~~*The Future of Testing?*~~

…One Future for Testing
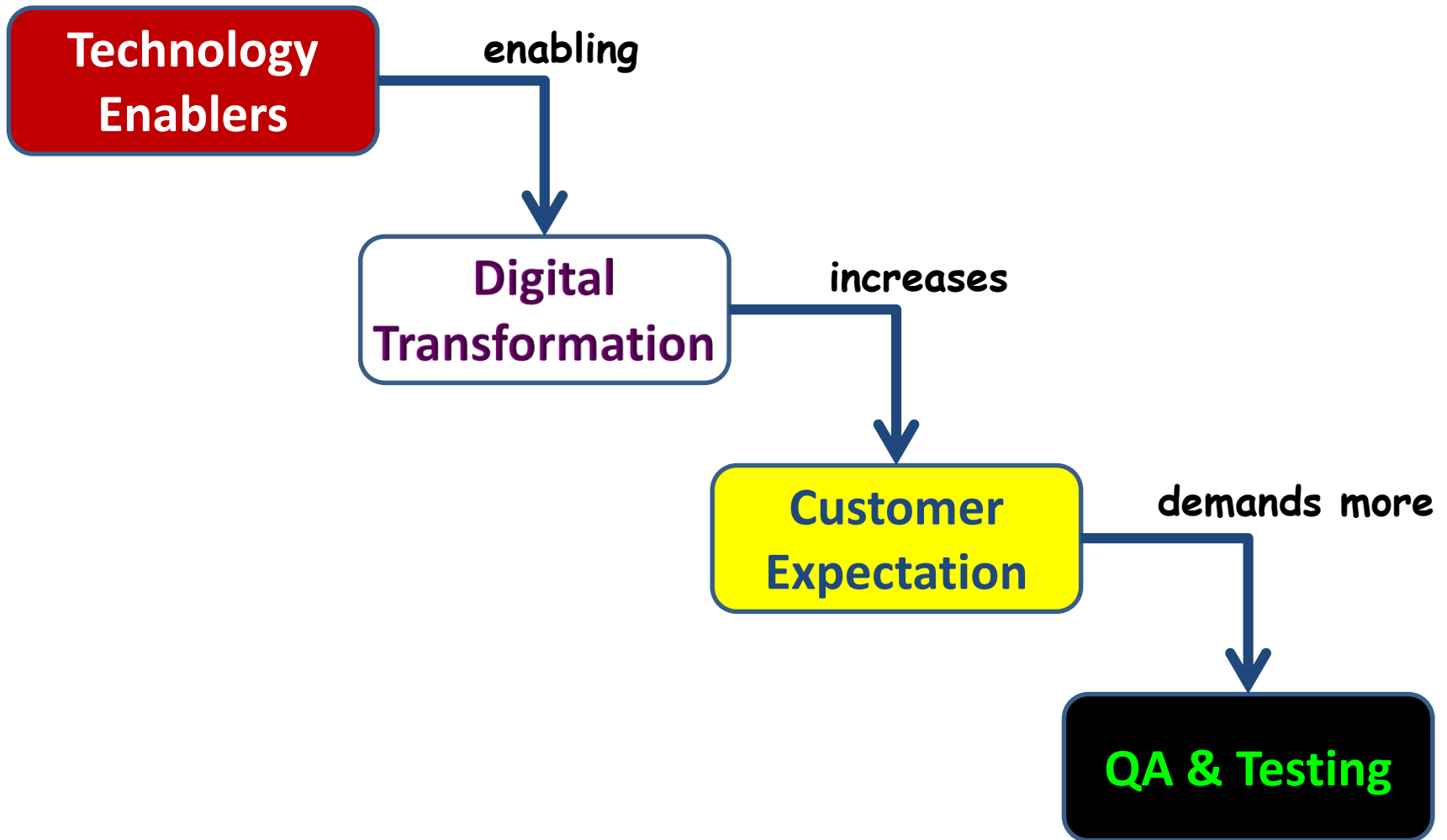
June 2016

Stuart Reid
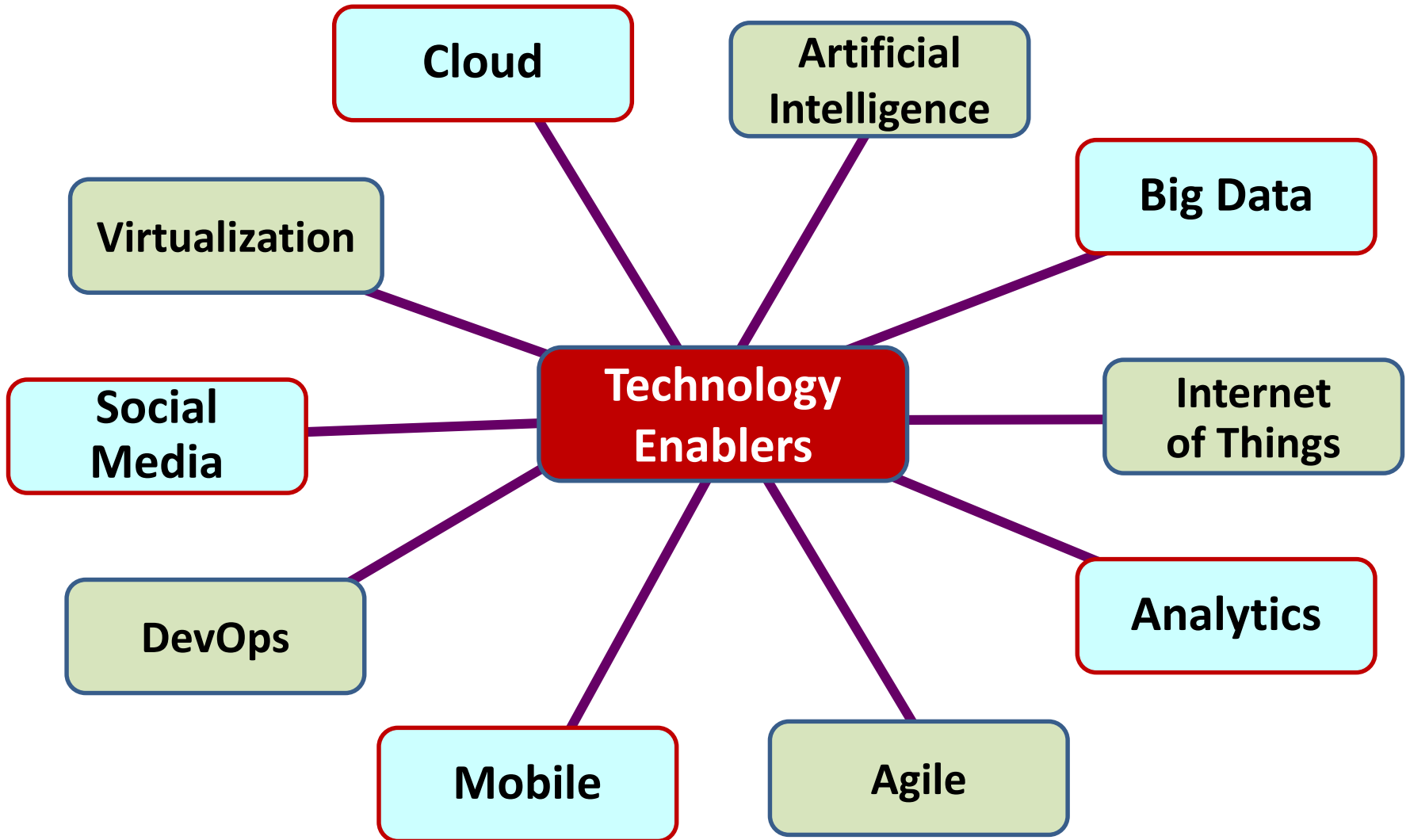## STA Consulting Inc.
(www.stureid.info / stuart@sta.co.kr)

The Changing Landscape

Technology Enablers — *enabling* → **Digital Transformation** — *increases* → **Customer Expectation** — *demands more* → **QA & Testing**

