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Benchmarking – not the Goal but a Tool

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Issues to be discussed

Who is benchmarking? What? Who is not? Why?

ISBSG was one of the driving forces behind the international standard for IT project performance benchmarking (ISO/IEC 29155 series). The goal was to increase objectivity and transparency of benchmarking services, and lower the step to start measurement based project benchmarking, to bring in figures and facts instead of feelings. The ISO/IEC standards got published almost ten years ago.

Benchmarking is still too often considered heavy and ceremonious way to find opportunities to improve performance. It's not how it needs to be. We can - and need to - lighten benchmarking, make it easy and fun.

Benefits

- To find out what should and could you benchmark
- To understand all the elements of simple triangle benchmarking
- To see examples of triangles derived from ISBSG data

A couple of important terms

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

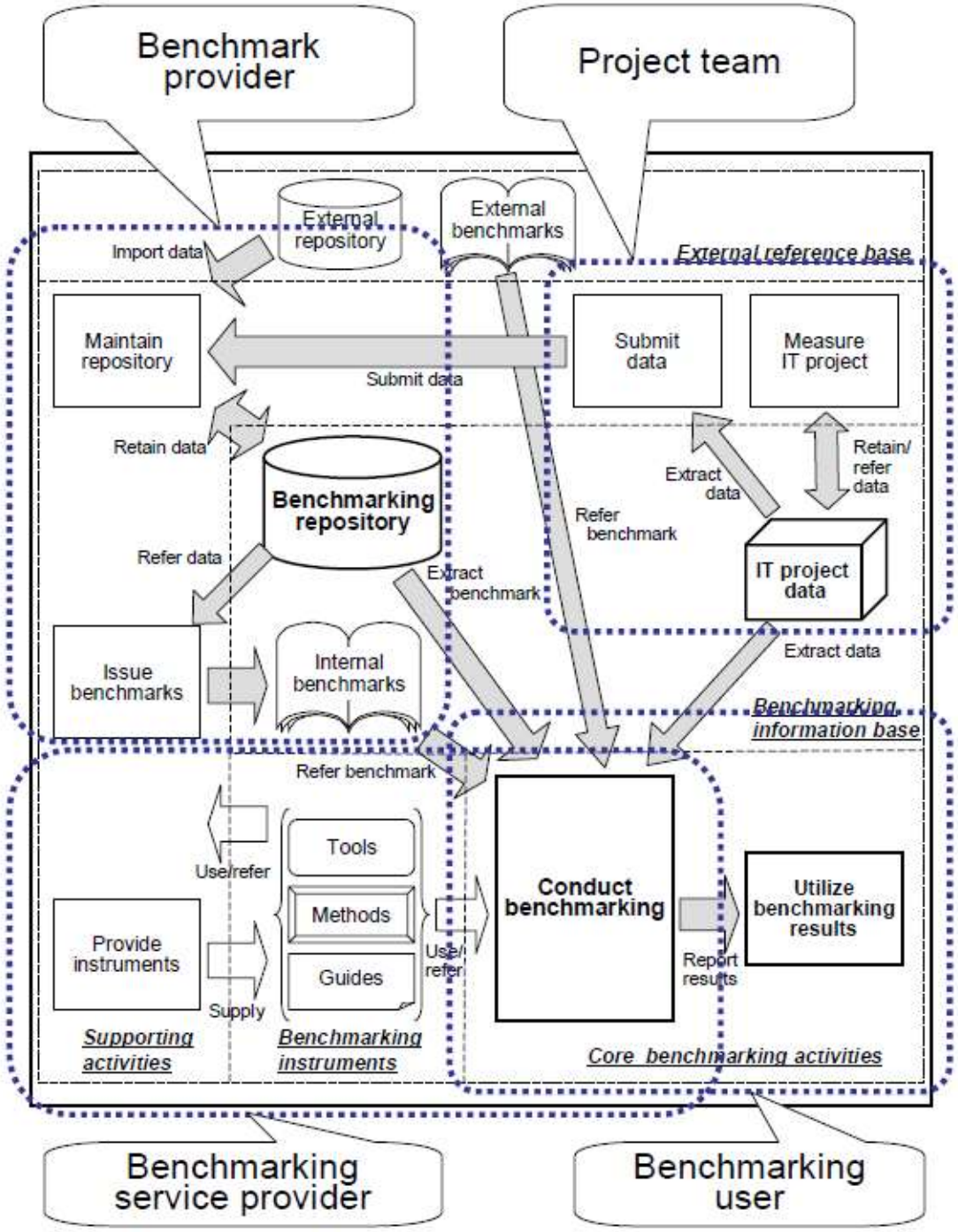
2.1
benchmark
reference point against which comparisons can be made

NOTE In the context of the ISO/IEC 29155 series, IT project performance(s) is the object of comparison.

