

ISTQB Advanced Level 2012 – Technical Test Analyst



Objectives

- ❑ Build on ISTQB CTFL in the area of test analysis
- ❑ Prepare for the ISTQB CTAL – Technical Test Analyst exam

Prerequisites

- ☐ ISTQB CTFL or equivalent
- ☐ Practical experience in SW testing

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3

31/08/2012



Notes

- ☐ Ask any time.
- ☐ Turn your cell silent.

References

- ISTQB CTAL – TTA syllabus version 2012

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5

31/08/2012



Outline

- ☐ The Technical Test Analyst's Tasks in Risk-Based Testing – 30 minutes
- ☐ Structure-Based Testing – 225 minutes
- ☐ Analytical Techniques
- ☐ Quality Characteristics for Technical Testing
- ☐ Reviews
- ☐ Test Tools and Automation

Outline

- ☐ **The Technical Test Analyst's Tasks in Risk-Based Testing**
- ☐ Structure-Based Testing
- ☐ Analytical Techniques
- ☐ Quality Characteristics for Technical Testing
- ☐ Reviews
- ☐ Test Tools and Automation

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7

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The Technical Test Analyst's Tasks in Risk-Based Testing

- ☐ Introduction
- ☐ Risk Identification
- ☐ Risk Assessment
- ☐ Risk Mitigation

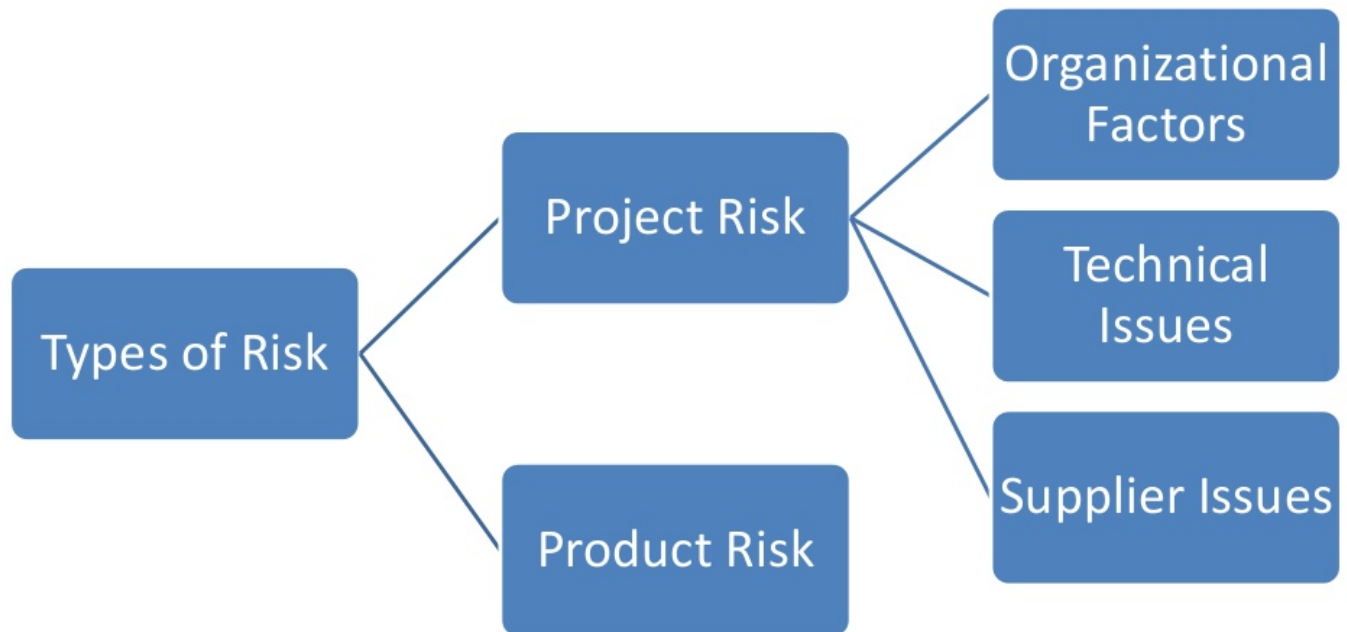
The Technical Test Analyst's Tasks in Risk-Based Testing

- ☐ Introduction
- ☐ Risk Identification
- ☐ Risk Assessment
- ☐ Risk Mitigation

What is a Risk?



