



Introduction of Risk-based Testing

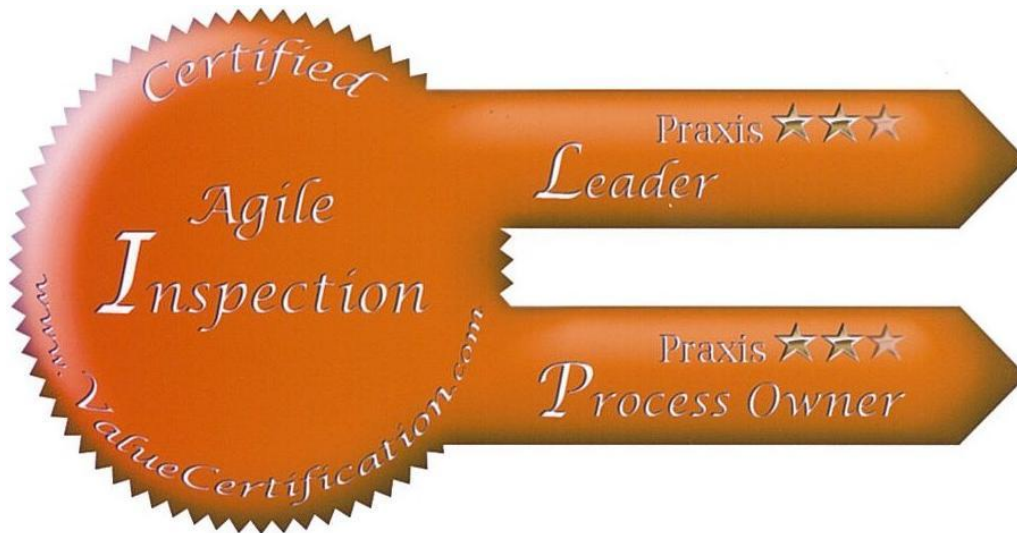
Advanced Testing Process with Risk

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Introduction

Sony Corporation

Quality Engineering Manager
Professional Division
Software Quality Assurance
Test Process Improvement



ADVANCED RISK BASED TEST RESULTS REPORTING:

Putting Residual Quality Risk Measurement in Motion

Software Test & Quality Assurance



Japan Symposium on
Software Testing
JaSST

ソフトウェアテストシンポジウム

Best Speaker Awards



**Advanced Risk-Based
Test Reporting**

Agenda

Fallacies of Risk-Based Testing

Heart of Risk-based Testing

Test monitoring
in Risk-based Testing



Fallacies of Risk-Based Testing

- **Risk based testing is just a method to cut corners.**
- **Risk based testing can be done entirely by the test team.**
- **Risk based testing only influences selection of test cases.**

"Five Fallacies of Risk Based Testing", Rex Black, <http://www.rbcs-us.com>

A photograph of a person rock climbing a steep, layered rock face. The climber is positioned in the upper right quadrant of the frame, facing left. They are wearing a red shirt and dark pants. The rock face is composed of horizontal layers of varying shades of brown and tan. The background is a dark, shadowed area, possibly a cave or a deep crevice. The overall scene conveys a sense of adventure and risk.

Heart of Risk-Based Test

A person is climbing a dark, craggy rock face. The climber is silhouetted against a bright, overexposed sky and a blue ocean visible in the background. The climber is wearing a dark shirt and pants, and is using ropes and carabiners to ascend. The rock face is textured and uneven.

Honesty

Open

Optimization

Honesty

A photograph of a snowy mountain slope under a clear blue sky. In the background, a rocky peak is visible. Two small figures are standing on the snow in the distance.

Exhaustive testing is impossible

**Exhaustive Risk Identification
is impossible**

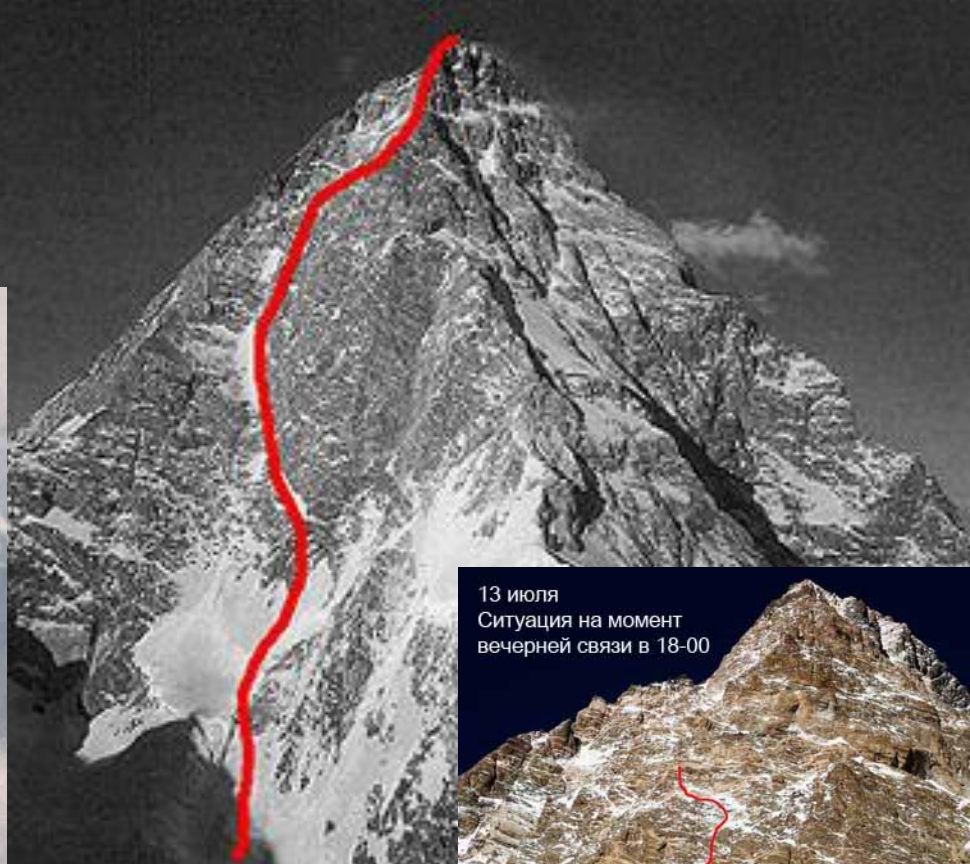
Exhaustive Risk Mitigation is impossible

OPEN

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Challenge



What kind Mountain ?



A photograph of a beach scene. In the foreground, a large, dark, textured sandcastle stands on the sand. A small red bucket is perched on its peak. To the right of the sandcastle, there are several dark, irregular shapes on the sand, possibly rocks or seaweed. In the background, the ocean is visible with gentle waves. Several people are on the beach: one person in a red shirt is crouching near the water's edge, and another person in a pink shirt is standing further back. The overall scene is bright and sunny.

No Risk

Not Enough



This is it !





Sharing Value of Risk or..

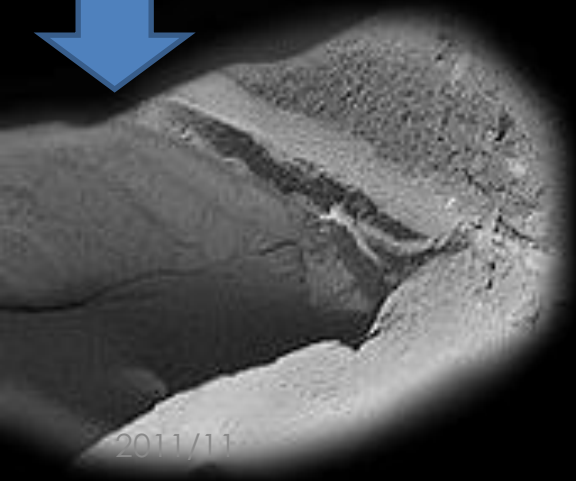
A high-angle photograph of a powerful waterfall cascading down a dark, rocky mountain face. The water is white and turbulent as it falls, creating a large plume of mist at the base. The surrounding terrain is rugged, with patches of snow and ice visible on the rocky slopes. The word "Tragedy" is overlaid in a large, dark blue font at the bottom right of the image.

