IMPROVE Quality Services

PRISMA®

Risk Based Testing in Practice

Never speculate on that which can be known for "certain"

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Improve Quality Services BV

WWW.IMPROVEQS.NL

- Dienstverlenende organisatie op het gebied van Testen en Kwaliteitsmanagement
- Advisering, Detachering en Opleidingen
- Gespecialiseerd en gekwalificeerd (CISA / ISTQB)
- Onafhankelijk en objectief
- Innovatief en trendsettend (EU-projects/TU-E)
- Opgericht in jan'98 - ± 30 medewerkers

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Erik van Veenendaal

- Oprichter en DGA
- Internationaal erkend testexpert
- Co-Auteur "Testen volgens TMap"
- Auteur "The Testing Practitioner"
- Vice President International Software Testing Qualifications Board (ISTQB)
- Vice Chair TMMi Foundation
- Keynote spreker EuroSTAR en STAREast

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What is Risk?

- "A factor that could result in a *future negative* consequence; usually expressed as impact and likelihood" (ISTQB Glossary)

- Testers 'only' have the responsibility to identify the risks and provide information on their status
- "to dare to undertake"
  - management attitude and style……..

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Testing = Risk Management

- Objective: most *feasible* coverage
  - effective usage of limited resources
- Resources
  - » staffing
  - » infrastructure
  - » time !
  - » ..

➔ the *right* level and type of coverage on the *right* parts at the *right* time

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The challenge….

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Risk Based Testing

- Risk identification looks at ways of establishing what the risks are and where they are
- Risk analysis looks into the critical, complex and potential error prone areas
- Then we build tests to mitigate the risk
- Subsequently we track, monitor and report regarding the risks

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Risk Identification

- Split up in functional and/or technical items
- Higher level test according to requirements
- Lower levels test according to architecture
- May also be based on a brainstorm session
- Maximum number of appr. 35 risk items

Risk item 1	Functionality
Risk item 2	Security
Risk item 3	Functionality
Risk item 4	Interoperability

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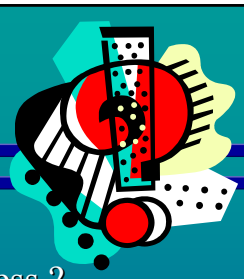
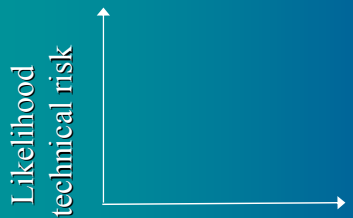
Risk Analysis



- Risk = impact x likelihood
  - What is the impact for the business ?
  - What is the likelihood that there are defects ?
- Determine factors based on previous projects, e.g. defect patterns

You already know this !
Exercise: Risk Factors



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Factors From Practice

defect patterns / history

- Likelihood
  - complexity
  - new development (level of re-uses)
  - interrelationship (# interfaces)
  - size
  - technology
  - geographical spread
  - inexperience (of development team)
- Impact
  - user importance (“selling item”)
  - financial (or other) damage (e.g. safety)
  - usage intensity
  - external visibility
  - cost of rework

Customization needed

Weightings can be applied

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Stakeholders Involvement

9 : Critical
5 : High
3 : Moderate
1 : Low
0 : None

- Identify Stakeholders
  - Internal (likelihood) and external (impact)
  - Assign factors for them to score individually

they shall make choices →

	User importance	Usage intensity	Safety
Item 1	5		
Item 2	4		
Item 3	5		
Item 4	2		
Item 5	1		

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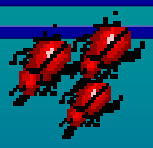
"Consensus" Meeting



- Discuss issue list - first defects found !!
- Result may influence development

	Likelihood						Impact			
	Complexity	New development	Interfacing	Technology	Experience level		User importance	Usage intensity	Safety	
Item 1	5	3	2	1	5	16	5	4	1	10
Item 2	2	1	2	1	2	8	3	3	1	7
Item n										

