# Predictive Maintenance:

## Transforming Reactive Service into Proactive Solutions

Field Service East – Orlando 2025

John Tocado – JLG Industries

# Introduction

Story: A data scientist says he can predict parts failures with 95% accuracy.

Director asks: 'Is this real?' This presentation explores that question.

# John Tocado – Principal Analyst, JLG

JLG (2015 – present):
– Leading contact-center innovation with ML integrations
– Serve as Business Analyst, Project Manager, Team Lead

MIT Tech Conferences:
– Attended EMTech Digital at MIT Media Lab (2022): Explored breakthroughs in AI
– Attended EMTech Future Compute (2022): Focus on machine learning infrastructure, security, and metaverse

Former US Army Helicopter Mechanic:
– MOS 67 Uniform Medium Helicopter Repair
– Maintained and repaired the CH-47 Chinook

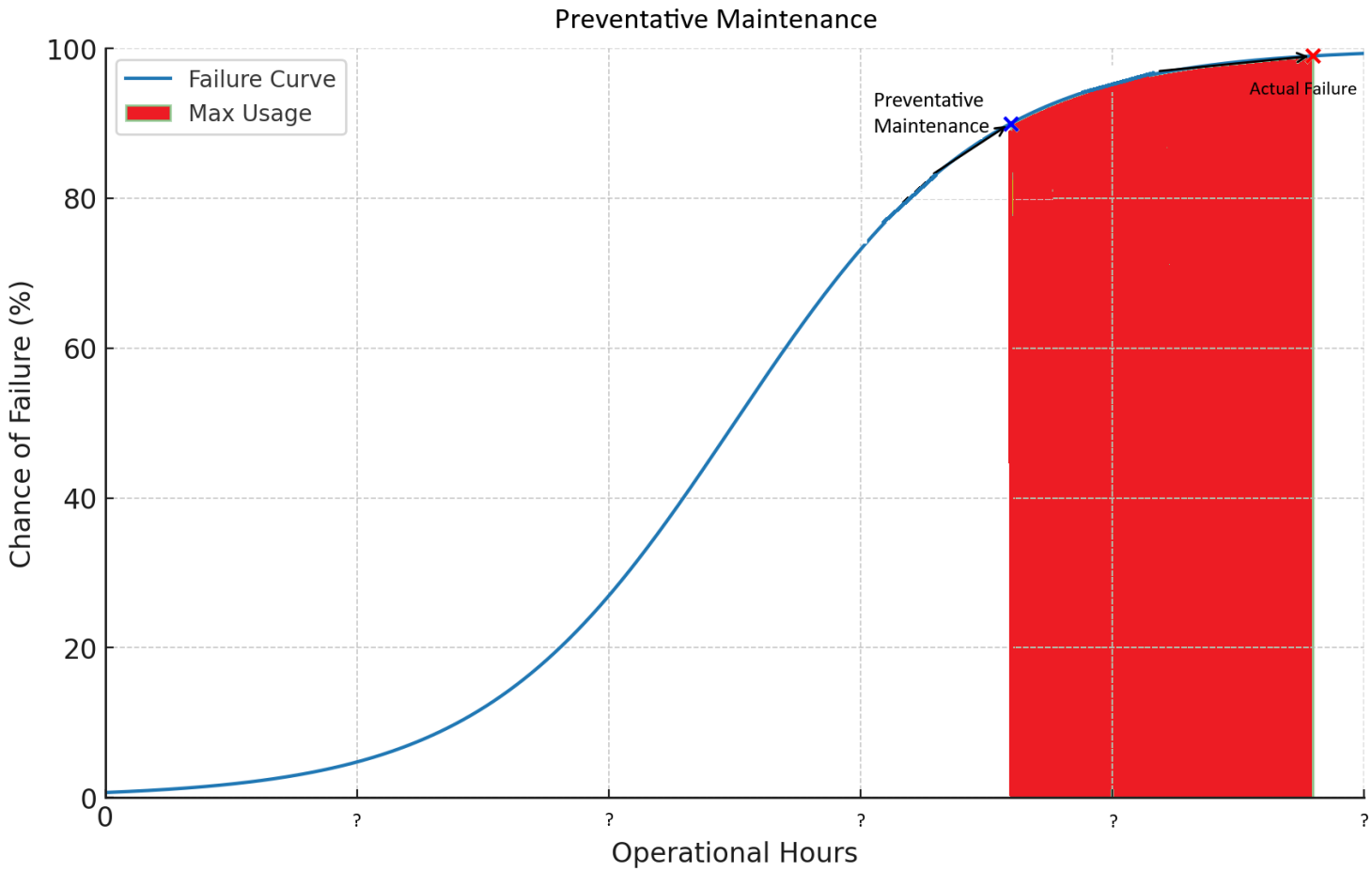
Old Dog Learning New Tricks

🎯 Trade Show Takeaway
John has been wrestling with Machine Learning Hype and Management Expectations for 3 years

