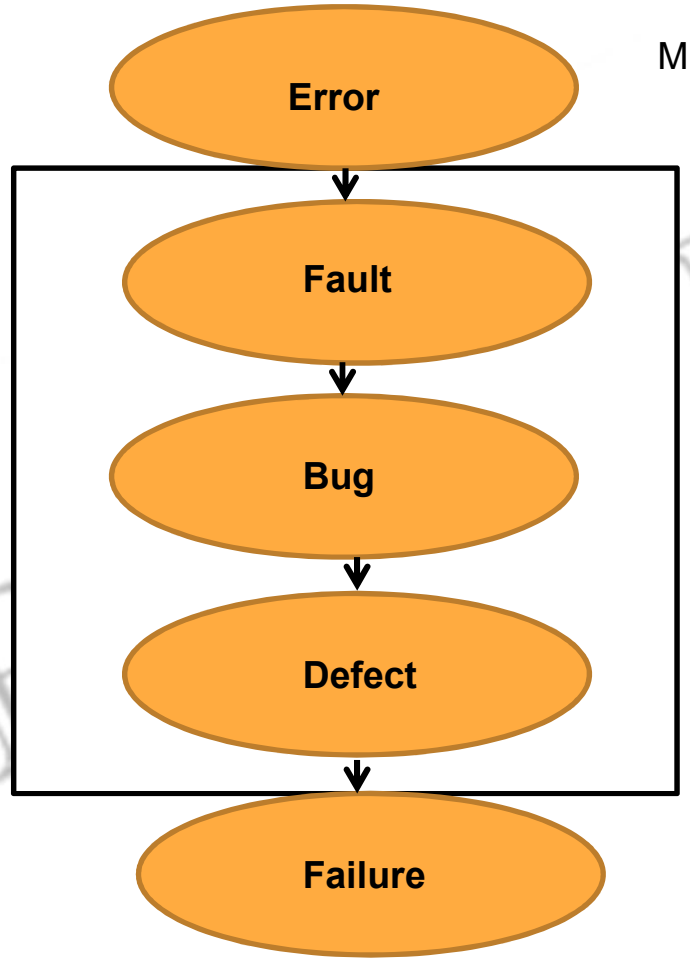
Preparation to ISTQB Foundation Level Certification Exam

