Top 10 Reasons for Poor Reliability Program Performance

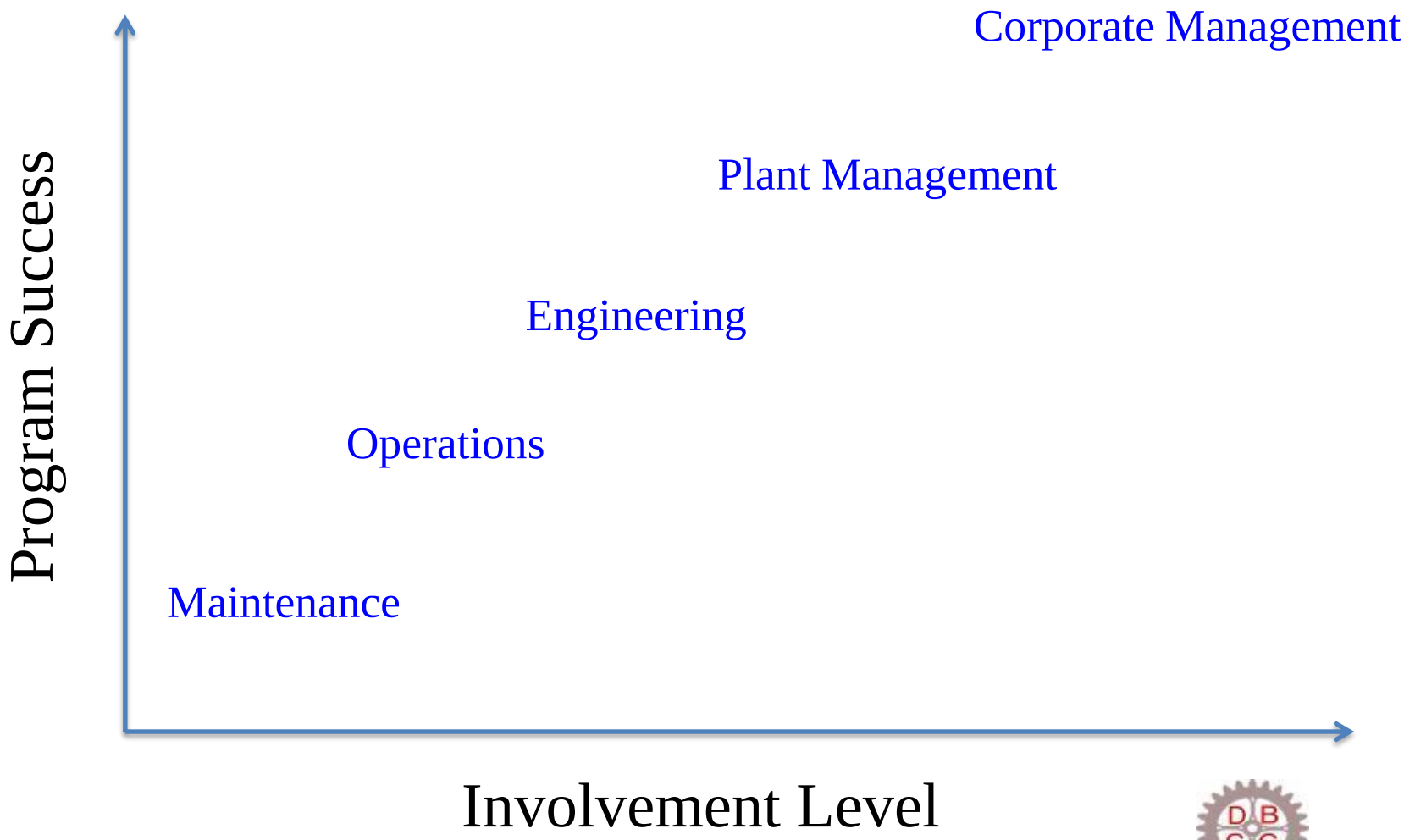
Typical Start to PdM Program…

Introduction

- Why do Predictive Maintenance Programs fail to deliver the planned Return on Investment?
- Over 50% of Programs don't deliver the budgeted ROI
- This presentation covers the largest factors that contribute to lack of performance

