



Changing Role of Testers

In the Era of DevOps, IoT, AI and UX

    /TesterYouHQ

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- IT professional with 15+ years of experience as IT Consultant, Software Engineer, Software Developer, Business Analyst and Software Tester for many different organizations.
- Has trained more 5.000 people and spoken at more than 50 international conferences in more than 20 countries.



barissarialioglu



@mbsarialioglu



amazon





tester YOU

An awesome new company is coming very soon...

35

Days



09

Hours



25

Minutes



27

Seconds

We are currently working on it every minute of every hour!

Subscribe ↗

About Us



Trends for 2018 and beyond...

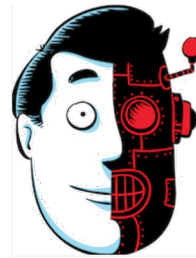
Software Testing

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Evolving Software Testers



Tester v1.0



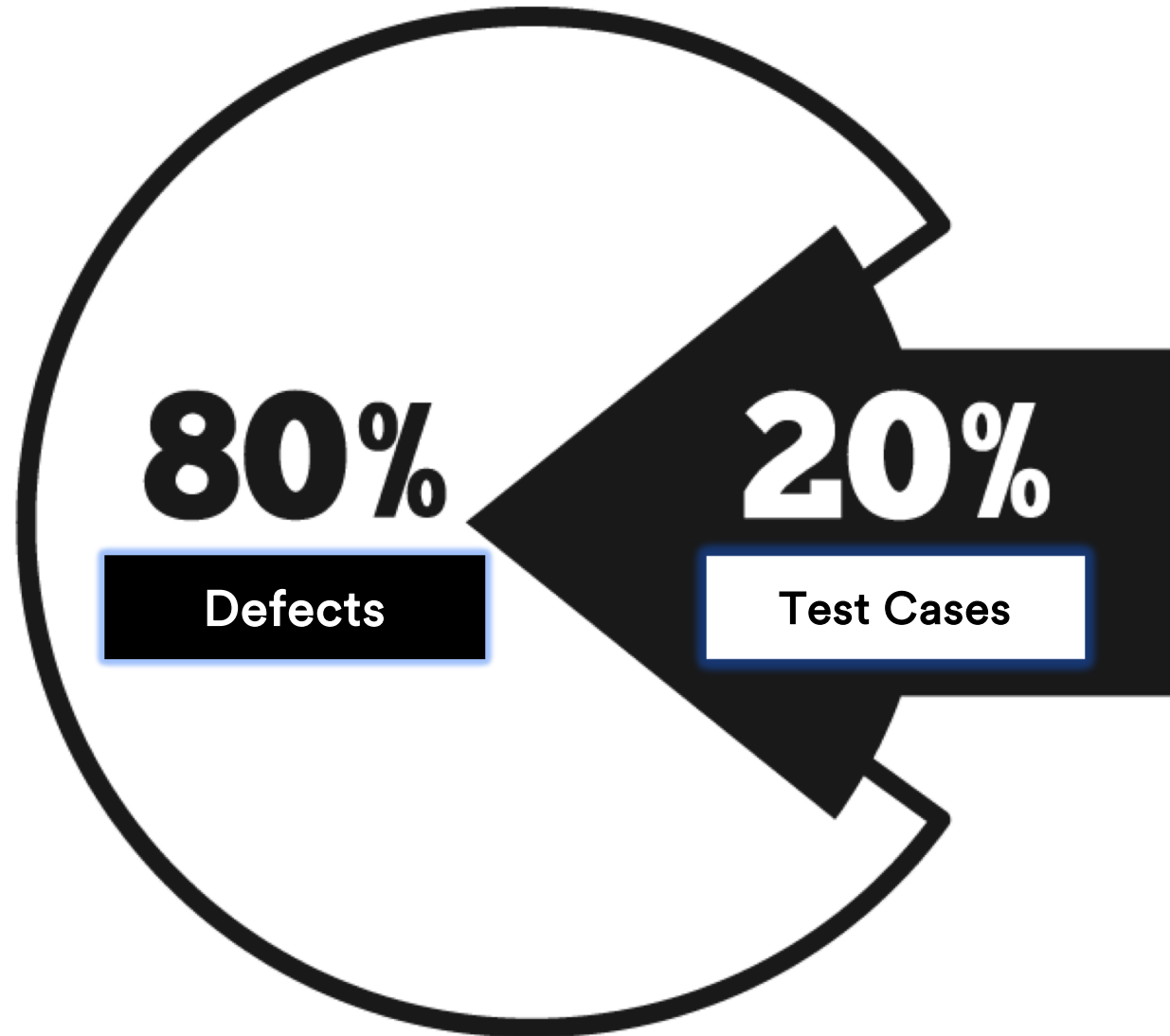
Tester v2.0



- Bug Detection
- Testing at the End
- Tester Responsibility
- Rely on Specifications
- Checking
- Business Skills
- Functional Testing
- Lost Opportunities

- Bug Prevention
- Testing Throughout
- Team Responsibility
- Define the Specifications
- Checking + Exploring
- Bus. + Technical Skills
- Func. + Non-functional
- The Dream Job

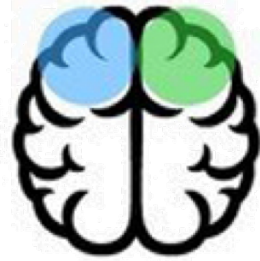
Smart Testing!



Dedicated Testing!

