30-Day Risk Free Evaluation

http://www.practitest.com

joel@practitest.com

http://qablog.practitest.com

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Why develop software with a blindfold over your eyes?

Joel Montvelisky
Product & Methodology Architect

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The (new) meaning of Testing

in today's software development process

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What is the cost of (poor) quality?

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Cost of poor quality

Ariane 5 Rocket – June 4th 1996
Exception when converting a
64-bit Floating Point to a 16-bit Signed Integer

Project Cost: 10 year & $7B

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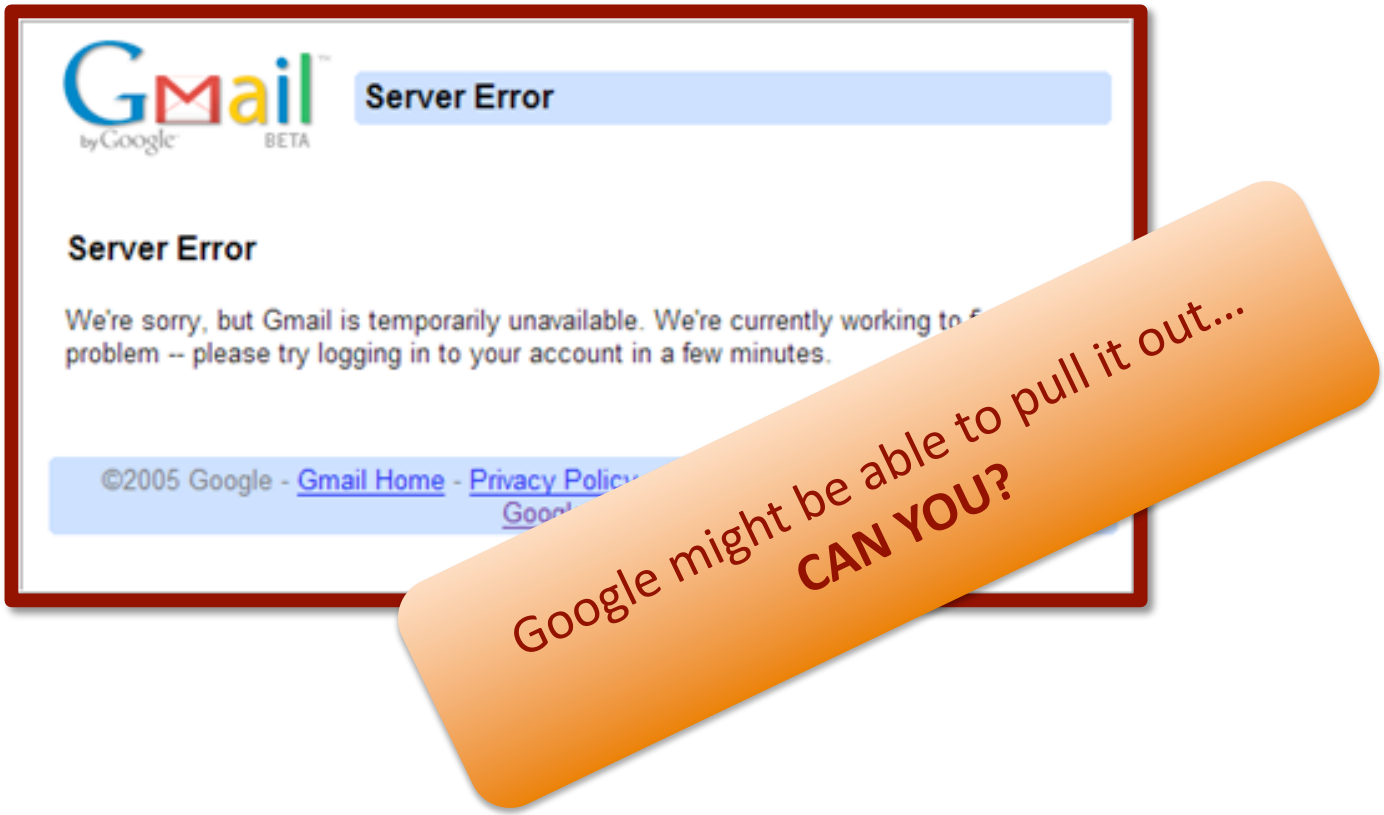
Cost of poor quality



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Cost of poor quality

Post Release:

- Loss of Life
- Loss of business
- Monetary costs
- Slight un-comfort to users

Pre Release:

- Project delays
- Increased costs
- Unnecessary stress
- Loss of alternative business

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But, why do we need to test software products?

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Why do we need to test software products?

Product Factors:

- SW development attempts to **model complex behaviors** with a 100% **deterministic system**
- SW applications **interact** with many (usually 1,000's) of external components and entities

Process Factors:

- Development processes **undergo many & important changes** along the way, and throughout their lifecycle
- ROI considerations drive us to release software with a **high tolerance for faults** (for many non-critical products)

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If so, Testing is nothing new…

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The History of Software Testing[1]

until 1956 — **Debugging oriented**

1957 – 1978 — **Demonstration oriented**
The software satisfies the requirements

1979 – 1982 — **Destruction oriented**
Find errors

1983 – 1987 — **Evaluation oriented**
Product evaluation is provided by measuring quality

From 1988 — **Prevention oriented**
To demonstrate that software satisfies its specification, to detect faults and to prevent faults

(1) Gelperin, D.; B. Hetzel (1988). "The Growth of Software Testing".

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The History of Software Testing

Today's definition of Testing[2]

The process consisting of all lifecycle activities,
both static and dynamic, concerned with planning, preparation
and evaluation of software products and related work products
to determine that they
satisfy specific requirements,
to demonstrate they are fit for purpose
and detect defects.

(2) ISTQB Glossary - 2009

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What's the typical Testing Process?

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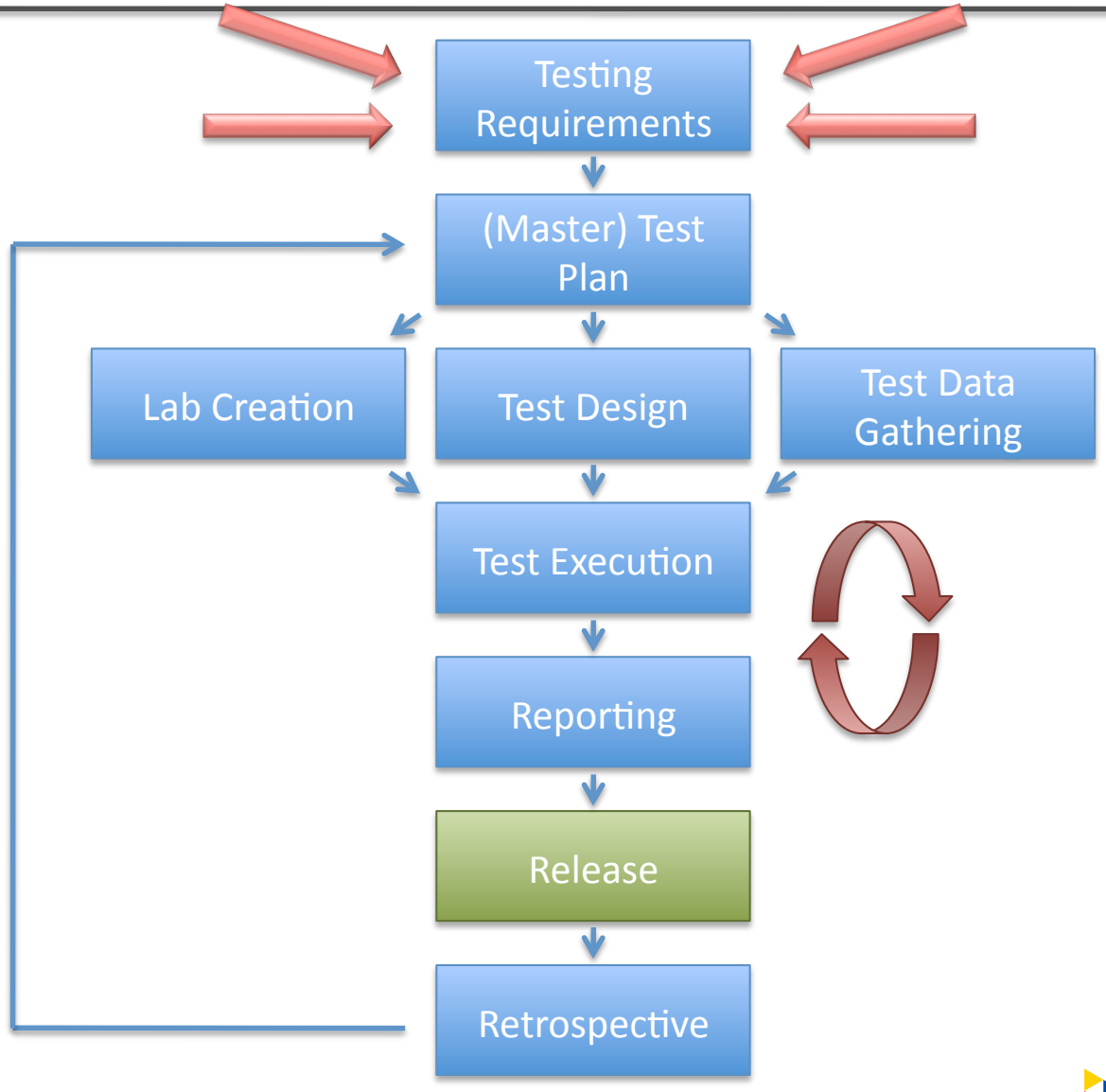
The typical testing process – Version 1