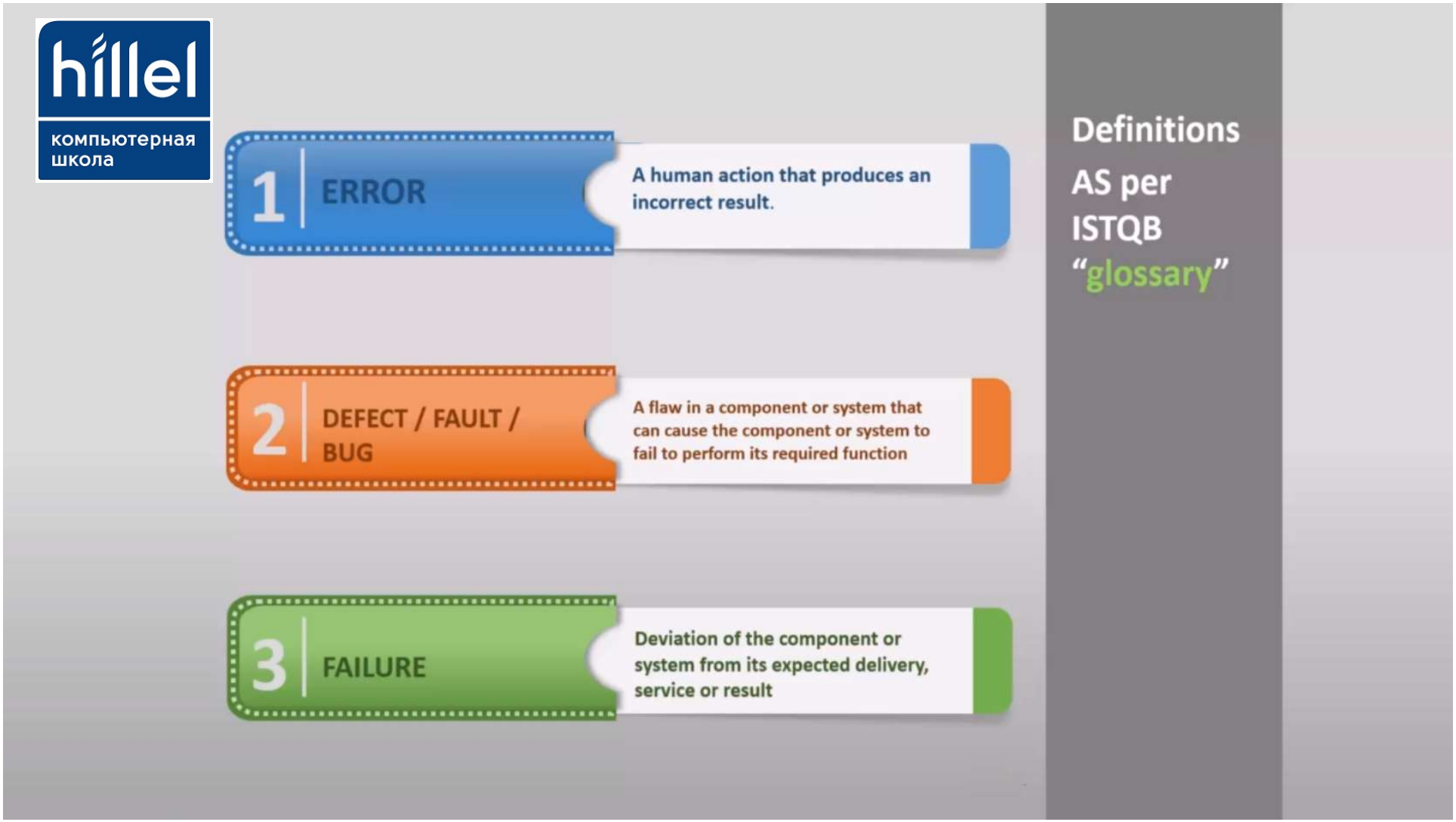
By Vladimir Arutin

BUG PLANTING



Mistake

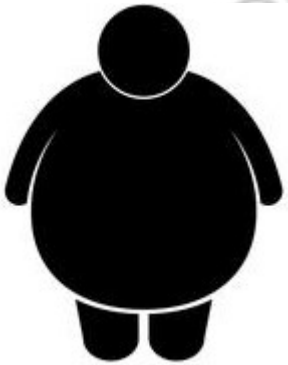
hillel
компьютерная школа



Where do errors come from?

