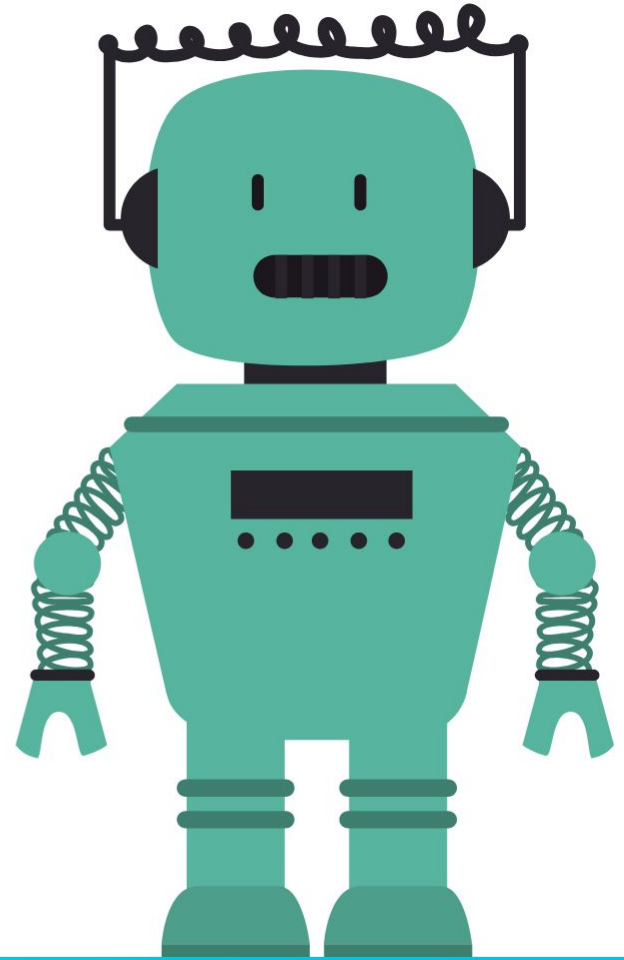


How Machine Learning is Being Used in New Age QA Automation Tools

meetup, January 2019

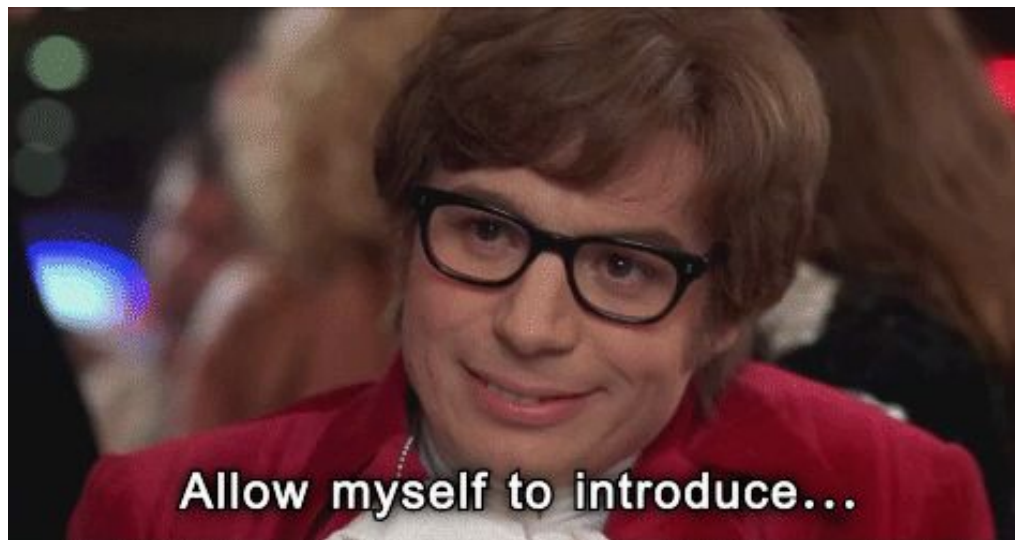
test **craft**



Confidential

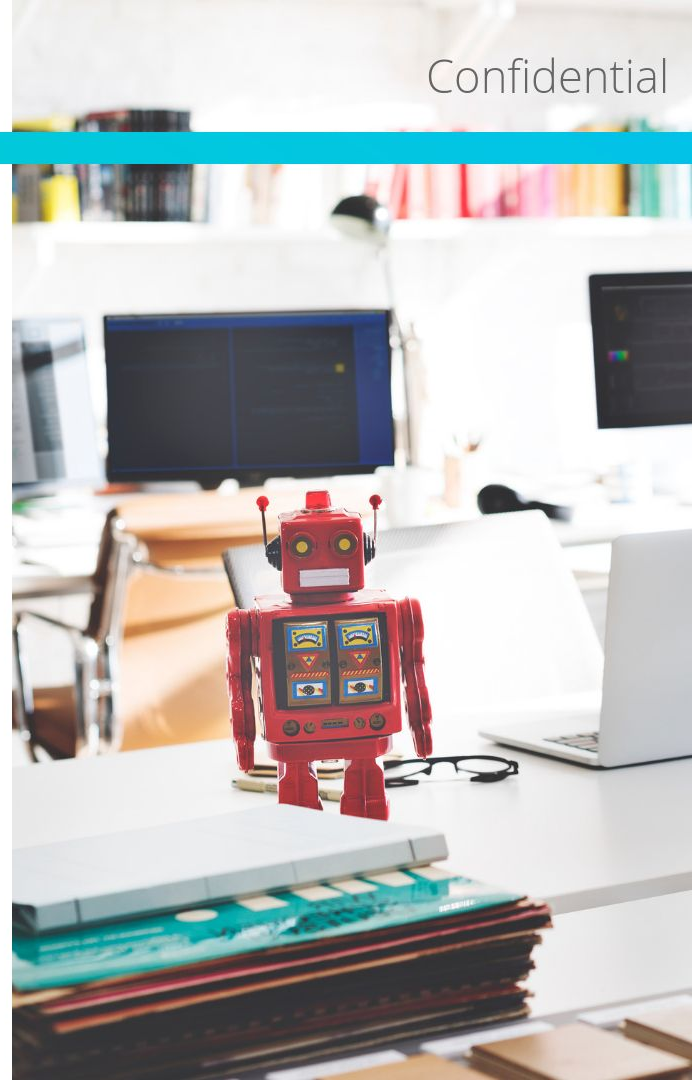
Merav Zaks

- 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



The Plan

- The Digital Transformation
- Selenium Challenges
- Leverage Machine Learning
- Live Example
- Is it really working?



Digital Transformation

The background of the slide is a grayscale photograph of a wooden desk. On the desk, there is a silver laptop on the left, a Canon 18-55mm lens in the center, a Canon lens cap to its right, a smartphone to the right of the lens, a tablet displaying a grid of icons on the far right, and a pair of Ray-Ban sunglasses in the lower center.