Linked to Business

Link to Business

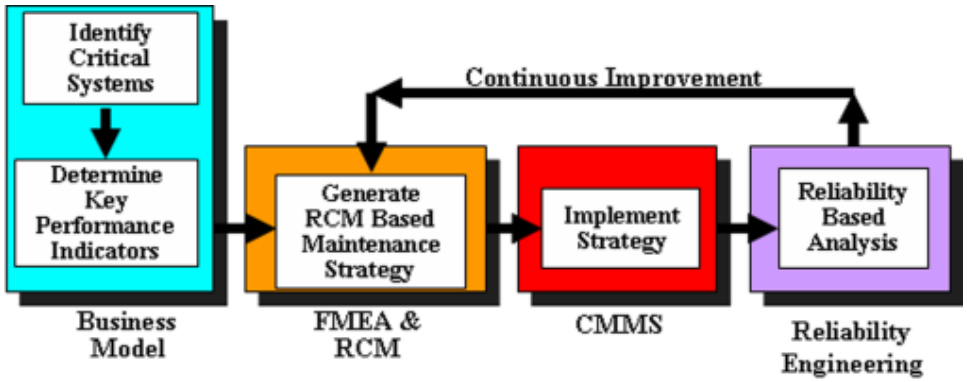


The Right Things…

The hard thing to do
and the
right thing to do
are usually
the same thing.

The Right Things…

- On the right assets
- With right technology
- Correct Intervals

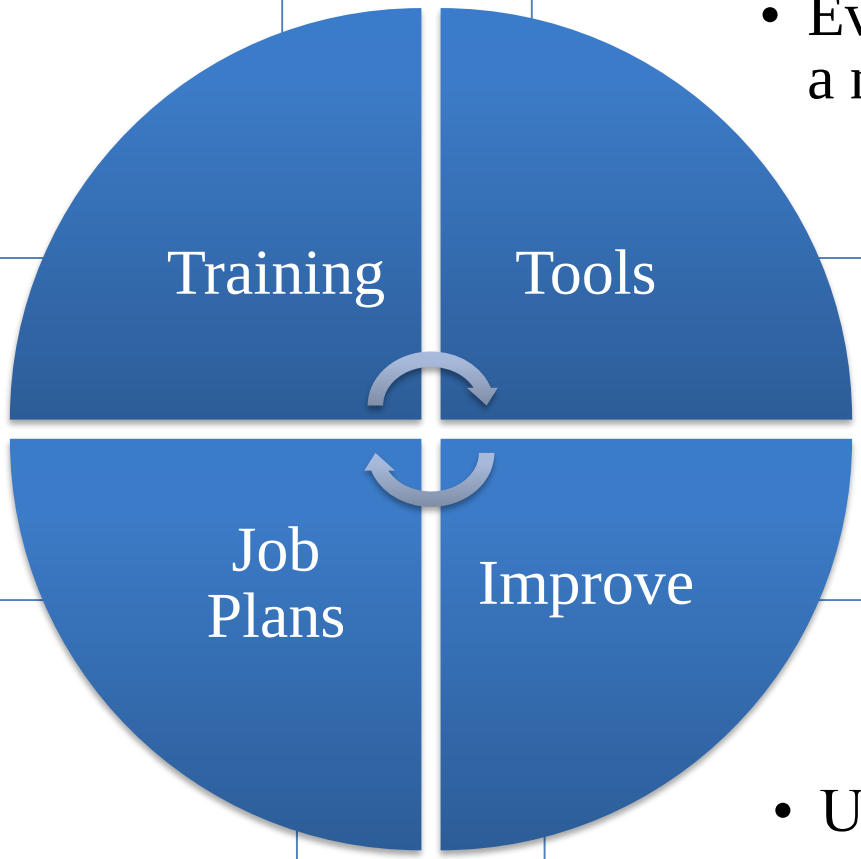


Precision Maintenance

Precision Maintenance

- Skills

- Everything is a nail…



- Correct?