Technology Enablers

The Changing Landscape

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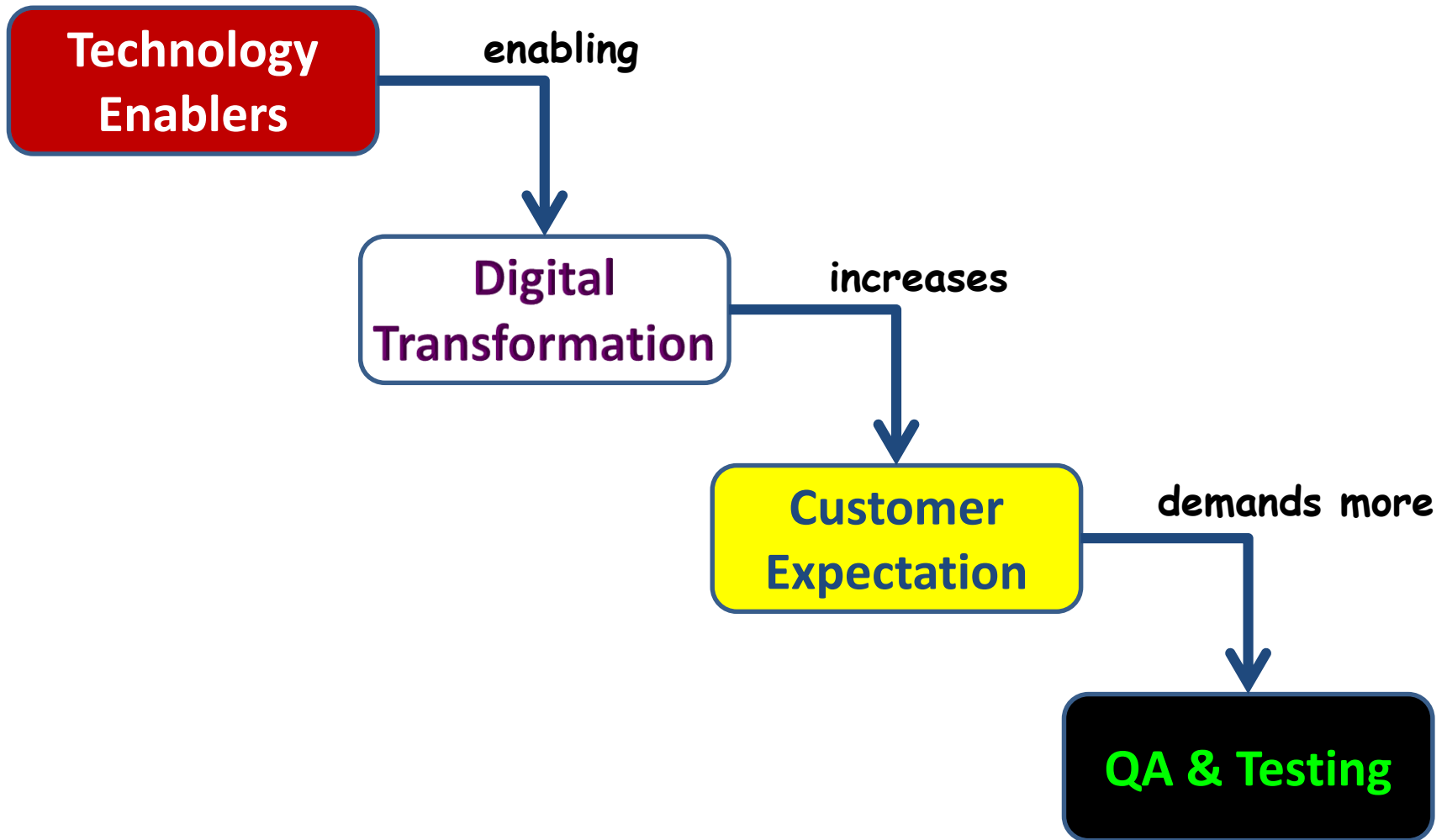
Digital Disruption - Examples

encyclopedia
Wikipedia

postal service
e-mail

maps
satnav

Blockbusters
Netflix

Digital Disruption

Digital Transformation

pay phone
mobile phone

digital camera
smart phone

record shops
music download

film photography
digital photography
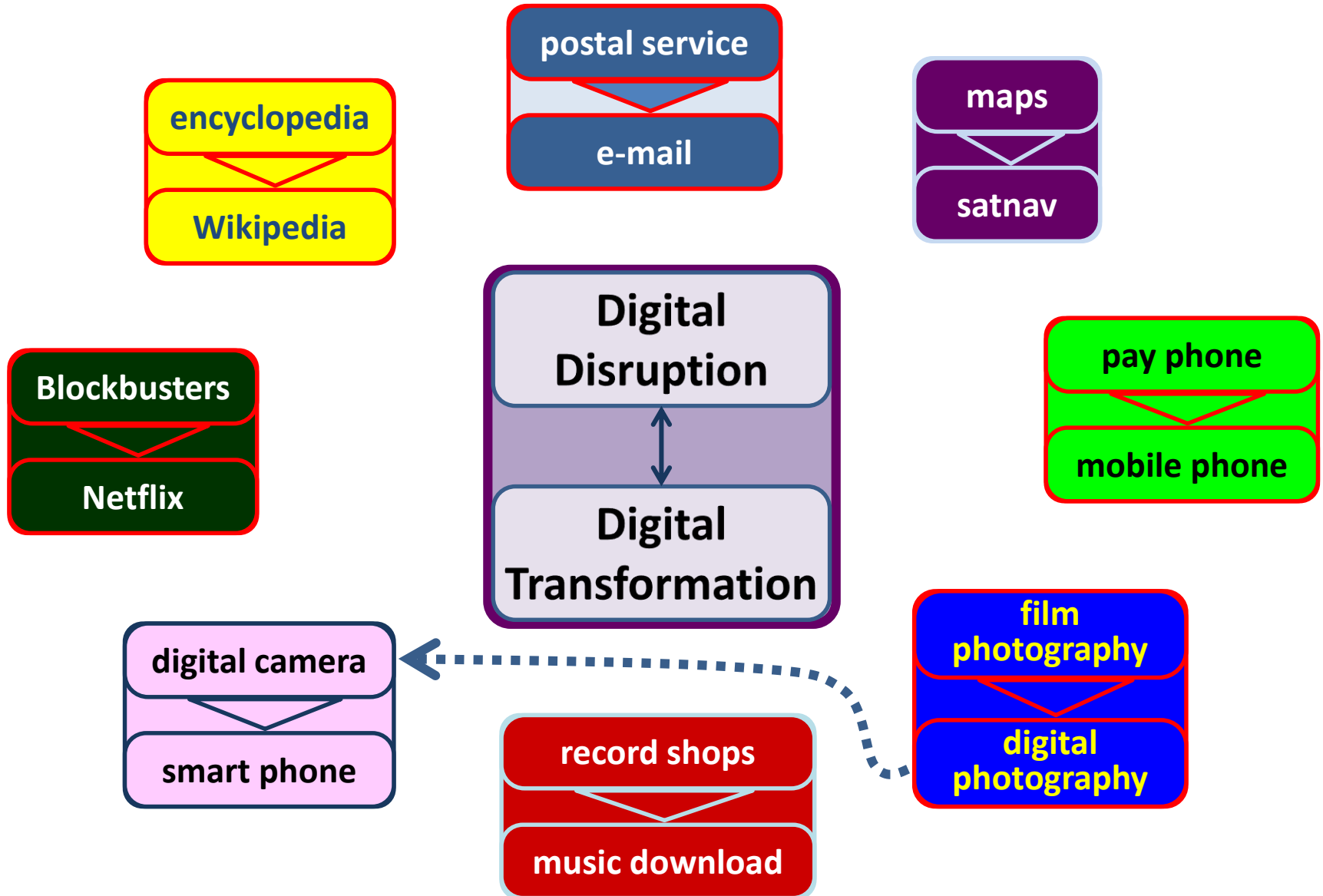
Accelerating - Digital Transformation

25% of the world's economy will be digital by 2020

PayU biz

Google wallet
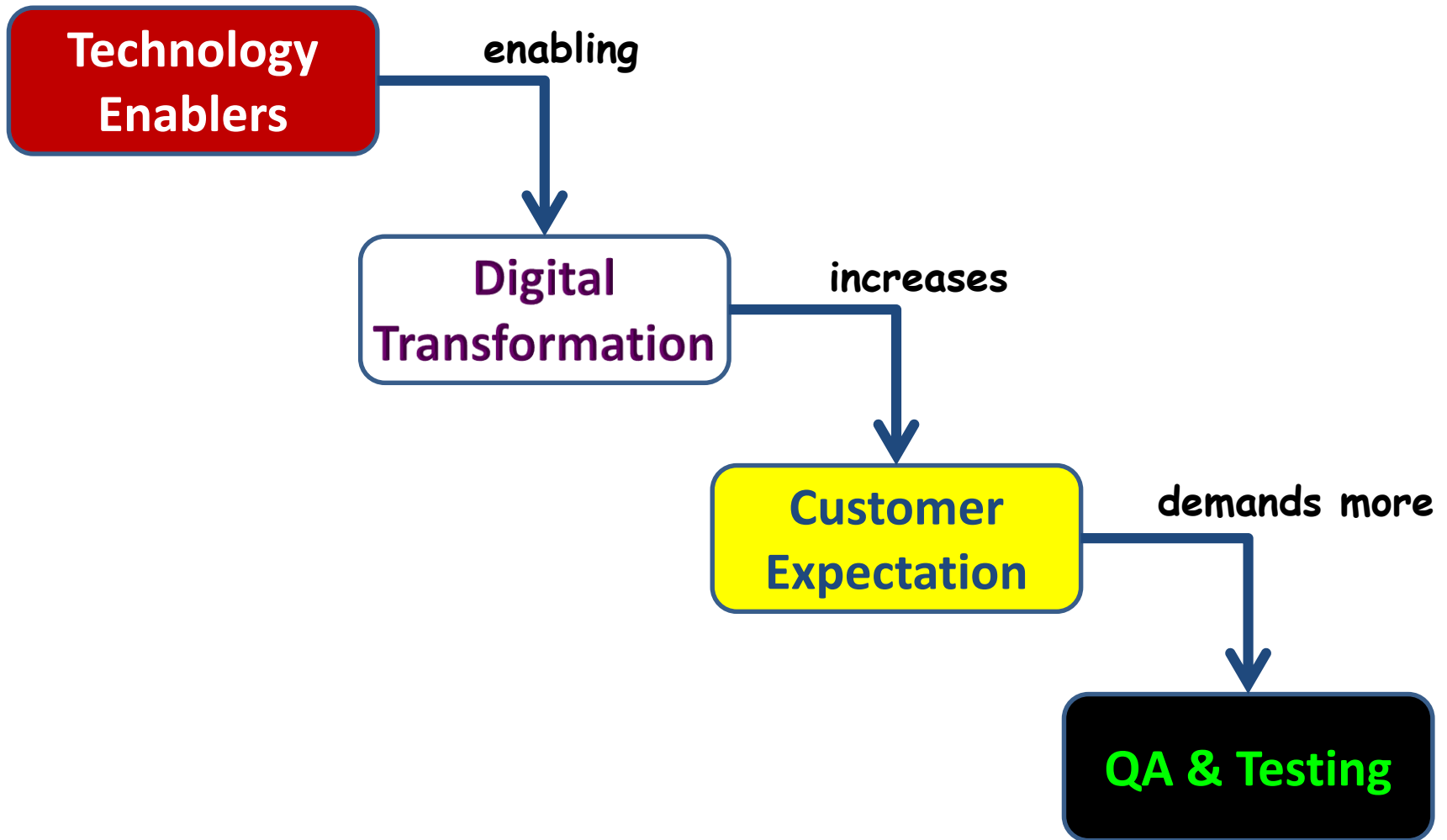
- 64% of retail sales over the 2015-16 Xmas period were based on digital interactions up from 50% a year before

