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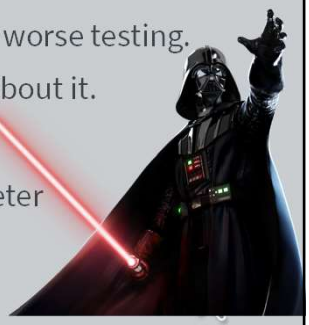
# The dark side of test automation

Why test automation leads to worse testing.
And what you can do about it.

Jan Jaap Cannegieter



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## 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

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# A story about the introduction of technology

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## The introduction of technology leads to a decrease of craftmanship

Based on

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## The degeneration effect

- Automation complacency
  - False sense of certainty
  - Over-estimation of the capabilities of a machine
  - Professionals get separated from the real work
- Automation bias
  - Follow blindly the information the machine gives
  - Trust the machine completely
  - Disable own judgment

Based on

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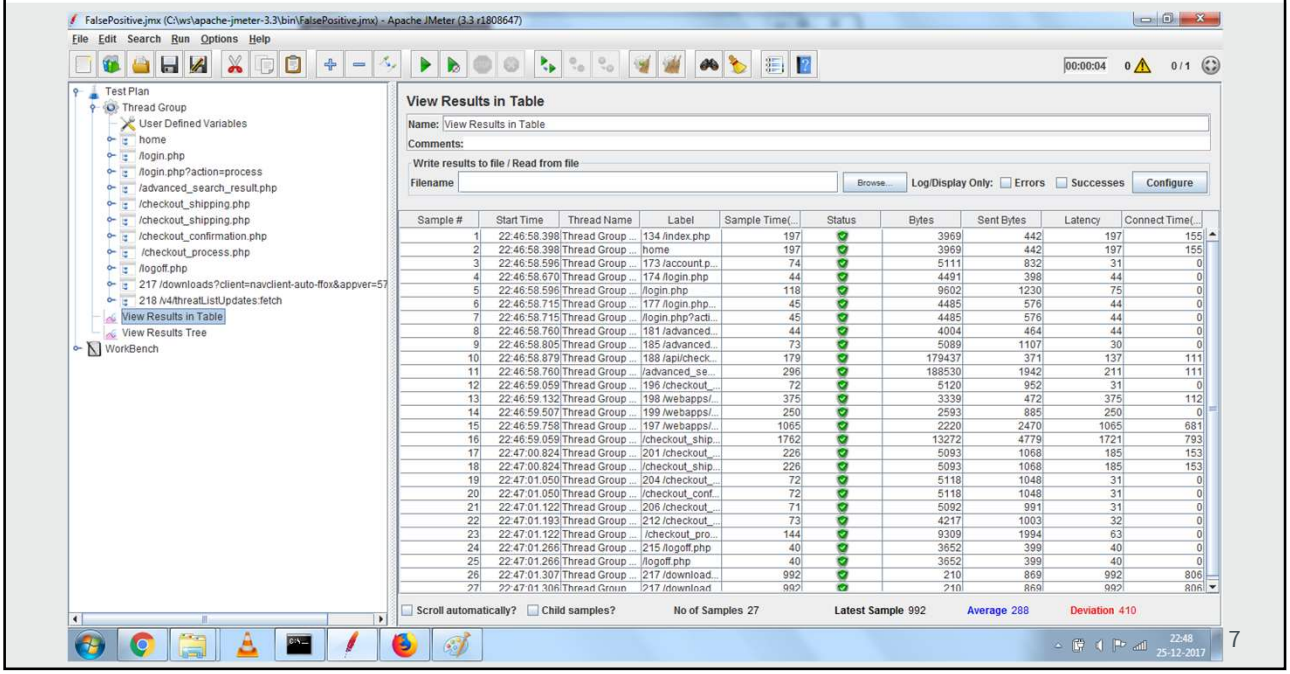


