

- Vom manuellen
zum automatisierten
Testen



Hallo!

Ich bin Daniel Hummel

Ich bin hier, da ich gerne über neue Ideen und Lösungen spreche.

Finden könnt ihr mich hier:

 D.Hummel@IT-P.de,

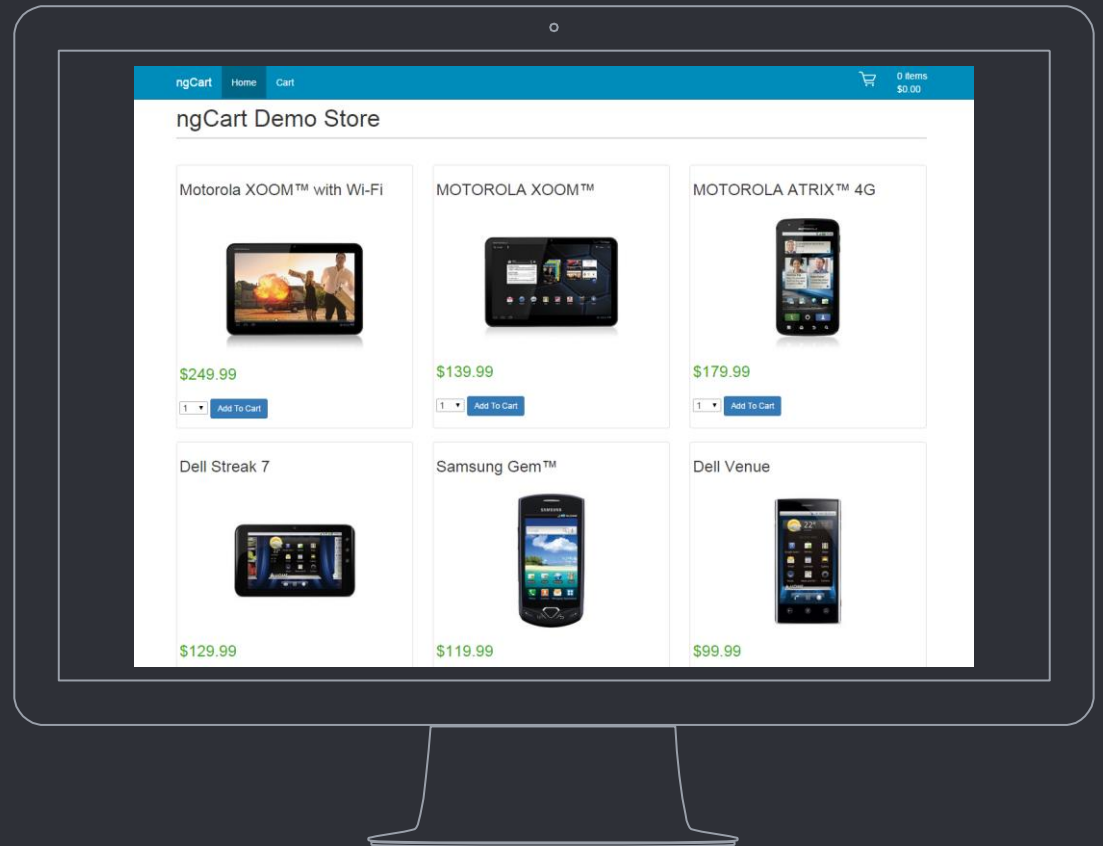
 [@itphuMsc](https://twitter.com/itphuMsc),

 [Daniel_Hummel12](https://www.youtube.com/channel/UC...)

#

jughTestingNov

DEMO SHOP (SUT)





1

Manuelles Testen

Ist das der einzige Weg?



Risikoorientiert

Identifizierung der Produktrisiken

Spezifikationsorientiert

Black-Box-Test

Beratungsunterstützt

Expertenwissen

● BEISPIEL TEST

○ Abwicklung einer Bezahlung (Pos)

Setup:




1. Items auswählen
2. In den Warenkorb wechseln
3. Korrekte Gutscheinnr. Eingeben

Test:

1. Valide Kreditkarteninf. eingeben
 2. Informationen abschicken
- Bezahlung erfolgreich abgeschlossen

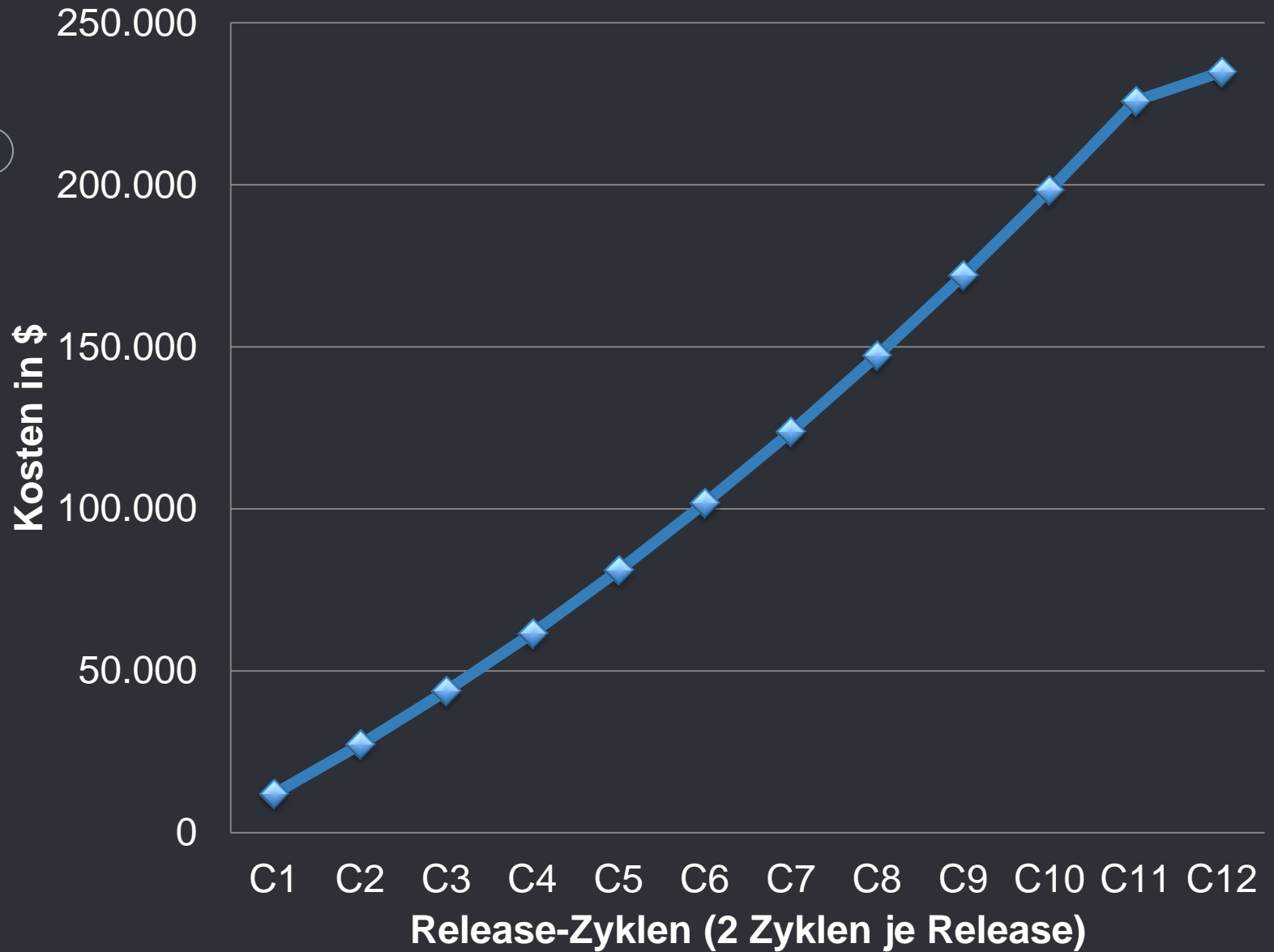
● MANUELLES TESTEN

○ Gründe:

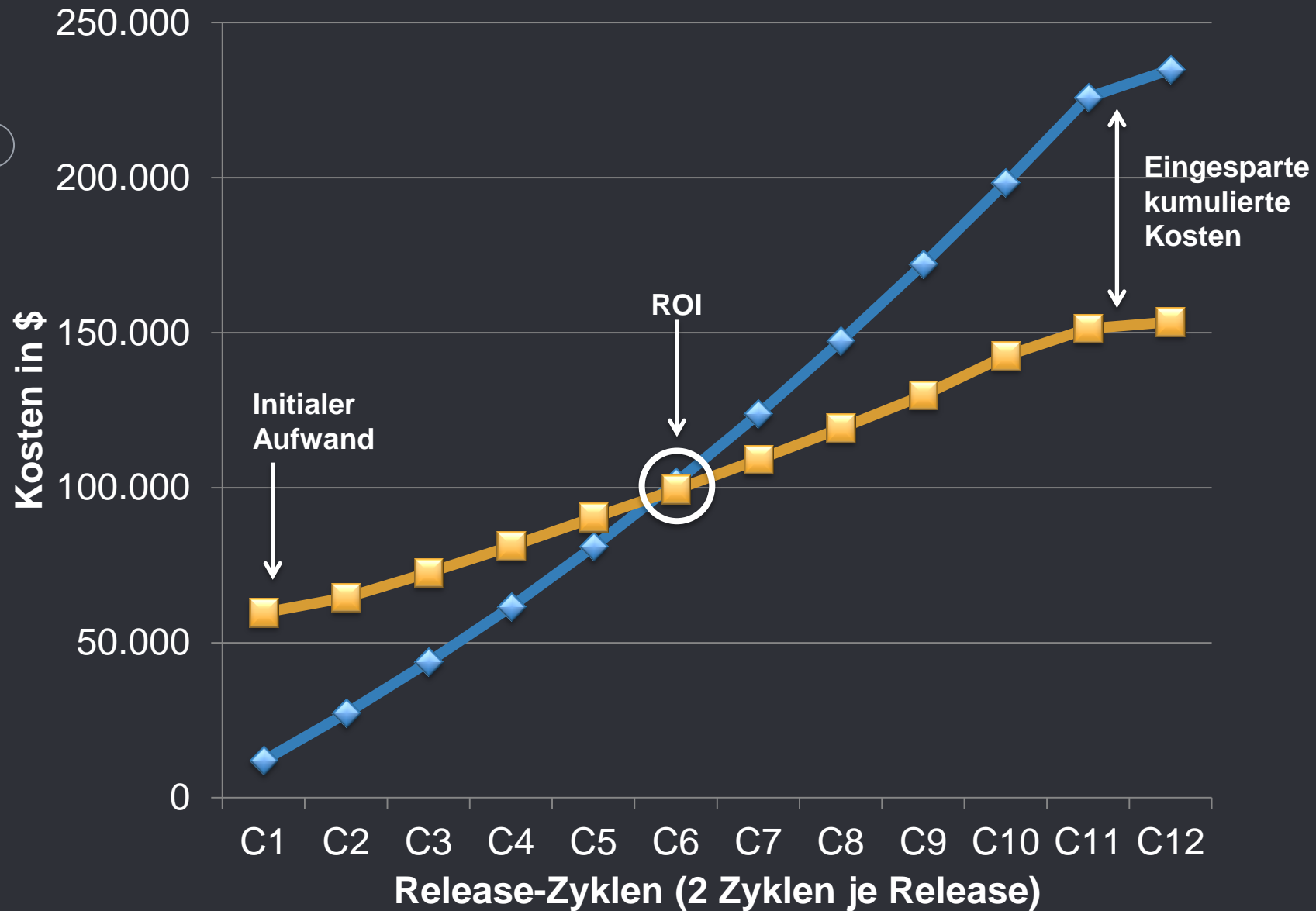
- Komplexität 
- Zeit 
- Budget 



MANUELLE KOSTEN



MANUELLE- VS AUTOMATISIERUNGSKOSTEN



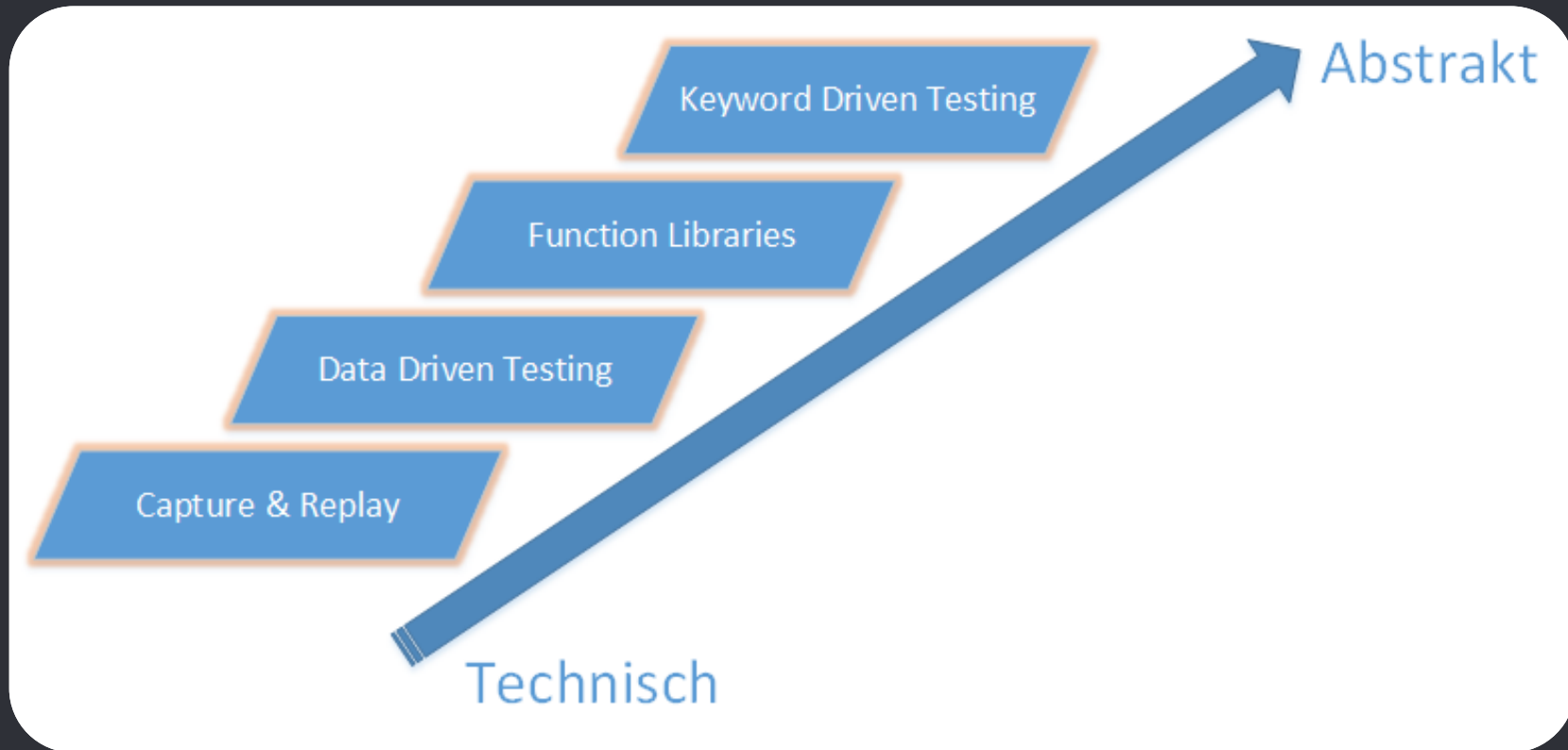


2

Automatisiertes Testen

Step by Step

AUTOMATISIERUNGSTUFEN



Technisch

- Capture & Replay



A word cloud of Selenium alternatives. The word 'Selenium' is the largest and most prominent. Other tools include HP QuickTest Professional, Ranorex, CitraTest, JMeter, IBM Rational Robot, Watij, QF-Test, and many others. The words are arranged in a circular pattern around the central 'Selenium' text.

Selenium

HP QuickTest Professional

TestPartner

Ranorex

JStudio SiteWalker

eValid

CitraTest

Yawet

Badboy

QF-Test

JMeter

Watij

Borland SilkTest

IBM Rational Robot

GUIdancer and Jubula

Test4Q

QA Wizard Pro



Test Case

completePaymentProcess

TearDown

Selenium IDE

Runs: 0

Failures: 0

Command	Target	Value
open	/	
click	//ngcart-addtocart[@id='motorola-xoom...	
click	//ngcart-addtocart[@id='motorola-xoom...	
click	link=Cart	
type	id=evoucher	12LNS4HDLA5KYMVO5D7Z
click	id=pay	
type	id=pas_ccnum	GNOA508FXD2BNCD9RRRF
type	id=pas_ccmonth	10
type	id=pas_ccyear	18
type	id=pas_ccvc	359
type	id=pas_ccname	hu
click	css=button.btn.btn-primary	
assertText	css=strong	Your order was successfully completed.

