



Belastingdienst



Bridging the Gap

using Function Points

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Function Points & the Dutch Tax Office

Currently, Function points may be the only available Functional Sizing Measure that is broadly supported.

In many cases the use of FP is prescribed, even mandatory.

Using some examples I will give an overview of how the Dutch Tax Office uses FP internally and in supplier contracts.

My name is Rob de Munnik, Estimation Consultant in the team IT Control at the Dutch Tax Office.

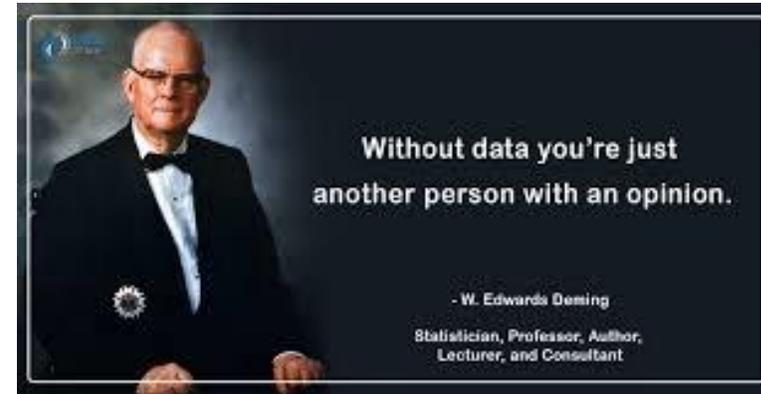
-> *What about this silver medal?*





Contents

- A word on speaking English here
- Intro: How I developed an interest in metrics
- What organization and team I am in now
- The kind of engagements we service
- Some examples of bridging the gap



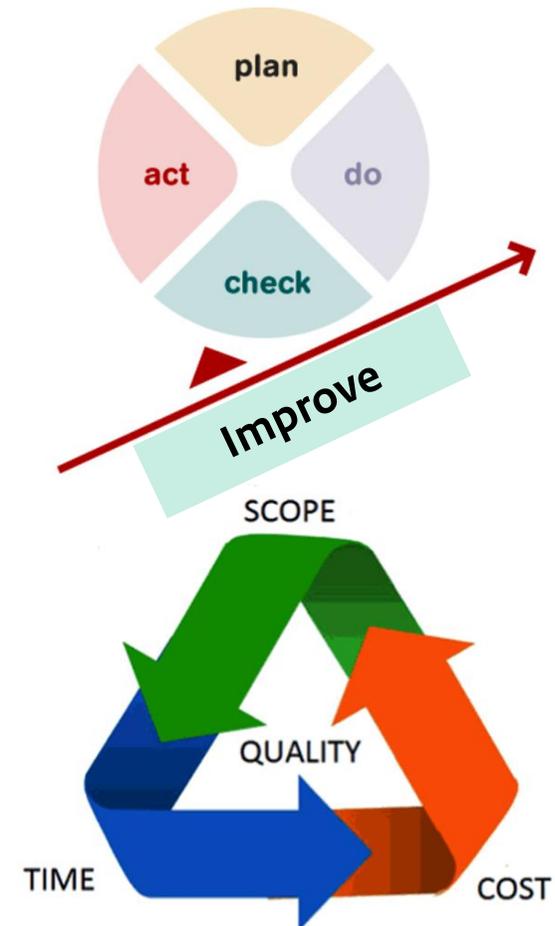
Without insight into data, people make decisions based on instinct, speculation, or prevalent theory. People are at risk of acting on biases or false assumptions.



Bridging the Gap

Vision - There will always be resistance to transparency and / or control. By knowing the customer, listening to their needs, not only getting information but also bringing it, having knowledge of the matter and showing craftsmanship (knowledge and skills), this gap can almost always be bridged.

