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<td>Contacts</td>
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</table>
WHAT IS THE ISTQB®?

- ISTQB®: International Software Testing Qualifications Board
  - Non-profit association
  - Founded 2002
  - Headquartered in Belgium
  - Has its own constitution, rules and regulations
  - Composed of volunteer international Testing Experts
  - Responsible for the “ISTQB® Certified Tester” scheme worldwide

- ISTQB® is the world’s leading organization for Certification of Professionals in Software Testing

Advancing the software testing profession
• ISTQB® Videos give you insights into the ISTQB® Certified Tester scheme

http://www.istqb.org/introduction-to-istqb.html
“To continually improve and advance the software testing profession by:
Defining and maintaining a Body of Knowledge which allows testers to be certified based on best practices, connecting the international software testing community, and encouraging research.”
ISTAQB® MISSION

1. We promote the value of software testing as a profession to individuals and organizations.

2. We help software testers to be more efficient and effective in their work, through the certification of competencies.

3. We enable testers to progress their career through a Professionals’ Code of Ethics and a multi-level certification pathway that provides them with the skills and knowledge they need to fulfil their growing responsibilities and to achieve increased professionalism.

4. We continually advance the Testing Body of Knowledge by drawing on the best available industry practices and the most innovative research, and we make this knowledge freely available to all.

5. We set the criteria for accrediting training providers, to ensure consistent delivery of the Body of Knowledge, worldwide.
6. We regulate the content and coverage of exam questions, the examination process, and the issuing of certifications by official examination bodies.

7. We are committed to expanding software testing certifications around the world, by admitting member boards into the ISTQB®. These boards adhere to the constitution, bylaws, and processes defined by the ISTQB®, and participate in regular audits.

8. We nurture an open international community, committed to sharing knowledge, ideas, and innovations in software testing.

9. We foster relationships with academia, government, media, professional associations and other interested parties.

10. We provide a reference point against which the effectiveness of testing services can be evaluated, by maintaining our prominence as a respected source of knowledge in software testing.
ISTQB® VALUES

- International Presence
- Professionalism
- Continuous Learning
- Openness
- Knowledge Sharing
- Consistency
- Active Member Boards
- Integrity
- Non-profit Independence
ISTQB® VALUE CHAIN

- Working Groups: [http://www.istqb.org/about-as/working-groups.html](http://www.istqb.org/about-as/working-groups.html)
- Member Boards: [http://www.istqb.org/istqb-where-you-are/your-local-member-board.html](http://www.istqb.org/istqb-where-you-are/your-local-member-board.html)
- Training Providers: [http://www.istqb.org/istqb-where-you-are/find-a-training-provider.html](http://www.istqb.org/istqb-where-you-are/find-a-training-provider.html)
- Exam Providers: [http://www.istqb.org/istqb-where-you-are/find-an-exam-provider.html](http://www.istqb.org/istqb-where-you-are/find-an-exam-provider.html)
- ISTQB® Partners: [http://www.istqb.org/partner/istqb-partners.html](http://www.istqb.org/partner/istqb-partners.html)
ISTQB® ECO-SYSTEM

**ISTQB®**
- Creation of new syllabi
- Definition of worldwide rules
- Working Group activities

**Exam Provider**
- Exam administration
- Issue of certificates

(NOTE: these tasks can be performed by the Member Board)

**Member Board**
- Translation/ release of new syllabi
- Accreditation of training providers
- Creation and release of exam questions
- Adoption of ISTQB® rules
- Contribution to ISTQB® Working Groups
- Exam Administration
- Issue of certificates

**Certified Tester**

**Accredited Training Provider**
- Creation of course materials
- Delivery of courses
ISTQB® WORKING GROUPS (WGs)

- Training Providers
- Exam Providers
- Member Boards

ISTQB® GENERAL ASSEMBLY

- Glossary wg
- Foundation wg
- Advanced wg
- Expert wg
- Executive Committee
- Governance
- Product Development Steering Committee
- TBOK wg
- Exam wg
- Release Management
- Marketing wg
- Process Management & Compliance
Software engineering and software project management are complex activities. Both software development and software management have dozens of methodologies and scores of tools available that are beneficial. In addition, there are quite a few methods and practices that have been shown to be harmful.

In order to evaluate the effectiveness or harm of various methods and practices Capers Jones has developed a scoring method.

The data for the scoring comes from observations among about 150 Fortune 500 companies, some 400 smaller companies, and 30 government organizations. Negative scores also include data from 15 lawsuits. The rankings are based on about 20,000 projects that span 50 industries and 24 countries.

• In the following some factors related to testing are presented, with their impact in terms of reduction or increase in project work hours with regards to projects consisting of traditional application development methods such as “waterfall” development performed by organizations that do not have apply systematically sound software engineering practices

<table>
<thead>
<tr>
<th>Factor</th>
<th>Impact on productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experienced test teams</td>
<td>12% Improvement</td>
</tr>
<tr>
<td><strong>Testing by certified test personnel</strong></td>
<td>7% Improvement</td>
</tr>
<tr>
<td>Testing by developers only</td>
<td>6% Worsening</td>
</tr>
<tr>
<td>Informal test case design</td>
<td>8% Worsening</td>
</tr>
<tr>
<td>Inexperienced test teams</td>
<td>15% Worsening</td>
</tr>
<tr>
<td>Truncating testing to &quot;meet schedule&quot;</td>
<td>45% Worsening</td>
</tr>
</tbody>
</table>

(Capers Jones, *Scoring and evaluating software methods, practices, and results*, version 15.0, September 6, 2014)
Technavio, an independent technology research and advisory company, analyzed the key challenges faced by the Global Software Testing Services market, highlighting in particular the “Shortage of Skilled Labor”.

