

Risk-based testing - a common language for project stakeholders

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Learning objectives

- To identify perception and communication problems between testing and other project stakeholders
- To discuss how risk-based testing can help solve these problems and improve the (perceived) added value of testing
- To outline how to implement improvements such as risk-based testing in a practical way

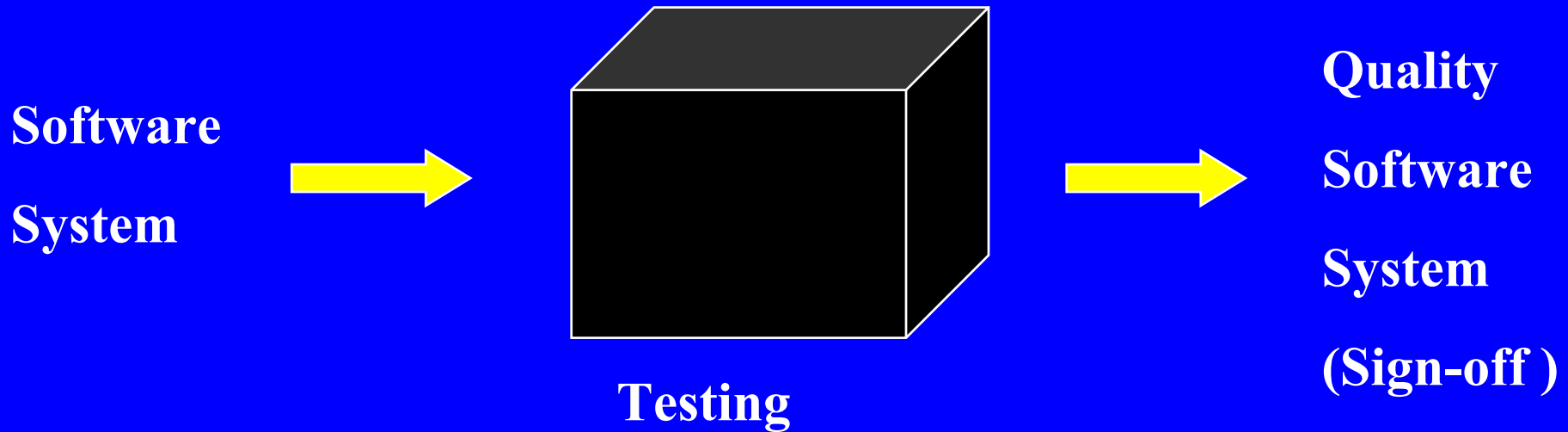


Agenda

- *Key challenges facing testing*
- What is risk-based testing?
- How does it address the challenges?
- Getting started



Perceptions of testing



Perceptions of testing - 2

Project Stakeholders include customers, users, senior management, project management, development, etc.

- **Squeeze on testing**
- **Skills required?**
- **The ‘sign-off problem’**
- **...**

....lack of appreciation of ‘added value’ of software testing

- **morale and staff turnover**
- **difficult in justifying testing resources**
- **less effective testing**



Origins of these perceptions

- **A lack of a clear understanding of the objectives and role of testing**
- **A lack of involvement in influencing testing**
- **Poor visibility of testing**
- **Not understanding or being able to interpret the results of testing**
- **Linking testing to a narrow definition of quality that is not aligned with the primary objective of the project**

Underlying theme = Poor communication



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Risk Management

◆ Risk = Impact x Likelihood

◆ SEI model:

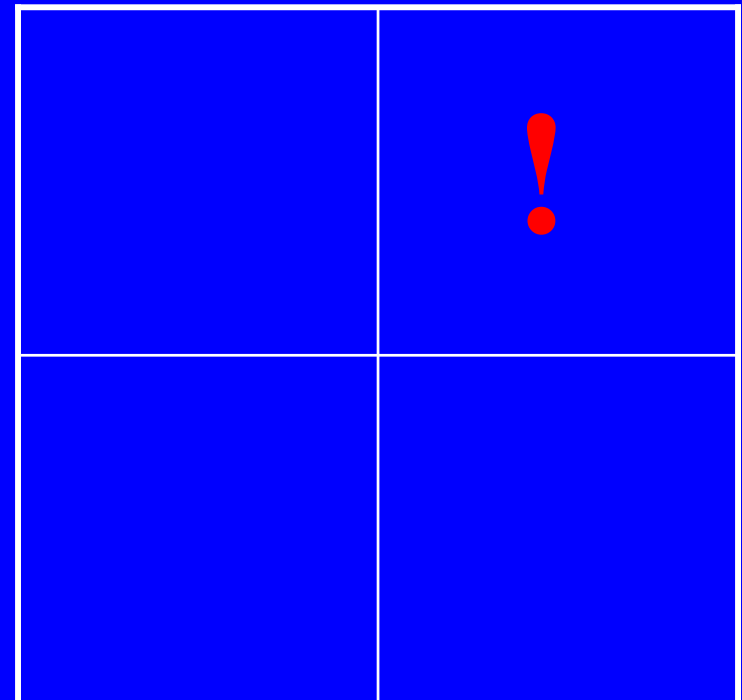
- identify
- analyse
- plan
- track
- control
- communicate

Impact

Hi

Lo

Likelihood



Lo

Hi



Three types of software risk

Project Risk

resource constraints, external interfaces, supplier relationships, contract restrictions

Primarily a management responsibility

Process Risk

variances in planning and estimation, shortfalls in staffing, failure to track progress, lack of quality assurance and configuration management

Planning and the development process are the main issues here.

Product Risk

business critical features, complexity, design and code quality, non-functional issues, requirements instability

Testers are mainly concerned with Product Risk

Requirements risks are the most significant risks reported in risk assessments.