bitpay

- 4.2 Billion internet users

- 4.61 Billion mobile phone users

PayPal

The Changing Landscape

Technology Enablers — enabling → **Digital Transformation** — increases → **Customer Expectation** — demands more → **QA & Testing**
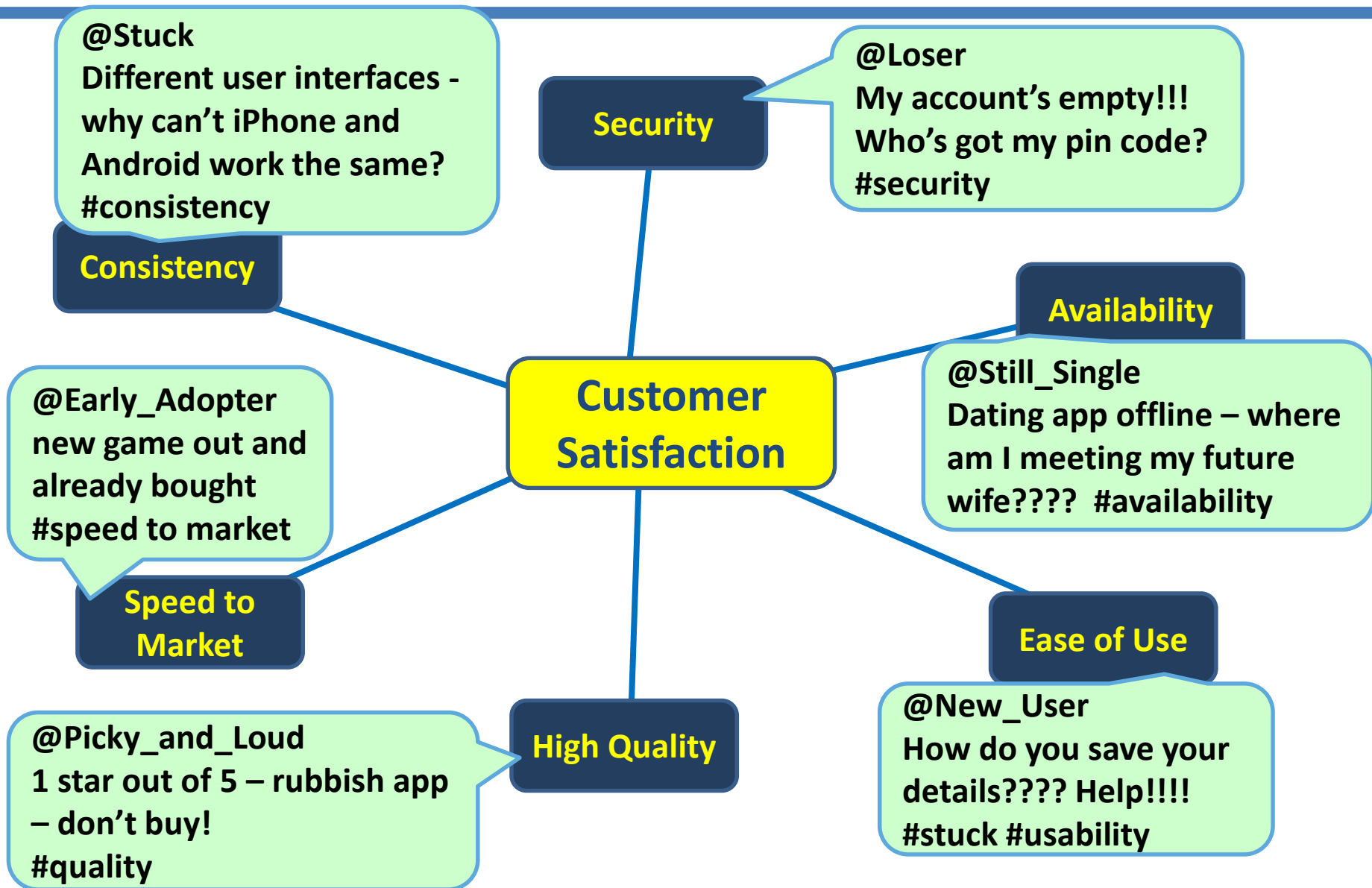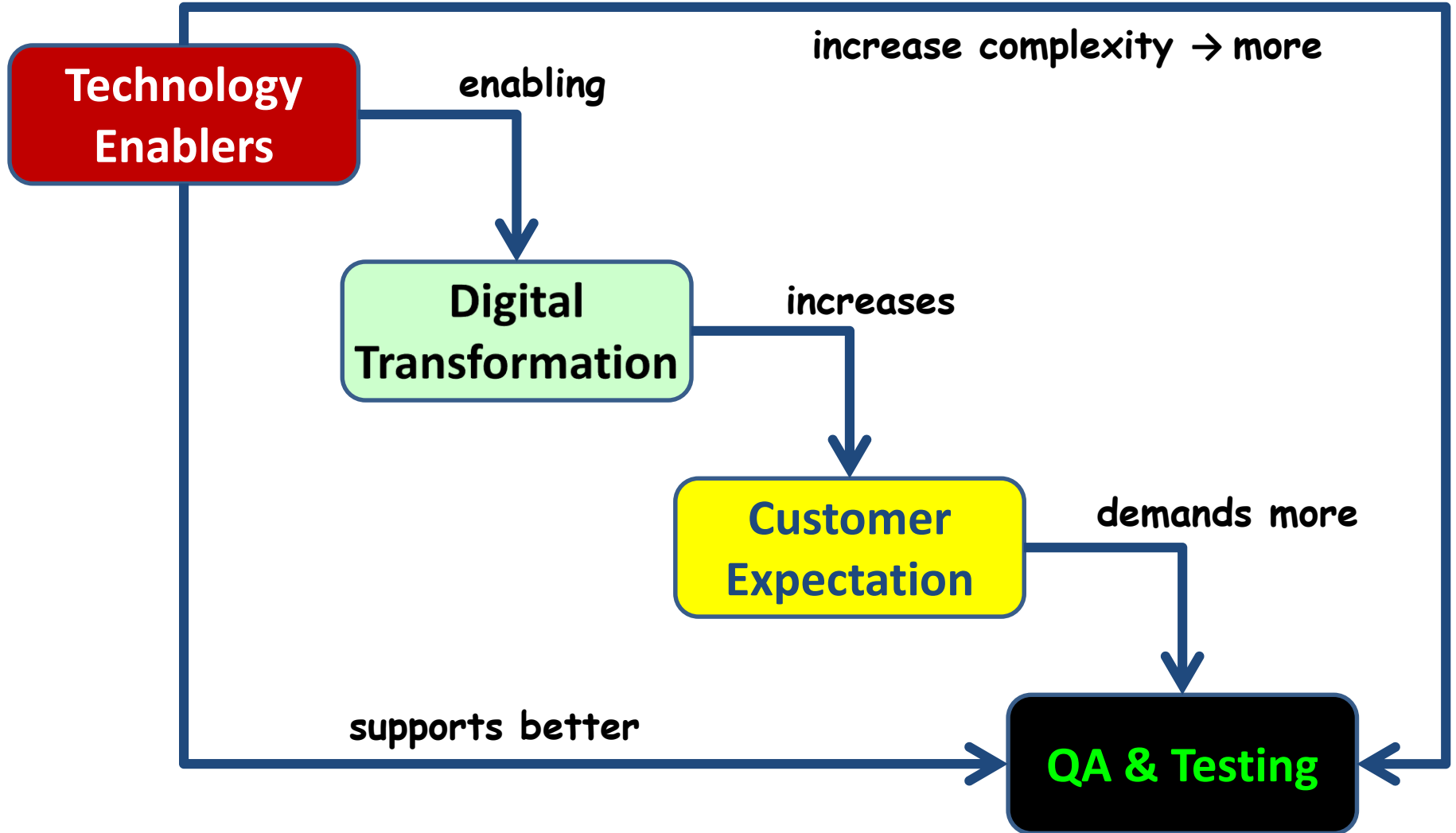
Customer Expectation → Satisfaction