- The Global Pure Play Software Testing Services market is growing rapidly, thus increasing the demand for skilled labor. However, this has created a disparity in supply and demand, as a result of which, *sourcing and retaining skilled labor has become a challenge.*

- The shortage of availability of required skills is now becoming a major challenge for the software testing organizations.

Since the current educational system is not geared up to the required standards and demands of the market, this challenge is expected to have a bigger impact on the market in the future.

*(Global Software Testing Services Market 2011-2015, Technavio)*
As part of its commitment to continuous improvement and the advancement of the software testing profession, in 2013 ISTQB® conducted an international online survey for test engineers and managers.

The survey was open from June to September 2013 and several thousand responses were received from almost 70 countries; in particular, respondents were:

- 2855 test engineers
- 779 test managers

In the remainder of this presentation, references will be made to some key results of the survey.

The full report is available for free download from the ISTQB® Web Site.

A new survey is in progress and will be published soon.
BENEFITS FOR PROFESSIONALS

• International recognition of acquired competencies and skills

• Authorized to use the “Certified Tester” logo (specifying the level of certification)

• Whole of career path support, from Foundation to Expert level

• Higher appeal in the labor market
Would you recommend the ISTQB® Foundation Level (CTFL) certification to your colleagues?

Both Test Engineers and Test Managers are highly satisfied with the ISTQB® CTFL certifications and happy to recommend these to their colleagues (91% - Test Engineers, 94% - Test Managers).
BENEFITS FOR COMPANIES

- ISTQB® certification can provide a competitive advantage for companies, promising a higher level of reliability of the applications being developed due to efficient and cost effective testing practices derived from the ISTQB® competencies.

- Consulting companies with certified staff can offer higher-level services to customers, increasing revenues and brand value.

- ISTQB® has defined a “Partner Program” in the Industry, for companies that engage and certify their testers using the ISTQB® scheme. ISTQB® is planning an Academia Partner Program, related to the Industry one already in place.
As a Test Manager, what percentage of your testing staff would you like to see certified at the ISTQB® Foundation Level?

- 0% of staff certified: 3%
- 1-49% of staff certified: 9%
- 50-99% of staff certified: 33%
- 100% of staff certified: 55%

Test Managers appear to see a high value in having their staff trained and certified. Around 88% of Test Managers would like to see more than half of their testing staff being certified at the ISTQB® Foundation Level. On average, the desired number of certified staff is 75%.
BENEFITS FOR ACCREDITED TRAINING PROVIDERS (ATP)

- Educational institutions and consulting companies may become an ISTQB® Accredited Trainer Provider (ATP) according to processes and rules defined at the international level.
- Accredited Training Providers ensure that a high standing training is delivered through having:
  - certified trainers
  - the content, quality and syllabus coverage of training materials checked by ISTQB® Boards
  - advance notice of changes to the ISTQB® Glossary and syllabi
- Accredited Training Providers are entitled to use relevant logos and are listed in the ISTQB® Website.
BENEFITS FOR ACCREDITED TRAINING PROVIDERS

How significant do you think the training was in your certification success?

Almost 70% of the survey participants felt that formal training was a significant part of their certification success.

The ISTQB® provides strong support for training providers and accredited training will continue to be an integral part of certification success.
EuroSTAR, one of the major testing conferences, has conducted a survey involving 631 professional software testers and testing team leads or testing and quality assurance managers from major companies across Europe.


In accordance to the survey, 85% of the respondents have an ISTQB® Foundation certificate and 26% have also an ISTQB® Advanced certification.
The same survey shows that the value of certifications is perceived to be high.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree (Somewhat or Strongly)</th>
<th>Disagree (Somewhat or Strongly)</th>
<th>Neither or Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are of value to me</td>
<td>74%</td>
<td>12%</td>
<td>13%</td>
</tr>
<tr>
<td>Are something I am proud of</td>
<td>66%</td>
<td>11%</td>
<td>24%</td>
</tr>
<tr>
<td>Helped me get a job/promotion</td>
<td>49%</td>
<td>21%</td>
<td>29%</td>
</tr>
<tr>
<td>Were a worthwhile undertaking</td>
<td>68%</td>
<td>9%</td>
<td>23%</td>
</tr>
<tr>
<td>Have no bearing on how I test</td>
<td>33%</td>
<td>39%</td>
<td>28%</td>
</tr>
</tbody>
</table>
• In 2015 we conducted a survey looking at the “Worldwide Software Testing Practices”, the results of which are published in this report.

• The survey was open from June to September 2015 and several thousand responses were received from almost 90 countries.

• In the remainder of this presentation, references will be made to some key results of the survey.

• The full report is available for free download.

