

Metrics in RFP's

Challenges from the suppliers' point of view and
recommendations for selecting suppliers



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ISBSG president
NESMA Board
COSMIC IAC

Agenda

- **Project estimation based on function points**
- **Typical questions in request for proposals (RFP's)**
- **Challenges from the suppliers' point of view**
- **Recommendations for client organizations**

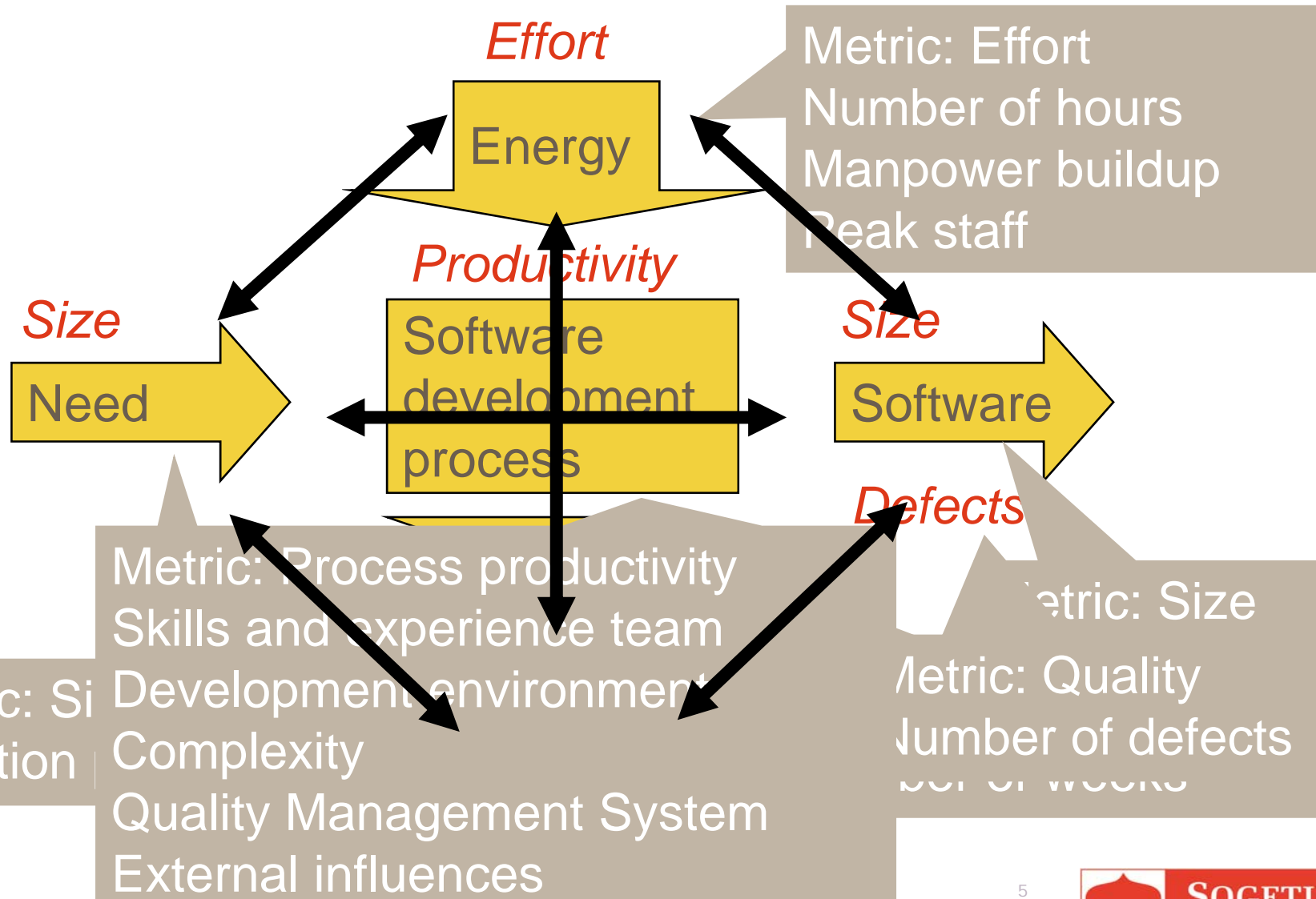
Sizing projects with function points

- **Function Point Analysis (NESMA, IFPUG, COSMIC)**
 - Objective (*ISO/IEC*)
 - Repeatable
 - Verifiable
- **Quantifies the size of the *functional user requirements***
 - Independent of the technology used
 - Independent of the implementation method
- **A measure of the size of the product, not the project !**
- **'non-functionals' are not measured**

Project Estimation based on functional size

- **Size objectively measured**
 - Size = xxx function points
- **Estimation of:**
 - Effort (hours) per function/role
 - Duration (months) and milestones
 - Team size (in fte)
 - Quality (defects during test and after delivery)
- **Tools**
 - Galorath SEER-SEM
 - ISBSG repository release 11
 - Sogeti Estimating wizard
 - Other tools

Generic Estimation Model



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Questions for the supplier

Will we be able to:

- Deliver the required functionality?
- Comply to the technical and quality requirements?
- Comply to the posed prerequisites?
- Answer all questions in the RFP?
- Estimate the costs of the project accurately?
- Score the best in the decision model that the client will use?
- Prove our claims?