Mission statement – We aim to provide insight into performance (FPA) and maintenance risks (SIG), **so that** deviations and improvement opportunities are identified, **enabling** timely and effective adjustments **by which** the agility, predictability and control of the IV organization is increased



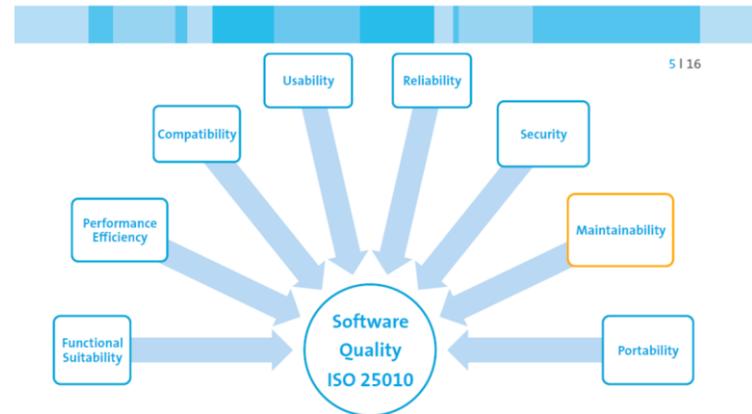


Team IT Control

- Benchmarking with own projects and (market) references
- Withstand audits; justify objectively towards 3rd parties
- Productivity (FPA): Measurement of the outcome of a process in relation to the input, output in relation to input. This is about efficiency,
- Maintainability (SIG): The degree to which a product or system can be effectively and efficiently modified by the designated persons