Tragedy



Along with Specification

Trouble in past



Change Specification

Risk !



Sharing Risk



Cooperation



Respect



Teamwork

Trust

Risk Treatment Preparation






OPEN

~~Risk based testing can be done entirely
by the test team~~

**Share the Value of Risks
with Stakeholders**

A black and white photograph of a desert landscape. In the foreground, there are sand dunes with some small, dark, indistinct shapes that could be plants or rocks. In the middle ground, a small, light-colored structure, possibly a tent or a small building, is visible on a dune. The background shows more dunes and a clear sky. The overall scene is arid and desolate.

**Share Responsibility
for Risk**



Optimization



Adaptive

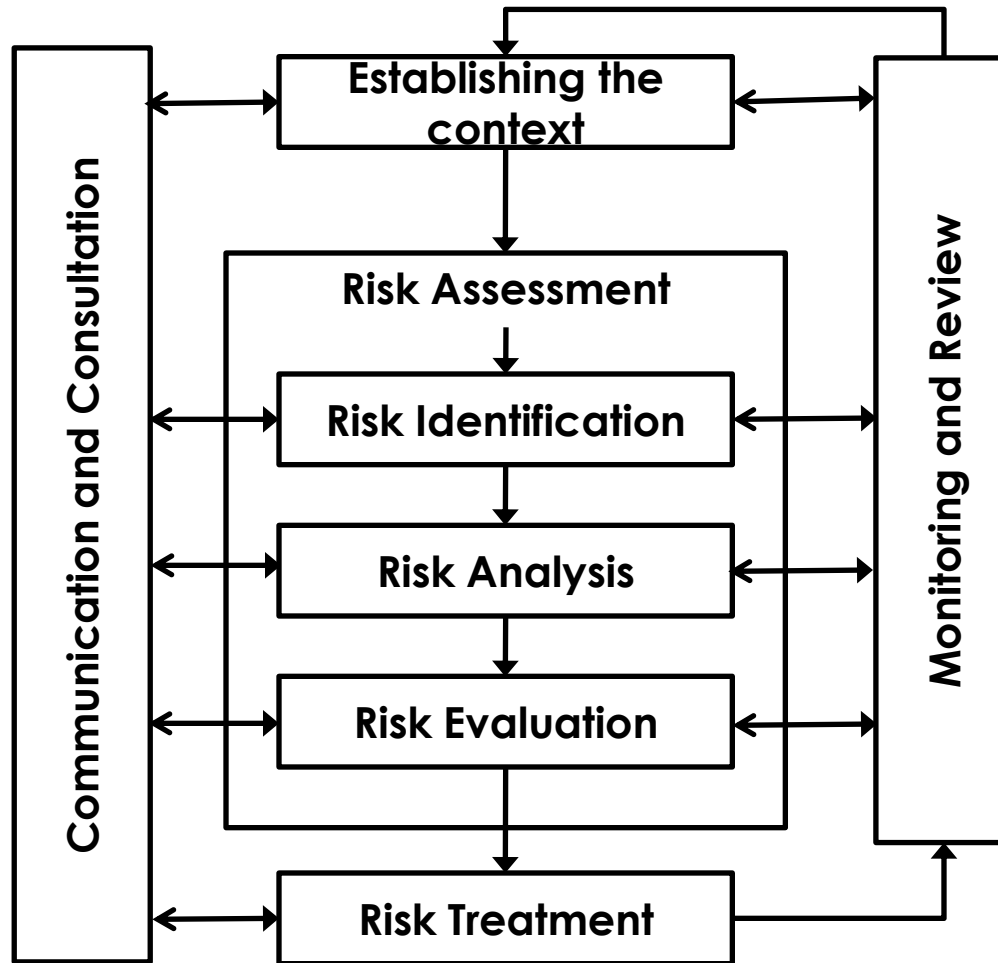


Re-active

Risk-Based Testing

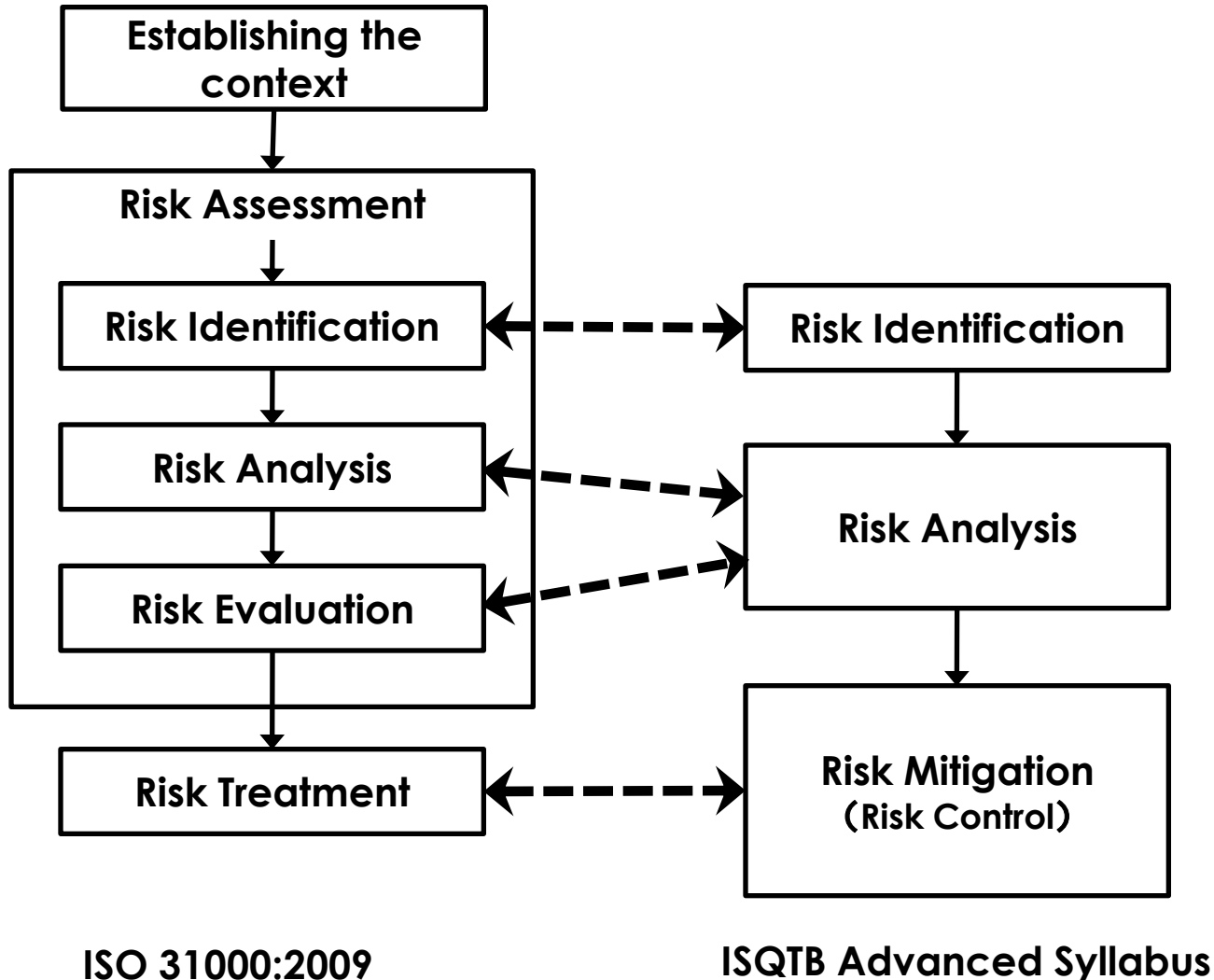
Risk Management

Risk Management Process



ISO31000 : 2009

Risk management process and Risk-based testing



CAT

Changing Point



**Risk
Identification**

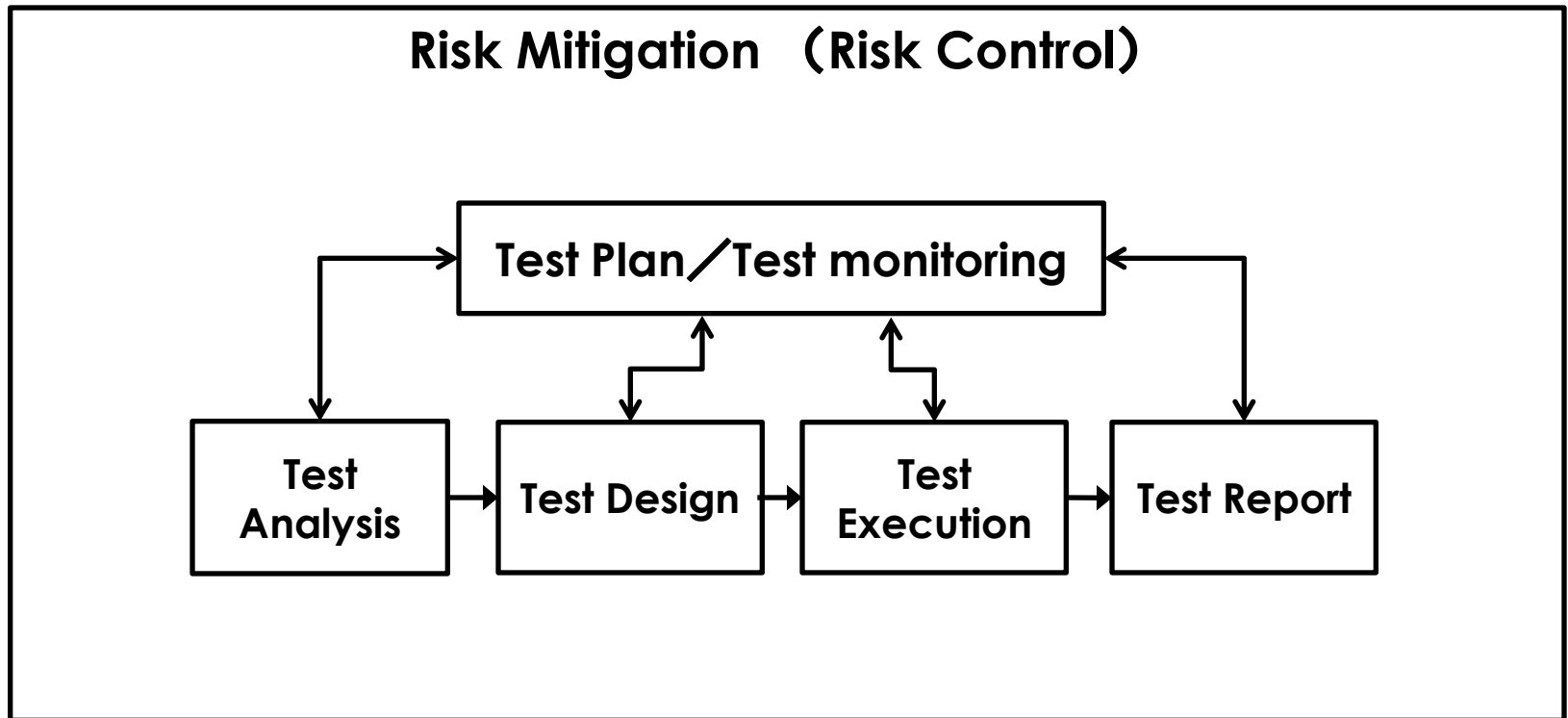
Architecture

Trouble in the past

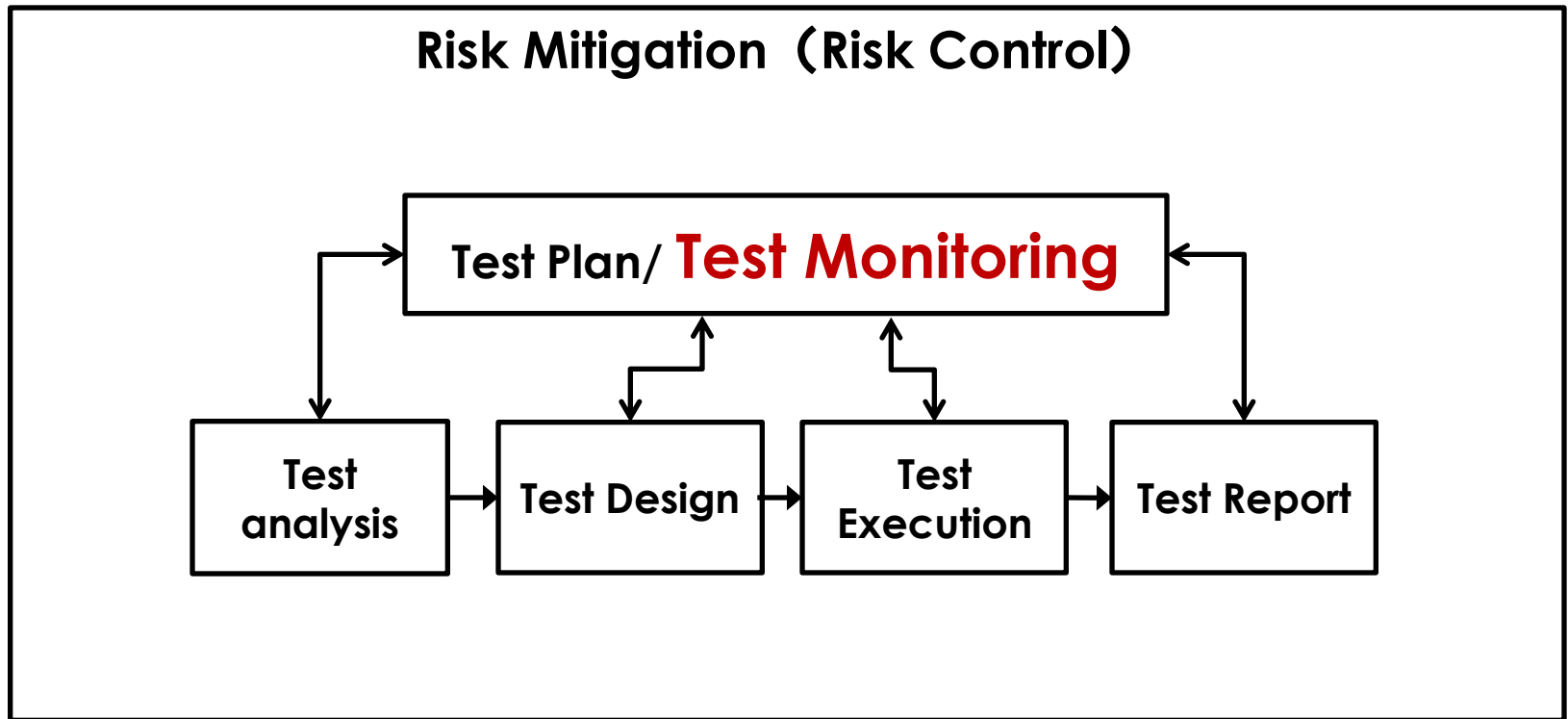
Which risk is higher ?

