THE DARK SIDE OF TEST AUTOMATION

WHY TEST AUTOMATION LEADS TO WORSE TESTING AND WHAT YOU CAN DO ABOUT IT.

WELCOME

Derk-Jan de Grood
Consultant – Thought leader – Writer
Testing – Agile Coach

Jan Jaap Cannegieter
Consultant – Speaker – Writer
Testing – Requirements – Agile
AGENDA

Oh yes, and we are going to talk about test automation

Special thanks to:
Barry Geerdink
Martijn van Werven
René van Veldhuijzen
Ruud van Berkum

A STORY ABOUT
THE INTRODUCTION OF TECHNOLOGY
THE INTRODUCTION OF TECHNOLOGY LEADS TO A DECREASE OF CRAFTMANSHIP

Based on
OTHER EXAMPLES

What is 7.5% of 95?

How do I spell?

What should I pick?

Oh yes, we take quality very serious. We run over a 300 automated tests every day

Automation complacency
False sense of certainty
Over-estimation of the capabilities of a machine
Professionals get separated from the real work
Computer says NO

Automation bias
Follow blindly the information the machine gives
Trust the machine completely
Disable own judgment
The degeneration effect

“... over the long run it <automation> may diminish our existing skills or prevent us from acquiring new ones.”

MISCONCEPTIONS ABOUT TEST AUTOMATION

TOP 5 MISCONCEPTIONS OF TEST AUTOMATION

100% test automation
You can/want to automate only a part of your test cases
WHAT CAN I AUTOMATE

Infinite amount of tests

Valuable tests

Tests that you repeat  Tests that you do once

Tests you can automate

Tests you want to automate

Tests you have automated

Some tests require automation (e.g. Non GUI, Performance)

Manual testing first, then automate

TDD

Compliance testing

Based on Implication of emphasis on automation by Martin Jansson
http://thetesteye.com/blog/2017/03/implication-of-emphasis-on-automation-and/
WHAT CAN I AUTOMATE

- Infinite amount of tests
- Valuable tests
- Tests that you repeat
- Tests that you do once
- Tests you want to automate
- Tests you can automate
- Tests you have automated

How do you test IoT?
Where you do not have control over your environment

Service virtualization

Testing AI, the expected outcome is changing

TESTING AI WITH AI

Testing the Cognitive Assistants
- Skills Testing
- Accent Testing
- Crowd Testing
- Regression
WHERE TO AUTOMATE

- Increase in:
  - Cost to develop and maintain
  - Execution time
  - Probability of false negatives

But also in:
- Coverage
- End-user (business) relevance

TOP 5 MISCONCEPTIONS OF TEST AUTOMATION

100% test automation
You can/want to automate only a part of your test cases

You can save money with test automation
You can test more, more often, more complete, faster and other things with TA
Manual

Automated

Functional testing
Analysis of the outcome
Regression test
Non-functional testing

You will test more
You will test more often
You will test faster
You will test other things

But probably it will not be cheaper
TOP 5 MISCONCEPTIONS OF TEST AUTOMATION

100% test automation
You can/want to automate only a part of your test cases

You can save money with test automation
You can test more, more often, more complete, faster and other things with TA

Test automation makes testing easier
Test automation is extreme complex
TOP 5 MISCONCEPTIONS OF TEST AUTOMATION

100% test automation
You can/want to automate only a part of your test cases

You can save money with test automation
You can test more, more often, more complete, faster and other things with TA

Test automation makes testing easier
Test automation is extreme complex

With TA you can find a lot of defects
But maybe most of the defects are not regression defects
EFFORT VERSUS DEFECTS FOUND

Money spent on automation of regression test

Money spent on testing new features

Defects due to regression

Defects in new features

JUST A CONSIDERATION...

Issues that can be solved with TA

Issues do to bad communication, bad collaboration, stubbornness of the team members, the wrong Product Owner
**TOP 5 MISCONCEPTIONS OF TEST AUTOMATION**

1. **100% test automation**
   You can/want to automate only a part of your test cases

2. **You can save money with test automation**
   You can test more, more often, more complete, faster and other things with TA

3. **Test automation makes testing easier**
   Test automation is extreme complex

4. **With TA you can find a lot of defects**
   But maybe most of the defects are not regression defects

5. **Automation = tooling**
   It starts with why

---

**Patterns we see in practice**

**How**
- Buy a tool
- Automate your regression test

**What**
- Regression testing
- Performance testing
- Test data management
- Security testing
- Multi device / multi browser testing

**Why**
- Less repetitive work
- Enable continuous delivery
- Shorten time to market
- Increase coverage
- (Save money)
“Start with why”- approach …

Why
- Clear and realistic goals
- Make sure you are ready for TA

What
- Regression testing
- Performance testing
- Test data management
- Security testing
- Multi device / multi browser testing

How
- Tool selection
- Tool implementation
- Use of tools

… AND ITERATE!