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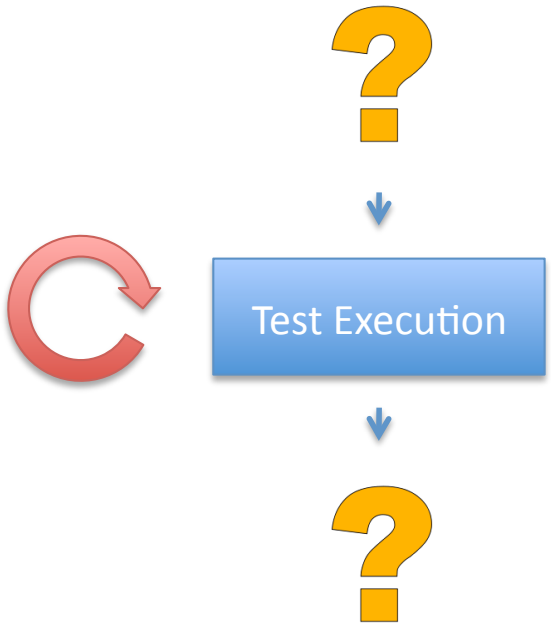
The typical testing process – Version 2



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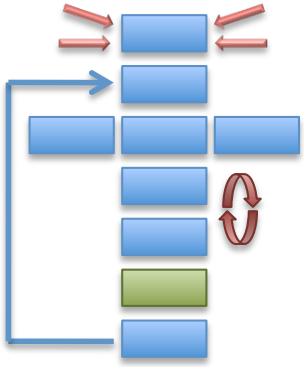
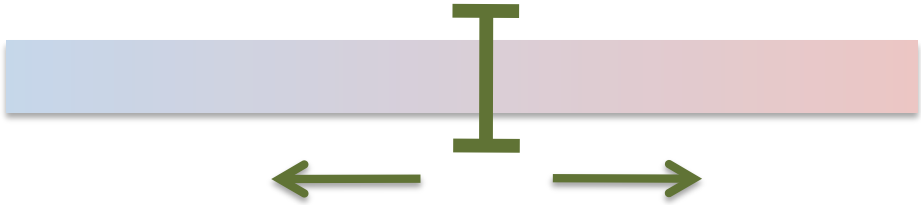
The typical testing process

Most companies sit somewhere along the scale





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So, if we follow this testing process can we assure the Quality of our Product?

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Testing =? Quality Assurance

ISTQB – Foundation Level Syllabus

Principle No. 1 – Testing can show that defects are present, but **cannot prove** that there are no defects.

Principle No. 2 – Exhaustive testing is impossible. Testing everything (all combinations of inputs and preconditions) is **not feasible** except for trivial cases.

Principle No. 7 – Absence-of-errors Fallacy. Finding and fixing defects does not help if the system built is **unusable and does not fulfill** the users' needs and expectations.

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Who's responsible for the Quality of the Product?

The complete product ecosystem

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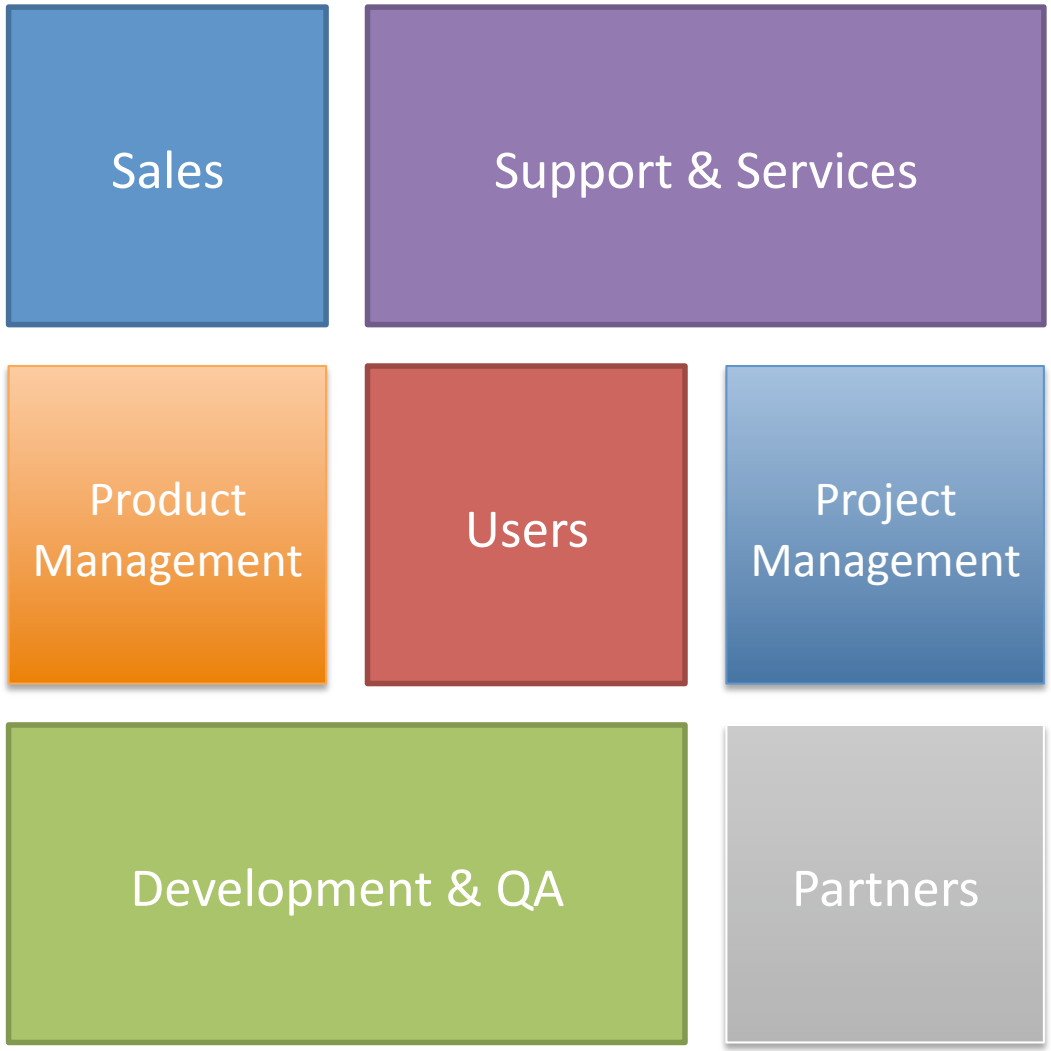
Product Ecosystem



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Then, what is the added value of the Testing Team???