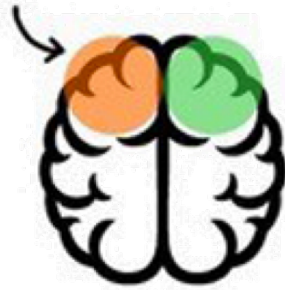


SINGLE TASK



TWO TASKS

THE 3RD TASK IS REPLACING
ONE OF THE 3 TASKS



THREE TASKS

IT IS
ONLY
YOUR
COMMITMENT
THAT
MATTERS



DevOps & Testing

Development and Operations

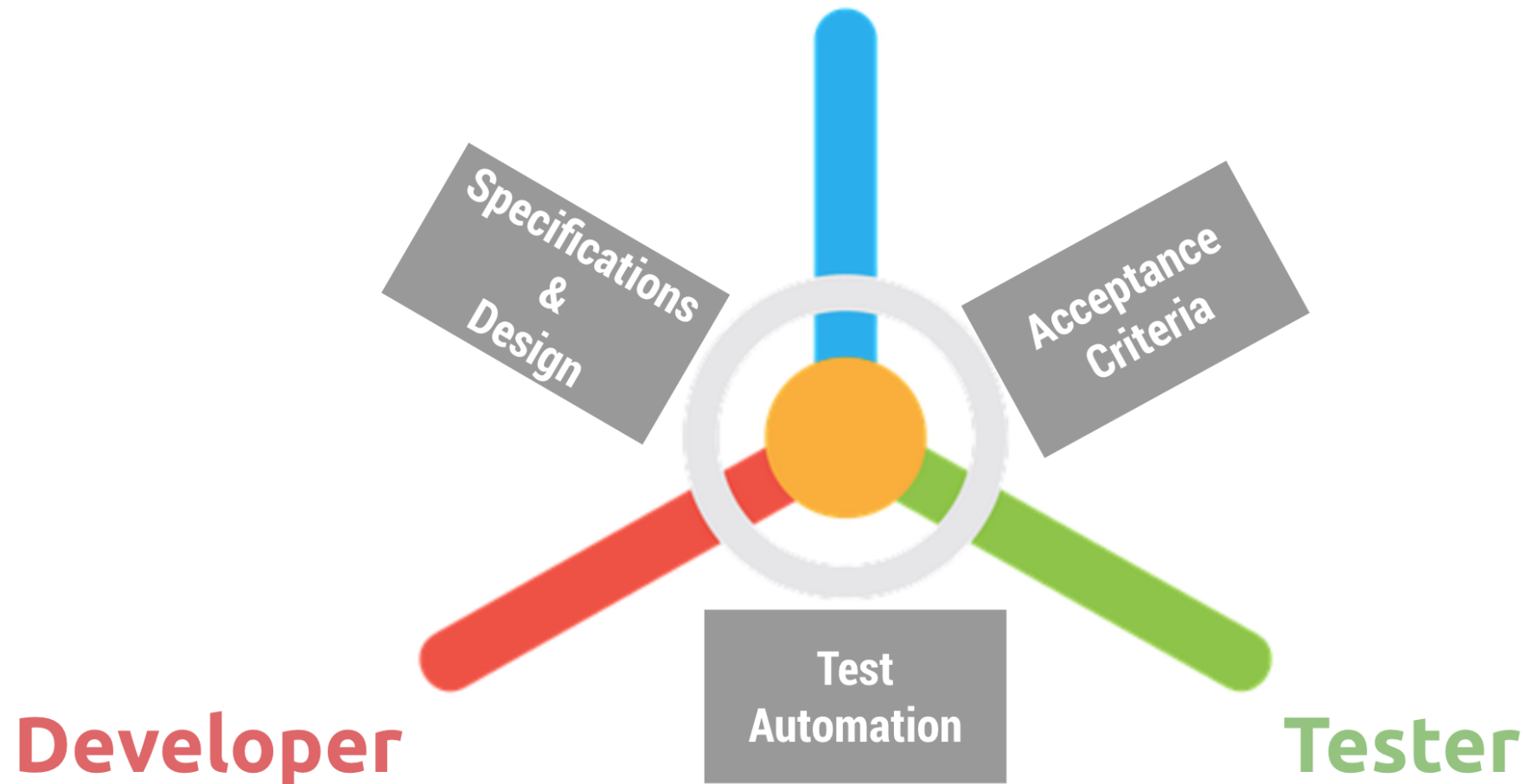
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Many Misconceptions about it!

- **DevOps Means Attending to Conferences** → It is and should be more than that!
- **DevOps Means Releasing Software every 5 mins or Doing 10 deploys a day** → That doesn't have to be the same for your organization
- **Operations & Infrastructure go away** → They become parts of the development and move more into the code
- **We Need Uber Developers** → We need operations specialists on the development teams.
- **Automation is DevOps** → DevOps is not something you build, it's something you do
- **Adopting Tools Makes You DevOps** → Remember the saying: "Fool with a Tool..."
- **DevOps Is just for Modern Systems** → It should actually integrate with either legacy and modern systems
- **Each team member (Dev, Ops, QA) has opposing goals** → There is 1 "ultimate" goal, "Producing high quality software and maintaining it the way it was first produced."

Collaborative Testing!

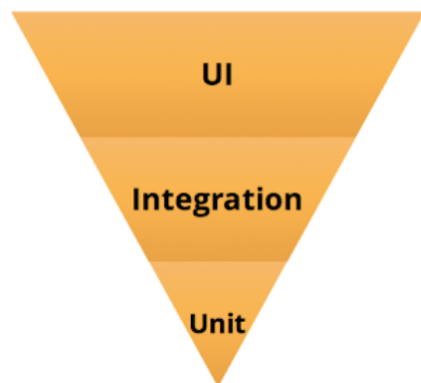
Business Analyst



Test Automation Pyramid!

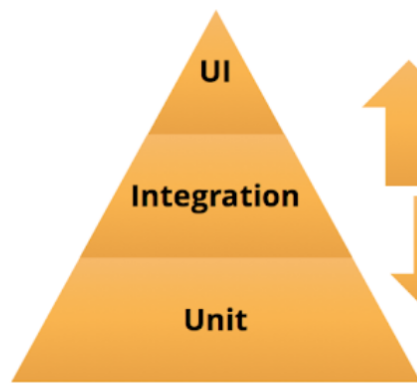
Traditional Testing

[Finding Bugs]



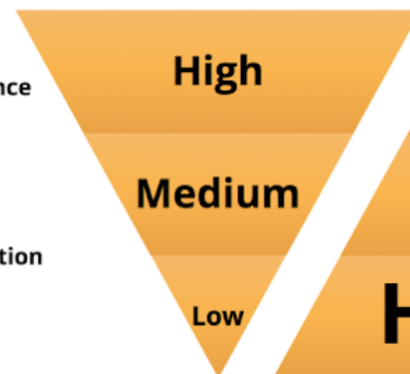
Agile Testing

[Preventing Bugs]



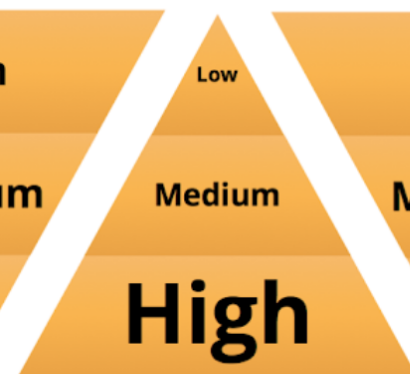
Business Logic Coverage

Coverage



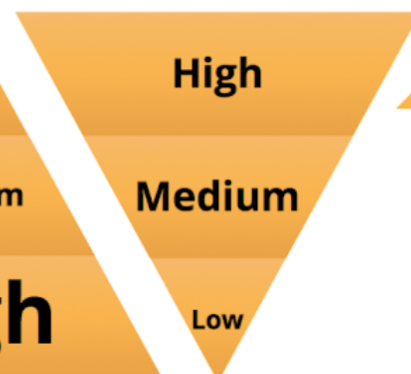
Code Coverage

Coverage



Execution Time

Maintenance Cost



Manual

Automated

Smart Test Automation!



