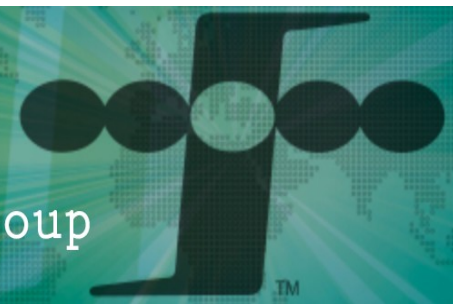


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Sizing The Entire Development Process

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TI Métricas

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Engineering Ingegneria Informatica SpA



IWSM MENSURA 2014 - ROTTERDAM



- Agenda

- The Relevance of NFR

- A Short Story
 - NFR and SNAP
 - Measuring and Evaluating NFR Productivity



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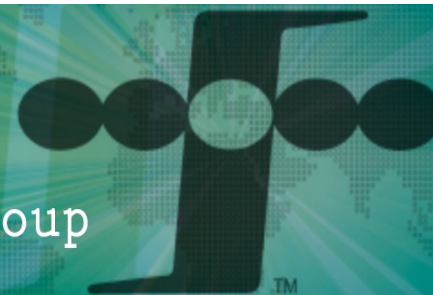


Which programmers
are more
productive?

Well, those who
complete more
programs per month
should be the best.



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Right... But some programs are BIG!

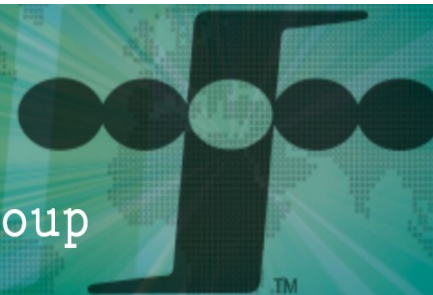
Then you will have to account for size – count how many lines of code each programmer produces.



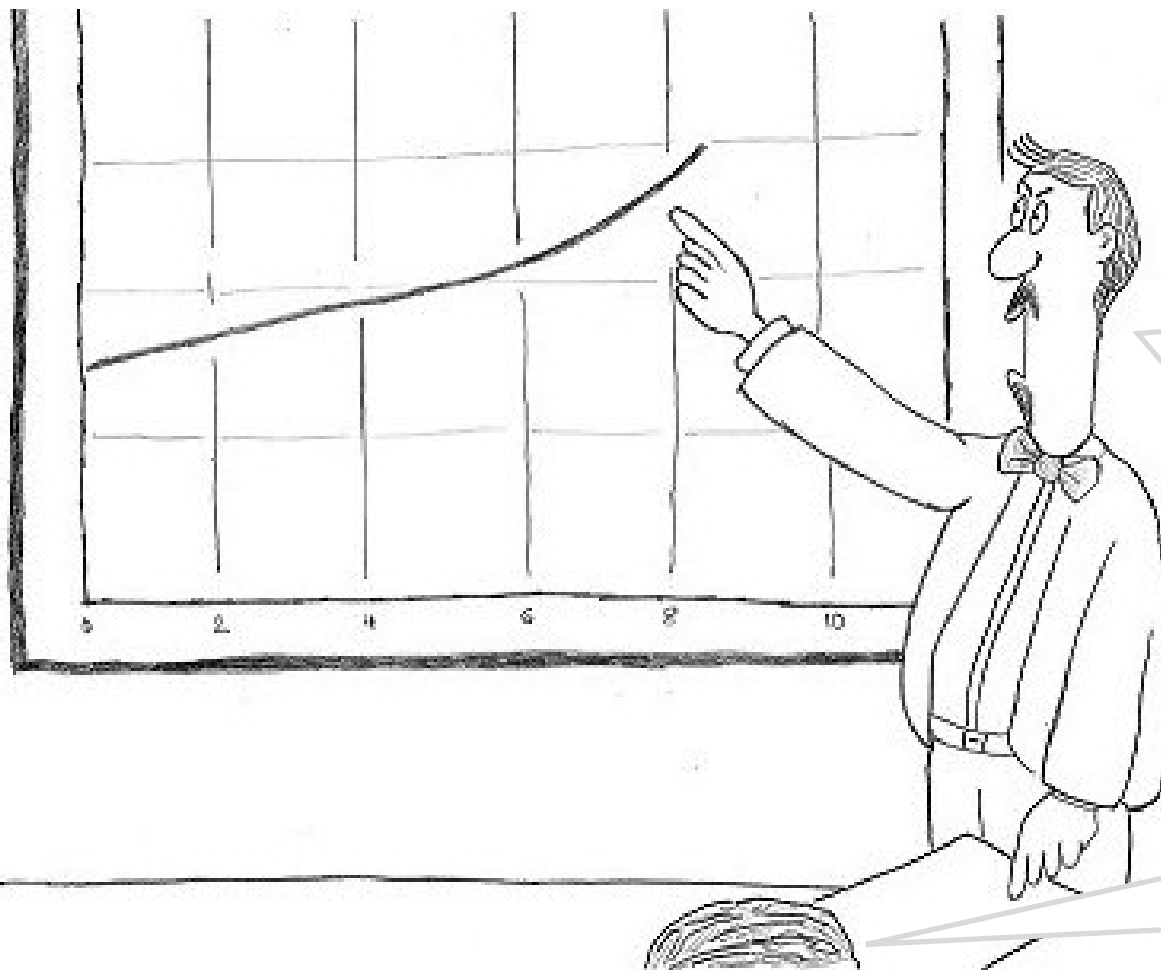
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SLOC



