



Root Cause Analysis Made Simple - Driving Bottom Line Improvements by Preventing One Failure at a Time

Susan Lubell P.Eng MBA MMP CAMA
Steppe Consulting Inc and President of Plant Engineering & Maintenance
Association of Canada (PEMAC)

May 2019

Agenda

- What is Root Cause Analysis?
- Four Steps to RCA
 1. Quantify the magnitude of the problem (Why & When)
 2. Perform the analysis (Who & How)
 3. Develop and evaluate options
 4. Document and implement recommended actions to drive business value



What is Root Cause Analysis (RCA)?

- Systematic evaluation of problems to
 - Prevent or reduce the likelihood of recurrence of failures, or
 - Minimize or eliminate the consequences of failure
- Reactive method
 - Looks beyond immediately obvious symptoms for the underlying 'root' cause(s)
 - Evaluates cause & effect (consequences)

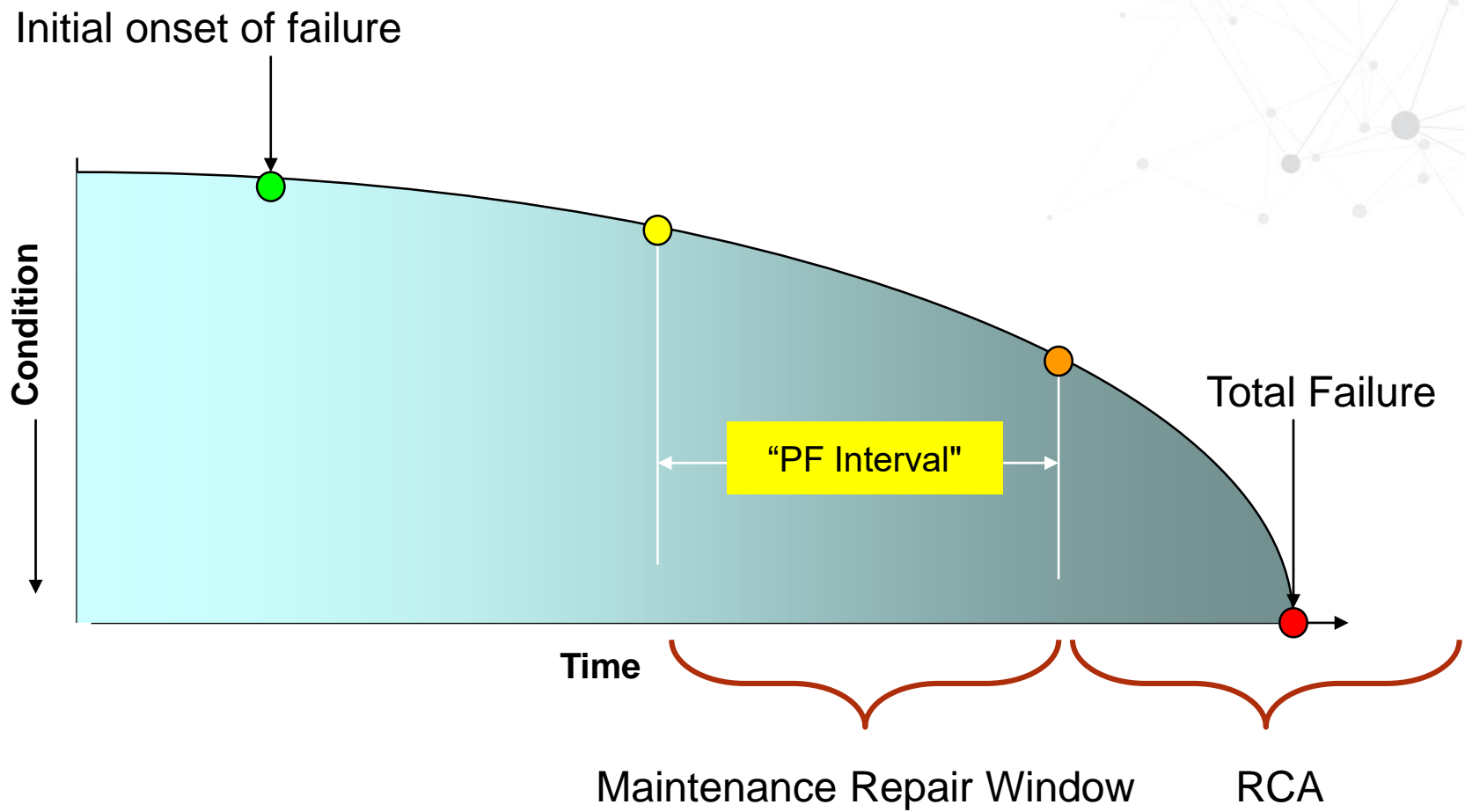
Unexpected equipment failures are not normal and should not be tolerated!

