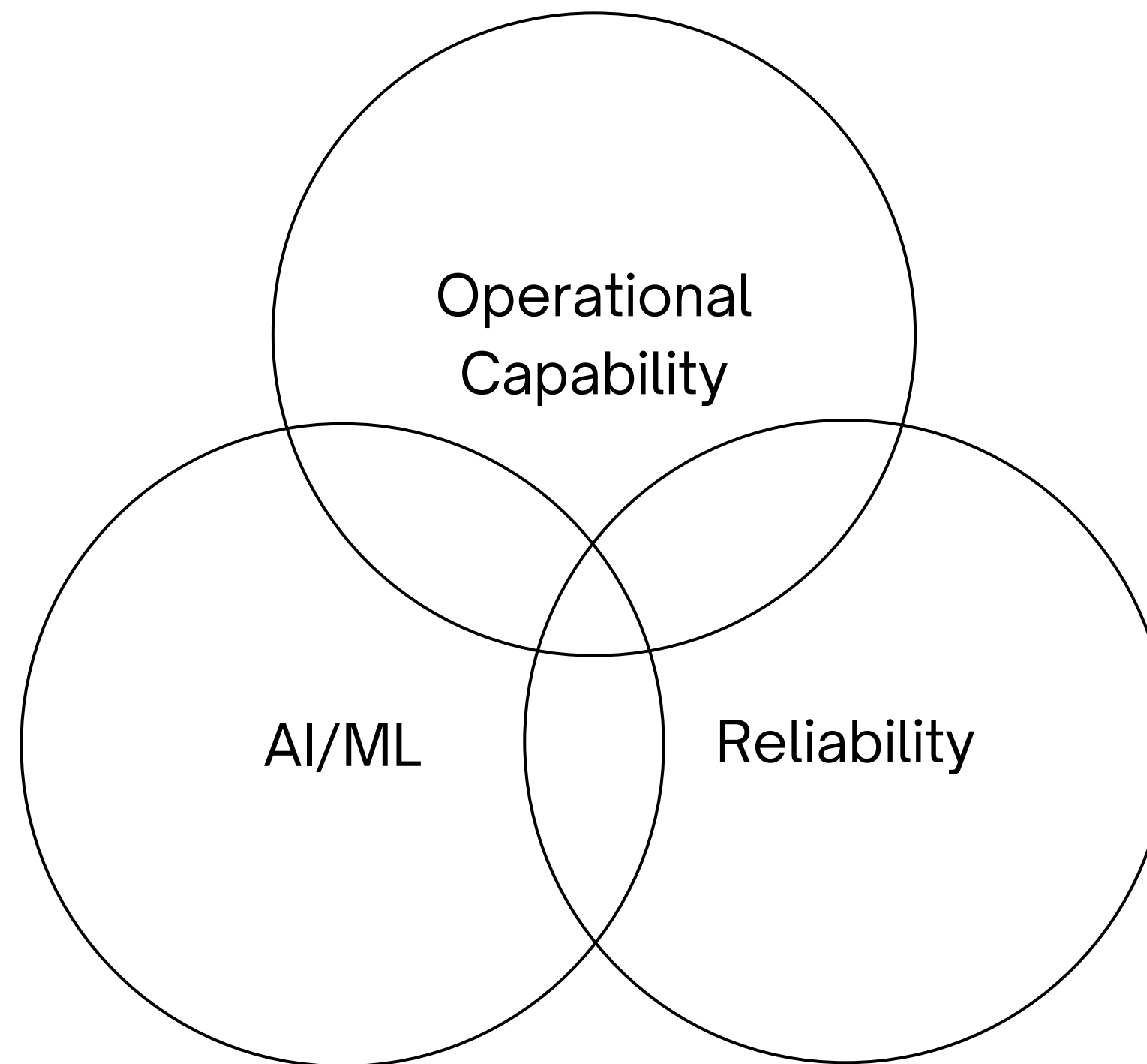






PRESENTER

J P P I C A R D

Co-Founder & CEO

Factory AI (F7i.ai)



Husband & dad of three

I don't need an alarm clock... or sleep

Triathlete

Still figuring out how to swim

Clients Include:



Agenda →

1. **Quick Quiz**
2. **The Reliability Challenge** – Why the current approach fall short.
3. **What's Changed?** – The shift that's unlocking new possibilities.
4. **Getting Started with PdM** – A practical roadmap for your site.
5. **Wrap-Up & Q&A** – Key takeaways and your questions answered.

1 Quiz

1

Which of the following helped Qantas save the most money?

- a) Using AI to optimise flight routes
- b) Reducing the number of in-flight meals
- c) Reducing checked luggage on short flights
- d) Reducing takeoff speeds



Qantas' cloud-based flight sim saving millions in fuel

News

30 Apr 2019

Big Data

CEO

Small and Medium Business

A cloud-based flight path simulator, which determines the most efficient route airplanes can take to reach their destination, is set to save Qantas millions of dollars in fuel, the airline's CEO Alan Joyce said today.

