The Future of Testing

Wolfgang Platz, Founder & Chief Strategy Officer
Back in 1999, this is how I felt
To be the leader in software testing with the most innovative testing products that enable our customers to deliver high quality software.
“It should be considered by enterprises that have struggled to make test automation work, and by those seeking to support agile continuous automation practices.”
1. Market Macros

2. Testing is ready for Disruption

3. Testing the hype
81% of enterprises have adopted or plan to adopt DevOps.

The reliance on manual testing is the #1 technical challenge in app development\(^1\).

- **Today**
  - > 80% Manual Testing
  - < 20% Automated Testing

- **Legacy platforms require weeks to execute testing.**

- **35%**
  - IT Budget Spend on QA & Testing\(^1\)

- **$32B**
  - Annual Spend on Testing Services

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\(^1\) Source: World Quality Report 2015 - 2016 © 2017 by TRICENTIS
Software Testing Market (total)

<table>
<thead>
<tr>
<th>Year</th>
<th>Product Testing</th>
<th>Application Testing</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>35.6 USD</td>
<td>27.0 USD</td>
<td>62.6 USD</td>
</tr>
<tr>
<td>2018</td>
<td>37.8 USD</td>
<td>27.0 USD</td>
<td>64.8 USD</td>
</tr>
<tr>
<td>2019</td>
<td>40.4 USD</td>
<td>27.0 USD</td>
<td>67.4 USD</td>
</tr>
<tr>
<td>2020</td>
<td>43.6 USD</td>
<td>27.0 USD</td>
<td>70.6 USD</td>
</tr>
<tr>
<td>2021</td>
<td>55.3 USD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Annual Growth (CAGR): 12%

Source: www.technavio.com
Testing is still on the rise

2 Testing is ready for Disruption

3 Testing the hype
Today’s reporting is based on numbers of test cases.

What does it tell us?
Is 53,274 the right number of test cases?

Can I go productive?
<table>
<thead>
<tr>
<th>Name</th>
<th>Weight</th>
<th>Relative Weight (%)</th>
<th>Contribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1 Car</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chassis</td>
<td>1294</td>
<td>21,78</td>
<td>21,78</td>
</tr>
<tr>
<td>Chassis &amp; Monocoque</td>
<td>1000</td>
<td>77,28</td>
<td>16,84</td>
</tr>
<tr>
<td>Wings</td>
<td>244</td>
<td>18,86</td>
<td>4,11</td>
</tr>
<tr>
<td>Front wing</td>
<td>150</td>
<td>61,48</td>
<td>2,53</td>
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<tr>
<td>Rear wing</td>
<td>94</td>
<td>38,52</td>
<td>1,58</td>
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<tr>
<td>Steering</td>
<td>50</td>
<td>3,86</td>
<td>0,84</td>
</tr>
<tr>
<td>Engine</td>
<td>4422</td>
<td>74,44</td>
<td>74,44</td>
</tr>
<tr>
<td>Engine</td>
<td>3500</td>
<td>79,15</td>
<td>58,92</td>
</tr>
<tr>
<td>Exhaust</td>
<td>172</td>
<td>3,89</td>
<td>2,9</td>
</tr>
<tr>
<td>Gearbox</td>
<td>750</td>
<td>16,96</td>
<td>12,63</td>
</tr>
<tr>
<td>Telemetry</td>
<td>74</td>
<td>1,25</td>
<td>1,25</td>
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<tr>
<td>Wheels</td>
<td>150</td>
<td>2,53</td>
<td>2,53</td>
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<tr>
<td>Brakes</td>
<td>149</td>
<td>99,33</td>
<td>2,51</td>
</tr>
<tr>
<td>Tyres</td>
<td>1</td>
<td>0,67</td>
<td>0,02</td>
</tr>
</tbody>
</table>

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The law – (almost) 80:20

...we cover 80% of our business risk.

With 30% of test cases ...
40% average risk coverage achieved in comprehensive enterprise test portfolios

60% of risk is secured through hope & pray.

67% average level of redundancy in enterprise test portfolios

2 out of 3 test cases never yield defects.

1 Source: Customer projects, Tricentis
We need to introduce a new currency in testing.

Risk Coverage
18% (official) overall test automation degree
8% (official) enterprise test automation degree

Really?