Customer

BA

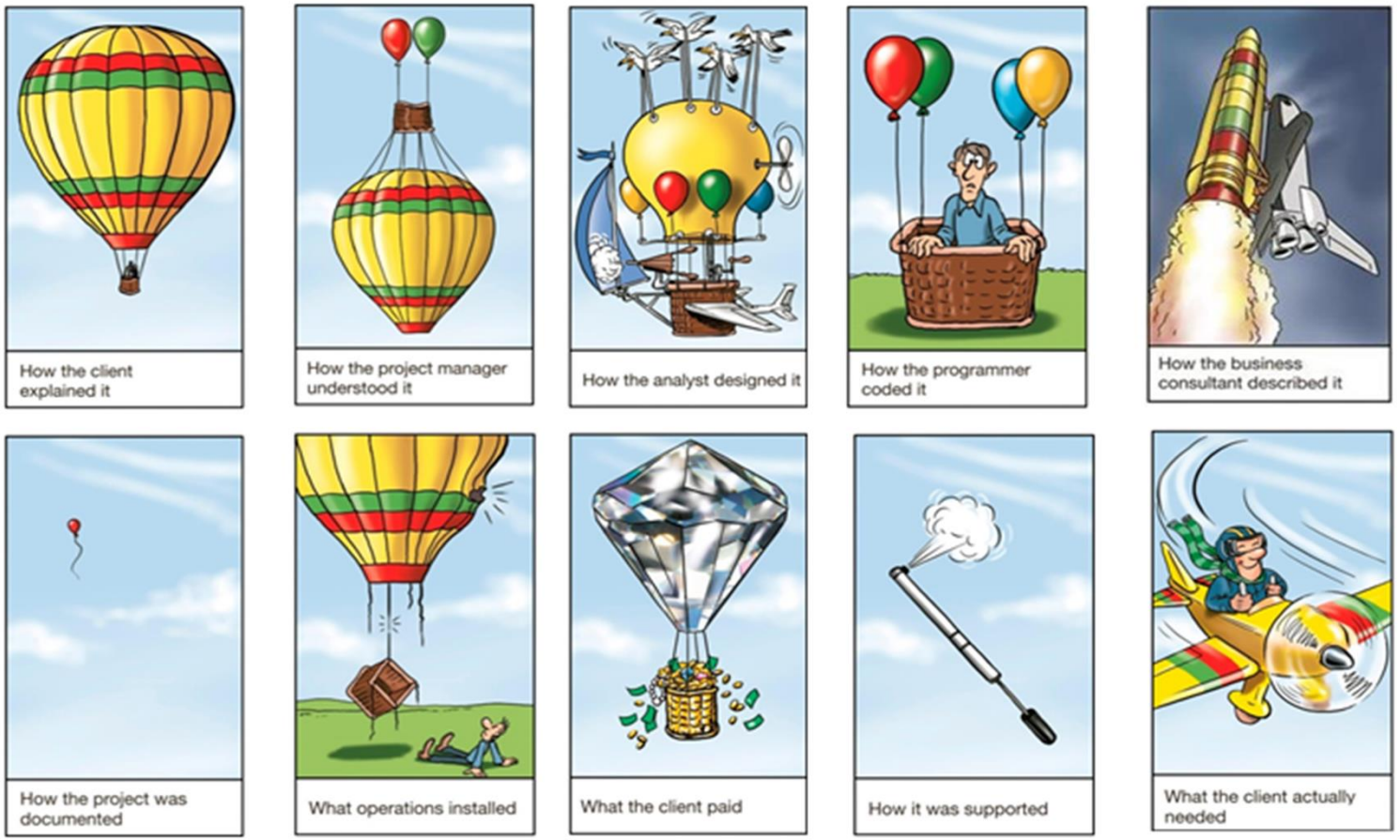


System Architect

Designer

Programmer

Classic Example Of Collaboration Skills



ISTQB

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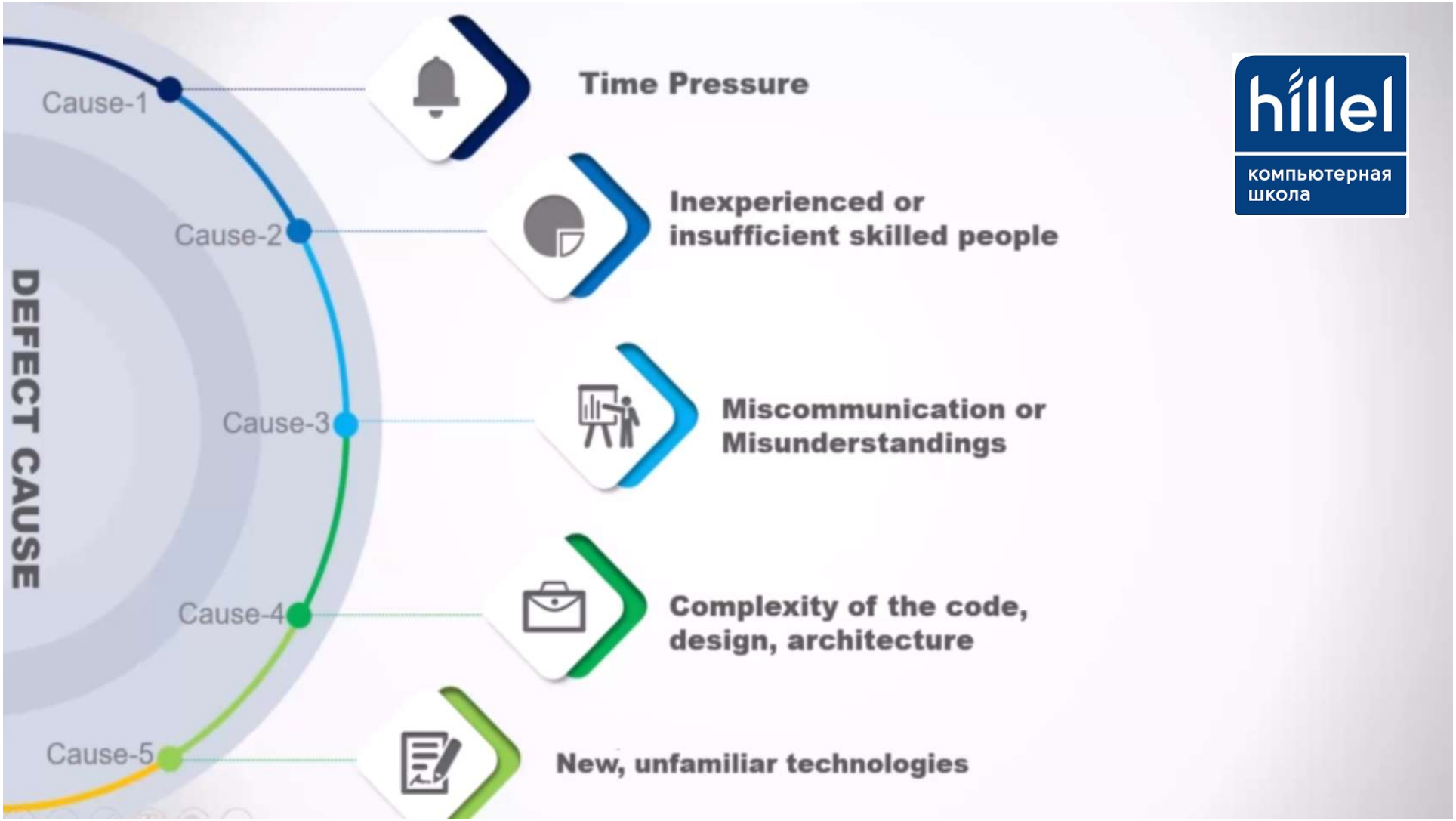
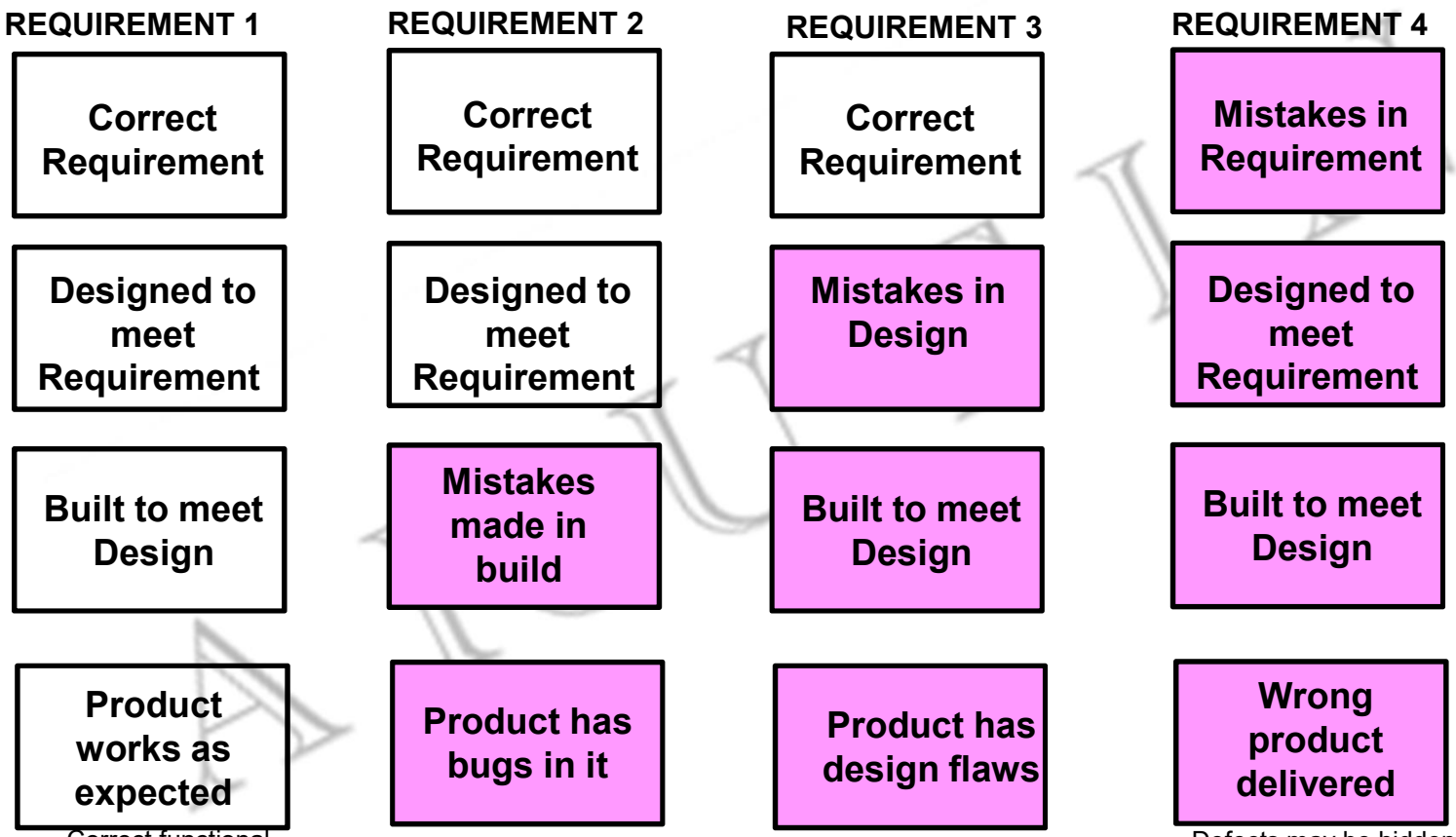