• Download ISTQB Worldwide Testing Practices Report
SYLLABI

1. Introduction to ISTQB®
2. Benefits
3. Syllabi
4. Exams
5. ISTQB®: Worldwide Footprint
6. ISTQB® Partner Program
7. Special Initiatives
8. ISTQB® Next Steps
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SYLLABI

3.1 General Introduction

3.2 Core
- Certified Tester Foundation Level
- Test Manager Advanced Level
- Test Analyst Advanced Level
- Technical Test Analyst Advanced Level
- Test Management Export Level
- Improving the Test Process Expert Level

3.3 Specialist
- Model Based Tester Foundation Level
- Security Tester Advanced Level
- Test Automation Engineer

3.4 Agile
- Agile Tester Foundation Level
• ISTQB® has defined three Levels:
  ➢ Foundation
  ➢ Advanced
  ➢ Expert

• The ISTQB® certification scheme is split into streams
  ➢ Core: The core stream includes the testing fundamentals in every level
  ➢ Agile: This specific area is aimed for people interested in the Agile world
    (as the world is getting more and more agile)
  ➢ Specialist: This area of knowledge is aimed for those who want to deep
    dive in specific testing topics

• Syllabi are publicly available for download from the ISTQB® website. They
  are written by testing experts and continuously reviewed and improved

• Terms used in the ISTQB® syllabi are defined in the ISTQB® Glossary

• Syllabi and Glossary are translated in many languages by the ISTQB®
  Member Boards - refer to local board websites to download this content
3.1 General Introduction

3.2 Core
- Certified Tester Foundation Level
- Test Manager Advanced Level
- Test Analyst Advanced Level
- Technical Test Analyst Advanced Level
- Test Management Export Level
- Improving the Test Process Expert Level

3.3 Specialist
- Model Based Tester Foundation Level
- Security Tester Advanced Level
- Test Automation Engineer

3.4 Agile
- Agile Tester Foundation Level
## ISTQB® FOUNDATION LEVEL

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<th>ISTQB®</th>
<th>FOUNDATION LEVEL</th>
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<tbody>
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<td>Why is Testing Necessary?</td>
<td>Software Development Models</td>
</tr>
<tr>
<td>Seven Testing Principles</td>
<td>Test Types</td>
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<tr>
<td>The Psychology of Testing</td>
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<tr>
<td>Code of Ethics</td>
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</table>
BENEFITS OF CTFL FOR TEST ENGINEERS – SURVEY

• As a Test Engineer, what was your motivation in obtaining your ISTQB® CTFL certification?

The majority of Test Engineers took the ISTQB® CTFL certification in order to enhance their career path (80%) and develop their testing skills (70%). Some believe it will help them get more recognition from their colleagues (25%) or increase their income (20%).
As a Test Manager, what was your motivation to have your employees achieve ISTQB® Foundation Level (CTFL) certification?

- Testing quality improvement: 60%
- Employee career path development: 45%
- Company image improvement: 20%
- Customer’s demand: 15%
- Employee incentive: 10%
- Company policy: 5%

The majority of Test Managers believe that participating in the ISTQB® certification scheme will positively impact testing quality in their projects (75%), and will enable them to provide positive career path to their employees (55%).

Some Test Managers believe their company image will improve (30%) as a result of having their employees participate in the ISTQB® certification.
ISTQB® Advanced Level is composed of three independent modules:
- Test Manager (AL-TM)
- Test Analyst (AL-TA)
- Technical Test Analyst (AL-TTA)

The ISTQB® Foundation Level Certification is a pre-requisite for all of them.

When achieving all the three Advanced Core Modules, a “Full Advanced” certificate is issued.
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<tr>
<th>ISTQB® - ADVANCED LEVEL</th>
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<td>Testing Process</td>
<td>Test Management</td>
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<tr>
<td>Test Planning, Monitoring and Control</td>
<td>Risk-based Testing</td>
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<tr>
<td>Test Analysis and Design</td>
<td>Test Documentation</td>
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<tr>
<td>Test Implementation and Execution</td>
<td>Test Estimation and Test Metrics</td>
</tr>
<tr>
<td>Evaluating Exit Criteria and Reporting</td>
<td>Business Value of Testing</td>
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<tr>
<td>Test Closure Activities</td>
<td>Distributed, Outsourced and Insourced Testing</td>
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<tr>
<td></td>
<td>Managing the Application of Industry Standards</td>
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<tr>
<td>Reviews</td>
<td>Defect Management</td>
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<tr>
<td>Management Reviews and Audits</td>
<td>Defect Lifecycle</td>
</tr>
<tr>
<td>Managing Reviews</td>
<td>Defect Report Information</td>
</tr>
<tr>
<td>Metrics for reviews</td>
<td>Assessing Process Capability with Defect Report Info</td>
</tr>
<tr>
<td></td>
<td>Managing Formal Reviews</td>
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<tr>
<td></td>
<td>Improving the Testing Process</td>
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<td>Test Improvement Process</td>
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<td></td>
<td>Improving the testing process with CMMI, TPL, CTP, STEP</td>
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<tr>
<td></td>
<td>Tool Selection</td>
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<td>Tool Lifecycle</td>
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<td>Tool Metrics</td>
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<td></td>
<td>Fitting Testing Within an Organization</td>
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<td></td>
<td>Motivation</td>
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<td>Communication</td>
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<td>People Skills</td>
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<td>ISTQB® - ADVANCED LEVEL TEST ANALYST (AL-TA)</td>
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<td>---------------------------------------------</td>
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<tr>
<td>ISTQB® – ADVANCED LEVEL TEST ANALYST</td>
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</tr>
<tr>
<td>Testing Process</td>
<td>Test Management</td>
</tr>
<tr>
<td>Test Planning, Monitoring and Control</td>
<td>Distributed, Outsourced and Insourced Testing</td>
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<tr>
<td>Test Analysis and Design</td>
<td>Risk Based Testing</td>
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<tr>
<td>Test Implementation and Execution</td>
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<tr>
<td>Evaluating Exit Criteria and Reporting</td>
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<td>Test Closure Activities</td>
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<tr>
<td>ISTQB® - ADVANCED LEVEL</td>
<td>TECHNICAL TEST ANALYST (AL – TTA)</td>
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<tr>
<td><strong>ISTQB®</strong></td>
<td><strong>ADVANCED</strong></td>
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<tr>
<td>Risk Based Testing</td>
<td>Structure-Based Testing</td>
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<tr>
<td>Risk Identification</td>
<td>Condition Testing</td>
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<td>Risk Mitigation</td>
<td>Path Testing</td>
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<td>API Testing</td>
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<td>Selecting a Structure-based Technique</td>
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</table>
How important do you think it is to obtain the ISTQB® Advanced Level (CTAL) certification?