Software product quality
Internal and external properties

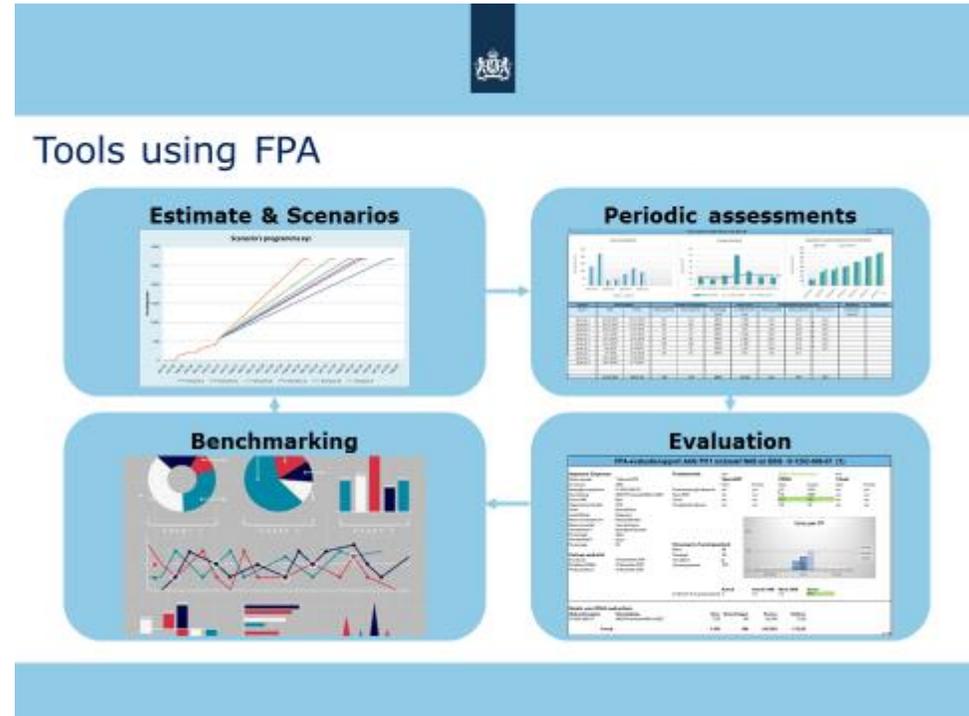




Team IT Control

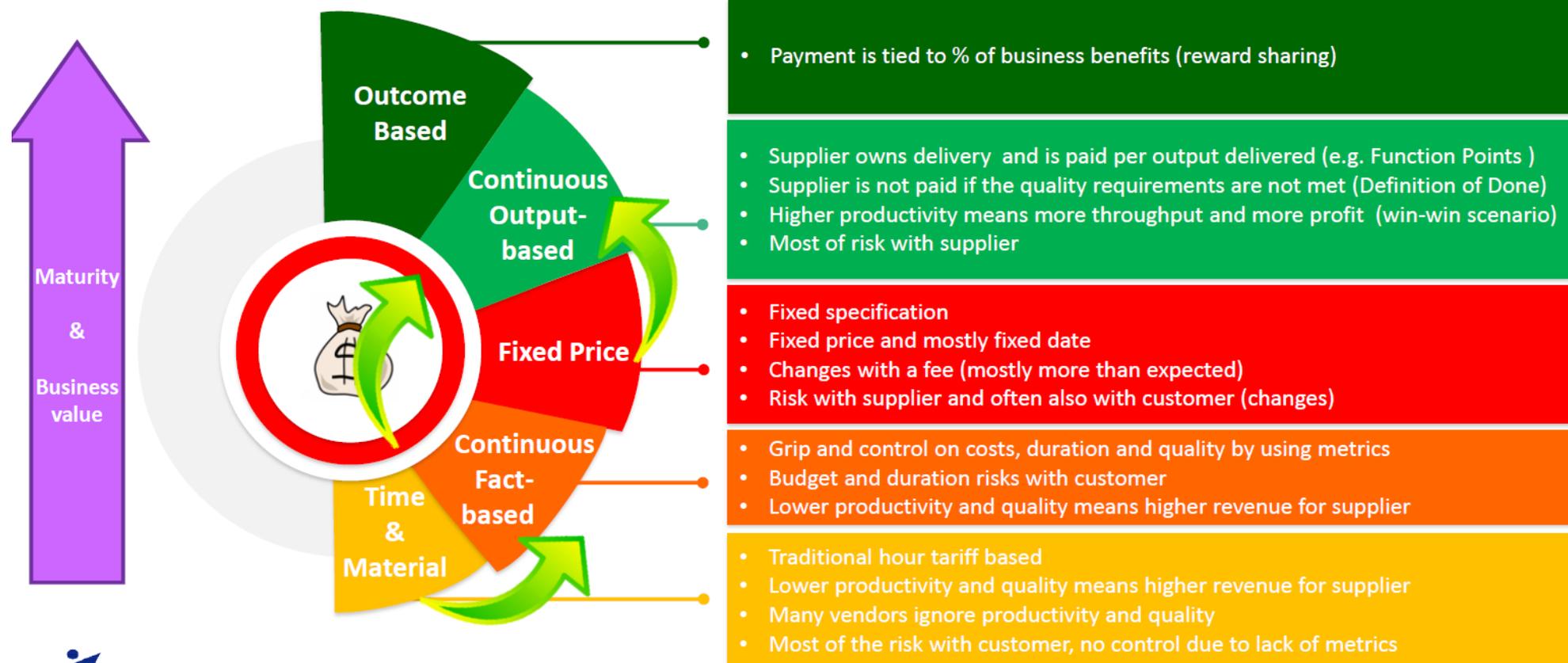
Services of team IT Control include:

- Organization-wide FP sizing of IT delivery
- Yearly reports with pareto-like insights
- Support many development languages and environments
- Evaluation of productivity (hours/FP), connection with specification activities
- Estimate to completion for large engagements
- Periodic assessments of progress
- Keep track of system sizes for maintenance purposes
- Maintain a database with historical records of more than 3.000 projects (and growing)