Typical RFP questions

1. What is your productivity for Oracle projects?
 2. How long will it take for you to build a .Net application of 500 FP?
 3. What is your price per function point for a 500 FP Java system?
- Are these the right questions?
 - Is it possible for the client organization to make the **right choice** based on the answers to questions like these?

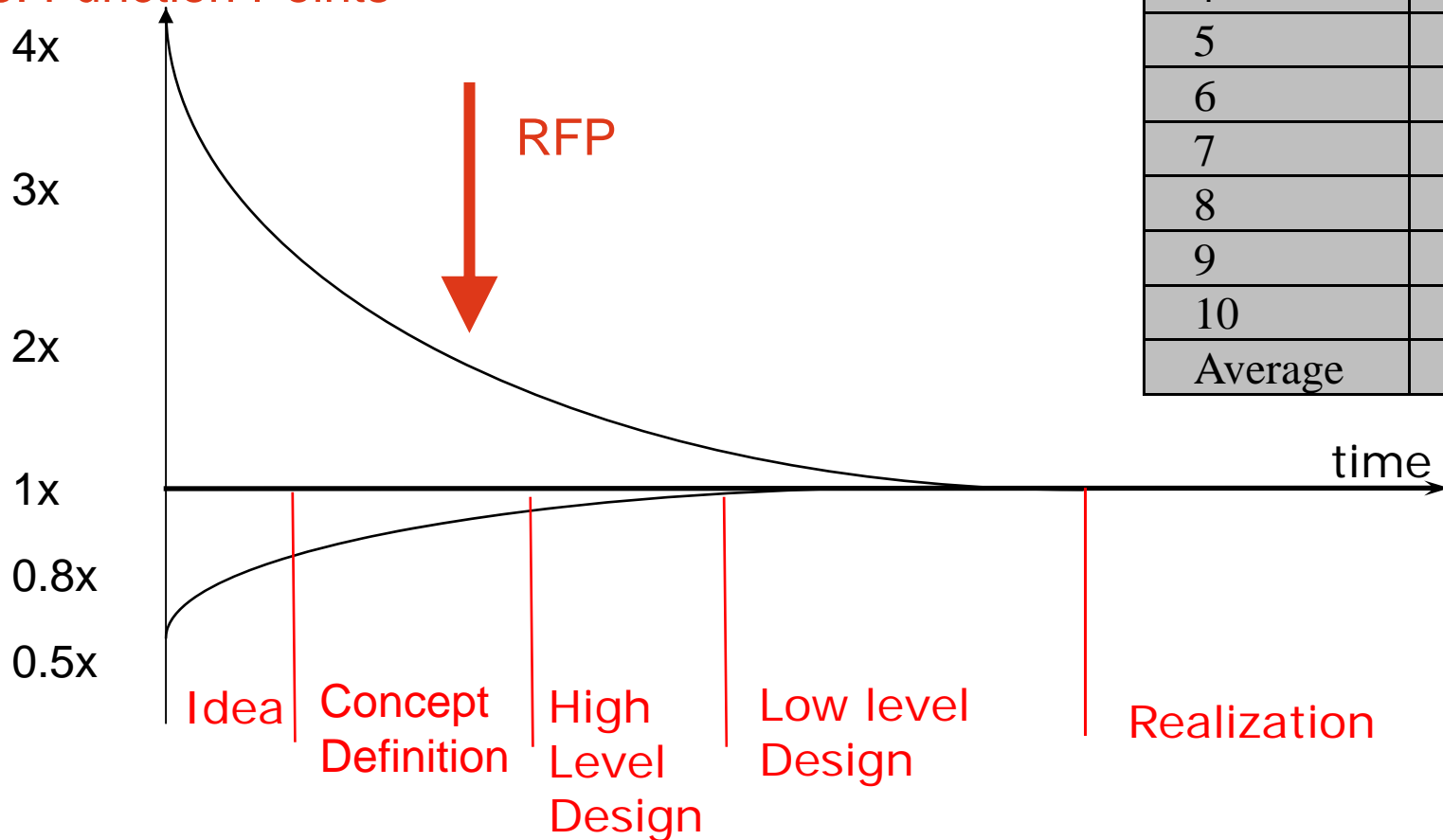
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Size: Cone of Uncertainty

