Testing at large companies

Agenda

1. What is testing?
2. Enterprise vs smaller companies
3. Testing tools, techniques and standards
4. Non-functional testing
5. Facing with testing challenges
6. Best practices and future of testing
7. Summary
8. Q & A

About my experiences

Quality Architect | Observability Consultant

Main expertise's:

- Performance Testing, Quality Architecture , Test Automation
- Observability, Monitoring, Test Environments
- Consultancy , PreSales

…and various business and technology domains including projects from very small up to global level transformations.

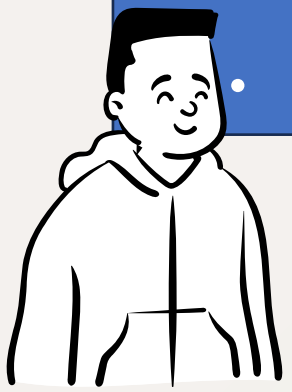
provice

dynatrace

The goal of this course

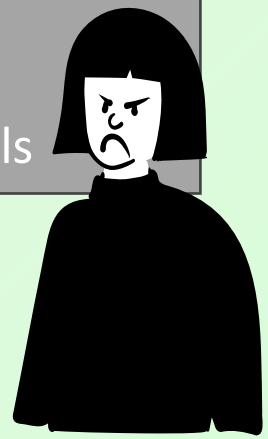
Main drivers of this course are:

- Why testing is important
- Main concepts, tools, methodologies, etc…
- How it can give value?
- Have a practical understanding



…and NOT the followings:

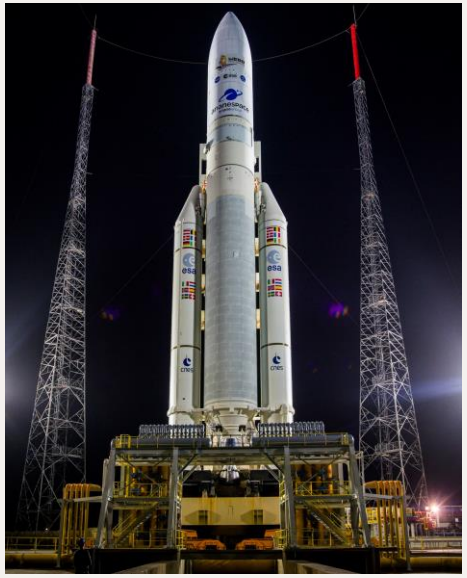
- Having a lot of buzzwords
- Copy-paste definitions
- Competition with Developers, DevOps, Etc…
- Getting into the very details



What is testing?

Why testing is important?

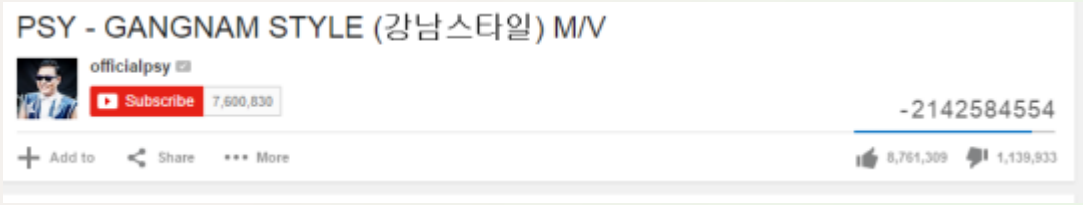
Few well known Bugs in IT



Airane 5 Rocket Failure (1996): Integer overflow (64 bit → 16 bit not fitted). $370 million to resolve.

Y2K Bug

Before 2000 many engineers wanted to save memory by not having only two digits years. (example instead of 1965 just 65). But when 2000 came many computer thought it 1900. $Billions of dollar to resolve

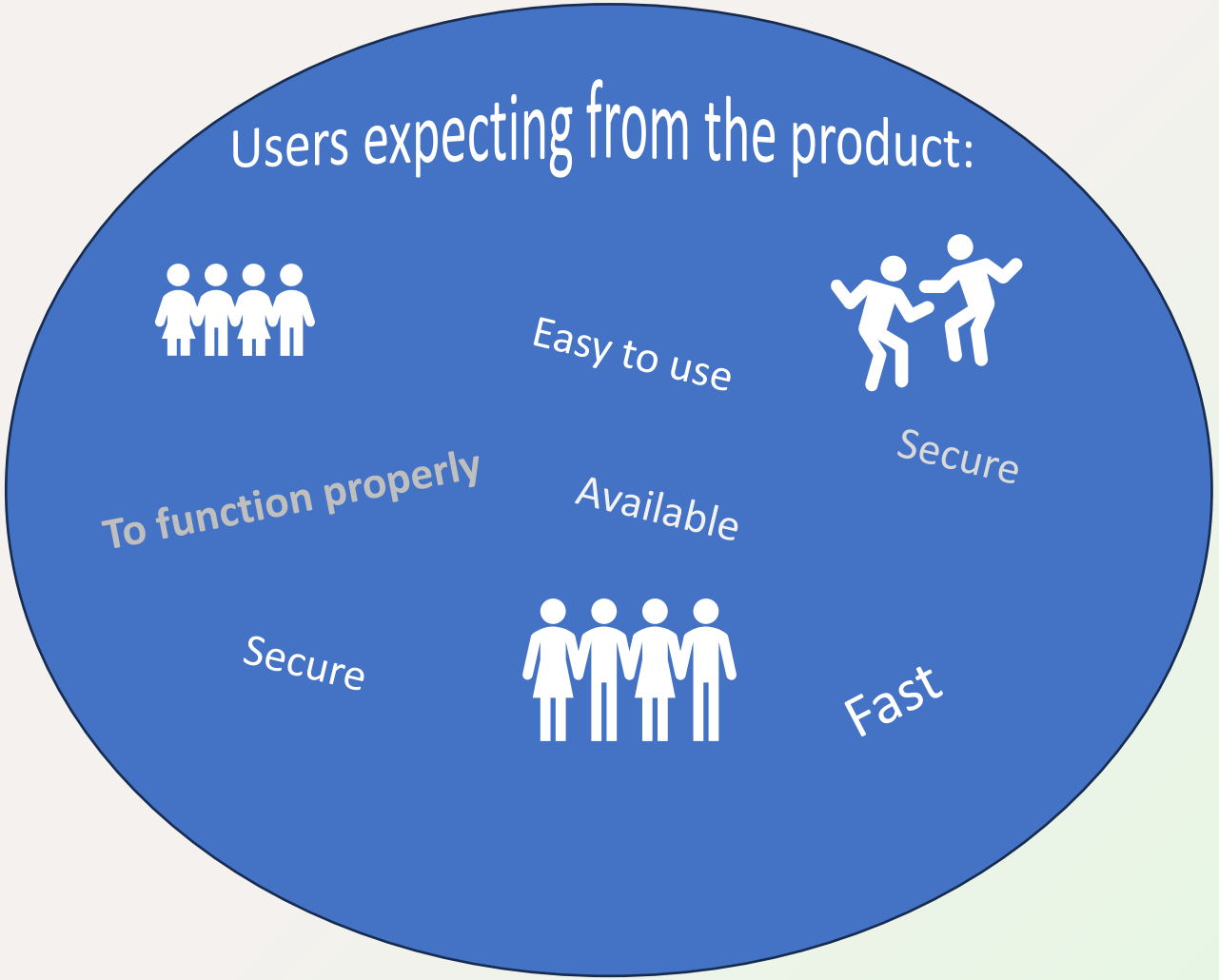


Nobody thought that any video can get more viewer than 2.147.483.647 which was the maximum value. Size of 32 bit integer

From: https://www.geeksforgeeks.org/10-famous-bugs-in-the-computer-science-world/

From: https://en.wikipedia.org/wiki/Ariane_5

Who expects and what from testing?



