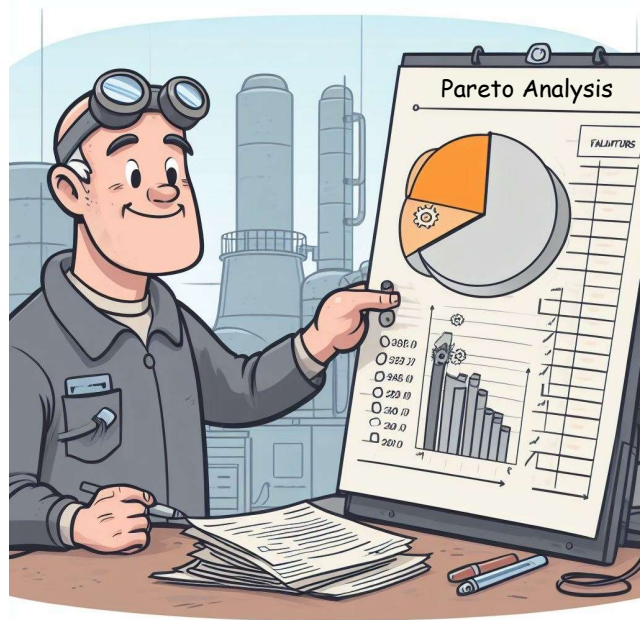


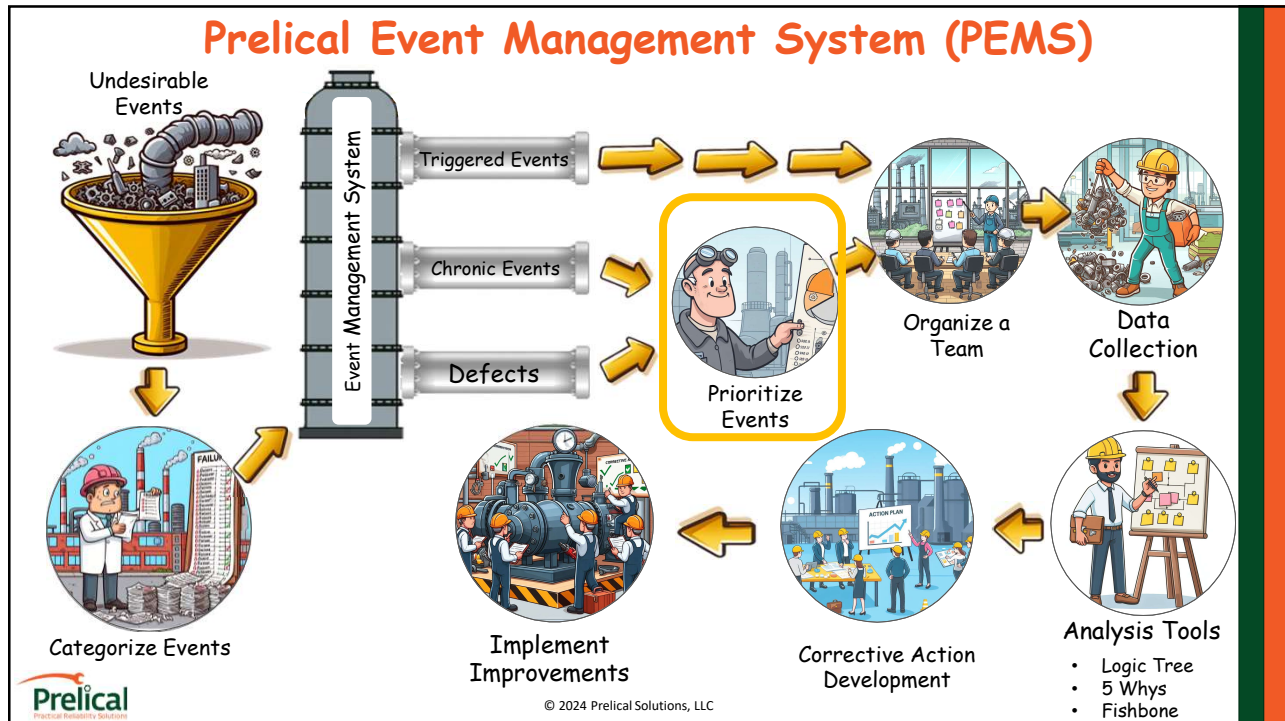
Prioritizing Events



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Prelical Event Management System (PEMS)