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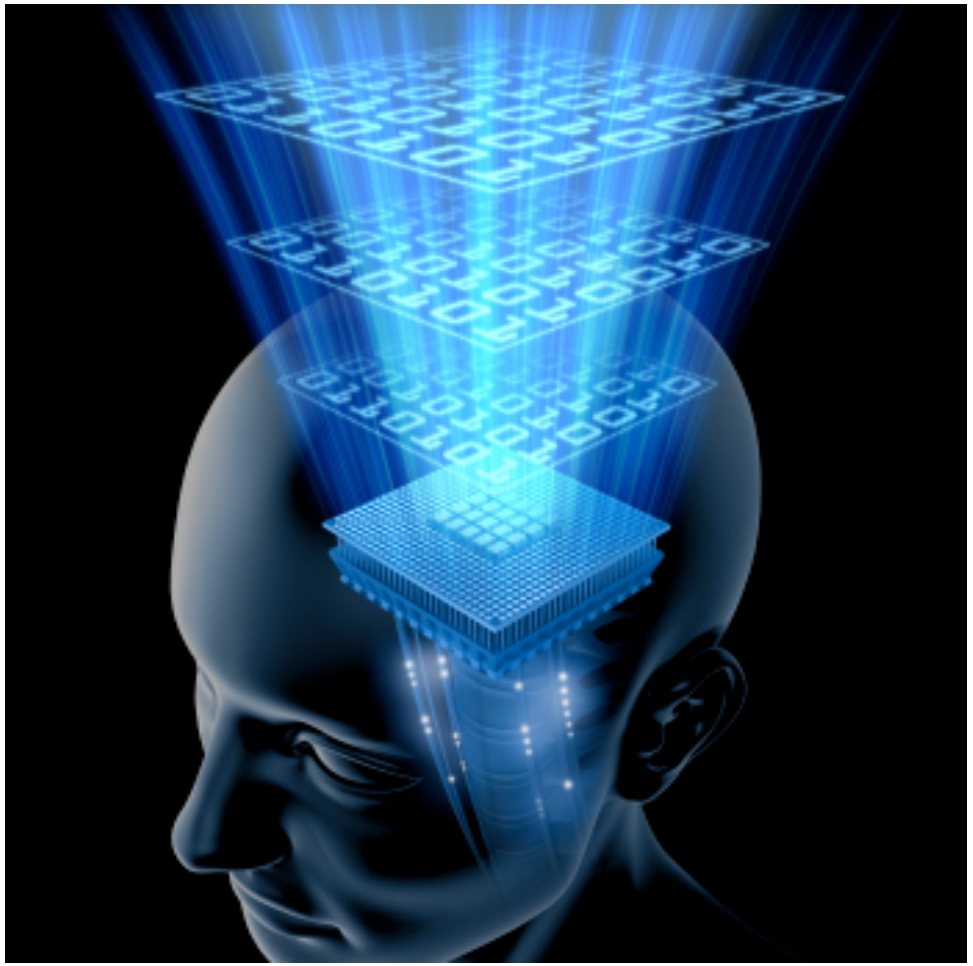

*'…**intelligence is not information alone** but also judgment,*
***the manner in which information is collected and used**.'*

- Dr. Carl Sagan

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Is the work of your Testing Team helping to advance the work of your Development Project?

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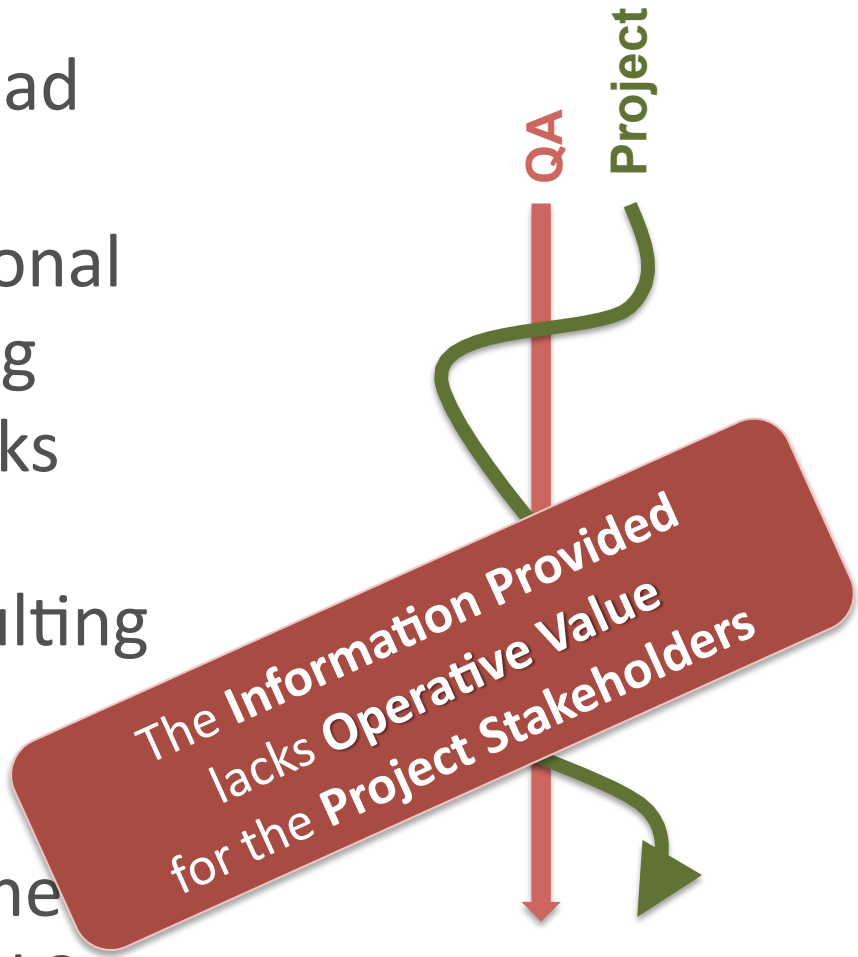
Are you providing the correct information to your Process?

- Your testing reports are not read
- You're asked to provide additional data and information not being gathered as part of testing tasks
- Decisions taken without consulting the QA or the testing results?
- Stakeholders not sure about the Value of the Testing Team Work?



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Alternative definition for the role of the Testing Team

Testing Intelligence

Correct and timely (test-based) visibility

into the product & process,

to help company stakeholders

make strategic and tactical decisions

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Testing Intelligence essence

NOT a Testing Revolution…
but change of mindset

Testing for Visibility

over Testing for Coverage

Customer Centered

over Product (AUT) Centered

Testing as Providing a Service

over Testing as a Deliverable

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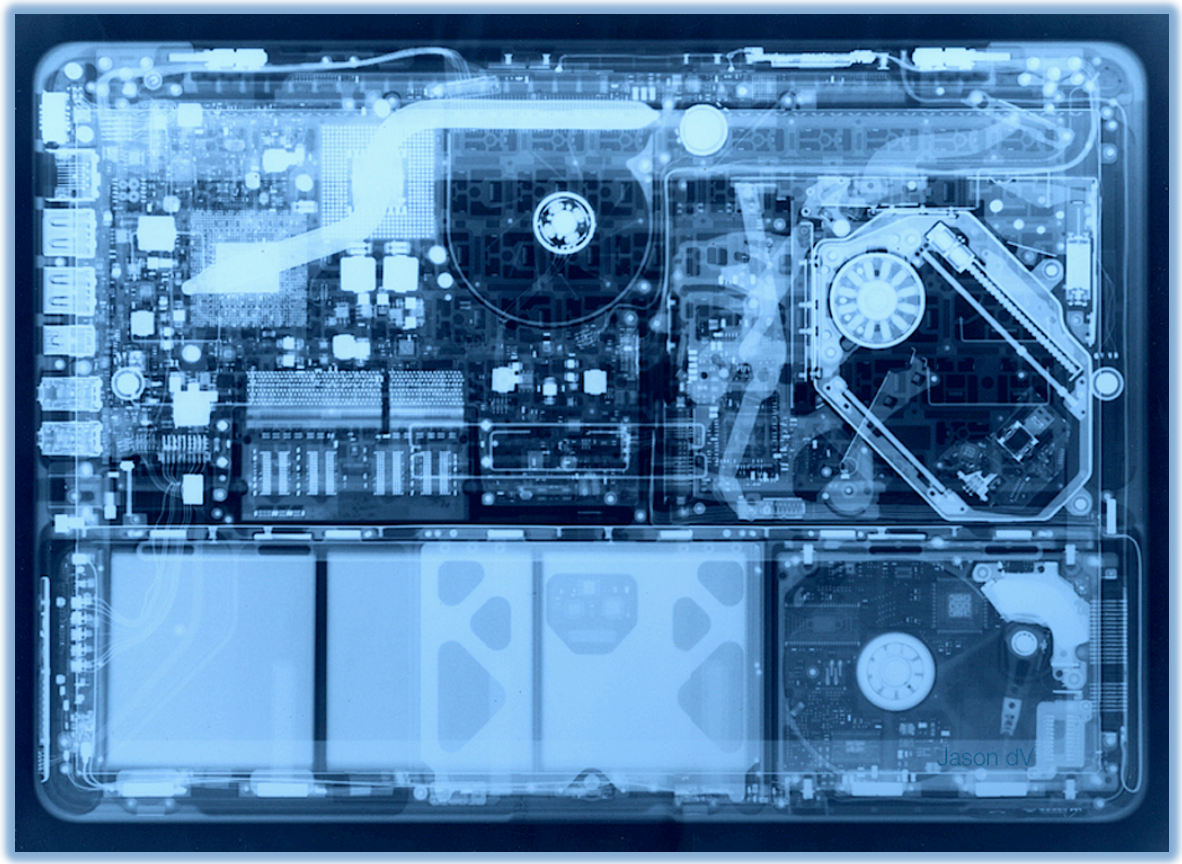
Like an X-Ray for your Dev Process