Programs got bigger after we started measuring lines of code.

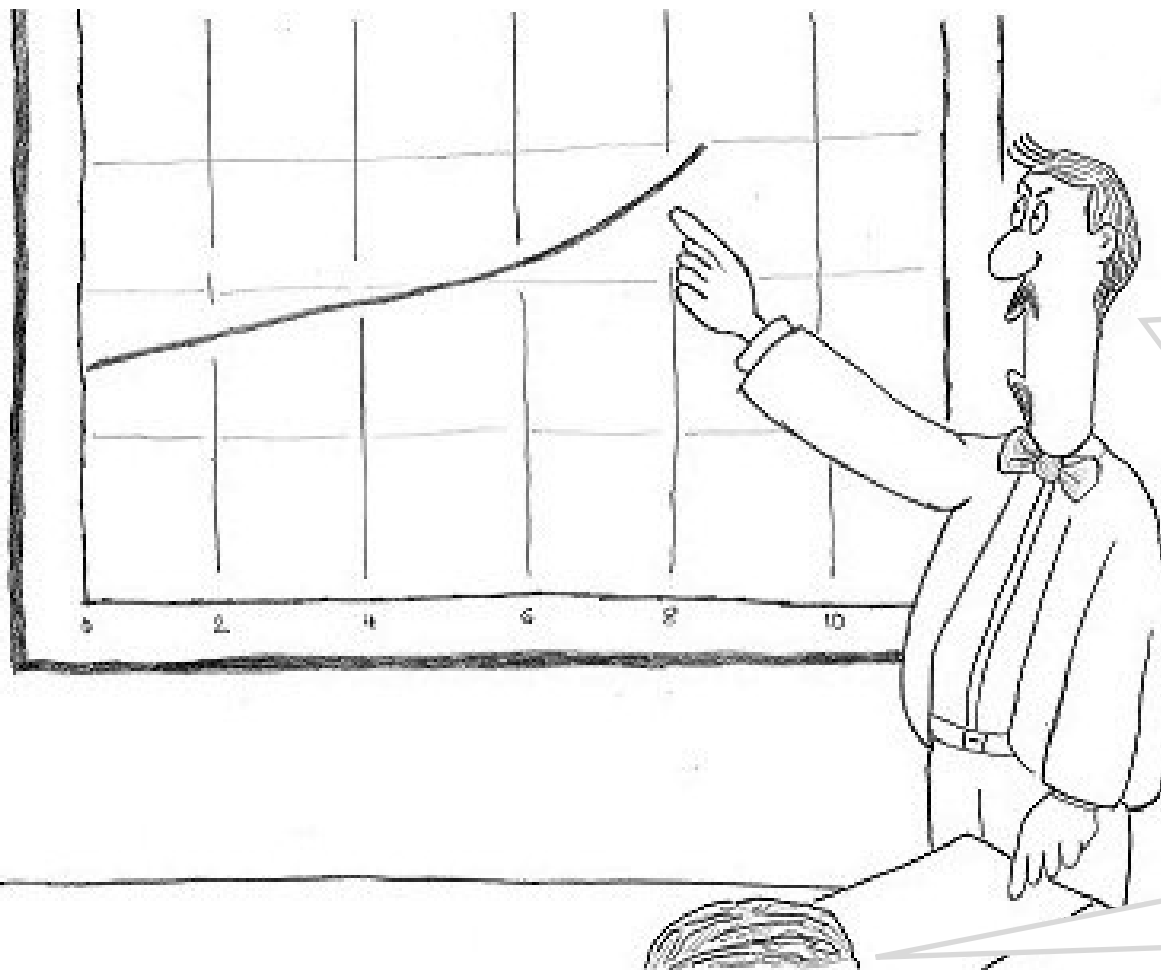
Everyone wants to look productive.