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Triggers

Triggers do not require any prioritization

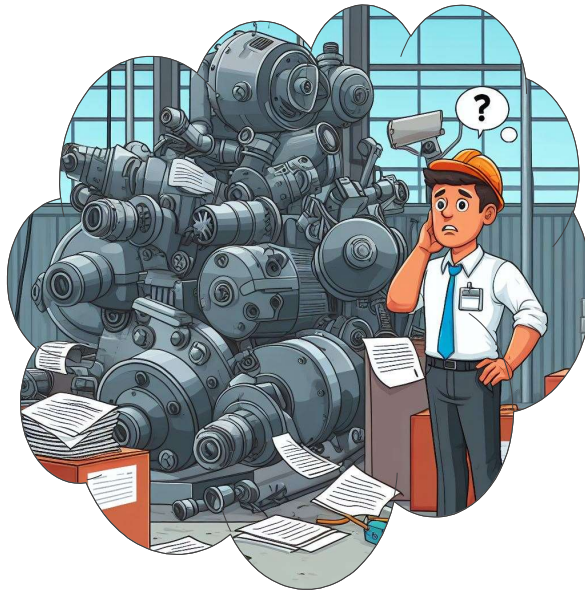


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Chronic Failure Prioritization

With thousands of pieces of equipment and failures, how do you generate a list of “bad actors”?



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Utilize the Pareto Rule

The Pareto Rule, also known as the 80/20 rule, states that roughly 80% of the effects come from 20% of the causes, emphasizing the unequal distribution of impact or significance in many situations.

Industrial Plants

80% of losses from 20% of the equipment

Banks

80% of deposits come from 20% of depositors

Airlines

80% of revenue comes from 20% of the travelers



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Pareto Rule Examples



Tools



Beer



Fishing Gear



Clothes



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Prioritizing "Bad Actors"

Collect the Data

Utilize field personnel to provide input on the list and supplement with historical failure history.

Determine the "Bad Actors"

Determine which events represent the highest amount of loss.



Define the Scope

Select an area to perform the analysis. Define the failure statement and create a process flow diagram.



Calculate the Cost

Multiply the frequency per year times the average cost per event.



Communicate to Stakeholders

Gain consensus on the list and the path forward to mitigate or eliminate using RCA.



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Define the Scope



Develop a Failure Definition

Develop a simple statement of what constitutes a loss



Determine the System Boundaries

Select the area or system that you would like to analyze for determining "Bad Actors"



Develop a Simple Block Diagram

Draw a simple diagram of the major processes in the system you are analyzing

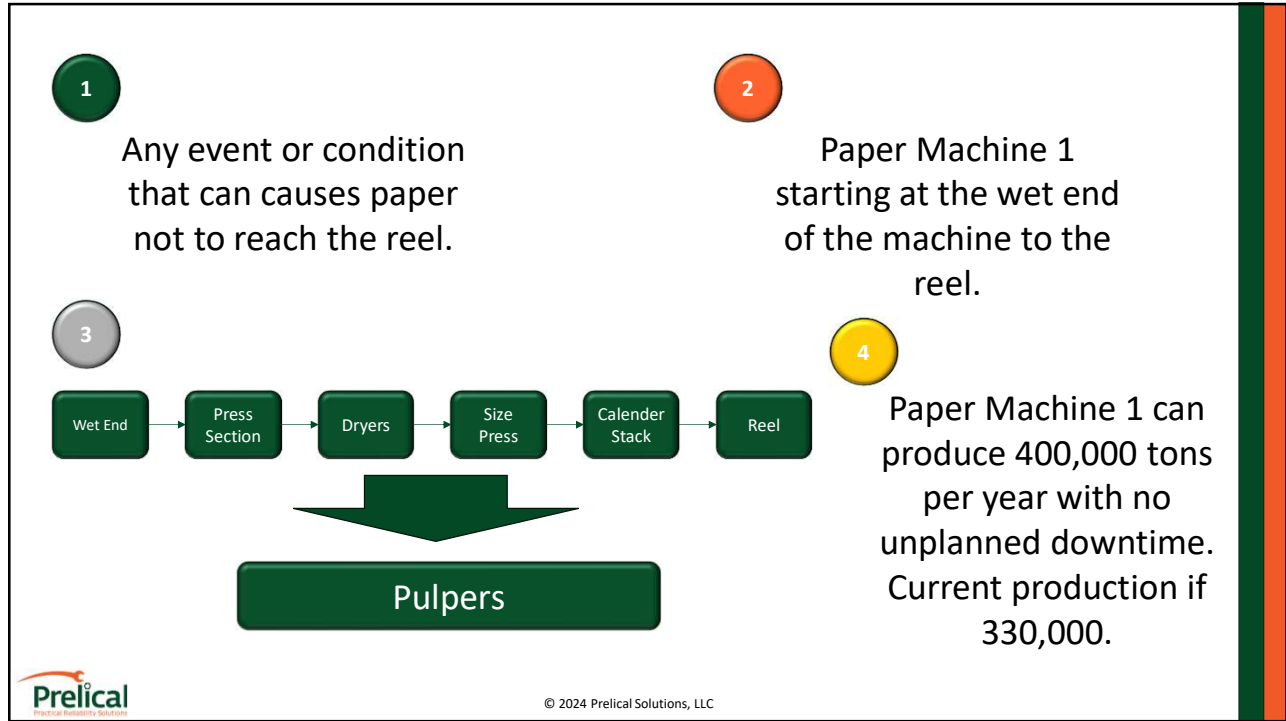


Determine the Maximum Sustainable Production Rate

Determine what the system/area can produce if there were not downtime issues



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2 Collect the Data

People?