The Constellation system simulates thousands of possible flight paths based on "millions of data points" including weather and wind patterns, and selects the route that uses the least fuel.

"From a business point of view, that's going to save us \$40m in costs each year by a one or two per cent improvement on these flight plans," Joyce told an audience in Sydney this morning.

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One revolution
analyst ex

“We did a Sydney to Santiago flight – we saved one tonne of fuel on that flight by getting a better flight path.”

Alan Joyce

2

WHAT'S THE MOVIE BRAD PITT APPEARS IN THIS PHOTO?



WHAT WAS HE RENOWNED FOR IN THE WORLD OF BASEBALL?



Billy Beane is renowned in the world of baseball for revolutionising the approach to player evaluation and team management through **the use of statistical analysis**, popularly known as "Moneyball."

3

WHY DID NETFLIX WIN AGAINST BLOCKBUSTER?





Netflix prevailed over Blockbuster due to its innovative subscription-based model, online convenience, **Netflix leveraged data analytics and algorithms to provide personalised**, content expansion, and global reach.

4

WHO ARE THESE GENTS, AND WHAT ARE THEY KNOWN FOR?





Norwegian triathletes Gustav Iden and Kristian Blummenfelt are renowned for **their scientific, data-driven training approach and their dominance in long-distance triathlon events.**

What we've learned

1. Presenter has potential to be annoying.
2. AI is essential for handling massive data sets – Qantas.
3. Real-time data unlocks hidden value – Netflix.
4. Trust the data, not intuition or appearances – Billy Beane.
5. Run Experiments – Gustav & Kristian.

'Without data, you're just another person with an opinion',

W. Edwards Deming

2 The problem with the current reliability approach

A purely time-based maintenance strategy is inefficient

80% of Equipment Failures Are Not Age-Related

Extensive research by United Airlines (1968), Bromberg in Sweden (1973), and the U.S. Navy (1982) revealed a surprising truth: **only 8% to 23% of failures show an increasing failure rate over time.**

For more complex machinery, **77% to 92% of failures occur randomly,** with no **correlation to age** or operational lifespan.

If failures are predominantly random, the most effective strategy isn't time-based maintenance but condition-based and predictive maintenance.

Sources:

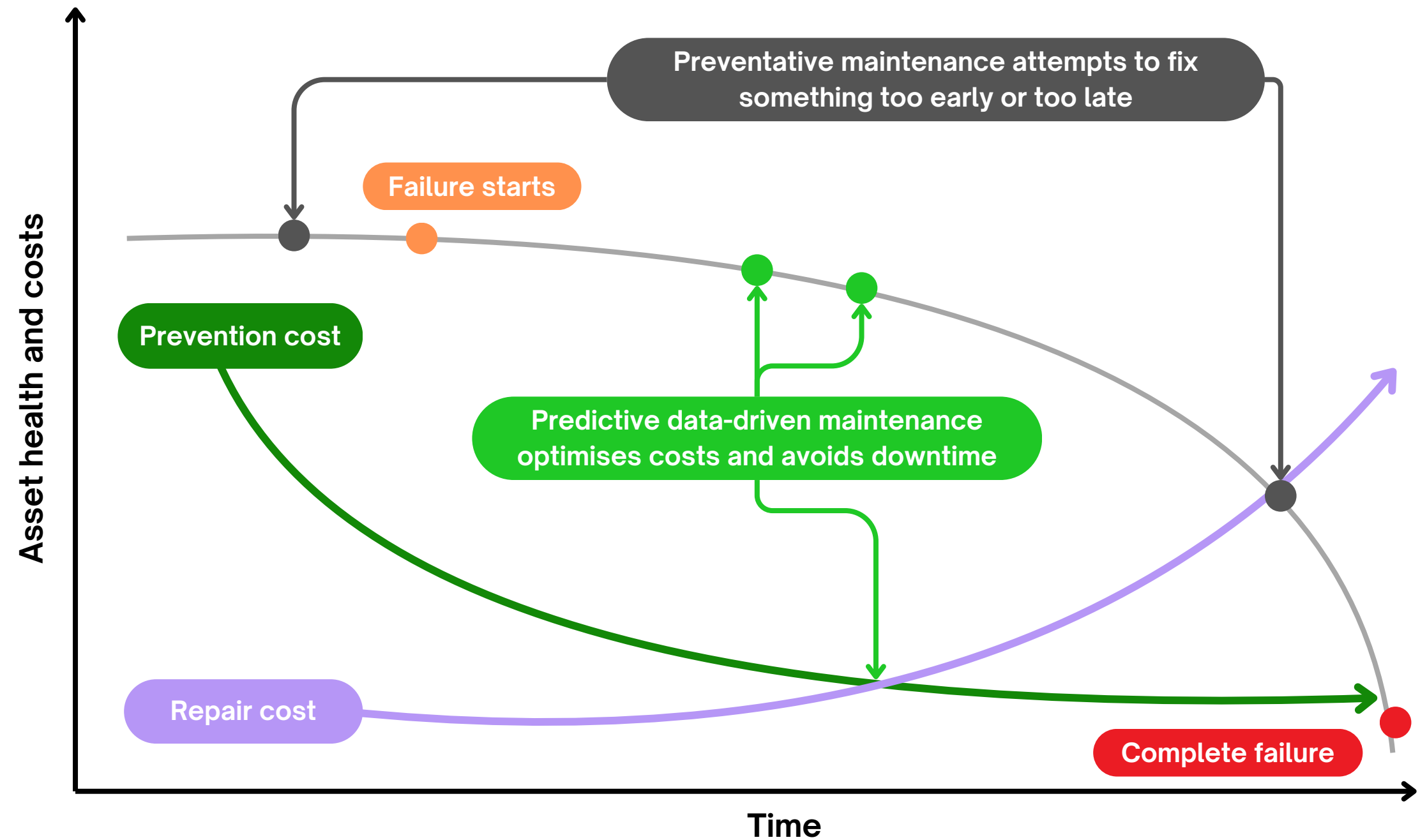
1. Reliability-centered maintenance FS Nowlan, HF Heap - 1978
2. RCM | Gateway to world class maintenance AM Smith, GR Hinchcliffe - 2003
3. US navy analysis of submarine maintenance data and the development of age and reliability profiles TM Allen - Department of the Navy SUBMEPP, 2001