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SLOC



Maybe we should measure something programmers can't control.

I guess you're right.



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That Albrecht guy from IBM had a good idea – ‘function points’.
They’re based on user input so programmers can’t mess with
them.



That’s great! What
still bothers me is
there are some
things FPs don’t
count.

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Like what?

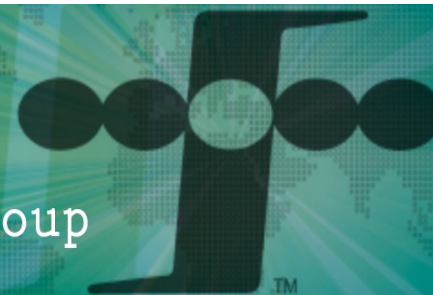
Things like requests for a very small response time, or complex calculations.



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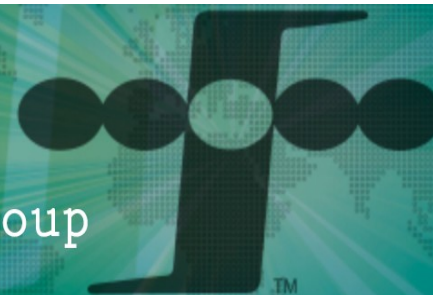


We are using cost drivers to adjust for things FPs don't count.

How does that work?



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We adjust the FPs up or down depending on each cost driver.



Oh I see... To account for situations where two programs are the same size but have different complexity levels.

Exactly.



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I can't decide which sizing method to use – some say IFPUG, some say COSMIC, some say NESMA, some say FiSMA... some still use Mkill.

It looks like these so-called measurement experts don't know what they're talking about!



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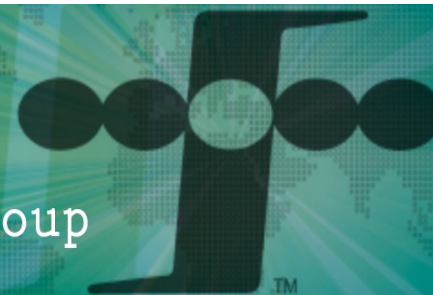


One thing I know is we must measure functional size.

Sure. How about non-functional attributes?



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I've heard some people talk about 'nonfunctional size' but I've never seen it. Just like flying saucers...

Maybe you should try SNAP.



Say that again?



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End of Story





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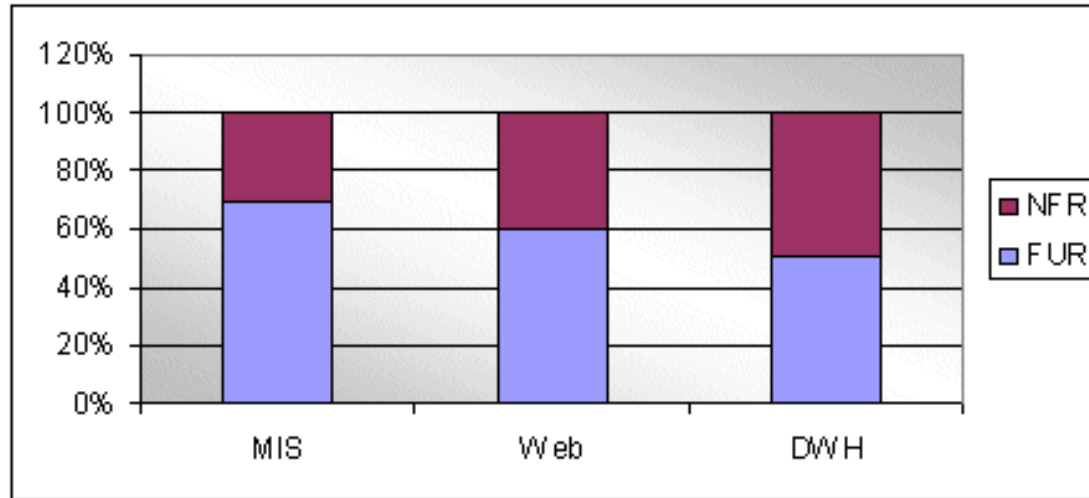
***You cannot **control** what you cannot
measure but...***

