



Is Reliability Testing Always Necessary?

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Reliable
Enough?



Right Choice?



Are we sure?



Why else do you
need to test

Reliability and Feedback



Concept



Development



Supply Chain

Reliability & Concept



Best to get reliability right here rather than later

Major Risks

Environment & Use Definitions

Are the goals correct?

FMEA – sets up future testing



How do
you
influence
reliability
during the
concept
phase?

Reliability & Development



Make the feedback
specific to the decision
making level

Too many decisions to test later

Set up guidelines

Set up models and simulations

Establish best practices

Detail necessary testing

Before
prototypes,
what kind
of
feedback
can you
offer?



Reliability & Supply Chain



How many permutations
can you evaluate?

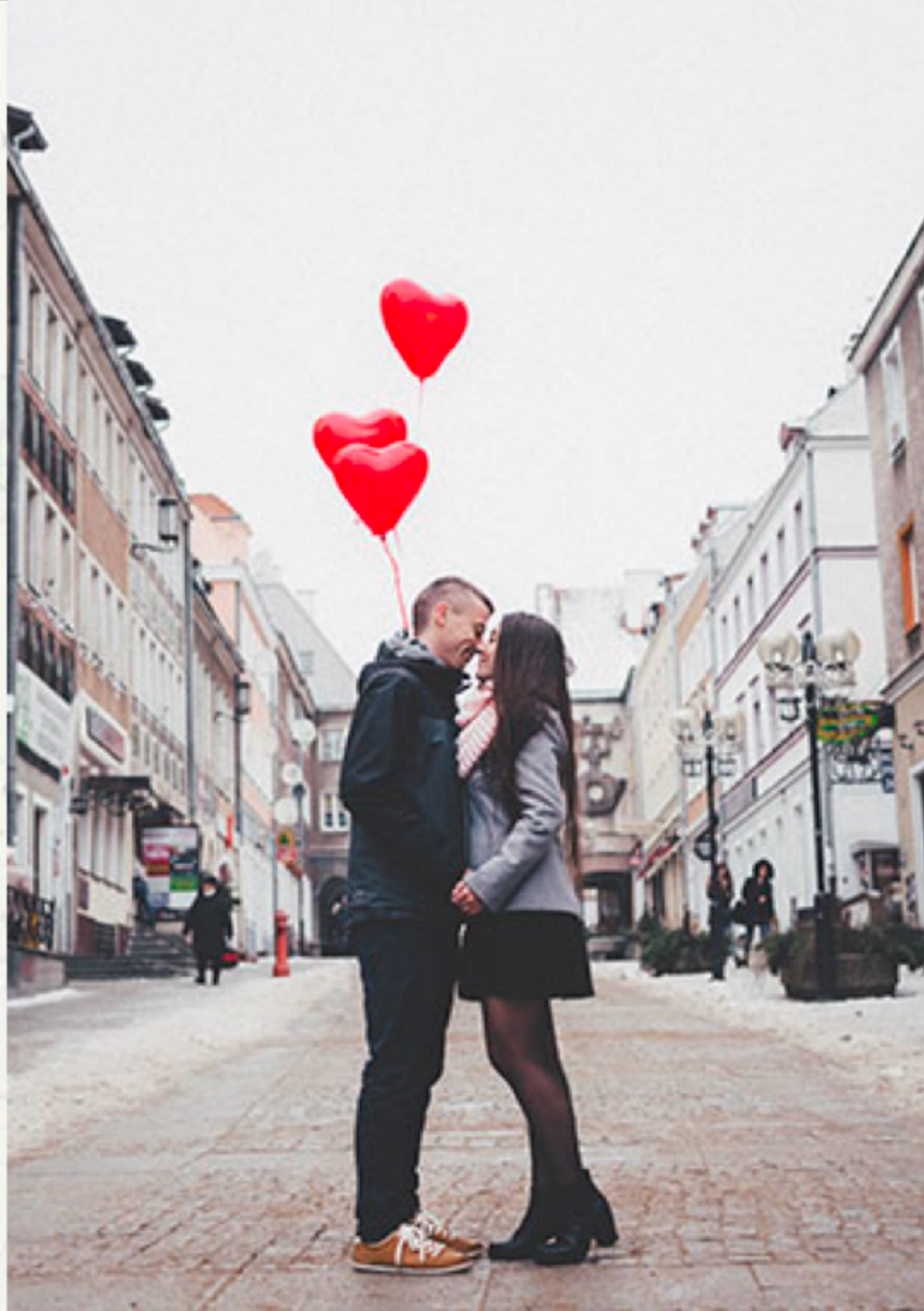
Are your suppliers relying on testing?