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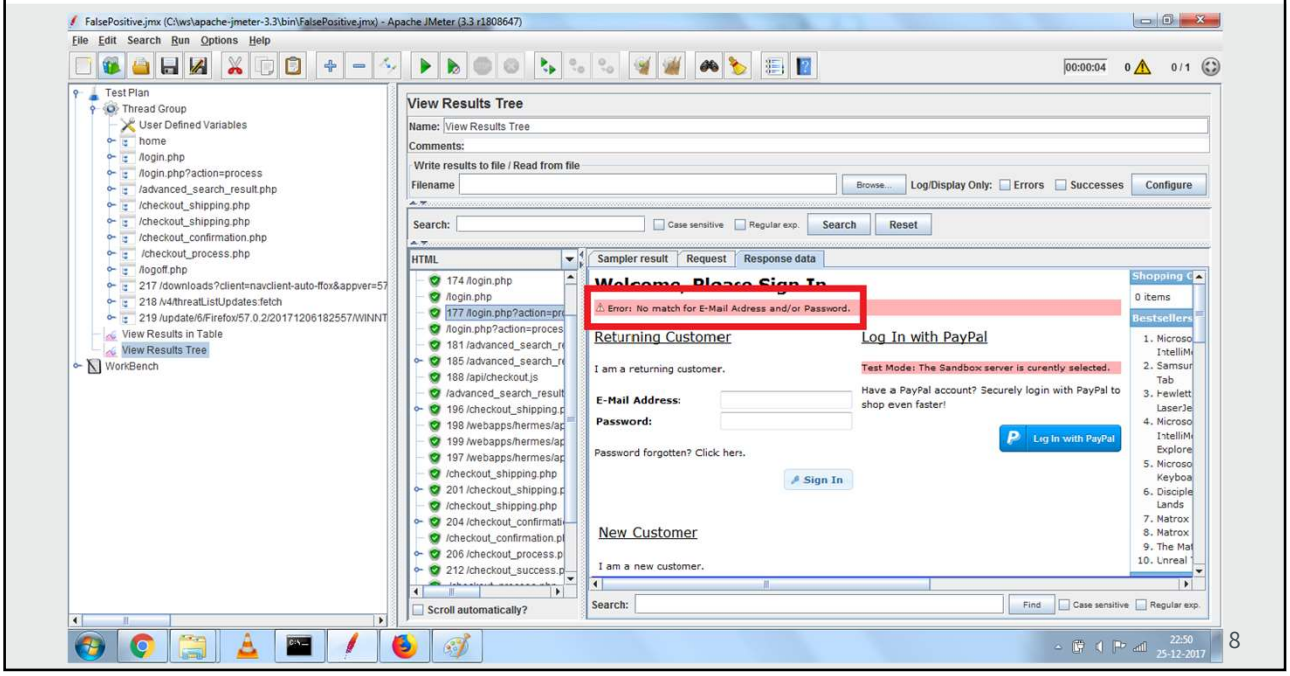


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"… over the long run it <automation> may diminish our existing skills or prevent us from acquiring new ones."
Nicolas Carr – The glass case, page 72.

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# Misconceptions about test automation

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## Top 5 misconceptions of test automation

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

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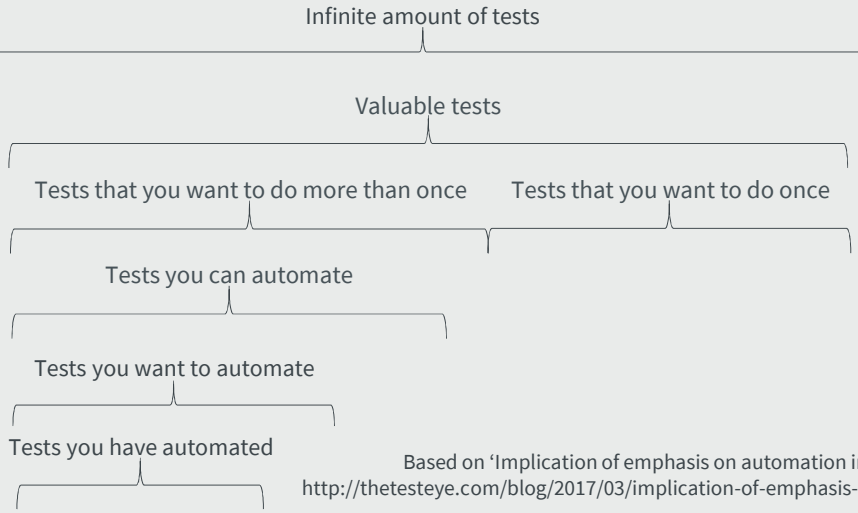
## What can you automate?