Implementing TA is not a project

Expand your test set using new techniques, like server virtualization, AI, …

Improve your existing test set using feedback

Reduce your test set by assessing the tests in it
WHY

- Finding new bugs
- Meet compliancy regulations
- Speed up time to market
- Improve quality
- Automated pipeline
- Check for regression
- Create comfort and trust

CI/CD PIPELINE

- Development
  - Dev tests
  - Dev Config
- System
  - QA tests (scale, security, UAT)
  - INT Config
- Staging
  - Environment tests
  - Staging Config
- Production
  - Prod Config

- Component under test
- Tests for a component
- Test double for dependent components

© Scaled Agile, Inc
TOP 5 MISCONCEPTIONS OF TEST AUTOMATION

100% test automation
You can/want to automate only a part of your test cases

You can save money with test automation
You can test more, more often, more complete, faster and other things with TA

Test automation makes testing easier
Test automation is extreme complex

With TA you can find a lot of defects
But maybe most of the defects are not regression defects

Automation = tooling
It starts with why

THE ALTERNATIVE
FOR THE DARK SIDE…
THE ALTERNATIVE FOR THE DARK SIDE...

... IS TAKING ALL ASPECTS IN CONSIDERATION...

... IS ABOUT TESTING...

... AND IS A SOCIO TECHNICAL SYSTEM.

CONDITIONS TO AVOID THE DARK SIDE

- UI/API/Backend
- Testability
- Tool
- Test goals
- Coverage test set
- Connection manual testing
- Expectations
- Education/skills
- Support
Quick scan to make clear if you are ready for Test Automation
Originally 32 questions
We will do a short version

Go to www.menti.com
TECHNICAL ASPECTS

1. Is there a separate test environment available for automated testing?
2. Is test data available for executing automated tests?
3. Is the test object itself stable?
4. Are there clear requirements for testability and are they communicated with development?
   a. Are the technical ID’s stable?
   b. Is the backend accessible?
   c. Does the system give a signal when windows are loaded?

ORGANIZATIONAL ASPECTS

1. Are clear and realistic goals set for the implementation of test automation?
   a. Is it clear what problems should be solved with test automation?
   b. Are the goals of the different stakeholders in line with each other?
   c. Does everyone involved agree that test automation is important?
2. Is there enough budget and capacity available?
3. Is there enough knowledge available for …
   a. …the tools used?
   b. …test automation in general?
   c. …test automation frameworks?
4. Are the tasks and responsibilities concerning the operation of test automation clear (automating tests, maintaining the test set, maintaining the test data, execute test runs, judge the results, process findings, et cetera)?
TESTING ASPECTS  www.menti.com  204302

1. Is the scope clear? (for example regression test, performance test, security test etc.)
2. Is there a professional set of test cases available for automation?
   a. Is it clear which risk will be covered and which risks won’t be covered with the automated test set?
   b. Are the automated test cases prioritized?
   c. Are test design techniques used to make the automated test set?
3. Is the coverage of the test set determined and maintained?
   a. Is it clear which coverage technique is used?
   b. Is there a difference between goal coverage and real coverage.
4. Is test automation part of the DoD?

THE ALTERNATIVE
FOR THE DARK SIDE...

... IS TAKING ALL ASPECTS IN CONSIDERATION...
... IS ABOUT TESTING...
... AND IS A SOCIO TECHNICAL SYSTEM.
THE NEED FOR TESTING

In order to achieve business agility we must be able to change fast and rely that our systems remain working.

‘Don’t forget why you test in the first place’
Test Automation Day 2017
THE ALTERNATIVE FOR THE DARK SIDE...

...IS TAKING ALL ASPECTS IN CONSIDERATION...

...IS ABOUT TESTING...

... AND IS A SOCIO TECHNICAL SYSTEM.
## CONTRIBUTION PER ROLE

### Management
- Set realistic goals
- TA policy
- Facilitate

### Developer
- Testability
- Accessibility
- Programming skills

### Tester
- Test design techniques
- Coverage test set
- Maintenance test set

### Engineering Coach
- Embed testing in the development practices

### TA engineer
- TA-framework
- Use and operations tools
- Utilization tooling

---

**Management**

- **Tester**
  - Test design techniques
  - Coverage test set
  - Maintenance test set

- **TA engineer**
  - TA-framework
  - Use and operations tools
  - Utilization tooling

**Developer**

- **Tester**
  - Test design techniques
  - Coverage test set
  - Maintenance test set

- **TA engineer**
  - TA-framework
  - Use and operations tools
  - Utilization tooling

**Engineering Coach**

- Embed testing in the development practices

---

**Build bridges, not walls**
INDIVIDUALS AND INTERACTION OVER
TECHNICAL POSSIBILITIES

WHAT TO DO TO AVOID THE DARK SIDE
TO AVOID THE DARK SIDE: OUR ADVICES

• Keep investing in the craftmanship of testing
• Be realistic to your stakeholders: you can’t automate everything and you can’t find all defects with test automation
• Be realistic about the goals of test automation (test more, test more often, test faster, test other things) but don’t expect test automation to make testing easier or cheaper
• Test automation is more than buying and installing a tool, different people (inside and outside the team) should be involved and contribute to it.
• Take all aspects into consideration: technical, organizational and testing aspects
• Don’t forget why you test in the first place: automation should make testing better
• Test automation is about a socio-technical system: it is mostly about people

KEEP EXPERIMENTING
MAY THE FORCE BE WITH YOU