Why Investigate?

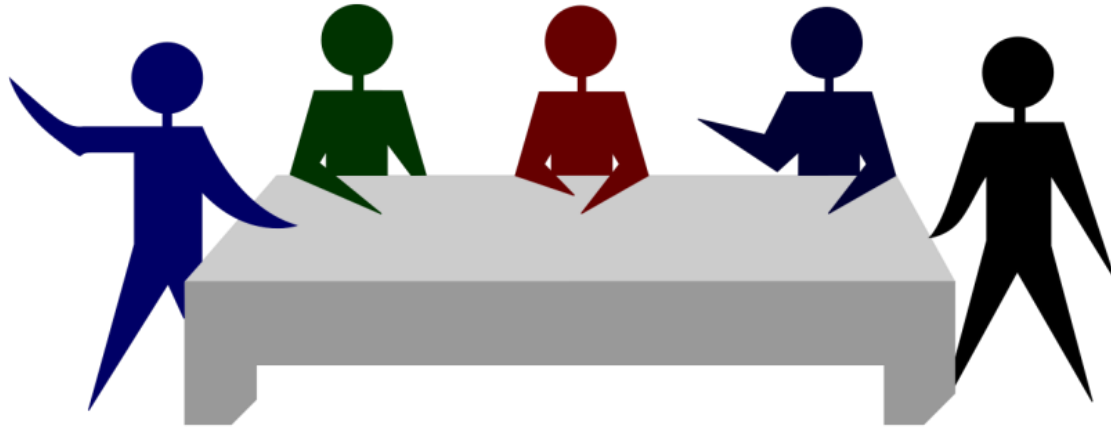
- Health & Safety
- Environment
- Production Repairs
- Production Loss
 - 0.1% throughput = approximately 9 hours per year
- Reputation