Typical testing activities

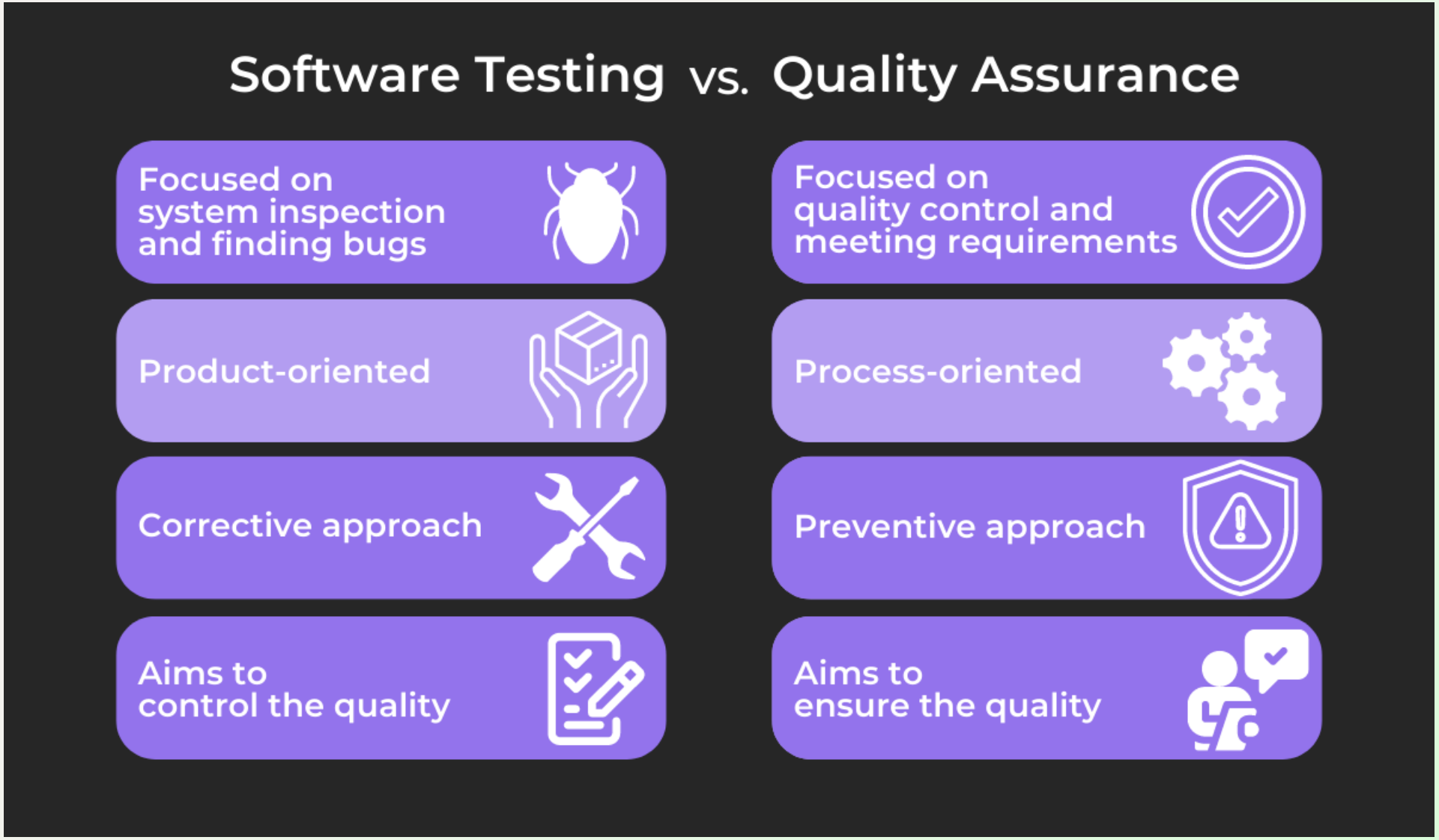
„Actual testing” and running different testing types

- Unit Testing
- Integration Testing
- System Testing
- Regression Testing
- User Acceptance Testing (UAT)
- Performance Testing
- Security Testing

„Actual NOT testing” but other Testing activities

- Requirements Analysis
- Test Planning
- Test Case Design
- Test Environment Setup
- Test Data Preparation
- Defect Management
- Test Reporting
- Test Closure

Testing vs Quality



From: https://www.shakebugs.com/blog/difference-between-software-testing-and-quality-assurance/

How much do we need to spend on testing?

It depends on many things:

Technology

Project size

Organization

Functional Requirements

Technology

Expected quality

Non-Functional Requirements

Architecture

Business domain

Testing Maturity

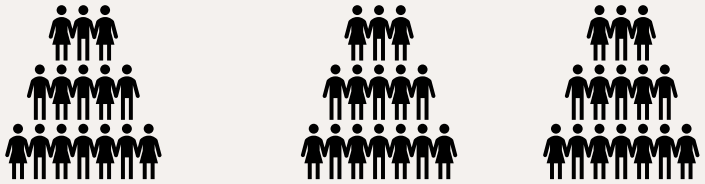
Level of automation

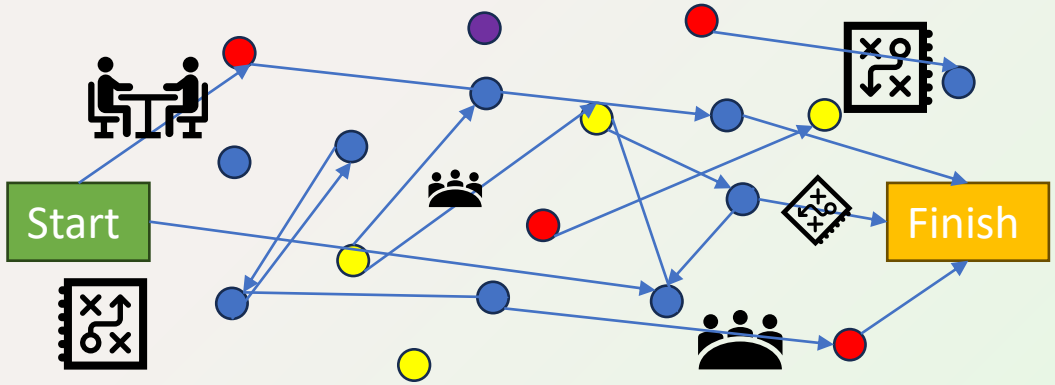
And much more…

Enterprise vs smaller companies

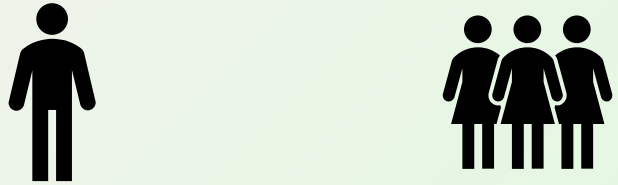
Key differences between Enterprise and smaller companies?