Project	Rate
1	4
2	3
3	1
4	1
5	1
6	2
7	4
8	4
9	5
10	5
Average	3

Size: Function Points



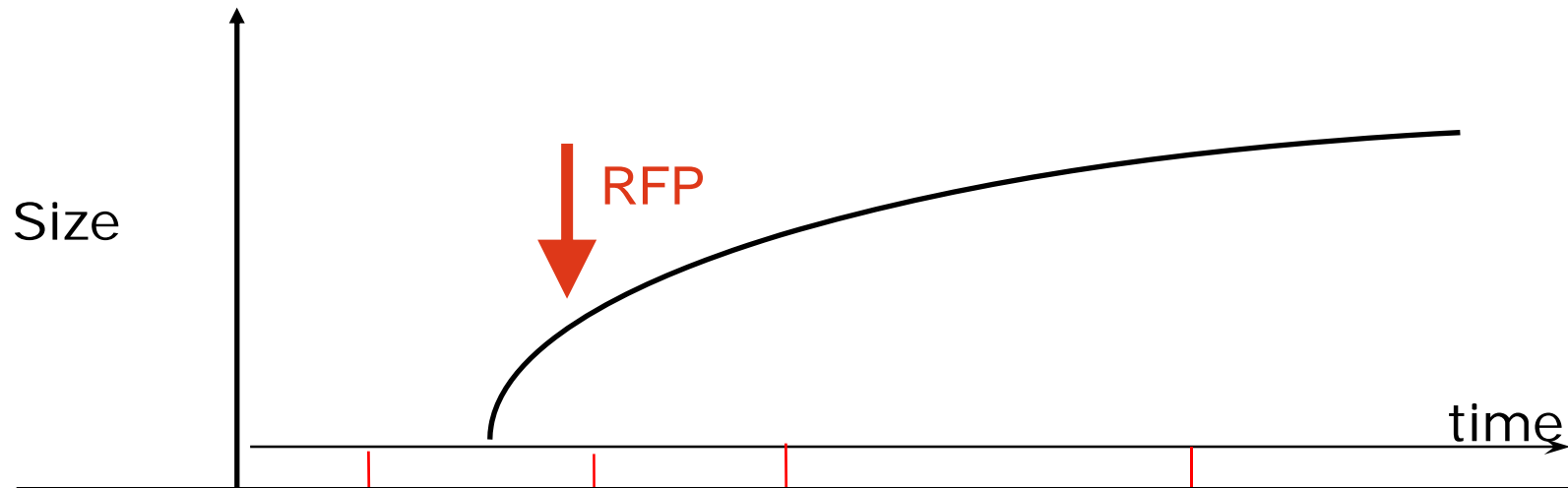
Why

What

How



Size always increases!