2.2
benchmarking
activity of comparing objects of interest to each other or against a benchmark to evaluate characteristic(s)

NOTE In the context of the ISO/IEC 29155 series, the object of interest is IT project performance, and the characteristic is a particular aspect of an IT project such as productivity.

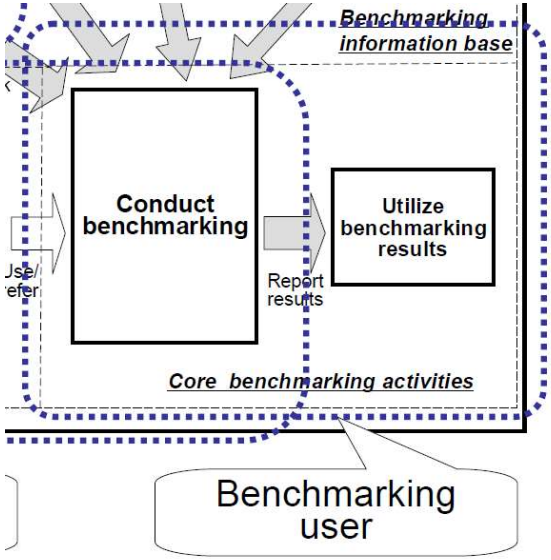
Benchmarking framework and the players of the 'game':



Source: ISO/IEC 29155-1, IT project performance benchmarking framework, Concepts and definitions

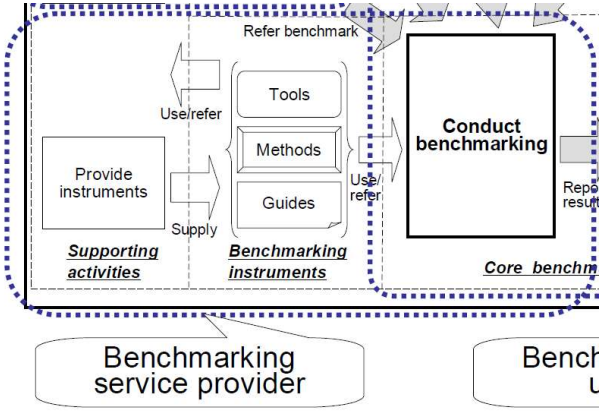
Player 1 – Benchmarking user

- Software acquiring organisation
- Driving force of the whole game: starts, keeps it running, and stops when the time comes
- Must understand the metrics and their meaning, and supports measurement
- Hires the service provider and sets the goals for benchmarking
- Concludes the results together with the benchmarking service provider and decides about the required consequences (if any)
- Pays the bills



Player 2 – Benchmarking service provider

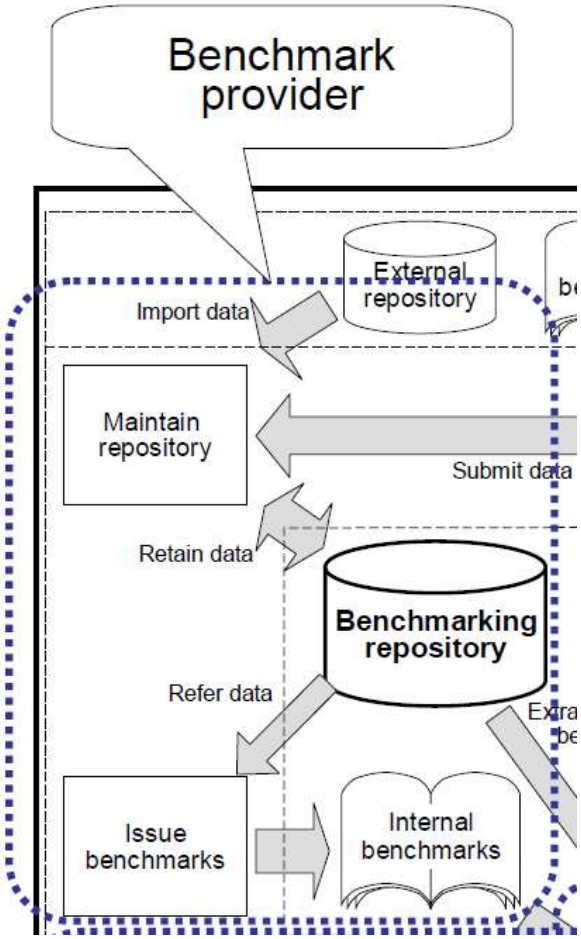
- Consulting organisation
- Provides methods for data collection and extraction
- Receives and validates extracted data
- Provides guides and training to the project team and benchmarking user
- Selects the best matching available benchmark(s)
- Provides the tools to produce the agreed, traceable, and easy-to-understand outcomes



