How Machine Learning is Being Used in New Age QA Automation Tools
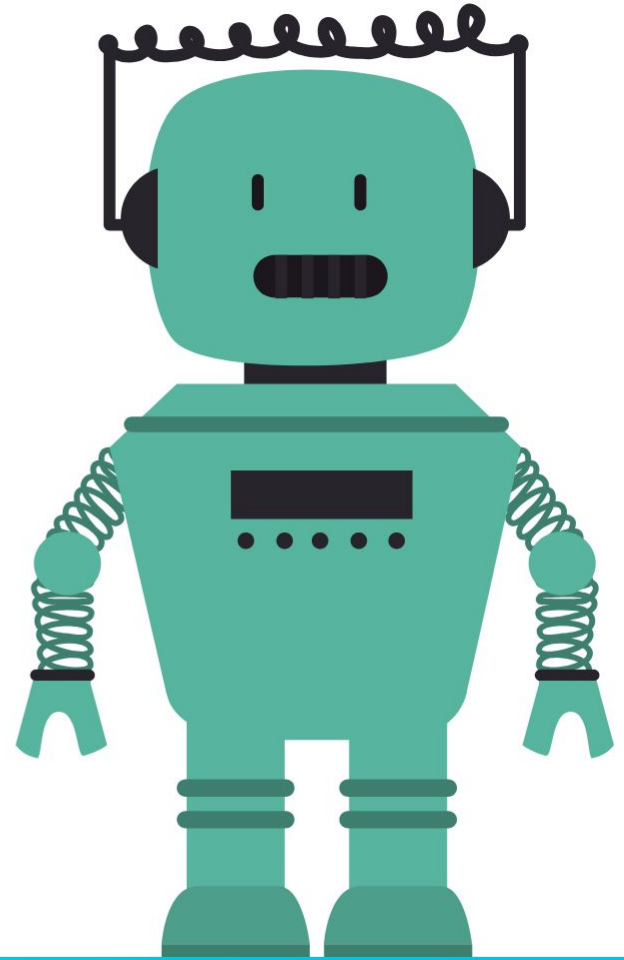
meetup, January 2019
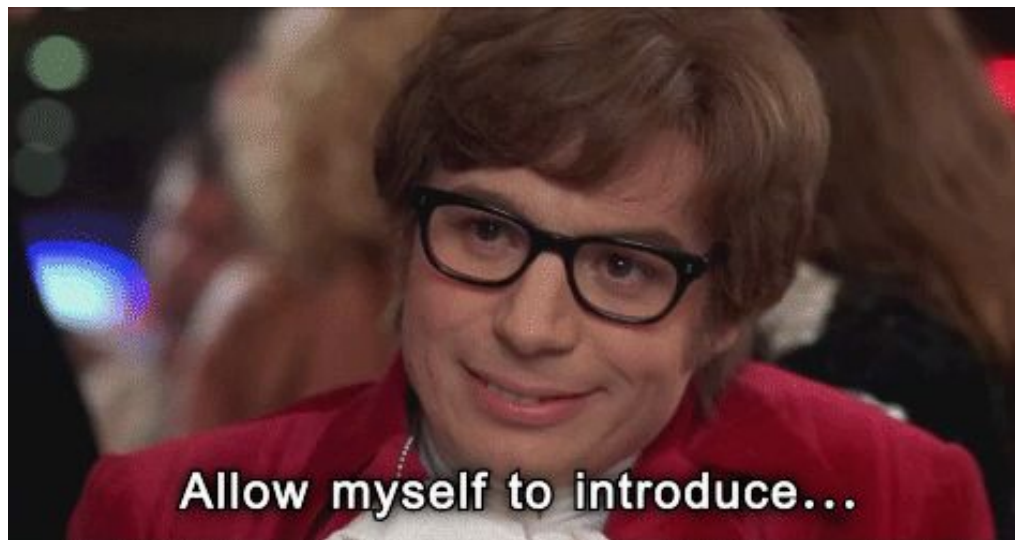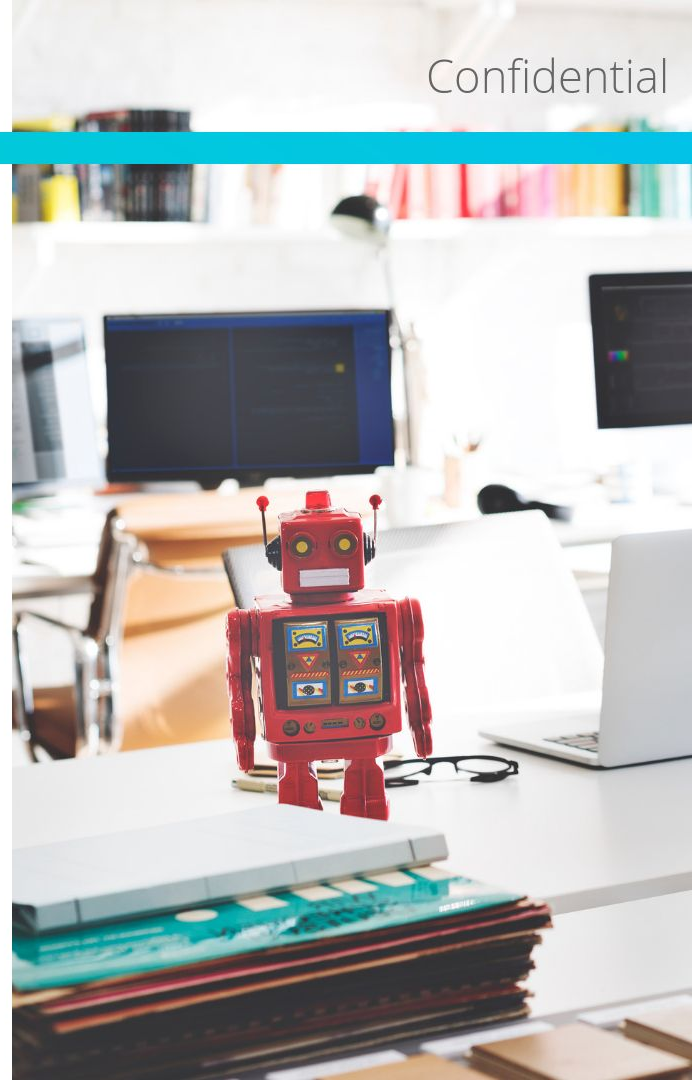
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Merav Zaks