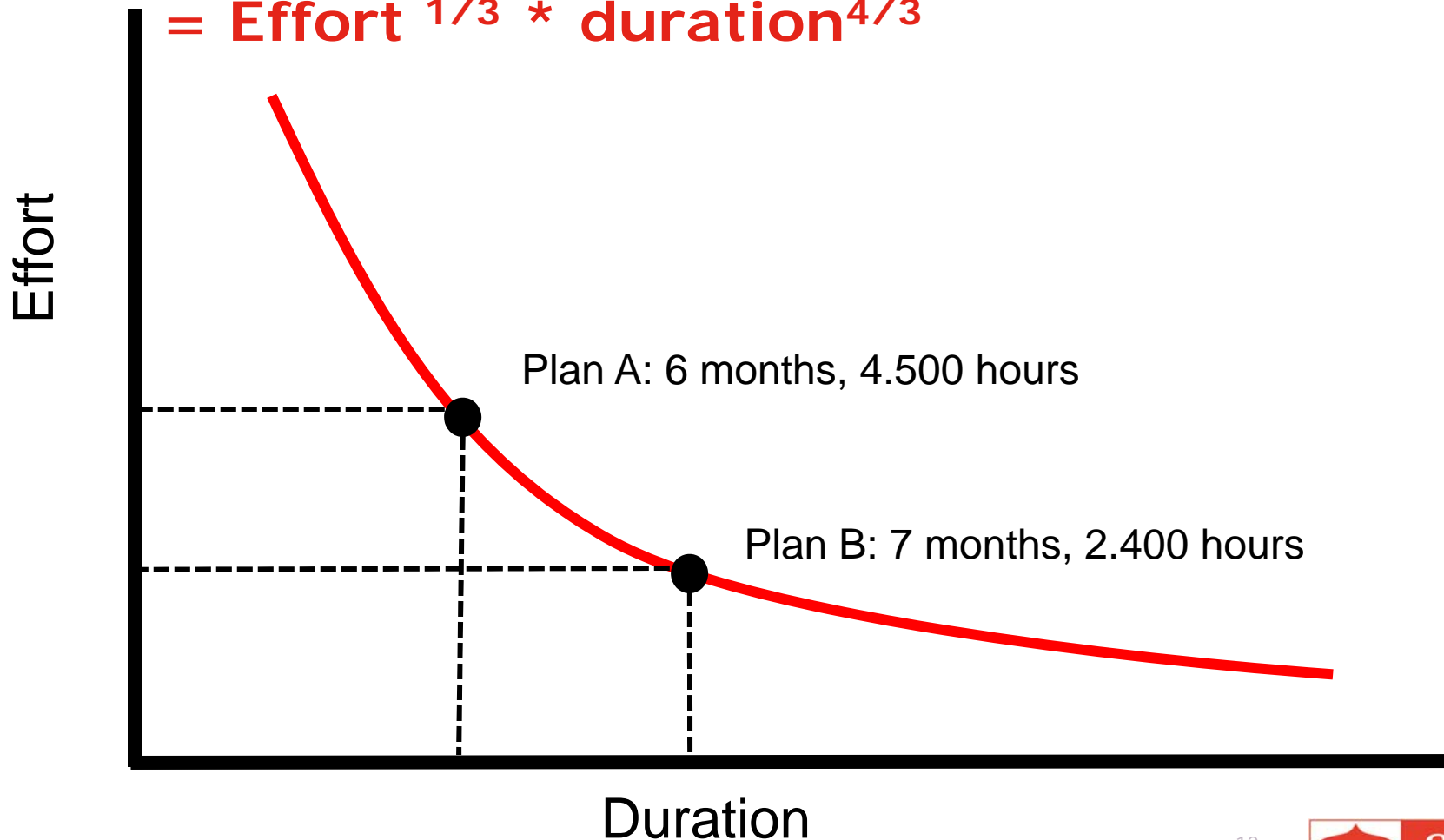


Challenge: What size will we use in our estimate and which size will the competitor use?

