

“Advanced Testing”, the open gate to Software Quality?

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Introduction



- Presentation
- Speaker
- Interaction

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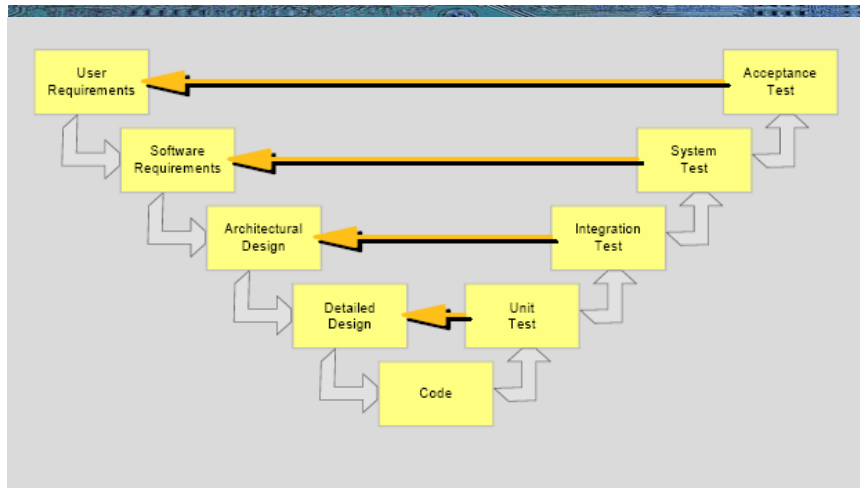
Overview

- Evolution in time
- What do I mean by “Advanced Testing”
- Impact

Overview

- Evolution in time
 - Testing Methodology
 - Testing Technics
 - Requirement definitions
 - Test Organisations
 - Testing tools
 -
- What is meant by “Advanced Testing”
- Impact

The V-Model (past)



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The O-Model (now)

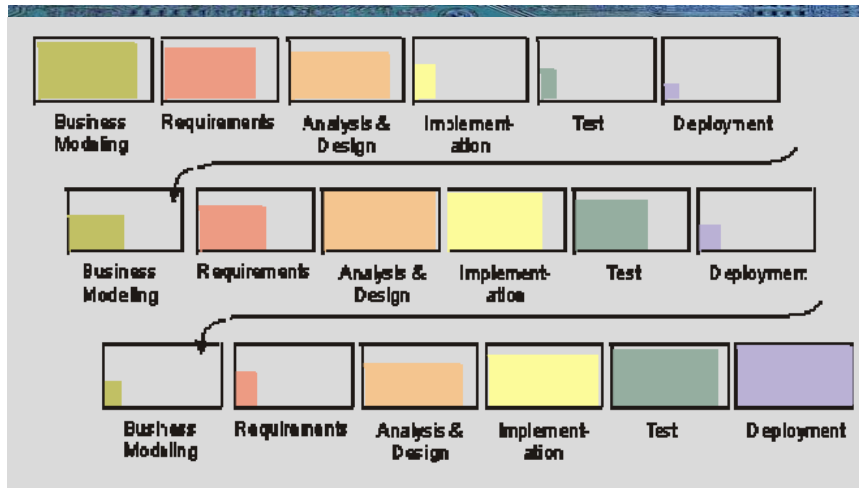


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The O-Model (now) With a Time-axis



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Testing Technics (Past)

- Aspects :
 - UNIT testing
 - static
 - Well defined testing
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- Functional testing (Integration, Acceptance)
- Performance testing (System → Acceptance)
- User ergonomic testing (Acceptance)
-

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Testing Technics (now)

- Aspects :
 - Non-static, on-condition, and learn mode
 - Heuristic Testing
 - Security Testing
 - Component Based Testing
 - RBT and RRBT
 -
- ET
- Combinatorial Testing
- Agile Testing
- Scrum
- Agile Scrum
-

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Requirements Definition (Past)

- Word
- Excel
- Printed
- Home made tools
- ...

