

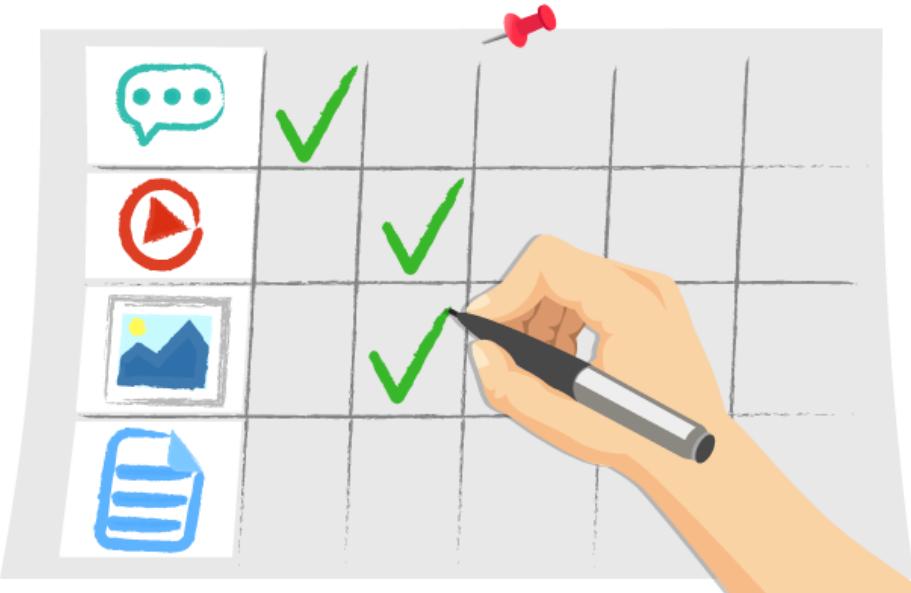
The ‘Planning Game’: how to better estimate your project moving from the right productivity levels



Luigi **Buglione**, June 11 2021

ISBSG 2021 webinars

<https://www.isbsg.org/isbsg-webinars/>





Goals of the presentation

- ✓ **G1.** How ISBSG repositories can help you to derive a reference productivity range for your project, observe the way 'effort' is managed throughout the lifecycle phases
- ✓ **G2.** Show the 'Planning game' technique and its (business) objective, suggesting a balanced distribution of the project effort adding the requirement types ('ABC schema')
- ✓ **G3.** Understand how to 'play' the 'Planning Game' in an iterative way, obtaining a balanced effort and cost in order to achieve better business results