Customer Expectation → Satisfaction

Technology complicates, but also helps…

Technology Enablers → *enabling* → **Digital Transformation** → *increases* → **Customer Expectation** → *demands more* → **QA & Testing**

increase complexity → more

supports better
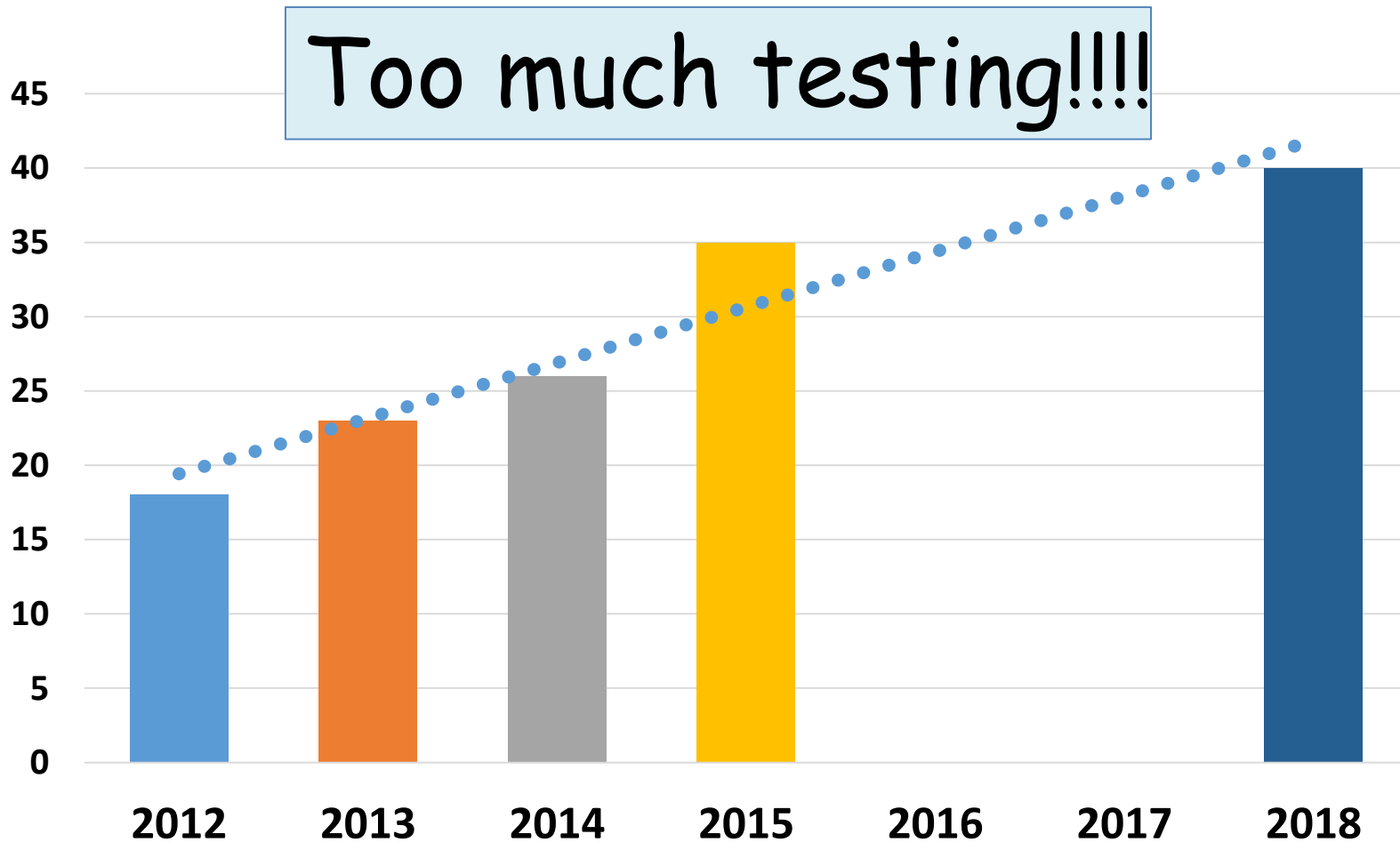
Technology Enablers

Technology complicates, but also helps…
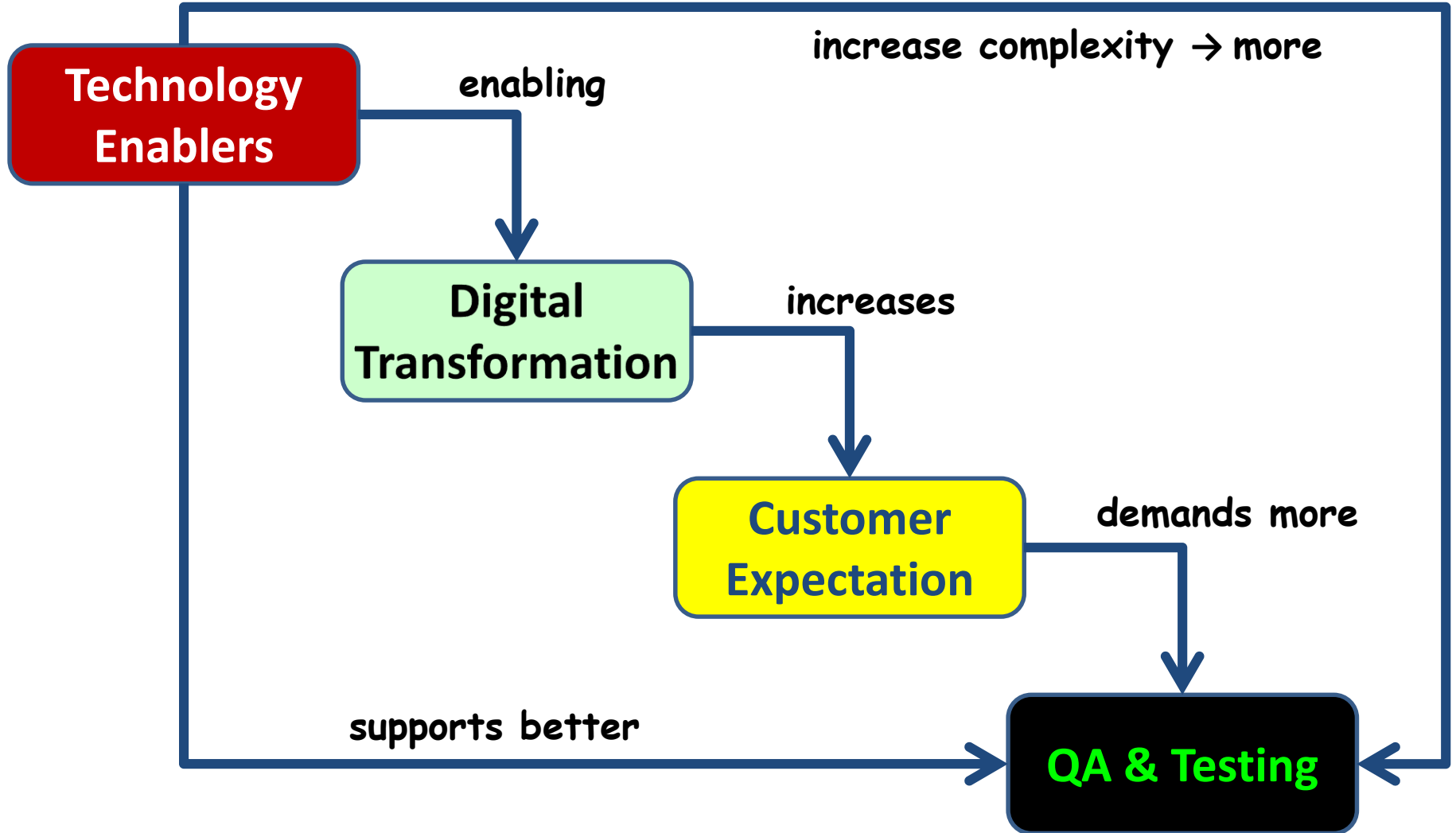
Testing as a Percentage of IT Budget

Automation is only a partial answer

ISTQB – __Fundamental__ Test Process

TEST PLANNING & CONTROL

TEST ANALYSIS & DESIGN → **TEST IMPLEMENTATION & EXECUTION** → **EVALUATING EXIT CRITERIA & REPORTING** → **TEST CLOSURE**
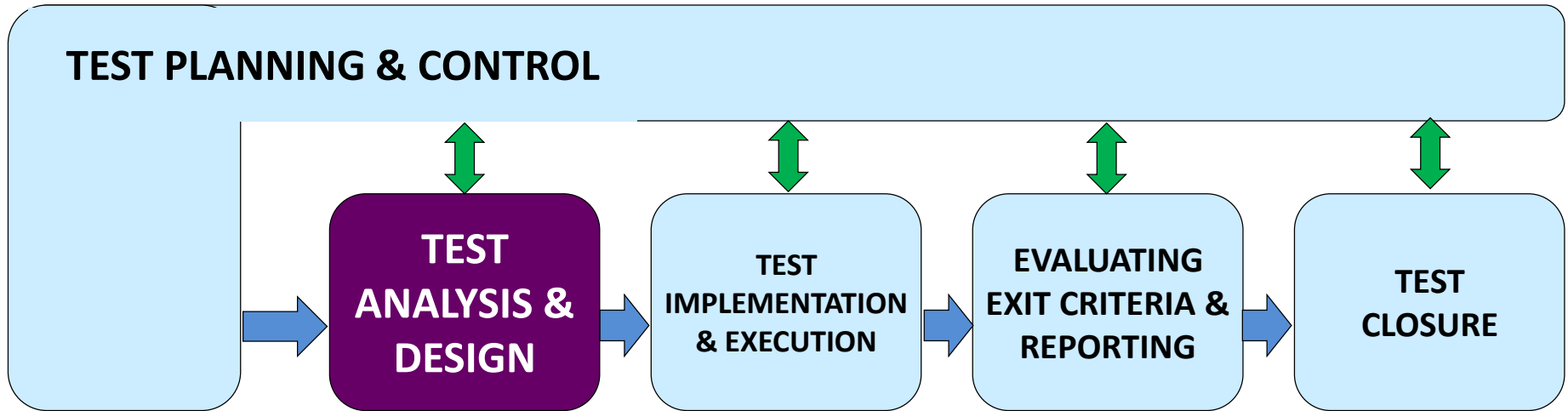
Its not a very good test process model, either!!!!