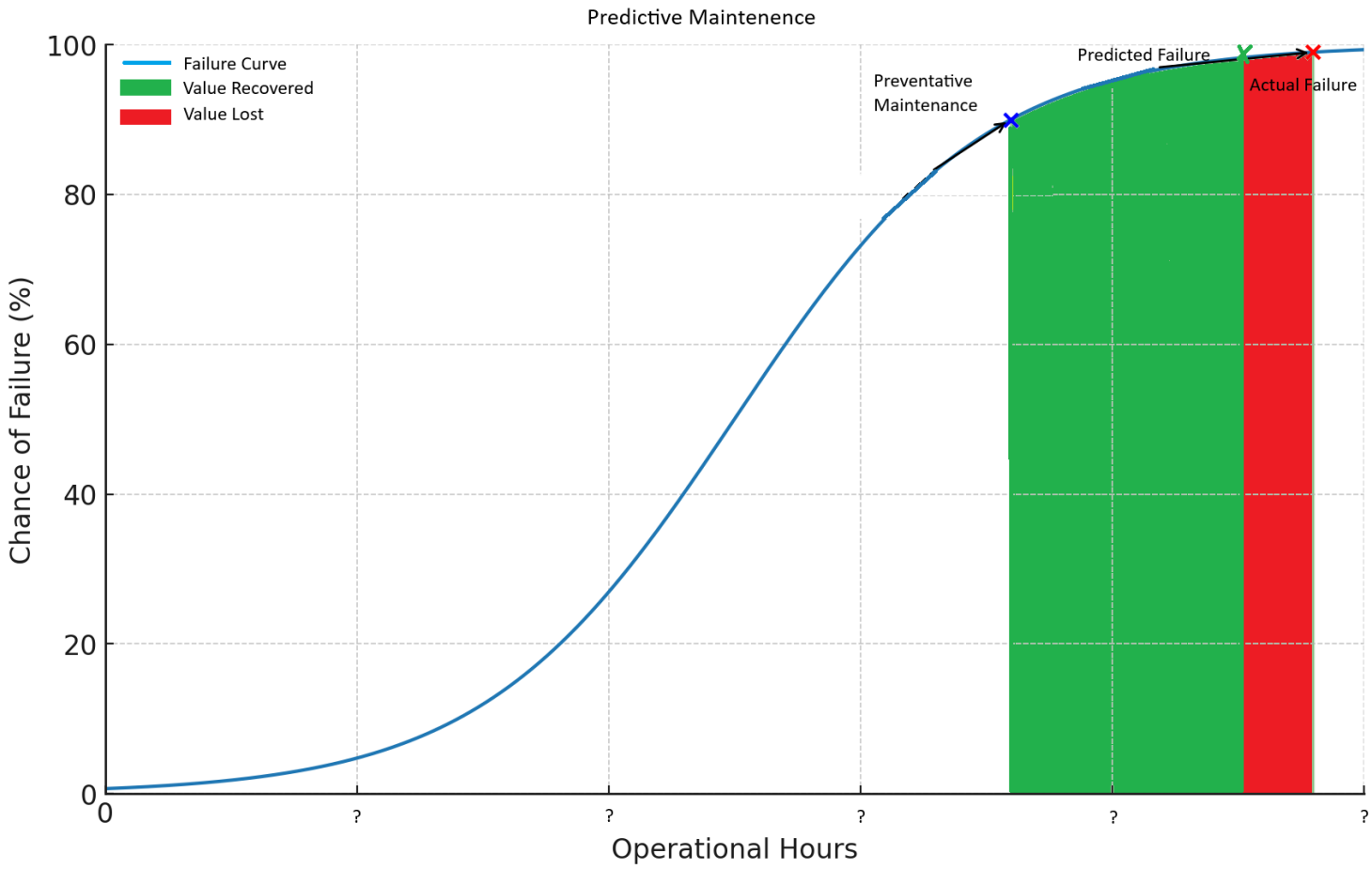
# Current State:
# Preventive Maintenance

- Reduce unscheduled downtime
- Optimize parts scheduling
- Improve labor efficiency
- Maximize service bay usage

# Current State: Preventive Maintenance



# Predictive Maintenance Value



# How to Decide

What is the cost to predict key failures?

Do projected savings outweigh PdM investment?

Is PdM the right strategic step today?