Where are errors found?



WHY IS TESTING NECESSARY?

Context dependency

Role of testing –to reduce the risk of problems occurring during software creation.

Testing and Quality*:

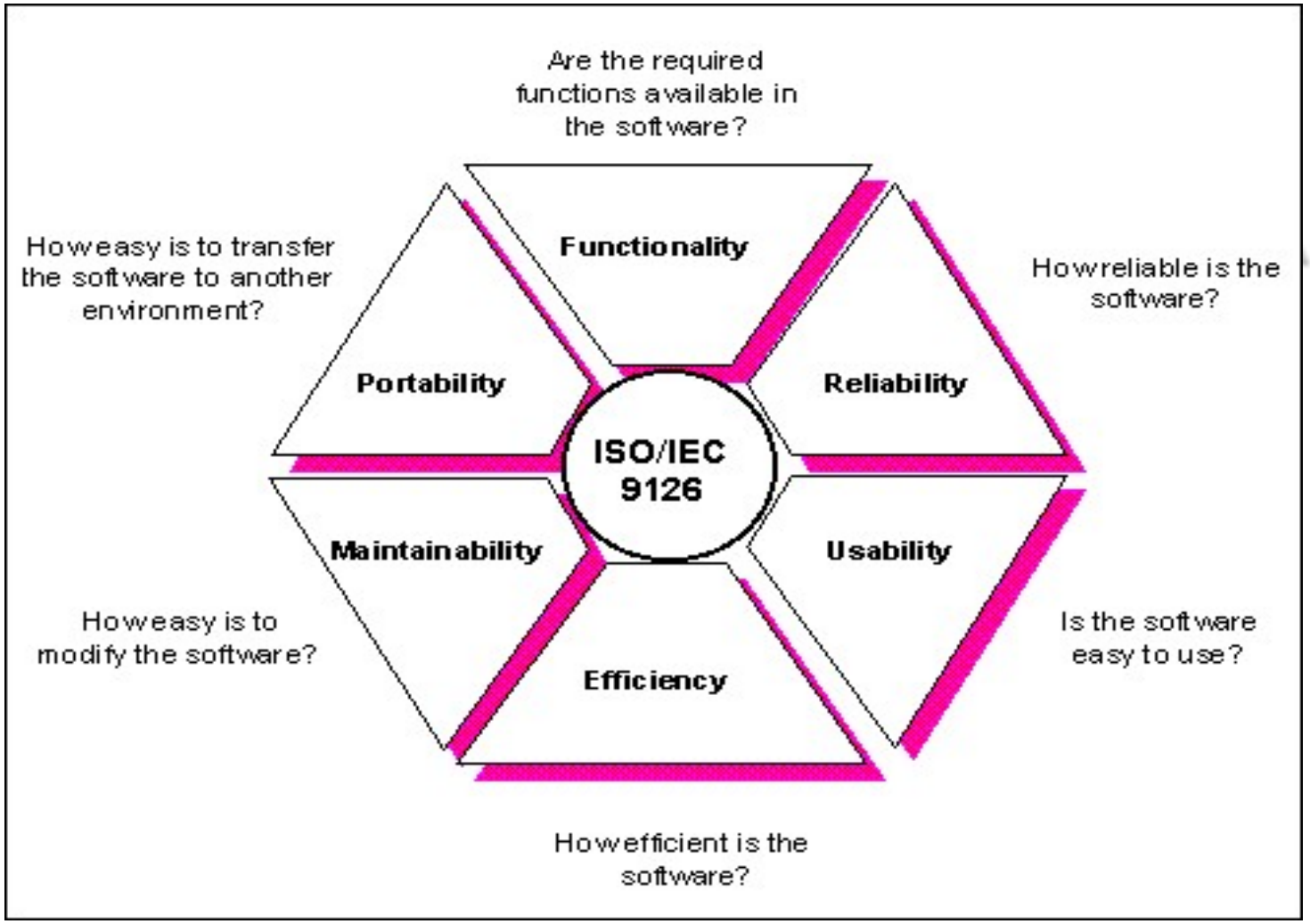
- Testing is used to measure the quality of software (defects)
- Testing gives confidence in the quality of the software
- Testing helps to understand the root causes of defects found
- Testing is one of the quality assurance activities

*Software Engineering –Software Product Quality (ISO 9126).