Plant Data?

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Calculate the Cost

Frequency x Cost

$$12/\text{Yr.} \times \$20,000/\text{event} = \$240,000/\text{Yr.}$$



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System	Event Description	Event Mode	Frequency Per Year	Impact Per Event (Maintenance + Production)	Total Impact
Pulp Mill	Digester Failures	Cap failures	52	\$25,000	\$1,300,000
Bleach Plant	TSP1 Failures	Locks Up	6	\$150,000	\$900,000
Paper Machine 1	Trim Squirt Pump Failures	Impellar Wear	12	\$65,000	\$780,000
Woodyard	Chipper Failures	Blade Failures	26	\$20,000	\$520,000
Paper Machine 1	Felt Roll Failures	Bearings	5	\$90,000	\$450,000
Paper Machine 1	Pulper Failures	Pulper Gearbox Failures	3	\$95,000	\$285,000
Woodyard	Truck Dump	Hydraulic Failures	6	\$45,000	\$270,000
Recausticizing	Kiln Failure	Insulation Failures	2	\$125,000	\$250,000
Paper Machine 2	Fan Pump Motor Failures	Winding Failures	2	\$100,000	\$200,000
Pulp Mill	Primary Screen Failures	Screen Fails	2	\$75,000	\$150,000
Waste Treatment	Primary Clarifier	Bull Gear Bearing Failures	2	\$75,000	\$150,000
Bleach Plant	MC Pump 4 Failures	Bearing Failures	2	\$75,000	\$150,000
Power	Power Boiler Failures	Trips	6	\$20,000	\$120,000
Pulp Mill	MC Pump 1 Failures	Bearing Failures	2	\$55,000	\$110,000
Pulp Mill	MC Pump 1 Failures	Seal Leaks	4	\$25,000	\$100,000
Recausticizing	Kiln Failure	Gearbox Failures	1	\$90,000	\$90,000
Paper Machine 2	Press Section	Press Roll Failures	1	\$90,000	\$90,000
Pulp Mill	A Washer Failures	Doctor Failures	3	\$27,000	\$81,000
Power	FD Fan Failures	Coupling Failures	2	\$30,000	\$60,000
Woodyard	Debarking Drum Failure	Gearbox Failures	2	\$25,000	\$50,000
Paper Machine 2	Kady Mill Failures	Bearing Failures	2	\$25,000	\$50,000
Power	Power Boiler Failures	Igniter Failures	4	\$5,000	\$20,000
Waste Treatment	Sump Pump Motor Failures	Will not start	3	\$5,000	\$15,000
Total					\$6,191,000

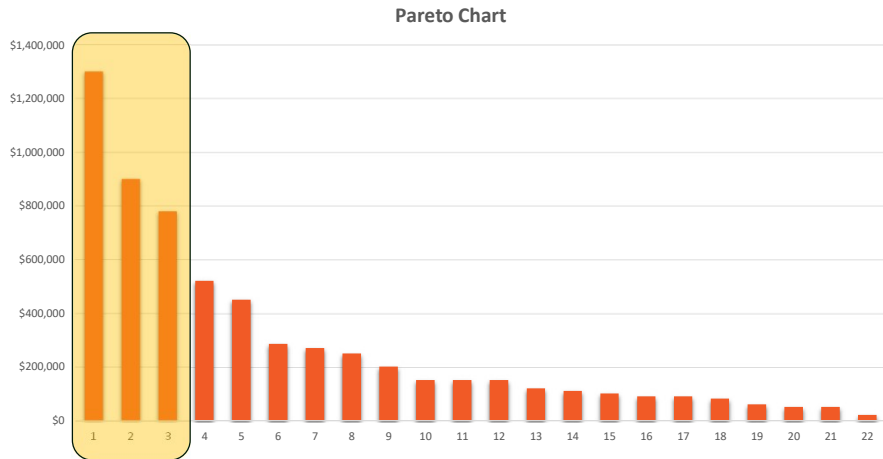


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Determine the "Bad Actors"



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Communicate to Stakeholders

Gain commitment from leadership to perform Reliability Projects on the identified "Bad Actors"



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