- Update PM's

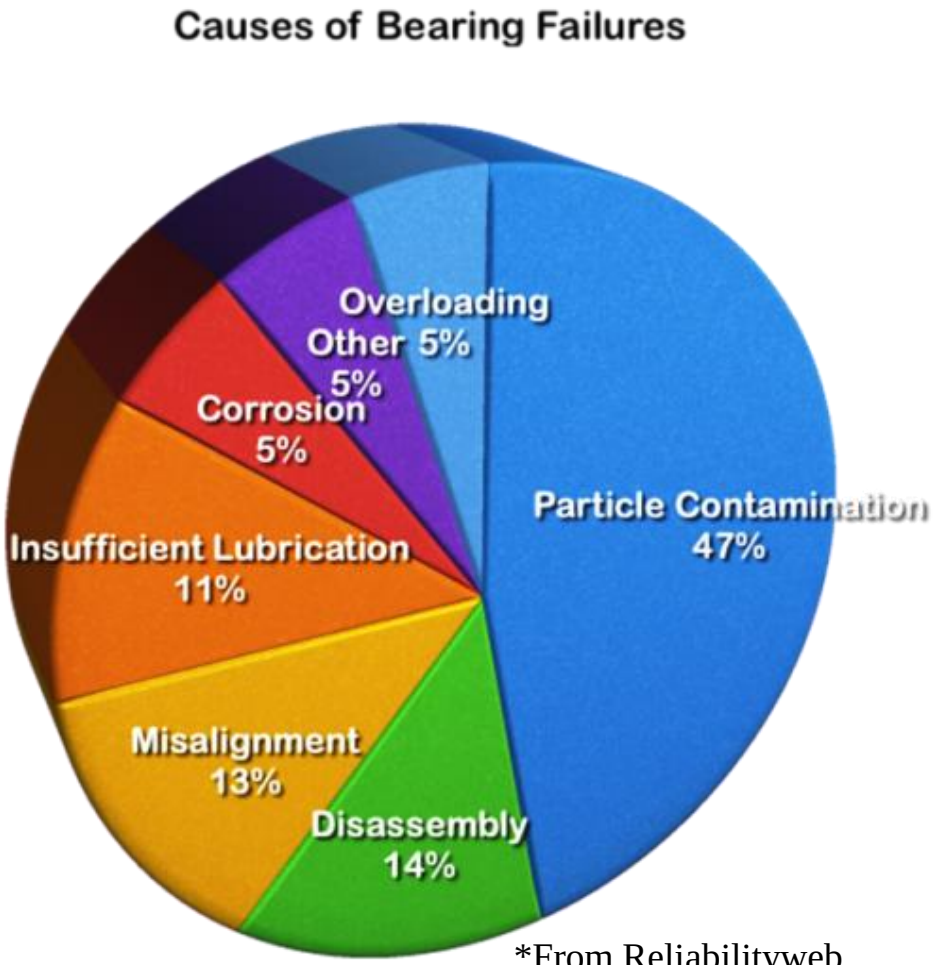
Lubrication

Before UOSA's lube room was revamped, its oil storage was an unorganized mess. The new lube room is more user-friendly and allows lubricant inventories to be better controlled.