...You cannot **measure what you
cannot **define** but...**

...You cannot **define what you don't
know...**



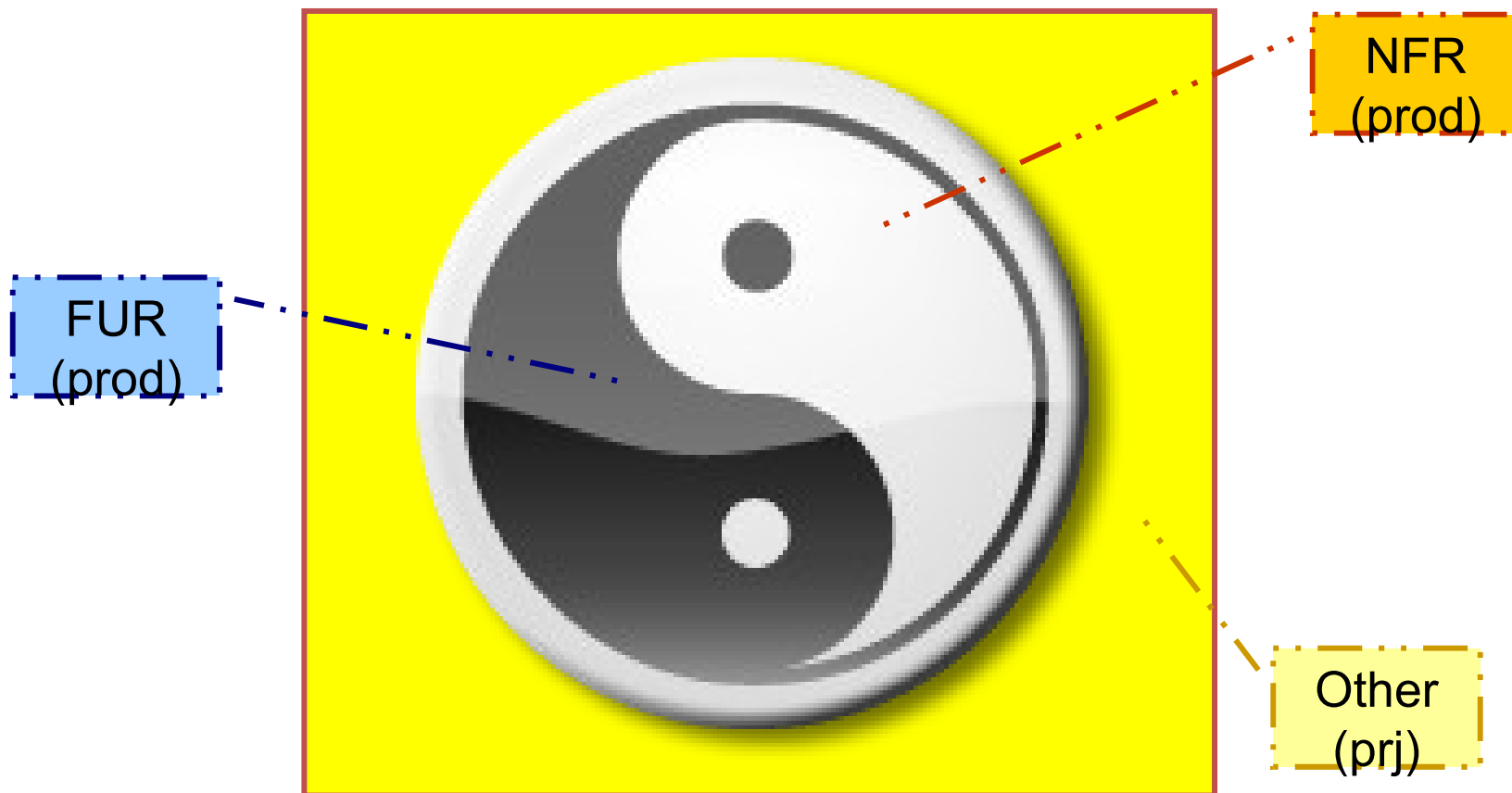
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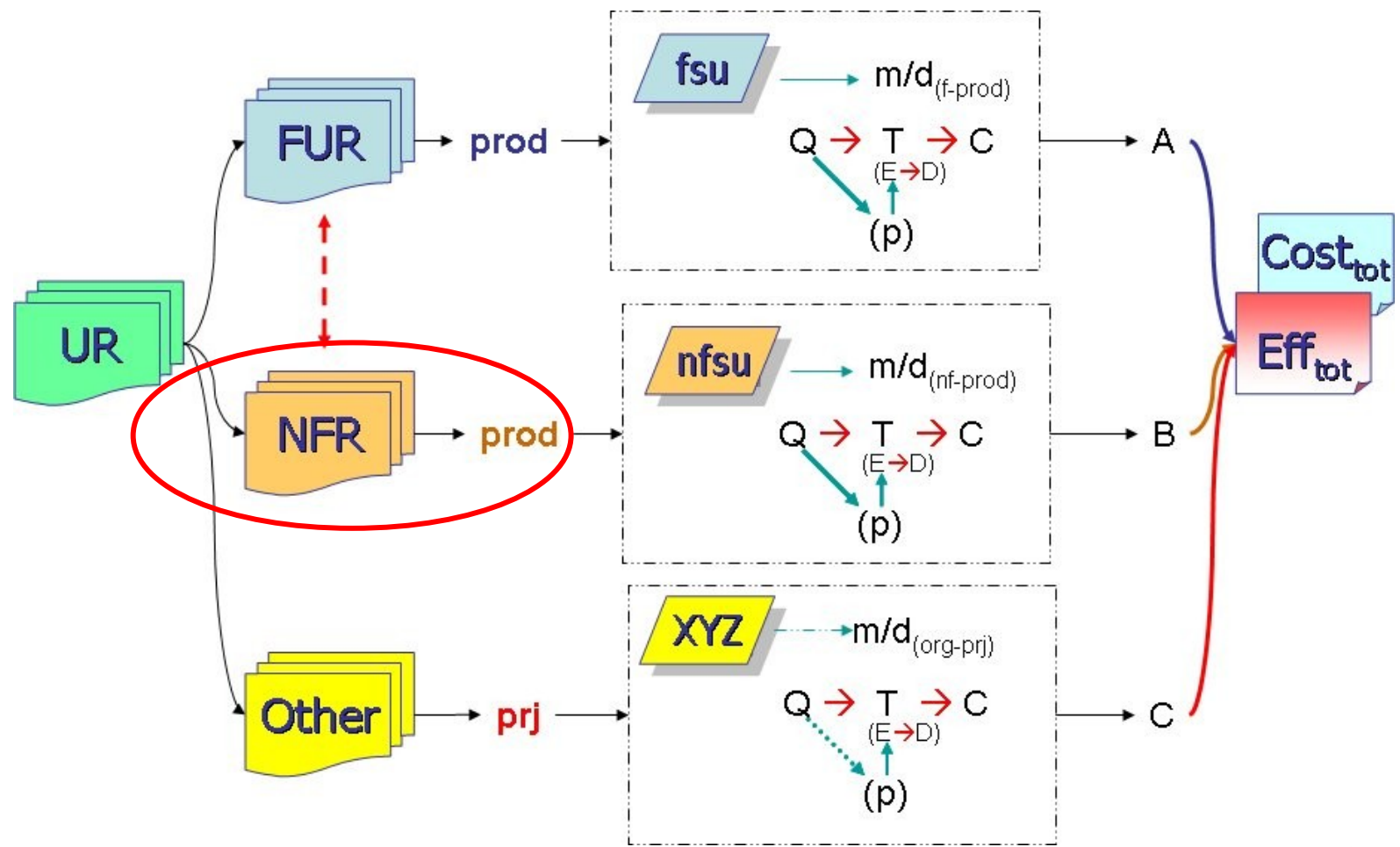
- ✓ IT systems with higher tech-levels contain a higher % of NFRs → fundamental to properly determine boundary/scope (cfr. COSMIC)
- ✓ Using only FSM-based measures can underestimate the overall **project** effort (→ don't forget that any FSM method sizes only **product** FURs)