- A computer programmer in the IDF

- A lawyer & an MBA graduate

- Founded a startup (Aroundish) and closed it :(

- TestCraft's first employee

- Love yoga, art & travelling

Allow myself to introduce…

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The Plan

- The Digital Transformation

- Selenium Challenges

- Leverage Machine Learning

- Live Example

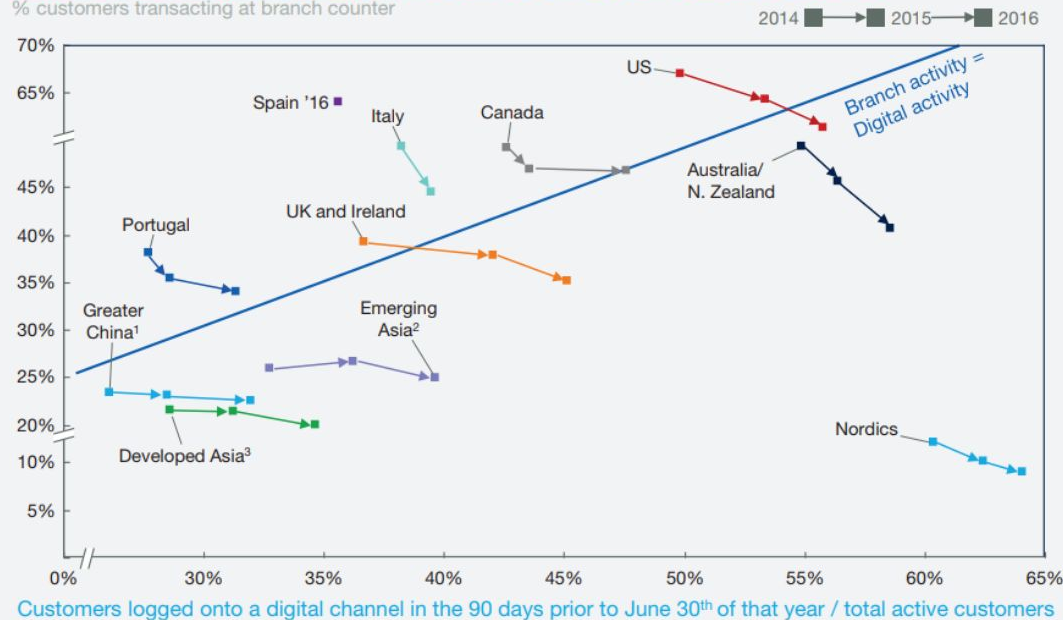- Is it really working?