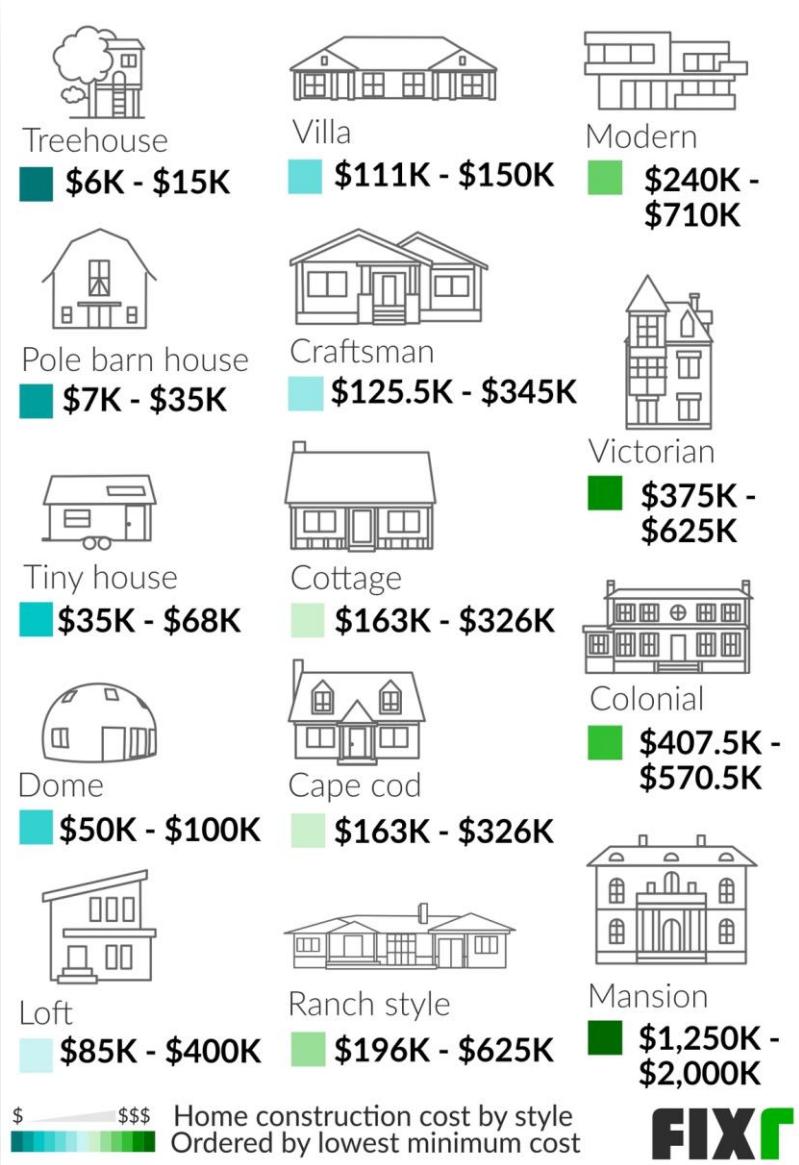


Which should be the scope of our interest?



Planning Game

If Function Points were as «square meters»...they shouldn't include the «how»...



...is it possible that the price/FP is invariant whatever the «technology»?
Is it true? Let's try to understand a bit more...

- https://www.europarl.europa.eu/doceo/document/TA-9-2020-0102_EN.html
- FPA: both IFPUG v4.3.1 unadjusted as well as COSMIC v4.0.1
- SNAP: mentioned for sizing NFRs
- ...But adopted several variants for the calculation...

eu-LISA PUBLIC
TEF – LOT 2 PRICING MODEL GUIDELINES – 17

3.4 Boundary and users definition

3.4.1 Boundary

Boundaries are set by the Contracting Authority and are communicated during the re-opening of competition, as part of the project documentation.

Whenever COTS (package application) are used in the offer by either the Contractor or by the Contracting Authority, the COTS is usually to be considered inside the boundary (unless stated otherwise) and the fulfilment of the corresponding functional requirements together with the sizing in Function Point of the corresponding elements must take into account the classification from the Interfacing factor as described in section 3.7.3.

Testing and interfacing with COTS are still to be performed when a "developed" function point has to be interfaced with a COTS feature. Therefore, the interfacing factor shall be used in order to significantly decrease the interfacing cost compared to a fully developed & tested function point. Please refer to section 3.7.3 for further details on the interfacing factor.

3.4.2 User

Unless stated otherwise by the Contracting Authority during re-opening of competition:

- The users are to be considered only as business end-users.
- Contracting Authority staff (system, network, database, application Administrators, Testers, Service Desk Operators or any technical team) or Contractor Staff is not considered as final users.
- The development of the supporting tools (aka test tools, not limited to but for example: JMeter, Test Data Generator, monitoring console, business dashboard, stub, simulator) are not part of neither the A&D FP price nor the D&UT FP price.



3.6.2 FP size of Scope Changes

The size of the change shall be calculated as (please refer to section 3.7.4 and 3.7.2 for further details about the types of FP):

$$\text{Change FP size} = \text{Change FP New} + \Delta\text{FP Modified} + \text{Change FP Deleted}$$