Benchmarking service provider conducts benchmarking under the control of Benchmarking user

Player 3 – Benchmark provider

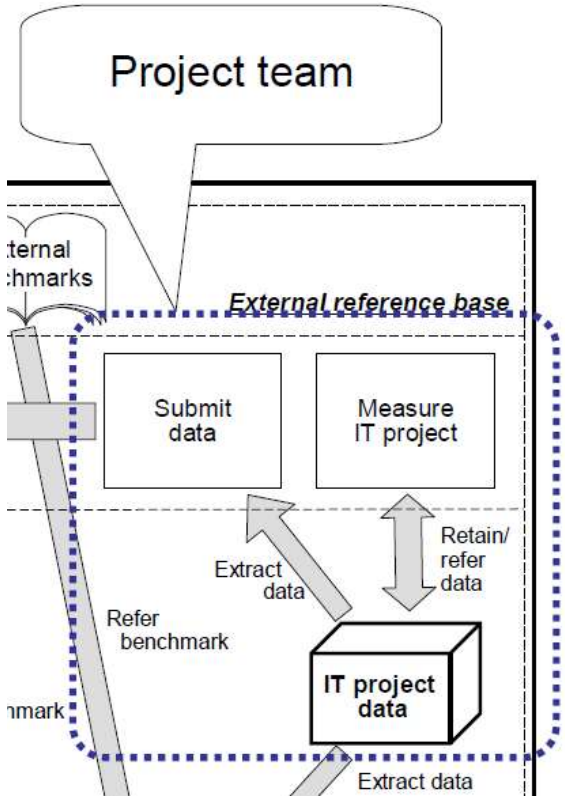
- Research organisation (may be national, international, industry sector specific, or even corporation in-house)
- Collects data
- Maintains repositories
- Publishes benchmarks



Simple – and not too many – activities, but these organisations are EXTREMELY IMPORTANT for HEALTH and WEALTH of the INDUSTRY!