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Digital Transformation

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Digital Servicing Took Over Branch Servicing *

Exhibit 2: In 2015 digital servicing overtook branch servicing in most European countries

Customers transacting in the 90 days prior to June 30th of that year / total active customers
% customers transacting at branch counter

2014 → 2015 → 2016

Branch activity = Digital activity

US, Spain '16, Italy, Canada, Australia/N. Zealand, Portugal, UK and Ireland, Greater China[1], Emerging Asia[2], Developed Asia[3], Nordics

Customers logged onto a digital channel in the 90 days prior to June 30th of that year / total active customers

* "The future of customer-led retail banking distribution", **McKinsey & Company**, September 2017
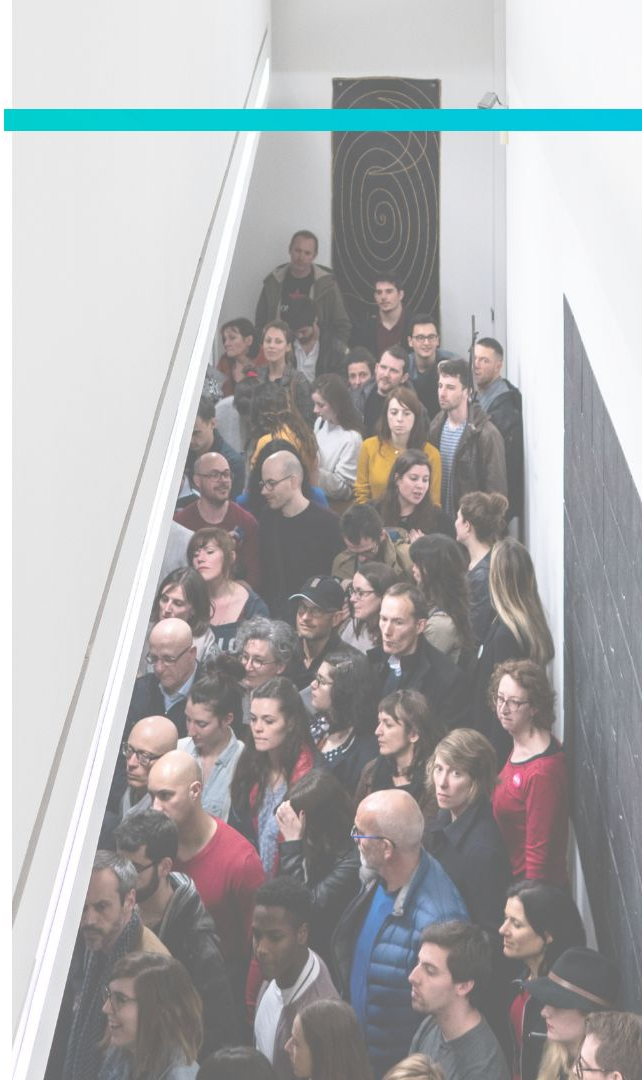
From Waterfall to Agile

