TESTING IN SAFE®:
COORDINATE AND OPTIMIZE TEST EFFORTS WITH VISUAL ATDD - EXPERIENCE REPORT AT ORANGE

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SUMMARY

- Introduction
- What does SAFe® provide to build the quality of a system?
- Challenges for test activities in SAFe®
- Coordinate and optimize testing efforts through visual ATDD and BDD at Orange
- Overview and conclusion
Introduction

One solution
One team

From Traditional Agile...

One solution
Multiple teams

... to Agile at Scale
WHAT SAFE® OFFERS TO BUILD THE QUALITY OF A SYSTEM?
Building quality with SAFe®

**Key principles**

- **Key practices:**
  - Flow
  - Architecture and design quality
  - Code quality
  - System quality
  - Release quality

- **How to integrate them?**
  - Via the process definition
  - The BDD (Behavior-Driven Development)
  - A complete overview of Agile tests
Building quality with SAFe®

Create a continuous and efficient workflow with the BDD

Behavior-driving development (BDD) is a collaborative process that creates a common understanding of requirements between the business and the development team.
Building quality with SAFe®

The team

- **RTE**
  - Methodology approach
  - PI Facilitation
  - Climbing up
  - Monitor obstacles encountered

- **System Arch/Eng**
  - Head of architecture

- **Product Mgmt**
  - Head of functional part
  - Product vision

- **Business Analyst**
  - Definition of the requirement

- **Solution Arch/Eng**
- **Solution Mgmt**
  - Solution team
  - Validates the final product

- **Agile Team**
  - Dev Team
  - Product Owner
  - Scrum Master

- **Test referents**
  - Execution and analysis of transversal tests

- **Automation referents**
  - Transverse test automation
  - Environment and data management
Building quality with SAFe®

*Mastering Agile teams with Scrum and Kanban*

- Agile teams are self-organized.
- They define, build, test, deploy increments of the final product.
Building quality with SAFe®

Agile testing

- The use of these four quadrants (Q1 to Q4) promotes the development of a comprehensive strategy that contributes to quality assurance.

- Quadrants Q1 and Q2 contain respectively articles TDD and BDD of SAFe.

- Continuous integration provides more information on the Q3 quadrant.

- Non-functional requirements, continuous integration, and on-demand versions provide more information on the Q4 quadrant.
CHALLENGES FOR TEST ACTIVITIES IN SAFE®
Challenges for test activities in SAFe®

Activities and roles at the test level are not well defined in SAFe®

1. Test activities not well defined
2. Switch from an application QA vision to a solution QA
3. Need to secure the right vision of the solution
4. Need to coordinate test levels between teams
5. Importance of train-level tests to ensure the integration of wagons on the train
Challenges for test activities in SAFe®

Challenges of the testing strategy in SAFe®

Continuous testing

Load tests, Performance tests, Safety tests, "ility" tests

Unit tests, TDD, component tests, US tests, BDD

Functional tests, simulation, prototypes, ATDD

Acceptance test

How to organize continuous testing?
Who tests the features and their integration into the system?
COORDINATE AND OPTIMIZE TESTING EFFORTS THROUGH VISUAL ATDD AND BDD

ORANGE EXPERIENCE
From BPMN to visual ATDD

Constat

- BPMN (Business Process Model and Notation) is initially used
- These models represent the different features of the system and their interaction

The strong point of this technique:
- made it possible to clarify the need

The weak points of this technique:
- it does not allow to vary the level of abstraction easily
- not make it possible to include testing phase
- does not allow communication adapted to each level of the train
From BPMN to visual ATDD

Visual ATDD?

From traditional MBT practices to a lean approach: **the visual ATDD**

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Advanced Automated Testing
From BPMN to visual ATDD

Solution
From BPMN to visual ATDD

Via ATDD

- Identify unavailable/untestable features
- Test as soon at the earliest the features available
- Complete with BDD to consolidate the tests
- Present to the customer a business vision and allow a test generation
Coordinate and optimize testing efforts through visual ATDD and BDD

Visual ATDD makes it possible to model business processes and thus strengthen and optimize communications in a SAFe® context

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Coordinate and optimize testing efforts through visual ATDD and BDD

**Visual ATDD for train level tests at System team level**

**Why use visual ATDD?**
- Provide a vision of the business solution to all teams
- Define the product-level requirement for the PI

**BDD for testing at the Agile team level**

**ATDD and BDD two complementary and synergistic approaches**
Coordinate and optimize testing efforts through visual ATDD and BDD

New role

Testing coach
- Coordinate inter-team tests
- Define the best practices to be implemented for visual ATDD with all project stakeholders

Solution

The solution team
- Validates the final product

Solution Arch/Eng
- Solution Mgmt
- STE

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The testing coach

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Coordinate and optimize testing efforts through visual ATDD and BDD
Overview and conclusion

With visual ATDD:

1. The roles related to the test are better defined through the addition of a "Testing coach" role to coordinate the tests.
2. It is easier to switch from an application QA vision to a solution QA with visual ATDD and its different levels of abstraction.
3. The vision and communication of the solution are strengthened by shared modeling.
4. Models can represent the progress of the different test levels according to the teams and thus better coordinate them.