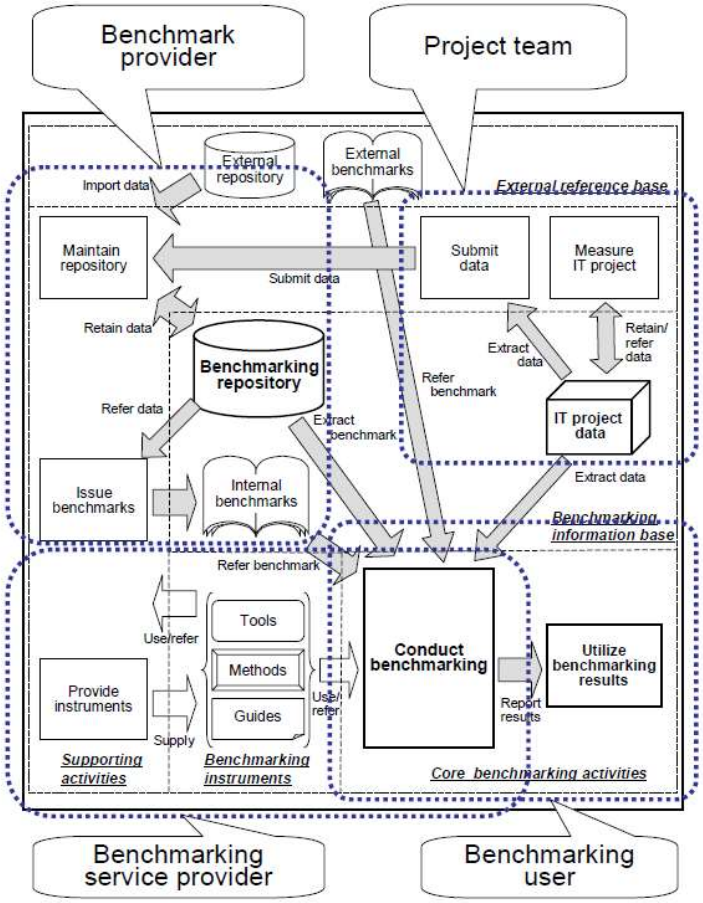
Player 4 – ´Project´ team

- Software supplier organisation
- Develops software (including all SDLC main tasks: specifying, designing, programming, testing, installing)
- Extracts required data to the benchmarking service provider
- Might submit data to benchmark provider(s)
- May use extracted data in its own process improvement (e.g. in frequent sprint retrospectives, or in more occasional organisational post mortem analysis)



Role based threats for benchmarking

- …i.e. who is NOT benchmarking, or at least not successfully?
- Attempts to stretch, mix, move radically, or remove completely the limits between the roles and responsibilities (incentives may vary)
- Lack of motivation in the benchmarking user organisation (too much money to spend? software acquisition is just peanuts in the business? no knowledge about the power of data based decision making)



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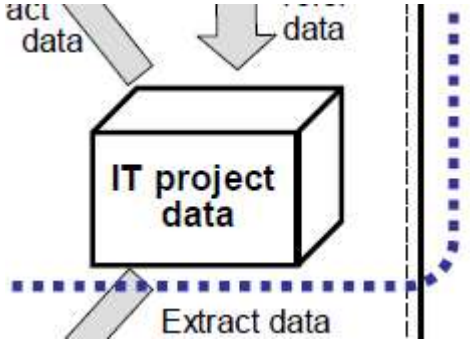
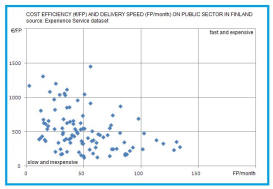
A look at the object of benchmarking

- Benchmarking user specifies the scope for benchmarking (e.g. the whole organisation, a large development program, development projects, 10 week iterations, development sprints,…)
- The bigger the object, the more difficult to find any sensible benchmark, and to find the most (or any) effective improvement activities
- If small objects cannot be measured and extracted reliably, how could the bigger (which actually consist of many smaller ones)?
- The objects shall be classified to be comparable with the benchmark(s)

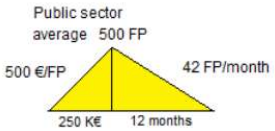


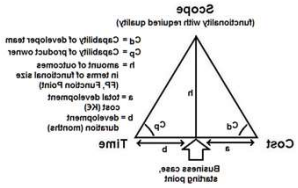
A case - 4SUM benchmarking MFC software development

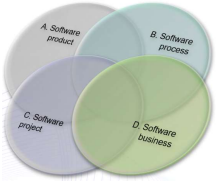
The case benchmarking setup:



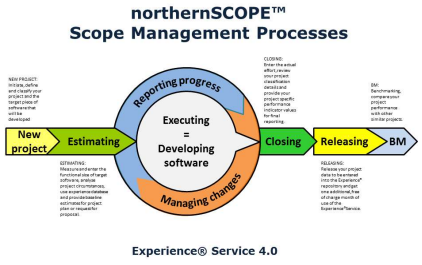
ISBSG Productivity Data Query Tool

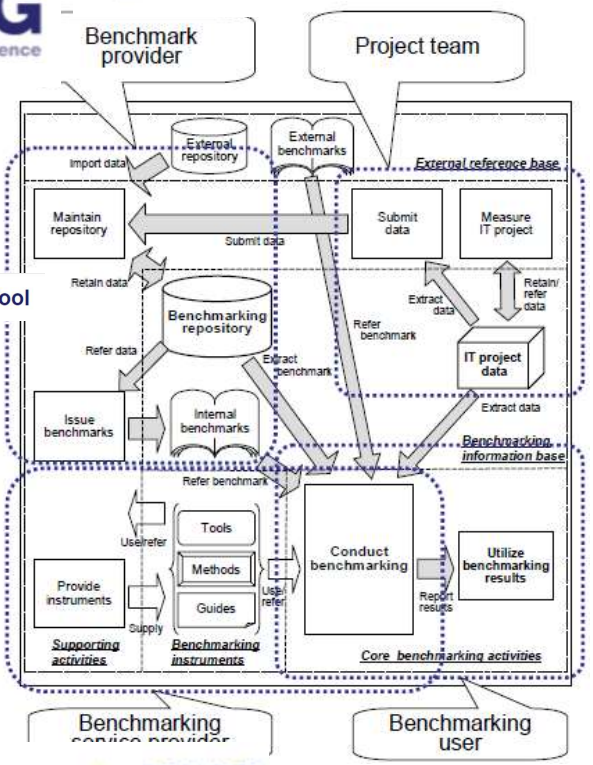






Functional size
Elapsed effort with SDLC-based DoR and DoD-rules
ND21 and FiSMA Top-10 metrics