ISO 29119-2 - Dynamic Test Processes
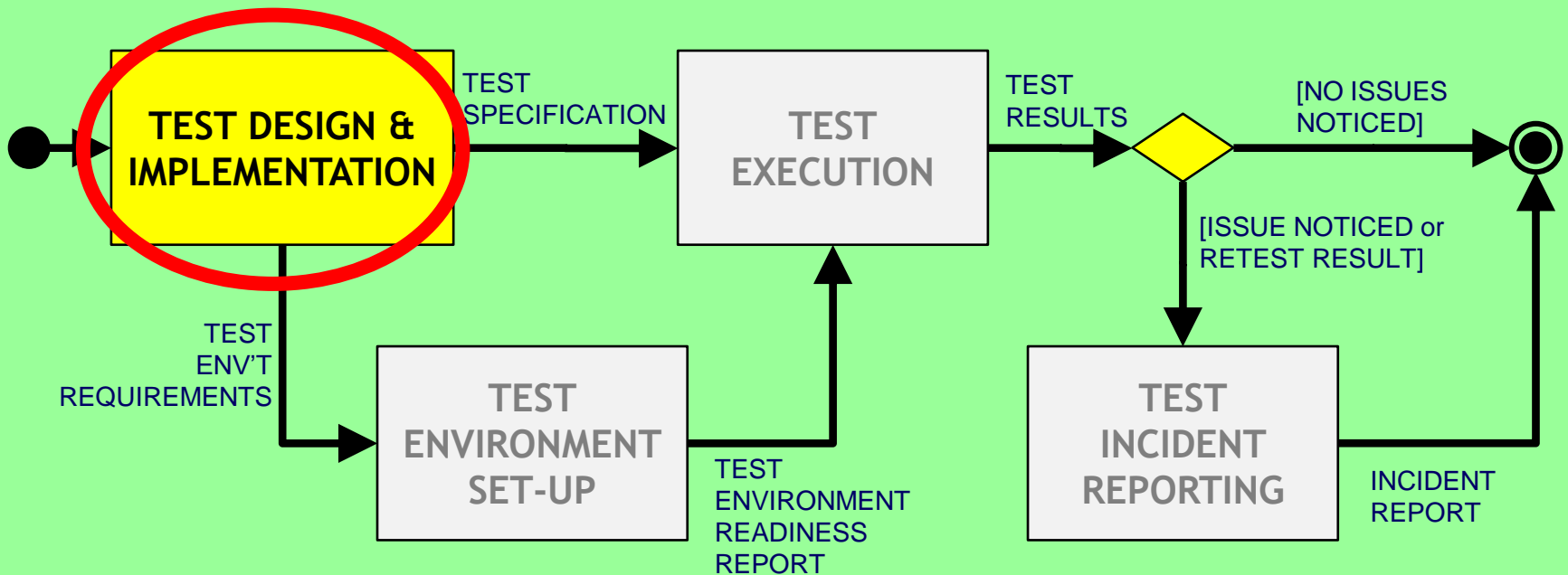
ISO 29119-2 - Test Design & Impl'n

Identify Feature Sets (TD1)

Feature Sets

Test Design Specification

Derive Test Conditions (TD2)

Test Conditions

Derive Test Coverage Items (TD3)

Test Coverage Items

Test Case Specification

Derive Test Cases (TD4)

Test Cases

Assemble Test Sets (TD5)

Test Sets

Test Procedure Specification

Derive Test Procedures (TD6)

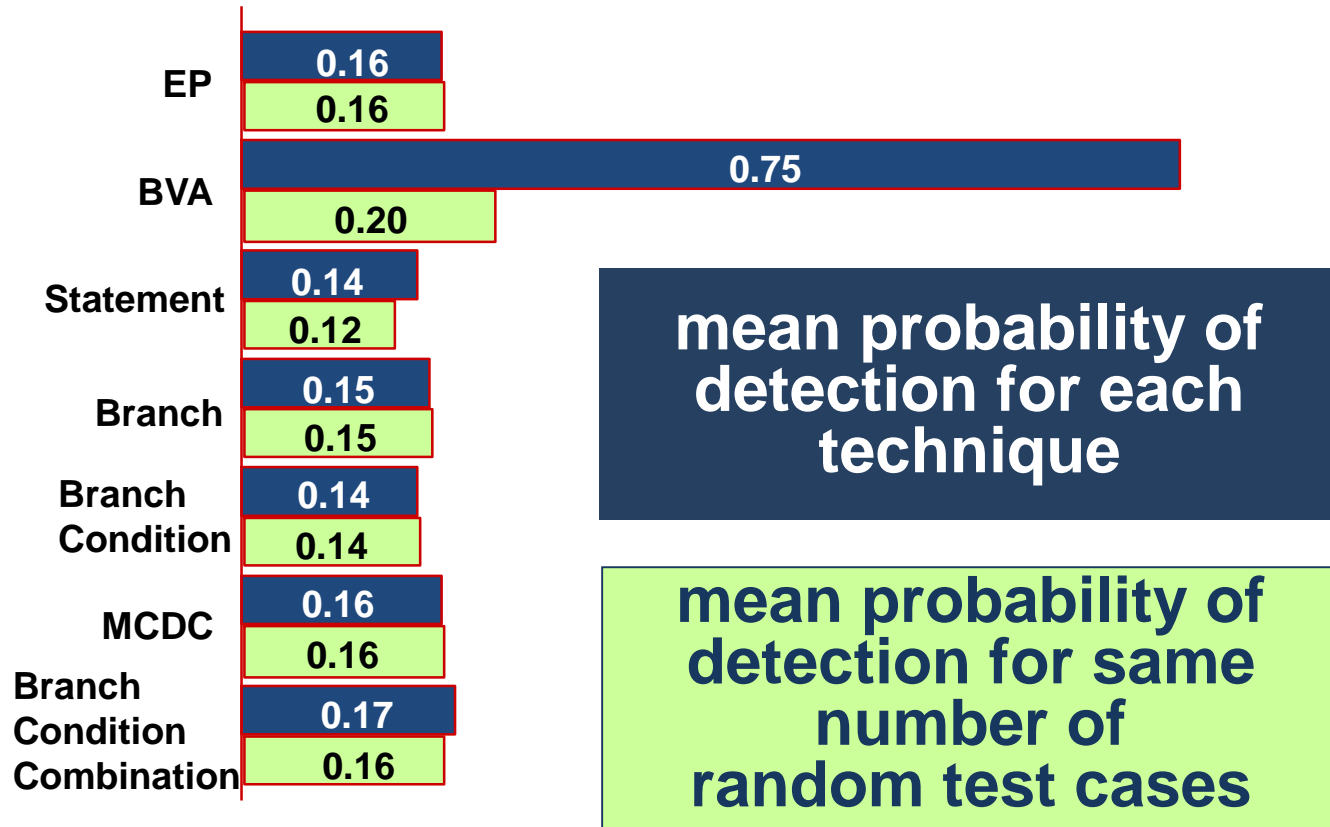*Test Procedures & Test Scripts*

Traceability Matrix

Inputs:
- Test basis
- Test plan
- Test strategy
- Test items
- Test design techniques

So, what is <u>this</u> future of testing?