Status Quo



Predictive Maintenance

Currently solve the problem using preventative or reactive maintenance process



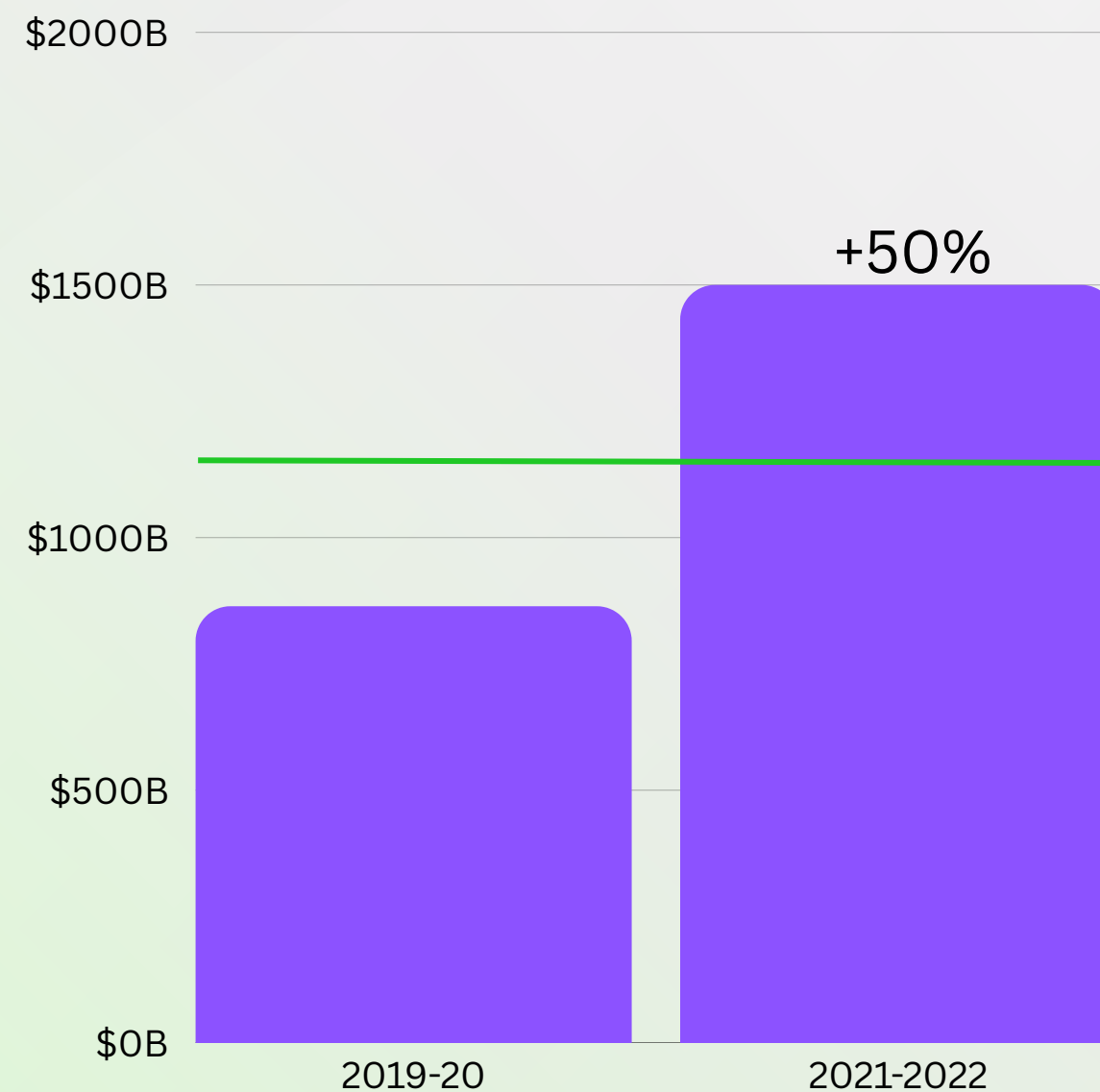
**YOU DO KNOW THAT ALL OF LAST WEEKS
BREAKDOWNS WERE PREVENTABLE - DON'T YOU?**

MAINTENANCE

RELIABILITY

3 What's changed now?

Every year, manufacturers are losing more money to downtime