Approximately 70% of Test Managers identified that it is important to obtain the Advanced Level Certification, and this was supported by 63% of Test Engineers.
• For ISTQB®, Expert really means Expert
  – “A person with the special skills and knowledge representing mastery of a particular testing subject.
  – Being an expert means possessing and displaying special skills and knowledge derived from training and experience.”

• Clearly stated expectations and business outcomes are established for each subject covered at Expert Level
The Expert Module “Test Management” is composed of three parts:

- Strategic Test Management
- Operational Test Management
- Managing the Test Team
### ISTQB® EXPERT LEVEL
**OPERATIONAL TEST MANAGEMENT**

#### ISTQB® – EXPERT LEVEL TEST MANAGEMENT – PART 2 – OPERATIONAL TEST MANAGEMENT

<table>
<thead>
<tr>
<th>Managing External Relationships</th>
<th>Project Management Essentials</th>
<th>Test Project Evaluation &amp; Reporting</th>
<th>Domain and Project Factors</th>
<th>Evaluating Effectiveness &amp; Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of External Relationships</td>
<td>Estimating Effort</td>
<td>Tracking Information</td>
<td>Release Considerations</td>
<td>Project Retrospectives</td>
</tr>
<tr>
<td>Contractual Issues</td>
<td>Balancing Quality Schedule, Budget and Features Implemented</td>
<td>Internal Reporting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication Strategies</td>
<td>Performing Risk Assessment</td>
<td>External Reporting</td>
<td></td>
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</tr>
<tr>
<td>Integrating from External Sources</td>
<td>Monitoring and Controlling a Test Project</td>
<td>Test Results Reporting and Interpretation</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Statistical Quality Control Techniques</td>
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</tbody>
</table>
The Expert Module “Improving the Testing Process” is composed of two parts:
- Assessing Test Processes
- Implementing Test Process Improvement
## ISTQB® – Expert Level
### Improving the Testing Process – Part 1 - Assessing Test Processes

<table>
<thead>
<tr>
<th>Context of Improvement</th>
<th>Model Based Improvement</th>
<th>Analytical Based Improvement</th>
<th>Selecting the Approach</th>
<th>Process for Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why improve?</td>
<td>SW Models (CMMI, ISO 15504)</td>
<td>Causal Analysis</td>
<td>Selection of Test Process Improvement</td>
<td>Initiating &amp; Diagnosing the Situation</td>
</tr>
<tr>
<td>What can be Improved?</td>
<td>Test Process Models (TPI NEXT, TMMi)</td>
<td>GQM Approach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Views of Quality</td>
<td>Test Content Models (CTP, STEP)</td>
<td>Measures, Metrics &amp; Indicators</td>
<td></td>
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</tr>
<tr>
<td>Generic Improvement Process (Deming, IDEAL)</td>
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</tbody>
</table>
## ISTQB® EXPERT LEVEL

**IMPLEMENTING TEST PROCESS IMPROVEMENT**

<table>
<thead>
<tr>
<th>Process for Improvement</th>
<th>Organizational Aspects</th>
<th>Managing Change</th>
<th>Critical Success Factors</th>
<th>Adapting to Different Life Cycle Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishing a Test Improvement Approach</td>
<td>Organization</td>
<td>Change Management Process</td>
<td>Key Success Factors</td>
<td>Setting an Improvement Culture</td>
</tr>
<tr>
<td>Implementing Test Improvement</td>
<td>Roles</td>
<td>Human Factors</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skills of the Test Process Improver</td>
</tr>
</tbody>
</table>
3.1 General Introduction
3.2 Core
Certified Tester Foundation Level
Test Manager Advanced Level
Test Analyst Advanced Level
Technical Test Analyst Advanced Level
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Improving the Test Process Expert Level
3.3 Specialist
Model Based Tester Foundation Level
Security Tester Advanced Level
Test Automation Engineer
3.4 Agile
Agile Tester Foundation Level
## ISTQB® FOUNDATION LEVEL
### CERTIFIED MODEL-BASED TESTER