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Requirements Definition (Now)

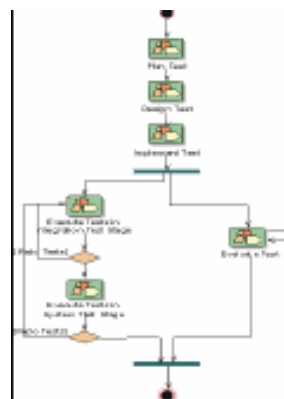
- Excel/Word
- DB
- Home made Tools
- Automatic TestCase Generation based on Requirements
- UML
- ...

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Requirements Definition (Now) UML



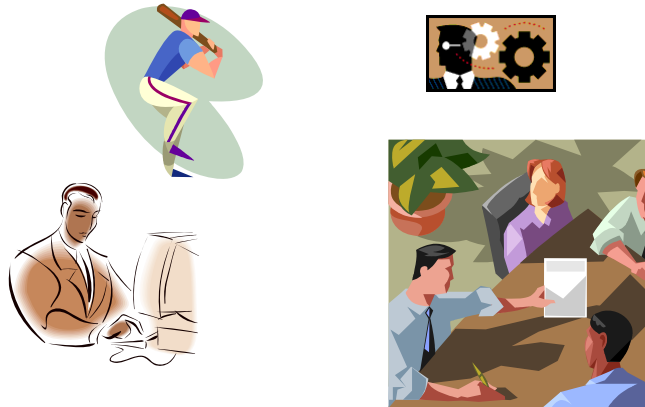
- UML
 - Bridge between Dev. & QA
 - Story boarding

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Tools (past)



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Tools (now)

- The is a huge variety of testing tools for all parts of the testing process
 - Open source tools exist – also of relatively high quality - Eclipse
 - commercial testing tools
- Many are domain/environment-dependent
- No substitute for common sense and hard work though...

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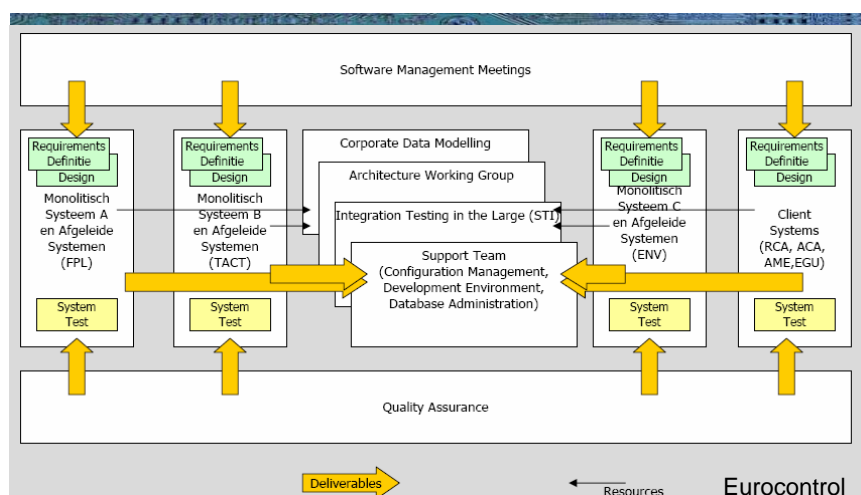
- <http://www.opensourcetesting.org>
lists 250 tools...
- A great selection and variety, e.g.,
 - HttpUnit
 - JMeter
 - Mock objects
 - FitNesse
 - JIRA
 -

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Organisation (past)