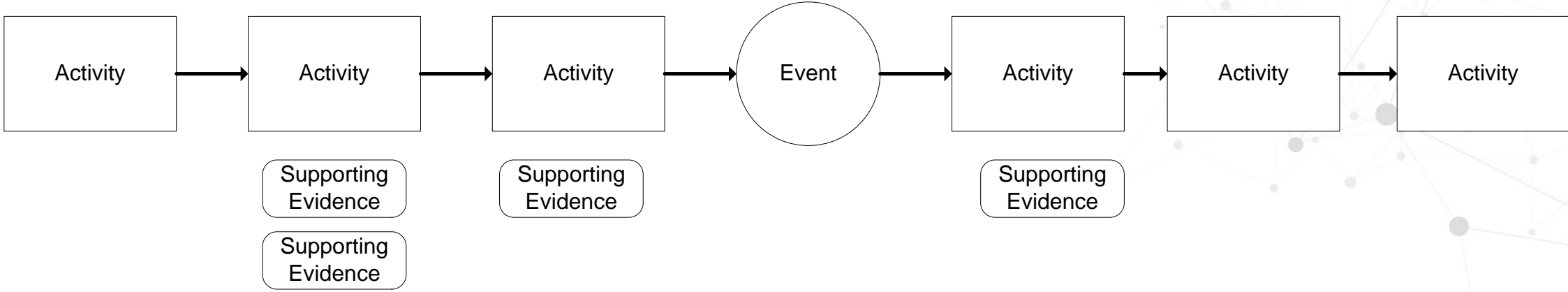
When to Apply Reliability Methods



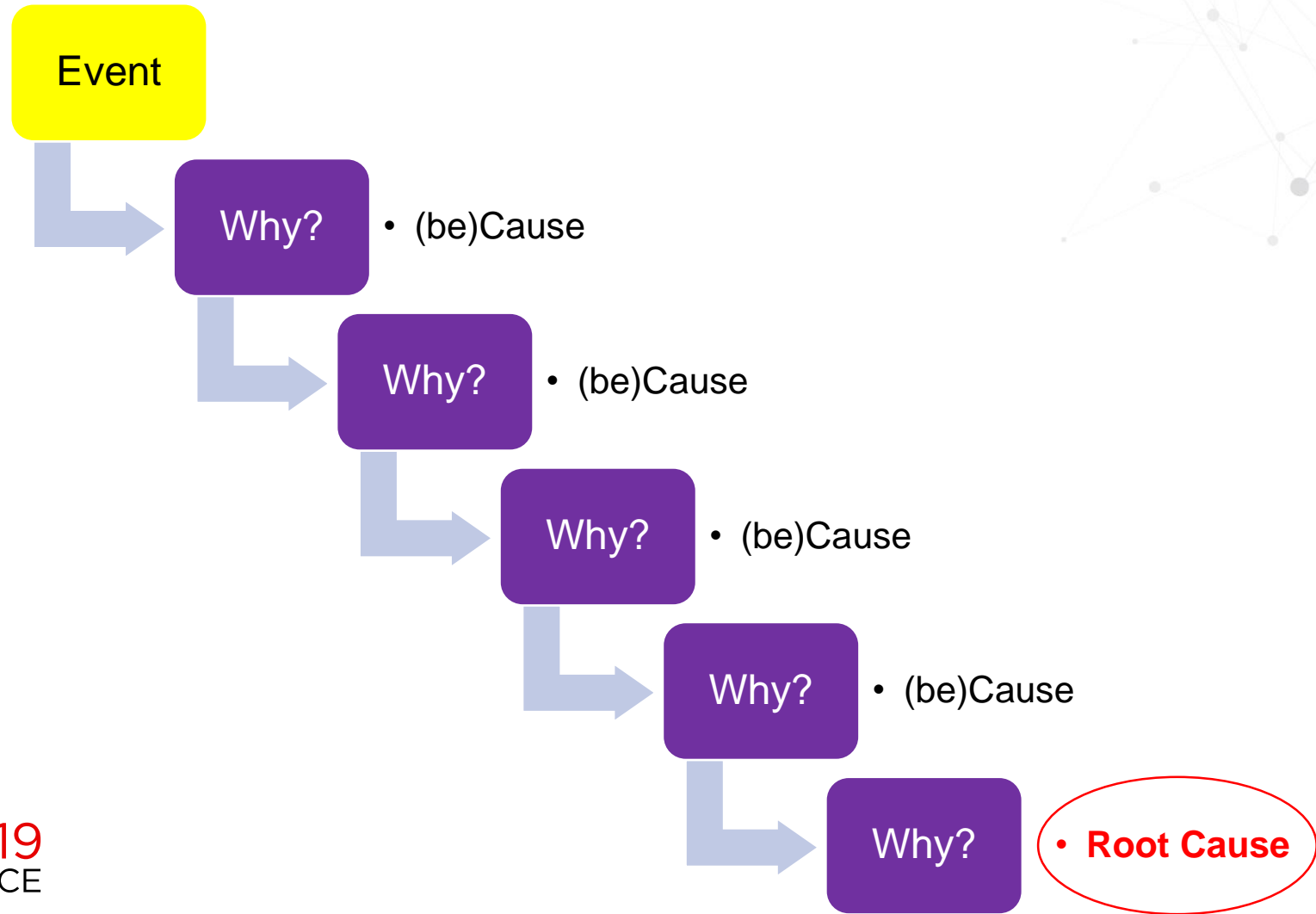
Who Should Participate?



