Earning more with lower risk

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Ton Dekkers - Roles

- Netherlands Software Metrics Association
  President
- Galorath International Ltd
  Director of Consulting
- International Software Benchmarking Standards Group (ISBSG)
  Immediate Past President
- Project Management Institute (PMI) – Dutch Chapter
- Dutch Association of Cost Engineers (DACE)
  ISPA-DACE SIG Parametric Estimation
- Common Software Measurement Int. Consortium (COSMIC)
  COSMIC Functional Size Measurement Method
  International Advisory Committee

NESMA

- Nederlandse Software Metrieken gebruikers Associatie
  Netherlands Software Metrics user Association
  from 1995
- Started in 1989 as NEFPUG
  Nederlandse FunctiePunt Gebruikersgroep
  Netherlands Function Point User Group
- Not for Profit
- Run by volunteers
- Managed by an ‘elected’ board
- Organisation structure: association
  Registered: Chamber of Commerce, Amsterdam
- Constitution & Internal regulations

Challenge (I)

- Tender Dutch Tax Office
  New Full Tax Information System
  Incl. Registration, Levying, Controlling & Reporting
- Provided size
  - Initial work
    Base Application 5000 Function Points
    Time Frame 2 Years
  - Extended work
    Enhancements 3000 Function Points
    Time Frame 3 Years
- Support
  5 Years

Customer View

- IT should be beneficial to business
- The organisation should focus on core business
  - IT Risk to supplier / IT Risk shared with supplier
  - (Out)Sourcing
- Cost reduction
  - Value for money
  - Transparent proposal
- Standardisation
  - Packages
  - Process
- Customer Satisfaction
  - On time, on budget with the agreed functionality AND quality

Supplier View

- IT services should be profitable
- The organisation should be compelling
  - Prepared to take / to share the customer risks
  - Profiling as an (Out)Sourcing partner / party
- Cost effective
  - Value for money
  - Competitive proposal
- Standardisation
  - Process & Procedures (Factory)
  - Risk Management
- Customer Satisfaction
  - On time, on budget with the agreed functionality AND quality

Challenge (II)

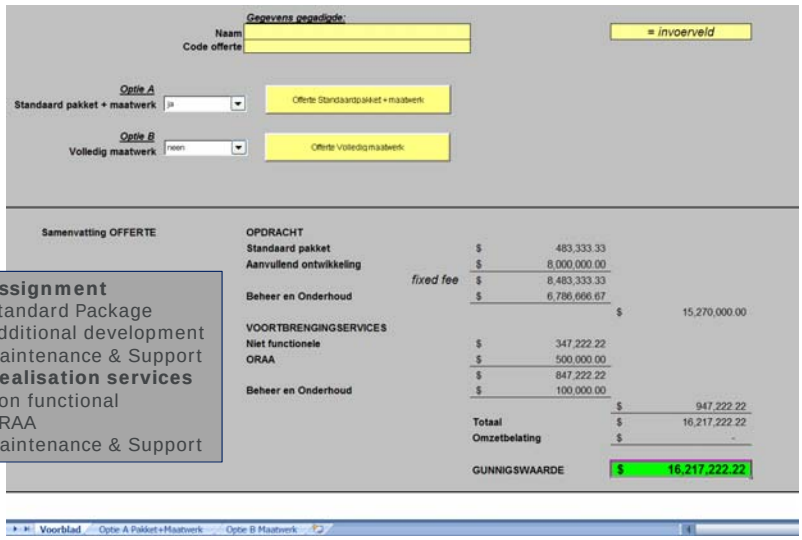
The customer requested in the proposal:

- An all-in price per Function Point
- Approach (Development, Test, Quality Assurance)
- Technology
- Organisational Structure

This requires from supplier:

- Functional “excellence”
- Transparent estimates / right expectations
- Function Points knowledge / experience
- Historical data

Proposal (Template)



Assignment
Standard Package
Additional development
Maintenance & Support
Realisation services
Non functional
DRAA
Maintenance & Support

DRAA: Development, Realisation, Assembly & Acceptation

Supplier

Opportunities

- New system will replace current system simplified and downsized
- Current System developed by supplier
- Local positioned
- Development Framework operational able to convert components current system

Risks

- No Function Point Knowledge
- Mapping indicated size on current application
- Limited Historical data

Risk Mitigation

No Function Point Knowledge

- Hire a consultant with knowledge / experience
- Conduct training to understand the concept

Mapping indicated size on current application

- Size the current application

Limited Historical Data

- Analyse available data
- Map on current possibilities (Framework)
- Validate with external data (ISBSG / SEER)