- **Testing WITHOUT Test Design**

1) **Tests generated using random test generation**

2) **Tests (generated and) run by the end users**

Experimental Evidence–
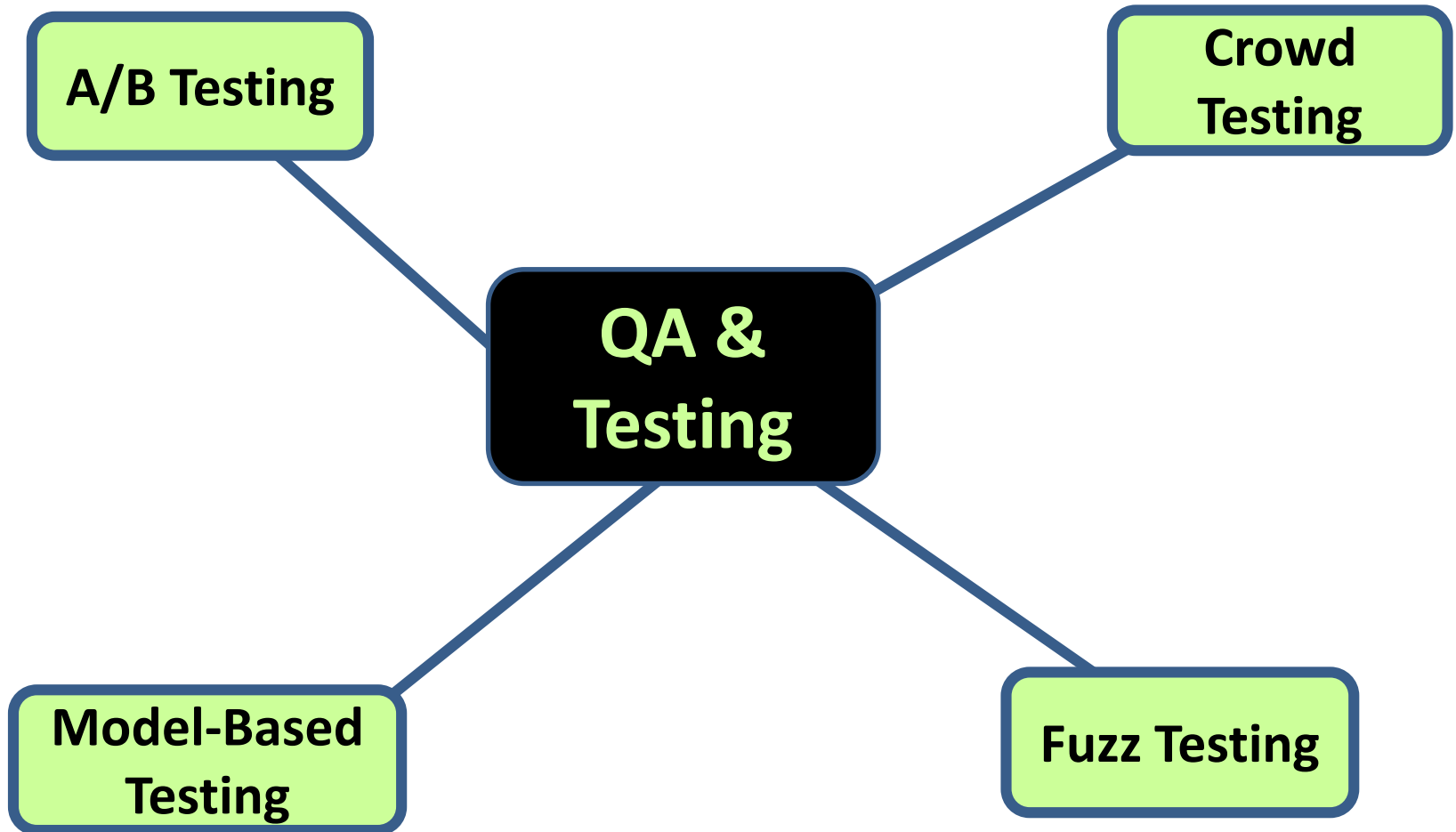# Random vs Systematic Test Design

And what about the users as testers?

- **Their personas are perfect** ☺
  - we don't have to guess their habits or preferences
- **Their test environments are truly representative** ☺

- **Can we trust them?**
  - use NDAs
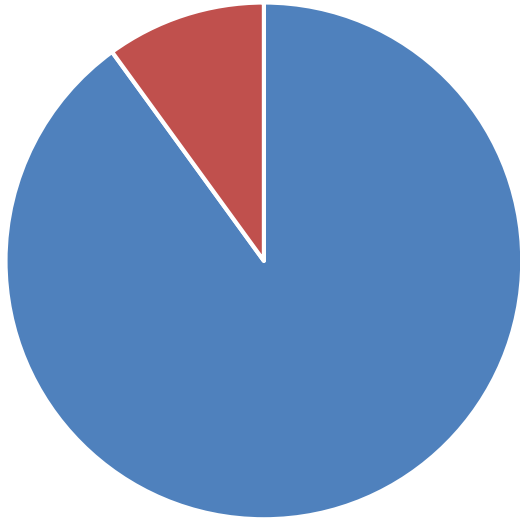 - don't tell them!

Testing Without Test Design

Mobile

Mobile Trends

Almost all IT decision makers (90%) expect to increase spending on mobile app development (Nov 2015)
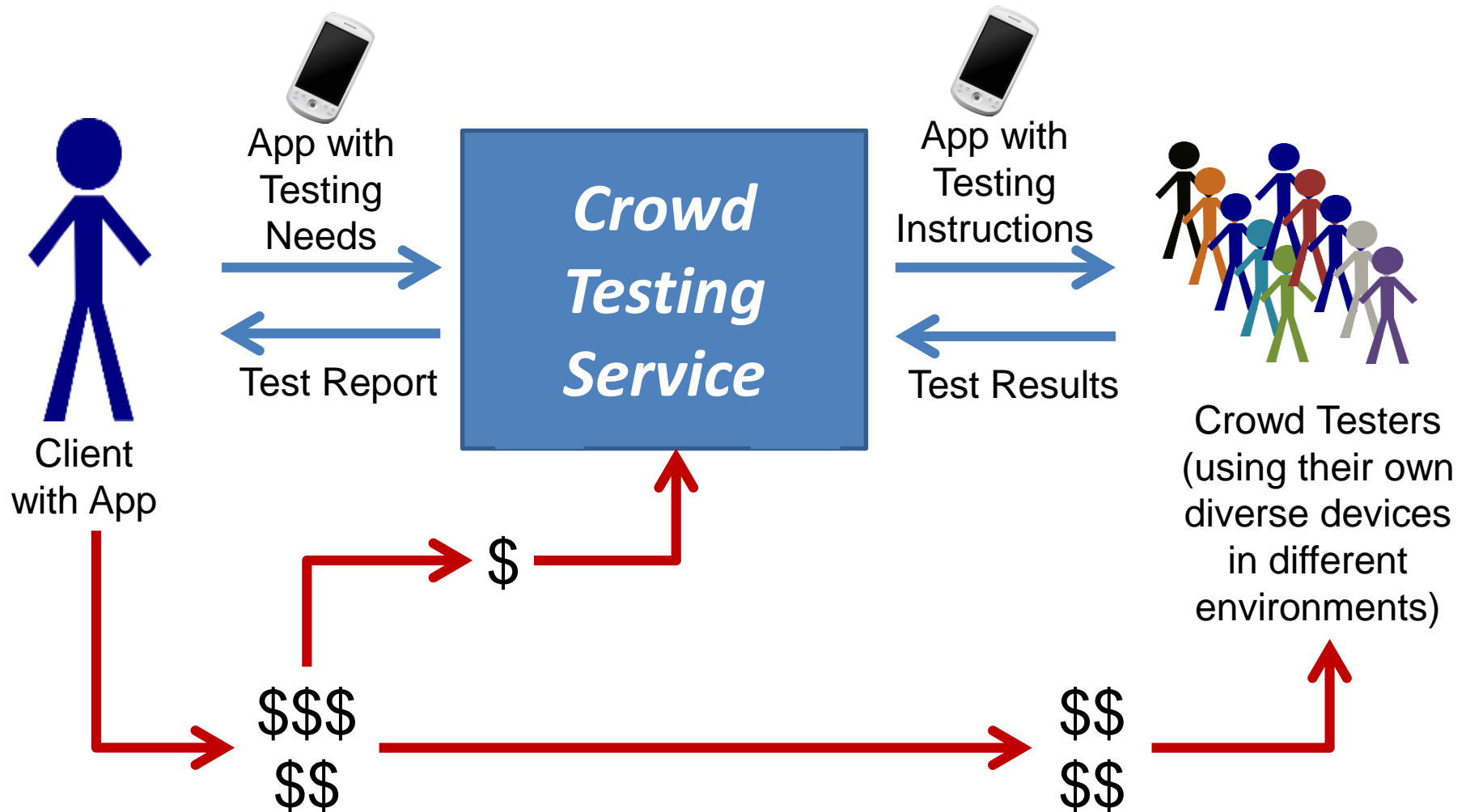

MOBILE APPS

- Mobile services revenue will grow to $1,200 Billion globally by 2018 (~2% of World economy)

- Mobile connections to reach 9 Billion by 2020 (now 7.9)