<table>
<thead>
<tr>
<th>Topic</th>
<th>Introduction to Model-Based Testing</th>
<th>MBT Modeling</th>
<th>Selection Criteria for Test Case Generation</th>
<th>MBT Test Implementation and Execution</th>
<th>Evaluating and Deploying an MBT Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives and Motivations for MBT</td>
<td></td>
<td></td>
<td>Classification of MBT Test Selection Criteria</td>
<td>Specifics of MBT Test Implementation and Execution</td>
<td>Evaluate an MBT Deployment</td>
</tr>
<tr>
<td>MBT Activities and Artifacts</td>
<td></td>
<td></td>
<td>Applying Test Selection Criteria</td>
<td></td>
<td>Manage and Monitor the Deployment of an MBT Approach</td>
</tr>
<tr>
<td>Integrating MBT into the Software Development Lifecycles</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Good Practices for MBT Modeling Activities</td>
<td></td>
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</tr>
</tbody>
</table>
THE CONTRIBUTION OF MODEL-BASED TESTER

• Model-Based Tester (MBT) should:
  – Collaborate in a model base testing team using standard terminology and establish MBT concepts, processes and techniques
  – Apply and integrate mode-based testing in a test process
  – Effectively create and maintain MBT models using established techniques and best practices of model-base testing
  – Select, create and maintain test artifacts from MBT models considering risk and value of features testes
  – Support the organization to improve its quality assurance process to be more constructive and efficient

• In general and ISTQB® Model-Based Tester has acquired the necessary skills to successfully contribute to MBT projects in a given context
<table>
<thead>
<tr>
<th>ISTQB® ADVANCED LEVEL SECURITY TESTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Basis of Security Testing</td>
</tr>
<tr>
<td>Security Testing Purposes, Goals and</td>
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<tr>
<td>Strategies</td>
</tr>
<tr>
<td>Security Testing Process</td>
</tr>
<tr>
<td>Security Testing Throughout the</td>
</tr>
<tr>
<td>Software Lifecycle</td>
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<tr>
<td>Testing Security Mechanisms</td>
</tr>
<tr>
<td>Human Factors in Security Testing</td>
</tr>
<tr>
<td>Security Test Evaluation and</td>
</tr>
<tr>
<td>Reporting</td>
</tr>
<tr>
<td>Security Testing Tools</td>
</tr>
<tr>
<td>Standards and Industry Trends</td>
</tr>
</tbody>
</table>

| Security Risks                        |
| Introduction                          |
| Security Test Process Definition      |
| Role of Security Testing in a Software Lifecycle |
| System Hardening                      |
| Understanding the Attackers           |
| Security Test Evaluation              |
| Types and Purposes of Security Testing Tools |
| Understanding Security Testing Standards |

| Information Security Policies and    |
| Procedures                           |
| The Purpose of Security Testing      |
| Security Test Planning               |
| The Role of Security Testing in      |
| Requirements                        |
| Authentication and Authorization     |
| Social Engineering                   |
| Security Test Reporting              |
| Tool Selection                       |
| Applying Security Standards          |

| Security Auditing and Its Role in    |
| Security Testing                     |
| The Organizational Context           |
| Security Test Design                 |
| The Role of Security Testing in      |
| Design                               |
| Encryption                           |
| Security Awareness                   |

| Security Testing Objectives          |
| Security Test Execution              |
| The Role of Security Testing in      |
| Implementation Activities            |
| Firewalls and Network Zones          |

| The Scope and Coverage of Security   |
| Testing Objectives                   |
| Security Test Evaluation             |
| The Role of Security Testing in      |
| System and Acceptance Test Activities |
| Intrusion Detection                  |

| Security Testing Approaches          |
| Security Test Maintenance            |
| The Role of Security Testing in      |
| Maintenance                           |
| Malware Scanning                      |

| Improving the Security Testing       |
| Practices                             |
| Data Obfuscation                      |
| Training                              |
THE CONTRIBUTION OF SECURITY TESTER

• An ISTQB® Advanced Security Tester (AST) should:
  – Plan, perform and evaluate security tests from a variety of perspectives
  – Analyze a given situation and determine which security testing approaches are most likely to succeed in that situation
  – Evaluate effectiveness of security mechanisms, such as firewalls and encryption
  – Understand the attacker mentality so that effective defenses can be established and tested
  – Know how to deal with the human risks in Information Security
  – Analyze and document security test needs to be addressed by one or more tools

In general, an ISTQB® Advanced Security Tester should have detailed knowledge of security risks, vulnerabilities and defenses in order to create and perform tests that validate the effectiveness of existing and new security defenses in a given context.
• An ISTQB Test Automation Engineer (TAE) should:
  – Contribute to the development of a plan to integrate automated testing within the testing process
  – Evaluate tools and technology for automation best fit to each project and organization.
  – Create an approach and methodology for building a test automation architecture (TAA).
  – Design and develop (new or modified) test automation solutions that meet the business needs.
  – Enable the transition of testing from a manual to an automated approach.
  – Create automated test reporting and metrics collection.
  – Manage and optimize testing assets to facilitate maintainability and address evolving (test) systems.
SYLLABI

3.1 General Introduction

3.2 Core
- Certified Tester Foundation Level
- Test Manager Advanced Level
- Test Analyst Advanced Level
- Technical Test Analyst Advanced Level
- Test Management Export Level
- Improving the Test Process Expert Level