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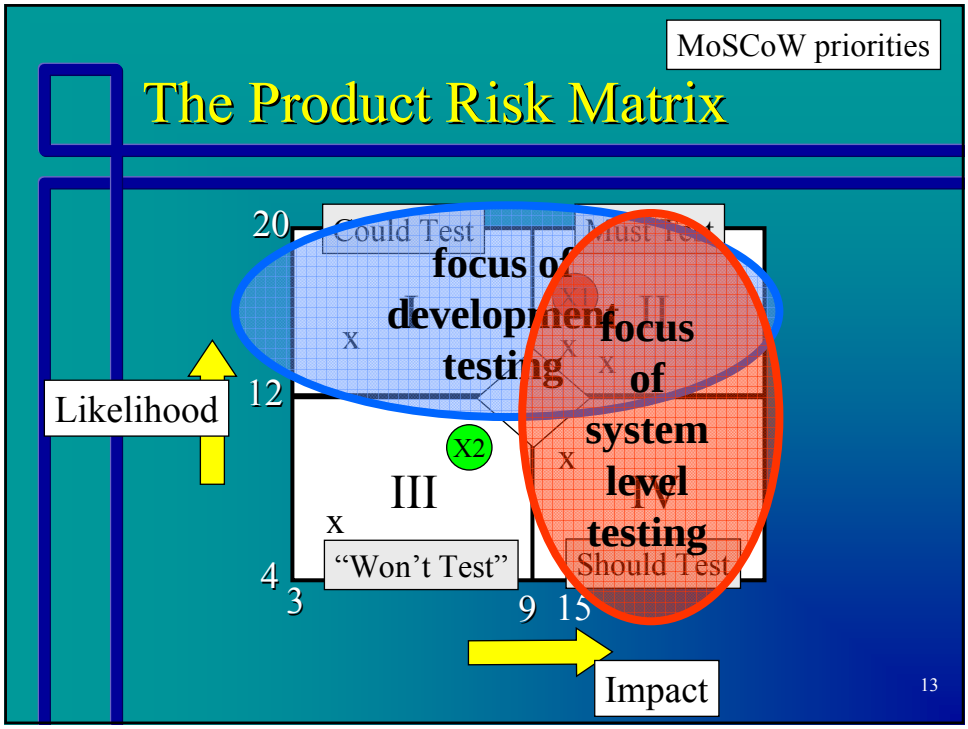
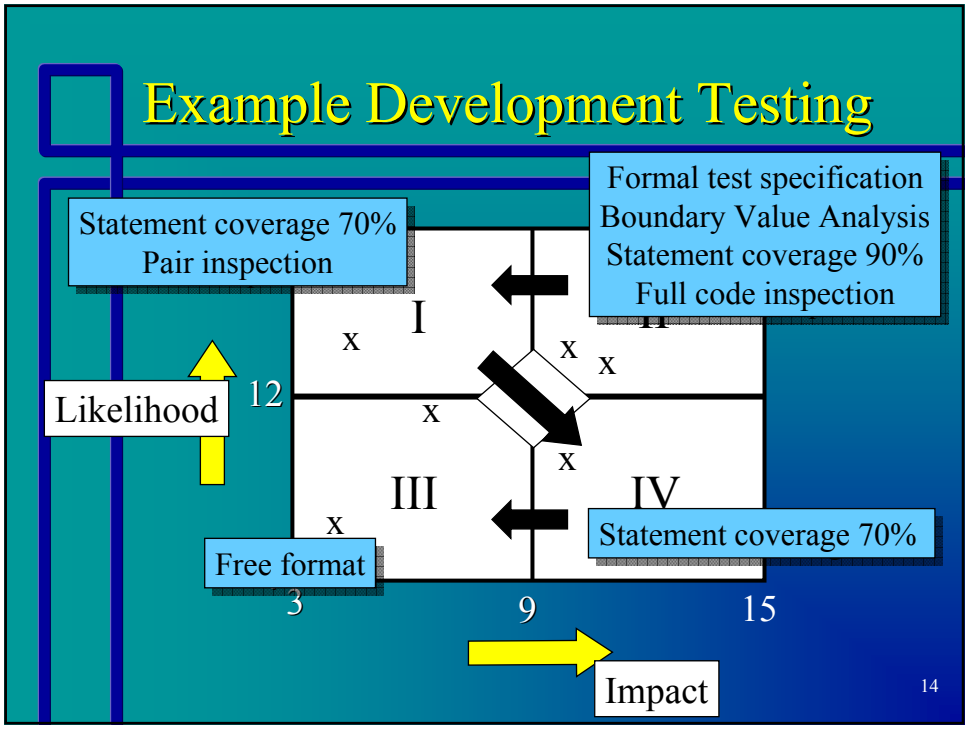
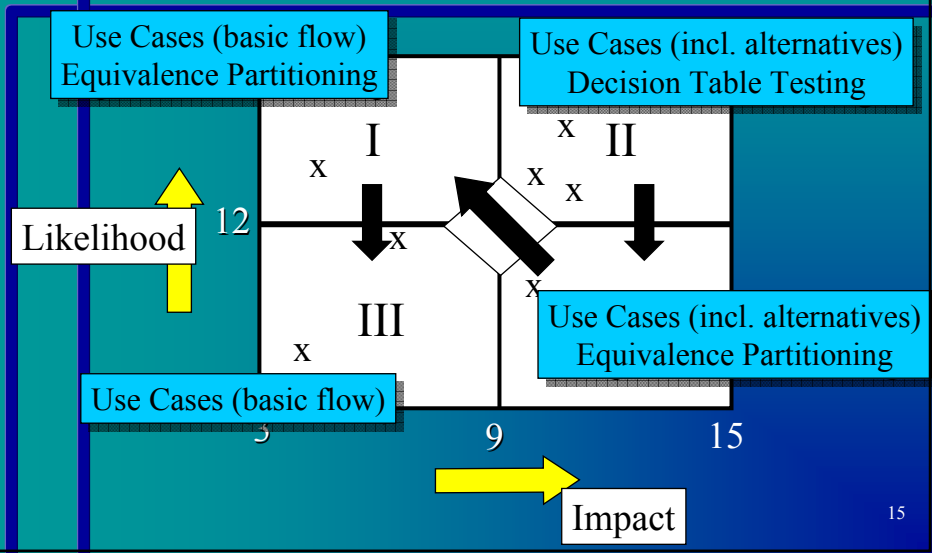