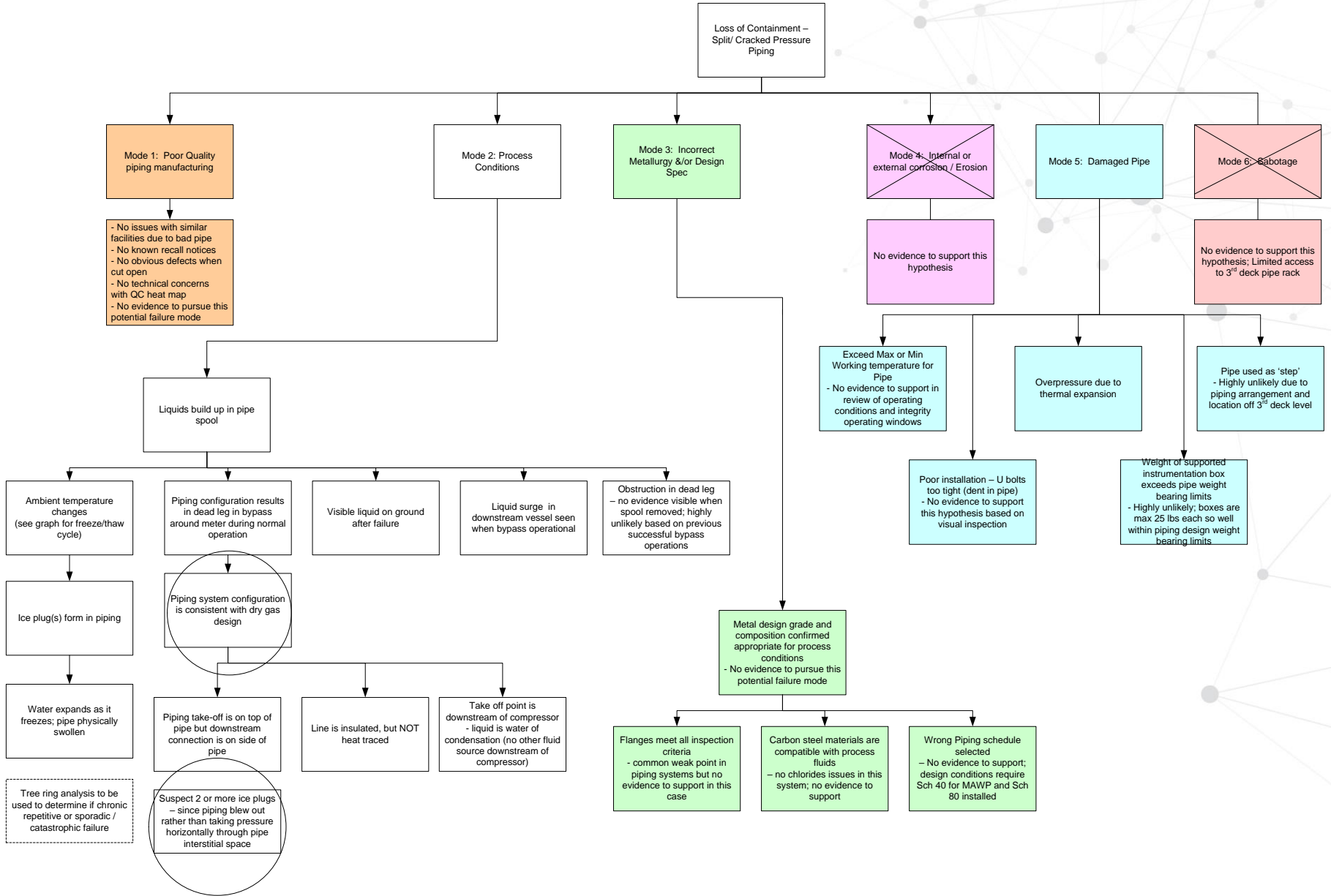
How? Timeline Sequence of Events



How? 5 Whys



How? Logic Failure Trees




Quantifying Risk

Likelihood	Remote	Unlikely	Possible	Probable	Frequent
Severity					
Catastrophic	Moderate	Serious	Major	Catastrophic	Catastrophic
Major	Low	Moderate	Serious	Major	Catastrophic
Serious	Low	Low	Moderate	Serious	Major
Moderate	Low	Low	Low	Moderate	Serious
Low	Low	Low	Low	Low	Moderate



Identifying & Evaluating Options to Realize Business Value

Ranking Table		Impact		
		Low	Medium	High
Effort	High	9, 10	7	2
	Medium		5	3, 6
	Low		4	1, 8