Risk Item	Phenomena	Likelihood	Impact	Likelihood	RPN
:	:	:	:	:	:
System did not boot-up	Recover after power cycle	once per 1000	4	2	8
:	:	:	:	:	:
Customer data was erased when the system booted up.	Data was not recovered	No reproduce	5	1	5
:	:	:	:	:	:

Test Process = Risk Mitigation

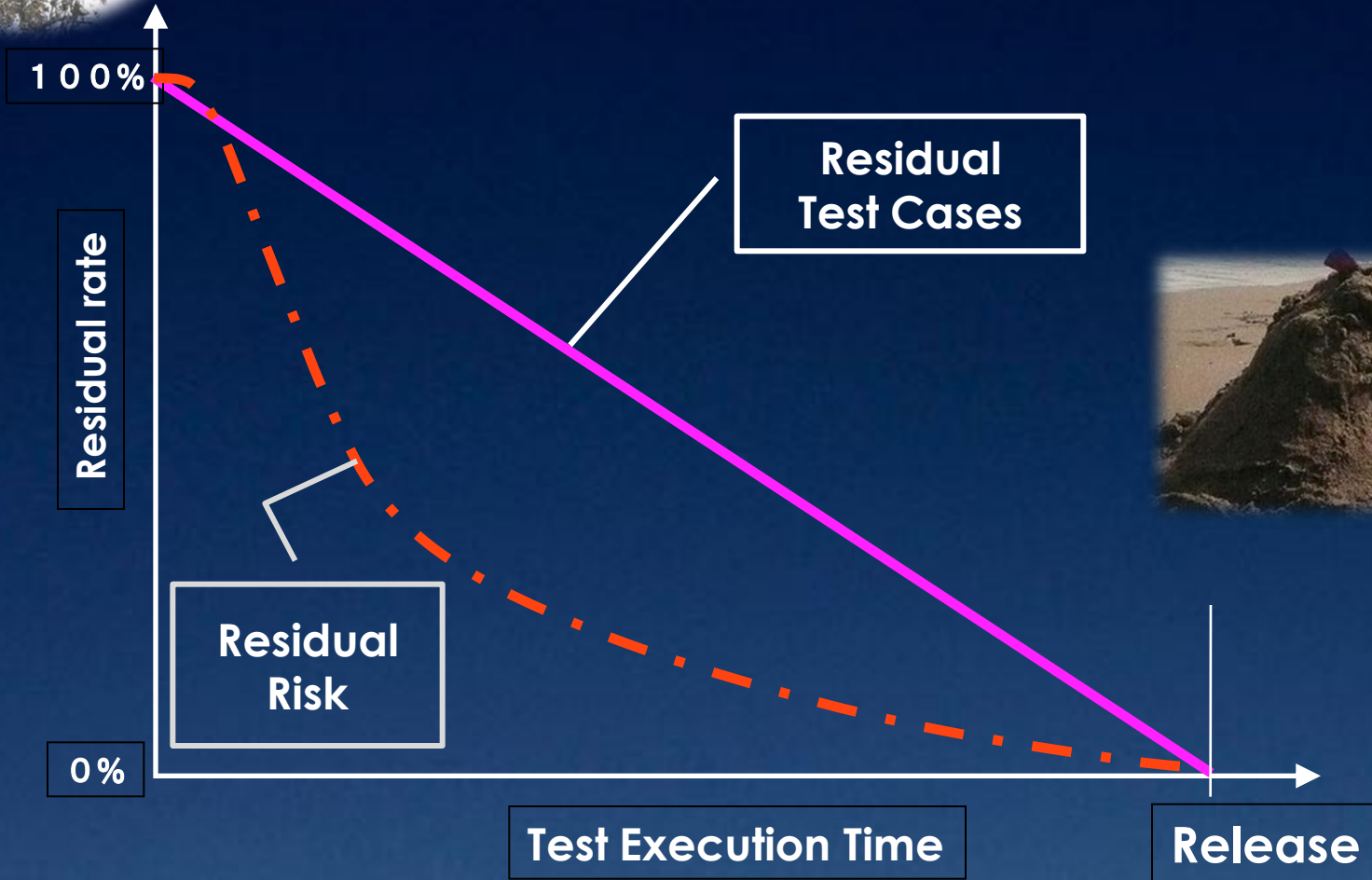