Cost of unplanned downtime across global Fortune 500 companies

\$1.5T

DUE TO UNPLANNED DOWNTIME

3.3M hours

OF UNPLANNED DOWNTIME

11%

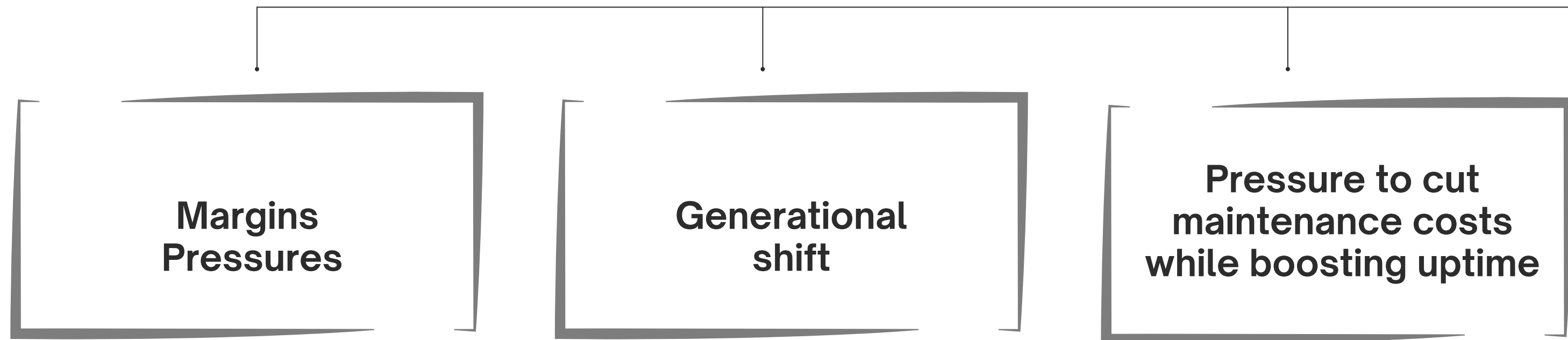
ANNUAL REVENUES

Source: Senseye, "True Cost of Downtime"

Why Now #1

The problem has gotten bad

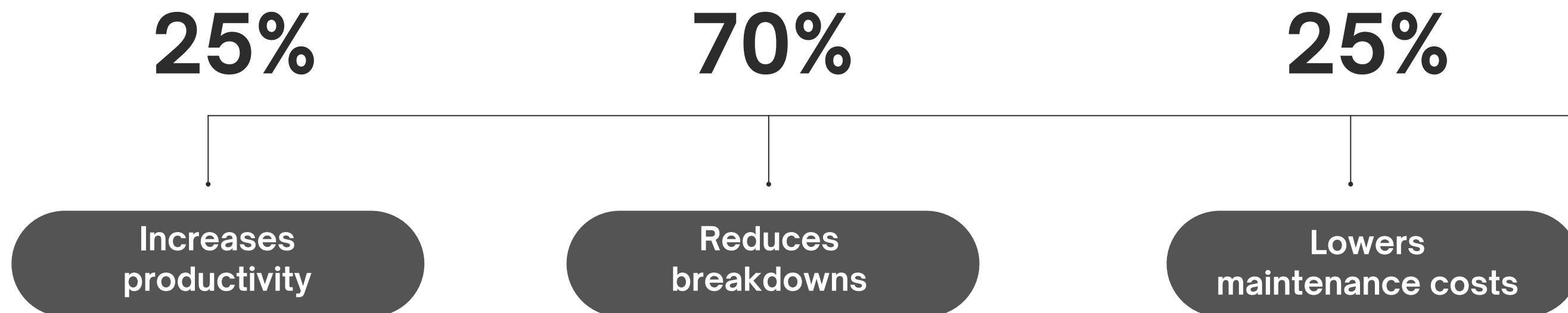
Three forces are making investing in our product category is crucial now



