



Fundamentals of Field Data Analysis

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Customers



Failures



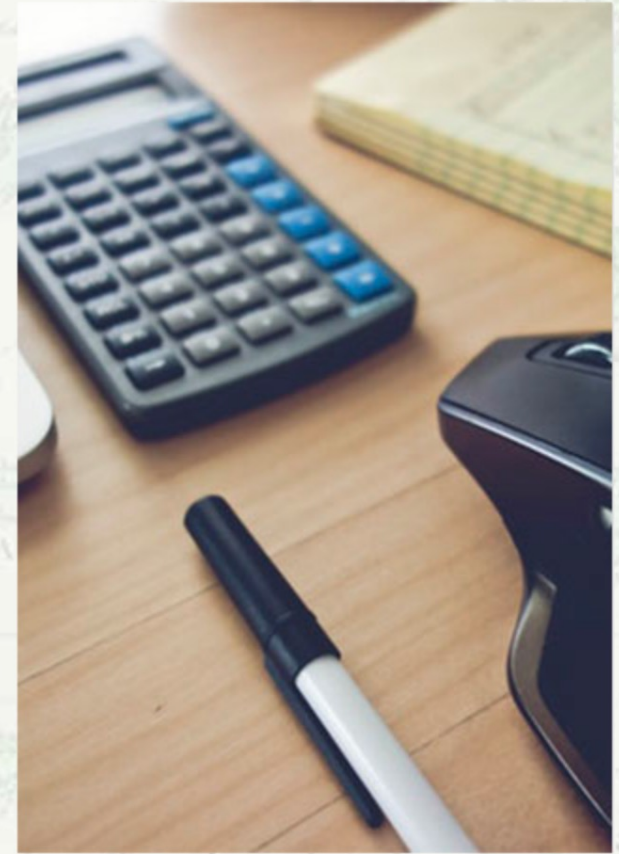


Insights

Field Data Analysis

It's a Valuable Set of
Feedback

Analysis Purpose



Problems

Goals

Improve

Identify Problems



Pareto Analysis

Complaint information

Expected or Surprises

Did we miss something that is causing more failures than acceptable

Compare to Goals



Out of box target
Warranty target
Active life target

Did we hit reliability
targets

Identify Improvements



Not just the current product

Consider the process, too

What could we do better

What are some
obstacles or issues
with field data?

Data Gathering



Perfect Data

Sources

Mechanisms

Perfect Data



Time Zero

this pretty much never happens

Common Sources



Shipments and Warranty Returns

Installations and Complaints

Inspections

Telemetry

'Best available' should
always be defined in detail

Focus on Failure Mechanisms



Failure Mode

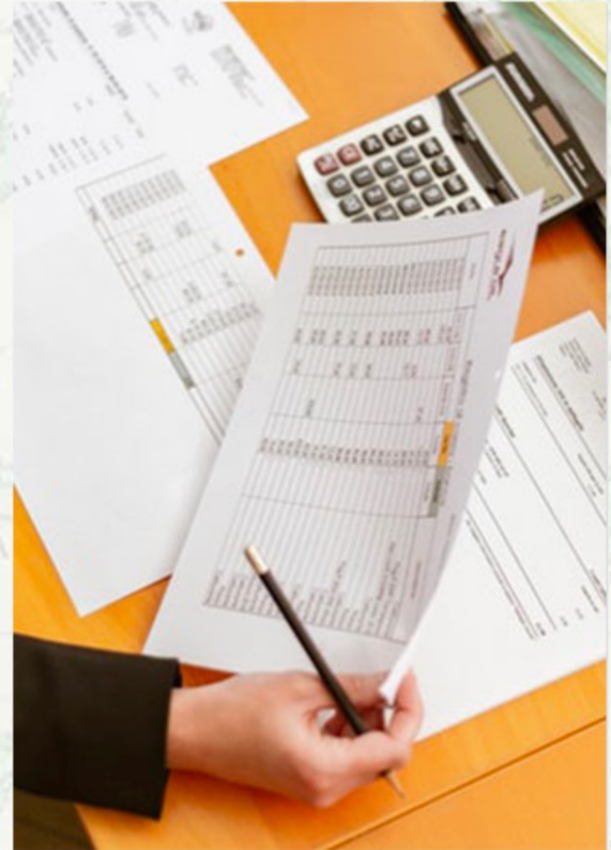
Failure Mechanism

Yes this means do detailed
failure analysis

How much time

do you spend
'cleaning' field data?

Non-repairable Systems



Mechanisms

Systems

Analysis

Dominant Mechanism?



Keep in mind that not all failures are created equal

Probability of Failure

Time

System Analysis



We shall not mention MTTF or MTBF today (at least I will try...)

Probability of Failure

Time

Analysis Signals



Data to analysis to
questions to understanding

Probability of Failure

Time

Why doesn't

Parteo Analysis
work?

Repairable Systems



Mechanisms

MCF Plot

Analysis

Focus on Mechanisms



at mechanism level switch to
non-repairable analysis

Symptoms and replaced parts

Hero, victim, instigator, bystander?

Repair strategies

Mean Cumulative Function (MCF) Plotting



Even management can
understand these powerful
plots

Cumulative Count

Time

Analysis Signals



Data to analysis to
questions to understanding

Cumulative Count

Time

What comparisons

are useful in field
data analysis?

In Summary

Gather Data



Ask Good Questions



Clean the Data



Plots and Analysis



More Information

Visit [AccendoReliability.com](https://www.AccendoReliability.com)

Let me know if you have any questions.

Check out the reliability engineering podcast network at [Reliability.FM](https://www.Reliability.FM)

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