Based on 'Implication of emphasis on automation in CI' - Martin Jansson
http://thetesteye.com/blog/2017/03/implication-of-emphasis-on-automation-in-ci/

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## Top 5 misconceptions of test automation

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

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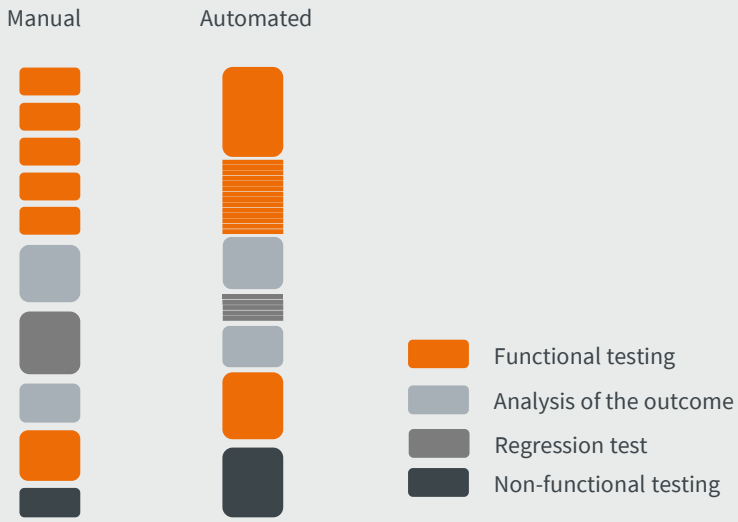
## Test automation and costs

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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

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- Test automation makes testing easier
  - Test automation is extreme complex

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FormTest.java

```java
package taform.TestForm;

import static org.junit.Assert.assertEquals;

import org.junit.Test;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class FormTest {

    @Test
    public void test() {
        WebDriver driver;
        System.setProperty("webdriver.chrome.driver", "C:/web test/chromedriver.exe");
        driver = new ChromeDriver();
        driver.get("file:///C:/web%20test/form.htm");

        driver.findElement(By.id("firstname")).sendKeys("Jan Jaap");
        driver.findElement(By.id("lastname")).sendKeys("Cannegieter");
        driver.findElement(By.id("email")).sendKeys("jj.cannegieter@squerist.nl");
        driver.findElement(By.id("password")).sendKeys("JanJaapsActualPassword");
        driver.findElement(By.id("Register")).click();
        assertEquals("Your password must be at least 256 characters long",driver.findElement(By.id("password-error")).getText());
        driver.quit();
    }
}
```

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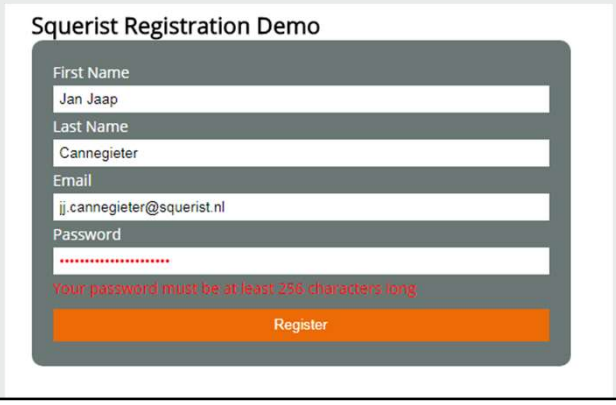


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# Seen at PNSQC 2019 – day 1

Developing a test automation program step by step –
Joel Gerbino. PNSQC October 14, 2019







# Top 5 misconceptions of test automation

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  - You can test more, more often, more complete, faster and other things with TA
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  - Test automation is extreme complex
- With TA you can find a lot of defects
  - Maybe most of the defects are not regression defects

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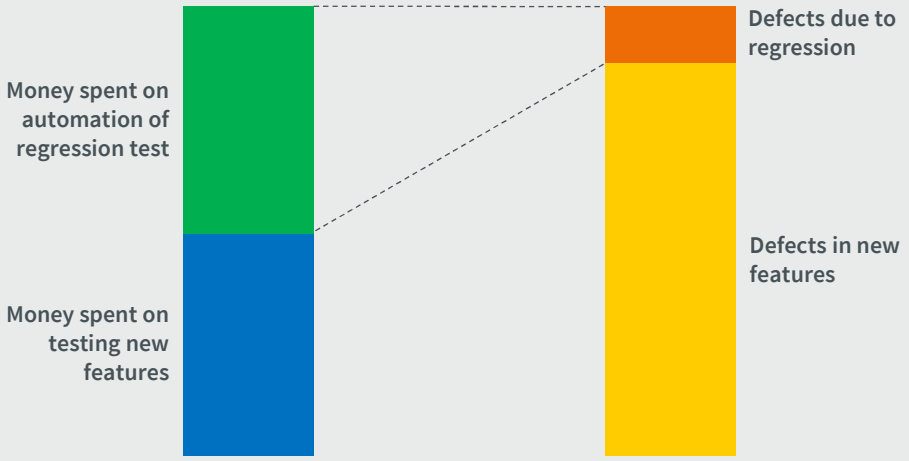
## Effort versus defects found