How much Testing is Enough (exit criteria)

Level of risk, including technical, safety, and business risks

- Project constraints: time and budget.
- Stakeholders get enough information



ISTQB

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TERMS

Terms: Debugging, requirement, testing, test objective, quality

Debugging is the process of finding, analyzing and removing the causes of failures in software.

Requirement is a condition or capability needed by user to solve a problem or achieve an objective that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document.

Quality is the degree to which a component, system or process meets specified requirements and/or user/customer needs and expectations.

Test basis is all documents from which the requirements of a component or system can be inferred.

Test objective is a reason or purpose for designing and executing a test.

WHAT IS TESTING?

DEFINITION OF TESTING

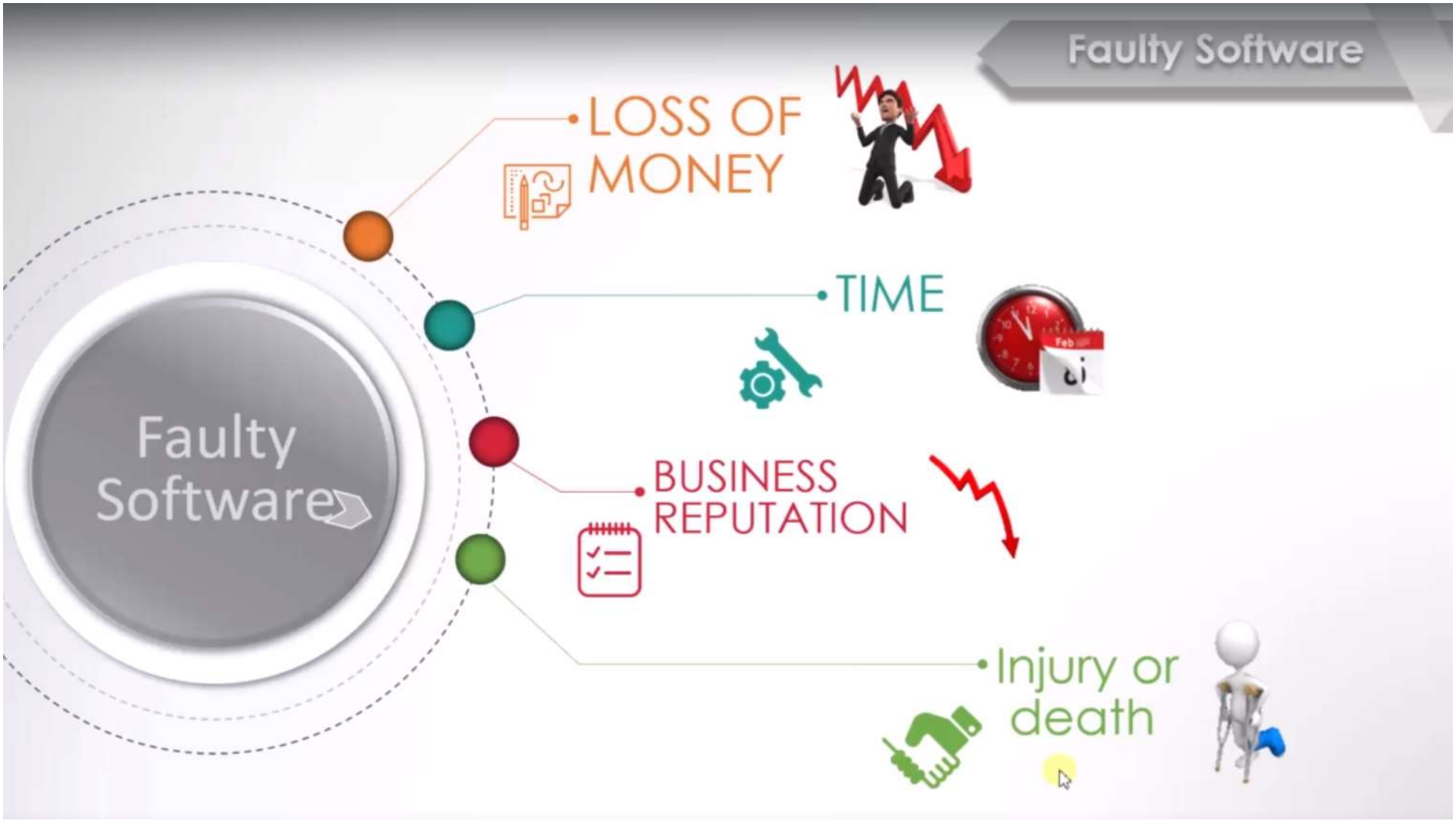
The **process** consisting of all lifecycle activities, both static and dynamic, concerned with planning, preparation and evaluation of software products and related work products to determine that they satisfy specified requirements, to demonstrate that they are fit for purpose and to detect defects.