Contract types





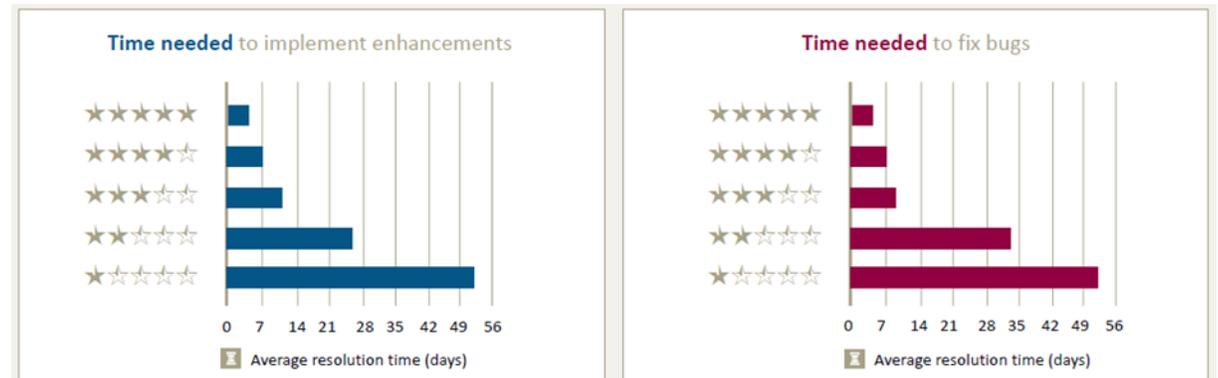
The approach – Continuous Fact-based/Output-based





Towards output based supplier contracts

- Conducting and managing output-based contracts is a real profession (*do not try this at home*)
- **The** price per function point does not exist, it depends on :
Size of assignment, Type of software, Productivity and quality of individuals / teams, Programming language, Architecture and Technical debt
- The Dutch Tax Office has, at the moment, five large output-based contracts based on function points
- Suppliers often do not know their own productivity (!)
- In addition to avoiding too much cost, avoid too low € / FP
- Negotiate € / FP for both development and application maintenance
- Always combine with quality criteria, such as code quality (SIG), incidents / fp, test coverage, et cetera
- First change Time & Material engagements to Continuous Fact-Based, do not go all the way in 1 step. Build up on your knowledge of productivity & quality and reference numbers



Maintainability	★★★★★ (3,7)	▲ 0,97
Volume	★★★★★ (5,4)	▼ 0,04
Duplication	★★★★★ (3,6)	▲ 1,15
Unit size	★★★★☆ (3,4)	▲ 0,84
Unit complexity	★★★★★ (4,0)	▲ 1,04
Unit interfacing	★★★★☆ (2,8)	▲ 1,30
Module coupling	★★★☆☆ (2,2)	▼ 1,08
Component balance	★★★★★ (3,6)	▲ 3,14
Component independence	★★★★★ (4,7)	▲ 4,77



About examples

- Limitations using (Dutch Tax Office) examples
- Privacy: *names have been changed to protect the innocent*
- Bias #1: choosing success stories*
- Bias #2: proving FPA works
- Have projects failed at the Dutch Tax Office?

- Main productivity drivers/factors
- Team stability** – maintaining a good balance of seniors and juniors/mediors
- Quality – technical (code) and process (test)
- Specifications – too little, too late
- Flow – embrace the Minimal Viable Product approach

Actually this Pareto-like analysis*** is much more complicated. Technical preconditions and management involvement (pay attention****, earn trust) are some examples, to name a few

*A warning about correlation implying causality

**Team stability – try getting a winning team to perform for a longer period, not necessarily meaning fixed or exclusive team membership

***Pareto analysis is a technique useful where many possible courses of action are competing for attention. In essence, the problem-solver estimates the benefit delivered by each action, then selects a number of the most effective actions that deliver a total benefit reasonably close to the maximal possible one.