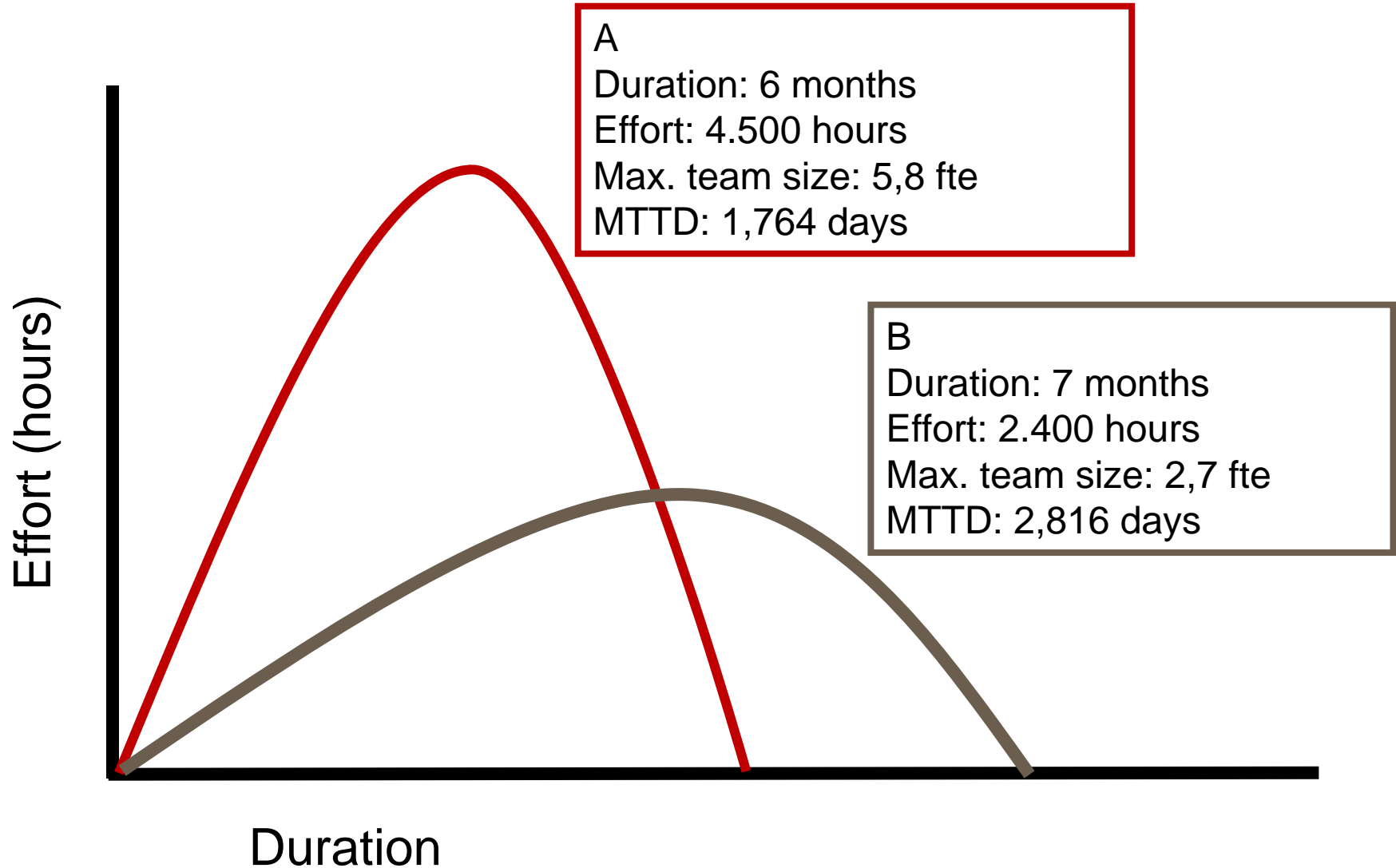
The software equation

Size/productivity

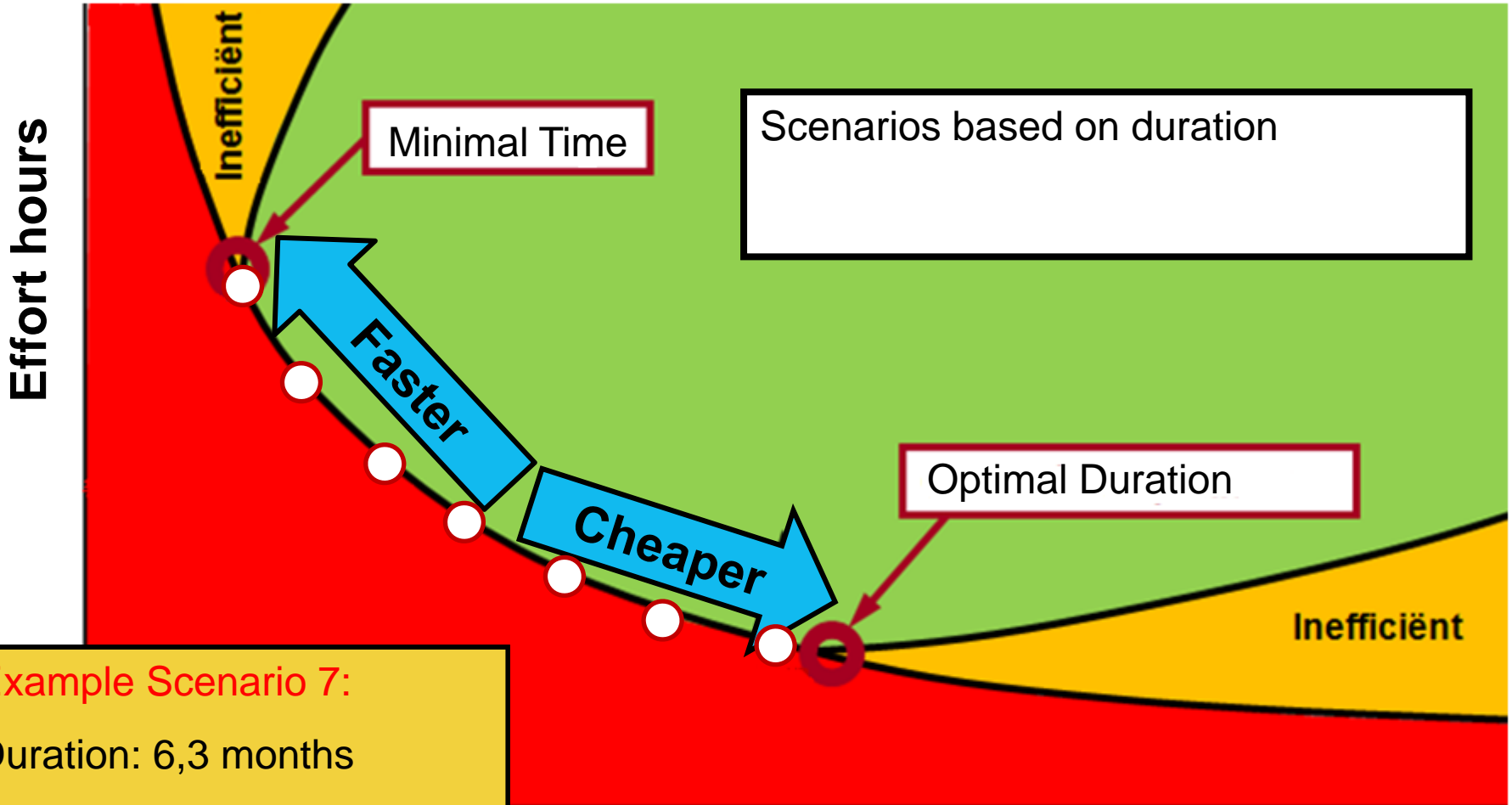
$$= \text{Effort}^{1/3} * \text{duration}^{4/3}$$



Same project, different durations



The impact of Duration



Example Scenario 7:

Duration: 6,3 months

Effort: 4.700 Mhr

Team size: 5,5 fte

Cost: € 360.000

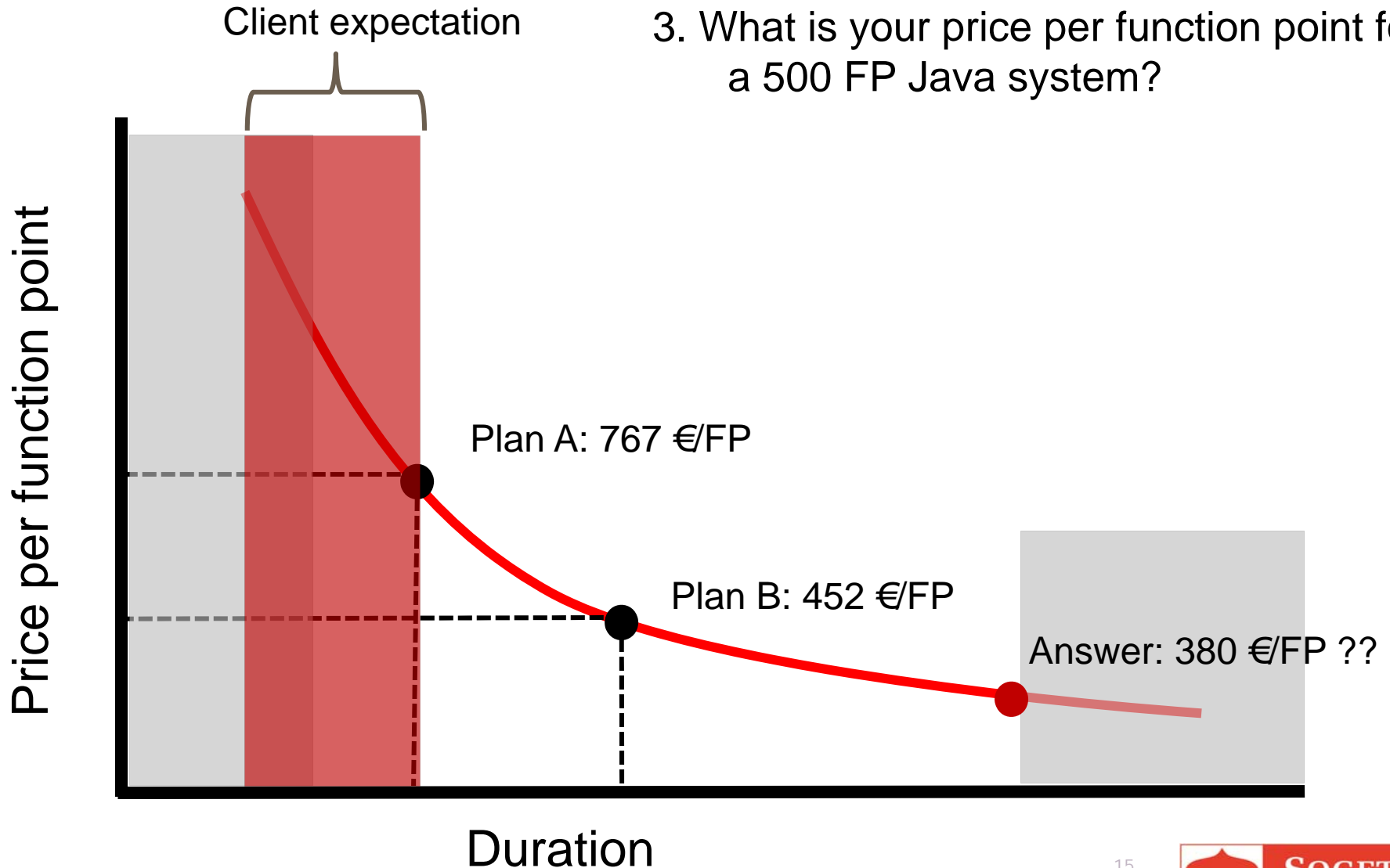
Estimate / Business Case

Cost depended on Time-to-market

Duration

14

Challenge for supplier



Professionalism and realism

- **Expertise**

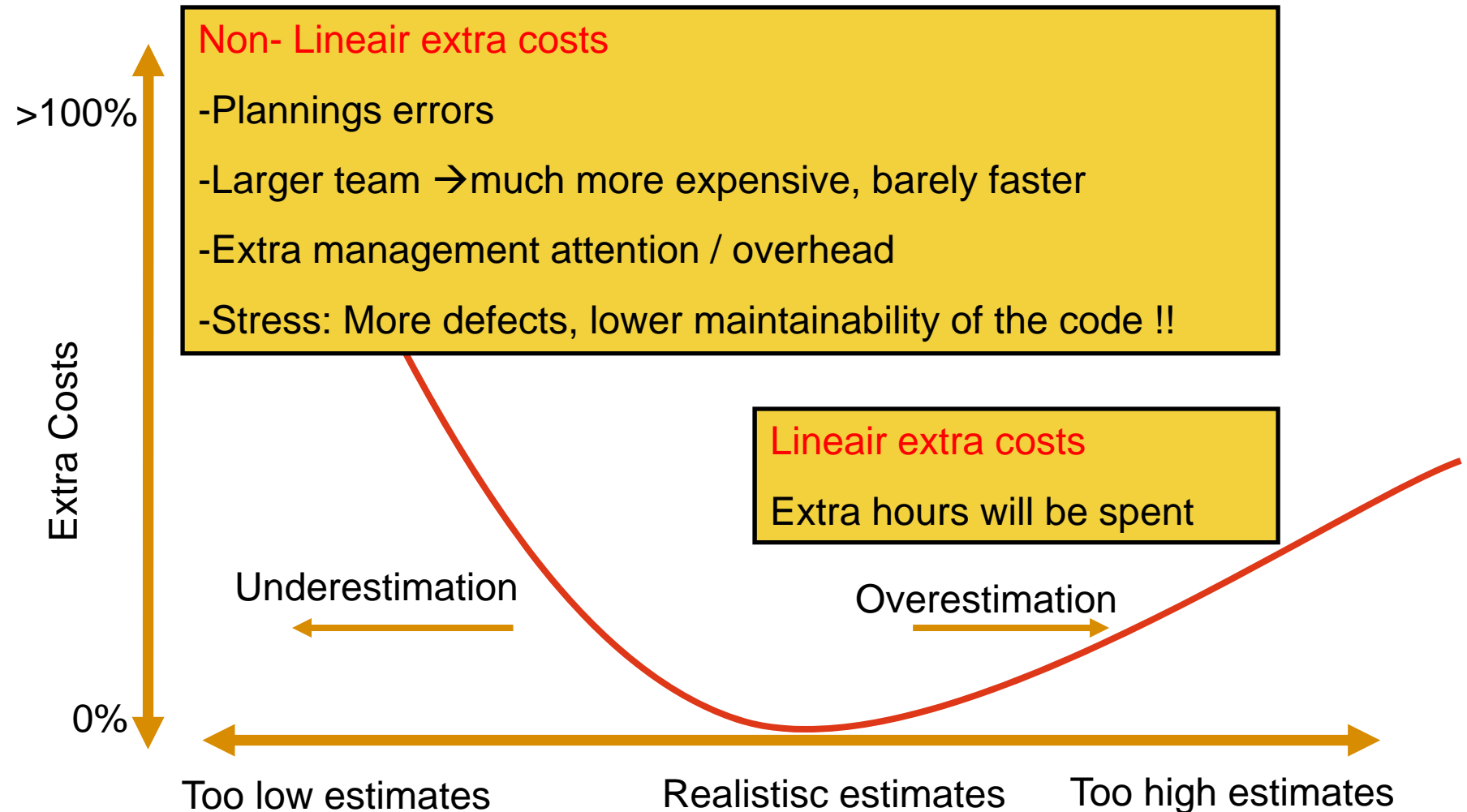