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Source: Buglione L., The Next Frontier: Measuring and Evaluating the Non-Functional Productivity, MetricViews, IFPUG Newsletter, Vol.6 Issue No.2, August 2012, pp.11-14, <http://www.ifpug.org/metricviews/>





IFPUG for NFR → **SNAP**

Software

Non-functional

Assessment

Process

- New NFR Sizing Method
 - ✓ Unit of measure: **SP** (SNAP Points)
 - ✓ Independent from FP (from FURs)
 - ✓ Supersedes the VAF concept
 - ✓ ...it's a start!





APM v2.2: Categories (4) & Sub-Categories (14):

1. Data Operations

- a. Data Entry Validation
- b. Logical & Mathematical Operations
- c. Data Formatting
- d. Internal Data Movements
- e. Delivering Added Value to Users by Data Configuration

2. Interface Design

- a. UI Changes
- b. Help Methods
- c. Multiple Input Methods
- d. Multiple Output Methods

3. Technical Environment

- a. Multiple Platform
- b. Database Technology
- c. Batch Processing System

3. Architecture

- a. Component Based Sw Dev (CBSD)
- b. Multiple Input/Output Interface



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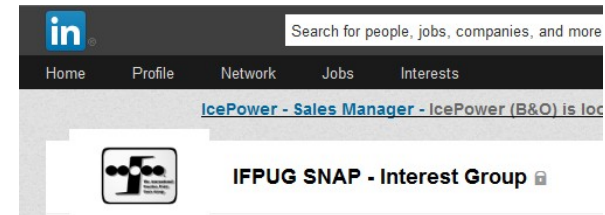
- **APM is available at IFPUG site**
 - Copyrighted under Creative Commons
 - This means it is for free
 - Order it in the IFPUG.ORG store at **no cost**
- **SNAP Quick Reference Guide (Free)**
- **SNAP Collection Tool (Free)**
- **IFPUG CSP exam (Certified SNAP Practitioner)**
- **Case studies**
- **TTT Deck**
 - Several companies are now licensed to train SNAP
- **SNAP workshop**
- **Planned:**
 - SNAPTips – every month
 - More case studies



SNAP INTEREST GROUP

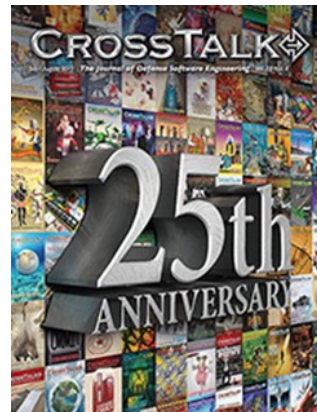
Group | 106 members | 9 resources | 22 discussions

Post your questions and comments regarding



★ [SNAP Counting tool V2.0.1](#)
No rating yet | 28 downloads | Mar 27, 2013 | Talmon Ben-Cnaan

★ [SNAP Counting tool V2.0.2_Excel2003](#)
No rating yet | 56 downloads | Mar 27, 2013 | Talmon Ben-Cnaan



SNAP Case Study 1

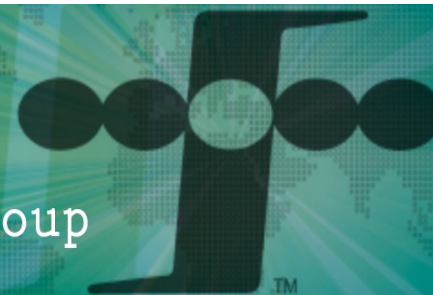
Merchandise

Member: **\$50.00**

Non-Member: **\$75.00**



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Bradesco



GDF SVEZ





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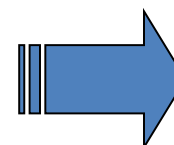
- Nominal Productivity $\frac{fsu_{FUR-prod}}{Effort_{prj}}$
- Funct+ Non-funct Productivity $\frac{fsu_{FUR-prod}}{Effort_{FUR-prod}} + \frac{nfsu_{NFR-prod}}{Effort_{NFR-prod / Org-Prj}}$
- Funct + Non-funct + Org Productivity $\frac{fsu_{FUR-prod}}{Effort_{FUR-prod}} + \frac{nfsu_{NFR-prod}}{Effort_{NFR-prod}} + \frac{XYZ_{Org-Prj}}{Effort_{Org-Prj}}$