Why Now #2

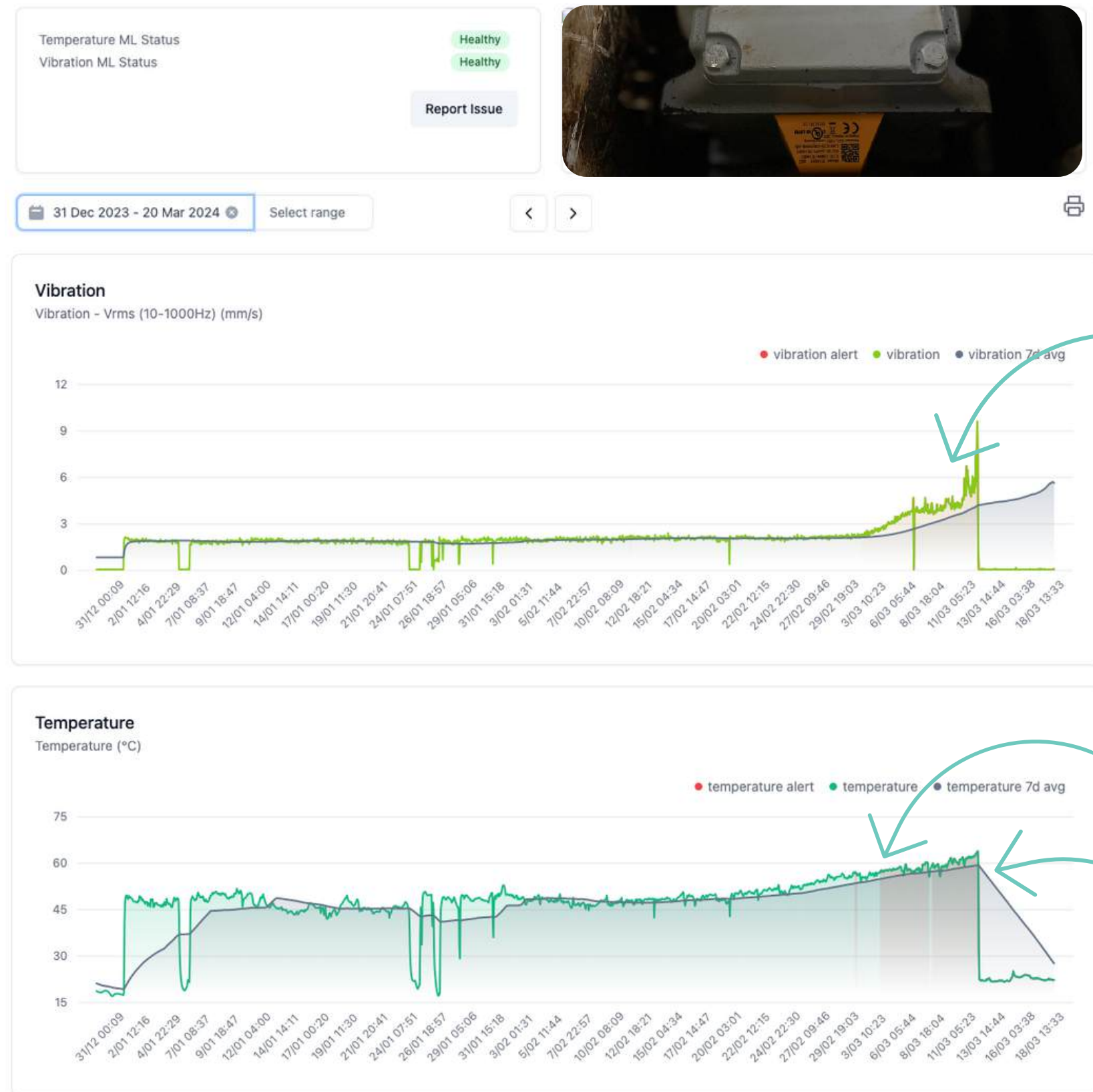
The solution is better, faster, cheaper

A study by Deloitte showed predictive maintenance helps you mitigate unplanned downtime and prevent catastrophic asset failures.



Source: https://www2.deloitte.com/content/dam/Deloitte/de/Documents/deloitte-analytics/Deloitte_Predictive-Maintenance_PositionPaper.pdf

Does the thing even work?



Alerts Sent

3/03/2024

Two alerts to the team about the [redacted asset name].

2nd Alert

What happened

Although unfortunate, this incident serves as evidence of the technology's accuracy in **predicting** and mitigating equipment failures.

Two-week notice to take action. In most situations, this **timeframe is sufficient** for the team to make the appropriate decision and **act** accordingly.