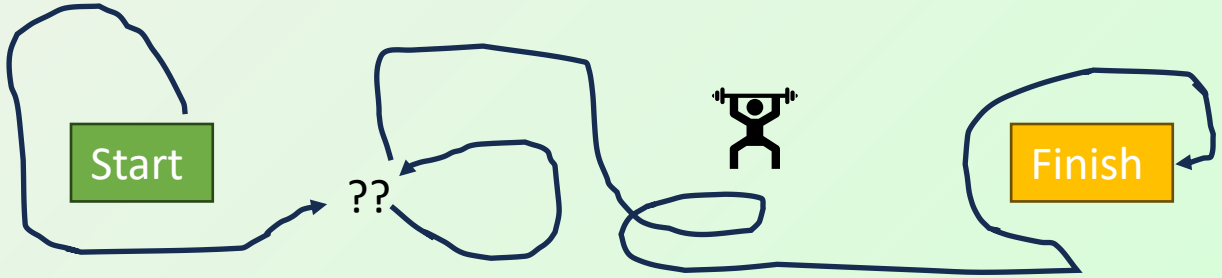
Enterprise Company



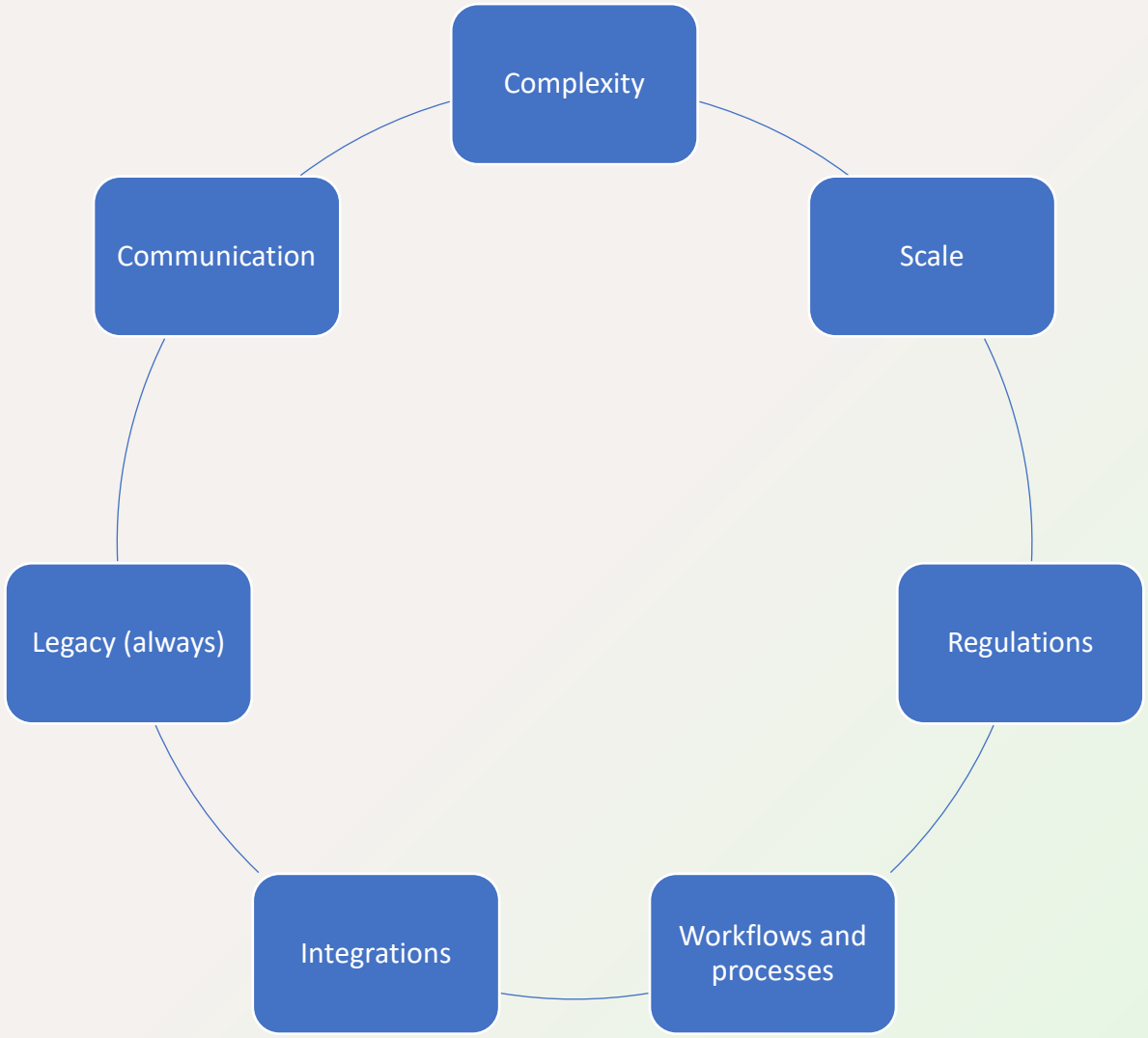


Smaller Company





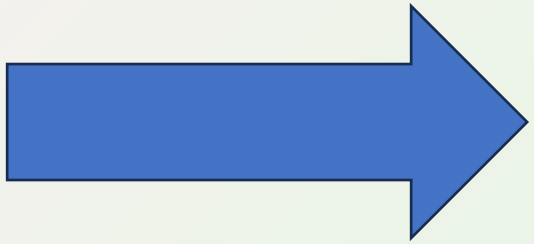
What are the typical Enterprise challenges?



How to handle it from Testing perspective?

How testing is addressed at an Enterprise?

- Standardization
- Optimisation
- Cost savings
- Risk Management



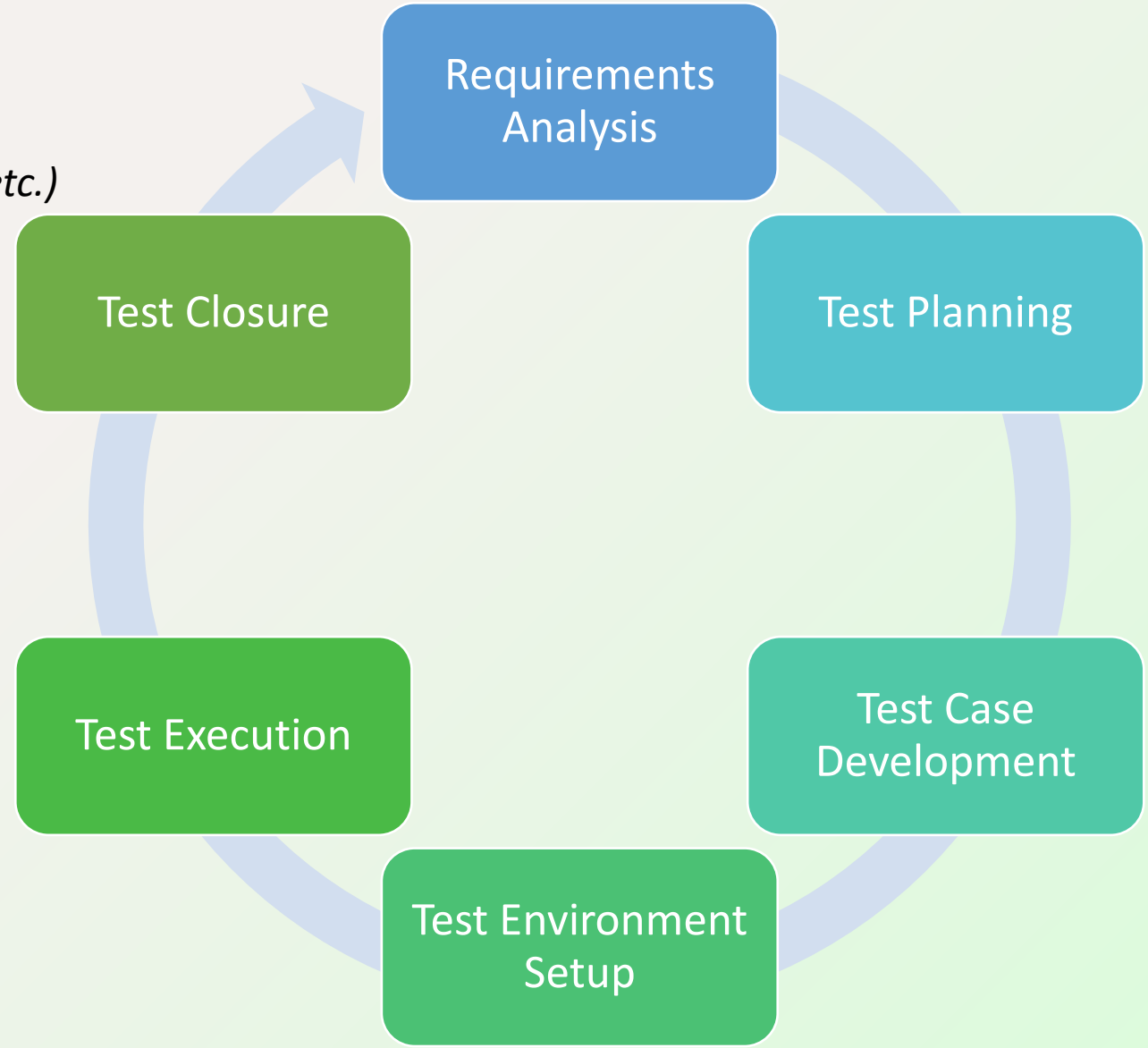
- Test Planning
- Test Strategy
- Tooling
- Dedicated Teams
- Test Automation
- SDLC (Agile, Waterfall)

Testing tools, techniques and standards

So how can we actually do this Testing?

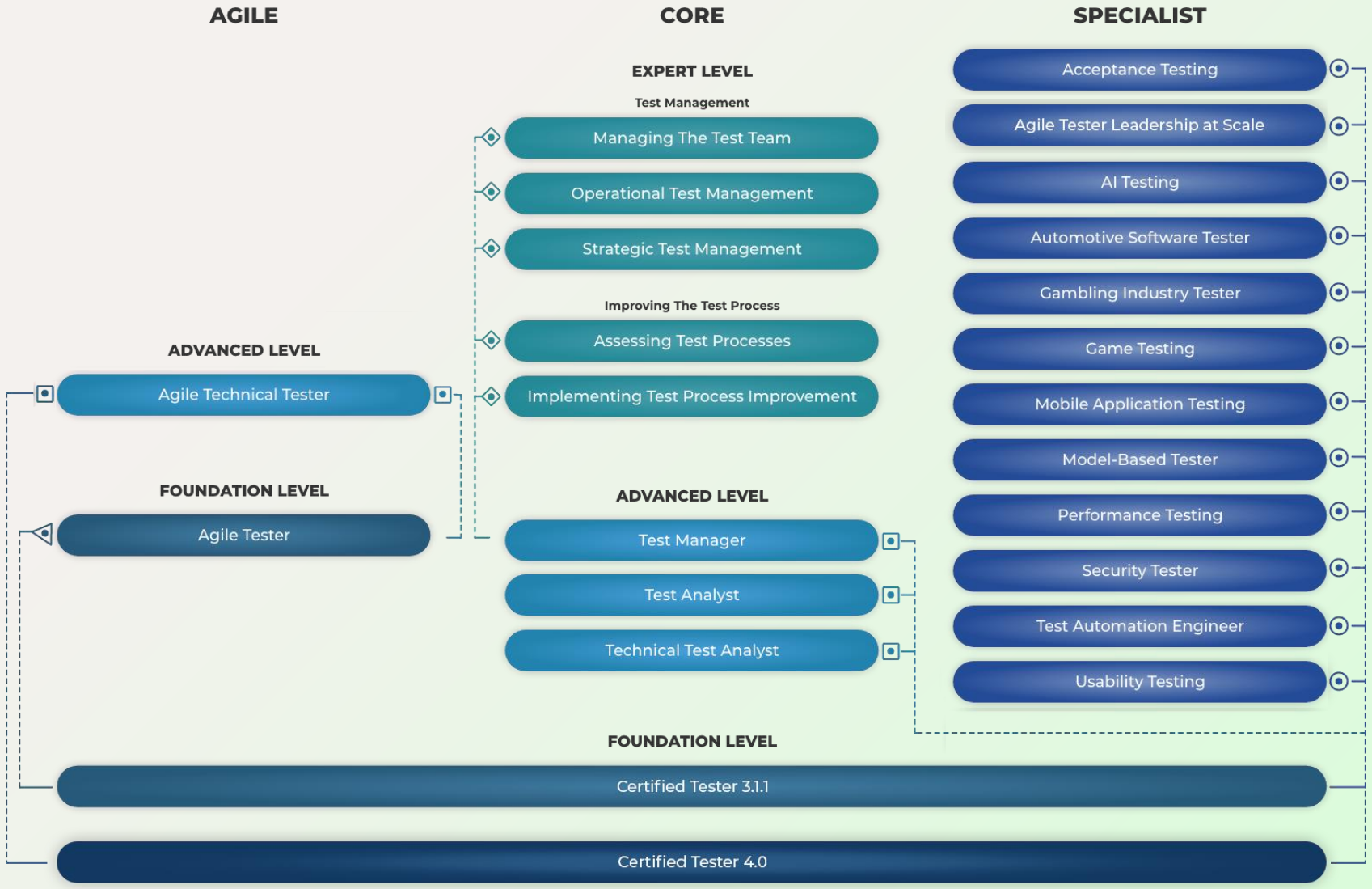
Software Testing Life Cycle

(Can be adapted in Agile, Waterfall, etc.)



