MBT & ISTQB CHALLENGES

YOUR SOFTWARE TESTING AND TRAINING SPECIALISTS
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- Software Testing instructor ISTQB (FL+AL), REQB, IREB
- Product & Project Quality Assistance services
- International experience in Critical SW Development & Testing
  - Space systems, Airborne systems, Banking, Telecoms, Health, ...
- Author of 2 books, and 30+ articles:
  - “Fundamentals of software testing” (ISBN: 978-1-8482-1324-1)
- Founder and Principal : TESSCO sas.
- President : CFTL French Software Testing Board
- Senior Member IEEE
  - Member: ECSS, IEC, AST, ...
- Presenter & University Teacher
  - Over 40 keynotes and tutorials on 5 continents, ...
  - École des Mines Paris, HEC, ENST, University Poitiers, …
Major Challenges:

- Industry acceptance
  - Dispelling illusions
  - Proofs, Evidences, ...
  - Common language
- Industrial vs. Ad Hoc implementation
  - Return on Investment, granularity
- Spreading knowledge
  - Training & Certification
Industry challenges

Dispelling illusions ...

- Major challenges to both ISTQB and MBT
  - Quicker: how can I finish my testing faster?
    - Easy: either test early or don’t test
  - Cheaper: why is testing so expensive?
    - Easy: don’t look for defects, don’t fix the defects found
      Beware: it will be more expensive in the end
  - Better
    - Not possible if the two other axis remain constant
- Fact: we all have illusions about testing (among others)
Industry challenges

Current status …

- Current status of testing:
  - Technology: quickly evolving complex (mobile devices, etc.)
    - Solution: test early, automate (but what?) or limit scope (is it realistic?)
  - Time: unrealistic schedules and scope
    - Solution: test early (static testing) or limit scope (is it realistic?)
  - Money: defects cost money, avoid defects introduction
    - Solution: training and cross-training
      - For developers, designers, managers, customers and … testers
  - Other techniques such as Agile
    - Sometimes more reactive, seldom efficient, neither quick, nor cheap

- How can we remove (y)our illusions?
Industry challenges

Technology and Methodology ... Explosion

- Explosion of
  - Methods
  - Techniques
  - Tools
  - Ideas

- Still missing
  - Evidence, proof!
Industry challenges
Proof & Evidences …

☐ Evidences are available & referenced in ISTQB
  ▪ In standards (IEEE, ISO, etc.)
  ▪ In publications (e.g.; C. Jones, Chaos reports, etc.)

☐ Some references are available for MBT
  ▪ In standards (ETSI, formal notations such as UML & BPMN…)
  ▪ In publications (e.g.; H. Buwalda, B. Legeard, etc.)

☐ Are theses accepted in the industry ?
  ▪ What proof / evidences do we have ?
  ▪ Will it work in your environment ?
Common definitions are hard to find:

- What is a “test plan”?
  - A list of actions or a description of some test strategy?
  - A false-negative or a false-positive?

- A common glossary is needed:
  - For software testing an ISTQB Glossary exists (ongoing work in progress)

Common certification

- Worldwide acceptance
- ISTQB Syllabus (FL+AL+EL)

→ Promotes common understanding and limits explosion
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Industrial vs. Ad Hoc implementation

*Industry*: One size fits all

- **NO:**
  - One size does **NOT** fit all (unfortunately)

- We are all different:
  - Each company has its own context and challenges
  - Benefits will vary or could even be non-existent
  - A tool (even an MBT-tool) is not a substitute for a brain

→ **We must identify **OUR OWN** reasons for MBT**
Industrial vs. Ad Hoc implementation

Return on Investment challenges

- Is the solution good enough? (Effectiveness)
  - Ability to find all the defects using the technique

- Is the solution cheap enough? (Efficiency)
  - Ability to find the defects using the least effort possible

- Is the solution all we need? (Scope)
  - Is the solution complete, did we miss anything?
  - Do we need other techniques, methods, etc.?
Industrial vs. Ad Hoc implementation

ROI challenges: Effectiveness

- Is the solution effective?
  - Can we find all the defects using the technique?
  - What about gaps in functional coverage?
  - Are all techniques implemented, how are they selected?

- Do we have evidences supporting our claim?
  - Do we have numbers, statistics, etc.?
Industrial vs. Ad Hoc implementation
ROI challenges: Efficiency

- Is the solution cheap enough?
  - Can we find defects with the least effort possible
  - Do the tools help prevent defects?
    - It’s cheaper than to create and remove them.

