MODEL-BASED TESTING DEMYSTIFIED

Presented by Stephan Schulz (Tester & CTO of Conformiq)
Introduction

• Model-Based Testing (MBT) has been around for many years
  • Benefits are well known
• Three selected myths that persist in industry about MBT:
  • “MBT is about generating tests”
  • “Testers cannot do modeling”
  • “MBT is just about adding another testing tool”
Myth 1: MBT is just about generating tests

“Just push a button and you have your tests!”
Fact 1: MBT Inputs and Outputs

- IN: A model, e.g., the desired system operation
- IN: Test targets that control test generation
  - In theory usually infinitely many tests are possible
- OUT: Test logic including test data and timing based on model
  - Information that is not modeled is not in the tests!
Fact 2: Test Validation Remains Important

- Tests are as good as their model and selected test targets
- Tests are not correct just because they are generated
  - Every generated test is (still) requires validation
  - Good tooling support for review of generated tests is critical!
  - Model & test review with all stakeholders is important
Fact 3: MBT is only one part of testing process

- Automated test design generally *complements* test execution
  - MBT *must* integrate with existing tools!
- The higher the degree of automation the more the value
  - Requirement & test management
  - Version management
  - Test execution automation
  - Model construction
Myth 2: “Testers Cannot Model”

“MBT is the future but where do we get models from since testers cannot model?” (telecom vendor in 2005)

“Many have tried [to teach testers how to model] but no one has succeeded” (expert at German testing event 2011)

“Looking at the continued focus on test automation, ATDD, TDD and test pyramid, it is becoming obvious that testers must have programming as essential skills ...” (linked-in post 2015)
Fact: Sorry - the “T” in MBT is for “Testing”

- For many years the automated test design tools have been missing modeling notations actually designed for use by testers
- Testing is about achieving a common understanding
  - Testers viewpoint is critical to do proper modeling for test generation!
- Modeling for test generation requires domain knowledge and ability to abstract to the essentials
  - Testers are used to operate and prioritize facing infinite possibilities
  - Classic testing skills are needed to analyze generated tests
- MBT does not remove the need for testers, it enables them to work more effectively
An Example of Modeling for Testers Today

Activity diagrams with action keywords & data flows – no programming!
Myth 3: MBT - Just Another Testing Tool
Fact: MBT is a Disruptive Change

- It is not just “a cool new technology”
  - Gains in productivity come from a different way of working!
- Work changes for testers but also for test managers!
  - Modeling instead of test specification
  - Coverage instead of no of tests (acceptable %?)
  - Resourcing of projects
  - Approval of deliverables
  - Generation for progression vs regression testing
  - Integration into existing testing processes
- MBT deployments work best when there is a good reason for change already in place
Fact: Good Planning is Required to Succeed

- Introduction of MBT requires minimizing the impact on existing testing process and practices
- All stakeholders must be convinced and share a common goal
  - Management as well as delivery
  - Value proposition is different for different stakeholders
- Identify testing phase with biggest need for improvement
- Pick applications or features that are expected to be extended or changed in next releases
- Establish MBT competence in your company
  - Certify your staff and yourself as “Model Based Tester”
  - Create a competence center for 1st level support
  - Establish blue prints for workflow (scoping of models)
Is it Worth it? An Example from BFSI

- Test service provider in Enterprise IT sector doing functional testing for a major bank using Conformiq Creator

- Automated test design resulted in testing efficiency gains from 21% to 72% (avg. 50%) across 8 different applications
  - Efficiency gains depend on application complexity
  - Data is from first iteration
  - Testers are modeling and generating tests

- Above efficiency gains based on use of manual test execution!
  - Effort for automating test execution dropped to 30% of estimated effort for automating manually specified tests

- Real value is even higher since models are upfront IPR investment that can be adopted for other bank
Summary

• Model-based testing is more than just pressing a button
  • Test review and tool integrations
• Model-based testing can and should be done by testers
  • MBT is about making work in testing more effective
  • Use of MBT elevates testers to the center of development
• Model-based testing is a disruptive process change and needs to be managed as such
  • It is not just about “start using a cool tool”
  • Get certified!