S M A R T

Small

Maintainable

Analyzable

Rapid

Timely

Tools



PERIODIC TABLE OF DEVOPS TOOLS (V1)																		XebiaLabs Deliver Faster			
1 En O 12c																	2 Fm Aws Amazon Web Services				
3 Os My MySQL	4 Os Gt Git															5 En Ch Chef	6 En Pu Puppet	7 Os An Ansible	8 En Sl Salt	9 Os Dk Docker	10 Pd Az Azure
11 En Mq MSSQL	12 Os Sv Subversion															13 Fr Ssh SSH	14 En Bl BladeLogic	15 Os Va Vagrant	16 Fr Tf Terraform	17 Os Rk rkt	18 Fm Hk Heroku
19 Os Pq PostgreSQL	20 Fr Mc Mercurial	21 Os Mv Maven	22 Os Gr Gradle	23 En Mr Meister	24 Os Jn Jenkins	25 Pd Bb Bamboo	26 Os Tr Travis CI	27 Fr Ar Archiva	28 Os Fn FitNesse	29 Fr Se Selenium	30 Os Gn Gatling	31 Pd Gd Deployment Manager	32 Os Sf SmartFrog	33 Fr Cb Cobbler	34 Os Bc Bcf2	35 Os Kb Kubernetes	36 En Rs Rackspace				
37 Os Mg MongoDB	38 Fm Gh Github	39 Os Br Buildr	40 Os At ANT	41 Fm Bm BuildMaster	42 Fm Cs Codeship	43 Fm Sn Snap CI	44 Fm Cr CircleCI	45 Os Nx Nexus	46 Fr Cu Cucumber	47 Os Cj Cucumber.js	48 Fr Qu Qunit	49 Fr Cp Capistrano	50 Fr Ju JuJu	51 Os Rd Rundeck	52 Os Cf CFEngine	53 Fr Pk Packer	54 Fm Bx Bluemix				
55 En Db DB2	56 Fm Bb Bitbucket	57 Fm Qb QuickBuild	58 En Ub UrbanCode Build	59 Pd Ta Visual Build	60 Fm Tc TeamCity	61 Fm Sh Shippable	62 Os Cc CruiseControl	63 Os Ay Artifactory	64 Fr Ju JUnit	65 Fr Jm JMeter	66 Fr Tn TestNG	67 En Rd RapidDeploy	68 Fm Cy CodeDeploy	69 En Oc Octopus Deploy	70 Os No CA Nolio	71 En Eb ElasticBox	72 En Ad Apprenda				
73 Fr Cs Cassandra	74 En Hx Helix	75 Os Msb MSBuild	76 Os Rk Rake	77 Os Lb LuntBuild	78 Os Cu Continuum	79 Fm Ca Continua CI	80 Os Gu Gump	81 Os Ng NuGet	82 Os Ap Applium	83 En Xltv XL TestView	84 En Tc TestComplete	85 Os Go Go	86 En Ef ElectricFlow	87 En Xld XL Deploy	88 En Ud UrbanCode Deploy	89 Os Mo Mesos	90 Os Cf Cloud Foundry				

Share

Embed

Become Excellent!

Subscribe here!

91 En Xlr XL Release	92 En Ur UrbanCode Release	93 En Ls CA Service Virtualization	94 En Bm BMC Release Process	95 En Hp HP Codar	96 Pd Ex Excel	97 En Pl Plutora Release	98 En Sr Serena Release	99 Fm Tr Trello	100 Pd Jr Jira	101 Fm Rf HipChat	102 Fm Sl Slack	103 Fm Fd Flowdock	104 Pd Pv Pivotal Tracker	105 En Sn ServiceNow
106 En Sp Splunk	107 Os Ki Kibana	108 Fm Nr New Relic	109 Os Ni Nagios	110 Os Gg Ganglia	111 Os Ct Cacti	112 Os Gr Graphite	113 Os Ic Icinga	114 Fm Sl Sumo Logic	115 Os Ls Logstash	116 Fm Lg Loggly	117 Os Gr Graylog	118 Os Sn Snort	119 Os Tr Tripwire	120 En Cy CyberArk

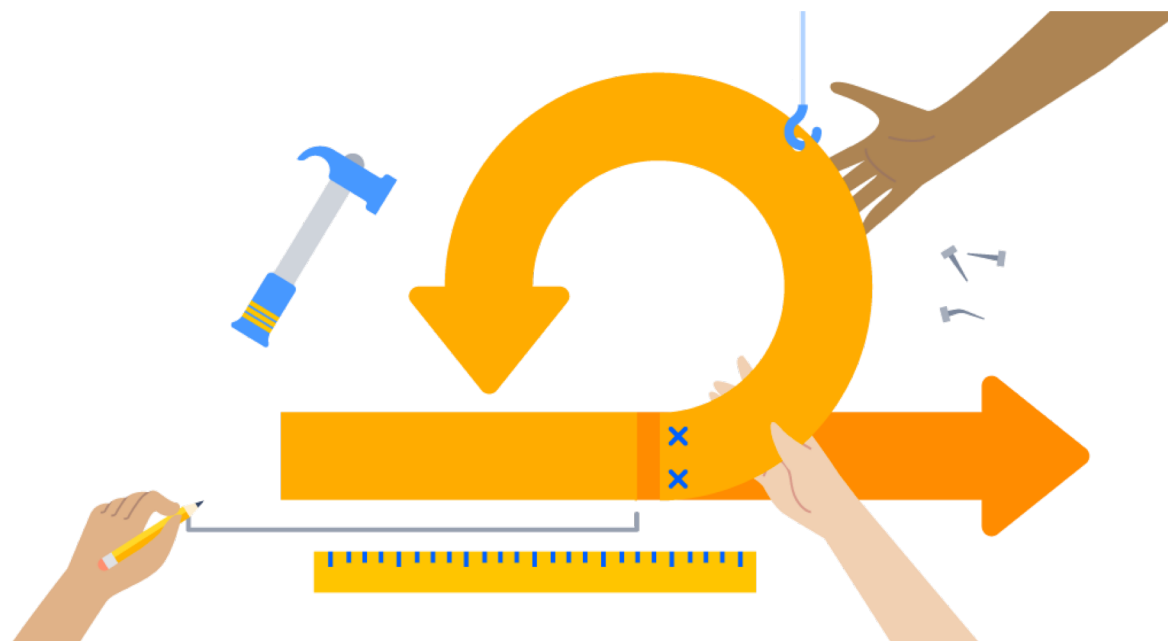


IoT & Testing

Internet of Things

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World is Changing!