Command

Target

Value

● CAPTURE & REPLAY

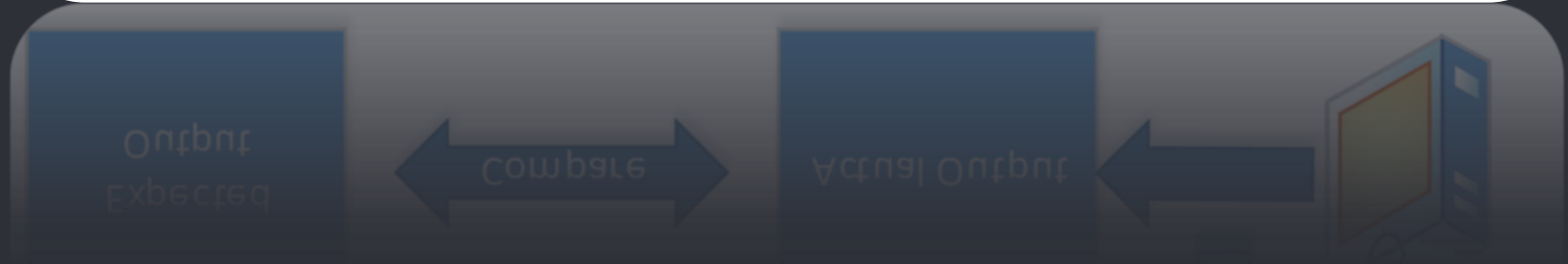
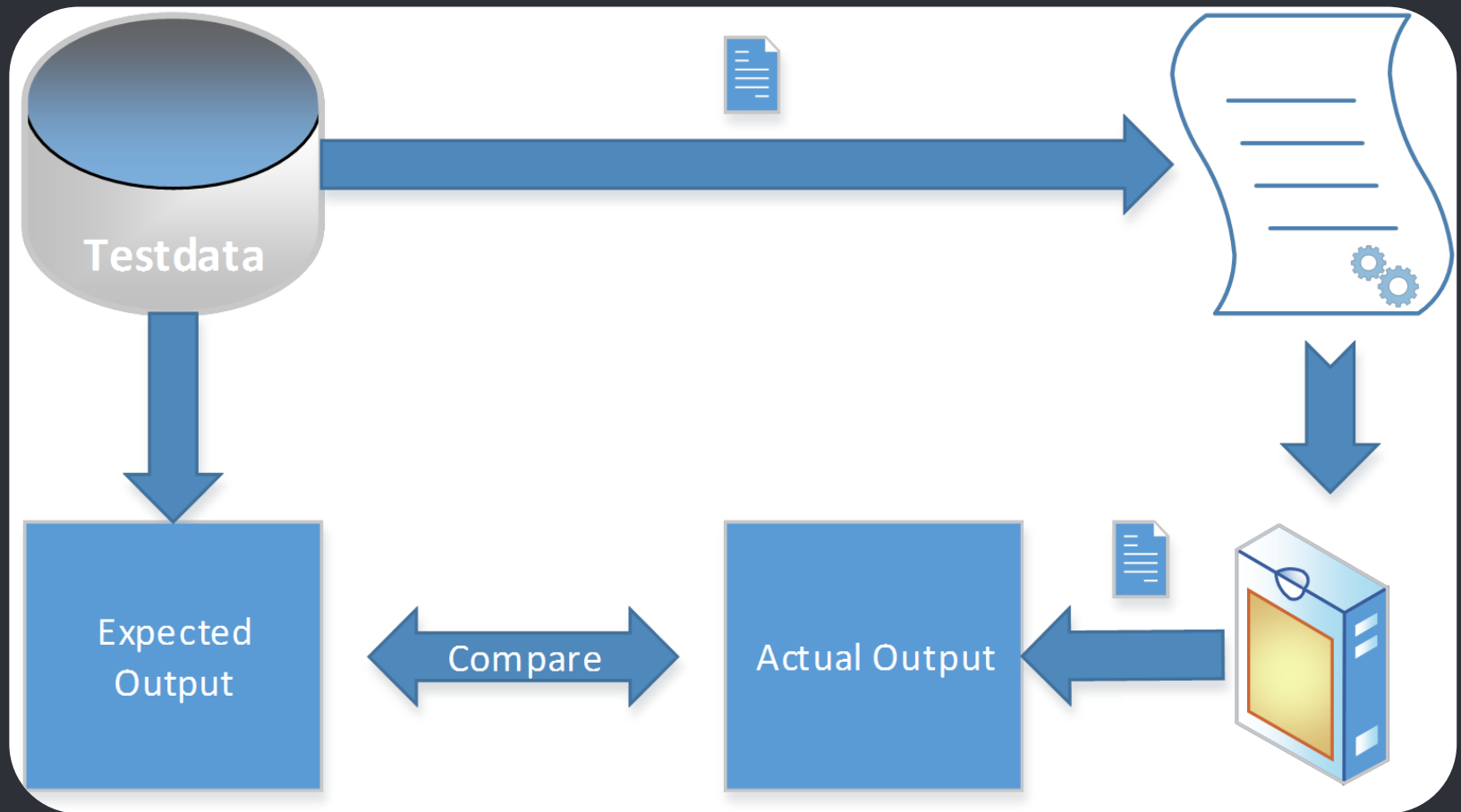
○ Vorteil