3.3 Specialist
- Model Based Tester Foundation Level
- Security Tester Advanced Level
- Test Automation Engineer

3.4 Agile
- Agile Tester Foundation Level
Would you be interested in Agile Tester certification?

- **Test Engineers**
  - Yes: 64%
  - Unsure: 21%
  - No: 15%

- **Test Managers**
  - Yes: 63%
  - Unsure: 21%
  - No: 16%

Approximately 85% of the respondents are definitely of possibly interested in Agile testing certification. With the planned release in early 2014 of the Agile tester certification extension to the Foundation Level, ISTQB® is well-positioned to respond to the expected demand.
THE CONTRIBUTION OF AGILE TESTERS

• Agile testers should:
  – Collaborate in an agile team, being familiar with agile principles and practices
  – Adapt existing testing experience, knowledge, and best practices
  – Support the agile team in planning test related activities
  – Apply relevant test methods and techniques
  – Assist in test automation
  – Help business stakeholders define understandable and testable user stories and acceptance criteria
  – Work and share information with other team members

• An ISTQB® Agile Tester should work effectively within an agile team and environment
IS THE AGILE TESTER FOR YOU?

• The target professionals are:
  – Testers experienced in traditional Software Development Lifecycle methodologies
  – Entry-level testers with an interest in agile testing
  – Experienced developers with a lot to a little knowledge of testing who work in agile projects

• Roles include testers, test analysts, test engineers, test consultants, test managers, user acceptance testers, software developers

• The ISTQB® Foundation certificate is a pre-requisite
• The exam is based on multiple-choice questions for Foundation and Advanced Levels
• For Expert Level, an essay is also required
• Exams can be attempted also without having attended a training course (e.g. through self-study)
EXAM RELIABILITY - SURVEY

- To what extent do you feel the ISTQB® Foundation Level certification exam reflects the knowledge of the candidates?

More than 70% of respondents regard the ISTQB® Foundation Level certification exam as fully or exceedingly reliable and these results are consistent throughout the world; only 6% found the exam not very reliable.
## EXAMS QUESTIONS AND LENGTH

<table>
<thead>
<tr>
<th>MODULE</th>
<th>NUMBER OF QUESTIONS</th>
<th>EXAM LENGTH (IN MINUTES)</th>
<th>EXAM LENGTH FOR NON NATIVE LANGUAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOUNDATION CERTIFIED TESTER</td>
<td>40</td>
<td>60</td>
<td>75</td>
</tr>
<tr>
<td>AGILE TESTER</td>
<td>40</td>
<td>60</td>
<td>75</td>
</tr>
<tr>
<td>ADVANCED TEST MANAGER</td>
<td>65</td>
<td>180</td>
<td>225</td>
</tr>
<tr>
<td>ADVANCED TEST ANALYST</td>
<td>60</td>
<td>180</td>
<td>225</td>
</tr>
<tr>
<td>ADVANCED TECHNICAL TEST ANALYST</td>
<td>45</td>
<td>120</td>
<td>150</td>
</tr>
<tr>
<td>MODEL-BASED TESTER</td>
<td>40</td>
<td>60</td>
<td>75</td>
</tr>
<tr>
<td>SECURITY TESTER</td>
<td>45</td>
<td>120</td>
<td>150</td>
</tr>
<tr>
<td>TEST AUTOMATION ENGINEER</td>
<td>40</td>
<td>90</td>
<td>113</td>
</tr>
</tbody>
</table>
Questions are classified according to the cognitive level, the K-level (also known as level of knowledge):

- K1 = Remember (recognize a term or concept)
- K2 = Understand (able to explain a concept)
- K3 = Apply (select correct application of concept or technique)
- K4 = Analyze (can distinguish between facts and inferences for deeper understanding)
- K5 = Evaluate (can make judgments based on criteria and standards)
- K6 = Create (can put elements together to form a coherent or functional whole)

The number of questions for each topic is related to the length of the topic in the syllabus

For more details, see the FAQ section in the ISTQB® Website
### CRITERIA TO ACHIEVE EXPERT LEVEL

#### Entry criteria

**Recommended:**
- At least 7 years of practical testing experience
- Completion of Expert Level course

**Mandatory:**
- ISTQB® Foundation
- ISTQB® Advanced (depending on Expert Level module)
- Completion of Expert Level course (if a non-public exam is taken)

#### Exit criteria

- Exam passed (65%)
- Experience levels (may be achieved before or after passing the exam)
  - At least 5 years of practical testing experience
  - At least 2 years of industry experience in the specific Expert Level topic
A certification scheme at Expert Level must meet the expectations and perceptions of its stakeholders and has to be seen to be truly “expert”.

The exam therefore consists of a multiple-choice section and a written “essay” section.

A score of 65% and above is required to pass.

**Multiple-Choice section**
- Duration: 1 Hour
- 25 Questions
- Learning objectives covered: K2, K3, K4 (like in Advanced Level)

**Essay section**
- Duration:
  - Reading: ½ hour
  - Answering: 2 hours
  - Add ¾ hour for non-native speakers
- Answer 4 questions out of 5
- Learning objectives covered: Mostly higher learning objectives (K5,K6)
**MAINTAINING EXPERT LEVEL CERTIFICATION**

**Expert certification is not for life**

- An Expert Level certificate is valid for 5 years
- Expert certification must be renewed using one of the following two options

**Repeat the exam**

- A passed exam results in certification for a further 5 years

**Achieve 200 “Certification Extension Credits“ (CEC)**

- CECs may be achieved in a number of areas. For example:
  - Perform a professional testing activity
  - Take a relevant training course
  - Attend a testing conference
  - Present at a testing conference
  - Teaching a relevant training course
  - Write a testing article or book
  - Actively participate in a Working Group (ISTQB® Member Boards, SIGIST, ....)