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## Just a consideration…

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## Top 5 misconceptions of test automation

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- 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

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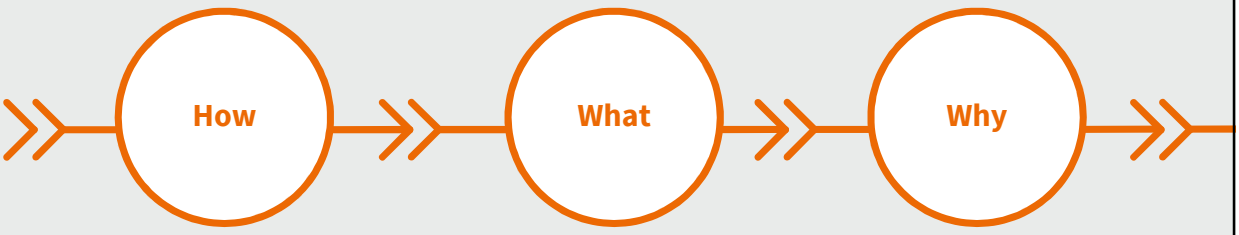
## What I see happening a lot in practice




| How | What | Why |
|---|---|---|
| Buy a tool | Regression testing | Less repetitive work |
| Automate your regression test | Performance testing | Enable continuous delivery |
| | Test data management | Shorten time to market |
| | Security testing | Increase coverage |
| | Multi device / multi browser testing | (Save money) |

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## "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

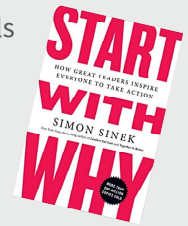
**How**

Tool selection

Tool implementation

Use of tools

**Based on**

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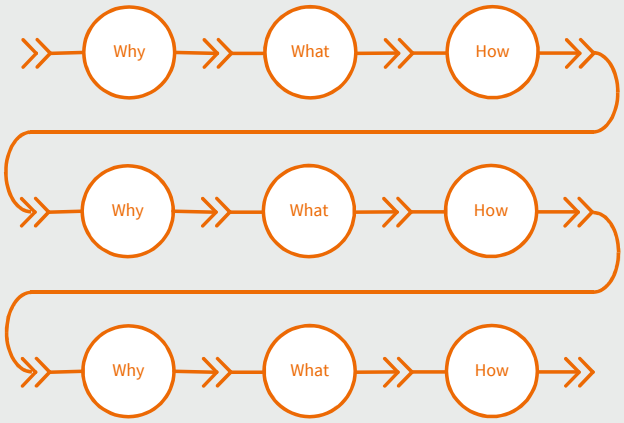
## … and iterate!




Implementing TA is not a project

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## Should you use test automation?

# YES YOU SHOULD

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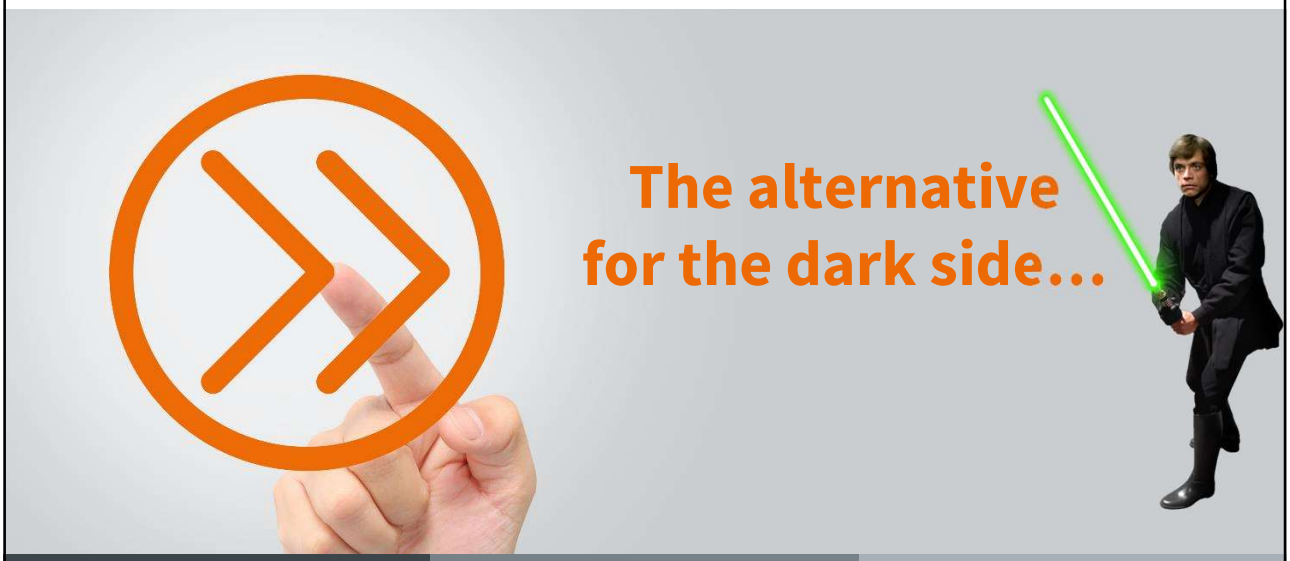