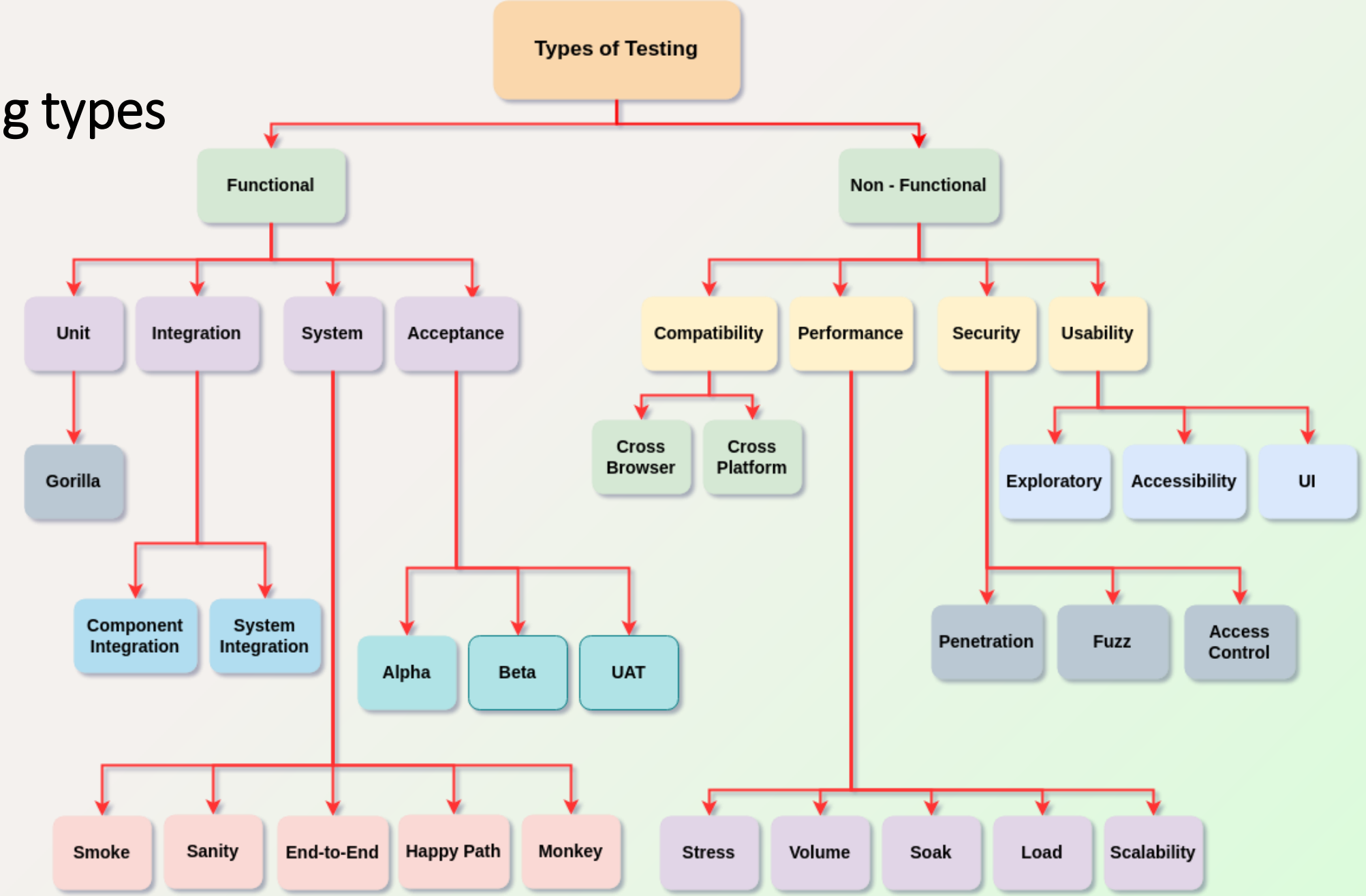
ISTQB as a Testing standard

ISTQB®
International Software Testing Qualifications Board



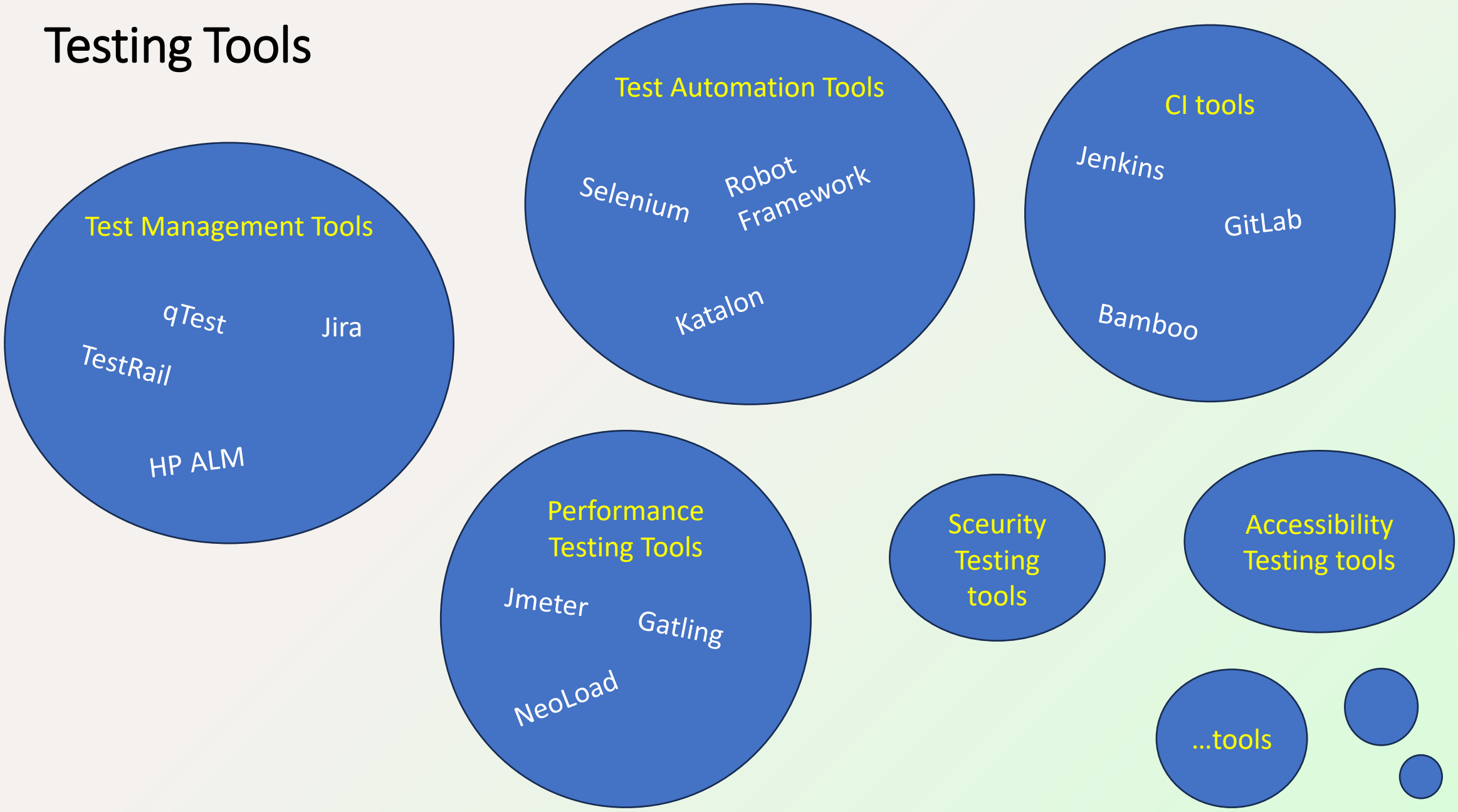
From: https://www.istqb.org/#certifications-diagram