Training

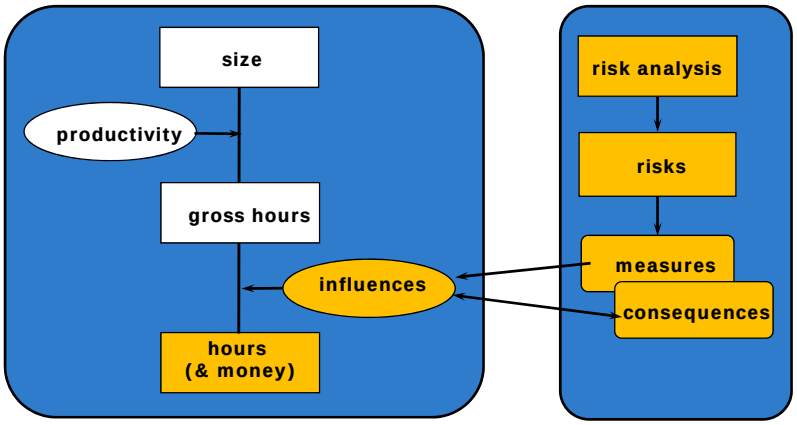
Basic Principles Function Points

- System Boundary
- Logical Files (ILF / EIF)
  Transactions (EI / EO / EQ)
- Examples from sizing exercise
- Benchmark (ISBSG)

Basic Parametric Estimation

- (Simplified) Estimation Model
- Parametric Estimation (SEER for Software)

Simplified Estimation Model



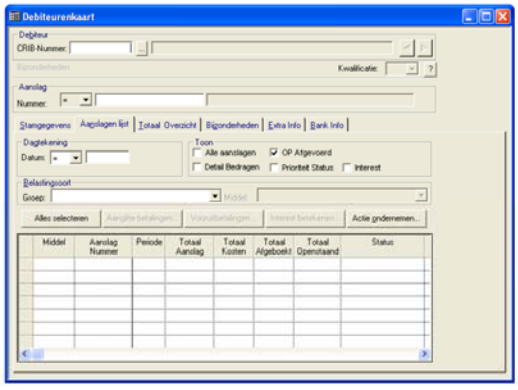
User Documentation

Debiteurenkaart

In dit venster kunnen gegevens betreffende de debiteur geraadpleegd worden en kunnen acties ten aanzien van deze debiteur ondernomen worden.

Ophalen gegevens

1. Kies de hoofdmenu-optie **Invordering** en kies **Debiteurenkaart**. Het venster **Debiteurenkaart** verschijnt.



Debtor Card

Get data

Tabs
Core data
Assessments
Totals
Details
Additional info
Bank Info

Sizing Sheet

C	D	E	F	G	H
Level 3	Sum L1	Sum L2	Sum L3	EI	EO /EQ
Debiteurenkaart			52	3	8

Remarks
Upd (Bijz - Extra - Bank) / Display Base - Aanslagen - Totaal - Stam - Relaties - Bijz. - Extra - Bank

Debtor card:
52 FP = 3 x 4 + 8 x 5 (3 EI + 8 EO)
From user documentation
Update: Details, Additional info, Bank Info
Display: Card and 7 tabs

NESMA High Level Sizing

- Functional Level

	ILF	EIF
Number of FP per file	35	15

- Technical Level

	ILF	EIF
Number of FP per file	25	10

Size Validation Core Application

Sizing sheet results

• Size	4636 FP
• Logical Files	138
Validation:	*33.59 FP / Logical File*
Reference NESMA	*35.00 FP / Logical File*
• Technical Tables	240
Validation:	*19.32 FP / Technical File*
Reference NESMA	*25.00 FP / Technical File*

Mapping indicated size

Organization	Inspectie der Belastingen	Inspectie der Belastingen	Eilandsontvanger/Landsontvanger
Tables in the database	40	32	240

• Core Application	4636 FP
• Application 1 32 tables, 5 taxes 32*19.32*5	3095 FP
• Application 2 40 tables, 1 tax 40*19.32*1	773 FP
• TOTAL current system	**8504 FP**
• New System Assumption 60% current	**5102 FP**

Limited Historical Data

Analyse Historical Data

- Validate current system
- Validate expert estimate new system
- Validate application developed with new Framework

Determine activities included in base performance

- Mix waterfall (base design) / iterative (prototype)
- Proposal requirements (template)

Finding reference material

- ISBSG
- Parametric Estimation (SEER for Software)

Analyse Data (I)

Validation current system

- Approx 8,000 FP
- 5 years operational
- 20% incremental enhancements
  New and changed functionality (50% – 50%)
- Developed equivalents 10,000 FP
  Team size 6 – 14 FTE
  Effort 75,000 – 85,000 hours
- Performance 7.5 - 9 hours / FP

Analyse Data (II)