1st Alert

Asset fails 2 weeks after the alert

4 How to start PdM at your site

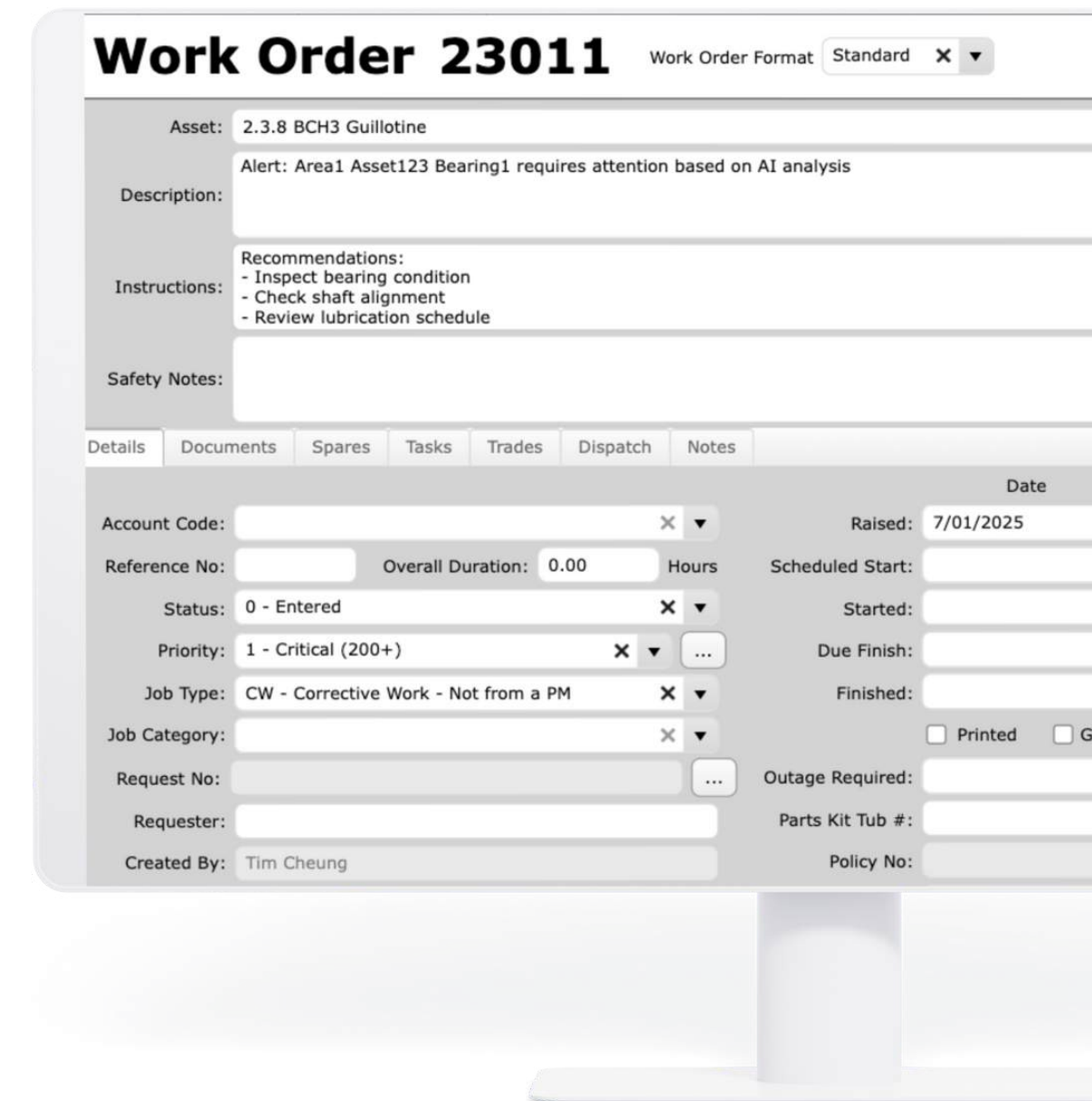
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**Don't take my word for it,
run an experiment**

Step 1 - Look at your data

Start with what you've got

- ✓ **Asset Criticality Matrix**
- ✓ **Downtime Hours per Asset**
- ✓ **Failure Modes per Asset**
- ✓ **Ease & Cost of Repair**
- ✓ **Additional Data to Consider:**
 - Key business & site focus areas
 - Mean Time Between Failures (MTBF) & Mean Time To Repair (MTTR)
 - Work order history & maintenance backlog
 - Sensor data (if available) from existing monitoring systems



The screenshot shows a 'Work Order 23011' form. At the top, it says 'Work Order Format: Standard'. The form fields include: Asset: 2.3.8 BCH3 Guillotine; Description: Alert: Area1 Asset123 Bearing1 requires attention based on AI analysis; Instructions: Recommendations: - Inspect bearing condition, - Check shaft alignment, - Review lubrication schedule; Safety Notes: (empty). Below these are tabs for Details, Documents, Spares, Tasks, Trades, Dispatch, and Notes. The 'Details' tab is active, showing a grid of fields: Account Code, Reference No, Status (0 - Entered), Priority (1 - Critical (200+)), Job Type (CW - Corrective Work - Not from a PM), Job Category, Request No, Requester, Created By (Tim Cheung), Raised (7/01/2025), Scheduled Start, Started, Due Finish, Finished, Outage Required, Parts Kit Tub #, and Policy No. There are also checkboxes for 'Printed' and 'G'.