Testing types

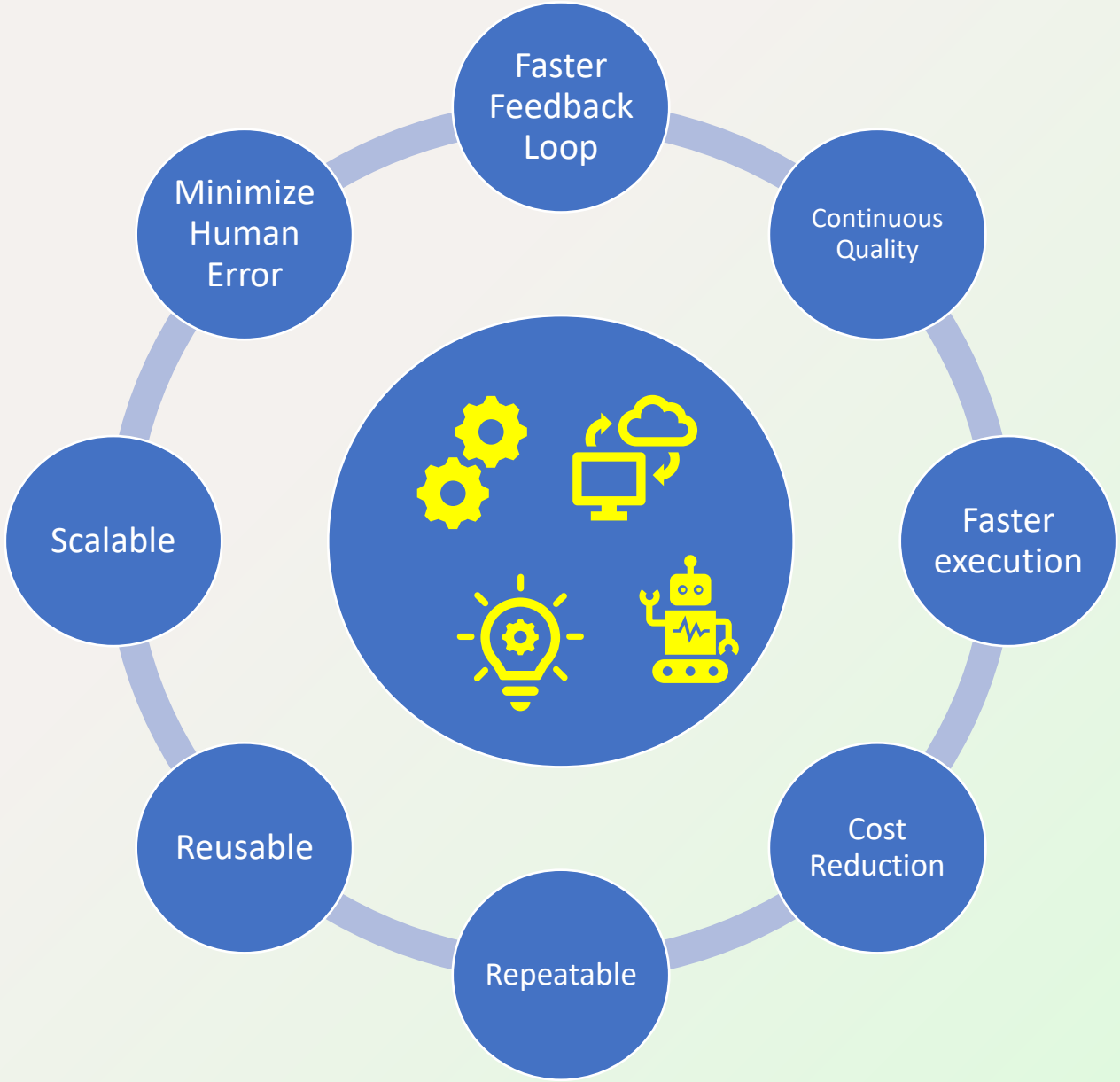


From: https://testrigor.com/blog/different-software-testing-types/

Testing Tools



Why test automation is needed?



Non-functional testing

What are non-functional and functional testing?

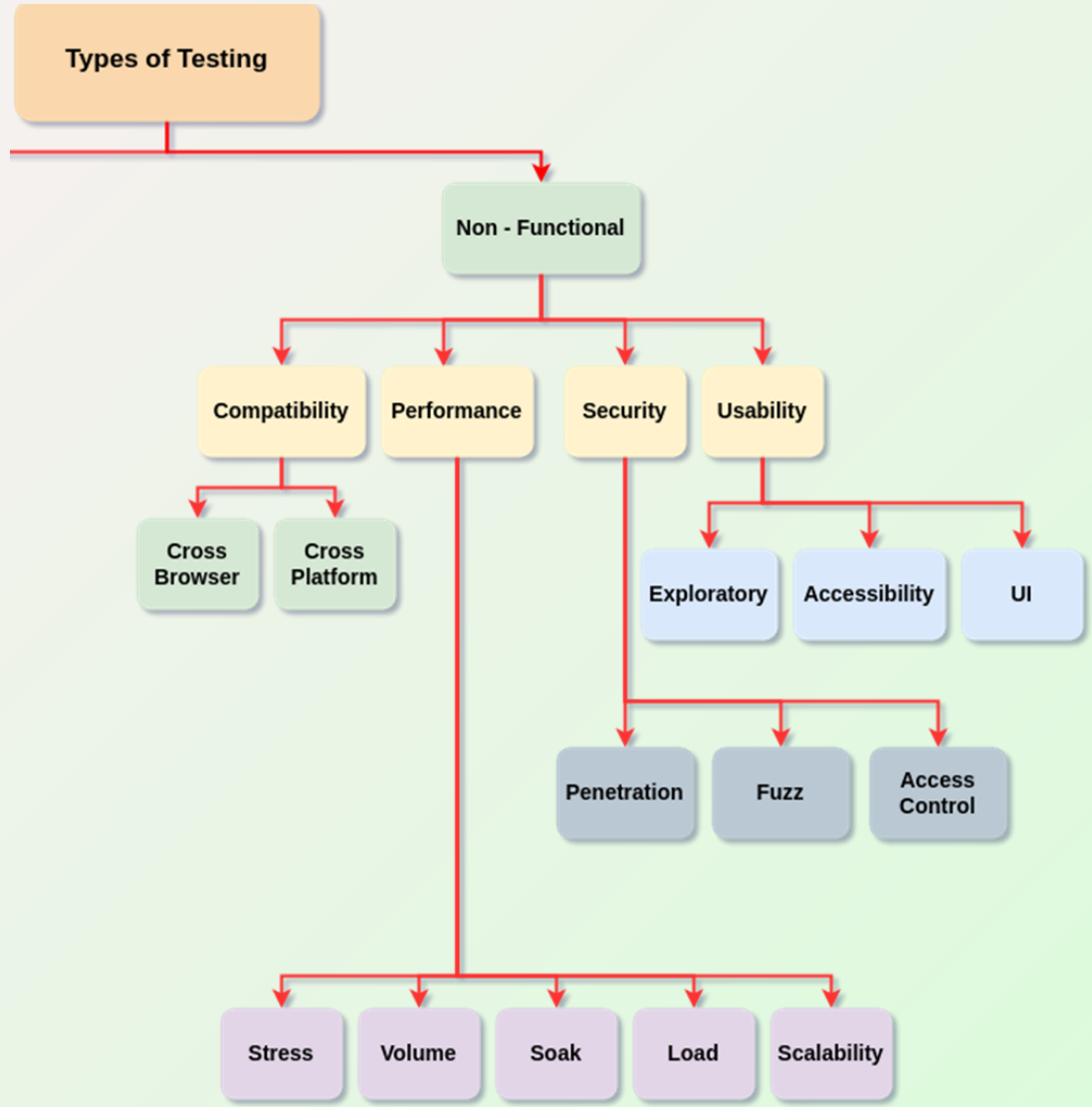
Functional Testing	Non-Functional Testing
Validate functional requirements	Evaluates Quality Attributes
Software behaves and functioning as expected	Tests the characteristic of the software
Test it meets with functional requirements	Test it meets with non-functional requirements
Examples	
Unit Testing, User Acceptance Testing, System Testing	Performance Testing, Usability Testing, Penetration Testing

Different types of non-functional testing?

Some of the most important Non-functional tests

Many of them can be automated

These tests are often forgotten! ☹



From: https://testrigor.com/blog/different-software-testing-types/

Facing with testing challenges

The power of reviews (unproper implementation)

See one example:

Self Review	Do it whenever you can After each and every changes
Peer Review	Do it frequently After each and every major changes
Walkthrough Review	Needed at least before releasing Do it when needed

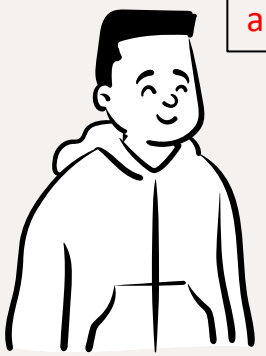
Easy implementation

Increase collaboration

Cost effective

Test Automation without proper testing culture

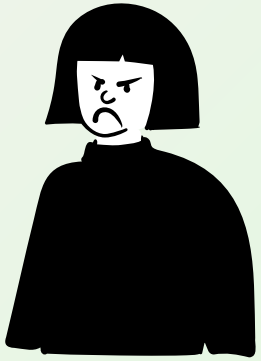
We don’t need test design, just test automation



Unit tests are not needed if we have UI automation.