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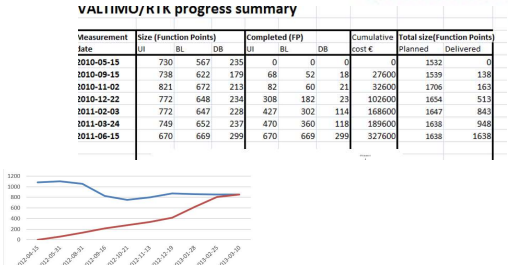
€/FP
FP/month



Measurement date	Size (Function Points) UI	BL	DB	Completed (FP) UI	BL	DB	Cumulative cost €	Total size(Function Points) Planned	Delivered
2010-05-15	730	567	235	0	0	0	0	1532	0
2010-09-15	738	622	179	68	52	18	27600	1539	138
2010-11-02	821	672	213	82	60	21	32600	1706	163
2010-12-22	772	648	234	308	182	23	102600	1654	513
2011-02-03	772	647	228	427	302	114	168600	1647	843
2011-03-24	749	652	237	470	360	118	189600	1638	948
2011-06-15	670	669	299	670	669	299	327600	1638	1638

Favourite Supplier Company

-agile developer team(s)
-3 week sprints
-€/h contract
-no measurement skills

My Favourite Customer (**MFC**)

-public sector
-SOA java sw outsourced
-product owner

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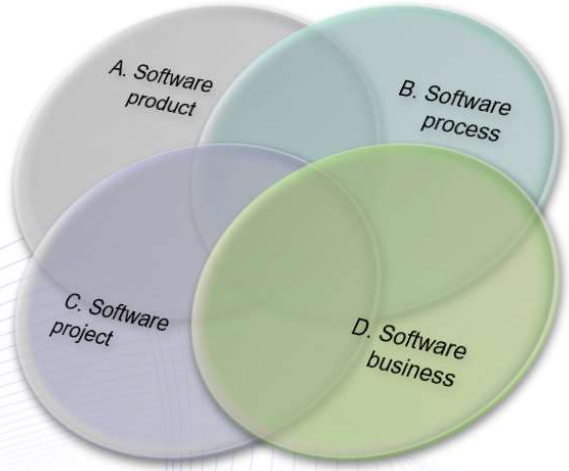
Case benchmarking in practice

- The setup looks difficult, but it’s not so!
- The benchmarking service provider is responsible of 90 % of the setup
- Establishment of an instance of benchmarking takes 2-3 days effort + some hours’ attention from the developer team and members of steering committee
- Supporting the IT development data collection, extraction and validation takes typically 1 day per month
- Provision of progress reports and benchmarking outcomes takes another 1 day per month
- Software development and program steering go on like business-as-usual.

Case metrics selected from FiSMA Top-10

- **C.1 - Functional size of software**
  - Type: Derived measure
  - Main content: A size of the software to be developed, acquired, m subject to other activity. A recommended method is FiSMA 1.1 or standard FSM method (e.g. function points, FP).
  - What the measure explains: Functional size enables comparisons price data of systems of different sizes. Also a value of the softwa end-user.