Or,

Lubrication

- >50% of Bearing Failures!
- Correct Lubrication
- Correct Amount
- Correct Storage
- Filter New Oil



*From Reliabilityweb

Planning & Scheduling

Planning & Scheduling

- More than Administrative function!
- Ratio of 1:15 to 20 technicians per planner
- 7 day horizon is recommend
- Important to utilize failure codes

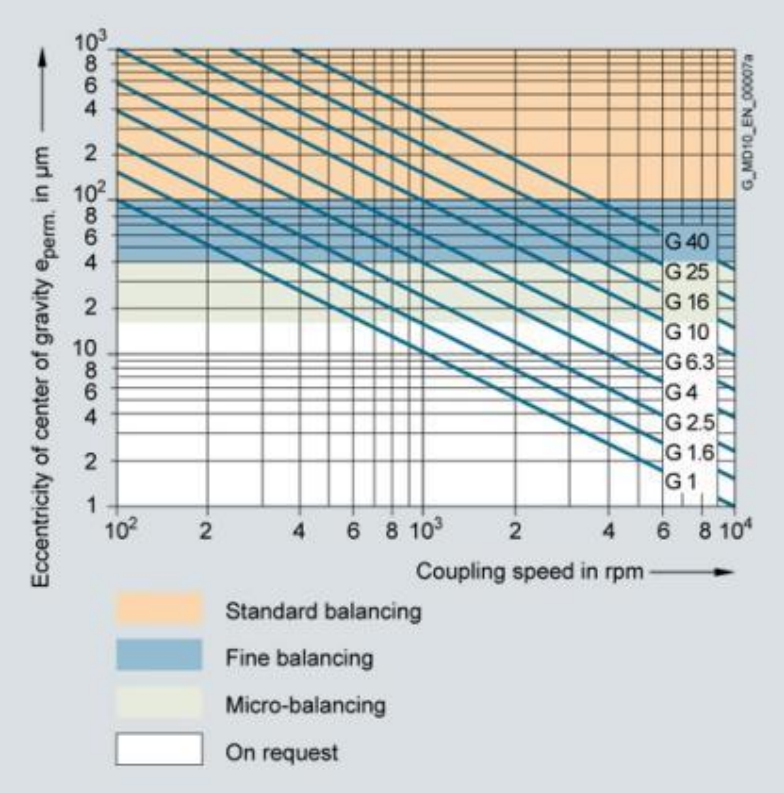
Alumax Mt Holly (1997) vs. Alcoa Mt Holly (2012)

Category	Alumax-1997	Alcoa-2012
Maintenance Spending / RAV	3.4%	2.0%
Budget Compliance	-0.5%	+3.7%
Overtime / Straight Time	1.0	7.1%
Number of Crafts	4	3
Planners per Tradesperson	1:20	1:19
Absenteeism	1.6%	1.8%
Backlog in Crew Weeks (Per Tradesperson)	4.4	6.8 Total/6.25 Ready
Schedule Compliance	95%	85.7%
Percent of Urgent (Interruption) Work	10.5%	3%
Percent of PM / PdM to all Work Orders	32%	47.2%
PM Accomplishment	96%	85.7% (10% Rule)
Inventory Accuracy	96%	97.6%
Inventory Turns	3.31	2.86
Maintenance Training $'s as % Total Payroll $	4.2%;	1%
Wrench Time	62.3%	58.8%

