Introduction to Test Strategy

Scandinavian Developer Conference, 5-mar-2013

Rikard Edgren
Qamcom Karlstad
rikard.edgren@qamcom.se
Agenda

1. Testing Mission
   The reasons for testing.

2. Context Analysis
   Finding out what’s important.

3. Test Strategy
   What to test, and how.
1. Testing Mission

- Purpose to learn: If you don’t know what value testing brings, it is very difficult to do good testing.

- Definition: Testing mission is the answer to **Why do we test?**
- The mission is given by **people**, do you know who they are?

- Decent examples:
  - Contribute by finding important problems
  - Provide quality-related information (decision support)

- Bad example:
  - The test department is responsible for testing the product
Different testing missions

Different missions lead to different testing.
Why do we test?

Find important problems  Assess quality  Because we have to

Bugs
Enhancements
Performance
Reliability
Usability
Security
Standards
Regulations
Benefits
???
The “so” trick

- When you have a vague mission, like *test the product*
- Add “so” and add details:  
  *so we can find important problems*
- Perhaps once more:  
  *so they can be addressed to get happier customers and fewer support calls*

- Then you are closing in on a meaningful mission, where stakeholders can add more information:  
  *so we can take well-informed decisions, so product risks have been explored, so we don’t get unpleasant surprises*

- ...and of course the testing will be better if we know what the information will be used for!
Find out what’s important

- Talk to stakeholders.
- Ask ”What do you want to know?”, many times if necessary.

Investigate relevant information sources:
  - Specifications
  - Quality objectives
  - Fears
  - Technologies
  - Business knowledge
  - Real customers
  - ..., see 37 Sources for Test Ideas
Words requiring investigations

- **Important problems** can be elaborated with **examples:**
  - Patches
  - Complaints
  - Bad reviews
  - Embarassments
  - Bugs

- **Or by guidelines**
  - Quality objectives
  - Error catalogue
  - Checklists
  - Requirements
  - Case studies
  - Standards
2. Context Analysis

- How should the project environment effect the testing?
  - Other’s testing
  - Developer/Tester interaction
  - Test environment
  - Planning and deliverables

- What should be tested?
  - Create models (James Bach’s SFDIPOET is very powerful)

- Which quality characteristics matter?

Based on James Bach’s HTSM
**Capability.** Can the product perform valuable functions?

**Compatibility.** How well does the product interact with software and environments?

**Reliability.** Can you trust the product in many and difficult situations?

**Supportability.** Can customers’ usage and problems be supported?

**Usability.** Is the product easy to use?

**Testability.** Is it easy to check and test the product?

**Charisma.** Does the product have "it"?

**Maintainability.** Can the product be maintained and extended at low cost?

**Security.** Does the product protect against unwanted usage?

**Portability.** Is transferring of the product to different environments and languages enabled?

**Performance.** Is the product fast enough?

---

http://thetesteye.com/posters/TheTestEye_SoftwareQualityCharacteristics.pdf
Strategy examples: Reliability

- Can you trust the product in many and difficult situations?

- **Stability**: develop a semi-realistic robot that can exercise the product over weekends...

- **Data Integrity**: ...with random data and built-in data integrity validation.

- **Robustness/Stress handling**: push the product’s important limits...

- **Recoverability**: ...and investigate how well it recovers after (provoked) failures.

- **Safety**: perform aggressive risk-based testing to see if the ZYX might damage people under special circumstances.
3. Test Strategy

- Purpose: The strategy drives the testing, in order to reach the testing mission.

- Definition: Test strategy consists of guidelines and ideas that describe what should be tested, and how.
  
  (Some people mean test plan or test process.)

- It is not written in order to show how smart you are, it is written to communicate to (at least) two audiences:
  - Stakeholders
  - Testers
Test strategy – Barnum Example

- We will test the new functionality as deep as possible, and the old functionality more briefly.
- We will primarily use specifications and up-to-date risk analyses.
- As time permits, we will create automated regression tests.
- Results will be reported continuously.

- The problem with this strategy is that it is too general, and says virtually nothing.
- Your strategy needs details to be useful.
Test Strategy Example

- Most important with ROPA is to help fire departments make good decisions regarding resource management. Central to this is the calculations of driving times, and accident coverage.

- We will model the product by requirements, user interface and manual, to use for basic testing of functionality.

- Since ROPA doesn’t offer support it is important to review the user documentation, and make sure error handling and other information actually helps the users.

- To test ROPA in a realistic way, we will use complex scenarios that also investigate reliability and usability.

- As a complement, risk-based testing will be performed against secrecy, installation and data integrity (look carefully at database transactions, and visually analyze the content.)

- As the product hasn’t previously been tested by “testing professionals”, a list of bugs is an important deliverable (there exists a list of 10 known issues that we will investigate at once.)

- To facilitate future testing, the testers should give guidelines for testability improvements, e.g. programmatic interfaces that allow automatic regression testing of calculations.

- Challenge: Currently we have no really good oracle (except sanity and Google Maps) to decide whether the driving times are accurate.
Your unique test strategy

- Every situation requires a unique test strategy.

- A good test strategy is specific, justified and realistic.

- It is better to test pretty well in many ways, than perfect in one or two. [#283, Lessons Learned in Software Testing]
Aspects of test strategies

- What is important?
- Goals
- Test techniques
- Test ideas (worth mentioning)
- Information sources
- Oracles
- Models
- Quality objectives
- How testers think
- Trade-offs
- Risks
Anchored in...

- **Situation**
  - Test what is demanded by the context.

- **Management**
  - Test to get the information others need.

- **Testers**
  - Make sure testers know where you are aiming, and why.

- At the same time adjustable, since things always change...
Always with a flavor of...

- ...risk judgment
  - So you focus on what’s most important

- ...test design
  - Continuously jot down fruitful test ideas

- ...communication
  - So stakeholders get the information they need
  - So testing can be improved

- *Testing is never better than the communication of the results*
Homework: Diversified test strategy

- Team up.

- Come up with **plenty** of different ways to test your product.
- Suspend judgment until you run out of ideas.
Context Analysis

- Testing mission
- Project environment
- Product elements
- Information sources
- Quality characteristics
- Test design

grounded testing missions
diversified test strategy
test ideas
start for reporting
Results

- When you have developed an anchored test strategy, you have learned a lot.
- You have many ideas about what to test, and how.
- You have a starting point for reporting.

- You have stakeholders agreeing what you are up to.

If you think you have a reporting problem, I suspect it’s really about test strategy communication.
Finale

- It’s about the information you gather, and share.
- It’s about how you think.

- You need to find your test strategies for your context.

- Do your best, collaborate, learn to understand what is important.
Questions

- ???

- Literature:
  - Heuristic Test Strategy Model (James Bach)
  - BBST Test Design (Kaner, Fiedler)
  - The Little Black Book on Test Design (Edgren)

www.thetesteye.com  rikard.edgren@qamcom.se