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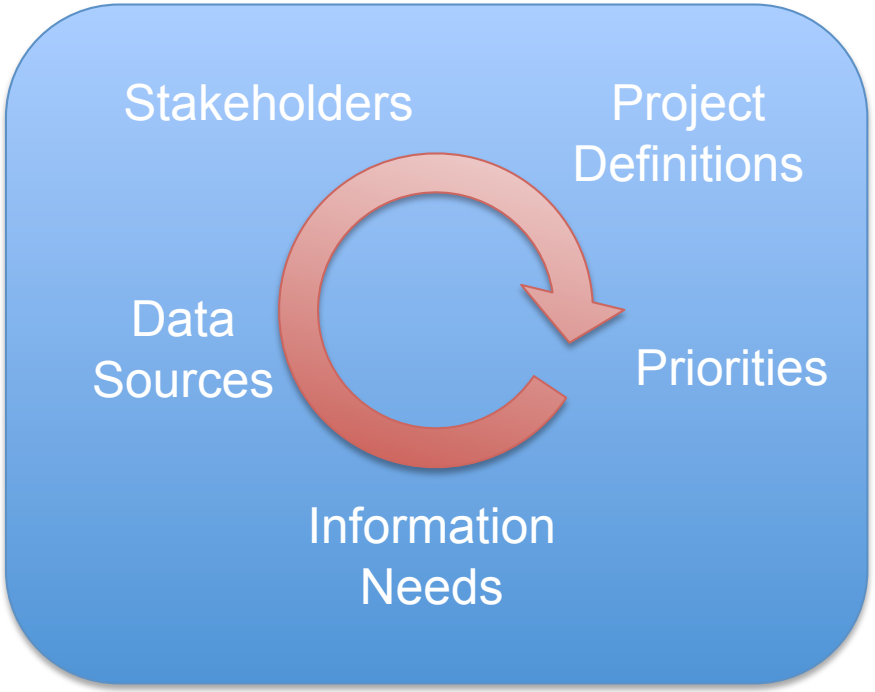
The Testing Intelligence Process

- Identify the Stakeholders
- Understand their information needs
- Analyze aggregated data requirements
- Define & Create Information Channels
- Collect data via Tests & Other Activities
- Provide Analyzed Data & Information

Subject to changing / evolving



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The Testing Intelligence Process

Identi
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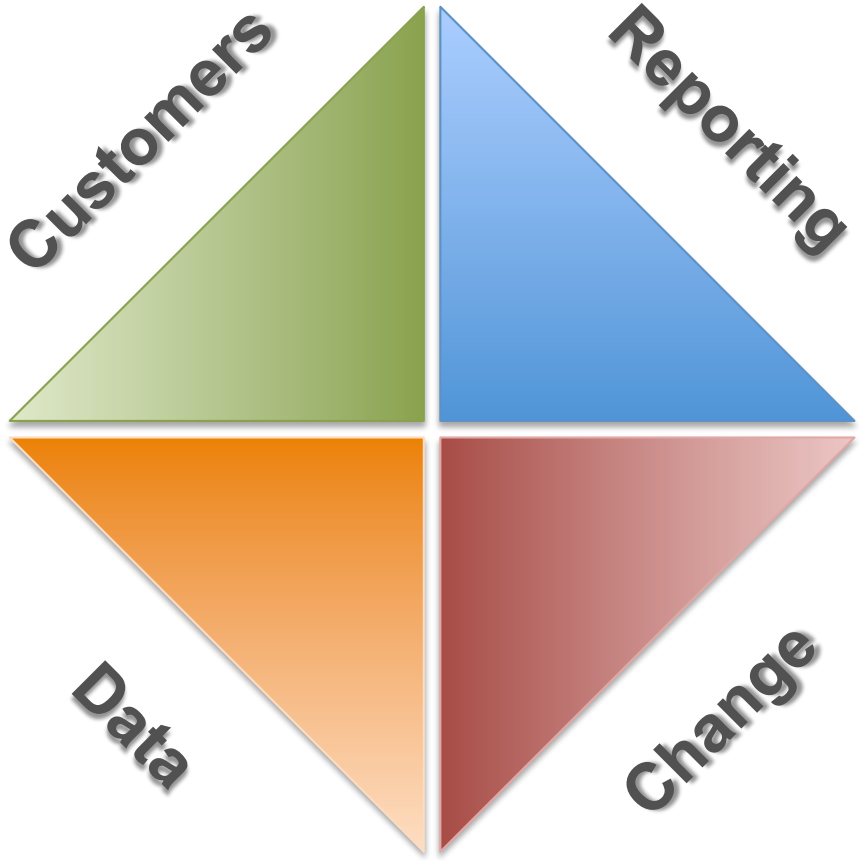
Analyze ag
data requ

Define &
Informatio

Collect dat
& Other

Provide
Data & Information

Challenges from various angles



ing

roject
initions

Priorities

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Challenge 1: Mapping your customers

- Not trivial to map your project internal customers
  - Customers you are not aware off
  - Customers don't see themselves as such
  - Customers change throughout the life of the project

- Ask your known customers for other customers who may need Testing Information
- Look at the people copied to the Project Emails

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Challenge 2: Analyzing information needs

- Internal customers are not aware of all their information needs
  - They've never been asked for this before…
  - Hard to plan ahead what they will need and when

- Go over the stuff they asked for during the last projects (and they got or didn't get)
- Add to your calendar periodic input update meetings

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Challenge 3: Multiple Data Sources

- Relevant data flows from multiple sources
  - Most projects integrate work and needs of multiple internal and external teams
  - Some important data may not be directly related to Testing

- Work close and gather information from additional teams (Support, Presales, Prof-Services)
- Develop automatic mechanisms to aggregate data

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Challenge 4: Change…

- Needs & definitions change throughout the project
  - No project goes according to plan… NONE!
  - Plans should be taken as basis for change and not as a Sacred/Holy Scripture

- Leave (plenty of) room for unscheduled tasks
- Leverage change for your advantage (e.g. Test and Bug based Risk assessment of modifying the system

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Challenge 5: Timely Information

- Information needs to be presented on time
  - Information presented out of time may have a reverse effect

- Work based on information needs and constraints
- Create a reporting schedule and publish it to all your customers

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Challenge 6: Information Formatting

- Form is as important as content, don't be mistaken!
  - Customers use the information for specific needs
  - Reports requiring extended manipulation or analysis loose their value

- Create a number (3-5) of formats to publish your information
- Add explanations and interpretations to what you are showing

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Testing Intelligence Case Study

1.5 month QA Consultancy

- Communications Infrastructure Industry
- Around 45 Test Engineers
- Well-defined development process

My task:
Deploy a QA Management System for the QA Team
(& btw help improve process)

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QA Testing Intelligence Case Study – cont.