Identify the critical to reliability elements

Define uncertainties and risks

Process control is a reliability tool

What
indicators do
you use?



When is reliability
testing too late?

Reliability Testing of Little Value



After Lockdown



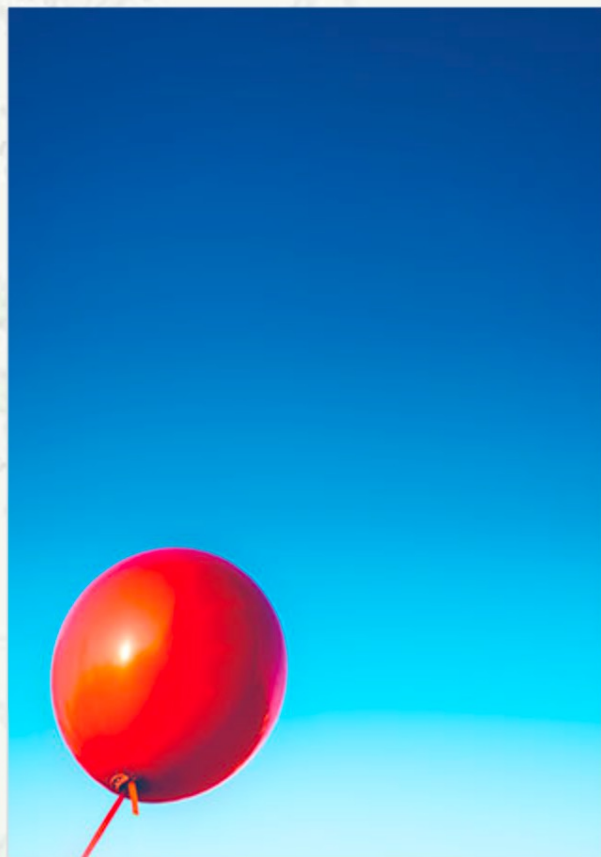
Cost of Change is High



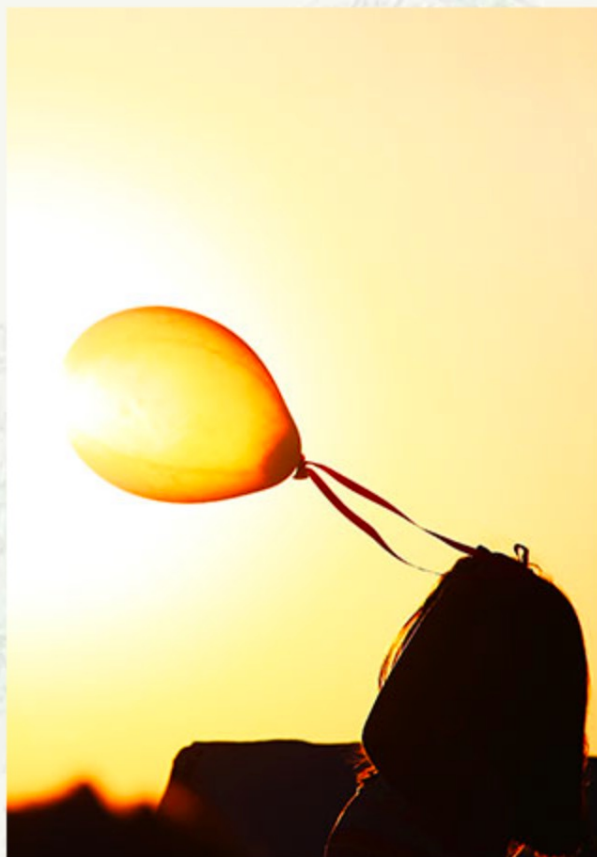
Vague or limited results

How Does Reliability Testing Add Value?