Test monitoring of Risk-based Testing

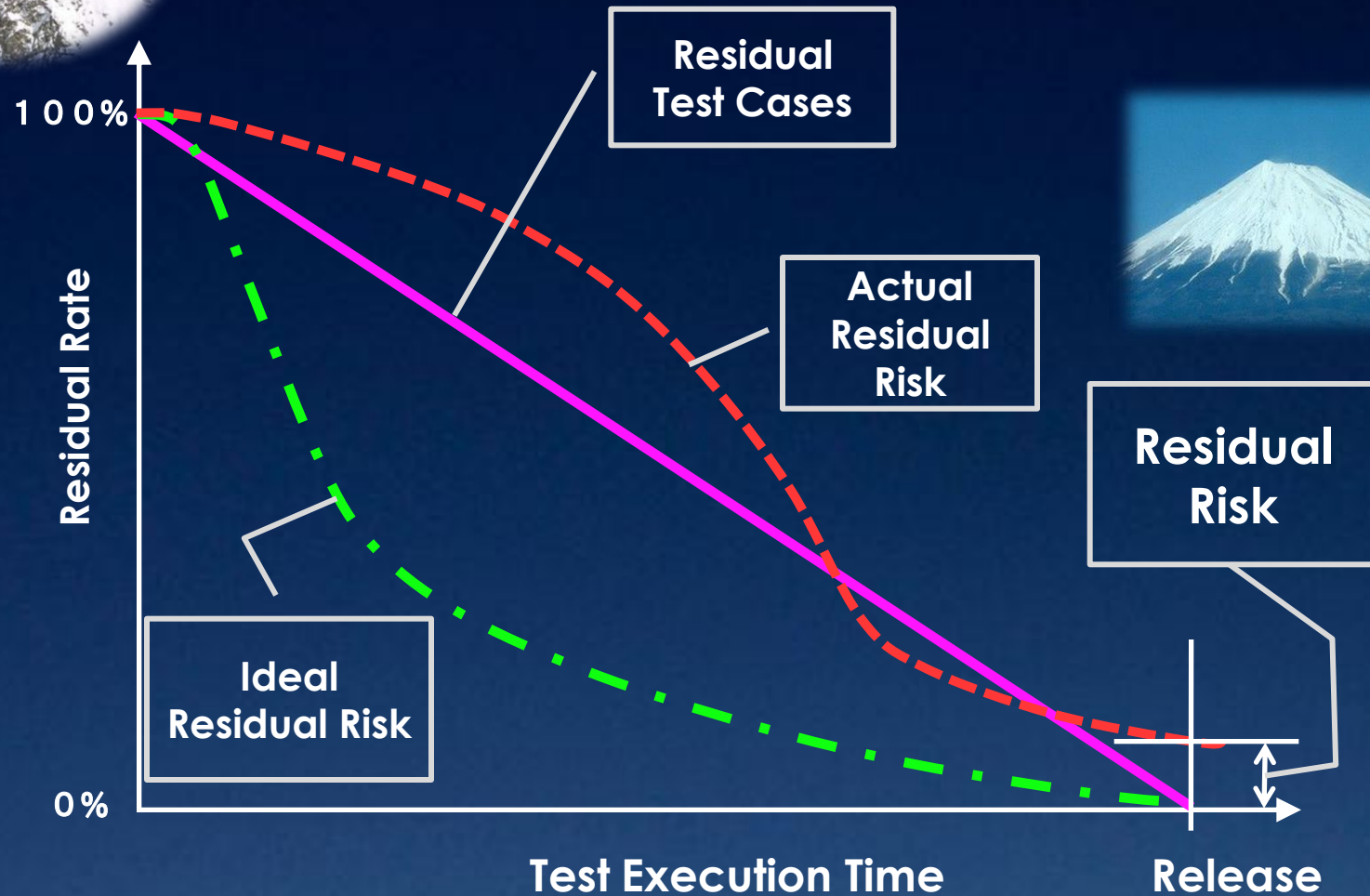


Relationship between Risk and Test Monitoring

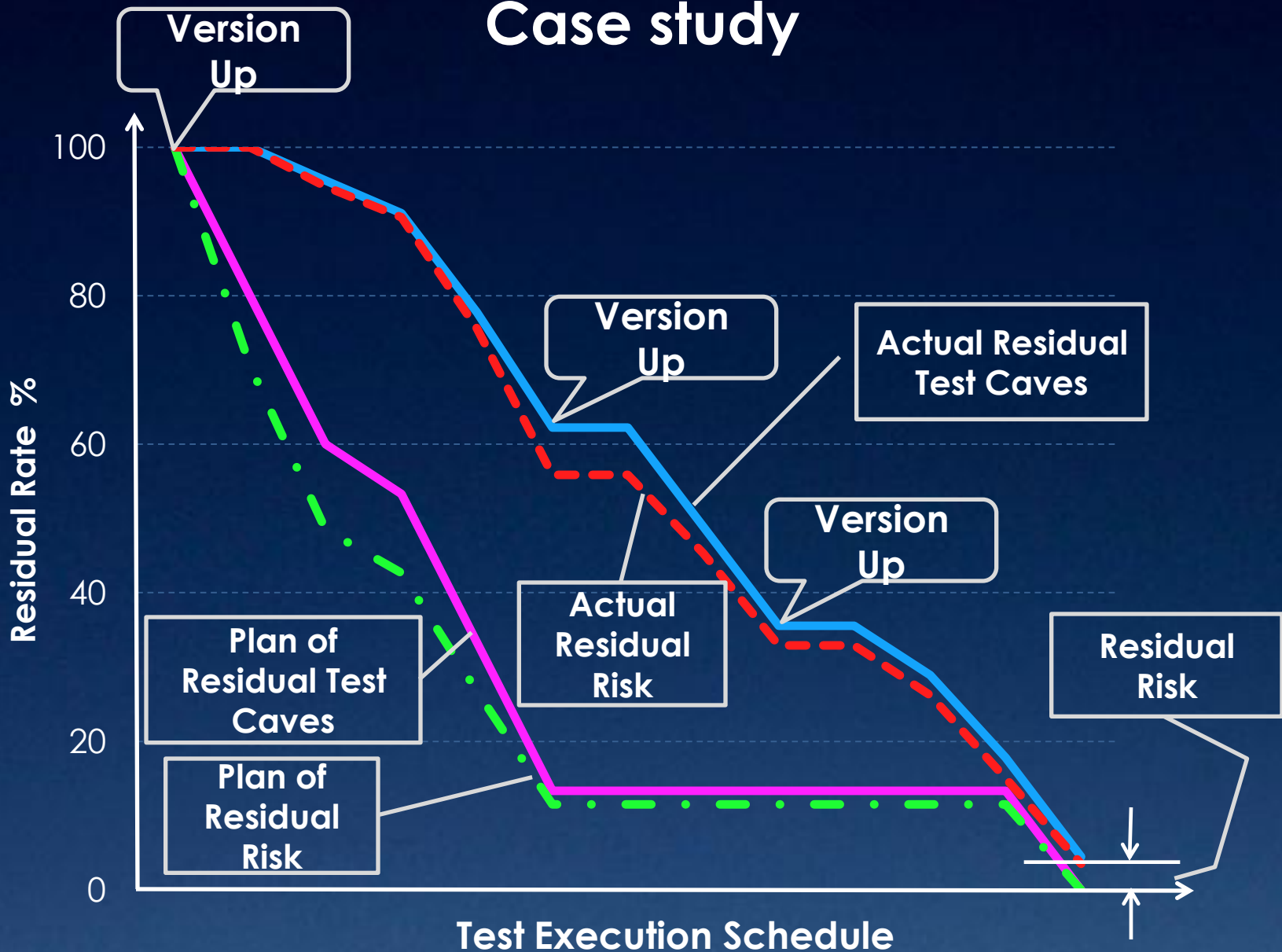
Ideal Residual Risk pattern



Actual Residual Risk pattern



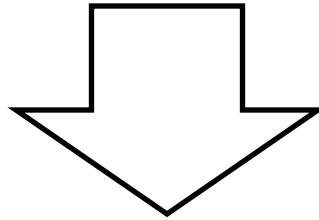
Case study



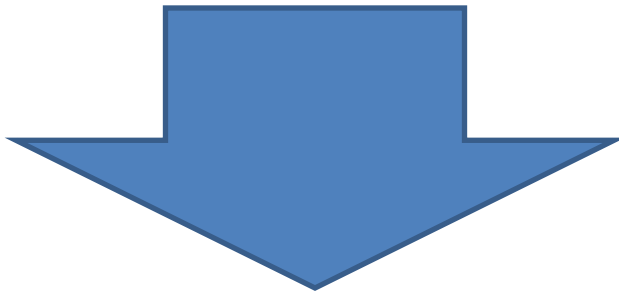
Test => Pass

No Risk ?