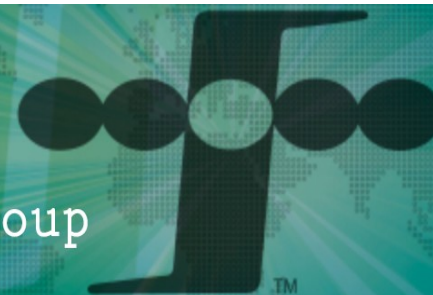




Refining WBS/Gantt (1)

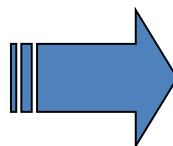
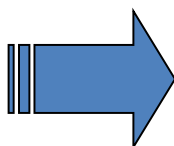
ID		Task Name	Work
1		'Splitting Effort' Project	278 hrs
2		Project Management	19 hrs
8		Quality Assurance (QA)	9 hrs
11		Analysis	38 hrs
17		Design	72 hrs
23		Construction	80 hrs
27		V&V	56 hrs
30		Release	4 hrs





Refining WBS/Gantt (2)

ID		Task Name	CMMI-DEV PA	CMMI-DEV Process Group	Req. Type	Work	FUR-related Effort	NFR-Prj related Effort
1		'Splitting Effort' Project				278 hrs	0	0
2		Project Management				19 hrs	0	0
3		Planning	PP	Prj Mgml	Org-Prj	16 hrs	0	16
4		Monitoring & Control				3 hrs	0	0
5		Meeting #01	PMC	Prj Mgml	Org-Prj	1 hr	0	1
6		Meeting #02	PMC	Prj Mgml	Org-Prj	1 hr	0	1
7		Meeting #...	PMC	Prj Mgml	Org-Prj	1 hr	0	1
8		Quality Assurance (QA)				9 hrs	0	0
9		Product QA	PPQA	Support	NFR	6 hrs	0	6
10		Process QA	PPQA	Support	Org-Prj	3 hrs	0	3
11		Analysis				38 hrs	0	0
12		Req. Elicitation	RD	engineering	FUR	20 hrs	20	0
13		User Requirements				18 hrs	0	0
14		UIR - functional	RD	engineering	FUIR	8 hrs	8	0





Refining WBS/Gantt (3)

ID	Task Name	CMMI-DEV PA	CMMI-DEV Process Group	Req. Type	Work	FUR-related Effort	NFR-Prj related Effort
1	'Splitting Effort' Project				278 hrs	0	0
2	Project Management				19 hrs	0	0
3	Planning	PP	Prj Mgmt	Org-Prj	16 hrs	0	1E
4	Monitoring & Control				3 hrs	0	0
5	Meeting #01	PMC	Prj Mgmt	Org-Prj	1 hr	0	1
6	Meeting #02	PMC	Prj Mgmt	Org-Prj	1 hr	0	1
7	Meeting #...	PMC	Prj Mgmt	Org-Prj	1 hr	0	1
8	Quality Assurance (QA)				9 hrs	0	0
9	Product QA	PPQA	Support	NFR	6 hrs	0	E
10	Process QA	PPQA	Support	Org-Prj	3 hrs	0	E
11	Analysis				38 hrs	0	0
12	Req. Elicitation	RD	engineering	FUR	20 hrs	20	C
13	User Requirements				18 hrs	0	0
14	UR - functional	RD	engineering	FUR	8 hrs	8	C
15	UR - nonfunctional	RD	engineering	NFR	6 hrs	0	E
16	FP-sizing	MA	Support	NFR	4 hrs	0	4
17	Design				72 hrs	0	0
18	Functional Specification	RD	engineering	FUR	28 hrs	28	C
19	Architectural Specification	RD	engineering	NFR	14 hrs	0	14
20	Test Plan				30 hrs	0	0
21	TP - Functional part	VER	engineering	FUR	12 hrs	12	C
22	TP - Non-functional part	VER	engineering	NFR	18 hrs	0	1E
23	Construction				80 hrs	0	0
24	Construction	TS	engineering	FUR	52 hrs	52	C
25	Customization	TS	engineering	NFR	12 hrs	12	C
26	Fixing bugs	TS	engineering	FUR	16 hrs	16	C
27	V&V				56 hrs	0	0
28	Black-box	VER	engineering	FUR	20 hrs	20	C
29	White box	VER	engineering	NFR	36 hrs	0	3E
30	Release				4 hrs	0	0
31	Release F-xyz	VAL	engineering	NFR	4 hrs	0	4