test **craft**

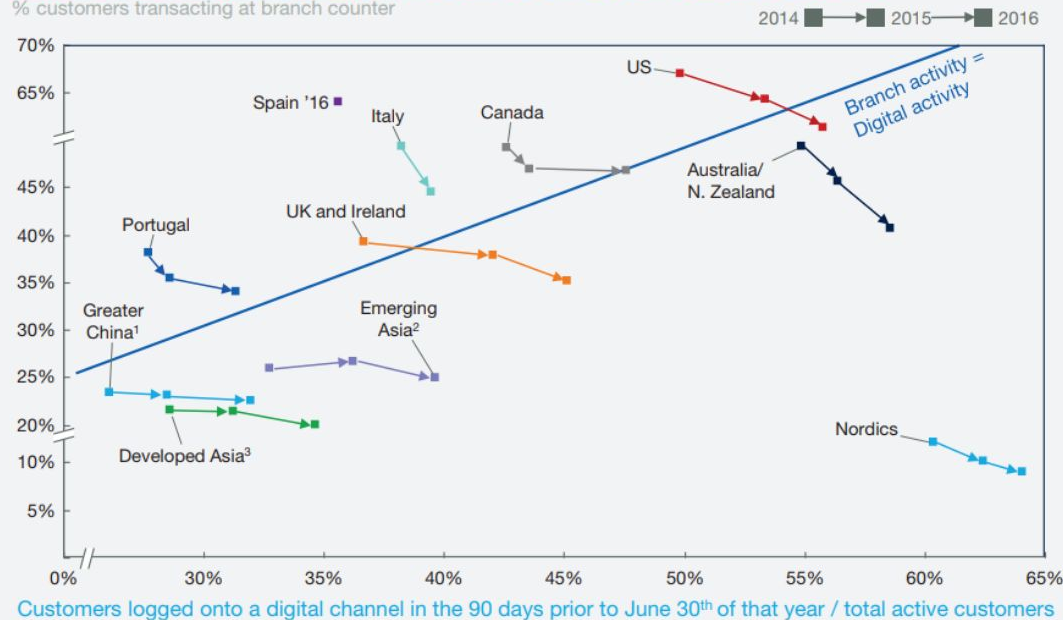
- Confidential -

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



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

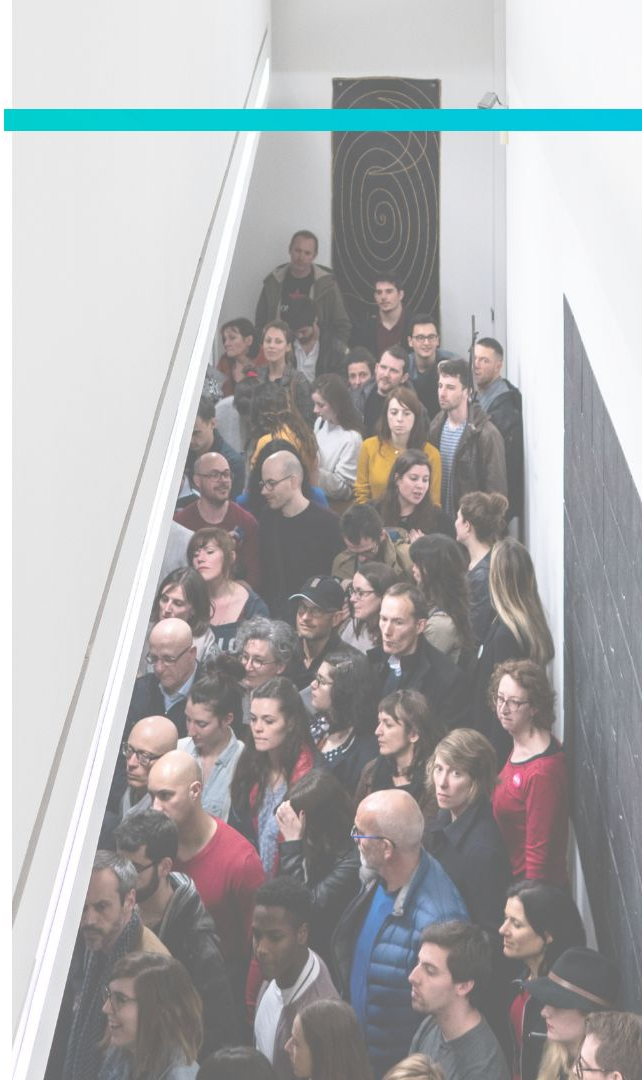
From Waterfall to Agile

- Constant updates & versions
- Shorter (and shortening) release cycles
- Adapt to new working methodologies
- Organizational shift of all touch points