Gap Analysis:

- Development Leads and Project Managers not aware of "what the QA is currently doing or why?"
- General understanding is that QA is supposed to "catch bugs" – feeling is that many critical bugs are escaping
- QA – Dev only interaction: weekly bug meeting to go over "things to fix vs. things to postpone to next release"
- QA reports are mainly used for certification purposes
- QA is many times not aware of system or project changes, not part of the decision making process

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QA Testing Intelligence Case Study – cont.

Stakeholders & Needs

1. Development Leads

- Visibility into testing areas and process (what, when, how, why???)
- Reviews and overviews for features prior and after the completion of testing cycles
- Ability for tests on-demand on specific areas in Real-Time

2. Project Managers

- Real time information on product deliverables, stability & expected testing completion dates
- Summary reports per major feature after initial testing effort
- Escalation of project areas at risk

3. Also **Product Managers**, **Support** & **VP R&D**

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QA Testing Intelligence Case Study – cont.

Data & Information Requirements

1. Better cataloguing of tests based on modules & features
2. Access to Test Plans for Developers
3. Ability to calculate work and progress based on work and not number of cases
4. Way to classify issues as Project Risks

Process Modifications

1. Support on-demand testing tasks
2. Weekly update meetings between QA & Dev Team Leads
3. Pre and post testing meetings with Development
4. Reporting on progress & risks and not only bugs and end of process reports.

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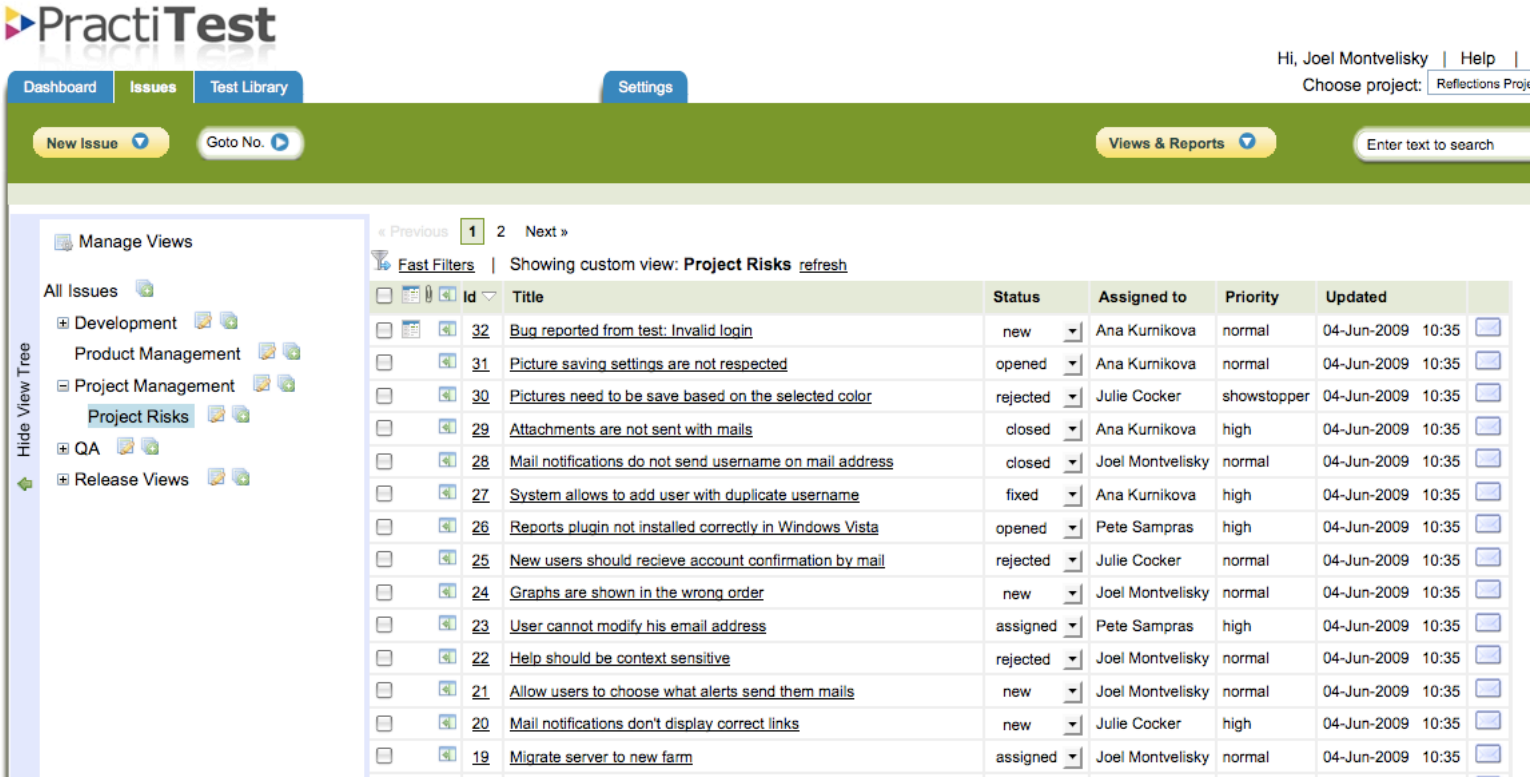
QA Testing Intelligence Case Study – cont.

Information Channels

1. Specific Issue views for each group based on needs (e.g. Project Risks for Project Managers)



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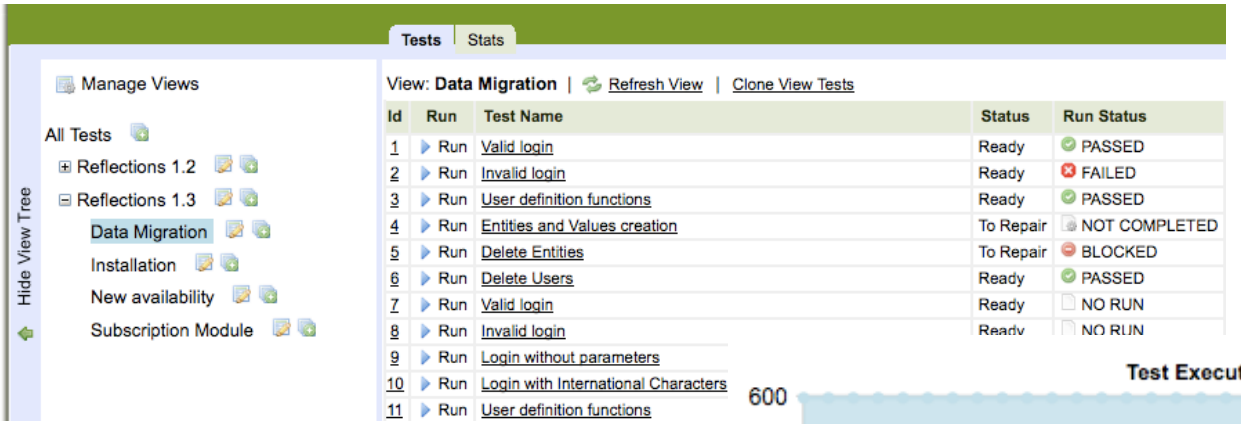
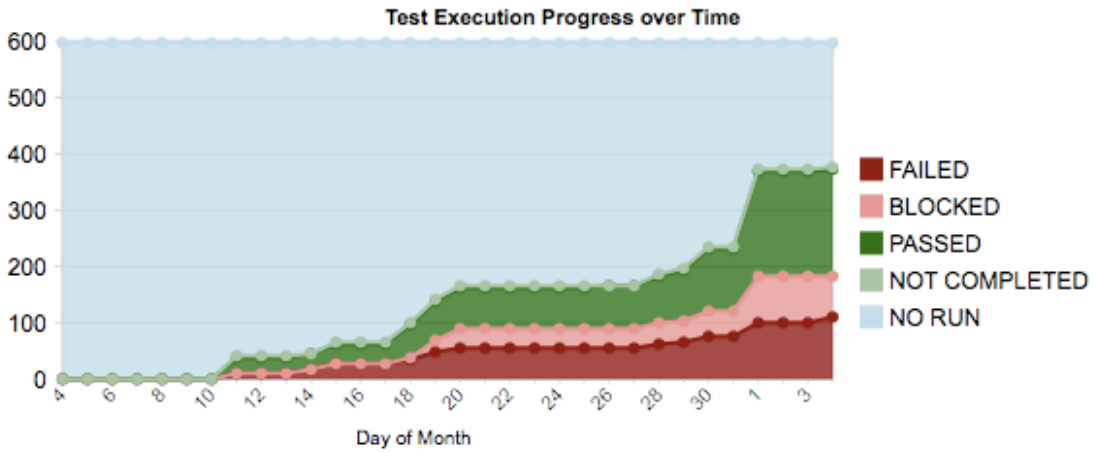
QA Testing Intelligence Case Study – cont.