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## Conditions to avoid the dark side

- UI/API/Backend
- Testability
- Tool

- Test goals
- Coverage test set
- Connection manual testing

- Expectations
- Education/skills
- Support

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**SQUERIST**
**Test**
**Automation**
**Readiness**
**Scan**

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Readiness scan

- Quick scan to make clear if you are ready for Test Automation
- Originally 4 domains
- Originally 32 questions
- We will do a short version
- We first do a trail question to make acquainted with Menti

Go to www.menti.com.

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## Trail question

**www.menti.com 69 88 20**

What is Phil Lew's secret home wifi password?

1. testing123 because he is a testing geek
2. Sharine1999 because it is his first daughters' name and year of birth
3. Fj%r637&dS because he takes security seriously
4. Welcome01 because it is the default password of his wifi router, and he doesn't know how to change it

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## Technical aspects

**www.menti.com 70 44 47**

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?
   1. Are the technical id's stable?
   2. Is the backend accessible?
   3. Does the system give a signal when windows are loaded?

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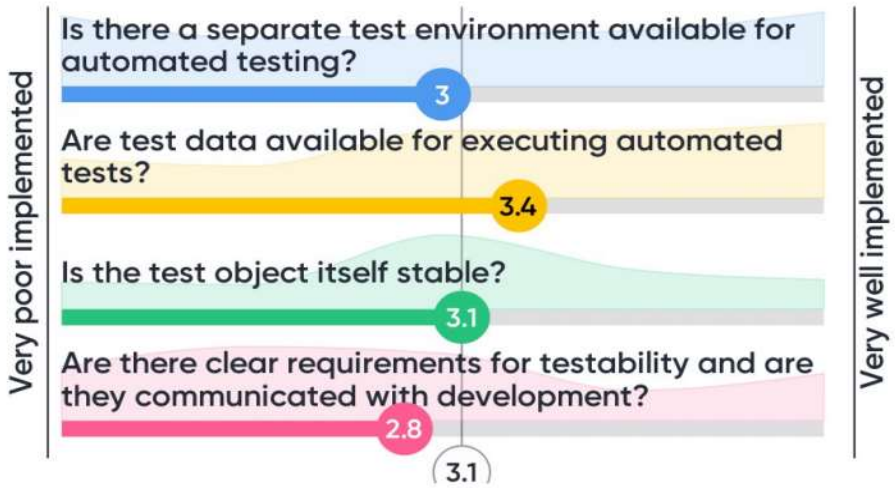
## Technical aspects

Mentimeter

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## Organizational aspects www.menti.com 11 33 02

1. Are clear and realistic goals set for the implementation of test automation?
   1. Is it clear what problems should be solved with test automation?
   2. Are the goals of the different stakeholders in line with each other?
   3. Does everyone involved agree that test automation is important?
2. Is there enough budget and capacity available?
3. Is there enough knowledge available for …
   1. … the tools used?
   2. …test automation in general?
   3. …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)?

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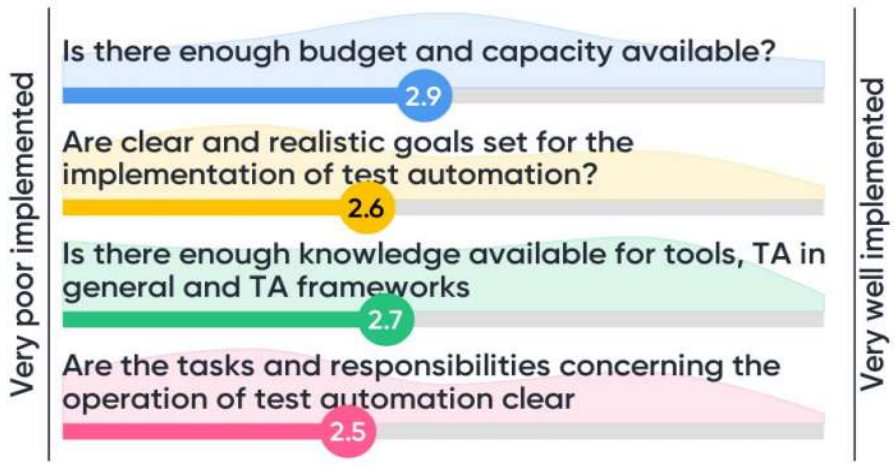
## Organizational aspects