- **Einfach**
- **Schnell**

Nachteile

- **Fachliche und technische Testdaten im Skript**
- **Dialogsteuerung hardcodiert**
- **Skripte sind Programmcode**
- **Hoher Wartungsbedarf**

- Data Driven Testing



Testdaten

The screenshot shows the Selenium IDE 2.9.0 interface. The title bar reads "param (untitled suite) - Selenium IDE 2.9.0". The menu bar includes "Datei (F)", "Bearbeiten", "Actions", "Options", and "Hilfe". The Base URL is set to "http://localhost/". The interface features a "Fast" to "Slow" speed slider and various control icons. On the left, a "Test Case" pane displays the name "param" and statistics: "Runs: 1" and "Failures: 0". The main area is a table with columns "Command", "Target", and "Value". The "forJson" command is selected, showing its target as "testdata.json". Below the table, there are input fields for "Command", "Target", and "Value", along with "Select", "Find", and "Sign" buttons. At the bottom, there are tabs for "Log", "Stored-Vars", "Reference", "Expert", "UI-Element", and "Rollup", and a status bar with "File Logging (off)", "Info", and "Clear" options.

Command	Target	Value
forJson	testdata.json	
open	/	
click	id=btn_motorola-xoom-with-wi-fi	
click	css=#btn_motorola-xoom > span.ng-s...	
click	link=Cart	
type	id=evoucher	\${evoucher}
assertText	id=voucherCredit	\${voucherCredit}
assertText	id=totalCost	\${totalCost}
click	id=reset	
endForJson		

● DATA DRIVEN TESTING

○ Vorteil

- Fokus auf die Daten
- Änderungen an Skripte
- Variation mittels Testdaten

Nachteile

- Flow control ist technisch
- Scripting bedingt einsetzbar bei Fachleuten
- Planung und Vorbereitung der Skripte und Testdaten