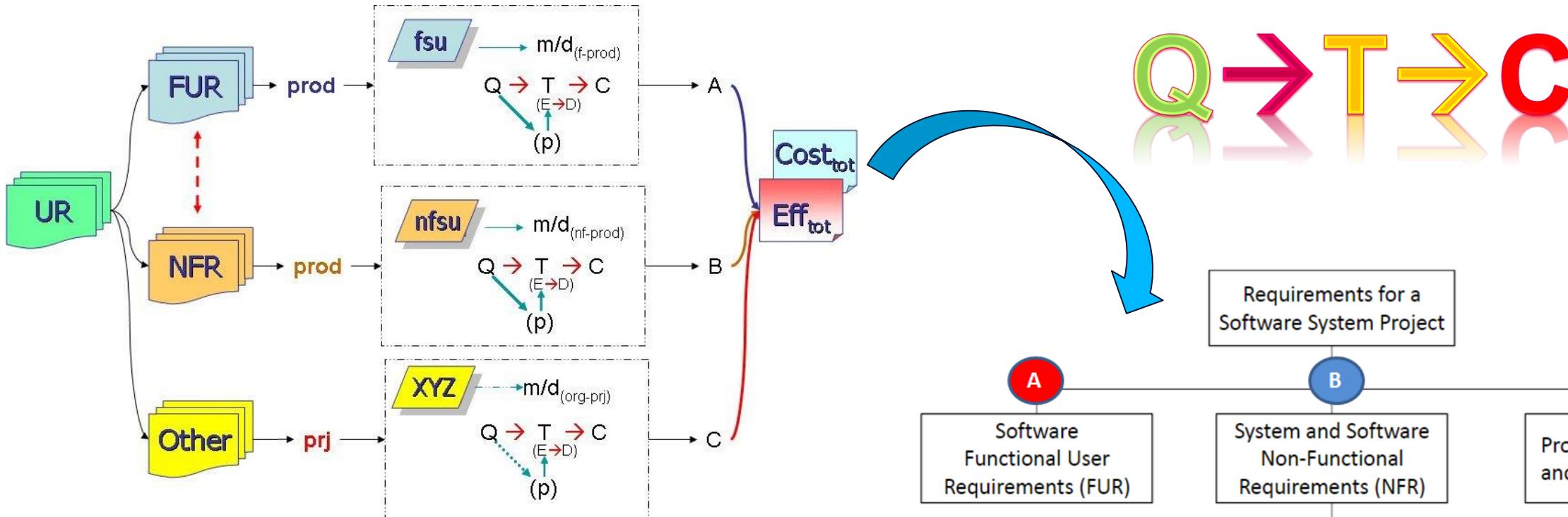
Where $\Delta\text{FP Modified}$ measures the difference in size of the modified FP. This value could be both positive and negative. It shall be considered when the change affects the complexity of the modified function points otherwise its value will be 0.

$$\Delta\text{FP Modified} = \text{Change FP Modified Size} - \text{FP Modified Size}$$

With:

- Change FP Modified Size: size of the FP modified with the change;