Mentimeter

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## Testing aspects

**www.menti.com 62 88 05**

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?
   1. Is it clear which risk will be covered and which risks won't be covered with the automated test set?
   2. Are the automated test cases prioritized?
   3. Are test design techniques used to make the automated test set?
3. Is the coverage of the test set determined and maintained?
   1. Is it clear which coverage technique is used?
   2. Is there a difference between goal coverage and real coverage.
4. Is test automation part of the DoD?

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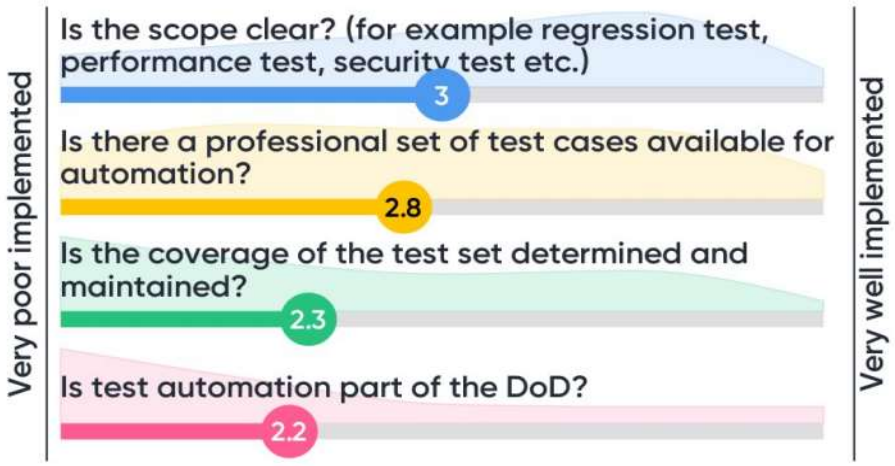
## Testing aspects

Mentimeter

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# The alternative for the dark side..

… is taking all aspects in consideration…

…is about testing…

… and is a socio technical system.

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‘Don’t forget why you test in the first place’
Test Automation Day 2017

Stephen Janaway –
http:\\stephenjanaway.co.uk/stephenjanaway/

Test strategy

Test goals

Tests

Manual → Automated

Rapid testing

Continuous testing

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## The alternative for the dark side…

… is taking all aspects in consideration…

…is about testing…

… and is a socio technical system.

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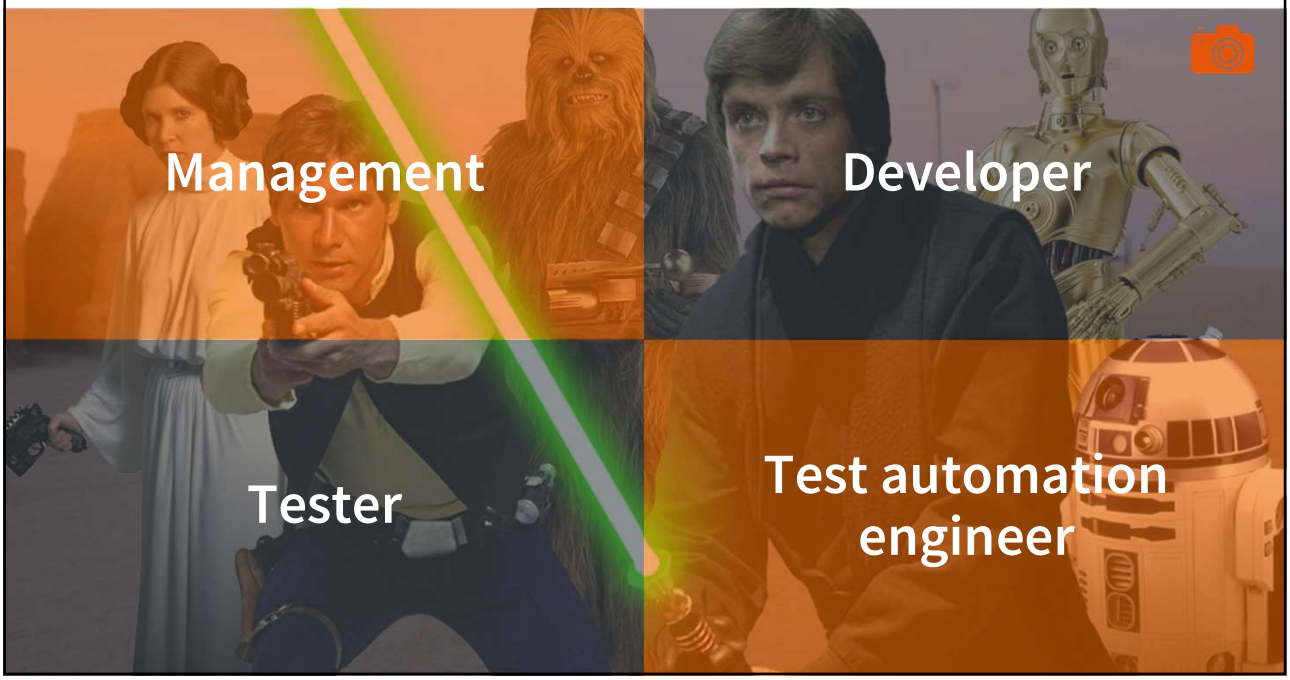