Types of Risks



Risk Management

❑ It is a systematic application of procedures and practices to the tasks of identifying, analyzing, prioritizing, and controlling risks.

❑ Includes all project stakeholders.

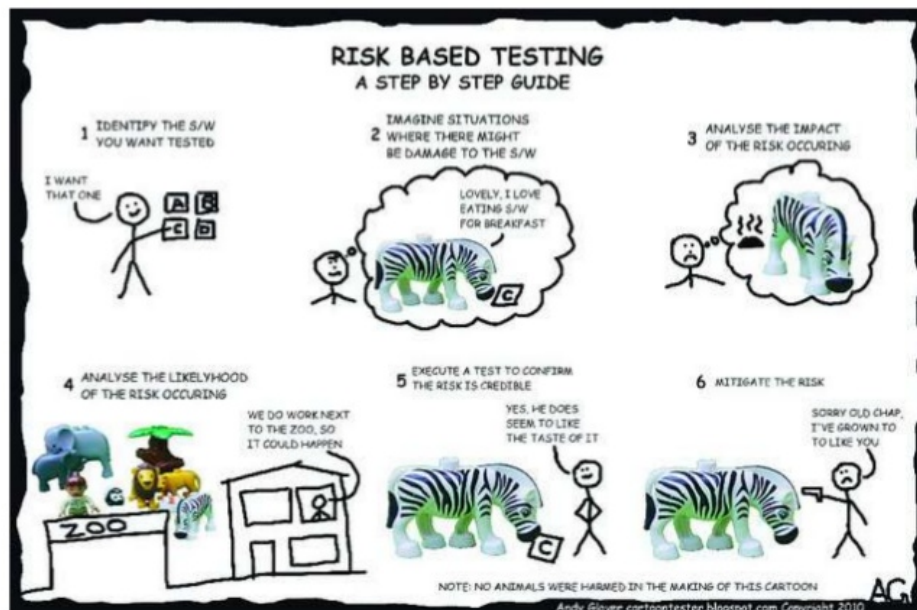
❑ Ongoing throughout the project due to:

- ❑ Emerging product risks
- ❑ Changing priorities
- ❑ Regular risk evaluation
- ❑ Risk status communication



Risk-Based Testing

- A testing approach that involves risk identification, and guides testing process to reduce product risks.



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13

31/08/2012

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Risk can Guide Testing in Various Ways, for Example

- ☐ Test effort allocation according to risk level
- ☐ Choice of testing techniques according to risk level
- ☐ Order of testing activities according to risk order
- ☐ Test reporting in terms of residual risks

Technical Test Analyst Role in Risk-Based Testing

- ☐ Test managers establish and manage risk-based testing strategies
- ☐ Test managers request the involvement of the technical test analysts to ensure the risk-based approach is implemented correctly.
- ☐ Because of their particular technical expertise, technical test analyst are involved in:
 - ☐ Risk identification
 - ☐ Risk assessment
 - ☐ Risk mitigation
- ☐ They contribute their knowledge of the technical risks that are inherent in the project, such as risks related to security, system reliability and performance.

The Technical Test Analyst's Tasks in Risk-Based Testing

- ☐ Introduction
- ☒ Risk Identification
- ☐ Risk Assessment
- ☐ Risk Mitigation

What is Risk Identification?