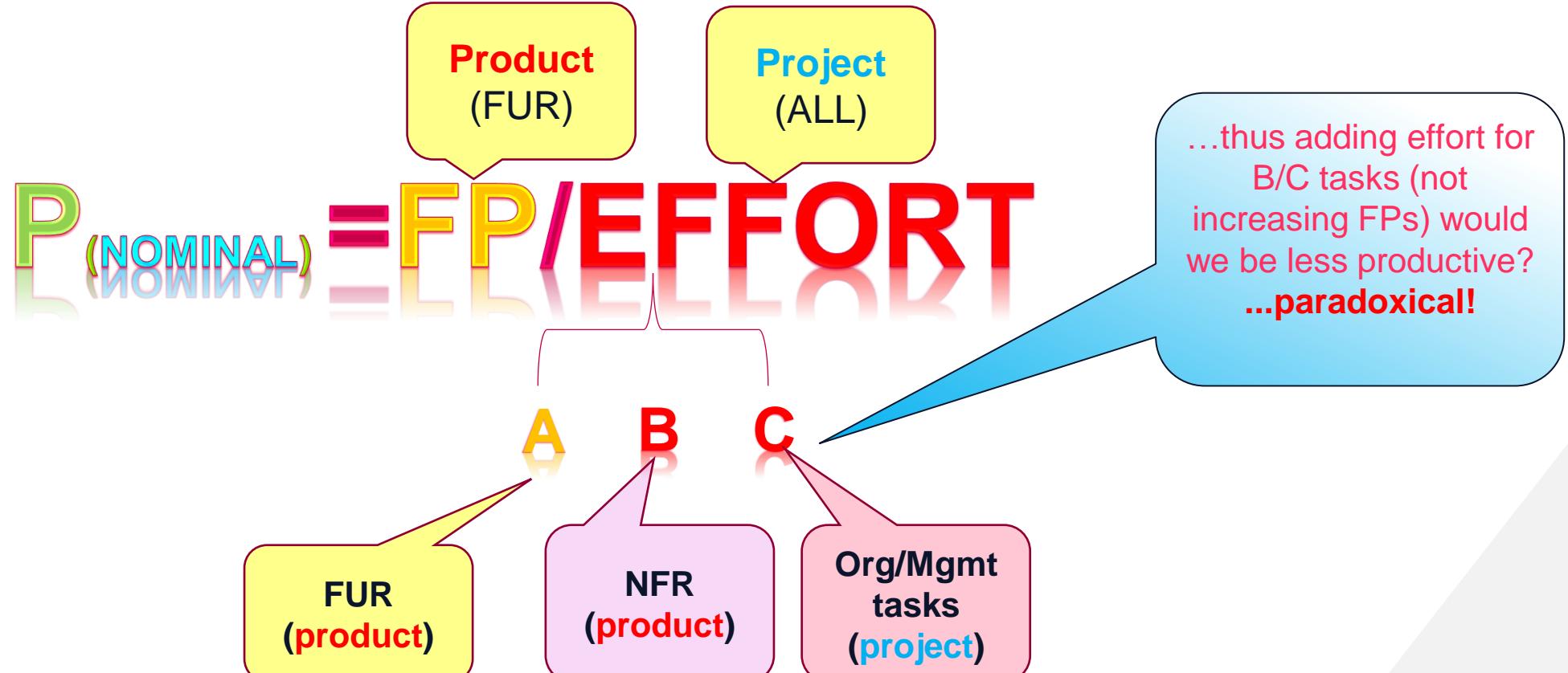
URL: IFPUG MetricViews, Vol 6, No.2, Aug 2012 – <http://goo.gl/hgrJt>

- How can the ABC schema help when planning a project?
- Would we respect constraints about time, cost and productivity?
- Which is the effort% related to (whatever kind of) Function Points against the whole project effort?
- Which economic margins/losses could we obtain moving from «market prices»?

URL: IFPUG /COSMIC, Glossary of NFRs, 2015 – URL: <http://www.ifpug.org/cosmic-and-ifpug-glossary-of-terms/>



$$P = Q/T$$



? Which should be the scope of our interest?



UNIT COST = C/Q

Project (ALL)
Fixed Costs +
Variable Costs

Product
(FUR)

...thus a Sw functional
sizing unit (FP) should
pay the whole project
even if they don't have
a direct relationship?
...paradoxical!

