Failure Modes and Effects Analysis Business Case
Cost/Benefit Analysis

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ANALYSIS OBJECTIVE

The following analysis will compare the benefits of using a manual Failure Modes and Effects Analysis (FMEA) approach versus an automated knowledge management system such as PROACT's LEAP Approach. The outcomes will demonstrate the costs of inefficiencies using a manual approach as opposed to an automated knowledgement management approach. The sources of the assumptions made in this analyses were from averages provided by healthcare clients that been piloting the use of the LEAP Approach.

Basic FMEA Manual Approach Assumptions*:
Number of Systems Included in Analysis: 15
Avg. Number of FMEA's/Yr/System: 5 - 7 (6 Avg.)
Avg. Number of Team Members/FMEA: 4 - 5 (4.5 Avg.)
Avg. Time to Complete Each FMEA: 3 Months (24 hours.)
Avg. "Additonal Costs"/FMEA: $500
Avg. Cost/Hr of Team Member (Salary): $45

LEAP Approach Assumptions*:
Number of Systems Included in Analysis: 15
Avg. Number of FMEA's/Yr/System: 5 - 7 (6 Avg.)
Avg. Number of Team Members/FMEA: 4 - 5 (4.5 Avg.)
Avg. Time to Complete Each FMEA: 3 Hrs
Avg. "Additonal Costs"/FMEA: $500
Avg. Cost/Hr of Team Member (Salary): $45

Basic FMEA Manual Approach			LEAP Approach		
# Systems	15		# Systems	15	
Avg. # of FMEA's/System	6	x	Avg. # of FMEA's/System	6	x
Total # of FMEAs	90		Total # of FMEAs	90	
Avg. # of Team Members/FMEA	4.5	x	Avg. # of Team Members/FMEA	4.5	x
Total Number of Team Members/Yr	405		Total Number of Team Members/Yr	405	
Avg. # of Hrs Time to Complete FMEA	24	x	Avg. # of Hrs to Complete FMEA	3	x
Total Manhours of Meeting Time	9720		Total Manhours of Meeting Time	1215	
Avg. Cost/Manhour (MH)	45	x	Avg. Cost/Manhour (MH)	45	x
Total MH Costs for Annual Projects	$437,400		Total MH Costs for Annual Projects	$54,675	
Avg. Additional Cost/FMEA	$500		Avg. Additional Cost/FMEA	$100	
Total Number of FMEAs	90	x	Total Number of FMEAs	90	x
Total Annual Additional Costs of FMEAs	$45,000		Total Annual Additional Costs of FMEAs	$9,000	
Total Annual FMEA Costs	$482,400		Total Annual FMEA Costs	$63,675	
Avg. Cost/FMEA	$4,860		Avg. Cost/FMEA	$608	
Equivalent Full Time Positions (based on 2080 Hours)	5		Equivalent Full Time Positions (based on 2080 Hours)	0.58	

Conclusions

Based on the above calculations, using the LEAP methodology and software can reduce the cycle time of the average manual analysis by nearly 90% (87.5%). This cuts the average costs per FMEA analysis from $4,860 each to $608 each or an annual savings of $418,725. This also reduces the amount of equivalent consumed analysis resources (personnel) by nearly 90% as well, dropping the number of equivalent consumed resources from 5 to under 1 (.58). Convesely, this means that using the LEAP methodology and software can yield 9 times more analyses in the same given time period as the manual approach.

This analysis took into account only efficiencies of time, resources and additional cost for conducting FMEA analyses. Outcomes of the analyses and associated Returns-On-Investement (ROI) for eliminating the risk of recurrence of the analyzed events were not factored in. While these conclusions may seem too outrageous and overexaggerated, Reliability Center, Inc. has 30+ years of proven and documented experience to show this is not uncommon. Average ROI's for using PROACT range from lows of 1500% to highs of 18000% and are legally documented in our text entitled, ROOT CAUSE ANALYSIS: IMPROVING PERFORMANCE FOR BOTTOM LINE RESULTS.

Projected Annual Savings Using PROACT	$418,725	(Annual MH Manual - Annual MH PROACT)
Estimated Investment of LEAP Only	135,660	(Estimated proposal for 45 Enterprise PROACT users)
Projected ROI (Year 1)	309%	
Payback Period	3.89	Months