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## Contribution per role

- Management
  - Set realistic goals
  - TA policy
  - Facilitate
- Developer
  - Testability
  - Accessibility
  - Programming skills
- Tester
  - Test design techniques
  - Coverage test set
  - Maintenance test set
- TA engineer
  - TA-framework
  - Use and operations tools
  - Utilization tooling

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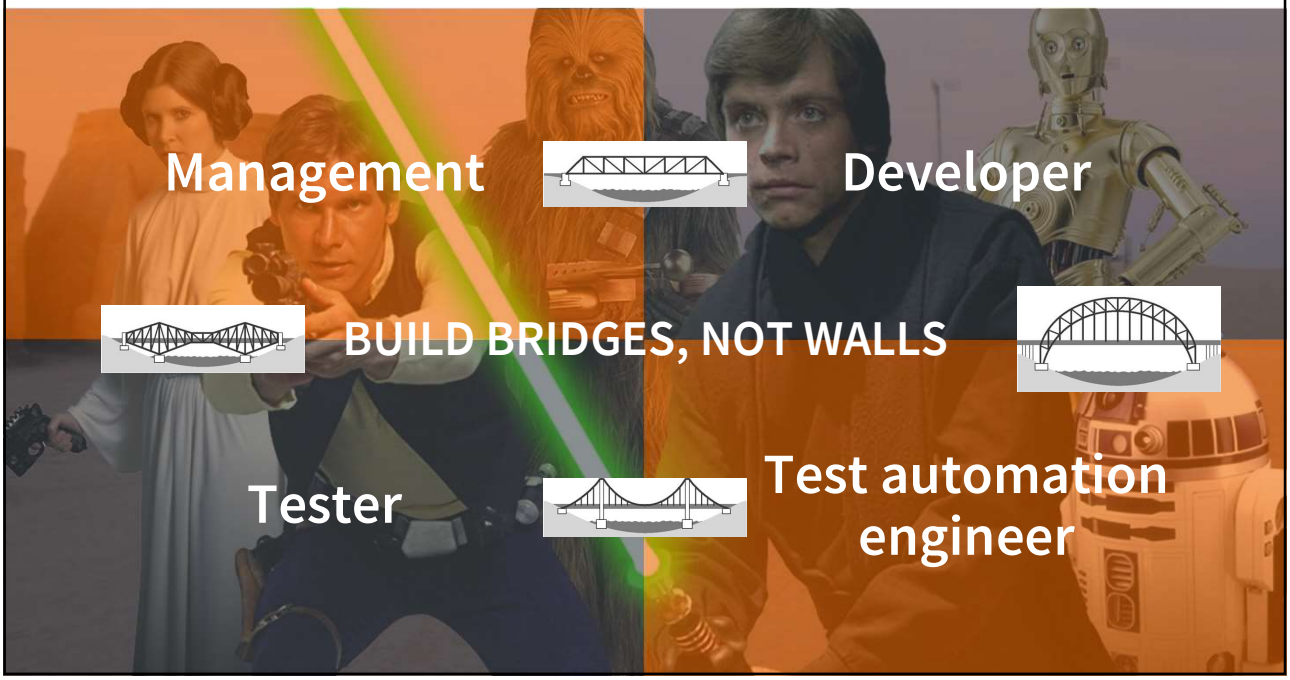