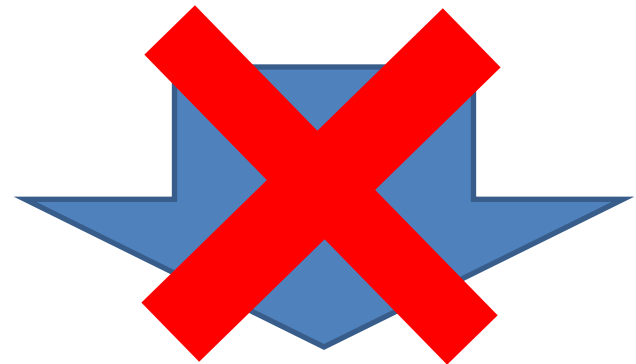
Test => Pass



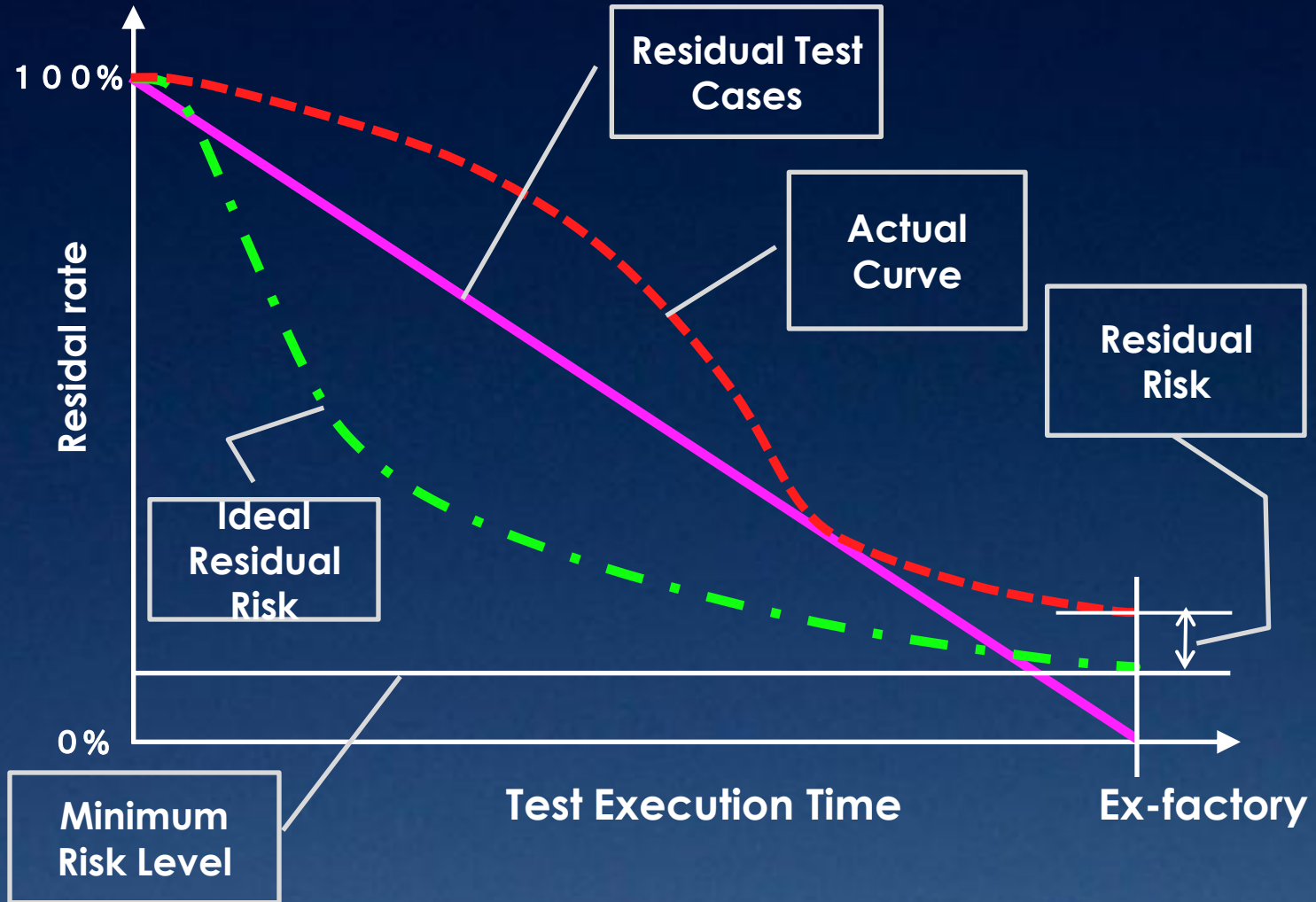
Likelihood



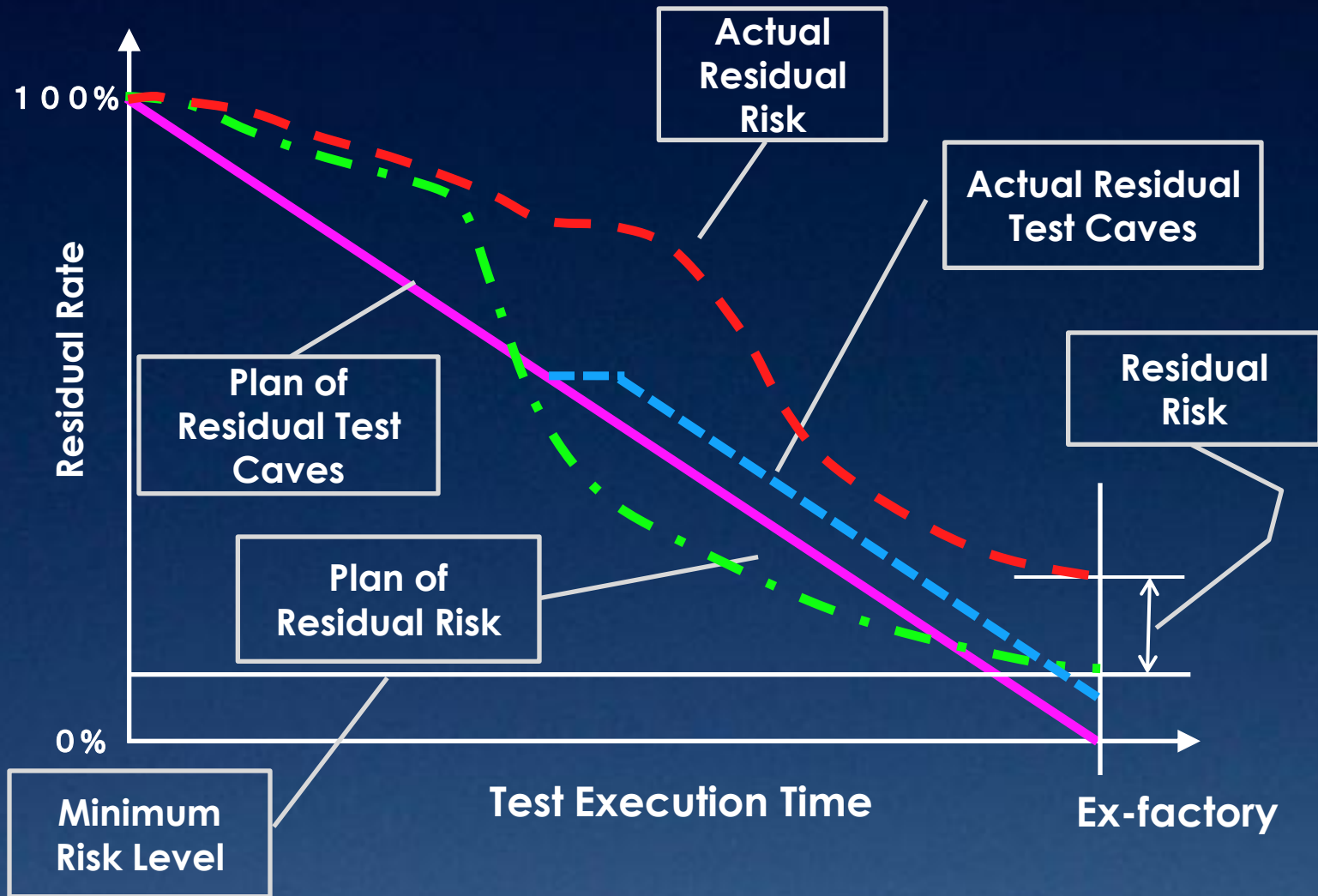
Impact



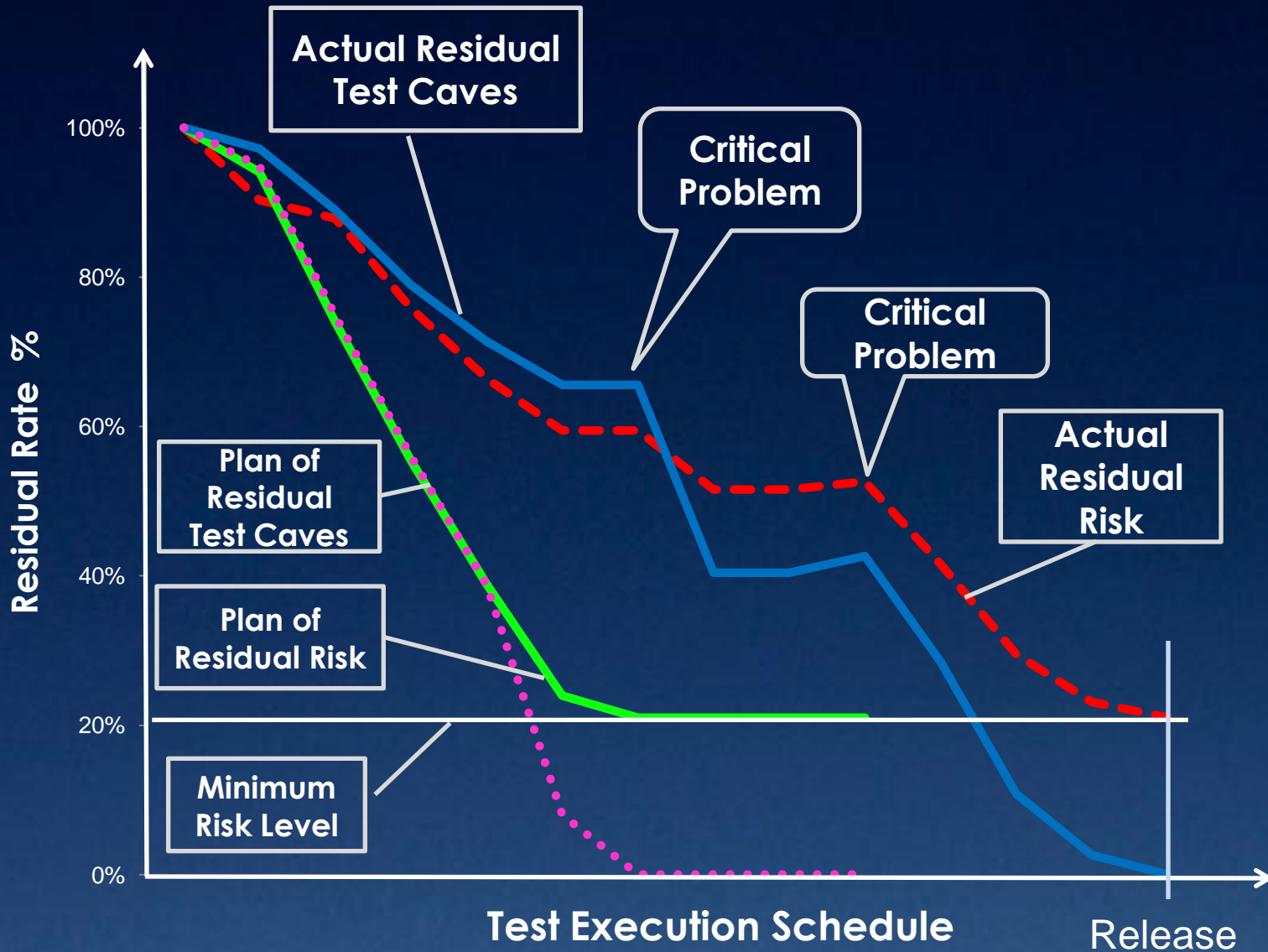
Revised Residual Risk Chart



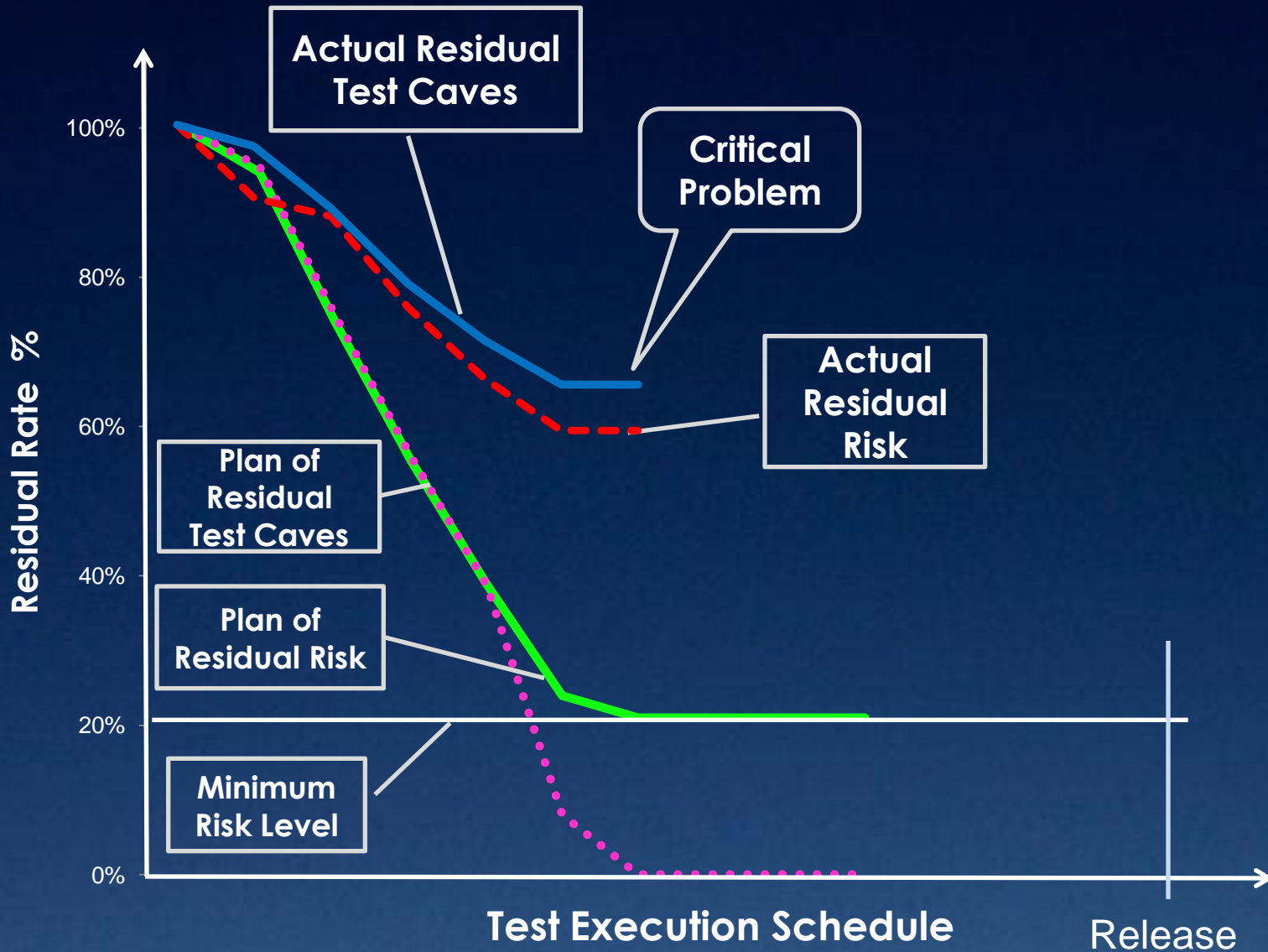
Revised Residual Risk Chart



Case study



Case study



Traceability



Traceability

A person is seen from behind, climbing a steep, snowy mountain. A thick green rope is anchored to the ground and runs diagonally across the snow, leading towards the climber. The climber is wearing dark gear and is positioned at the top of the frame.

Risk ↔ **Test Cases**

A large, solid red arrow points upwards from the 'Test Design' box to the 'Risk' and 'Test Cases' box.