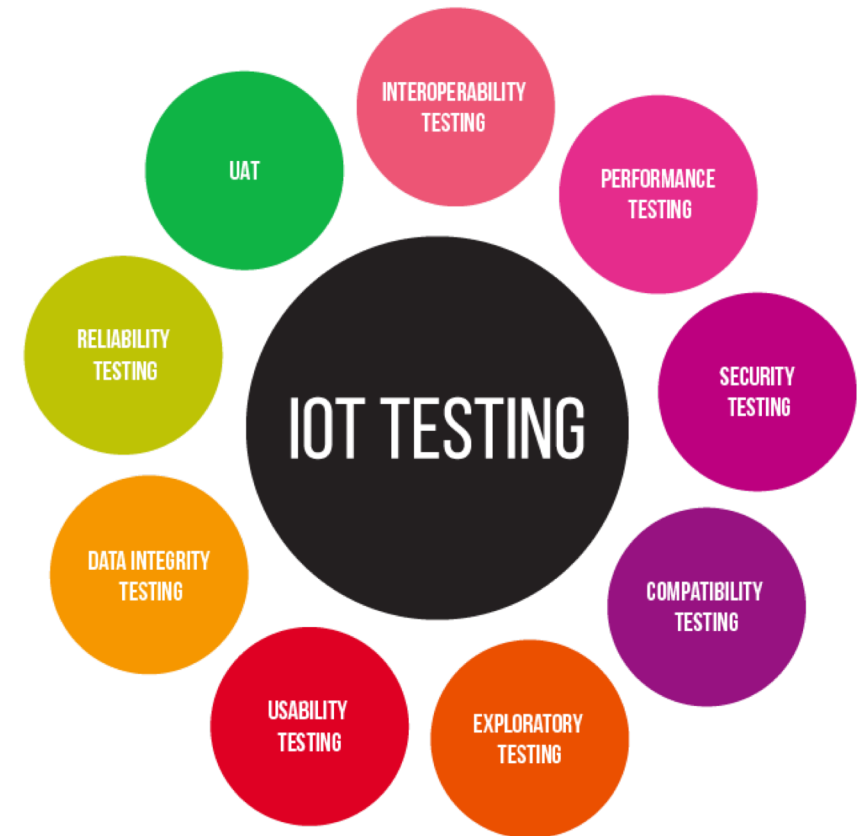
- **90% Data** today, produced in last 2 years
- **25 billion** connected devices by 2020
- **Lines of Code** → Doubles every 2 years
- **Defects per Line of Code** remains the same for the last 10 years

What is Internet of Things?



IoT means more Hardware Testing!

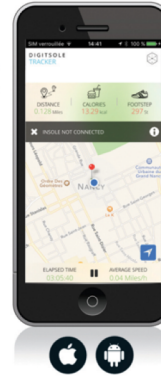
- RFID [Radio Frequency Code]
- EPC [Electronic Product Code]
- NFC [Near Field Communication]
- Bluetooth
- Z-Wave: This is a low power RF comm technology. This is primarily used for home automation, lamp controlling etc.
- WiFi: This is the most commonly used choice for IoT. When on a LAN, this helps in transferring files, data and messages seamlessly



Are they really Smart?

amazon echo

Always ready, connected, and fast. Just ask.



HEXOSKIN
WEARABLE BODY METRICS



tester
YOU

Internet of People - IoP

In the bottom line, internet is invented for **people** not for the things...



Internet of People



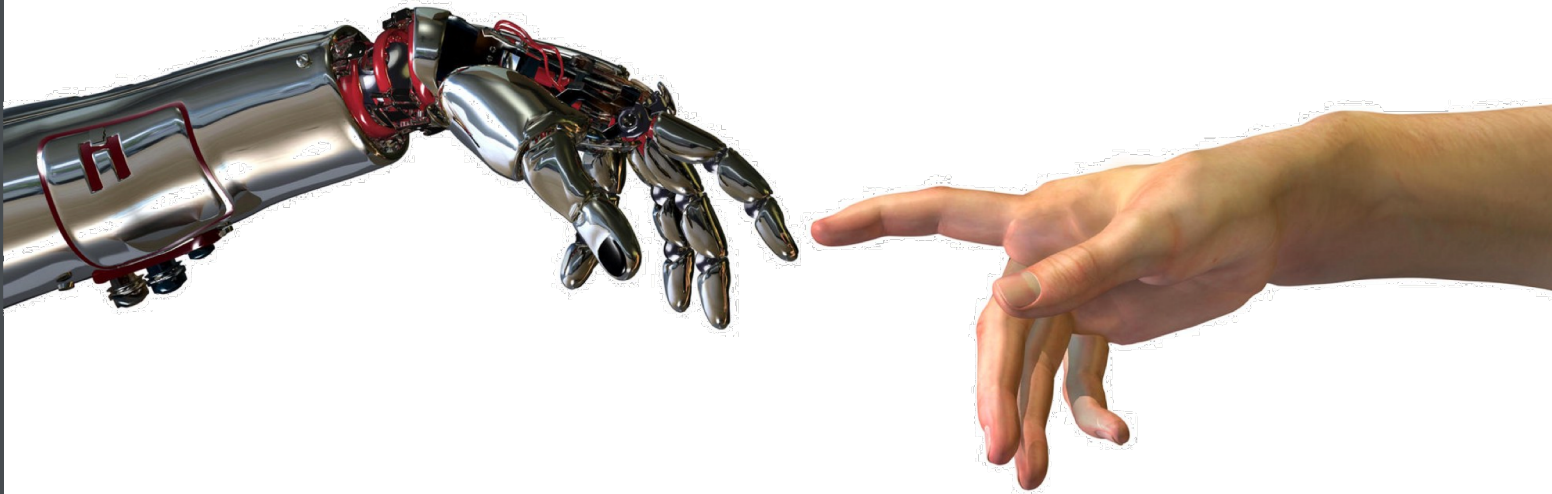
AI & Testing

Artificial Intelligence

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What is Artificial Intelligence (AI)

- **Artificial Intelligence** is software that learns and self improves.
- It may take a physical form (robot, spacecraft, car, etc.); however, in many cases it is embedded into the software and/or services. (e.g. bots)