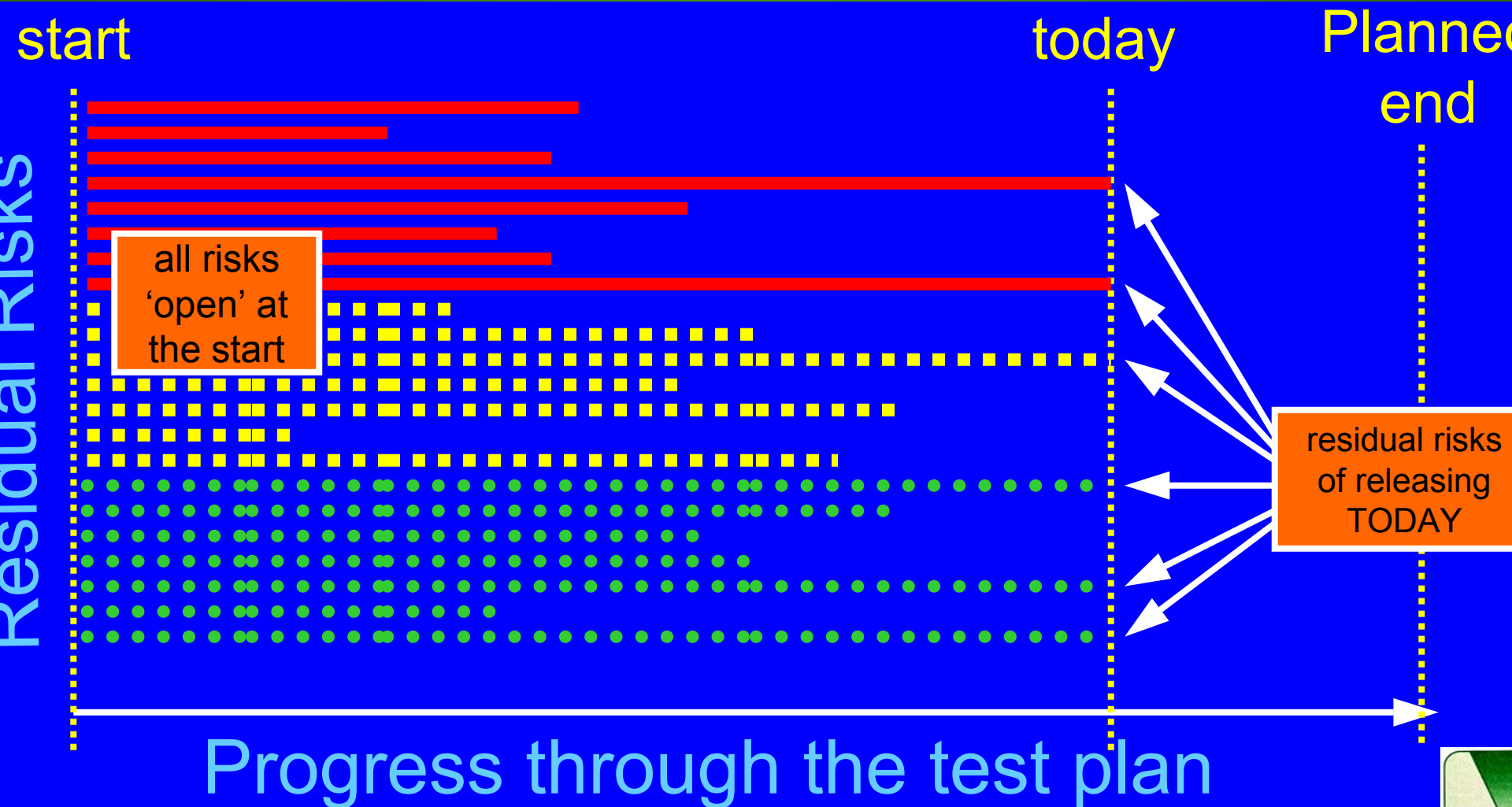


Risk-based testing - key elements

- Risk identification and analysis
- Risk-based testing strategy (test planning)
- Design, prioritisation and review of test cases (logical design part of test specification - 'what')
- Prioritised execution of test cases on the basis of risk (execution)
- Risk-based tracking and control
- Risk-based test reporting
- Risk-based decision on release

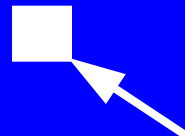
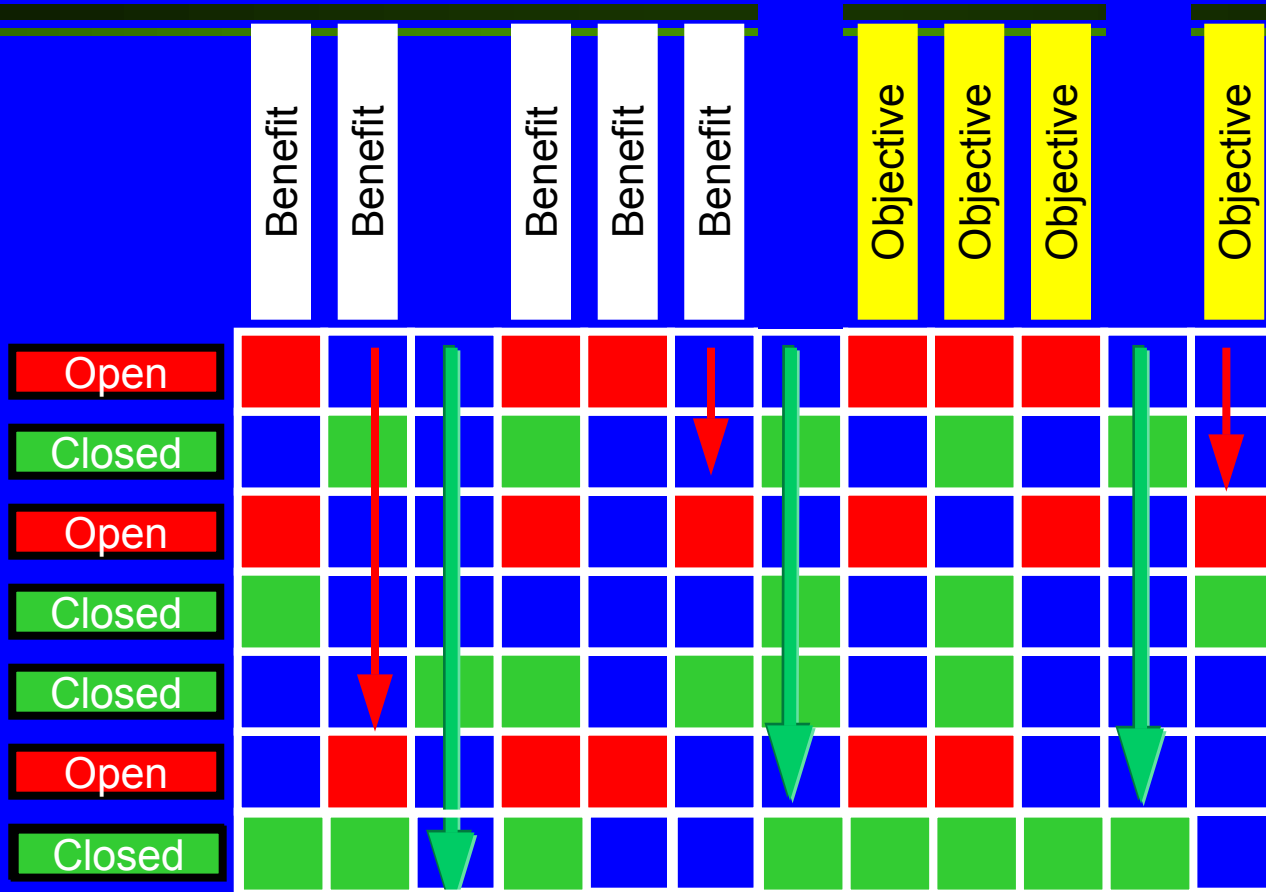