Example System Level Testing



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Differentiated Test Approach !!

- Reviews & inspection
- Test design start-up meetings
- Reviews of test design
- Exit criteria
- Level of independence
- Most experienced person
- Priority setting
- Re-testing
- Regression testing

without this risk management doesn't make much sense !!

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Shall be company specific

Practical Guideline

Test level	Quality Attribute	Low Risk	Medium Risk	High risk
Acceptance test	Functionality	Isolation re-test Basic flow UC Testers	Isolation re-test Use cases Testers	Full re-test Use cases Domain experts
	Security			
System test	Functionality	Equivalence Partitioning No testware reviews	Equivalence Partioning Review test designs	Decision Table testing Review test design
	…..			

Recognize this .... ?

- After months of testing the system finally goes live and ……. fails
- Test manager says: ‘we already knew this would happen’
- Who is at fault?
- Risk based testing = Risk based reporting

The major Test deliverable **Management Information !!**

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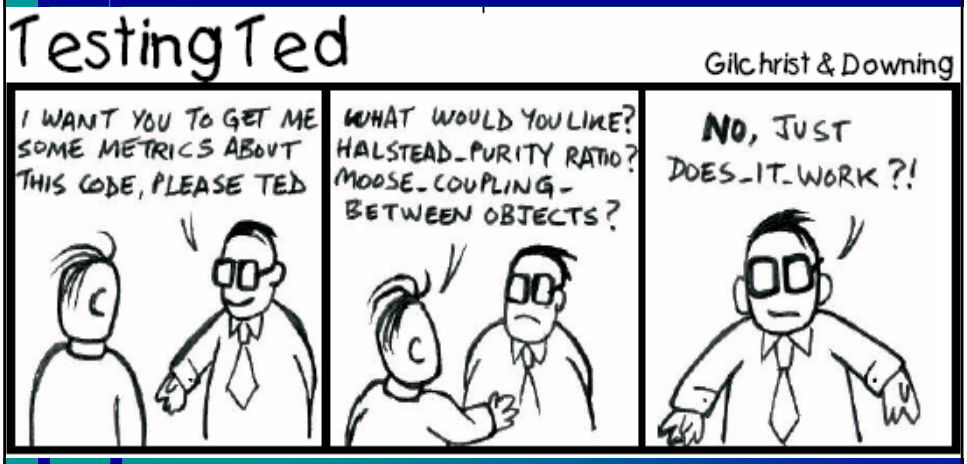
Communication Levels …



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Risk Based Reporting (1)

	TS1	TS2	TS3	TS4	TS5	TS6	TS7	TS8	
Risk item 1	X	X	X						
Risk item 2	X			X	X		X		
Risk item 3	X		X						
Risk item 4					X	X	X		
Risk item 5								X	