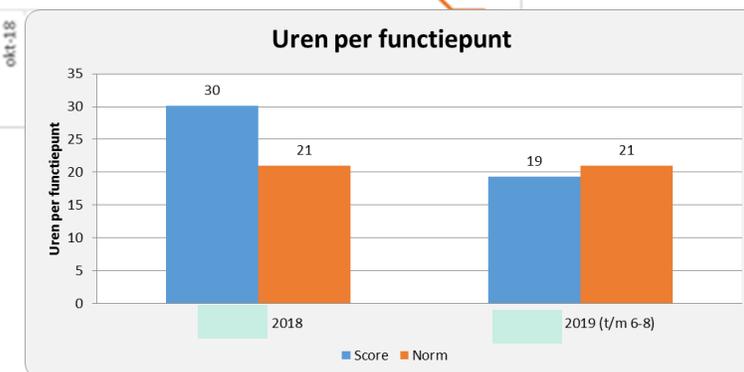
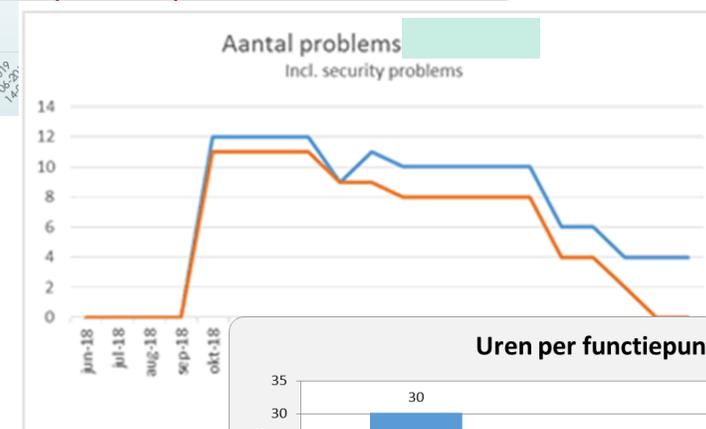
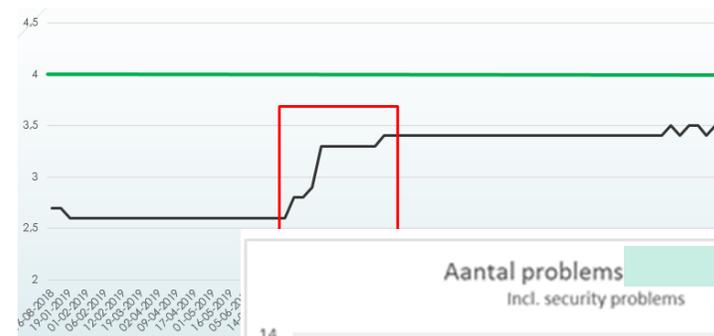
****In quantum mechanics it is not possible to observe a system without changing the system, and the "observer" must be considered part of the system being observed.



Examples

Increased maintainability (SIG) leading to a significant reduction of problems

- New code development started 2017 Q3. Out-sourced team, internally focused, on time delivery the sole target
- Actions:
 - Introduction metrics (FPA, SIG and Sonar) 2018 Q3, showing the delivered quality was too low, cost too high
 - Management attention, team re-shuffle
 - Shift-left testing, new and changed code always better than the baseline.
 - Periodic measurements discussed in retrospectives
- Results:
 - fewer incidents
 - productive team &
 - happier stakeholders