Android Handset Fragmentation
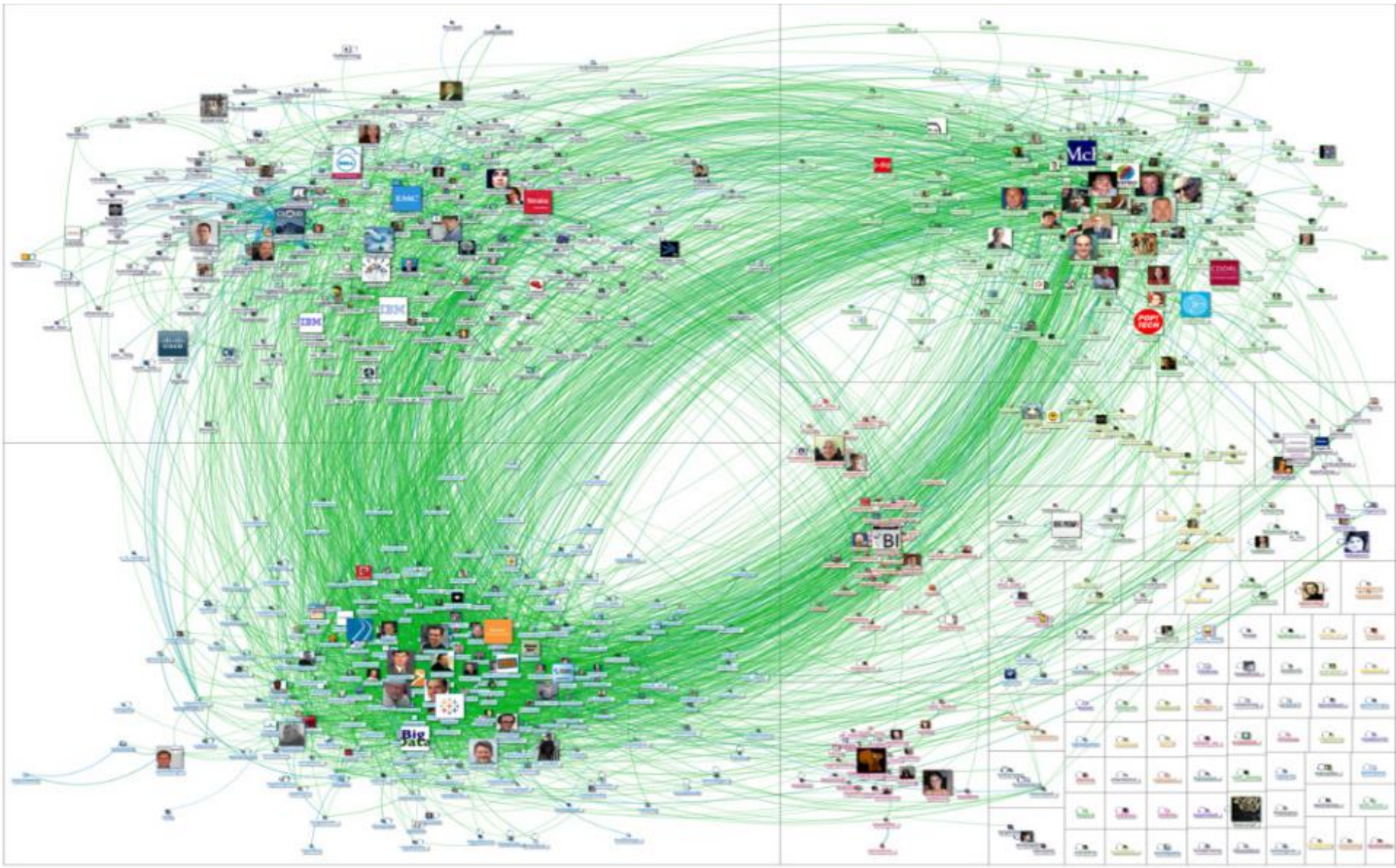

24,000 distinct devices (Aug 2015)

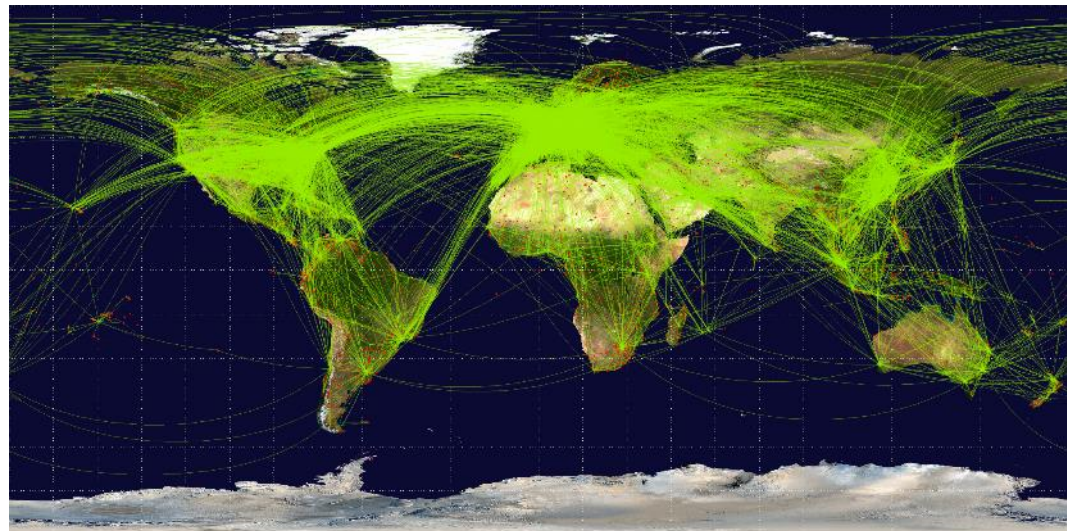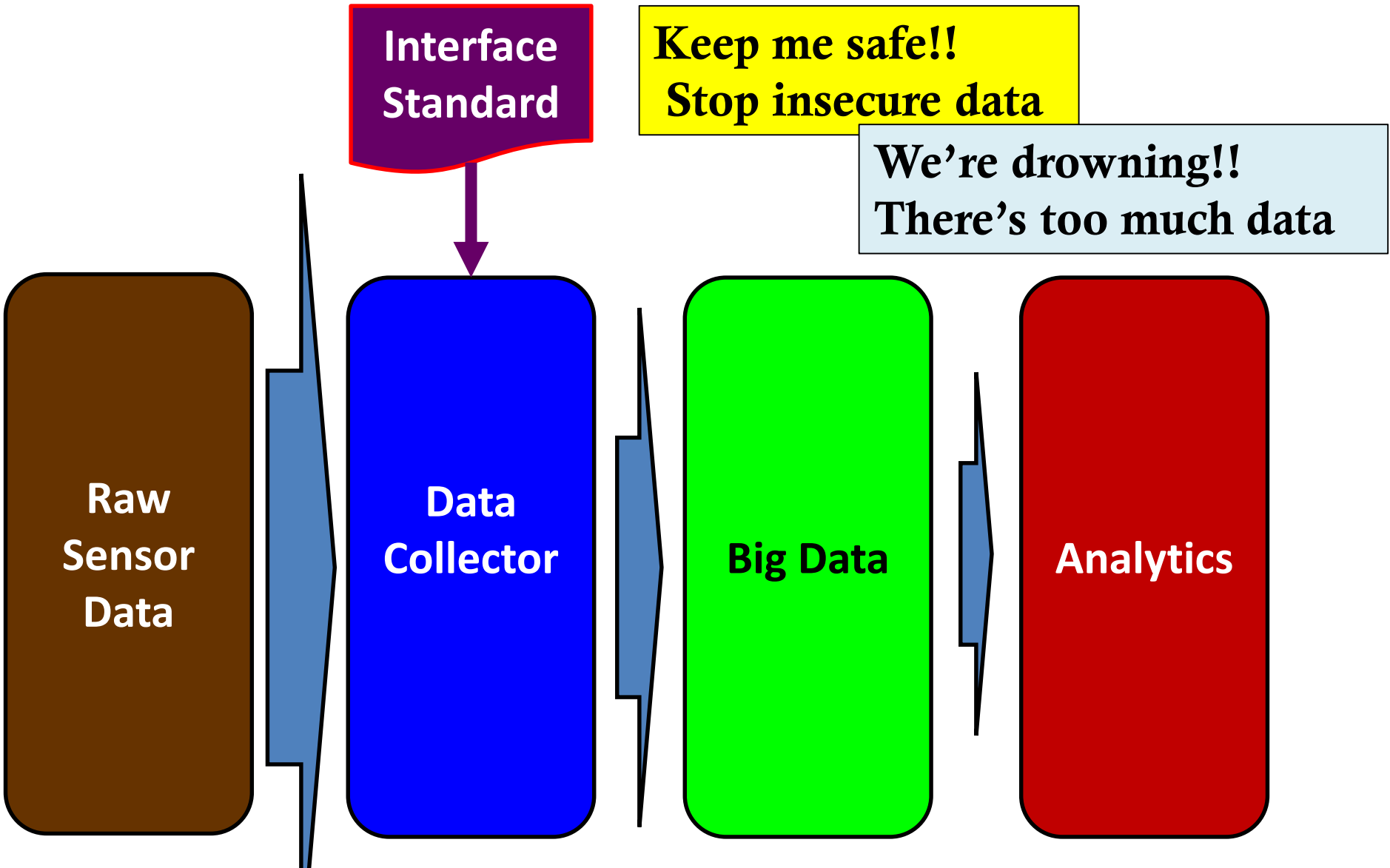# Crowd Testing for Multiple Devices/Env'ts

