a bottleneck in scaling production of fuel cell stacks
- One end-of-line test takes about 3 hours to address all requirements
- Increasing the number of testers to achieve desired throughput is expensive

## Solution

- Leverage predictive ML/AI algorithms to shorten test times
- Models deployed in the test station for continuous assessment
- Cloud-hosted model management for continuous performance optimization

Test time before **150 minutes**

Test time after **30 minutes**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Questions?