What is testing ?

Software System Context

BUSINESS APPLICATION

Consumer Products


Faulty Software
LOSS OF MONEY
TIME
BUSINESS REPUTATION
Injury or death
Faulty Software

"*Activities*" of testing

1

ACTIVITY-1

ALL LIFECYCLE ACTIVITIES

Start building software

Delivered

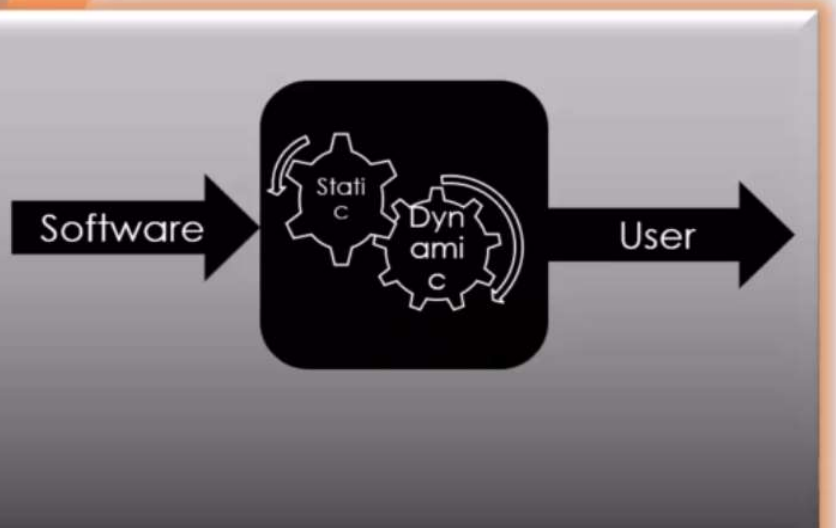
"Activities" of testing

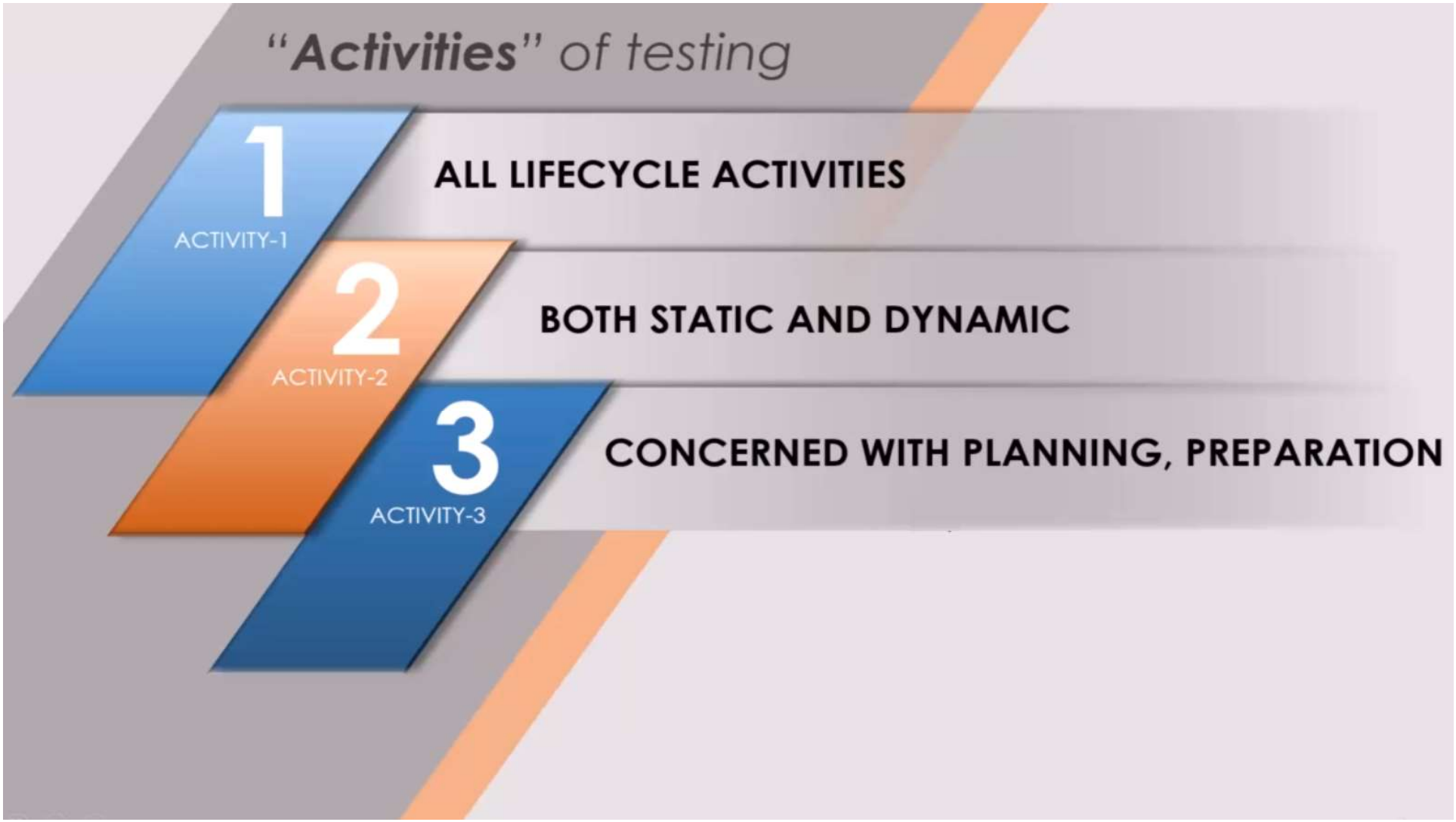
1
ACTIVITY-1

ALL LIFECYCLE ACTIVITIES

2
ACTIVITY-2

BOTH STATIC AND DYNAMIC




"Activities" of testing
1
ACTIVITY-1
ALL LIFECYCLE ACTIVITIES
2
ACTIVITY-2
BOTH STATIC AND DYNAMIC
3
ACTIVITY-3
CONCERNED WITH PLANNING, PREPARATION