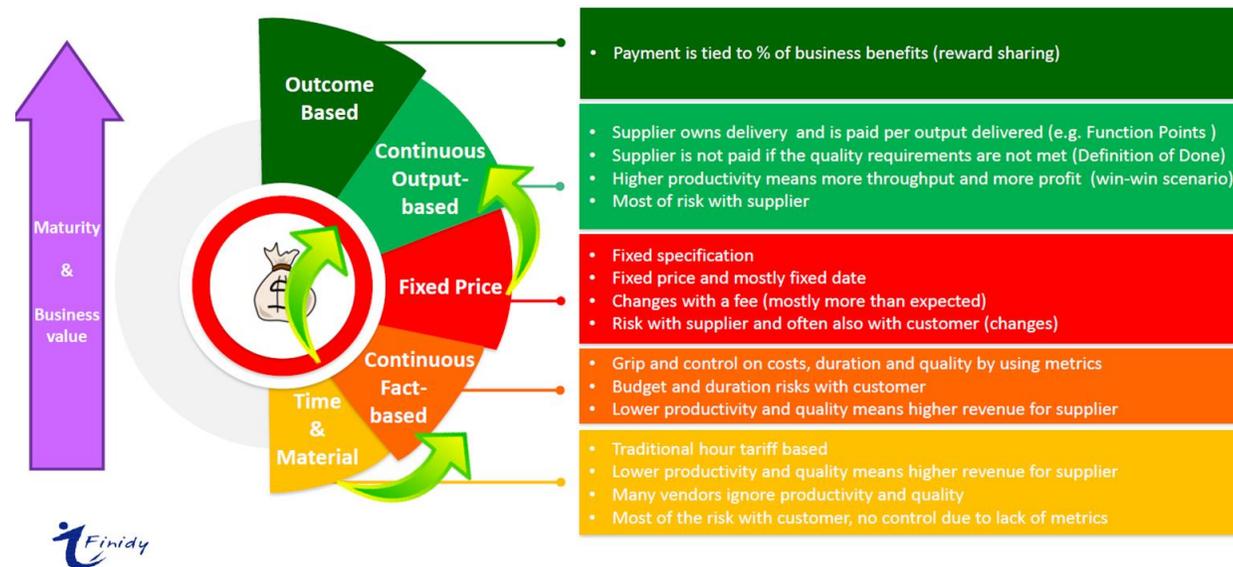




Examples

Transforming a Time & Material engagement to continuous output based

- After some time in a program, a loss of focus on deliverables and outcome was detected. Gradually, activities had been taken off-scope for FP. Due to time criticality it finally degraded to a Time & Material engagement. A large change was on the way.
- Actions:
 - o Early FP sessions based on features
 - o Questions and answers-sessions with supplier
 - o Open discussion on activity types and FP coverage
- Results:
 - o Agreed (approximate) size for next 2 years
 - o Renegotiated price per FP
 - o Shortened list of excluded activities (T&M)





Examples

Bridging the Gap

At Team IT Control we practice what we preach by investing. We are constantly broadening our horizon and updating our knowledge. Some actual examples:

- Sizing for packages – configuration and custom code (SAP, Oracle, WordPress)
- What-if scenarios using IBM-based building blocks BPM, BRM and ECM and Normalized Systems-approach
- Closely monitoring SIG-results of applications delivered using Normalized Systems (generated code); ongoing research on effects for maintenance cost
- Yearly update on (alternative) sizing methods
- Invest in new ways of thinking, BizDevOps, Design thinking and Specification By Example
- Learn from internal and external audits

Level	Nummer	Metriek	Categorie
Team	1	Velocity planned en actual	Productiviteit
	2	PI performance report (business value / cod)	Klanttevredenheid
	3	Self-Assessment	Mens
	4a	Softwarekwaliteit (Sonarqube)	Kwaliteit
Program	4b	Softwarekwaliteit (SIG)	Kwaliteit
	5	Program predictability Measure (business value / cod)	Klanttevredenheid
	6	Aantal en oplostijd incidenten/problems	Kwaliteit
	7	% testgevallen geautomatiseerd	Time to market
	8	Assessment	Mens
	9	Kosten en uren per functiepunt	Productiviteit
	10	Feature progress report	Voortgang
Portfolio Business	11	Feature cycle time	Time to market
	12	Customer satisfaction (net promotor score)	Klanttevredenheid
	13	Portfolio kanban board	Voortgang
	14	Epic progress measure (% gereed)	Voortgang
	15	Sturen op kosten/dagen	Financieel



Belastingdienst



Bridging the Gap: Q&A

using Function Points

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