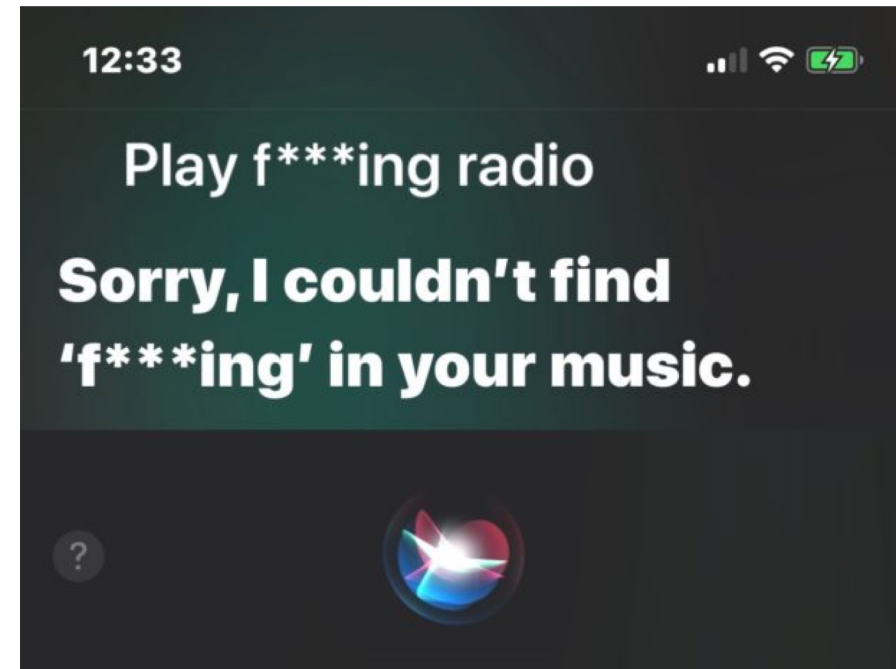


WIKIPEDIA
The Free Encyclopedia

Stop Swearing at AI!

About **10% to 50%** of interactions are still **abusive**;

- Frustration (Load / Stress Testing)
- Experimenting (Exploratory Testing)
- Entertaining (Boundary Value Testing)



Treat Technology Like any other Being!

Three Laws of Robotics

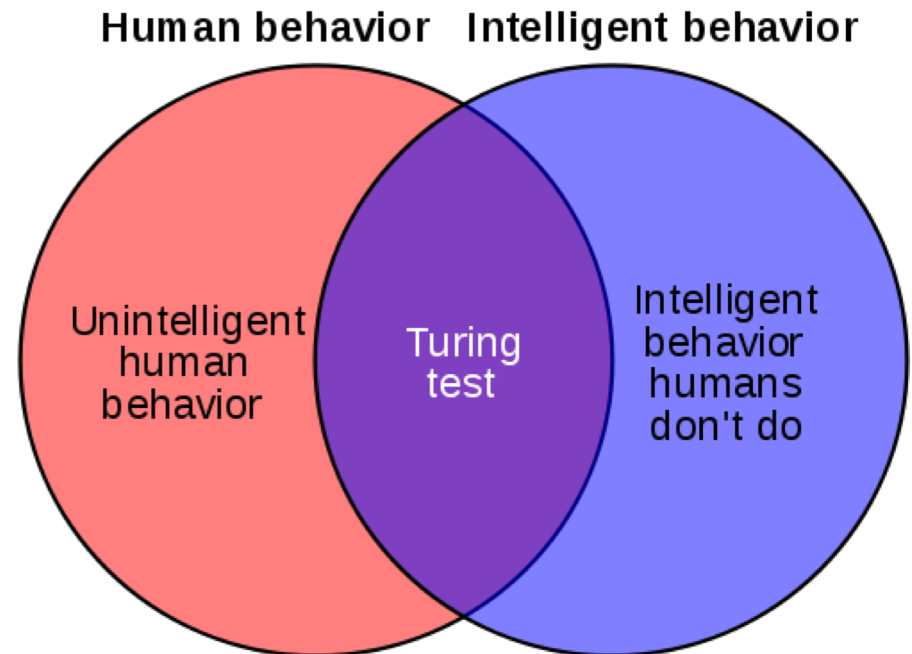
0.

A robot may not harm humanity, or by inaction, allow humanity to come to harm.



There are Smarter Ways to Test AI!

- Turing Test
 - Graphics Turing Test (Simulated Visual Experience vs Reality)
 - Minimum Intelligent Signal Test (Yes/No, True/False answers)
 - Game Bot Turing Test (User vs Bot)
 - Subject Matter Expert Test (AI Researcher)
- Tokyo Test
- Reverse Turing Test
 - Captcha (Users to show that they are human)



Use AI in Testing!

- Intelligent Monkey Testing
 - (Training a tool to discover and optimize test cases for an SUT)
- Test Oracles and Test Basis
 - (Ability to Explore)
- Test Case Generation
- Accessibility Testing
- Usability / UI Checklist-based Testing
- Code Analysis (Static and Dynamic)
- Defect Analysis
- Test Estimation
- Test Data Analytics



Use AI in Test Automation!



testim



I frankly can recall many testing activities I've done in the past that could eventually be done **better** by an **AI** with **enough training data**.





UX & Testing

User Experience

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UX is very broad!

User Experience (ISO 9241-210)

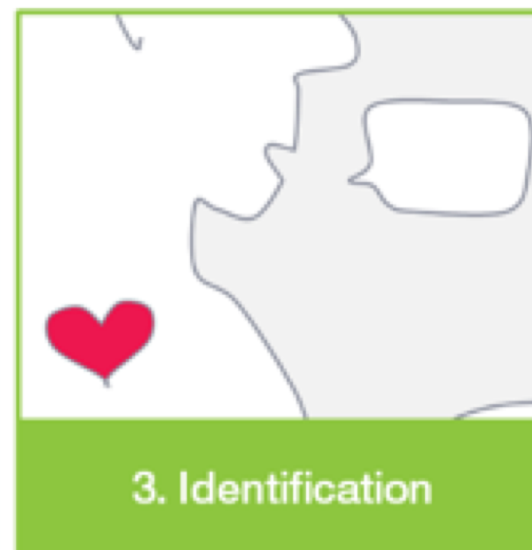
A person's perceptions and responses that result from the use and/or anticipated use of a product, system or service.



Before actually using a product, users generate subjective expectations about what it will be like to use the product.