- Use of function point analysis
- Database with experience data
- Repository with Benchmarkdata / tooling

- **Realism**

- Opportunism: 'Buying projects'
- Commercial interests

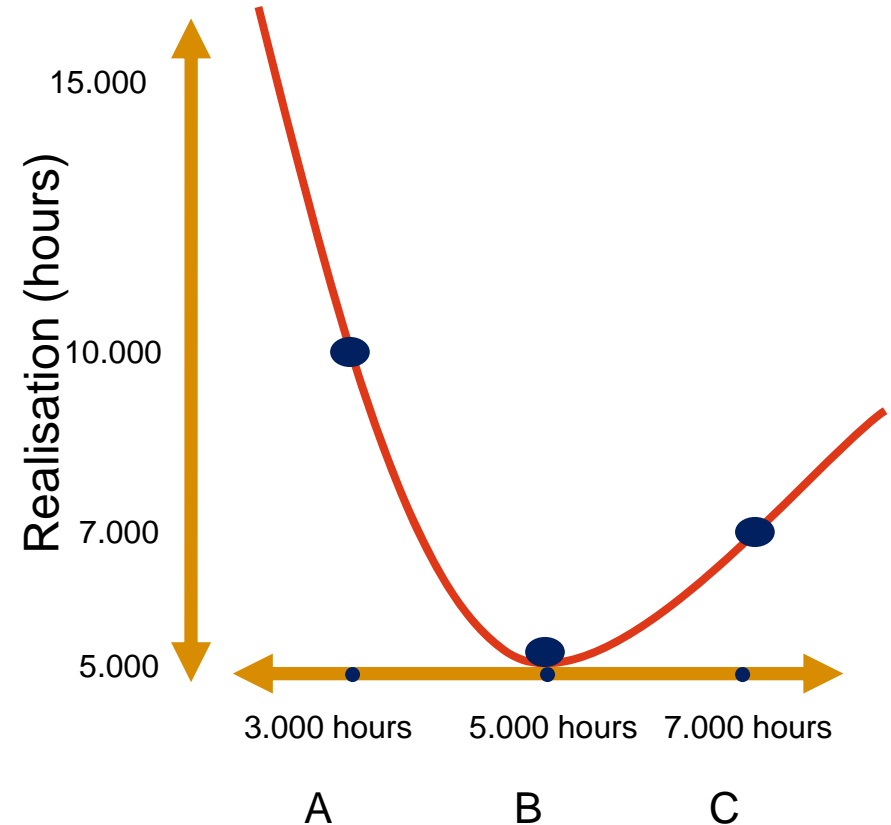
- **To make an unrealistic offer is in nobody's interest!**