February 15, 2013

Acceptance Standards

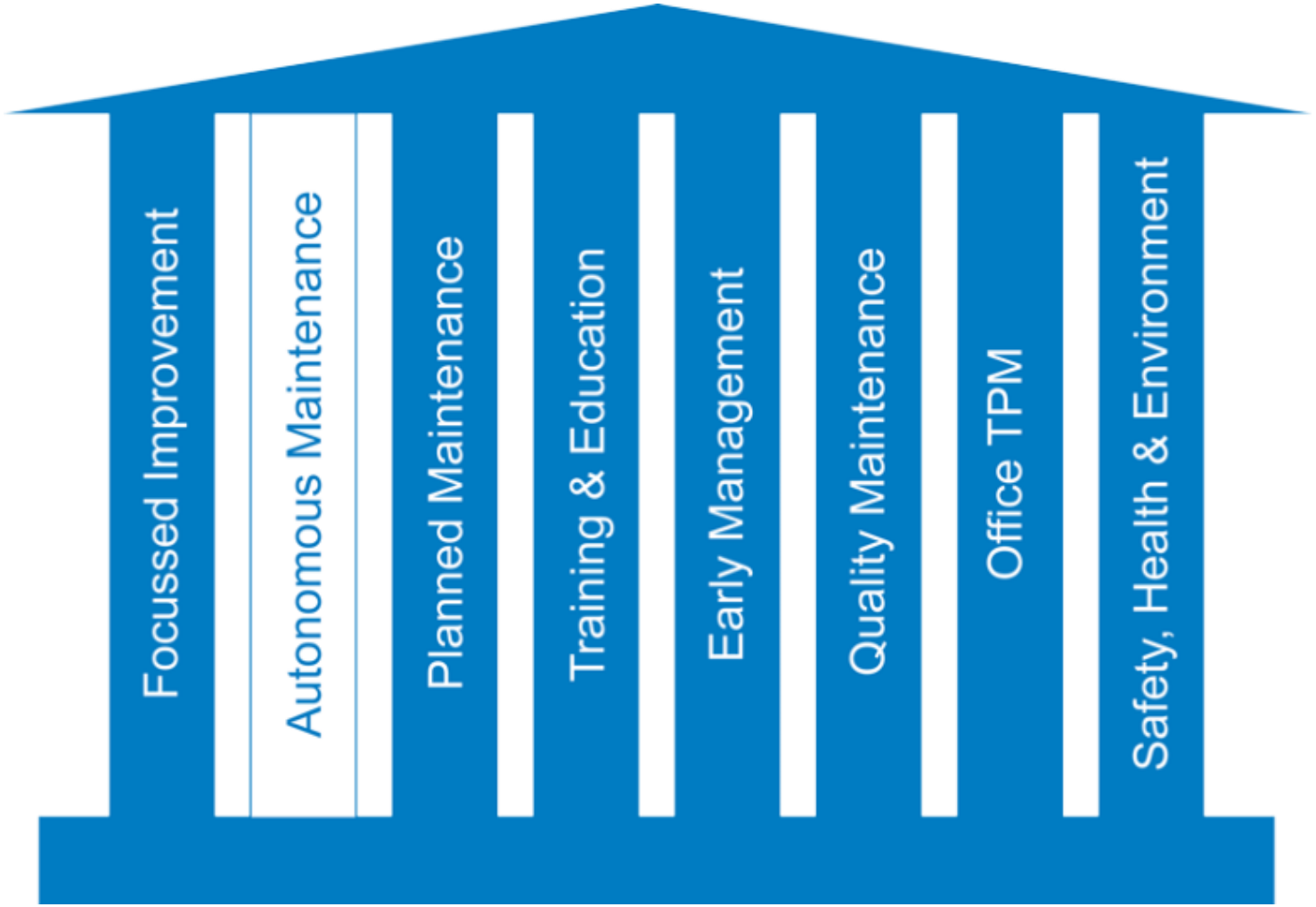
VIBRATION SEVERITY PER ISO 10816						
Machine			Class I small machines	Class II medium machines	Class III large rigid foundation	Class IV large soft foundation
	in/s	mm/s				
Vibration Velocity Vrms	0.01	0.28	good			
	0.02	0.45				
	0.03	0.71				
	0.04	1.12	satisfactory			
	0.07	1.80				
	0.11	2.80				
	0.18	4.50	unsatisfactory			
	0.28	7.10				
	0.44	11.2	unacceptable			
	0.70	18.0				
	0.71	28.0				
	1.10	45.0				



Acceptance Standards

- Are you confident your newly installed or rebuilt equipment is acceptable?
- Can include many tests & criteria, but at least have vib
- Standards: ISO, VDI, others, or in house
- Have clear guidelines written down