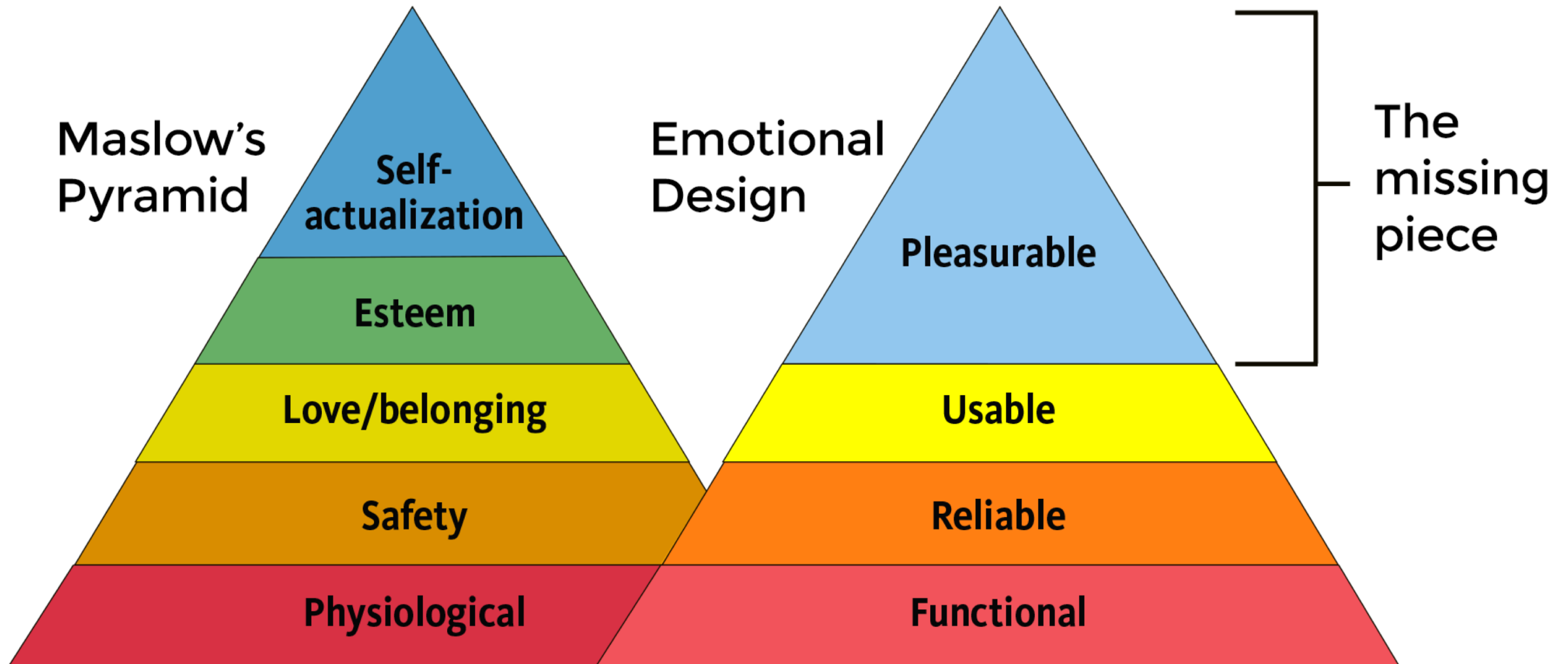


While using a product, users evaluate whether it helps them reach their goals effectively, efficiently and to their subjective satisfaction.



After using a product, users reflect the usage of the product, either developing a feeling of identification with or dissociation from the product.

Hierarchy of Needs vs. UX



UX Testing Represents the Grey Zone!

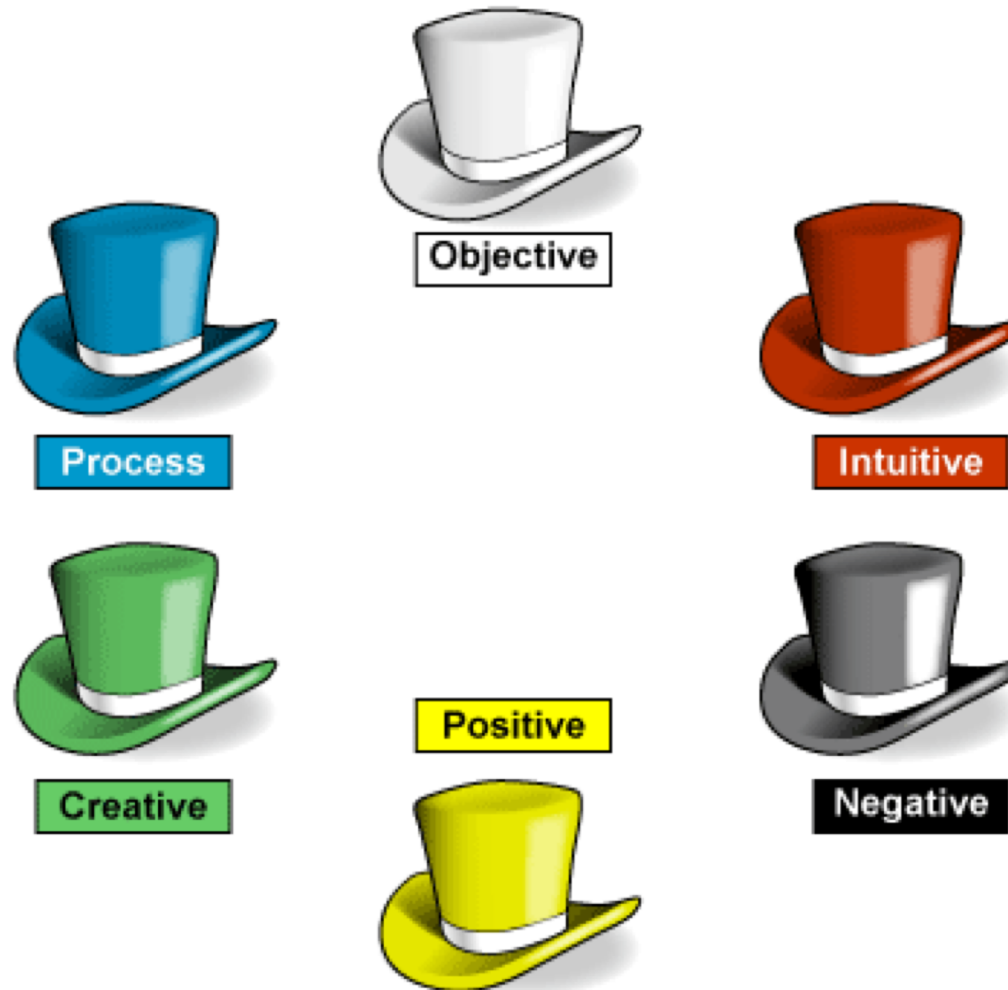


Human nature is not black and white
but black and grey.

— *Graham Greene* —

AZ QUOTES

UX Testing is Multi-dimensional!



UX Testing is Hard to be Quantified!