Might we need to start from what is needed by the business

Developers can do some test automation if they have time



Performance testing team is not involved

Performance test team has no project involvement

+

Unproper Nonfunctional requirements

=

Unproper:
- Test plans
- Test cases
- Test results

Lack of:
- Visibility
- Trust

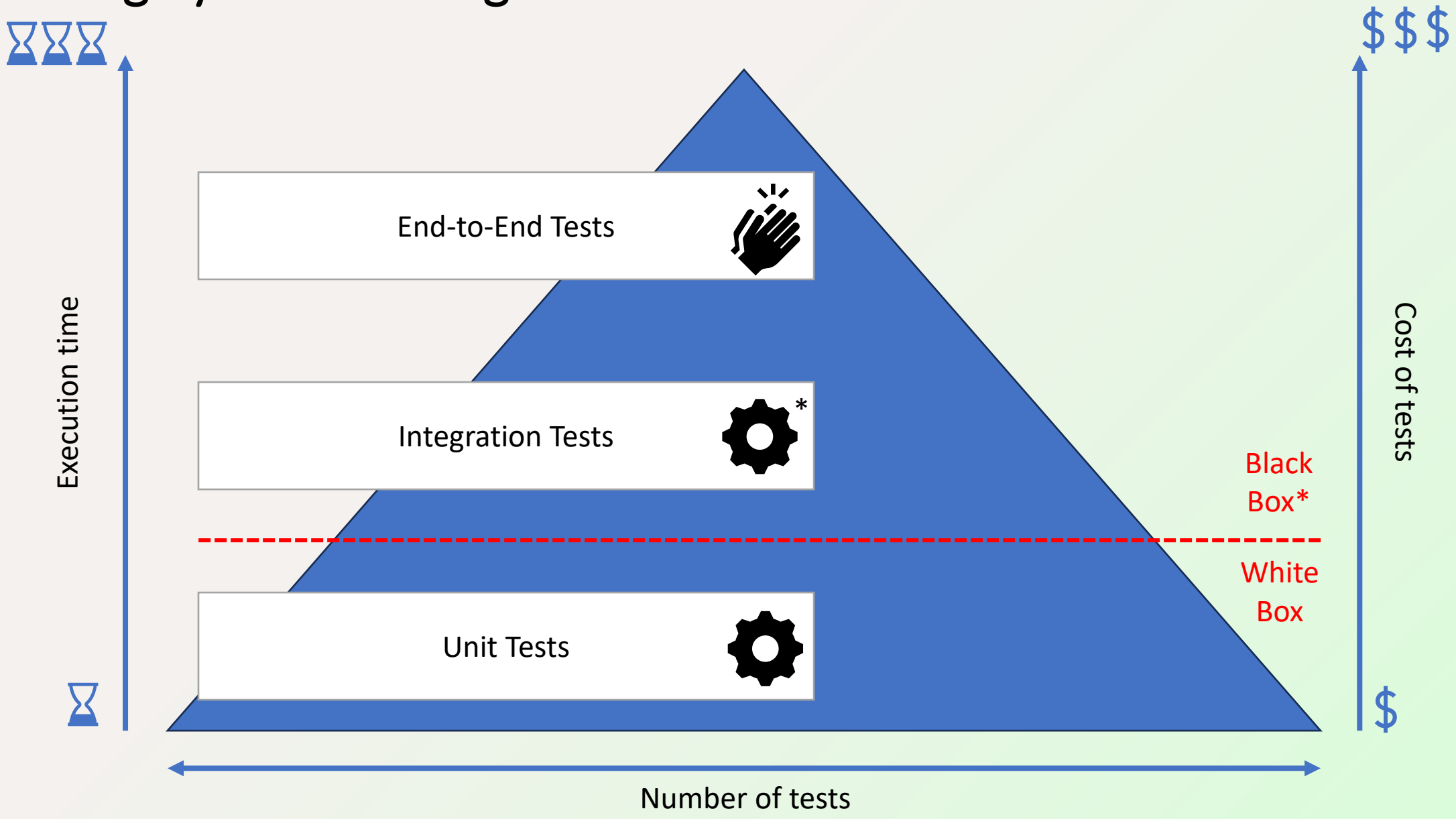
Reorganized communication with:
- Client stakeholders
- Project management

More involvement in project activities.

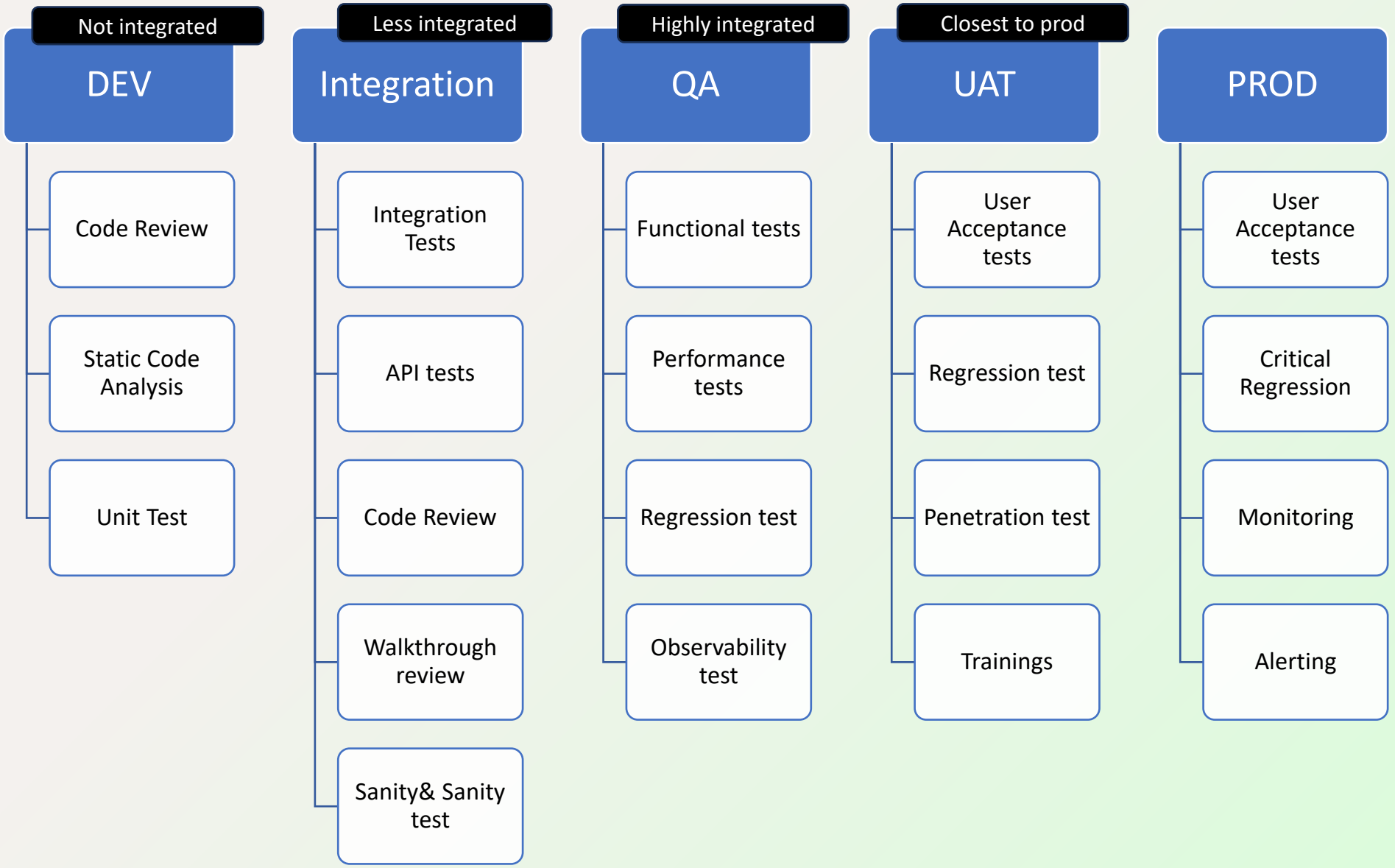
Dedicated time for non-functional things.