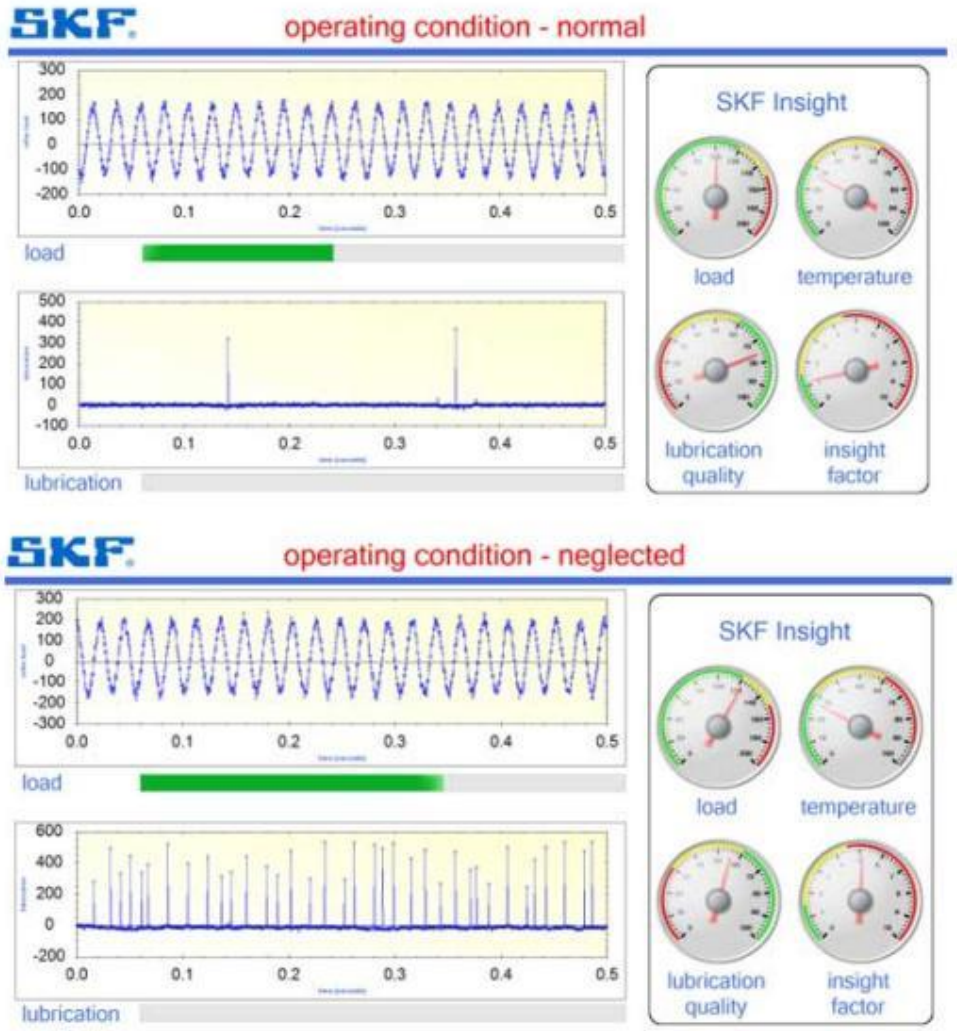
ODR & TPM


Focussed Improvement
Autonomous Maintenance
Planned Maintenance
Training & Education
Early Management
Quality Maintenance
Office TPM
Safety, Health & Environment