- ☐ Identifying and categorizing risks
- ☐ Thinking of as many risks as possible using various techniques
- ☐ Risks sorting during risk analysis will identify most significant risks
- ☐ By calling on the broadest possible sample of stakeholders, the risk identification process is most likely to detect the largest possible number of significant risks.



Techniques of Risk Identification

- ☐ Expert interviews
- ☐ Independent assessments
- ☐ Use of risk templates
- ☐ Project retrospectives
- ☐ Risk workshops and brainstorming
- ☐ Checklists
- ☐ Calling on past experience or lessons learned



Testing can Identify Risks

- ☐ Testing may also identify new risks.
- ☐ For example, if more defects than expected are found in part of a system, indicating issues with the level of quality, new risks to project deadlines will have to be considered.

Role of Technical Test Analyst in Risk Identification

- ☐ Technical test analysts are well-suited for:
 - ☐ Conducting expert interviews
 - ☐ Brainstorming with co-workers
 - ☐ Analyzing the current and past experiences

- ☐ Technical test analysts work closely with their technical peers (e.g., developers, architects, operations engineers) to determine the areas of technical risk.

Samples of Identified Risks by Technical Test Analysts

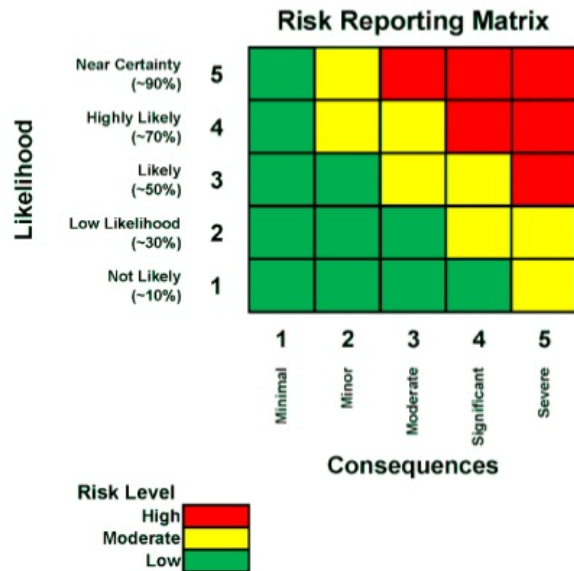
- ☐ Performance risks like not achieving response times under high load
- ☐ Security risks like disclosure of sensitive data in security attacks
- ☐ Reliability risks like failure in meeting the availability specified in the SLA

The Technical Test Analyst's Tasks in Risk-Based Testing

- ☐ Introduction
- ☐ Risk Identification
- ☐ **Risk Assessment**
- ☐ Risk Mitigation

What is Risk Assessment?

- ☐ AKA risk analysis
- ☐ It is the study of those identified risks in order to:
 - ☐ Categorize each risk
 - ☐ Categories in ISO 9126 could be used
 - ☐ Determine the likelihood and impact associated with each risk
 - ☐ AKA risk level
 - ☐ More important compared to risk category



Risk Log

- ☐ AKA risk register
- ☐ A risk log lists all the identified risks and the results of their analysis and evaluation as well as the status of the risk.
- ☐ Often expressed as a table or spreadsheet

Risk Log cont'd

- ☐ It may contain or refer to the following information:
 - ☐ Risk identifier
 - ☐ Risk category
 - ☐ Author (person who raised the risk)
 - ☐ Date identified
 - ☐ Date last updated
 - ☐ Description of the risk
 - ☐ Impact
 - ☐ Likelihood
 - ☐ Risk level (impact x likelihood)
 - ☐ Interdependencies with other risks
 - ☐ Mitigation actions
 - ☐ Contingency actions
 - ☐ Owner
 - ☐ Status

Factors Affecting Risk Assessment

- ☐ Complexity of technology
- ☐ Complexity of code structure
- ☐ Conflict between stakeholders regarding technical requirements
- ☐ Communication problems resulting from the geographical distribution of the development organization
- ☐ Tools and technology
- ☐ Time, resource and management pressure
- ☐ Lack of earlier quality assurance
- ☐ High change rates of technical requirements
- ☐ Large number of defects found relating to technical quality characteristics
- ☐ Technical interface and integration issues