Information Channels

2. Better visibility into testing progress





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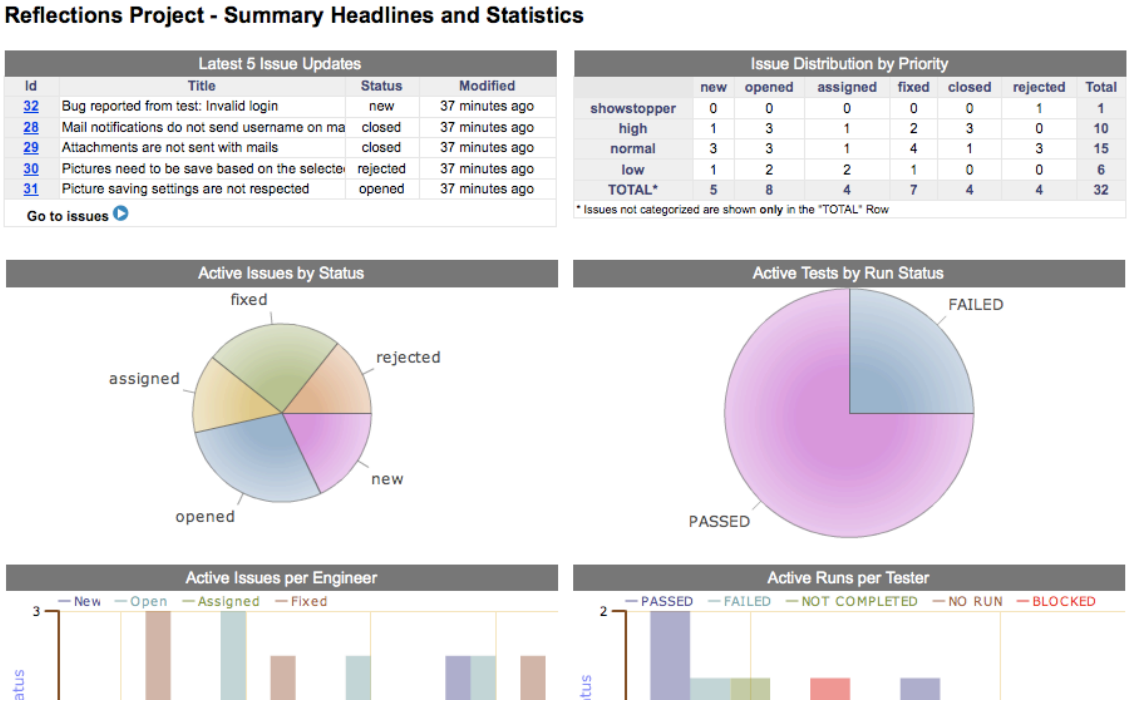
QA Testing Intelligence Case Study – cont.

Information Channels

3. Use of online dashboards



Reflections Project - Summary Headlines and Statistics

Latest 5 Issue Updates

Id	Title	Status	Modified
32	Bug reported from test: Invalid login	new	37 minutes ago
28	Mail notifications do not send username on ma	closed	37 minutes ago
29	Attachments are not sent with mails	closed	37 minutes ago
30	Pictures need to be save based on the selecte	rejected	37 minutes ago
31	Picture saving settings are not respected	opened	37 minutes ago

Go to issues

Issue Distribution by Priority

	new	opened	assigned	fixed	closed	rejected	Total
showstopper	0	0	0	0	0	1	1
high	1	3	1	2	3	0	10
normal	3	3	1	4	1	3	15
low	1	2	2	1	0	0	6
TOTAL*	5	8	4	7	4	4	32

* Issues not categorized are shown **only** in the "TOTAL" Row

Active Issues by Status

Active Tests by Run Status

Active Issues per Engineer

Active Runs per Tester

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QA Testing Intelligence Case Study – cont.

Outcome

- QAMS was deployed, but most importantly it is used by all the Organization
- QA became a de-facto member of the strategic project team, providing decision-making visibility in real time to the Organization
- Interaction between development and QA became more common and carried more weight & influence
- QA got involved in the process earlier, as the rest of the stakeholders saw value in getting them into the loop
- About 1/3 of the tasks of the QA team now come from on-demand requests by Development and the Project Management teams

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Summary (so far)

- ✔ Testing can provide value through the process and not only at the end of it.
- ✔ The QA cannot be in charge of the Quality of the Product.
- ✔ Testing Intelligence is about taking off the blind-fold and becoming a Service Provider for Visibility to your stakeholders around the things that matter to them.

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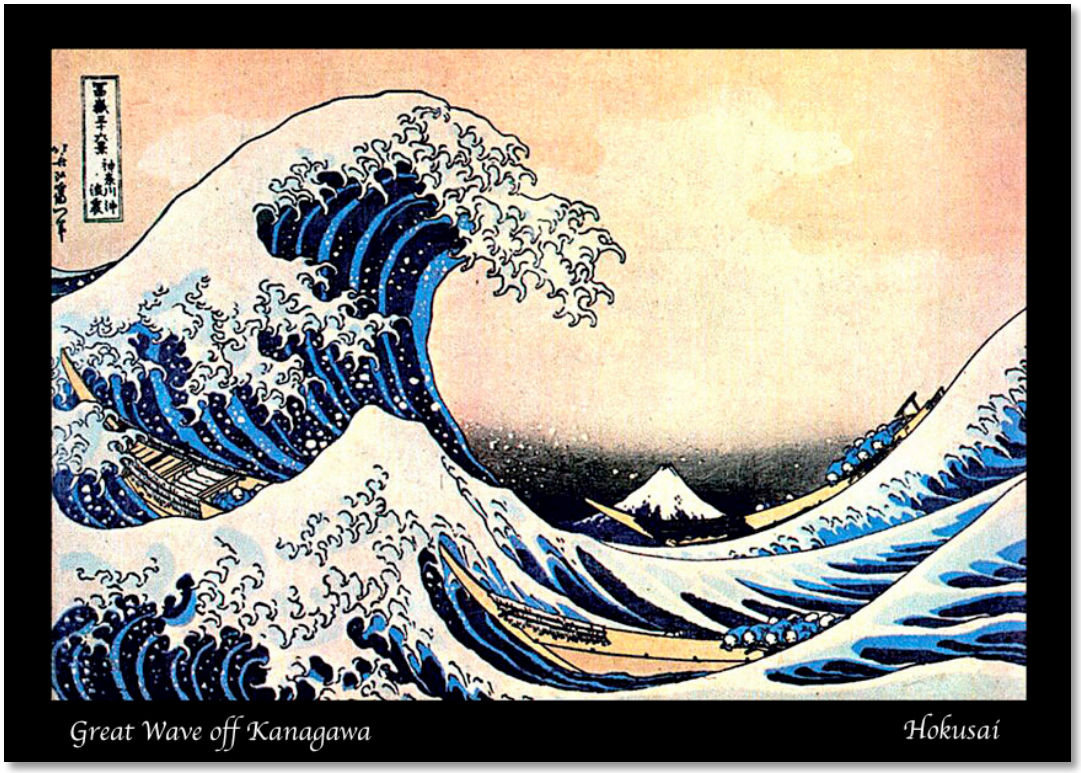
What's making waves in the world of Testing:

Methods & Tools



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Waving Topics

- ✓ **ET - Exploratory Testing**
- ✓ **TDD – Test Driven Development**
- ✓ **Web Testing Communities & Resources**
- ✓ **Selenium**
- ✓ **PractiTest**

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What is the best testing approach for my current project?