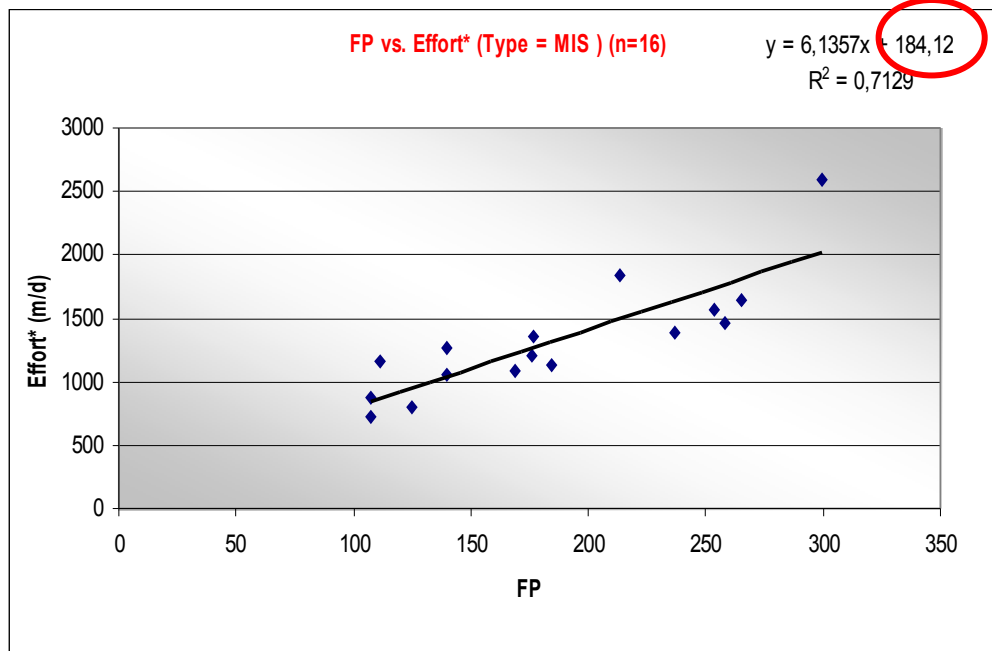
Abs and % of...

...effort FUR/NFR/Org-related
(here an example using CMMI-DEV v1.3 process areas)





$$y = ax + b$$



- Note: the higher the “b” constant, the higher NFR contribution, the worst R^2

- ...thus, **let's measure *nfsu*!**

- MS-Excel does not offer a 3D graph for multiple regression. However, we still get numerical results

$$y = ax_1 + bx_2 + c$$

...whatever the *fsu* and *nfsu* chosen!





- **FUR vs NFR**
 - UR needs to be properly elicited and decomposed towards the EP level
 - Avoid the ‘scope creep’!
 - Not only product, but also project-related URs (‘ABC’ schema)
- **NFR and SNAP**
 - The IFPUG way to size NFR (nfsu)
 - Current APM v2.2
 - What’s currently available now
- **Measuring and Evaluating NFR Productivity**
 - It’s technically possible, just need to break down tasks in your WBS
 - Needed for “Zero FP” projects (corrective/adaptive maintenance)
 - **...let’s start and try!**



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Luigi Buglione @lbu_measure · 7 set

Which could be the proportion of #fur and #nfr in your own 'cup'? @gufpi_isma @ifpug @COSMIC_FSM @isbsg



Visualizza altre foto e video

https://twitter.com/lbu_measure



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Bedankt voor uw aandacht!
Thanks for your attention!



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For any further info...

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