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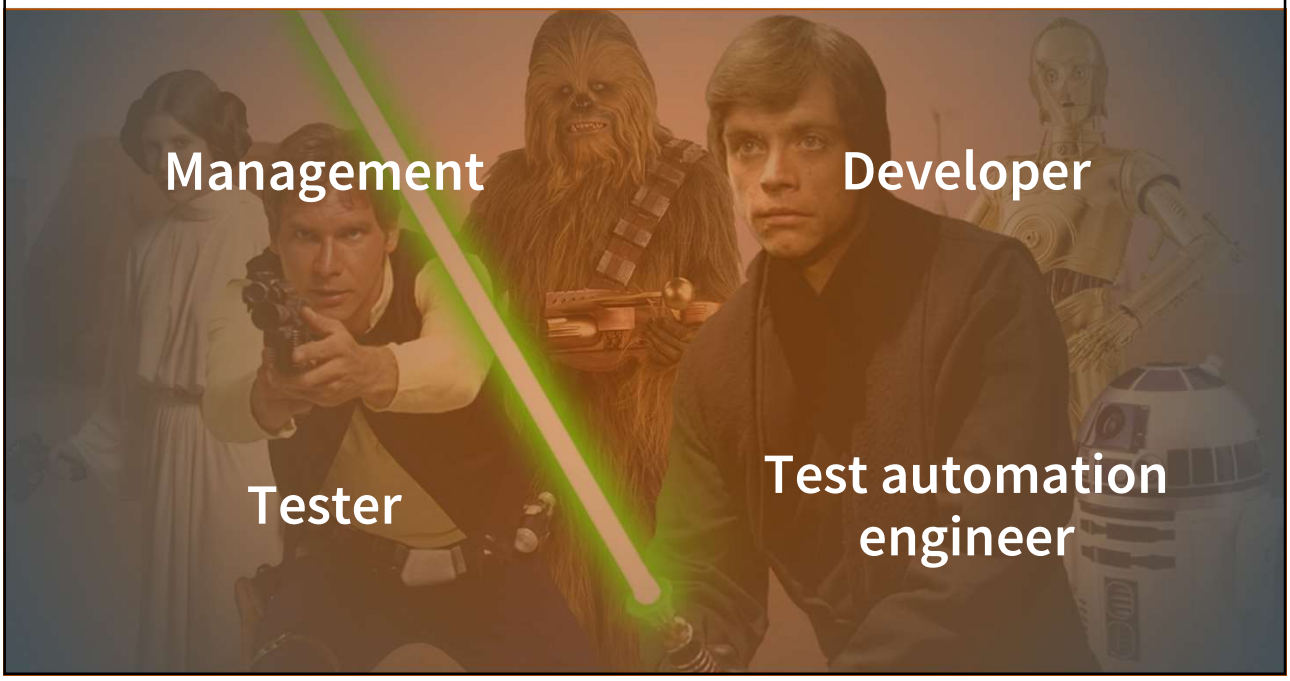


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Individuals and interaction
over
Technical possibilities

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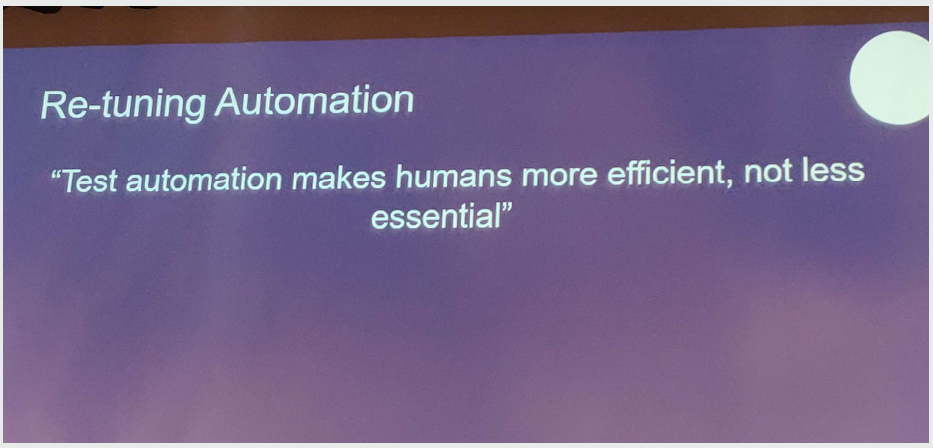
## Seen at PNSQC 2019




The QA/QE Role – Supporting DevOps the smart way – Melissa Tondi. PNSQC October 14, 2019

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## What to do to avoid the dark side

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## To avoid the dark side: my 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

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**The only way to improve is to experiment and evaluate**

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