- # Function Libraries

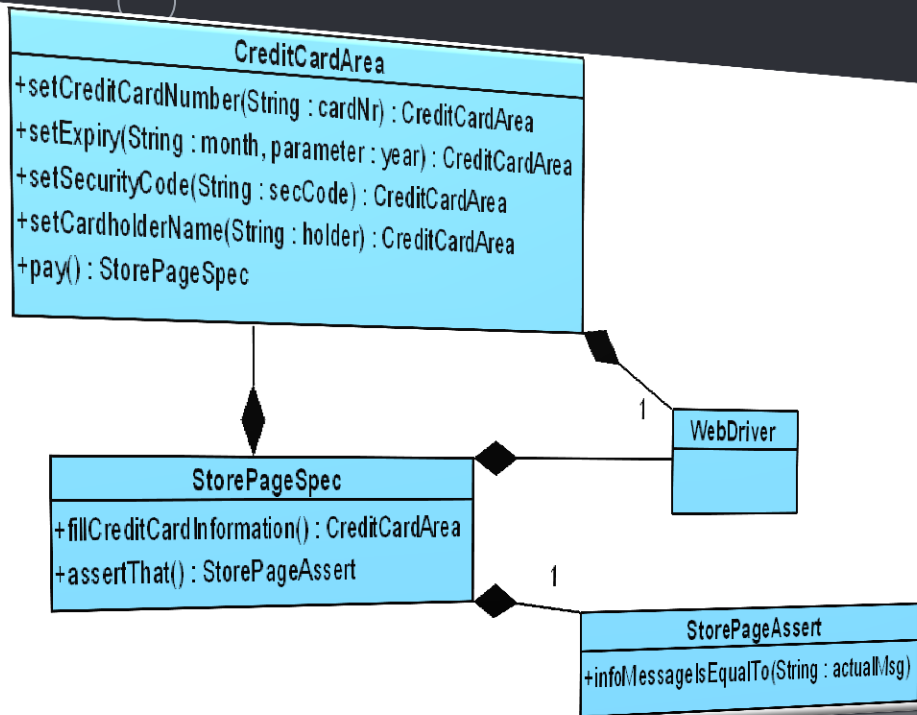
```
wd.get("http://localhost/");
wd.findElement(By.xpath("//ngcart-addtocart[@id='motorola-
xoom-with-wi-fi']/div[2]/div/a/span")).click();
wd.findElement(By.xpath("//ngcart-addtocart[@id='motorola-
xoom']/div[2]/div/a")).click();
wd.findElement(By.linkText("Cart")).click();
wd.findElement(By.id("evoucher")).click();
wd.findElement(By.id("evoucher")).clear();
wd.findElement(By.id("evoucher")).sendKeys(
    "12LNS4HDLA5KYMVO5D7Z");
assertEquals("-$30.00",
    wd.findElement(By.id("voucherCredit")).getText());
assertEquals("$439.07",
    wd.findElement(By.id("totalCost")).getText());
wd.findElement(By.id("reset")).click();
```



Page Object Pattern

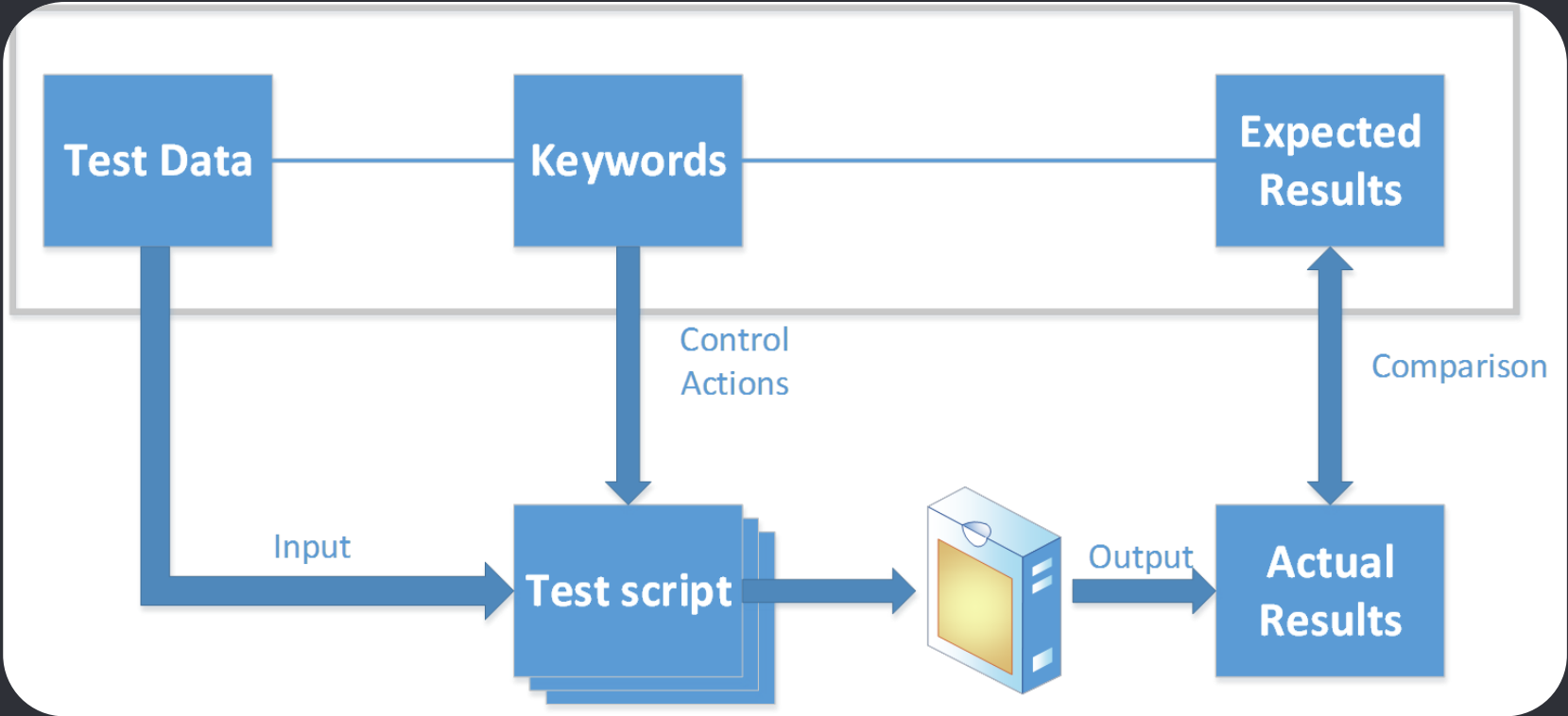
SUT sollten nicht direkt angesprochen werden.