ODR & TPM

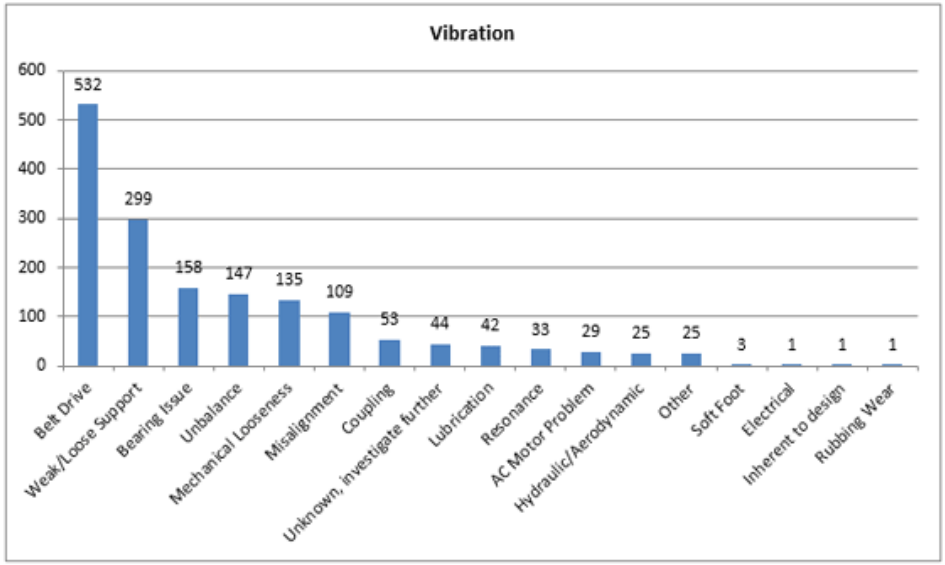
- Done properly, increases engagement
- Allows for more effective use of analysis resource
- Done properly, increases engagement