# Go Back to the Data Scientist

- For a JLG 1055
- Find the High Maintenance Parts
- What failures can I realistically prevent?
- Estimate Value of PdM
- Report on Data Available

# Predictive Maintenance Model Costs

**Model Development**

**$?**

**Data pipelines**

**$?**

**Machine Learning Operations**

**$?**

**Risk**

**$?**

- I Have No Idea if This Will Work

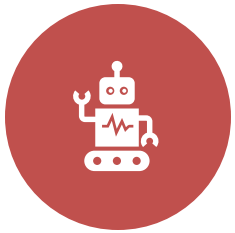
# Create the Requirements

Pick a Machine

Pick the Right Parts

Pick the Right Predictions

# POC Partner
# Decision: Build vs Buy vs Embed



Buy: AI-as-a-Service

Build: In-house ML team, or Consultants

Embed: PdM in ERP/telematics software

Decision: cost, speed, control, scalability

# Time for the Data Audit

Do I have sufficient data for modeling?

What additional data is required?

What will it cost to get it?

# The Data Audit Details

Collect all machine evidence:

Work orders

Telematics

Contact center notes

Call transcripts


ML Model
Complex Machine

~$250k

# Beyond the Model: Ongoing Costs

Model Usage

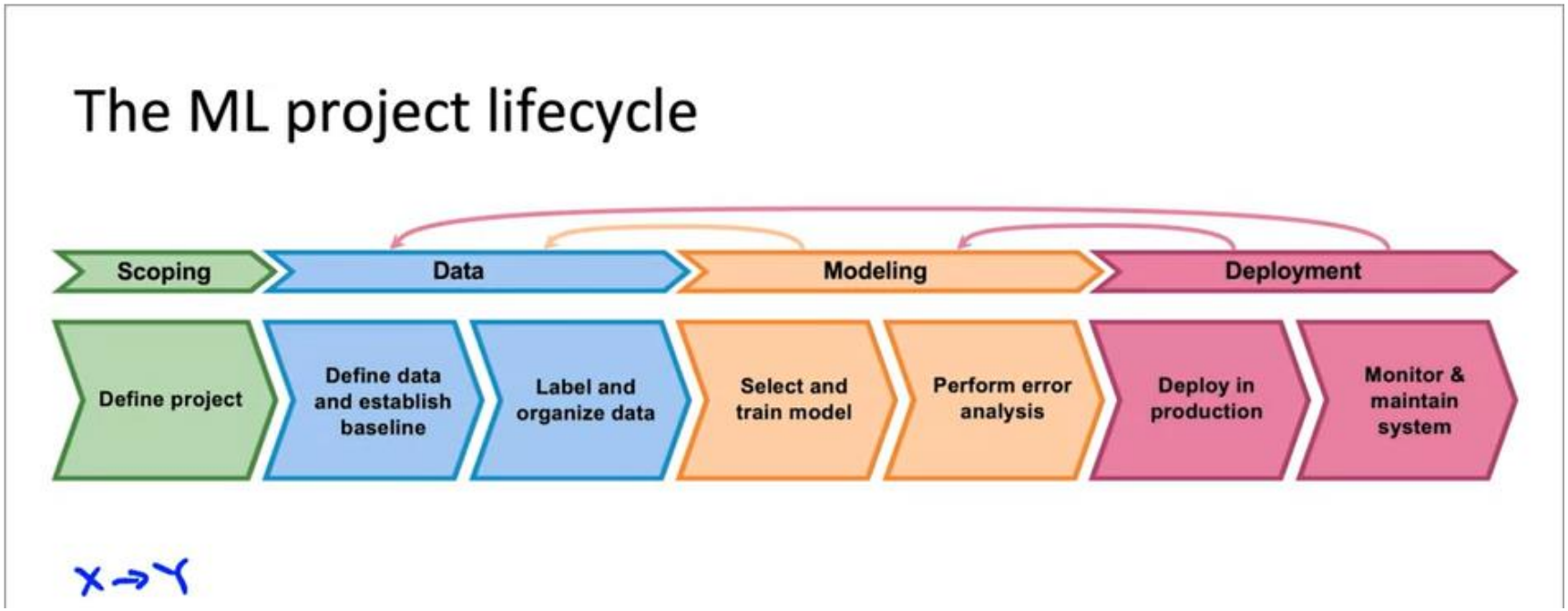
MLOps

Model Refresh Cycles

Support

# Machine Learning Operations

## Standing Up a Practice



# Lessons Learned

| | |
|---|---|
| Preventive Maintenance → | Efficient shop management<br>Broad value |
| Predictive Maintenance → | Reduce unplanned outages<br>Narrow but high-value opportunities |
| Expect to Have a Hybrid System → | Use PrM for Efficient shop management<br>Use PdM for high-value opportunities |

# Summary

High Risk

Narrow Rewards


# Thank You

## Additional Resources

- Email
  - John.tocado@BlueCadence.tech
- Phone
  - 610-866-4080