Validation Expert estimate

- Assumed 5000 FP
- Expert 'performance' 3 – 4 hours / FP

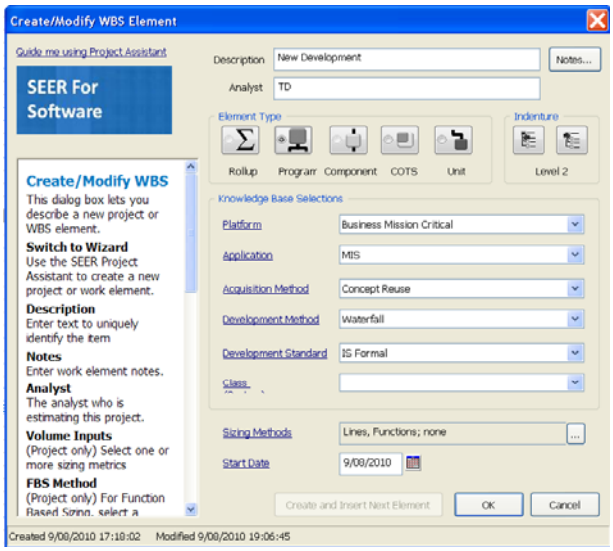
Validation system with development Framework

- Sized 600 FP (based on 30 technical files)
- Effort 5,200 hours
  includes training / learning curve
- Performance 8 - 9 hours / FP

CONCLUSION:

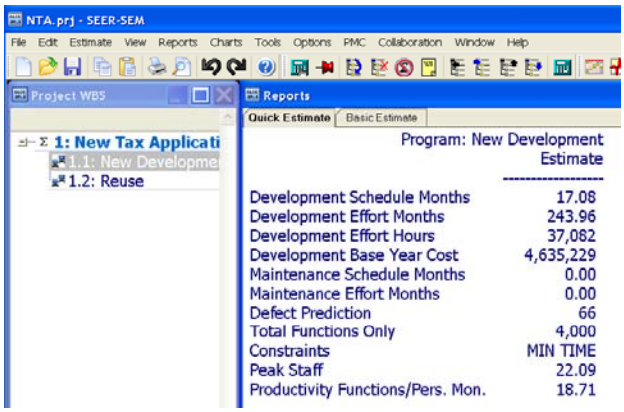
Expert estimate likely too optimistic

External Validation



External Validation (II)

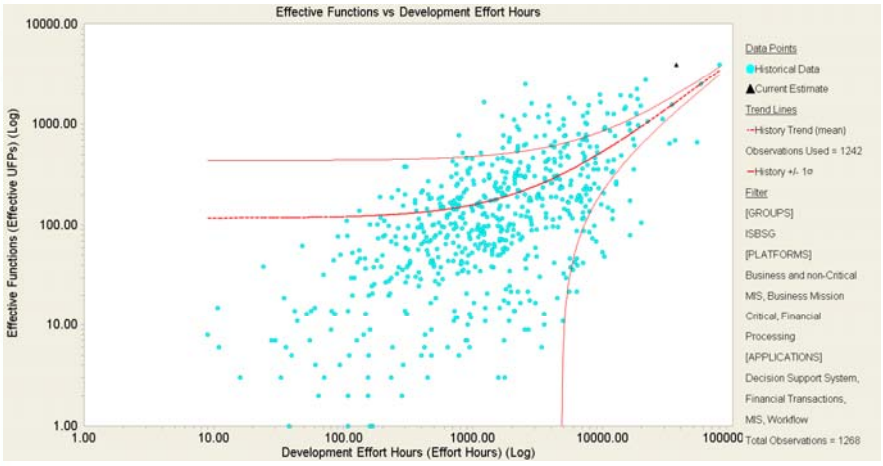
- Assumed 4000 FP new development



- Performance 8.12 hours / FP (= 152 / 18.71)

External Validation (III)

- Benchmark estimate with ISBSG



Decision process (Options)

1. Expert estimate
   Mapping to 5000 FP
2. Parametric Based estimate

Option	1	2
Risks	Underestimation Less profit / loss Complex management Capacity planning Limited flexibility	Overestimation **Probability losing** Limited staff
Opportunities	**Probability winning**	More profit Easier management Flexibility

Decision

Parametric based estimate

- Less risk of underestimating
- Transparent and defendable
- Potential more profit
- Real incentive for innovation / improvement
- Assumed still competitive:
  - Project Delivery Rate – OK
  - Technology State of the Art – Framework
  - (Local oriented) Knowledge
  - Availability of software components

Conclusion

(**After winning the tender**)

Parametric based estimates provides

- Less risk of underestimating
- Transparent and defendable proposals
- Objective approach
- Realistic expectations on
  - Cost
  - Effort
  - Capacity required