Reporting

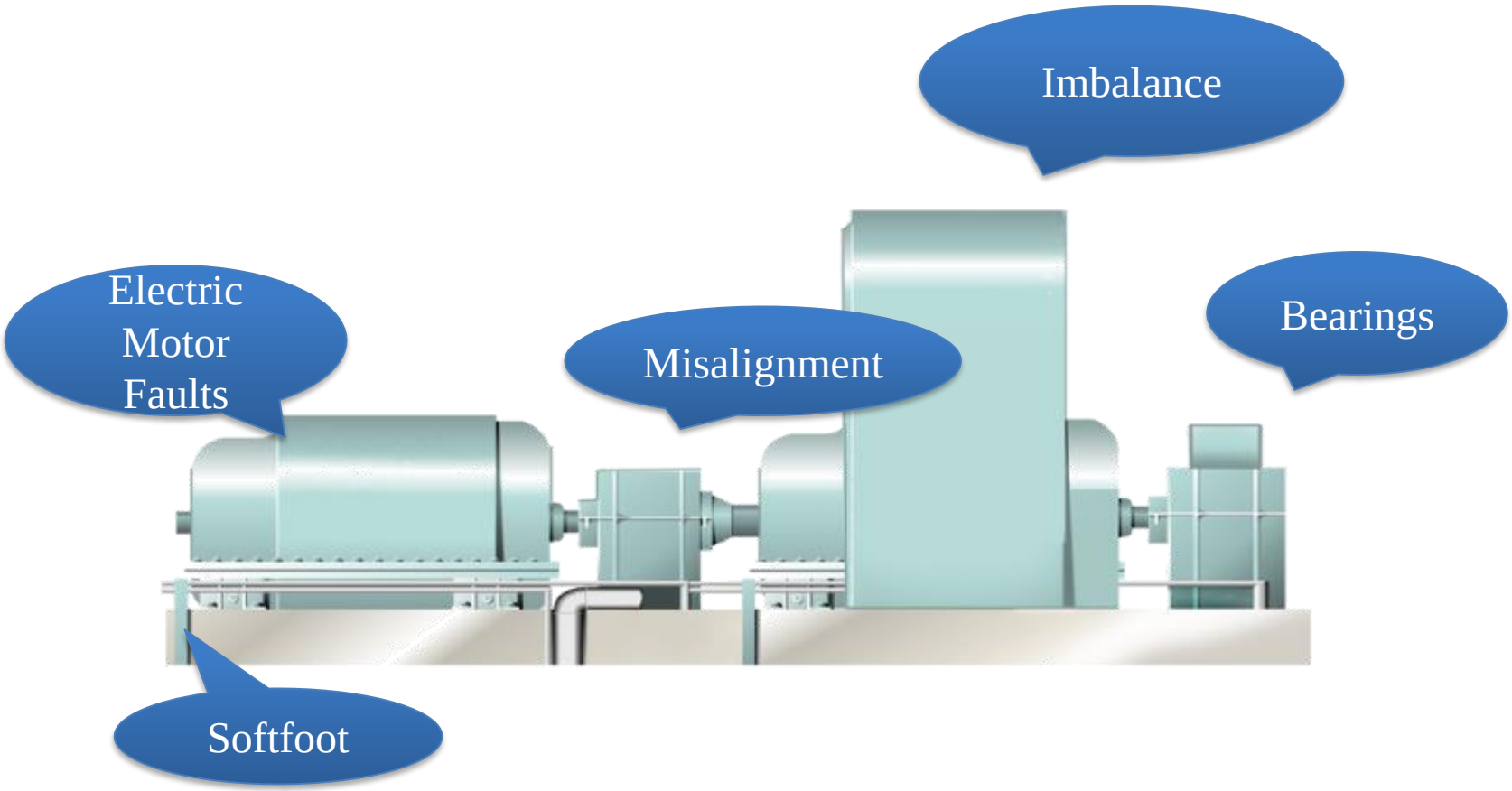


Reporting

- Know your audience
- Before & After Reports
- Use ‘’Dashboard” views
- Analytics:
  - Failure statistics
  - Program saves & costs

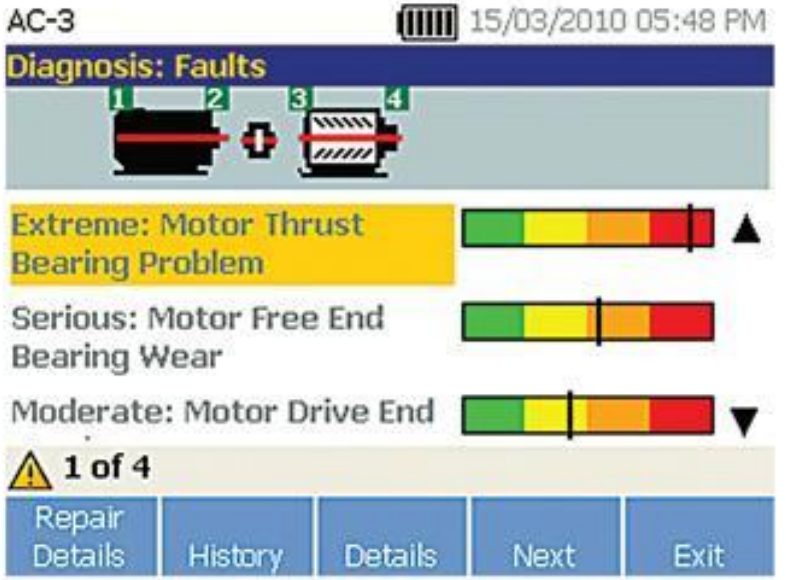


Analysis



Analysis

- Are you screening effectively?
- ‘’Expert Systems”
- Not just What, but Why?
- Analysis output:
  - Reporting
  - Failure Statistics
  - Edit alarms and monitoring



Automated vibration analysis can report on machine health in terms that are un
able and actionable by technicians without vibration analysis experience.

Training

Training

- Cannot be accomplished in one course sitting
- Majority of companies only using a fraction of capability
- Certifications useful to ensure quality training
- Retention & Productivity

Just Saying ….

1. Need to have alignment Company Goals & Sponsorship
2. Doing the right things, the right way, on the right intervals
3. Precision Maintenance: Skills, Tools, PM's, & Job Plans
4. Lubrication done correctly
5. Planning & Scheduling improve efficiency & effectiveness
6. New & Rebuilt Equipment Acceptance Standards
7. Operator Involvement – not just ODR
8. Reporting more than just FFT's!
9. Analysis – the What & the Why
10. Training- the best technology won't help without it