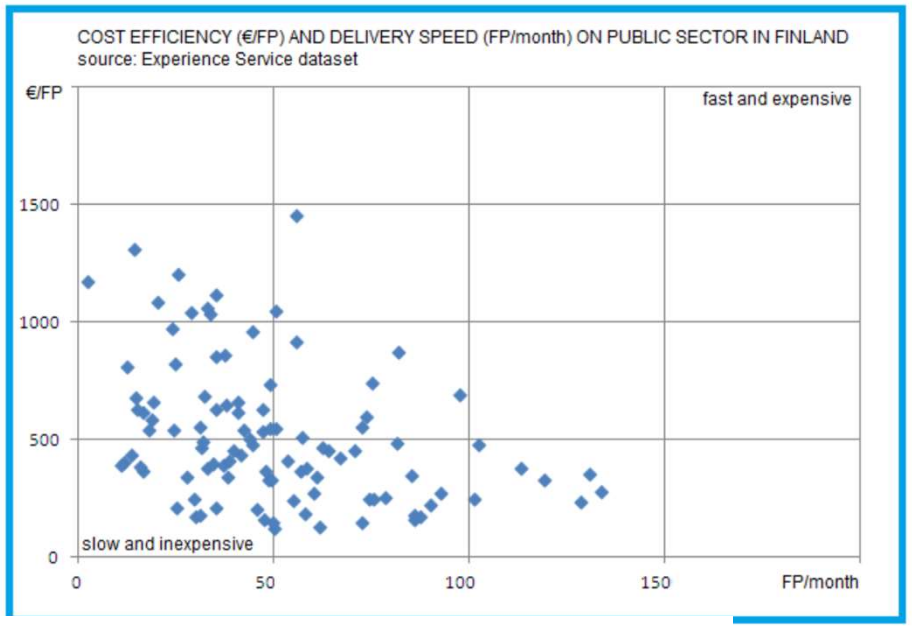


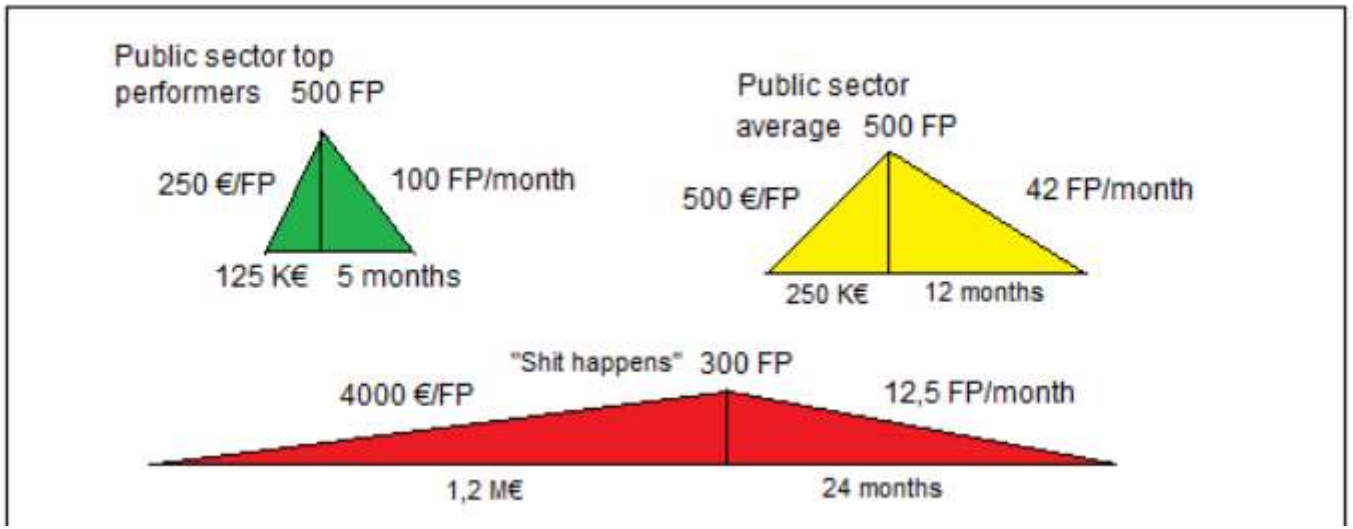
- **C.2 – Development effort and cost**
  - Type: Base measure
  - Main content: The elapsed effort of a defined development team in assigned activities during the software development life cycle. A recommended unit of workload is an hour.
  - What the measure explains: Important source data for schedules, pricing and comparison of productivity.
- **D.1 - Delivery speed**
  - Type: Indicator, indirect measure
  - Main content: Functional size of the software delivered in the project divided by development time (FP/months).
  - What the measure explains: Delivery speed achieved in the project related to comparable ones; indicates competitiveness of both acquiring and supplying organisations.
- **D.2 - Cost efficiency**
  - Type: Indicator, indirect measure
  - Main content: Total cost of the acquired software divided by a functional size, €/FP
  - What the measure explains: The cost efficiency of a project compared to similar ones; indicates competitiveness of both acquiring and supplying organisations.