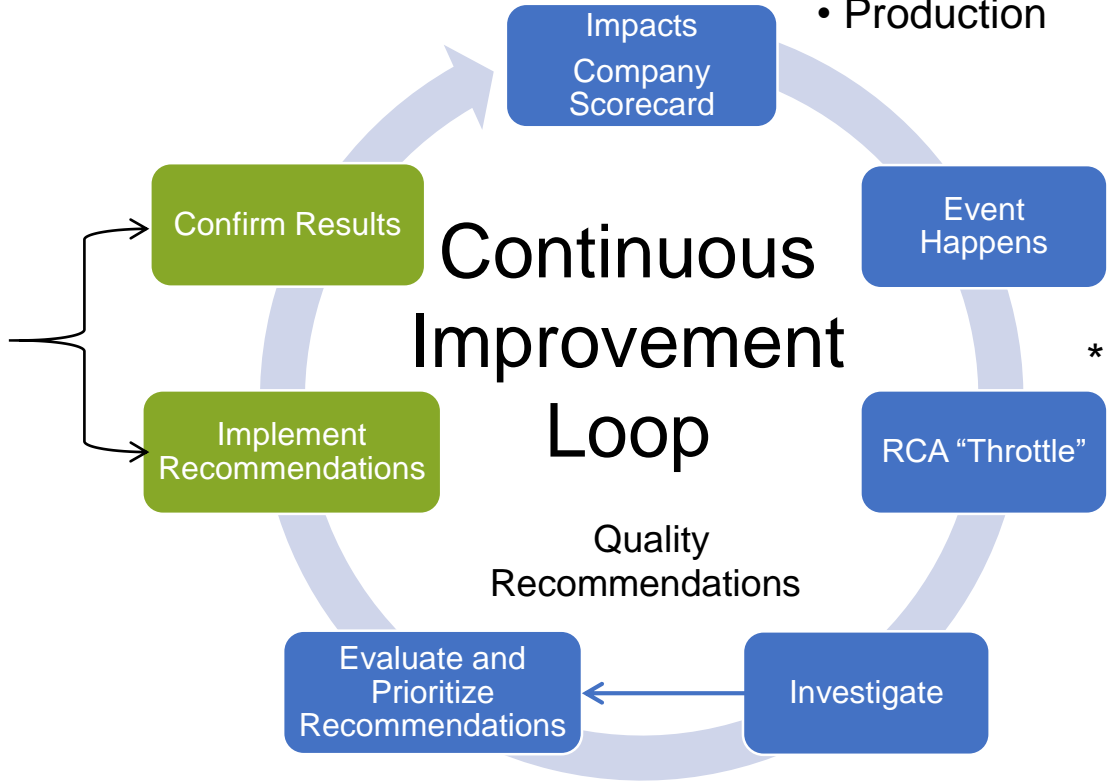


*You don't need to resolve every cause to prevent recurrence
but you do need to implement recommended actions!!*

Implementing RCA to Drive Business Value

- Health, Safety & Environment
- Cost Management
- Production

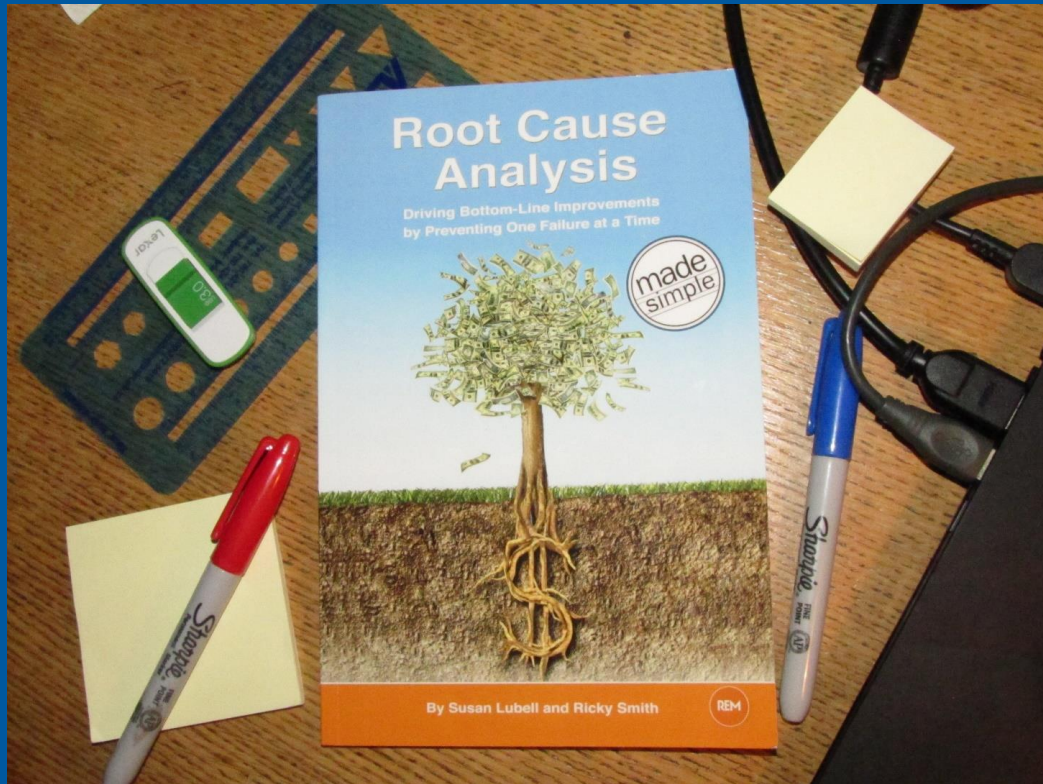
ROI
(Return on Investment)



Q&A?



Contact



Susan Lubell P.Eng MBA MMP CAMA

Steppe Consulting Inc.

slubell1@gmail.com