- Constant updates & versions

- Shorter (and shortening) release cycles

- Adapt to new working methodologies

- Organizational shift of all touch points

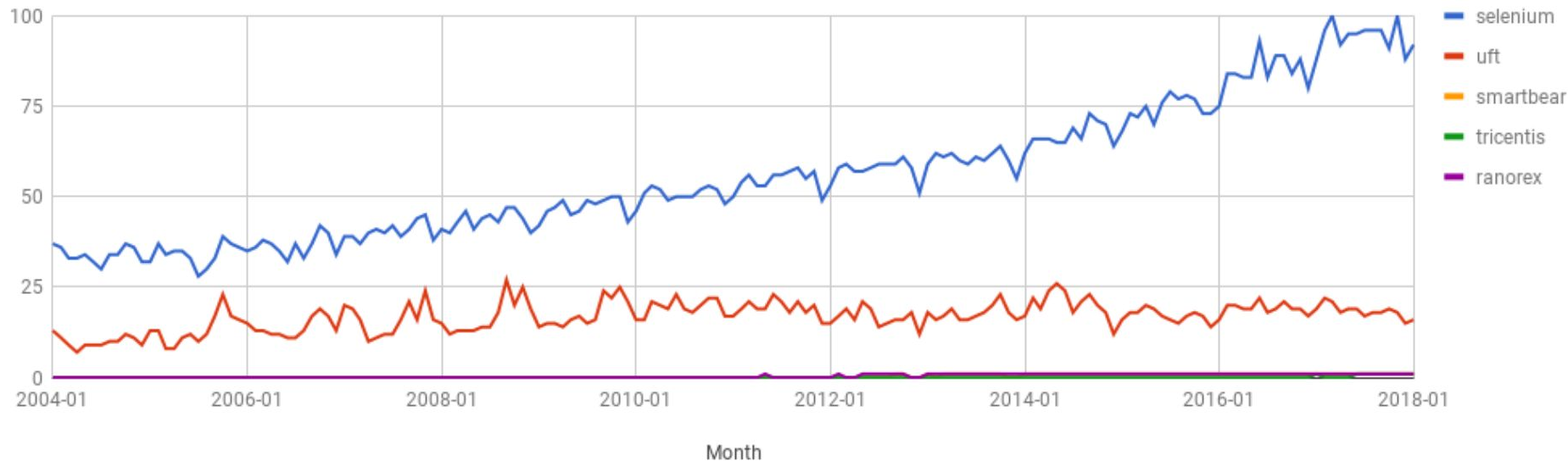test **craft**

Testing was Left Behind

- Dev teams are at the core of the agile process

- Dev tools were the focus

- QA had to catch up with legacy tools

- Testing becomes the bottleneck

- Challenge grows as cycles get shorter and regression gets longer

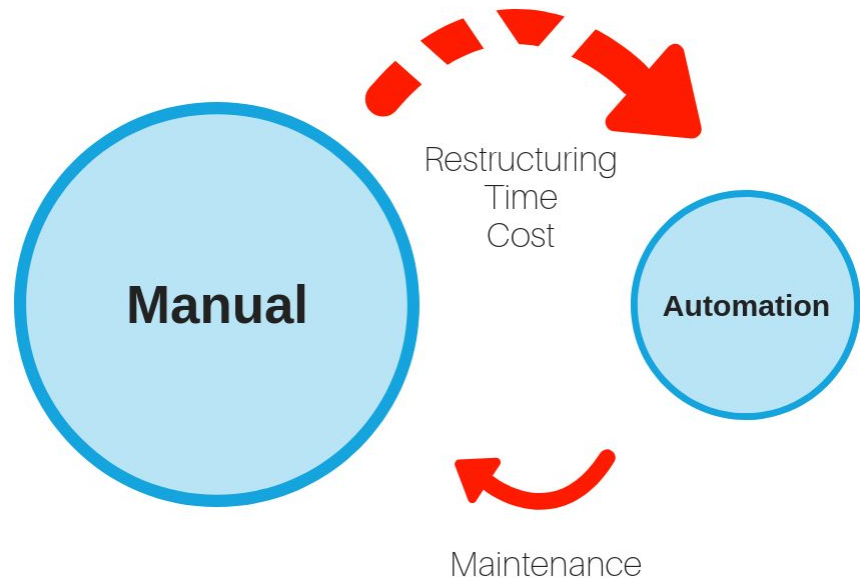- Ongoing challenge of quality vs. velocity

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Selenium, Selenium, Selenium

Google Trends - Interest Over Time

- selenium
- uft
- smartbear
- tricentis
- ranorex

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Selenium Challenges

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Selenium Comes at a Cost

- Requires expensive framework setup

- Requires coding knowledge and hiring

  test engineers

- Maintenance - tests CONSTANTLY break

Manual

Automation

Restructuring
Time
Cost

Maintenance

Leveraging Machine Learning

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What is Machine Learning?

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Machine Learning Definition

Machine learning is a field of computer science that uses **statistical techniques** to give computer systems the ability to "learn" with **data**, without being explicitly programmed.

Wikipedia

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Live Example

Is It Really Working?

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Confusion Matrix

Actual values

Positive   Negative

Predicted values

Positive:

TP	FP

Negative:

FN	TN

$$Accuracy = \frac{TP + TN}{Total}$$

$$Misclassification\ Rate = \frac{FP + FN}{Total}$$

The Numbers

Accuracy ~ 97.4%

Misclassification Rate ~ 2.6%

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Conclusion

When evaluating ML based tools always ask for the **accuracy** and **misclassification** rates

Q&A

Thank You
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Please fill out the survey :)

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