How Good is **too** Good!

Qualitative	Quantitative
Like Easy	23,406 4.3
Awkward slow	2m32s
Squirrel	76.8%
Efficient	\$45,849
Ambiguous How	1,127 3.76%
Confusing	€12.75

Subjective

Objective

But still we know that numbers are also, **Relative!!!**

Who will do the UX Tests?

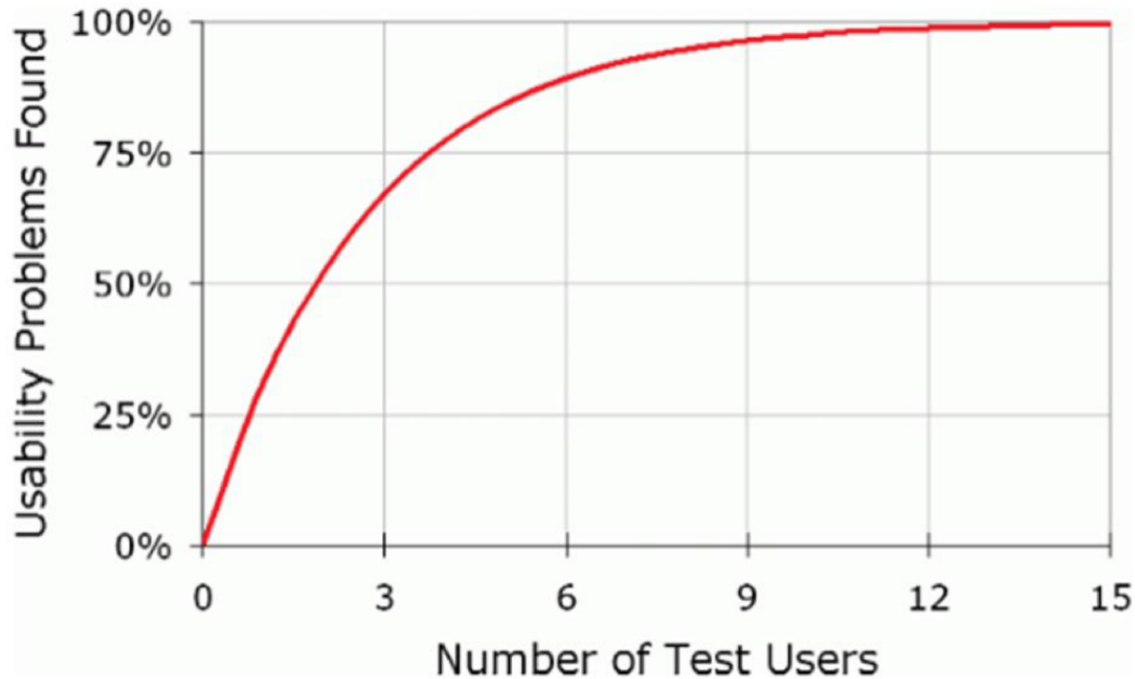


Testers?

Users?



How many Users are Enough?



$$\% \text{ of Usability Problems Detected} = 1 - (1 - p)^n$$

Where;

- p is the probability of detecting major usability problems
- n is the number of users.

Example:

5 Users having 30% probability of detecting majority of usability problems means;

Approximately 83% of Major Usability Defects will be detected!!!

Where to do the UX Tests?



In the **Lab**



★ In the **Wild**

What kind of Equipment is Necessary?



Eyetracking



Electroencephalography (EEG)

Looking vs Liking!



User Observation is Sometimes Hard!



- **Timing**
- **Logging**
- **Think aloud**
- **Retrospective Think Aloud**
- **Video recording**
- **Success Rate**
- A/B Testing
- Classification Tree
- Card sorting
- Eye-tracking
- Heatmaps
- Cluster Analysis
- Questionnaire
 - Sumi, Wammi



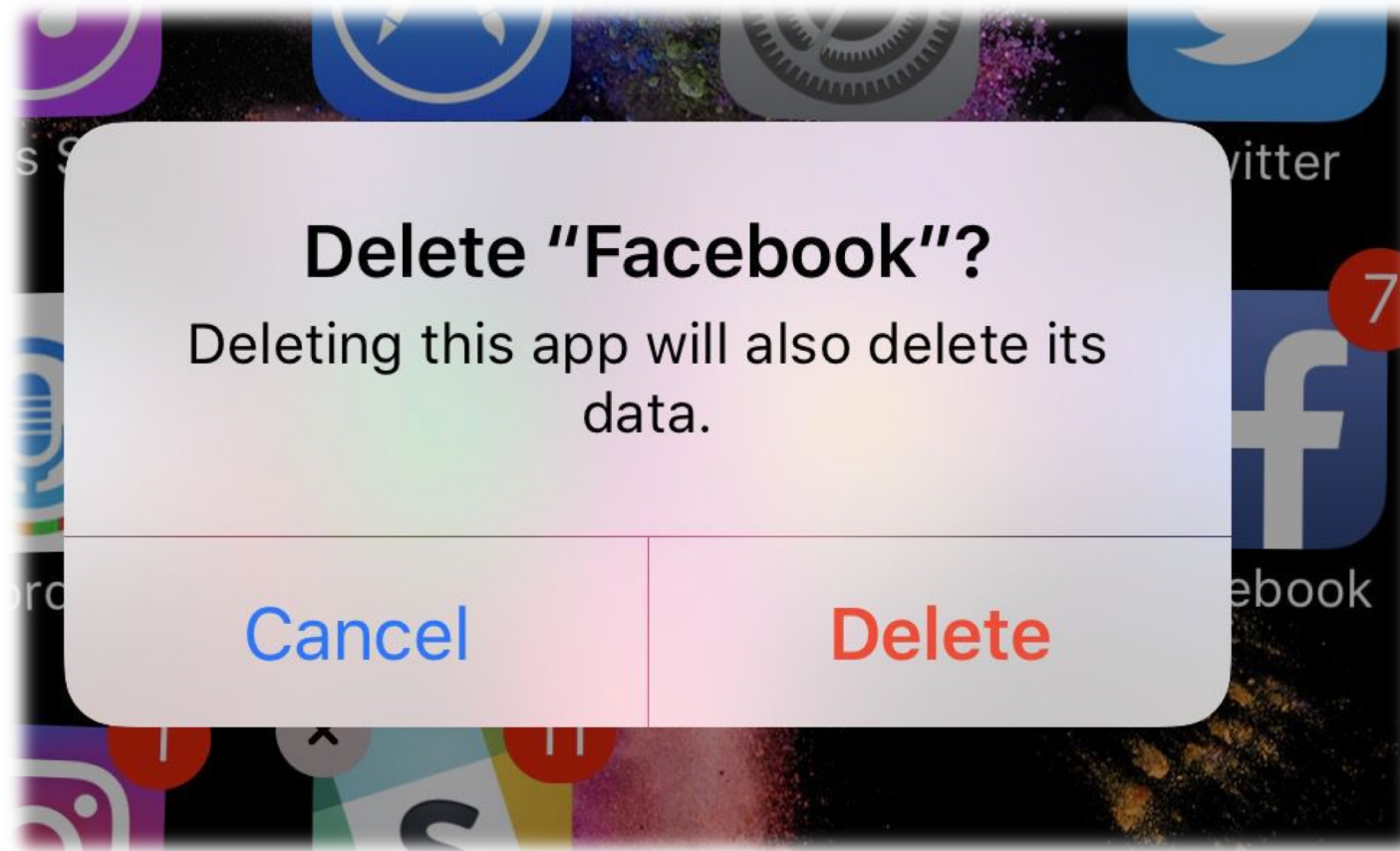
Users Select!