Big Data

Example Data Volumes

- **Airliner**
  - 3 GB/hour
- **CCTV**
  - 1 TB/month
- **Mobile Phone Operator**
  - 3 TB/day
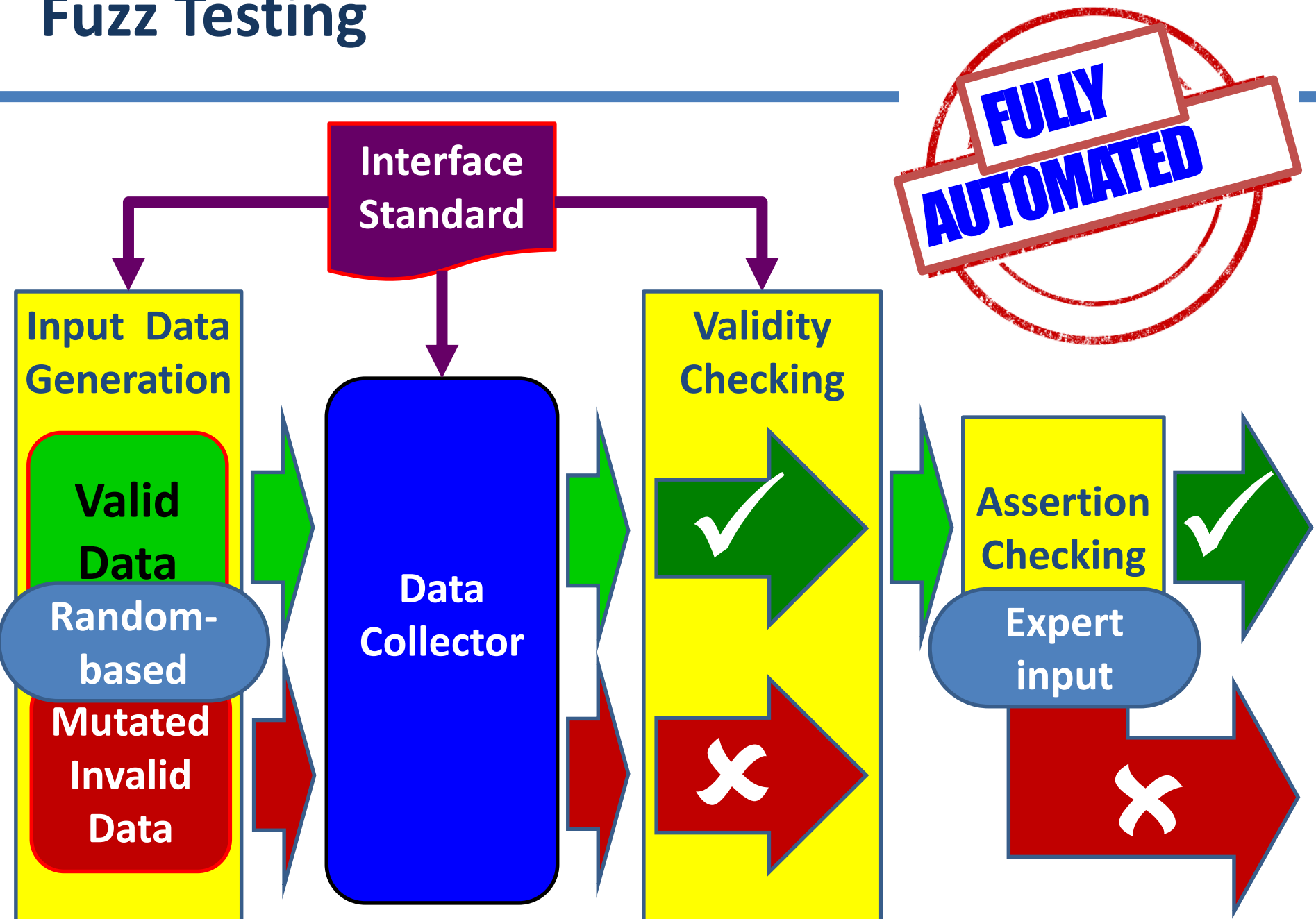- **Globally**
  - 2.5 Million TB/day

Data Validity

Fuzz Testing

Data Analytics

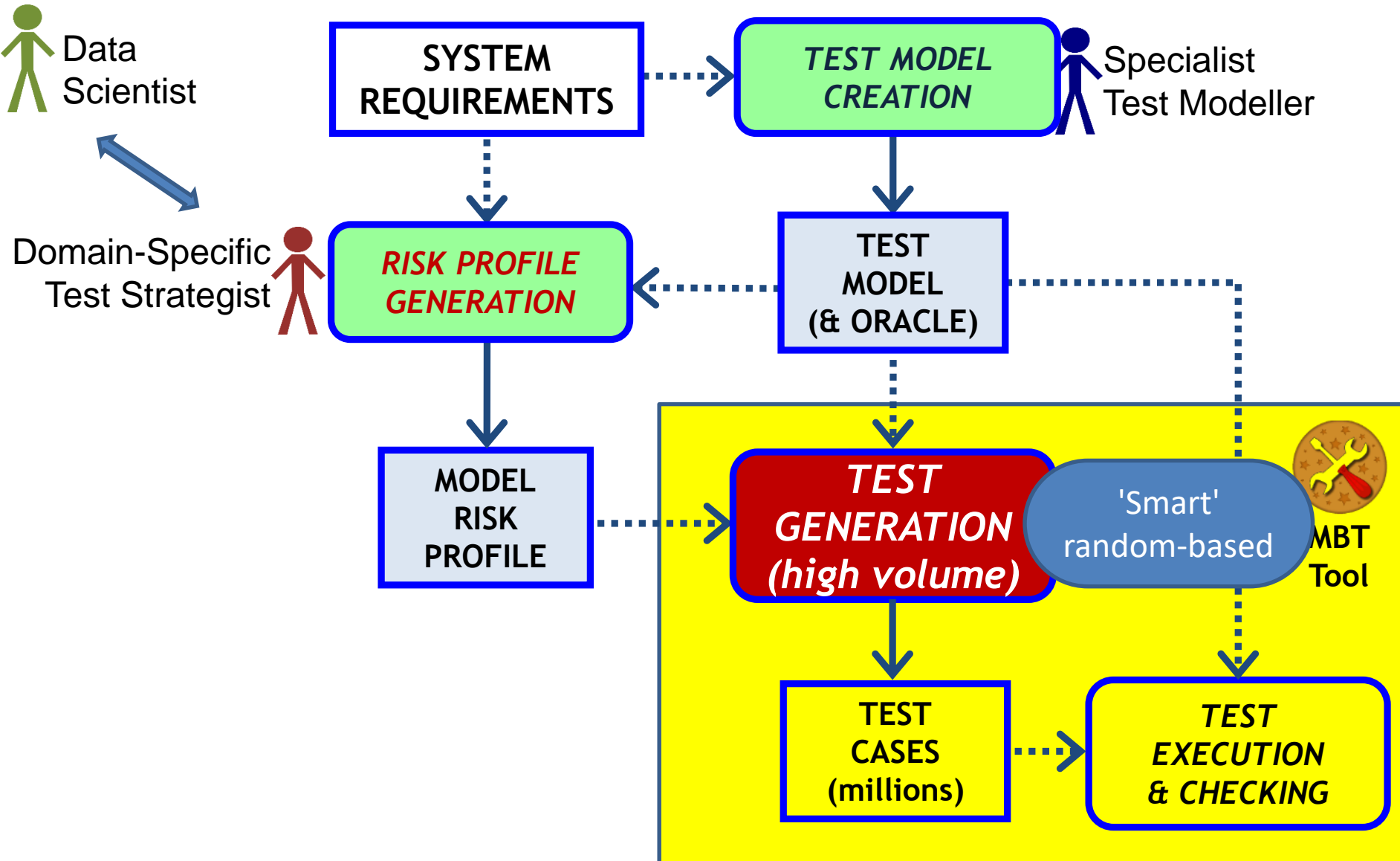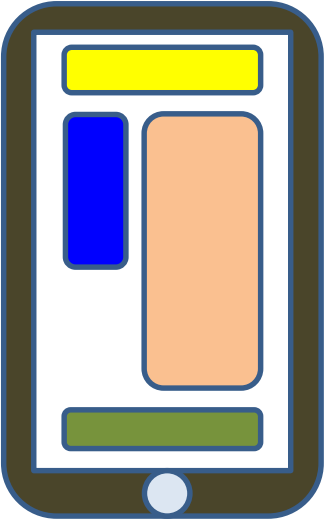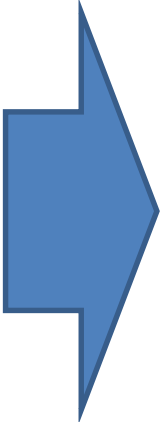Big Data

'Magic'

Assets

Model-Based Testing for Data Analytics

Social Media (and other areas)

A/B Testing
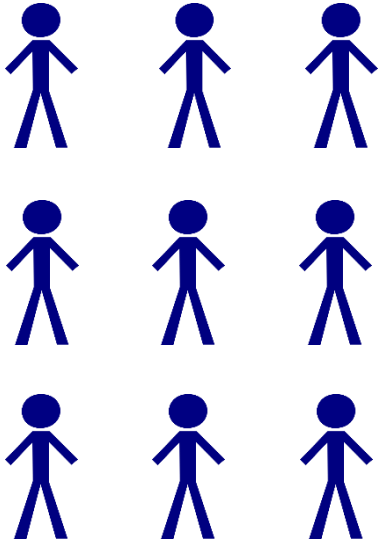
ORIGINAL BENCHMARK
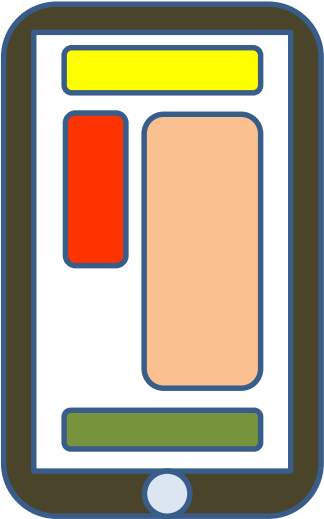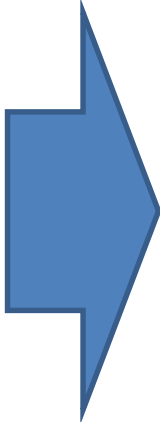
MORE SALES?
HIGHER PRODUCTIVITY?
HAPPIER USERS?
FASTER COMMUTES?
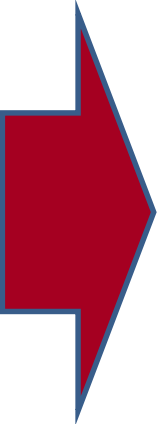
Conclusions

- **Testing must get more efficient**
  - we can't justify spending 40% of the IT budget
  - there aren't enough professional testers to spend this on
- **We have to think 'outside of the (black and white) box'**
- **We need to supplement traditional approaches…**

Testing WITHOUT Test De

Thank you for listening ☺

Any Questions?

Credits/References

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