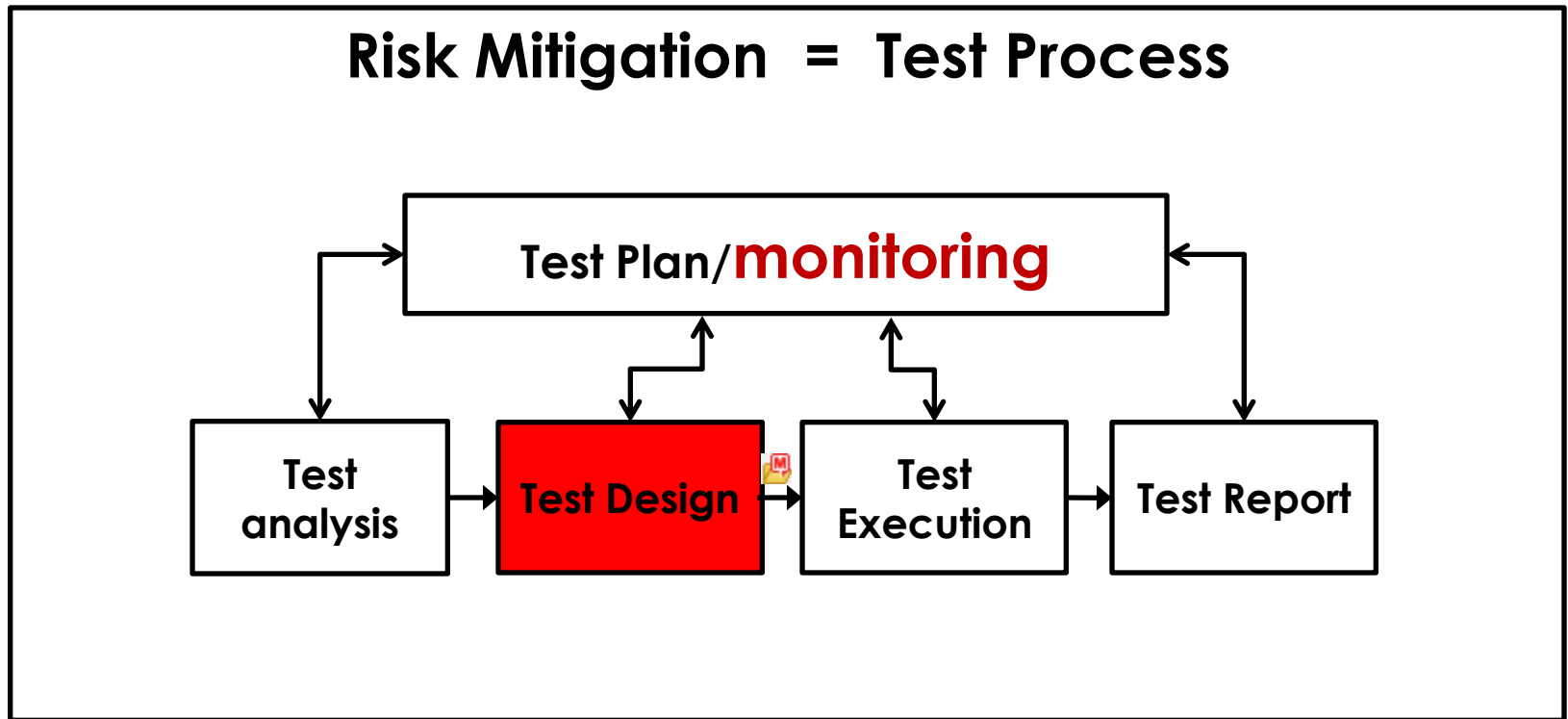
Test Design

A full-page background image showing two mountaineers in winter gear ascending a steep, snow-covered mountain slope. The lead climber is in the foreground, wearing a red jacket and a yellow backpack, using ice axes and crampons. A second climber is visible further up the slope. To the left, a sharp, rocky mountain peak rises against a clear blue sky. The overall scene conveys a sense of challenge and the need for thorough preparation.

If you want to success with
Risk-Based Testing

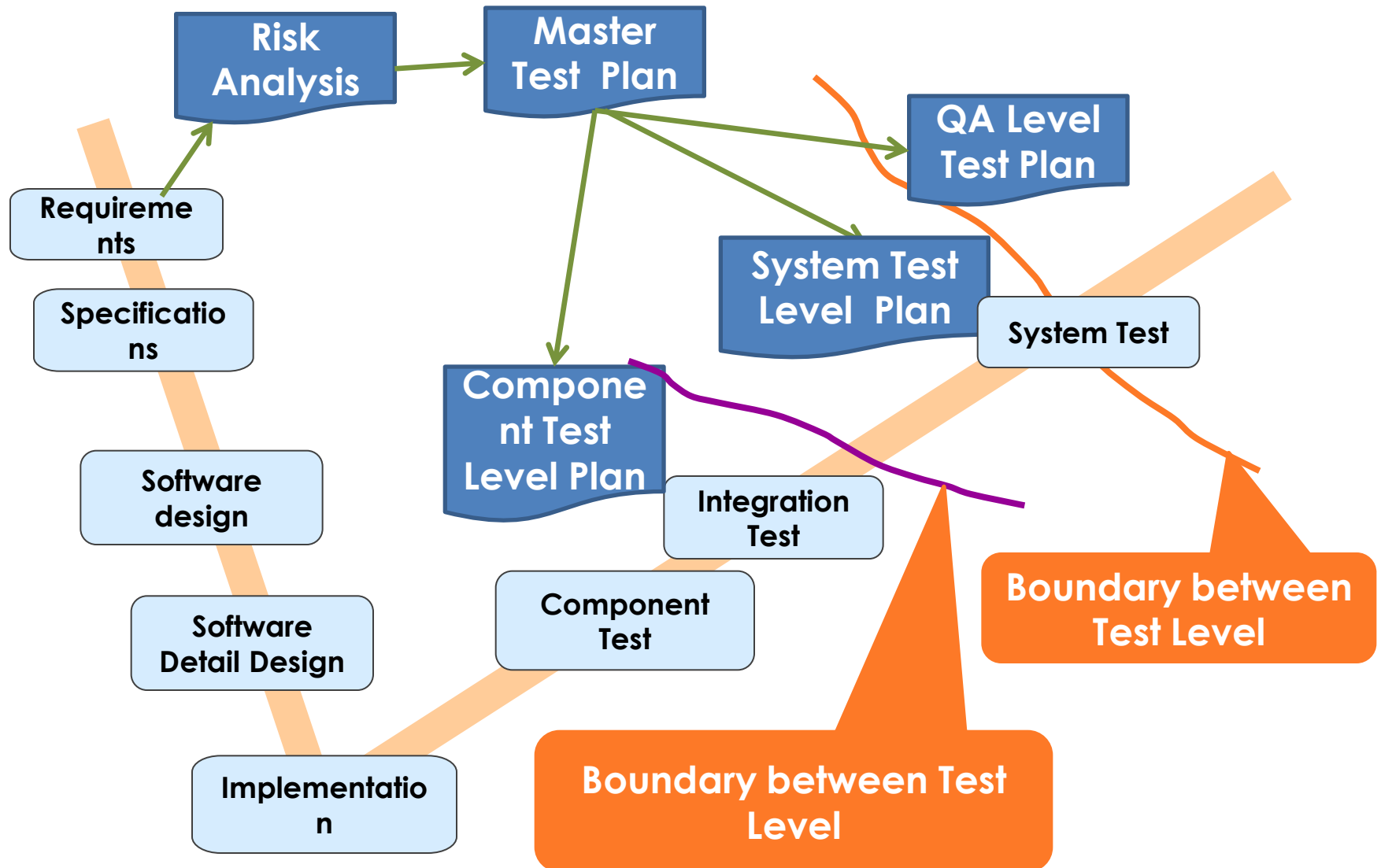
We need our test process matured
Much more !!

Test monitoring of Risk-based Testing



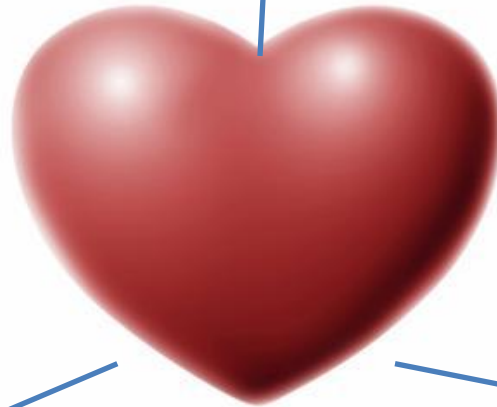
Test Design is Key

Master Test Plan : Risk Distribution



Heart of Risk-Based Testing

Honesty



Open

Optimization

Thank you