Case benchmarks

FILTERS			
Functional Size (function points)	Development type	Year	Count Standard
250-750	Match All	Match all	FP

Project Attributes	Project Delivery Rate				Speed of Delivery			
	Matches	1st Quartile	Median	3rd Quartile	Matches	1st Quartile	Median	3rd Quartile
Primary Programming language: Java	329	4.90	8.40	12.90	318	92.73	59.30	39.08
Organisation Type: Government	146	5.50	10.40	17.98	145	72.10	37.10	23.40





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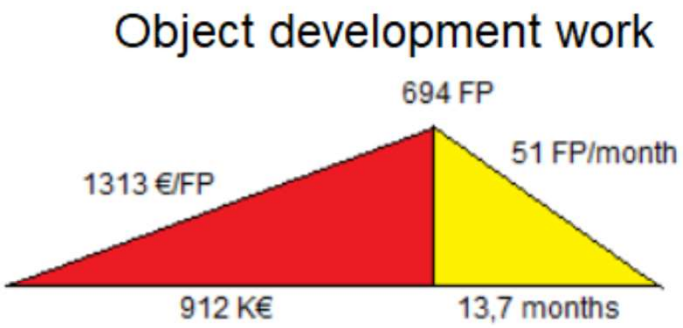
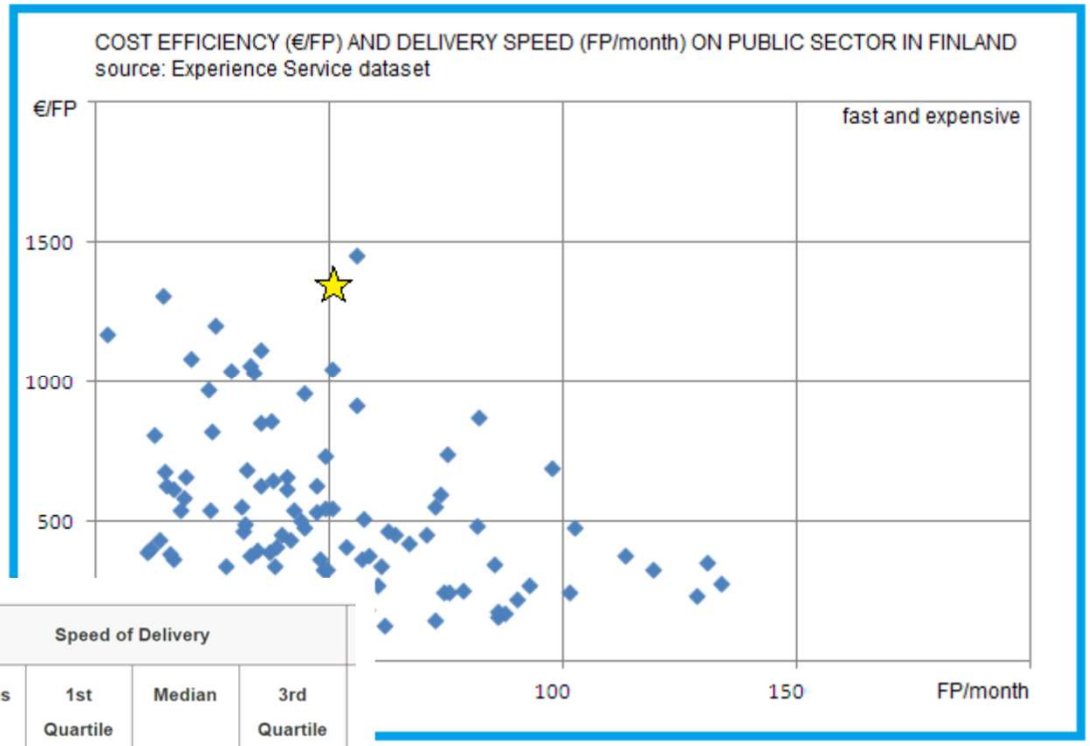
Case results





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Case conclusions

- I’m not going to tell them, but …
- Things could be much better
- It might be useful to look at the software development productivity factors of FiSMA ND21

- The conclusions and following decisions depend on the goals and scope of the instance of benchmarking and the Benchmarking user organisation

Thank you!

- Pekka Forselius, MSc, MBA, Certified Scope Manager, Past President of ISBSG, Senior Advisor at FiSMA
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- see also www.4sumpartners.com, www.fisma.fi and www.isbsg.org

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