Qualitative Assessment vs. Quantitative Assessment

Qualitative Assessment

- ☐ Risk level is subjectively determined in absence of risk data.
- ☐ Subject to perception and conflicts
- ☐ Effective if widely applied

Quantitative Assessment

- ☐ Risk level is calculated from known facts.
- ☐ More preferred

Impact Assessment	Likelihood Assessment	Risk Level Assessment
Qualitative	Quantitative	Qualitative
Qualitative	Qualitative	Qualitative
Quantitative	Quantitative	Quantitative
Quantitative	Qualitative	Qualitative

Testing can Assess Risks

- ☐ Testing can help to assess risks.
- ☐ For example, by investigating the scope of a performance problem within a web application, the impact on customers may be determined.

Role of Technical Test Analyst in Risk Assessment

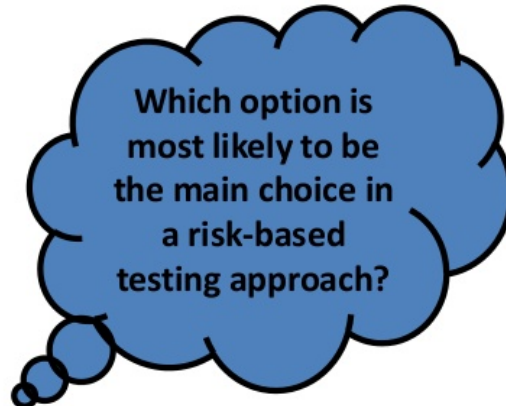
- ☐ Contributes to finding and understanding the potential technical risk for each risk item
 - ☐ Note that test analyst contributes to understanding the potential business impact of the problem should it occur
- ☐ Given the available risk information, he establishes the levels of risk according to the guidelines established by the test manager.

The Technical Test Analyst's Tasks in Risk-Based Testing

- ☐ Introduction
- ☐ Risk Identification
- ☐ Risk Assessment
- ☐ Risk Mitigation

What is Risk Mitigation?

- ☐ AKA risk control
- ☐ Describes any actions that are a response to an identified risk
- ☐ There are 4 main options for risk control that can be combined:
 1. Ignoring
 2. Transference
 3. Mitigation
 4. Contingency



Ignoring or Accepting the Risk

- ☐ Doing nothing
- ☐ A common response
- ☐ May cost nothing
- ☐ Chosen where the cost of all other options would not be cost effective, or, where the likelihood or impact is considered extremely low.

Transference or Sharing of the Risk

- ☐ Sharing the cost with a 3rd party
- ☐ May involve taking out insurance of some kind

Mitigation or Preventive Actions to Avoid or Reduce Risks

- ☐ Include testing, fixing defects and then retesting and regression testing
- ☐ No risk is reduced by testing alone, testing is part of the risk reducing process but cannot change the risk by itself.
- ☐ Taking preventative action may also include using existing technology, or systems, or deciding not to go ahead with the development of a particular system or feature so as to avoid the risk altogether.

Contingency or Planning Contingent Actions

- ☐ Planning for contingent action accepts that the risk may come to fruition but makes allowances for it.
- ☐ For example, there may be a risk that timescales overrun due to technical risks, contingent action could include reserving extra budget or extra time in the plan.

Role of Technical Test Analyst in Risk Mitigation

- ☐ Technical test analyst influences how testing responds to the identified risks.
- ☐ This can be done generally in 2 forms:
 - ☐ Reducing risks
 - ☐ Executing the most important tests
 - ☐ Putting into action appropriate mitigation and contingency activities
 - ☐ Evaluating risks by gathering information as the project unfolds and using them to mitigate risks impact and likelihood