PAGE-OBJECT



```
pageUnderTest.fillCreditCardInformation()
    .setCreditCardNumber(
        "GNOA5O8FXD2BNCD9RRRF")
    .setExpiry("10" "18")
    .setSecurityCode("395")
    .setCardholderName("JUG-Hannover")
    .pay()
    .assertThat()
        .infoMessagesEqualTo(
            "Your order was successfully
            completed.");
```

- Keyword Driven Testing



KEYWORD DRIVEN TESTING

Action/ Keyword	Test Data	Expected Result
add mobile	motorola-xoom-with-wi-fi	
add mobile	motorola-xoom	
open cart		Cart Page is displayed
enter voucher	12LNS4HDLA5KYMVO5D7Z	voucherCredit is -\$30.00 totalCost are \$439.07

● KEYWORD DRIVEN TESTING

○ Vorteil

- Hohe Code-Reusability
- Unabhängig vom Test-Tool
- Erstellbar von Fachleuten
- Unabhängig von der SUT

Nachteile

- Hoher Initialaufwand
- Erstellung eines Keyword-Driven Frameworks bzw. DSL

Danke!

Fragen?

Finden könnt ihr mich hier:

 D.Hummel@IT-P.de,

 @itphuMsc,

 Daniel_Hummel12

● Quellen

○ Tools:

http://greiterweb.de/spw/test_werkzeuge.htm

http://www.se.uni-hannover.de/pub/File/kurz-und-gut/ss2006-seminar-werkSoft/Kurz_Gut-Olaf_Goellner_Testen.pdf

◦Spring Boot Testing:

<http://docs.spring.io/spring-boot/docs/current/reference/htmlsingle/#boot-features-testing>

◦Spring Testing:

<http://docs.spring.io/spring/docs/current/spring-framework-reference/html/testing.html>

● Quellen

○ Demo:

<http://ngcart.snapjay.com/>

◦ Sonstiges

<https://www.software-quality-lab.com/leistungen/seminare-trainings/thema/GUI-Testautomatisierung>

<http://de.slideshare.net/MaibornWolff/universum-der-testautomatisierung-von-sven-schirmer-maibornwolff>

◦ Sonstiges

<http://www.methodsandtools.com/archive/archive.php?id=94>

● Quellen

○ Sonstiges

<http://de.slideshare.net/datamatics/whitepaper-on-automated-functional-equivalence-testing>

http://www.triton.at/fileadmin/MDB/PDF/white_paper_dynamische_scriptgenerierung_01.pdf

[http://de.slideshare.net/lfingerman/test-automation-best-practices-with-soa-test-approach\(Folie 15\)](http://de.slideshare.net/lfingerman/test-automation-best-practices-with-soa-test-approach(Folie 15))

<https://code.google.com/p/selenium/wiki/PageObjects>

http://www.yowcode.com/pages/istqb/keyword_driven_testing.php

CREDITS

Special thanks to all the people who made and released these awesome resources for free:

- Presentation template by [SlidesCarnival](#)
- Photographs by [Unsplash](#)
- <http://www.slidescarnival.com/eleanor-free-presentation-template/308>

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<http://www.google.com/fonts#UsePlace:use/Collection:Quicksand:300,400,700>

Click on the “arrow button” that appears on the top right

- Dark gray **#2e3037**
- Aqua **#39c0ba**
- Salmon **#f35b69**
- Blue **#6d9eeb**



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