



02



PRIORITIZE EVENTS

Identify the chronic events that account for 80% of the losses within the facility.

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1

ROOT CAUSE ANALYSIS PROCESS STEPS

A systematic approach to uncover the true causes and drive lasting improvement.



01



02



03



04



05



06

IDENTIFY EVENTS

Identify undesirable events in the facility using human and digital data.

PRIORITIZE EVENTS

Identify the chronic events that account for 80% of the losses within the facility.

BUILD TEAM

Establish a cross functional team and appoint an unbiased RCA Facilitator.

COLLECT DATA

Gather data within the facility to validate the hypotheses put forth by the team.

ANALYZE

Leverage a logic tree approach that will guide the team in assessing root cause hypotheses and utilize data to validate each hypothesis.

COMMUNICATE ACTIONS

Convey RCA findings and corrective actions to stakeholders to ensure root causes are addressed.



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2

CHRONIC FAILURE PRIORITIZATION



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



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3



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.

The Pareto Rule

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4

Chronic Failure Pareto Analysis Example

System	Event Description	Event Mode	Frequency Per Year	Production Loss/Event	Maintenance Cost/Event	Total Impact
Pulp Mill	Digester Failures	Cap Failures	52	\$4,000	\$25,000	\$1,508,000
Paper Machine 1	Trim Squirt Pump Failures	Impeller Wear	12	\$100,000	\$8,000	\$1,296,000
Bleach Plant	TSP1 Failures	Locks Up	6	\$0	\$200,000	\$1,200,000
Woodyard	Chipper Failures	Blade Failures	26	\$5,000	\$30,000	\$910,000
Paper Machine 1	Felt Roll Failures	Bearings	5	\$0	\$90,000	\$450,000
Paper Machine 1	Pulper Failures	Pulper Gearbox Failures	3	\$0	\$110,000	\$330,000
Woodyard	Truck Dump	Hydraulic Failures	6	\$0	\$45,000	\$270,000
Recausticizing	Kiln Failure	Insulation Failures	2	\$10,000	\$125,000	\$270,000
Paper Machine 2	Fan Pump Motor Failures	Winding Failures	1	\$100,000	\$100,000	\$200,000
Recausticizing	Kiln Failure	Gearbox Failures	1	\$100,000	\$90,000	\$190,000
Pulp Mill	Primary Screen Failures	Screen Fails	2	\$0	\$75,000	\$150,000
Waste Treatment	Primary Clarifier	Bull Gear Bearing Failures	2	\$0	\$75,000	\$150,000
Bleach Plant	MC Pump 4 Failures	Bearing Failures	2	\$0	\$75,000	\$150,000
Woodyard	Debarking Drum Failure	Gearbox Failures	2	\$0	\$75,000	\$150,000
Power	Power Boiler Failures	Trips	6	\$0	\$20,000	\$120,000
Pulp Mill	MC Pump 1 Failures	Bearing Failures	2	\$0	\$55,000	\$110,000
Pulp Mill	MC Pump 1 Failures	Seal Leaks	4	\$0	\$25,000	\$100,000
Paper Machine 2	Press Section	Press Roll Failures	1	\$0	\$90,000	\$90,000
Pulp Mill	A Washer Failures	Doctor Failures	3	\$0	\$27,000	\$81,000
Power	FD Fan Failures	Coupling Failures	2	\$0	\$30,000	\$60,000
Paper Machine 2	Kady Mill Failures	Bearing Failures	2	\$0	\$25,000	\$50,000
Power	Power Boiler Failures	Igniter Failures	4	\$0	\$5,000	\$20,000
Waste Treatment	Sump Pump Motor Failures	Will not start	3	\$0	\$5,000	\$15,000
Total						\$7,870,000

Pareto Split

80% of the Loss / 20% of the Event

Example

Grand Total = \$1000

Pareto Cut = .80

Significant Few = \$800

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7

What makes chronic failures so important?

Frequency

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

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8

10

10