Risk-based reporting*



Benefit & objectives based test reporting

Risks



Benefits available for release



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Improving the communication

- Risk Management well established practice with management and customers
- Risks can be quantified
- Language of risk is easily understood and embraced
 - risk is sexy (relatively!)
- Easier to solicit input from stakeholders
- Status and reporting easily understood
- Testing becomes aligned with core project objectives, addressing risks and informing as benefits become available



Addressing the challenges

- **Role of testing**
 - **to provide good clear test evidence on risk to stakeholders**
- **Moment of involvement**
- **Improved visibility and influence**
 - **through number of interfaces and interactions and meaningful (understandable) reporting**



Addressing the challenges -2

... and better testing by using more knowledge to focus testing with available resources

All facilitated by improved communication through use of the common language of risk



Stakeholder benefits

- **Customer/users**
 - opportunity to influence
 - better focus on their concerns
- **Project Manager**
 - better use of testing resources
 - improved collaboration between teams
 - useful information for tracking and release decision
- **Development**
 - risks useful input to improve design and development
 - clearer understanding of development test responsibilities



Stakeholder benefits - 2

- **Test**
 - **early involvement**
 - **manage the squeeze on testing**
 - **the 'sign-off problem' disappears**
 - **'added value' of testing more obvious (even quantifiable) and easier to communicate**



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RBT sample improvement actions

- **Hold a risk identification workshop with customer, project management, development and test**
- **Piggy-back on existing risk management process**
 - **strengthen link between product risks and testing**
- **Prioritise test cases on basis of known risks**
 - **get developers and users to review**
- **Develop a risk-based testing strategy for system test**
- **Enhance weekly test reporting on basis on risks addressed and risks remaining**
- **Revise test schedule to run high risk tests first**



Improvement actions - how?

- **Simple action plan with prioritised actions, estimated effort, who and when**
- **Pilot**
- **Define the process step in 1 page (what to do) with 1-2 page procedural detail only if required (how to do it) and supporting templates/checklists**
 - **training should not be an objective**
 - **objective is communication/consensus and reminding people what to do and how to do it**
- **Train/coach/facilitate as required**
- **Track and measure results**
- **Re-plan next set of actions - iterate**



Summary

The language of risk and risk-based testing provides not only for more effective testing but for improved communication and collaboration between testing and other project stakeholders. Justifying the ‘added value’ of testing becomes less of an issue.



References

- www.insight.ie - Our website containing testing news, links, opinions, etc.
- www.evolutif.co.uk - Systeme Evolutif's website containing a number of articles on risk-based E-Business testing
 - 'Risk-based E-Business Testing - Paul Gerrard and Neil Thompson, Artech House, ISBN: 1580533140; 1st edition (August 2002) - see also www.riskbasedtesting.com
- www.stickyminds.com - SQE website containing a number of related articles
- 'Making Process Improvement Work: A Concise Action Guide for Software Managers and Practitioners', Neil S. Potter, Mary E. Sakry, Addison-Wesley Pub Co; ISBN: 0201775778, March 2002. [see also www.processgroup.com for articles and templates on Practical SPI].