Getting Enough ROI with Testing



Discover Failures



Reduce Uncertainty



Estimate Reliability

What can you do
instead of testing?

Alternatives to Reliability Testing



Models



Past Product Field Data



Characterization

Failure Models



Build on what we already
know and understand

Physics of Failure models

Previous testing based models

Literature search

Emperical Models

What assumptions
can get you into
trouble?



Field Data Analysis



Customers provide
reliability performance
results

Track, analyze, model

Root cause analysis

Include use/environmental elements

This can be noisy

What can you do to
get better field data?



Characterization Work



This is about failure mechanisms

Focus on failure mechanisms

Experiments to build failure models

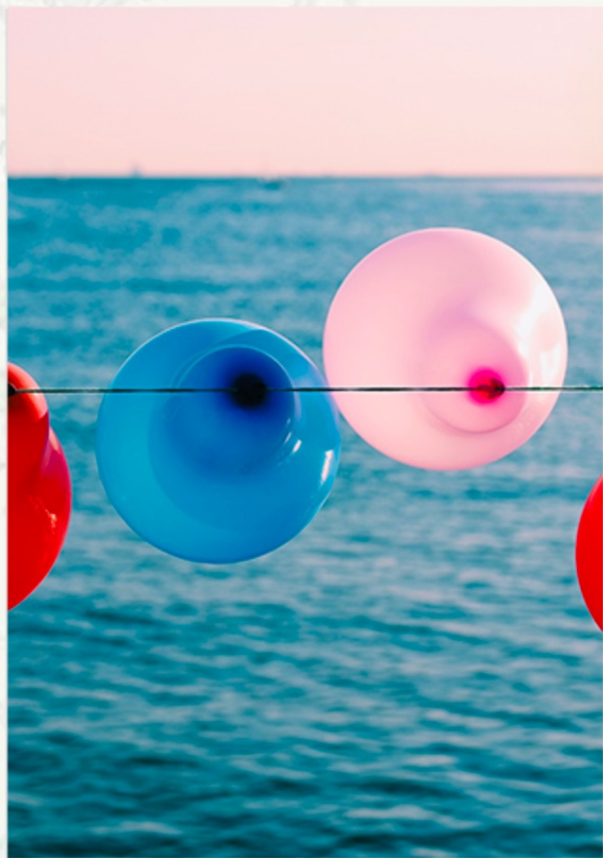
Experiments to evaluate
coatings
adhesives
inventions
concepts
stability



How would you test
a new composite
rope material?