Wait a minute… are there different approaches to testing?

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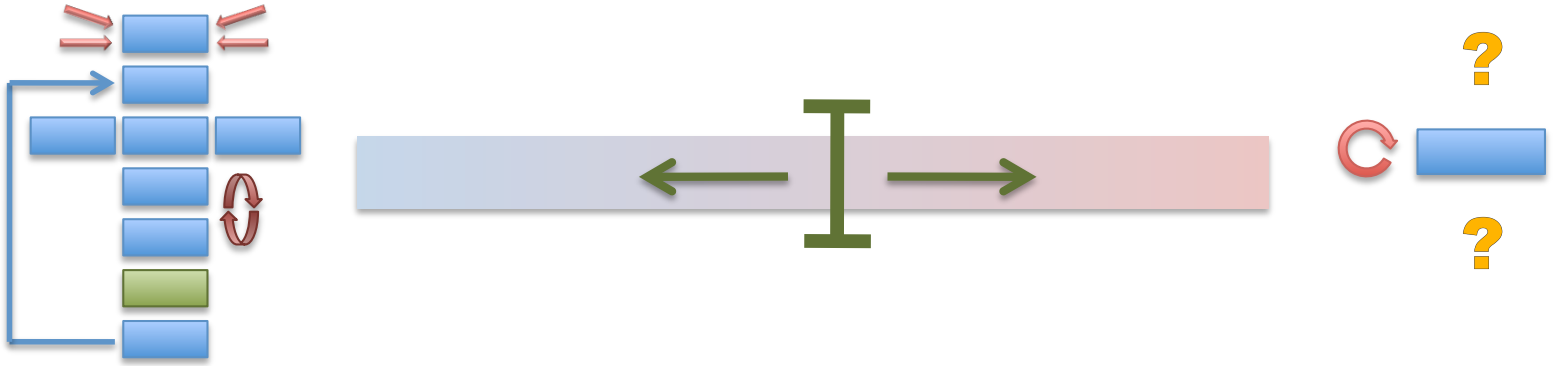
There's more than one right way to test…



Your testing approach should fit your product & development constraints like a glove!

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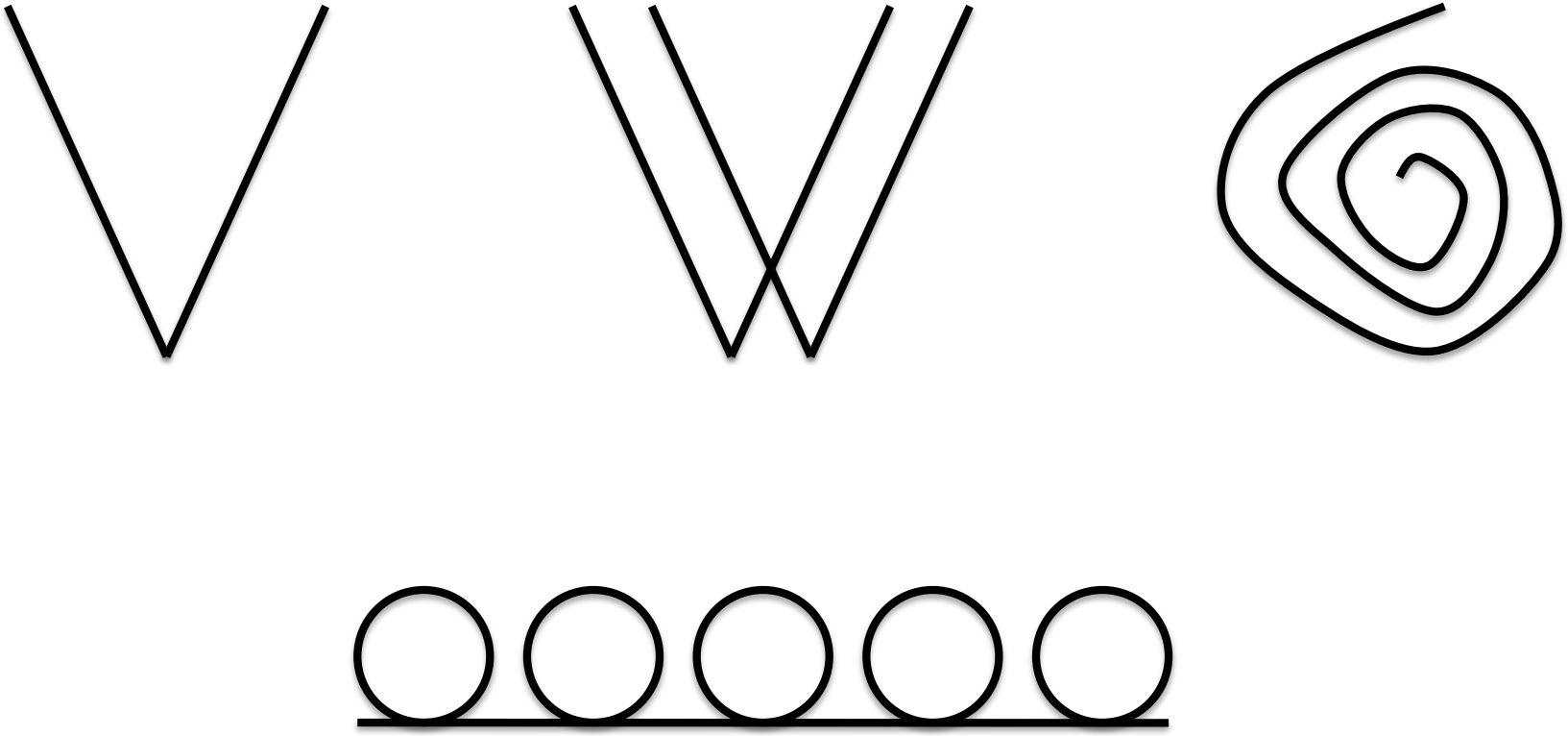
Different Development Methodologies



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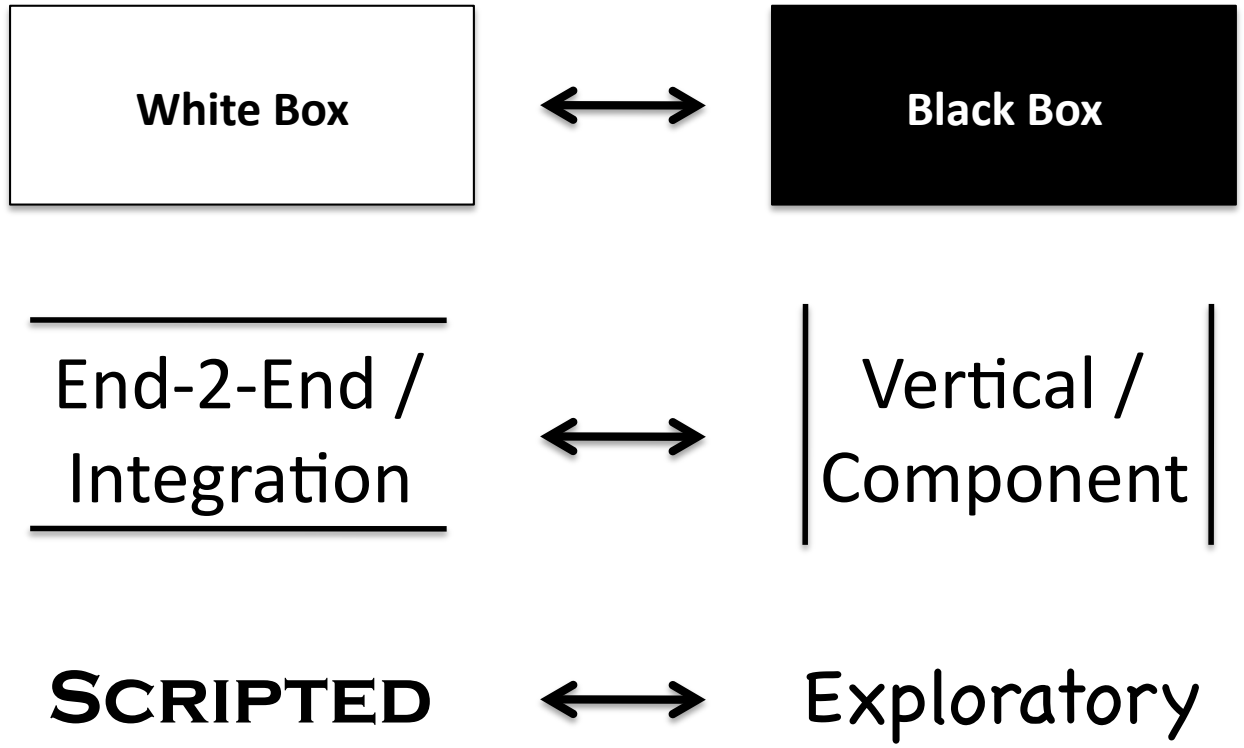
Different Testing Techniques



In the end you will work based on the mix of techniques that gives you the best results!