- Verifiable evidence must be submitted to the certifier
- The Certification Extension Program is published by ISTQB®
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>The ISTQB® (International Software Testing Qualifications Board) is founded by 8 member boards: Austria, Denmark, Finland, Germany, Sweden, Switzerland, the Netherlands and UK.</td>
</tr>
<tr>
<td>2003</td>
<td>The syllabus for the “Advanced Level“ is completed.</td>
</tr>
<tr>
<td>2004</td>
<td>First exams for “ISTQB® Certified Tester Advanced Level“ are released.</td>
</tr>
<tr>
<td>2006</td>
<td>The number of member boards grows steadily.</td>
</tr>
<tr>
<td>2007</td>
<td>The Foundation and Advanced Syllabi are enhanced.</td>
</tr>
<tr>
<td>2009</td>
<td>The number of Member Boards climbs further. The number of certifications reaches 100,000.</td>
</tr>
<tr>
<td>2010</td>
<td>BCS withdraws the ISEB Test Practitioner scheme in favor of ISTQB Certified Tester Advanced Level. The first “Expert Level” syllabus is released.</td>
</tr>
<tr>
<td>2011</td>
<td>The number of certifications exceeds 200,000 globally. Issue of additional Expert Level Syllabi.</td>
</tr>
<tr>
<td>2012</td>
<td>Launch of the “ISTQB® Partner Program”, “ISTQB® Conference Network”, “ISTQB® Recognized Mobile app” program and “ISTQB® international Software Testing Excellence Award”.</td>
</tr>
<tr>
<td>2013</td>
<td>The number of certifications exceeds 300,000 globally.</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>2014</td>
<td>Agile Tester Syllabus is made available</td>
</tr>
</tbody>
</table>
| 2015 | New Product Portfolio architecture  
Model-Based Tester Syllabus is made available  
More than 600,000 exams and 440,000 certifications in over 110 countries world-wide |
| 2016 | Security Tester Syllabus and Test Automation Engineer released for public availability  
More than 500,000 certifications issued in 117 countries world-wide  
Several new member boards joining |
FOOTPRINT – NUMBER OF CERTIFICATIONS AS OF JUNE 2016

• ISTQB® has performed more than 700,000 exams and issued more than 500,000 certifications with about 20,000 new certifications being issued per quarter as of the December 2016

• ISTQB® is the largest testing certification scheme in the World and has become an International de-facto reference on recommended testing practices

• Among the technology-independent certifications schemes, ISTQB® is the third largest in the IT industry in terms of number of people certified (exceeded only by PMI and ITIL)
<table>
<thead>
<tr>
<th>LEVEL</th>
<th>CERTIFICATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation Level</td>
<td>419,619</td>
</tr>
<tr>
<td>Agile Tester Level</td>
<td>5,321</td>
</tr>
<tr>
<td>Advanced Level – Test Manager</td>
<td>22,587</td>
</tr>
<tr>
<td>Advanced Level – Test Analyst</td>
<td>14,689</td>
</tr>
<tr>
<td>Advanced Level – Technical Test Analyst</td>
<td>6,840</td>
</tr>
<tr>
<td>Full Advanced</td>
<td>2,702</td>
</tr>
<tr>
<td>Expert Levels</td>
<td>114</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>471,872</strong></td>
</tr>
</tbody>
</table>
WORLD-WIDE COVERAGE

- Countries covered by Member Boards (57 Member Boards covering 81 countries, representing over 90% of the world-wide GDP) and Global Exam Providers
- Countries covered by Global Exam Providers

The current list of Member Boards and Global Exam Providers is available on the ISTQB® Web Site
ISTQB® EXAM AVERAGE PASS RATES

- Foundation: 74%
- Agile Tester: 81%
- Advanced Test Manager: 63%
- Advanced Test Analyst: 56%
- Advanced Technical Test Analyst: 59%
- Expert: 72%
ACCREDITED TRAINING PROVIDERS

• ISTQB® has a large number of Accredited Training Providers (ATPs) worldwide

• As of December 2016 there are 290+ Accredited Training Providers worldwide

• The list of Accredited Training Providers is available on the ISTQB® Web Site
ISTQB® PARTNER PROGRAM

1. Introduction to ISTQB®
2. Benefits
3. Syllabi
4. Exams
5. ISTQB®: Worldwide Footprint
6. ISTQB® Partner Program
7. Special Initiatives
8. ISTQB® Next Steps
9. Contacts
Provides recognition to **Companies**
that are investing in the **ISTQB®** scheme

As of December 2016 **ISTQB® has 150+ Partners in 48 countries**
The main benefits of the ISTQB® Partner Program are:

- International visibility of the partnership status through exposure on the ISTQB® Website
- Access to the early versions of new syllabi, with the opportunity to contribute to their review
- Discounts in participation in the Conference Network events recognized by ISTQB®
- Local benefits provided by Member Boards and Exam Providers
Companies can become ISTQB® Partners if they have a significant number of employees or external consultants working for them who have passed ISTQB® certification exams.