80% of the Users use **20%** of the Features!

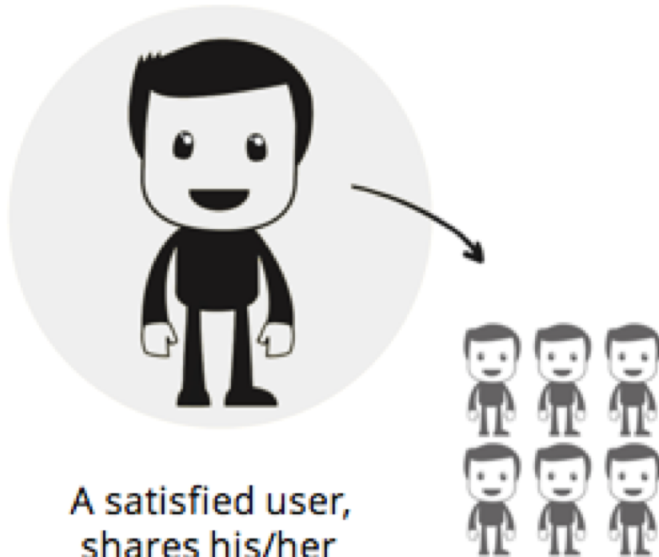


Users Delete!

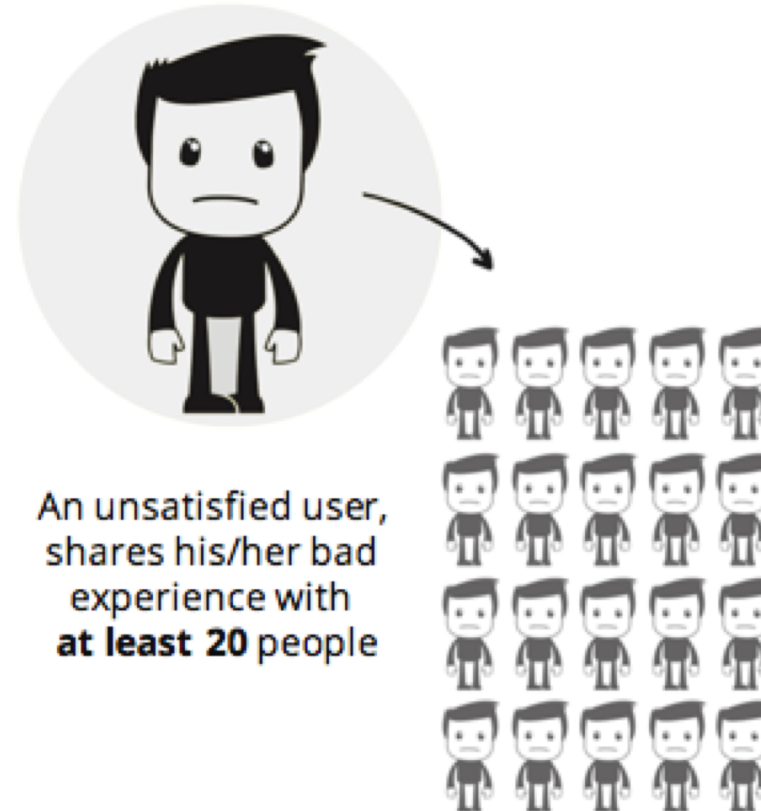
More than **80%** of the Apps are used once!



Users Share!

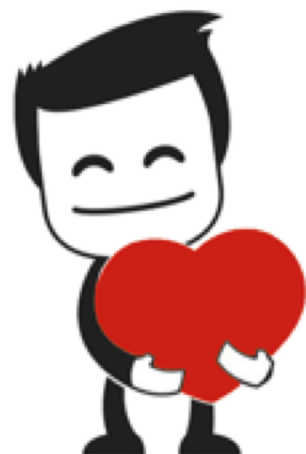


A satisfied user,
shares his/her
experience with
4-6 people



An unsatisfied user,
shares his/her bad
experience with
at least 20 people

Users Love!



To connect the customers to the brand with tight bonds, and obtain Brand Royalty, the bond should have **emotional** sides.



This emotional bond can only be obtained with fully user-centered, remarkable and unique experience, making the user feel he is special.



%81 of the users are agreed to pay more, to get that kind of special experience.

%81



Users are Mobile!

“Carry” Principle

Mobile Phone is always carried

“1 meter” Principle

Mobile Phone is always 1m away

“On” Principle

Mobile Phone is always turned on

“Privacy” Principle

Mobile Phone is not given to anyone

Users need Caring!



Easy to Use doesn't mean good User Experience!

Users have Physical & Mental Constraints

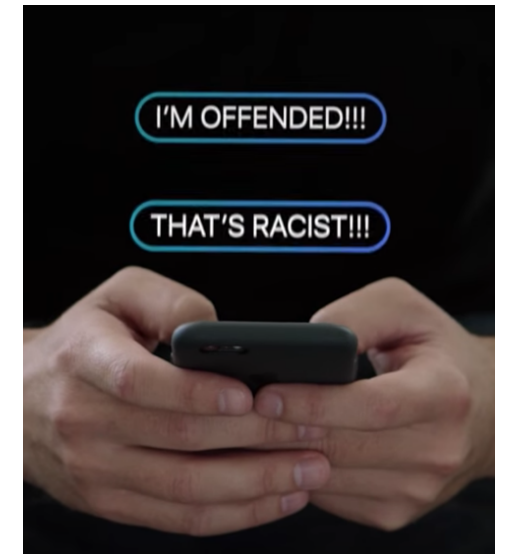


**Fat
Fingers**
.com

tooslow.com



getoffended





Thank You...

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