Testing was Left Behind

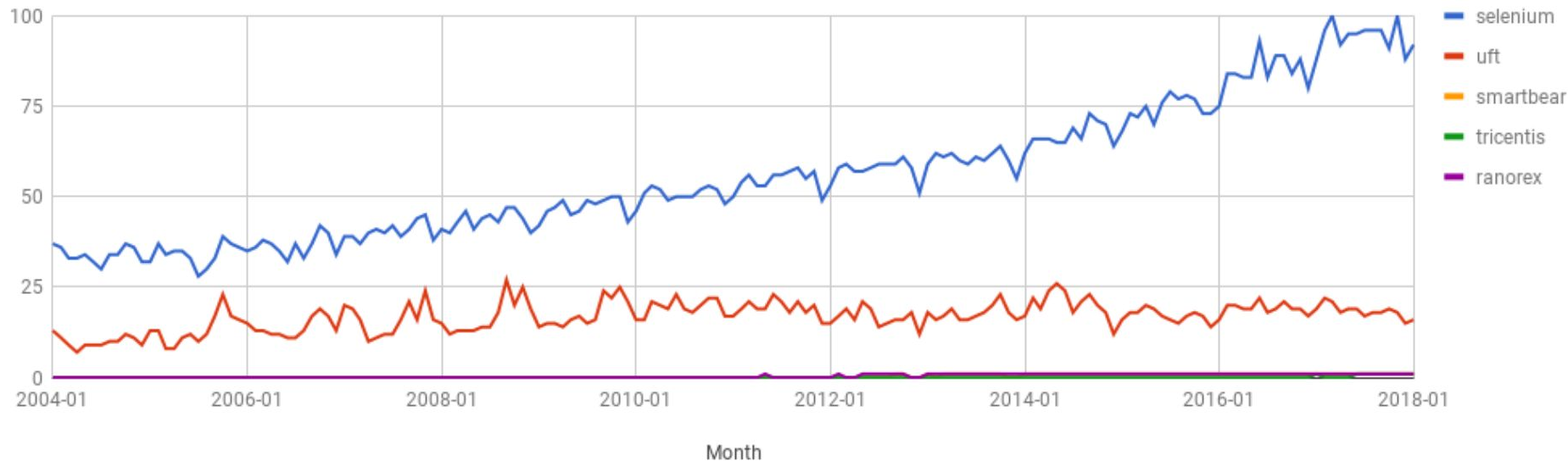
- Dev teams are at the core of the agile process
- Dev tools were the focus
- QA had to catch up with legacy tools
- Testing becomes the bottleneck
- Challenge grows as cycles get shorter and regression gets longer
- Ongoing challenge of quality vs. velocity



Selenium, Selenium, Selenium



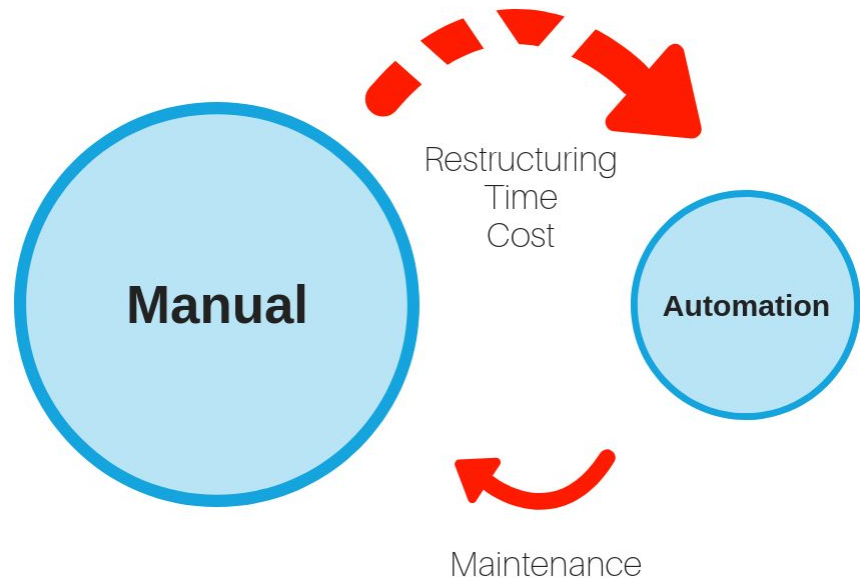
Google Trends - Interest Over Time



Selenium Challenges

Selenium Comes at a Cost

- Requires expensive framework setup
- Requires coding knowledge and hiring test engineers
- Maintenance - tests CONSTANTLY break



Leveraging Machine Learning

What is Machine Learning?



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

Live Example

rowser

avigate To Location

ates (Turkish Airli

lick

The End

test **craft**

inalizing...

he End

00:45 Turkish Airlines x

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From Pasco Tri-Cities Airport (PSC) To Dates Cabin: ECO Class 1 Award ticket

Choose your departure date: ☐ Flexible dates ☐ Direct flights

AUGUST 2015 SEPTEMBER 2015

Mo	Tu	We	Th	Fr	Sa	Su
					1	2
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Mo	Tu	We	Th	Fr	Sa	Su
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

- Confidential -

Is It Really Working?

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%

Conclusion

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

Q&A



Thank You
merav@testcraft.io

Please fill out the survey :)