"Activities" of testing

1 ACTIVITY-1 — ALL LIFECYCLE ACTIVITIES

2 ACTIVITY-2 — BOTH STATIC AND DYNAMIC

3 ACTIVITY-3 — CONCERNED WITH PLANNING, PREPARATION

4 ACTIVITY-4 — EVALUATION OF SOFTWARE PRODUCTS

WHAT IS TESTING?

Objectives:

- Preventing defects
- Finding defects
- Assess the quality
- Gaining confidence about the level of quality
- Providing information for decision-making

DEVELOPMENT testing (component, integration, system) main objective is to cause as many failures as possible.

ACCEPTANCE testing used to gain confidence

MAINTENANCE testing assures, that new defects are not added during development changes.

OPERATIONAL testing used to access system characteristics such as reliability or availability

"Objective" of testing

1 Objective-1

To determine that they satisfy specified requirements,

2 Objective-2

To demonstrate that they are fit for purpose

3 Objective-3

To detect defects

SUMMARY

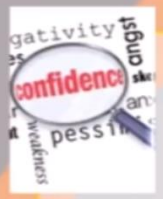
To evaluate work products such as requirements, user stories, design, and code

To validate whether the test objective is complete and works as the users and other stakeholders expect

To Detect and prevent defects

To reduce the level of risk of inadequate software quality (e.g., previously undetected failures occurring in operation)

To verify whether all specified requirements have been fulfilled



To build confidence in the level of quality of the test object

To provide sufficient information to stakeholders, especially regarding the level of quality of the test object

To comply with contractual, legal, or regulatory requirements or standards, and/or to verify the test object's compliance with such requirements or standards