Best practices and future of testing

Testing Pyramid through automation

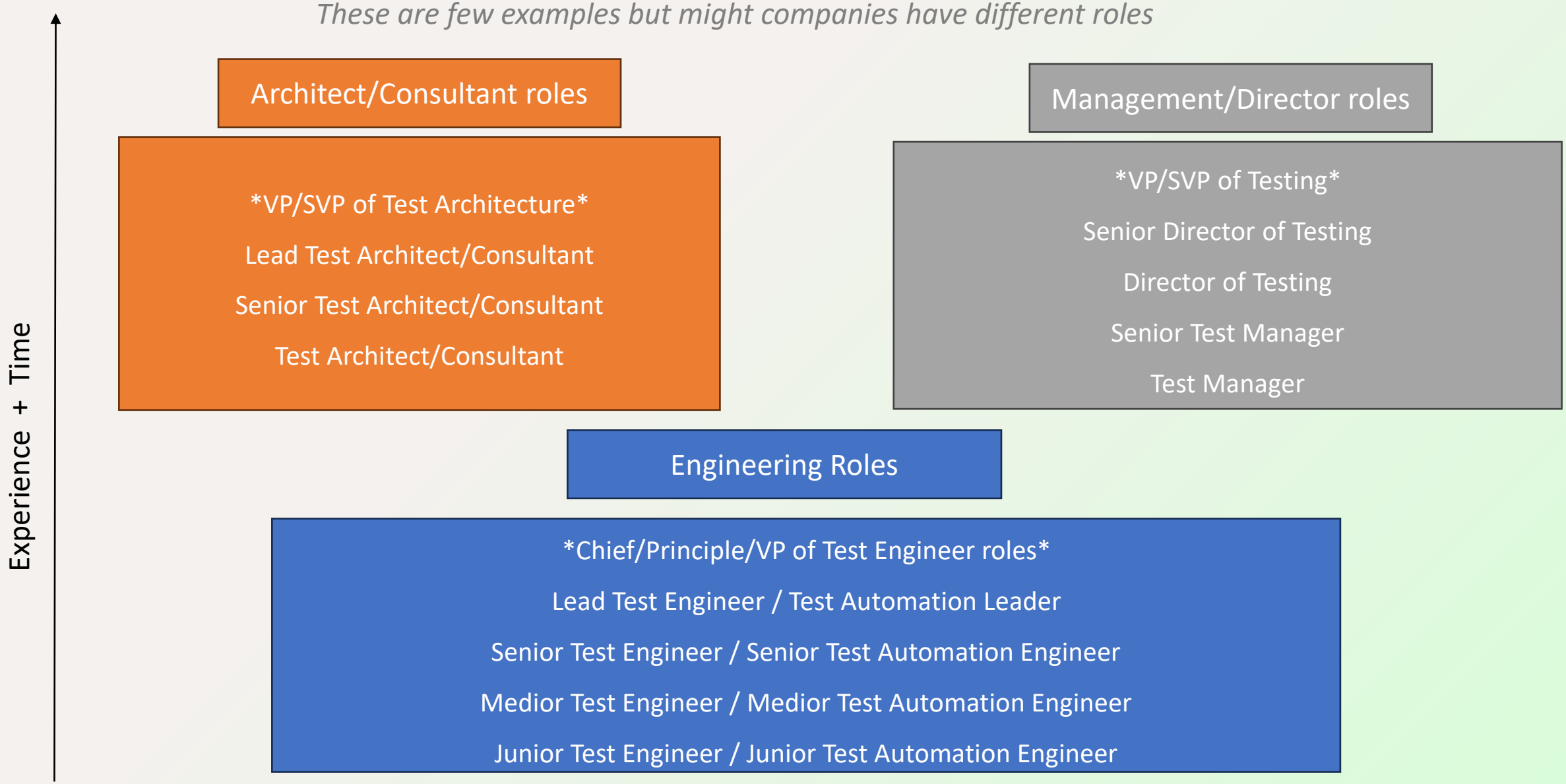


Testing can be complex -> Use Quality Gates

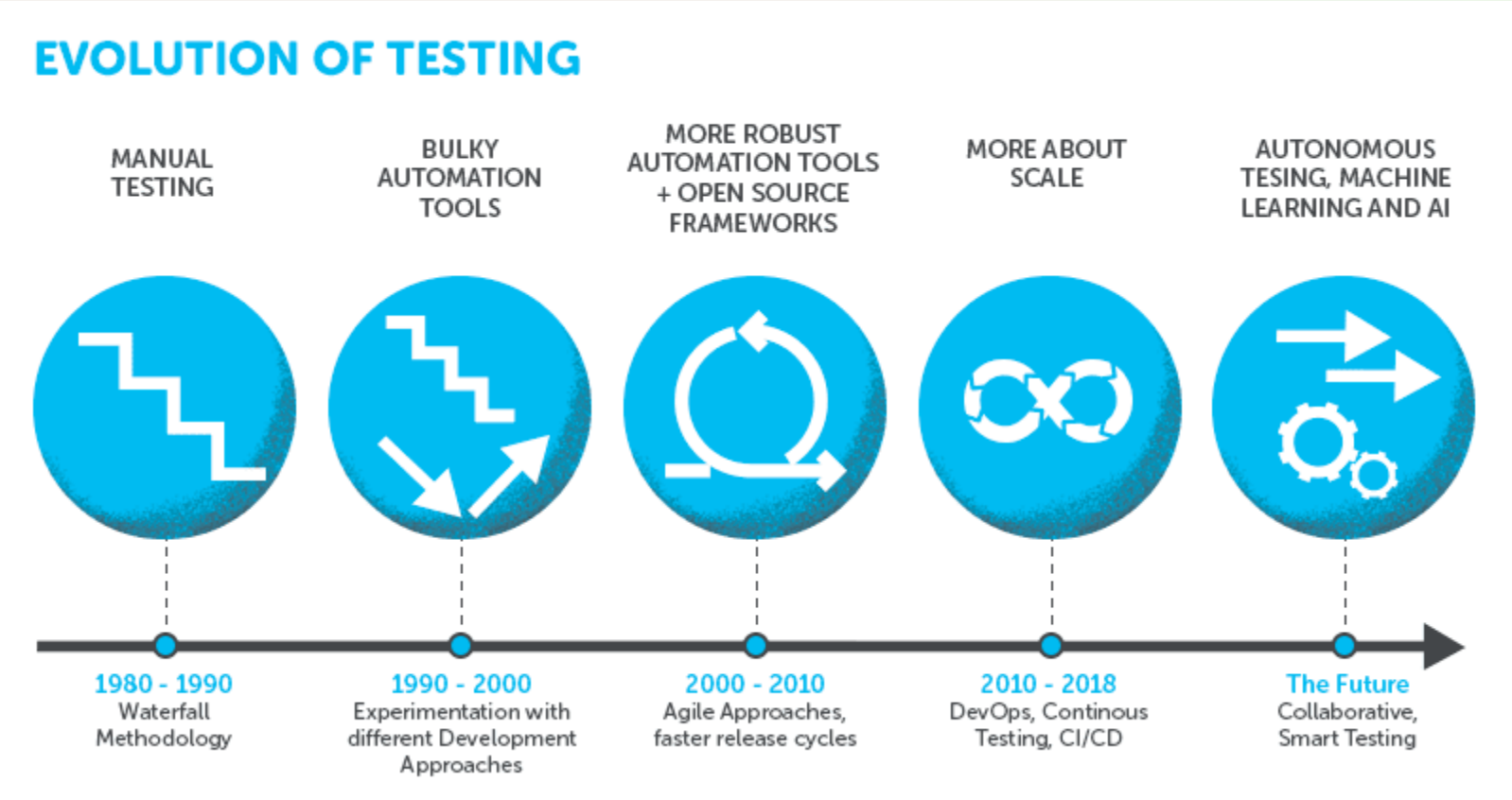


What are the career options in testing?

These are few examples but might companies have different roles



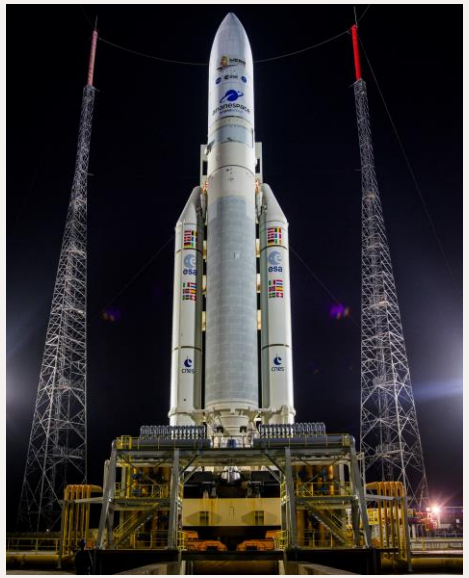
Is AI a game changer?



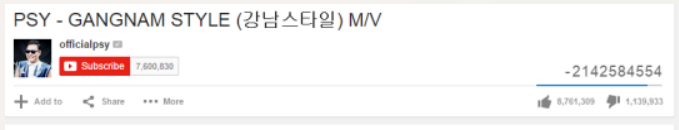
From: https://www.testim.io/wp-content/uploads/2019/11/Evolution-of-testing.png