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Don't aim for perfection—focus on the cost of unplanned downtime per hour.

Step 2 - Create your Hypothesis

Use a simple 2 page business case format

1. Executive Summary

- Problem: Over-maintenance & costly downtime.
- Solution: Predictive maintenance pilot.
- ROI: 2X–6X across cases (offer supporting evidence).

2. Current Challenge

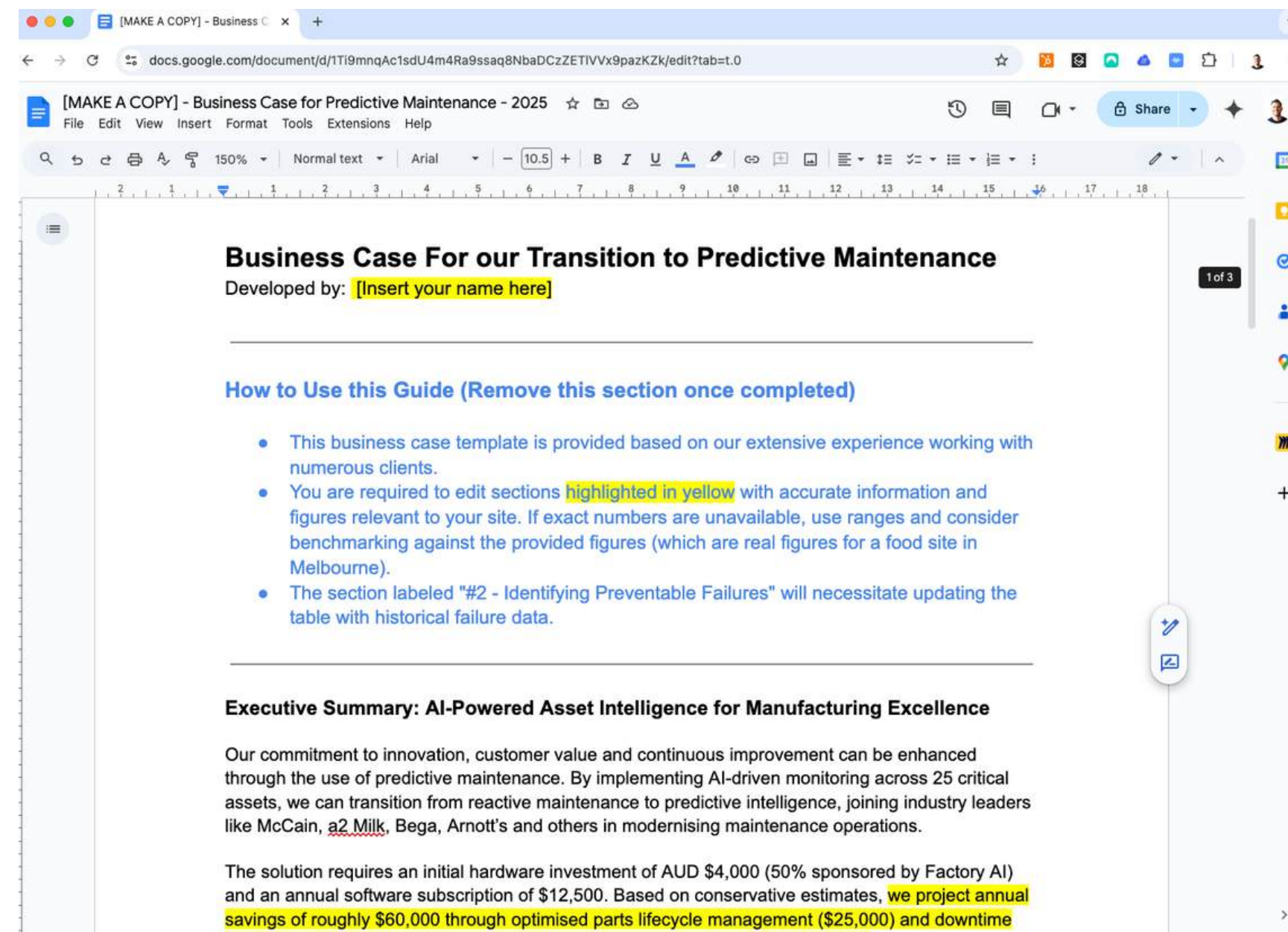
- Premature part replacements.
- High downtime costs (\$1.5K–\$15K/hour).
- Lack of real-time asset insights.

3. Value & ROI

- Savings: \$50K–\$65K/year.
- Investment: Software + hardware.
- **Net Benefit: \$34K–\$75K/year.**

4. Implementation Plan

- Deploy: Sensors on key assets.
- Prioritise: High-impact equipment.
- Scale: Start small, expand with leadership buy-in.



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Executives love a business case

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Be upfront about expected obstacles—addressing them early builds trust and speeds buy-in.

