Economic Aspects Of Software Testing

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Well done, Mr. Test!
Economic Aspects of Software Testing

Martin Fritz
Some “Essential Assumptions” for Software Testing

- A better requirements analysis leads to better test cases
- The more test cases used, the better the test coverage
- The more metrics used, the more one knows about the product and the better the test process can be controlled
- Test automation saves time and money
- More frequent test implementation results in fewer residual errors
- ...
WELL DONE, MR. TEST!
Sound Out Potential Risks and Benefits, Test Meaningfully

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<th>Functionality</th>
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Conclusion

• Economic mechanisms have an impact on the company or organisation and on software test as well.
• Software test might be more related to the rest of the company than some people might assume.
• The added value of software test is (1) the assurance that the required quality conditions are met and (2) the supply of information about the quality of the product before shipment.
• Test managers have to take decisions about the test resource consumption according to the goals (and strategy) of the project etc.
• Many potential mental resources of software test are currently not utilised.
• Business success cannot be achieved without success in software test according to the strategy of the company.
Avoid Test Repetitions

Product Maturity Index (PMX)

- Test Cases
  - not tested
  - Fail
  - hist.Fail
  - Pass
  - hist.Pass

Release
- R 1.0
- R 1.1
- R 1.2
- R 1.3
- R 1.4

Well done, Mr. Test!
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Opportunities in SW Testing

- Sound out potential risks and benefits, and test in a meaningful manner (*)
- Get to know the product status better and avoid test repetitions (*)
- Defer test case documentation
- Re-use test cases and scenarios
- Perform intelligent test automation and analysis of the results (*)
A Typical Business Case

Free Cash Flow per Period

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Sample Figures

- **Investment Project**
  - investment sum: 1,000,000 €
  - period: 5 years
  - annual returns (turnover, cost savings): 300,000 €
  - discounting: 10%
  - net cash value: 137,000 €

- **A: 10% cost overrun during the development phase**
  - net cash value = 37,000 € (70% reduction in profits)
  - compensation: Increase returns by 8.8%

- **B: 10% lower returns during the earnings phase**
  - net cash value = 23,000 € (83% reduction in profits)
  - compensation: Reduce project costs by 11.4%

- **C: Delay of ½ year**
  - net cash value = 0 (100% reduction in profits)
  - compensation: Increase returns by 13.6%
The Business Case Under Pressure

Free Cash Flow per Period

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Is there an answer to the dilemma?

- Of course, but we may not have found it yet (or have we?)
- One possibility could be to take a closer look at the economic aspects of testing
- For the test manager especially, this means gaining a better understanding of the economic rules and mechanisms:
But what is the practical reality?

• A more comprehensive requirements analysis will delay the project
• Implementing too many test cases means items that aren’t important will be tested as well
• Many metrics have no purpose – they tell us too little about product quality and prevent control of the test process
• The initial costs for test automation rarely match the benefits, or only very late when they do
• The cost of performing test repetitions – in relation to the errors found – grow higher as repetitions increase
• ...