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Continuous Testing requires Automation

- 80% Manual Testing
- 20% Automated Testing

Today

Future

Exploratory Tests

Automated UI Tests

API Tests

Orchestrated Service Virtualization
- key enabler for high automation rates -

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Comparing learning curves

100 pax

3 months

“Go train them on Selenium based scripting for a certain framework – you got 3 months!”

Head of QA Services
Comparing learning curves

100 pax

3 months

100 pax

3 weeks

“Go train them on test automation with Tricentis Tosca – you got 3 weeks!”

Head of QA Services
Comparing learning curves

How many made it?

100 pax

3 months

15%

100 pax

3 weeks

85%
Delivering on the promise of extreme automation requires a new paradigm.
### Vehicle Data

<table>
<thead>
<tr>
<th>Make</th>
<th>Mercedes Benz</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Performance [kW]</td>
<td>500</td>
<td>Input</td>
</tr>
<tr>
<td>Date of Manufacture</td>
<td>{Year}</td>
<td>Input</td>
</tr>
<tr>
<td>Number of Seats</td>
<td>5</td>
<td>Input</td>
</tr>
<tr>
<td>Fuel Type</td>
<td>Petrol</td>
<td>Input</td>
</tr>
<tr>
<td>List Price</td>
<td>20000</td>
<td>Input</td>
</tr>
<tr>
<td>License Plate Number</td>
<td>7ACH456</td>
<td>Input</td>
</tr>
<tr>
<td>Annual Mileage</td>
<td>50000</td>
<td>Input</td>
</tr>
</tbody>
</table>

### Insurant Data

<table>
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<tr>
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<th>{MonthFirst}</th>
<th>Input</th>
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</thead>
<tbody>
<tr>
<td>Insurance Sum</td>
<td>7.000.000,00</td>
<td>Input</td>
</tr>
<tr>
<td>Merit Rating</td>
<td>Bonus 5</td>
<td>Input</td>
</tr>
<tr>
<td>Damage Insurance</td>
<td>Partial Coverage</td>
<td>Input</td>
</tr>
<tr>
<td>Euro Protection</td>
<td>False</td>
<td>Input</td>
</tr>
<tr>
<td>Legal Defense Insurance</td>
<td>True</td>
<td>Input</td>
</tr>
<tr>
<td>Courtesy Car</td>
<td>No</td>
<td>Input</td>
</tr>
</tbody>
</table>

### Price Option

| Price per Year ($)   | 331.00       | Verify |

```csharp
Assert.AreEqual("331,00", driver.FindElement(By.XPath("//table[@id='PriceList']/tbody/tr[10]/td[2]/b"))
  .GetAttribute("value");
```
Continuous testing is change

It's way more than just UI automation
The three nightmares of test automation
Test Portfolio Maintenance

Escape it also for E2E systems & APIs

Test Data Management

Needs to be stateful & fully integrated

Test System Provisioning

Requires service virtualization
Testing is still on the rise

Testing is ready for Disruption

Testing the hype
Innovation Trigger
Peak of Inflated Expectations
Through of Disillusionment
Slope of Enlightenment
Plateau of Productivity

Plateau to be reached ...
- 2 – 5 years
- 5 – 10 years
- > 10 years

Extracted from Gartner Hype-Cycle, As of July 2017
Blockchain

**Trusted Transactions**

No trusted 3rd party

**Blockchain will become a Service**

- Bitcoin's blockchain
- Ethereum
- Amazon Web Services
- Microsoft Azure

25+ significant Blockchain projects

**Bottom Line.** We need to test the applications using that service
Internet of Things

Machine-to-Machine communication through Intelligent Things

15 75
Billion Devices, 2015 Billion Devices, 2025

Smart health, smart energy, connected homes

Bottom Line. Testing needs to be ready for mini- and micro-services
Innovations

- 200,000 B.C. Fire
- 7,000 B.C. Wheel
- 2007 iPhone

..that changed mankind
Mobile First

Google-CEO Sundar Pichai, Google I/O, 2017
AI First

Google-CEO Sundar Pichai, Google I/O, 2017
No need to test AI per se, but applications using the outcomes of artificial intelligence
Today, there is a tremendous amount of noise associated with AI in the software industry.
We need to become smarter in testing, even if there is no AI involved.
Testing is still on the rise

Testing is ready for Disruption

Testing is ready for modern Technologies
Thank You for your attention

Stay in touch!

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