Step 3 - Get a mentor

Create either a single site mentor, or a network of sites that have done this in the past

Getting Started & Implementation

1. What made you decide to implement predictive maintenance?
2. What challenges did you face during implementation?

Performance & Impact

1. How has predictive maintenance improved uptime and reduced downtime?
2. Can you share an example where it prevented a major failure?
3. How has it affected your maintenance costs and overall efficiency?

Reliability & Usability

1. How accurate are the predictions, and do your maintenance teams trust them?
2. How easy was it to integrate into your existing systems and workflows?
3. What type of training or onboarding was required for your team?

ROI & Lessons Learned

1. How long did it take to see a return on investment (ROI)?
2. If you had to start again, what would you do differently?



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When you get your first true positive alert, have your mentor buy you a beer

Step 4 - Select the assets

Use the matrix below and your PM data to select a pool of about 30-50 assets.

A high cost of failure as determined by unplanned downtime hours

A high emergency WOs (EM) or preventative maintenance (PM) or corrective maintenance (CM) WOs

Degradation failure that can be measured by vibration and/or temperature

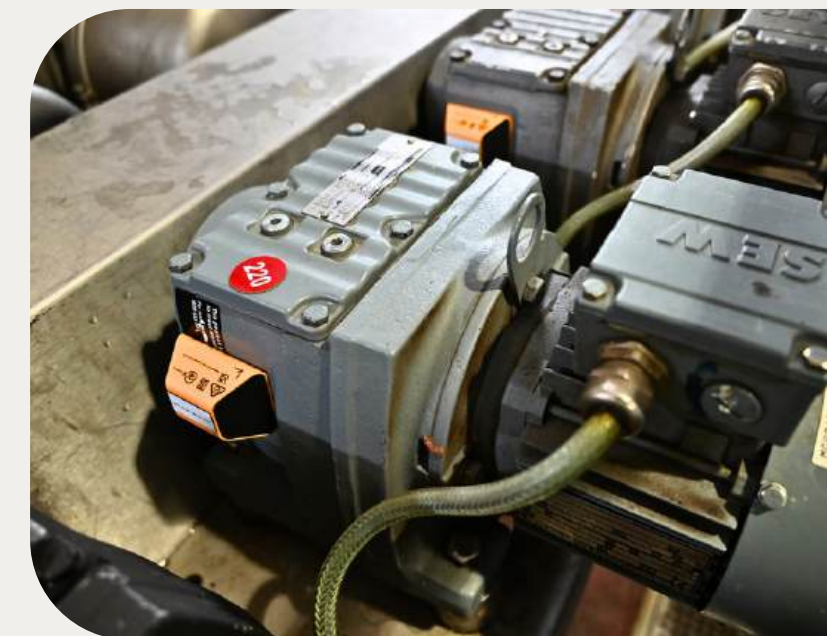
Failure occurs in a process of degradation over time, preferably over five days or more

Operational profile
(must be constant speed +/- 10%)

Asset can be shutdown to install sensor

Sensor Bluetooth will reach network gateways

Is rotating equipment with bearings including motors, pumps, compressors, gearboxes, fans.



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**Don't just focus on critical assets—
include lower MTBF assets to get
quick wins**

Step 5 - Get a small amount of money

If you don't have sufficient data internally, sensors will cover you for this. Don't over-invest.

	Details	Investment
Hardware Cost : Sensors	25 Sensors at \$230 / Sensor (<i>Discounted at 50%</i>)	\$3,450
Hardware Cost : Gateways	4 x Gateways at \$280 / Gateway (<i>Discounted at 50%</i>)	\$560
Sensor Install	Factory AI will dispatch personnel to the site for the installation of sensors on the selected assets.	Waived
Software deployment and ML models training	Deploy the integrated solution, provide documentation and training for the customer's team to utilise it effectively	Waived
Software Platform	Issue platform logins to reliability team involved in pilot. Access provided to dashboard, asset pages, history page, and live status pages.	\$3,000 total (\$1,000 / Month)
Total (including GST) for 3 months		\$7,010

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Sensors are cheap, reliable, easy to model, and solve the “no data” problem.

Step 6 - Assemble your SWAT team

Build a small cross-functional team

	Leadership	Domain Expert	Data
Person	Site leader or Executive	Engineer	Data Lead
Time	30 mins / monthly	1 hr / week	1 hr / week
Responsibility	1. Review business case, provide feedback from leadership. 2. Provide executive sponsorship	1. Provide guidance on best assets and components to instrument. 2. Feedback on FMEA / RCA	1. Integrate data from different systems 2. Analyse and surface patterns 3. Measure ROI and suggest most valuable use cases

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Focus on culture change and alert workflows.

Key Takeaways

Think big but start small

AI isn't perfect, we're all
learning together

Create tight feedback
loops to go fast

Thank you

Need a hand getting started?
Or want to connect to dive deeper



Scan the QR code above
or click this link to schedule a time to chat with us