Static and Dynamic testing

1

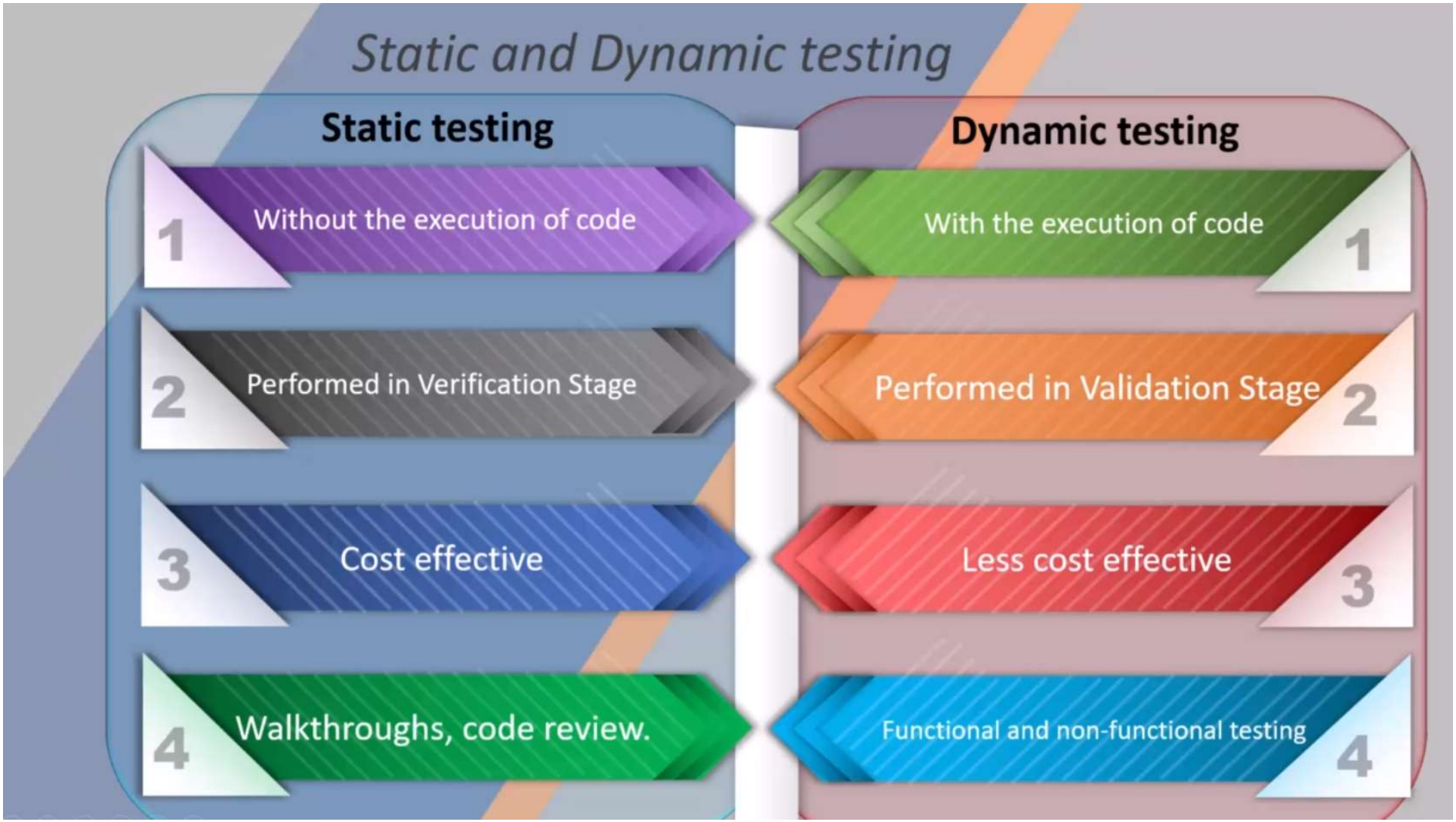
Static

Without the execution of code

With the execution of code

1

Dynamic


Static and Dynamic testing
Static testing
1
Without the execution of code
2
Performed in Verification Stage
3
Cost effective
4
Walkthroughs, code review.
Dynamic testing
With the execution of code
1
Performed in Validation Stage
2
Less cost effective
3
Functional and non-functional testing
4

Verification and Validation

4

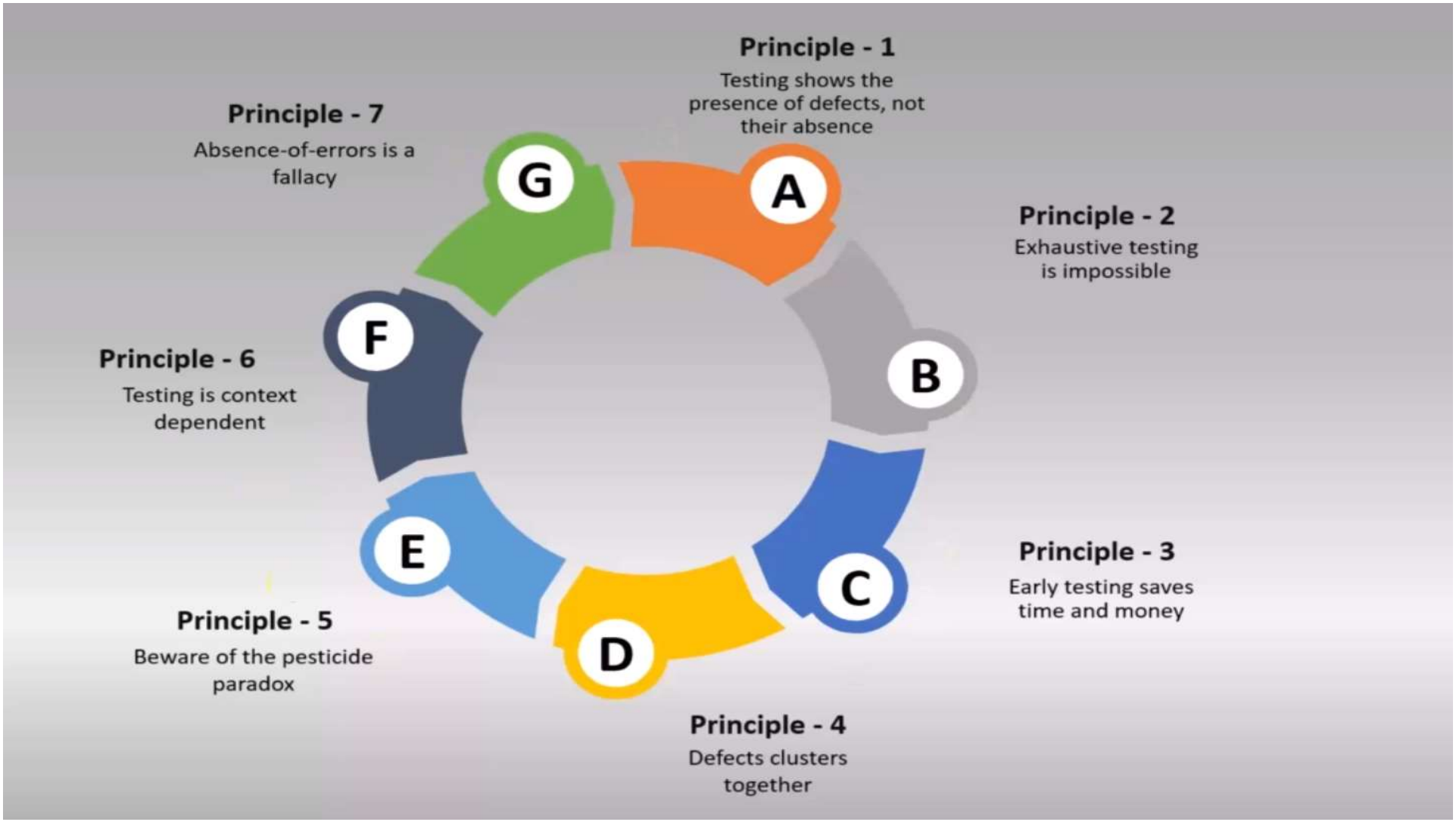
Verification

Checks "Are we building the product right"?

Checks "Are we building the right product"?

4

Validation


Principle - 1
Testing shows the presence of defects, not their absence
A
Principle - 2
Exhaustive testing is impossible
B
Principle - 3
Early testing saves time and money
C
Principle - 4
Defects clusters together
D
Principle - 5
Beware of the pesticide paradox
E
Principle - 6
Testing is context dependent
F
Principle - 7
Absence-of-errors is a fallacy
G


HAPPY
TESTING