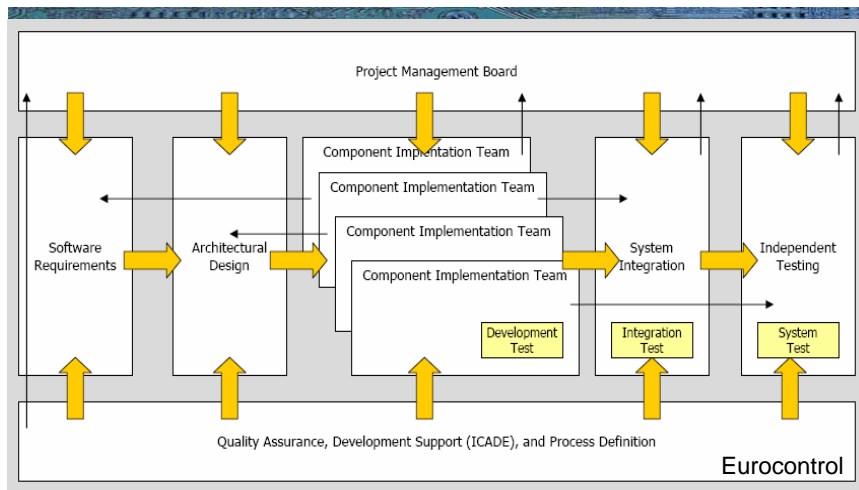


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Organisation (now)



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- One way to achieve Advanced test

CBD & CBT

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CBD & CBT

- Fe. Component Based Development based on RUP
 - Isolation of functionalities
 - Reusability of modules
 - Incremental and interactive approach instead of a Big Bang
 - model-centric based development
 - Knowledge base and expertise build throughout the organisation

- A second way to achieve Advanced test

Models

Models

- *Model-driven testing*
 - Model of the system under development
 - Executable system generated from this model; tests also generated from this model
 - Generate tests from a data model derived from requirements

Models

Model-based testing

- Model of the requirements of the system under development
- Specifically of input to functionality of the system
- Test cases generated based on this specification
- Generate tests from a system model that may be used to generate the system

-
- A Tird way

Techniques

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ET

-
- Exploratory Testing
Combined with tools

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-
- more ways to achieve Advanced test

Testing on the move Expectations?

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Advanced Testing for Managers

- **Save time**
- **Reduce Risk**
- **Reduce Costs**
- **Save Money**

?

The selection, choice and Integrations of Technologies which can provide a sound platform for implementation of software test-system concepts in a way they are becoming advanced software test-system concepts on its own.

Advanced Testing & Tools ?

- The easy part of test automation is to automatically execute defined tests

A harder part is to automatically define tests

Tools ?

- Uniform testing tools – spreading costs and investment
- Uniform management of test data & test database
- Open Source
 - Large knowledge base
 - development tools and testing tools “freeware”

Tools ?

Totally integrated test facilities parsing commands and share data as needed to meet throughput, reliability, and maintainability goals.

- Generating Test Data, combined with risk & impact analysis

Tools ?

- Supporting existing and new testing strategies
 - Non-static
 - on-condition
- Learning modes and maintenance strategies accelerating testing and assure high test ROI.
 - built-in test
 - expert diagnostics
 - auto calibration
- Patterns are not only for the design but also for testing

Impact of Advanced Testing

- Change of process
- New project management approach
- New organisation
- New testing techniques
- New tools en architecture & infrastructure
- New test approach

Keeping in mind of the importance to
aligning testing with customer usage

Testing is “a profession”

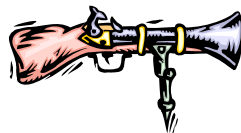


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- Questions
 - Discussion

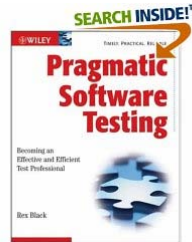
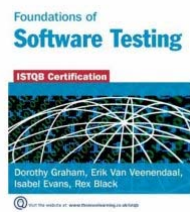
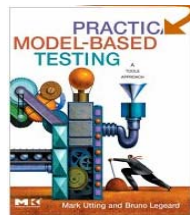


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Hans Schaefer : <http://www.softwaretesting.no/testinglinks.html>
Stefan Steurs, EuroControl Belgium



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Thank you

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