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Exploratory or Context Driven Testing

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What is Exploratory Testing?

James Bach[1]:

" Exploratory testing is simultaneous learning, test design, and test execution.

*…the tester **actively controls** the design of the tests as those tests are performed and **uses information gained** while testing **to design new and better tests**. "*

ET is also known as Context Driven Testing

(1) www.satisfice.com

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Exploratory Testing in Practice?

1. Define **Testing Charters** (objectives)

2. *Testers choose or are assigned charters*

3. *Each Tester or Pair of Testers run an ET session of ~**90 min** that covers the charter*

4. *At the end of the session each groups has a set of **informal notes** with the high level scenarios (steps), the detected bugs, and additional charters or ideas to test further.*

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When to use Exploratory Testing

- ✓ Very limited or no documentation
- ✓ Short time to test
- ✓ Good understanding of the requirements (or testing techniques!)
- ✓ Specially popular on Agile projects!

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Examples of Exploratory Testing

- ✓ Bug Hunts
- ✓ Hands-on learning of a new product
- ✓ (many /most) User Acceptance Tests

* All testers already perform some sort of Exploratory Testing.

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Issues with Exploratory Testing

- Require high level of discipline and process leading
- Hard to get a solid understanding of application coverage
- People tend to think that unstructured testing can also be Exploratory Testing

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TDD –
Test Driven Development

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Where does TDD come from?

It started with Extreme Programming back in ‘99

It has gained more popularity as a stand-alone technique recently - Specially among agile practitioners…

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What is TDD?

A development methodology based on very short cycles:

1. Write a white-box unit test that defines a desired behavior or function – the test will obviously fail.

2. Write the code that will make this test pass.

3. Refactor the code to acceptable standards.

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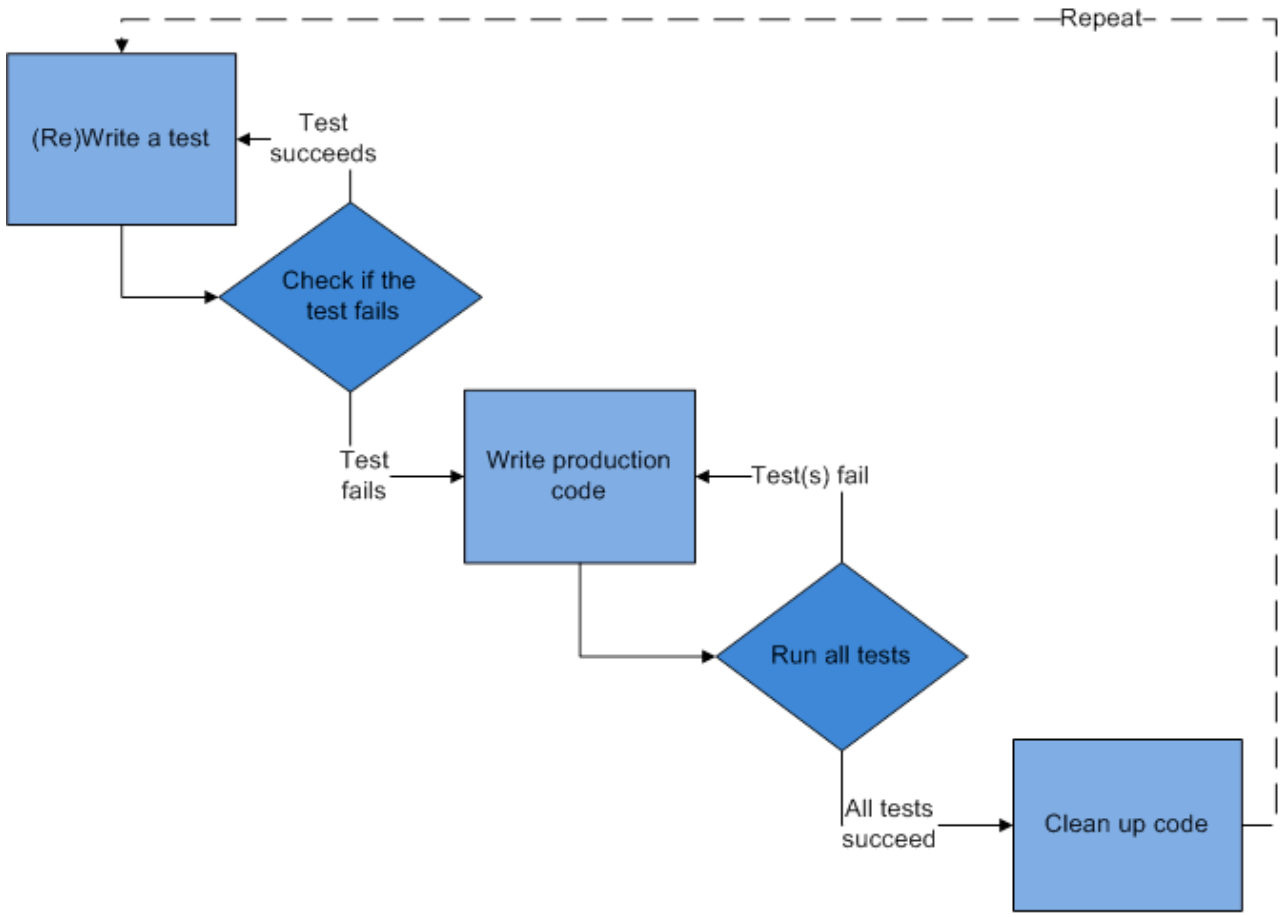
What is TDD?



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Pros & Cons of TDD

Con

⊙ Takes time to setup initial testing harness & discipline to start working under TDD

Pros

✓More robust product

✓Increasing number & coverage of Unit Tests

✓It can start at any time – no need to wait to the beginning of the project

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Web Based
Testing Communities & Blogs

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Testing Communities

- ✓ www.qaforums.com
- ✓ www.softwaretestingclub.com
- ✓ www.testrepublic.com
- ✓ http://groups.yahoo.com/group/software-testing/

Just do a google search, there are plenty!

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Testing Blogs

- ✓ www.testingreflections.com
- ✓ www.quicktestingtips.com
- ✓ http://qablog.practitest.com (Joel's)
- ✓ www.satisfice.com/blog/ (James Bach)
- ✓ www.developsense.com/blog.html (Michael Bolton)
- ✓ http://thesocialtester.posterous.com/ (Rob Lambert)

And many more!

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Additional Resources

- ✓ Linked-In testing groups
- ✓ www.softwaretestingwiki.com
- ✓ Twitter – plenty of testers there!
- ✓ Online magazines (Testing Experience, T.E.S.T., etc)

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Selenium

Free Web Functional Testing Tool

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Selenium

- ✓ http://seleniumhq.org/
- ✓ Absolutely FREE!
- ✓ Good & Expanding community world-wide
- ✓ Very flexible & robust

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Selenium

- ✓ IDE – Firefox Only
- ✓ Supported Browsers:
  Firefox, IE 7 (8 not yet!), Safari, Opera, etc
- ✓ Supported O/S:
  Win, Linux, Mac, Solaris, etc
- ✓ Supported Languages:
  C#, Java, Perl, PHP, Ruby, Python

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Selenium

Very recommended!

Give it a try,
but remember that there is
No Magic Record & Replay Solution

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The DEMO

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Thank you!

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30-Day Risk Free Evaluation

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