When Should You Do Reliability

Reliability Testing Criteria



Adds Value

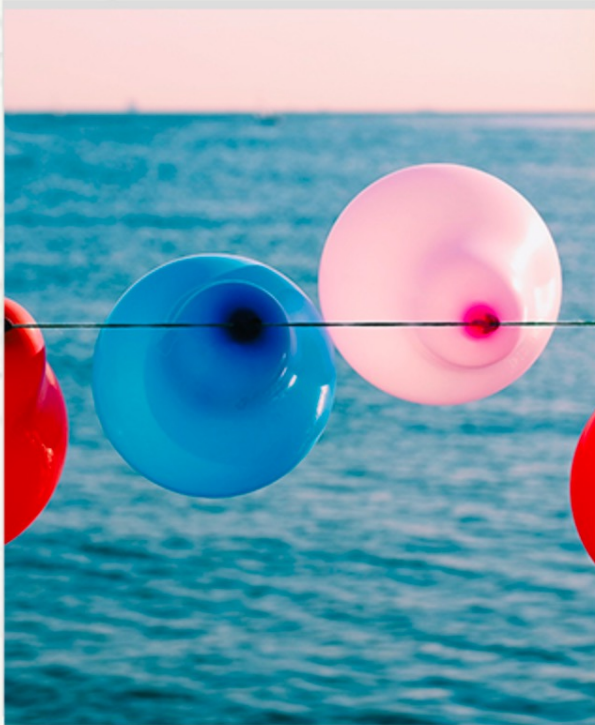


Linked to Decisions



Provides Information

Adds Value



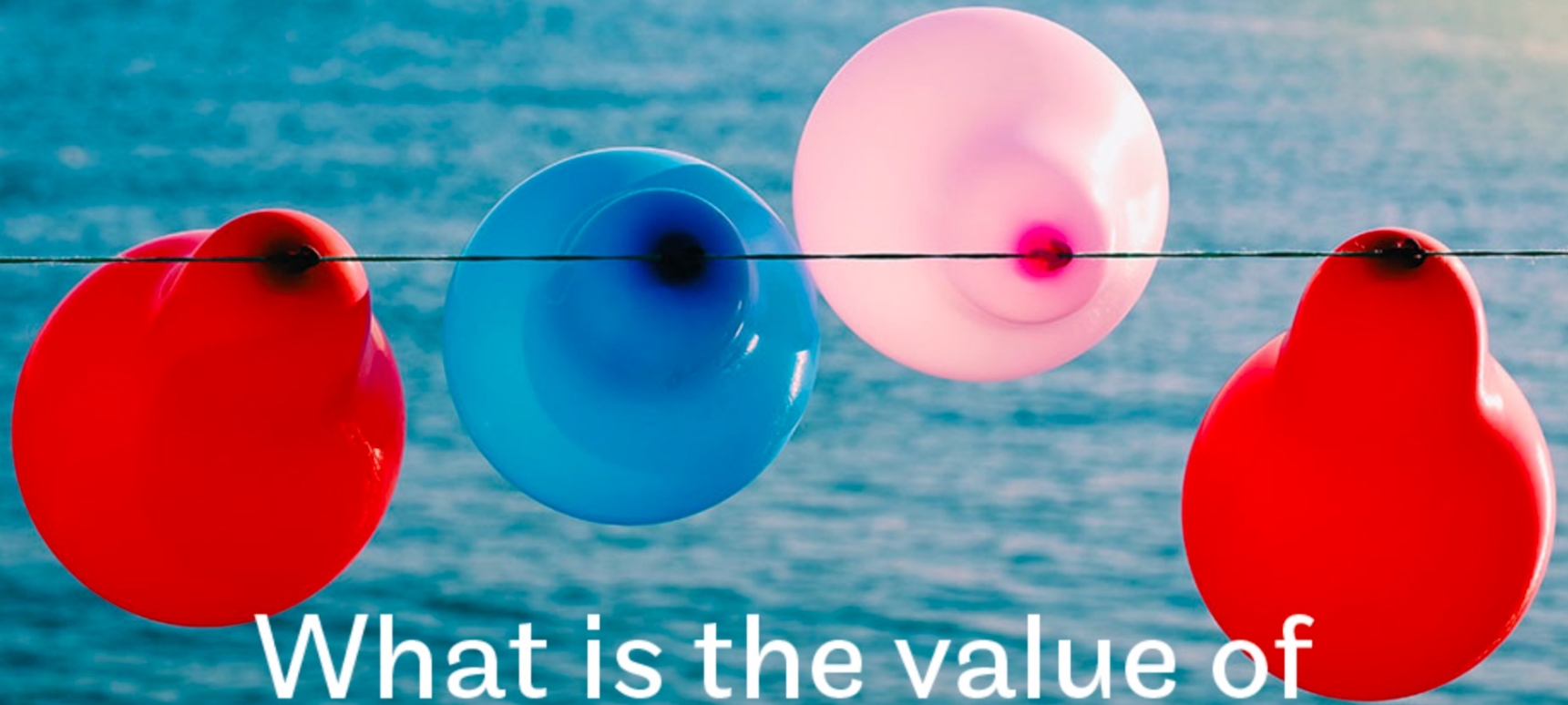
The test helps to create something of value

Saves time

Reduces risk

Identifies a problem

Measures margin/safety factor



What is the value of
a HTOL test?

Linked to Decisions



Is someone going to use the results to make a decision?

Marking off a checklist is not enough

Who needs the information

What form should the information take

What level of detail is needed

When is the decision being made

What is the use of a
test when results
are not used?



Provides Information



The test results should reveal something previously unknown

Specifics of failure mechanisms
Model parameters determined
Estimate of use condition reliability
Measures expected durability

What information
is useful from
testing?



Every Reliability Test Has a Purpose

Avoid testing just because you always do testing

The test will add more value than it costs to conduct



The test will inform decision makers



The test results will provide useful information

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)

Continue to explore your testing and make improvements.