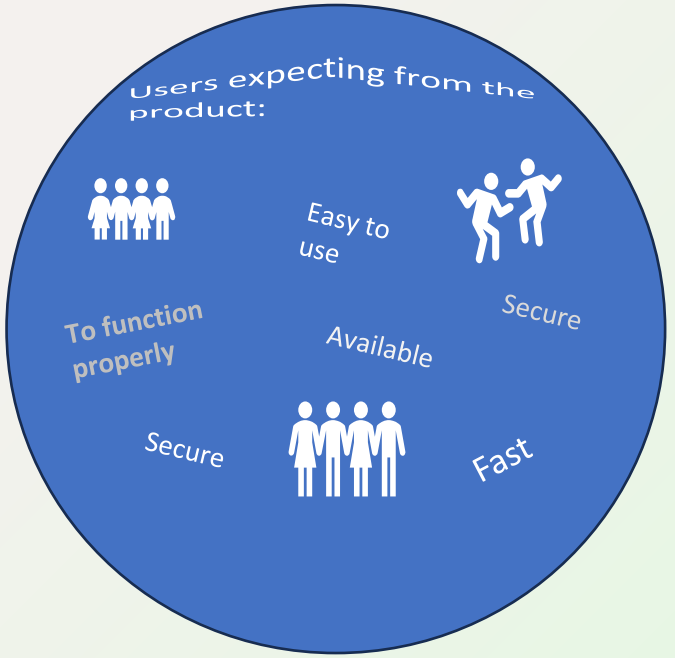
Summary

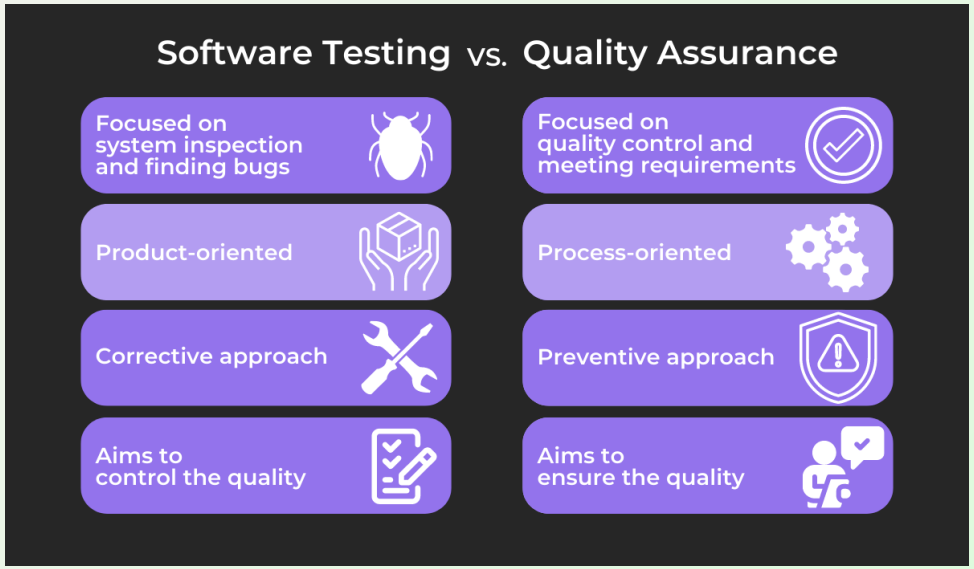
Why do we test software?



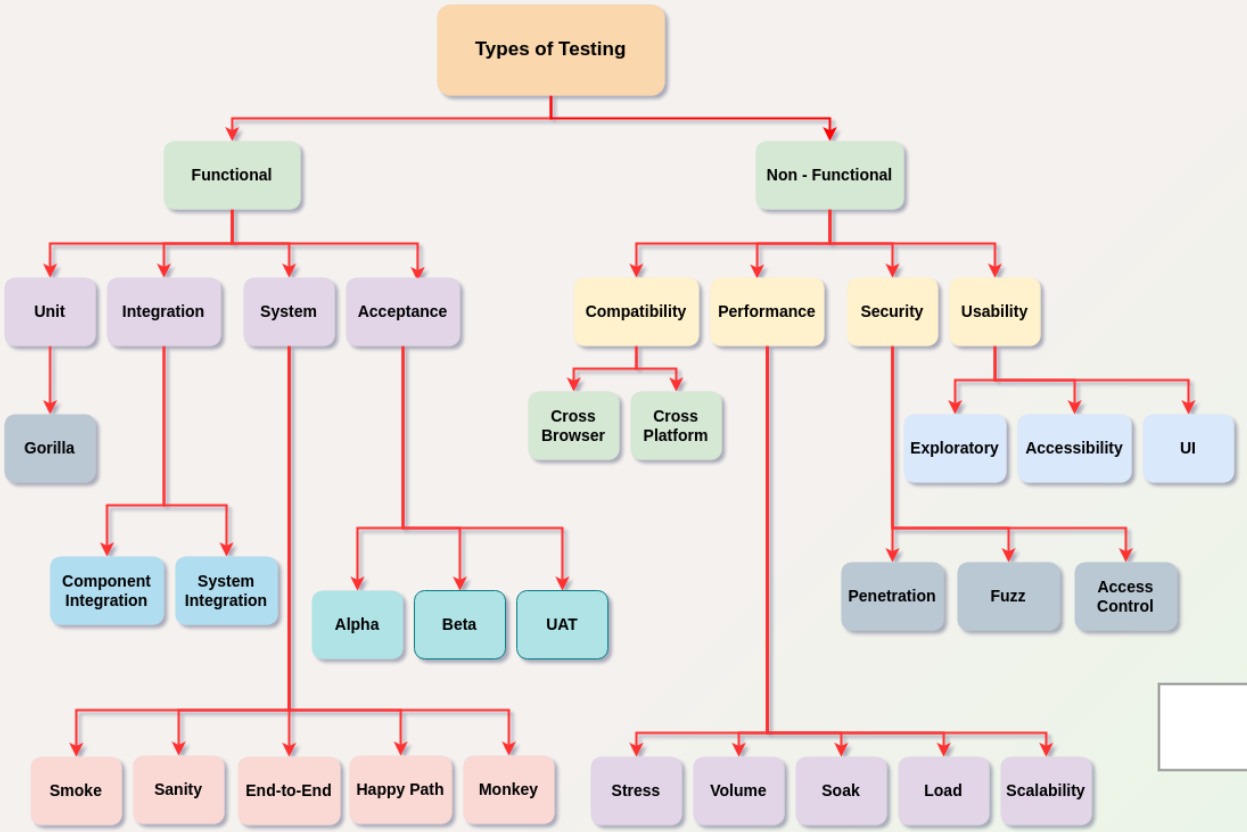
Y2K Bug

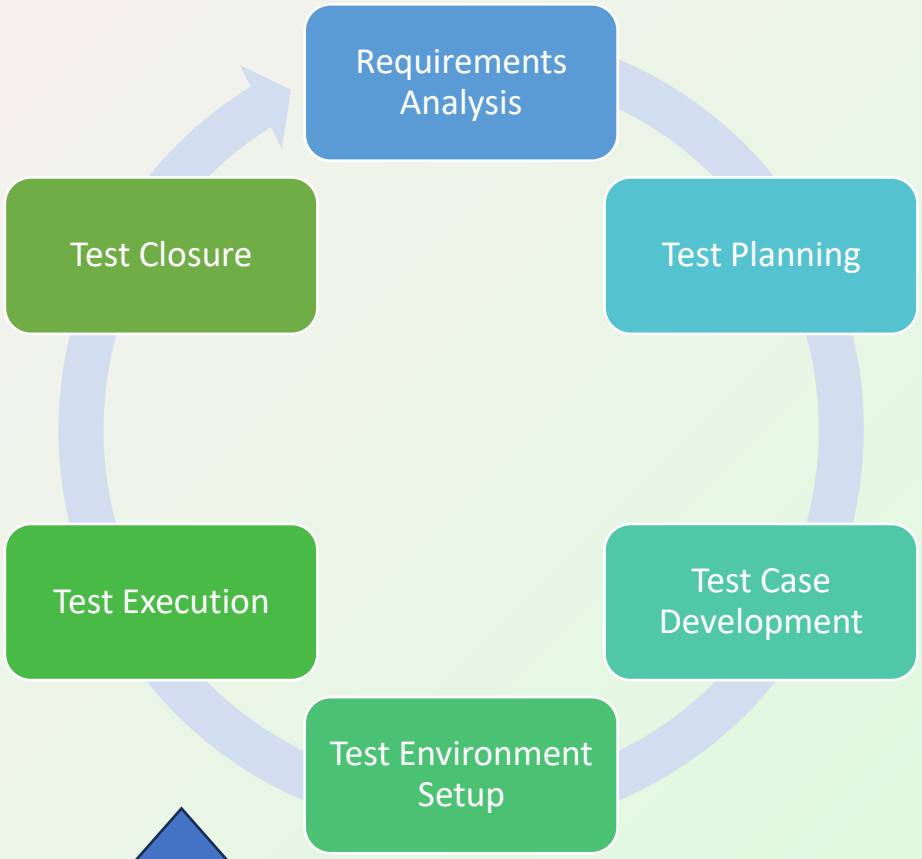


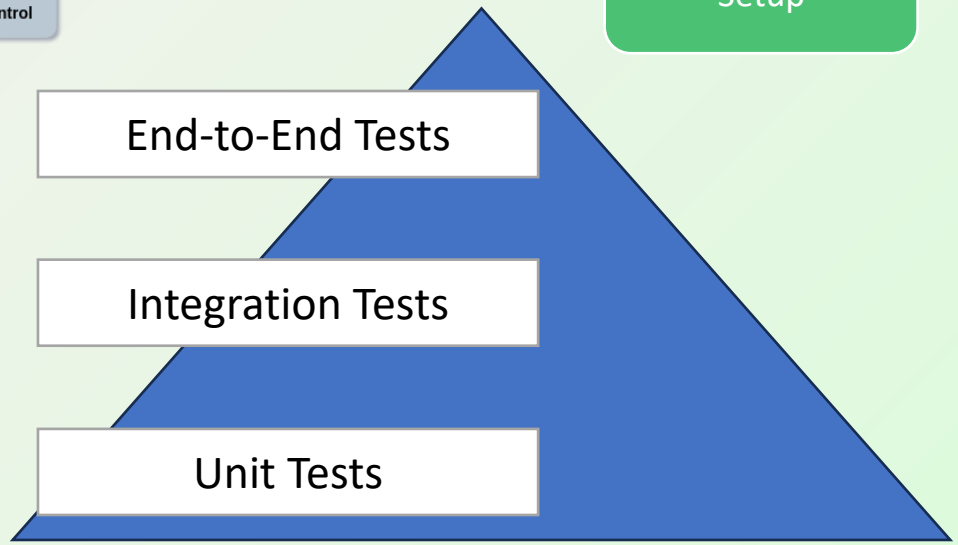




How do we test software?







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Q & A

Thank You

What is testing mindset?

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https://www.istqb.org/#certifications-diagram
https://www.istqb.org
https://www.shakebugs.com/blog/difference-between-software-testing-and-quality-assurance/
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