- What about early testing, static testing, reviews?
  - These have been confirmed as most efficient methods
  - Measuring / anticipating the number of defects to find
Industrial vs. Ad Hoc implementation

ROI challenges: Completeness

- Is the solution enough?
  - Did we miss anything?
    - In terms of testing categories (functional vs. non-functional)
    - In terms of defects prevention and process improvement
  - Do we need other techniques, methods, etc.?
    - Independent testers
    - Focusing on “important” tests, but what “is” important?
    - Do we know how many defects are still in the software?
Industrial vs. Ad Hoc implementation

ROI challenges: Evidences?

- Do we have proof?
  - Are there statistically valid samples and measurement?
Industrial vs. Ad Hoc implementation

How to select the correct tool(s)?

- ISTQB suggestions (from ISTQB Foundation syllabus)
  - Organizational Testing Maturity evaluation
    - To identify where the highest benefit will occur
  - Proof of concept in YOUR environment
    - To make sure the tool fits your needs
  - Evaluation of vendor (training, support, etc.) as well as of the tool (benefits vs. costs, internal & external, etc.)
  - Pilot project using the selected tool / technology
Industrial vs. Ad Hoc implementation

Can one tool fit all your needs?

- Granularity
  - Why would ONE tool fit all your needs?
  - Most likely you will need multiple tools:
    - Requirements management
    - Traceability to test conditions and test cases + execution
    - Defect management, reporting, etc.
  - And of course MBT tools 😊

→ This means that your implementation will be specific, and ... so will any benefit.
Industrial vs. Ad Hoc implementation

The ISTQB implementation

- Provides multiple techniques, solutions and measures
  - EP, BVA, DT, STT, RCA, FMEA, ...
  - DDP, closure rate, defect aggregates, ...

- Highlight the need for adaptation & management
  - Test Planning & Control, Measurement, etc.
  - Test Closure activities with “lessons learned”

→ Allow multiple, different, testing implementations fitted to your specific (customer’s) environment and goals
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Spreading the knowledge
Why and how?

A major challenge ...

To make the industry aware of this technique

Advantages
- By using similar terms & languages users will be able to compare the tools and benefits

Drawbacks
- Commercial tools vendors may focus on their own solutions, leaving customers more bewildered than satisfied
Spreading the knowledge
About testing …

☐ Current status

☐ ISTQB and national boards such as CFTL
  ■ Common glossary, and Syllabus, career paths
  ■ Reach industry, managers, universities and end-users
  ■ Non profit associations
  ■ Certifications and localization

☐ Outlook :
  ■ Very slow progress, but … improving (300.000+ certifications)
  ■ Syllabus translated in French, German, Spanish, etc.
  ■ New syllabi arriving (incl. about Test Automation and about MBT)
Spreading the knowledge
About MBT …

- Current status
  - Local initiatives
    - TTCN-3 (Germany and telecom industry)
  - No coordinated activities worldwide
    - Non profit associations
  - No Certifications yet
  - Outlook:
    - There are still many – small to very small – actors
    - Need some level of standardization
Current status

- ISTQB is coordinating an MBT FL-AddOn syllabus
  - To raise awareness of MBT in the industry
  - To provide some level of standardization and common glossary

- Trainings will be available on MBT
  - TPs will provide specific trainings

Outlook:

- Certification (ISTQB-FL level, future AL level possible)
  - Should be available within the next 2 years
- Increase of awareness by all actors.
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Major Challenges, conclusions:

Similar challenges

- Definition of simple, common terminology
  - Is it possible if you are business driven?
    - Creation of ISTQB helped

- Identification of clear boundaries, or else …
  - “One size fits all” does not work … find what does
    - A layered solution, common reporting framework?

- Identify your targets, customers and users
  - MBT seems to be for mature industries
    - A proven solution or a set of proven solutions?

- Don’t be a “sect”, be inclusive, not exclusive
Major Challenges, conclusions:

Different challenges

- Market size and organization
  - MBT is only one part of the Testing market addressed by ISTQB

- Follow a clear process (remember, it is slow)
  1. Become better known to your — current and future — stakeholders
  2. Always challenge your knowledge and your solution to improve
  3. Provide clear evidence to convince
  4. Start again at 1

- It is a long term endeavor
  - ISTQB started more than 10 years ago and we have not finished
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Thank you – Merci