Extra costs with incorrect estimations



In practice

Proposal	Result
A: Optimistic 3.000 hours 5 months	Fails ! 10.000 hours 12 months
B: Realistic 5.000 hours 7 months	Successful ! Efficient! 5.000 hours 7 months
C: Pessimistic 7.000 hours 11 months	Successful ! Not efficient ! 7.000 hours 11 months



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Recommendations for the client

- **Ask the right questions**
 - **objective comparison**, keeping as many relevant factors as possible equal.
- **Do a reality check of the proposal**
 - Compose a **range in which the proposal should be**
 - Tools: Galorath SEER-SEM or the ISBSG database
- **Ask for objective proof**
 - Experience data of the suppliers
 - Assess if the supplier can deliver software as productive as promised

What is a good question?

- **Metric to compare, for instance:**
 - Productivity (hours/FP, FP/month)
 - Cost (Price/FP)
 - Quality (defects per FP, Mean-time-to-defect (MTTD))
- **Technology**
 - For instance Java, Cobol, Oracle or MS.NET
- **Size (in Function points or COSMIC FP)**
- **Technical/ Functional complexity**
 - For instance: high/average/low
- **Phases/Activities included**
 - For instance Technical design, Coding, Unit test, systems test.
- **DURATION !!**

Example of a good question

‘What is your price per function point for a moderately complex Java project of 500 function points and a duration of 20 weeks?’

Activities to include are technical design, coding, unit testing, systems testing and support of the user organization during the user acceptance test.’

The price per function point also includes all overhead activities, like project lead and quality management.

Reality value of the proposal

- **ISBSG database R11**

- International Software Benchmarking Standards Group
- R11: >5.200 projects 'Best in Class'

ISBSG R11	Hours/FP	Duration
VALUES IN INTERVAL	24	24
PERCENTILE 10% (P10)	3.5	3.3 months
PERCENTILE 25% (P25)	7.2	4.5 months
MEDIAN	8.4	6.0 months
PERCENTILE 75% (P75)	11.6	9.5 months
PERCENTILE 90% (P90)	19.6	12.2 months

- **Realistic range: 7.2 hours/FP – 11.6 hours/FP**
- **Realistic range: 4.5 - 9.5 months**

SEER-SEM

- Reality assessment in SEER-SEM
- Simulate the project based on the knowledge bases in the tool

SEER-SEM	Min. Time	Opt. Duration
PDR (Hours/FP)	8.1	13.7
Duration (months)	4.3	6.9

- Realistic range: 8.1 h/FP – 13.7 h/FP
- Realistic range: 4.3 months – 6.9 months

Recommendations summarized

- **Ask the right questions:**
 - Size, Cost, productivity, duration en quality are highly interdependent
 - The goal is to try to get answers that are as comparable to each other as possible
- **Reality check of the proposals**
 - Analyze Benchmark repositories or tools to come up with a realistic range. Don't accept unrealistic proposals
 - Always ask the supplier for evidence that they are as productive as they claim.
- **Choose wisely**
 - When the cheapest proposal always wins, too few good questions have been asked!

Summary

- Suppliers face a number of difficulties when they have to answer a 'one dimensional' question
- More mature suppliers that can prove their performance based on experience data are often outbidded by suppliers that have no idea about their performance and just take the risk
- However, unrealistically optimistic expectations lead to huge failures!
- Clients as well as suppliers should create a common basis of understanding, so that the industry can become more mature.

Sogeti Sizing, Estimating & Control



Thanks for your attention !

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The screenshot shows the Sogeti website interface. At the top, there is a navigation bar with 'SOGETI' and a search bar. Below the navigation bar, there are several menu items: 'Sogeti', 'Architectuur', 'Business Solutions', 'Requirements & Design', 'Techniek & Innovatie', 'Kwaliteitszorg', 'Beheer & Management', 'Methodieken', and 'Klant & Branche'. The main content area is titled 'Over deze corner' and features an illustration of a person climbing a ladder, labeled 'SIESTA'. The text below the illustration discusses the SIESTA methodology and its application in software development. There are also sections for 'Metrieken binnen Sogeti' and 'Belangrijke links'.

Sogeti Sizing, Estimating & Control

NESMA – board member

NESMA – chair working group COSMIC

NESMA – chair working group Benchmarking

NESMA – working group Packages

COSMIC – International Advisory Council

COSMIC – Benchmarking Committee

ISBSG – President