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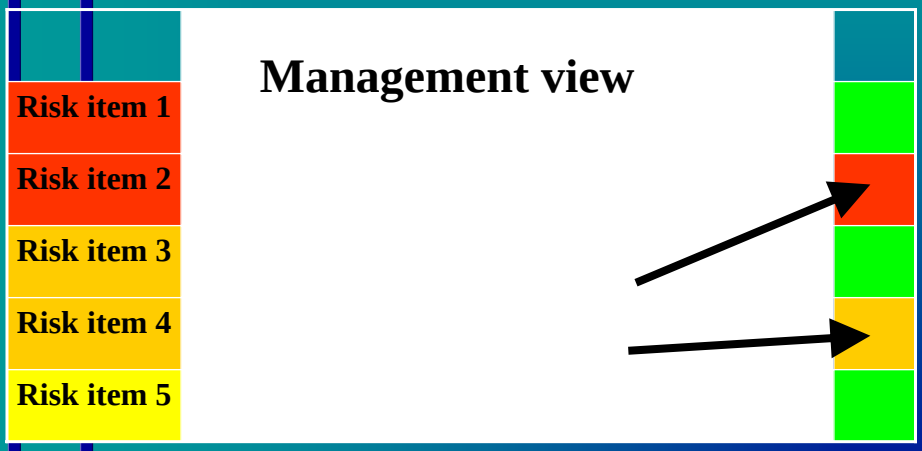
Can we release the product?

Management view



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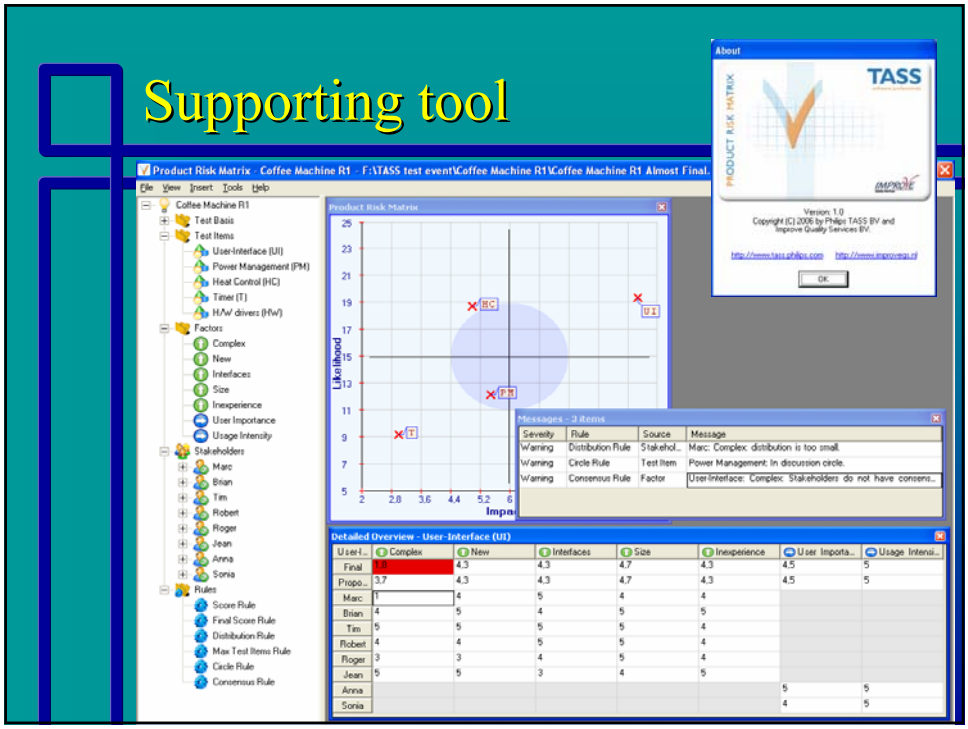
Survey Results

	average	median	
• Ease-of-use	6,5	7	(large σ_n)
"it's simple but not easy"			
• Usefulness	7,6	8	
• Efficiency	7,4	7	
• Effectiveness	7,2	7	

Supporting tool



Key learning points

- A structured and *practical* approach for risk based testing is available
- Re-discuss the risk assessment on a regular basis
- Define a risk based differentiated test approach
- Provide risk based management reporting
- … it doesn't stop at the planning stage


Thank You!!!
Questions ??
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