MASTERING FUNCTIONAL COMPLEXITY
WITH MODEL-BASED TESTING USING BPM
Presented by Jérôme SAADA
BRIEF OVERVIEW OF SOPRA-STERIA

• A European leader in IT
• A large portfolio of offers:
  • Consulting, Systems Integration, Software Development, Infrastructure Management and Business Process Services
• 37,000 employees in over 20 countries
• €3.4 billion of revenue in 2014
• www.soprasteria.com
JEROME SAADA : BRIEF BIO

- Project manager
- Tests designer
- Smartesting architect
- Domains: energy, banking, human resources, transport and real estate
SUBJECT OF THE SPEECH (IN BRIEF)

• A return of experience of a 3-year project i.e. real-life, practical information
• IT domain (real estate software for .....)
• Implementation of a Model-Based Testing solution (Smartesting)
PLAN OF THE PRESENTATION

• Context: description of the project
• Description of the solution
• Conclusion
CONTEXT : Description of SUT

• “Build” project of a specific ERP integrated with 20 other applications used by the customer
• Real Estate
• Microsoft Biztalk and SQL Server
• Project start-end mid-2012 to end-2016
CONTEXT: Planning 4 releases

• V0a core 1 module 4 DFS delivered mid-2013
• V0 core + 6 modules 18 DFS delivered mid-2014 latest release shipped to client
• V1 core + 11 modules integrated with 20 other applications 54 DFS – 20 TIS delivery planned nov-2015
• V2 international and evolutions release plan to mid-2016
CONTEXT : Keys metrics of the project

- **V0**
  - 5 tests designers for 8 months
  - 1,500 requirements - 6,000 test cases - 1,700 test scenarios

- **V1**
  - 7 tests designers for 12 months
  - 54 DFS – 20 TIS (50 to 550 pages) – 8,500 pages
  - 7,000 requirements - 9,000 test cases - 3,000 test scenarios
  - Functional, performance et integration tests
CONTEXT : Main challenges

- Achieve an optimized test coverage as per risk analysis
- Meet the deadlines
- Manage the volume industrially
- Use the same method by all test designers
- Improve the factorization
DESCRIPTION OF THE SOLUTION

Requirements
Functions
Use cases

TCG MODELS ➔ MBT ➔ Functional tests

Smarttesting
CertifyIt

ALM Card Publisher

Requirements
Tests plan
Tests scenarios

User Conference
on Advanced Automated Testing

20-22/10/2015
DESCRIPTION OF THE SOLUTION

Functional work

• The production of tests plans depends on the DSF
• DFS translate business needs in :
  • Functions descriptions
  • Use cases and diagrams activities
  • Sequence interfaces
  • Functional requirements (surface, interaction and management) realized with exportable tags into Excel
• Business services and treatments
• Customs lists
DESCRIPTION OF THE SOLUTION
Test designers work

• Formalization of the functional workflow in a Business Process Model (using BPMN notation)
• Identification of the business rules and use cases to be tested
• Development of the TCG (Test Conception Guide) that details, for each function:
  • The prerequisites
  • The variability elements
  • Use context
  • The application workflow for each function describes in the model as an GUI action and its related expected result
DESCRIPTION OF THE SOLUTION
Modeling notation: BMN

- Represented functional level only
- Simple conditions by gateways
- Clarify the sequence of functions represented by a business action
## DESCRIPTION OF THE SOLUTION

### Test Conception Guide

<table>
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<th>Prerequisite</th>
<th>Action</th>
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<th>Cas</th>
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- The TCG (Test Conception Guide) is reused as a decision table in the MBT tool and manual conception
  - It helps to define the test strategy
  - It helps to identify the combinatorial aspects
  - It ensures factorization
  - It helps to identify logical and physical data
DESCRIPTION OF THE SOLUTION
TCG to production BA

- The TCG (Test Conception Guide) is reused to prepare by import:
  - Enumerations with description (list of possible values)
  - Tag Browser (Requirements) (Traceability)
  - Decision table (BA)

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DESCRIPTION OF THE SOLUTION
TCG to production TA

• Contain several steps
• Variable fields data from decision table (BA):
  $pAT.description$
DESCRIPTION OF THE SOLUTION
Testing strategy and generating test cases

- Filtered on behaviour:
  - #iterate
  - #behaviour
  - #terminate
DESCRIPTION OF THE SOLUTION
CertifyIT: Generating test cases and publish

• Generating test cases

• Publishing test cases to HP ALM with ALM Card Publisher
CONCLUSION

Each point below helps test designers to do their job

• Inputs clearly structured

• BPM : communication improved between stakeholders: models are easier to understand

• Realize the TCG allows an overall view and favor the factorization.
QUESTIONS?