The Program comprises four levels of partnership, each with a different eligibility threshold:

- **Silver**: 5 Points
- **Gold**: 14 Points
- **Platinum**: 30 Points
- **Global**: a minimum of 1 Platinum Partnership and 2 Gold Partnerships in at least 2 different countries.
The partnership level of an organization is determined by the number of certification points it has accumulated:

- Foundation certification = 1 point
- Agile Tester = +1 point
- Model Based Tester = +1 point
- Advanced certification = +3 points
  (for each advanced level certification module achieved)
- Expert certification = +5 points
  (for each expert level certification module achieved)

Other criteria are the following:

- GOLD partnership needs at least 1 ADVANCED Level certification
- PLATINUM partnership needs at least 3 ADVANCED Level certifications
ISTQB® AWARD

- ISTQB® promotes the “ISTQB® International Software Testing Excellence Award”, an annual prize given to somebody who has made an outstanding contribution to the field of software quality, through professional practice, innovation, or research

- Anyone can nominate a potential winner of the "ISTQB® International Software Testing Excellence Award" by filling in the Nomination Form available on the ISTQB® website
The winner of the Award is selected for having contributed to:

- Increasing public awareness for the importance of software quality and testing
- Publishing research findings in the field of software quality and testing
- Promoting further education in software quality and testing
- Supporting the creation of standards and recommended practices in the area of software quality and testing
- Giving new energy to the improvement of software development and testing processes
Past winners

- 2015 ISTQB® Award Winner: Eric van Veenendaal
- 2014 ISTQB® Award Winner: Capers Jones
- 2013 ISTQB® Award Winner: Harry Sneed
- 2012 ISTQB® Award Winner: Dorothy Graham
- ISTQB® Special Award for Lifelong Contribution to Software Testing: Boris Beizer (issued in 2012)
ISTQB® has created the “ISTQB® Conference Network” to promote the annual events around the world related to ISTQB®

These events have to:
- Be focused on Testing and Quality
- Be organized or recognized by an ISTQB® Member Board or by the ISTQB® Marketing Working Group

Recognition is based on the following criteria:
- The event must have an open and public call for papers;
- The selection of speeches must be performed by an independent program committee composed by several people;
- The conference should offer a discount on fees to ISTQB® Certificate Holders;
- The program has to include at least one official ISTQB® Speech, which is the presentation of the ISTQB® status, perspectives and product portfolio made by an ISTQB® representative or a representative of the National Board of that region;
- Companies that have subscribed to the Partner Program will receive discounts for the participation of their employees; the discounts will grow depending on the Partnership Level (Silver, Gold, Platinum, Global)
- Discounts on Local Conference prices, based on the Partnership level (as part of the ISTQB® Conference Network program)
ISTQB® has created the “ISTQB® Conference Network - Academia” to promote the Academia annual events around the world related to ISTQB®

These events have to:
- Be focused on Testing and Quality
- Be organized or recognized by an ISTQB® Member Board or by the ISTQB® Marketing Working Group

Recognition is based on the following criteria:
- The event must have an open and public call for papers;
- The selection of speeches must be performed by an independent program committee composed by several people;
- The conference home page must contain a reference, logo and a link to show it is a part of the ISTQB® Academia Network in the footer of every page;
- The above mentioned collateral must be arranged no later than in one week after receiving recognition from ISTQB®
ISTQB® WEB & MOBILE APPS RECOGNITION

- ISTQB® has created the “ISTQB® Web and Mobile Apps” program in order to promote those applications that are based on ISTQB® referenced information.

- Any person or entity can apply to have an ISTQB® recognized Web & App and, before receiving the “ISTQB® Web and Mobile Apps” logo, the Web/ App will be reviewed by the ISTQB® that will check the following criteria (all of them are mandatory):
  - The Web / App shall have a reference to the ISTQB® website as well as all to the ISTQB® social media
  - If the Web / App makes usage of ISTQB® publicly available info (e.g.: glossary, syllabi) the provider shall keep them aligned with the latest official version issued by ISTQB® (for the English version) or by the ISTQB® Member Boards (in case of local translations)
  - The Web /App shall not reference to any scheme competitive to ISTQB®
  - The App must be available for download free of charge
  - The Web / App shall have at least one English version

- The Web / App can use the specific “ISTQB® Web and Mobile Apps” logo that will be provided after successful validation; it cannot use any other ISTQB® logos, unless specifically agreed and approved by ISTQB®
ISTQB® NEXT STEPS

1. Introduction to ISTQB®
2. Benefits
3. Syllabi
4. Exams
5. ISTQB®: Worldwide Footprint
6. ISTQB® Partner Program
7. Special Initiatives
8. ISTQB® Next Steps
9. Contacts
ISTQB® NEXT STEPS

New Syllabi & Exams
- Agile Advanced
- Automotive
- Usability
- Performance
- Gambling

Maintenance & Evolution
- Glossary
- Foundation Core
- Advanced Core
- Agile Tester

New Initiatives
- New Boards
- New Surveys
- Global Successful Candidate Registry
- Academia Program
ISTQB® CONTACTS AND CHANNELS

YouTube : http://www.youtube.com/user/ISTQBORG
Web Site : http://www.istqb.org
Facebook : http://www.facebook.com/istqborg
LinkedIn : http://www.linkedin.com/groups/ISTQB-International-Software-Testing-Qualifications-99444
Twitter : http://twitter.com/ISTQBORG
XING : https://www.xing.com/net/istqb