COST/FP

A B C

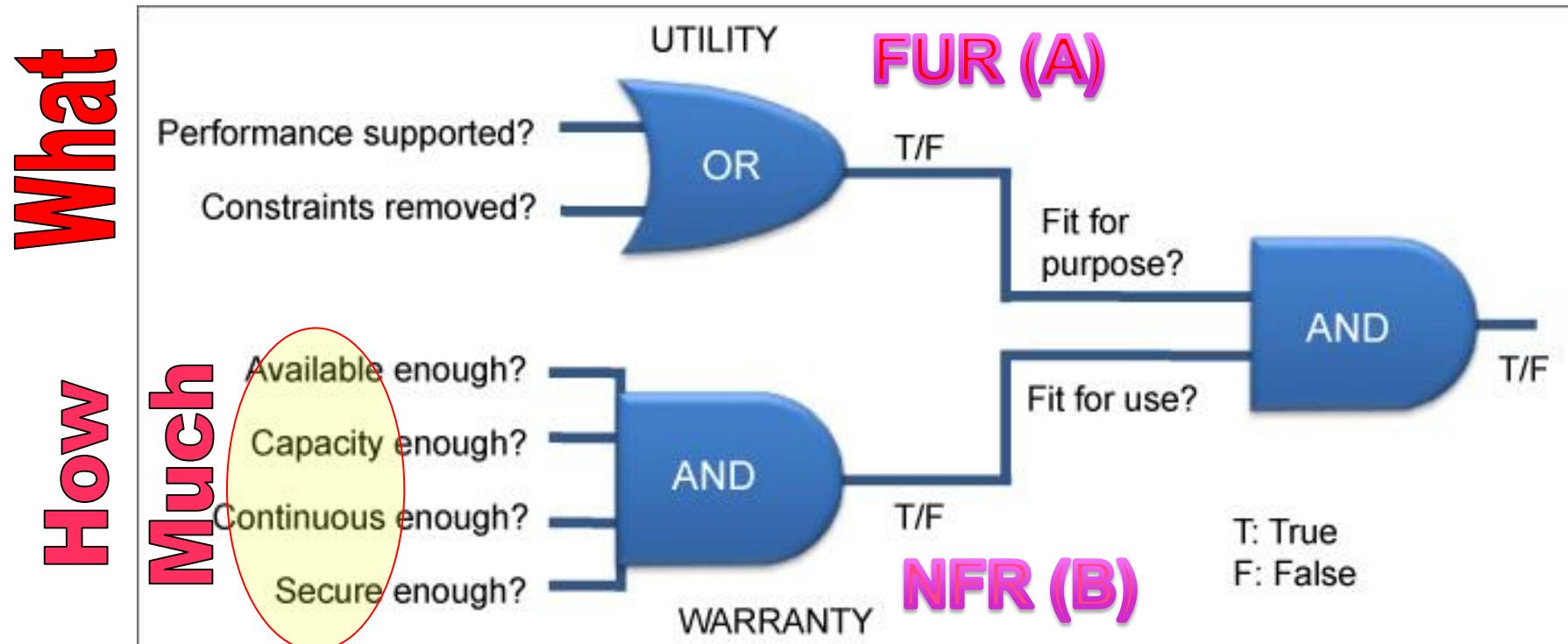
FUR
(product)

NFR
(product)

Org/Mgmt
tasks
(project)



- **Value = Utility + Warranty**



ITIL[®] 4

- Service is...a means of enabling value co-creation by facilitating outcomes that customers want to achieve, without the customer having to manage specific costs and risks (*ITIL4, Glossary*)



Rome (Italy), May 25, 2017

- «...*Function Points are one of the reasons why a project is delivered...and nobody uses it...*»
- *Are we dealing with a product or a service? ...e why? Thus where is the issue? Is it related to the high-level requirements? Is it related to Stakeholders? Let's come back a while...*



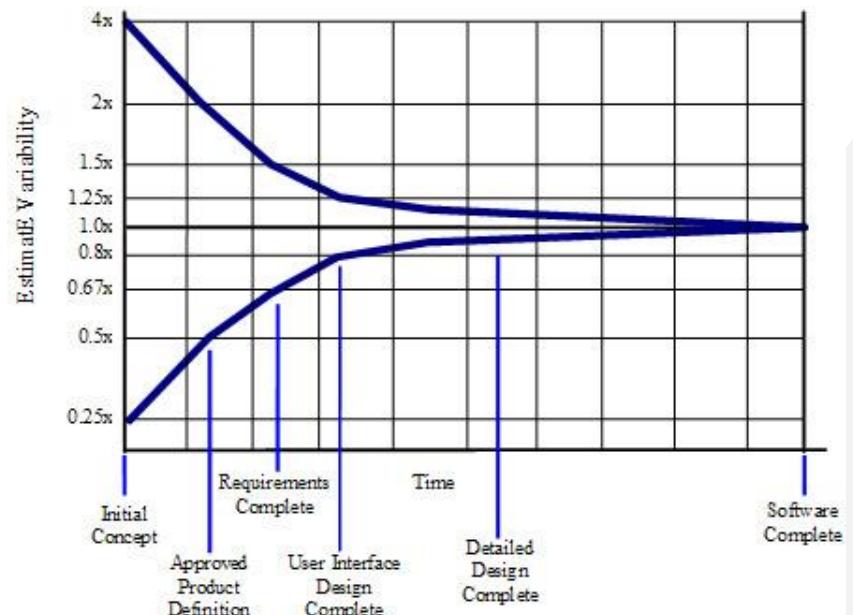


Implicit



$$RE = (S-C)/C$$

NFR are often «yellow» and/or «red»

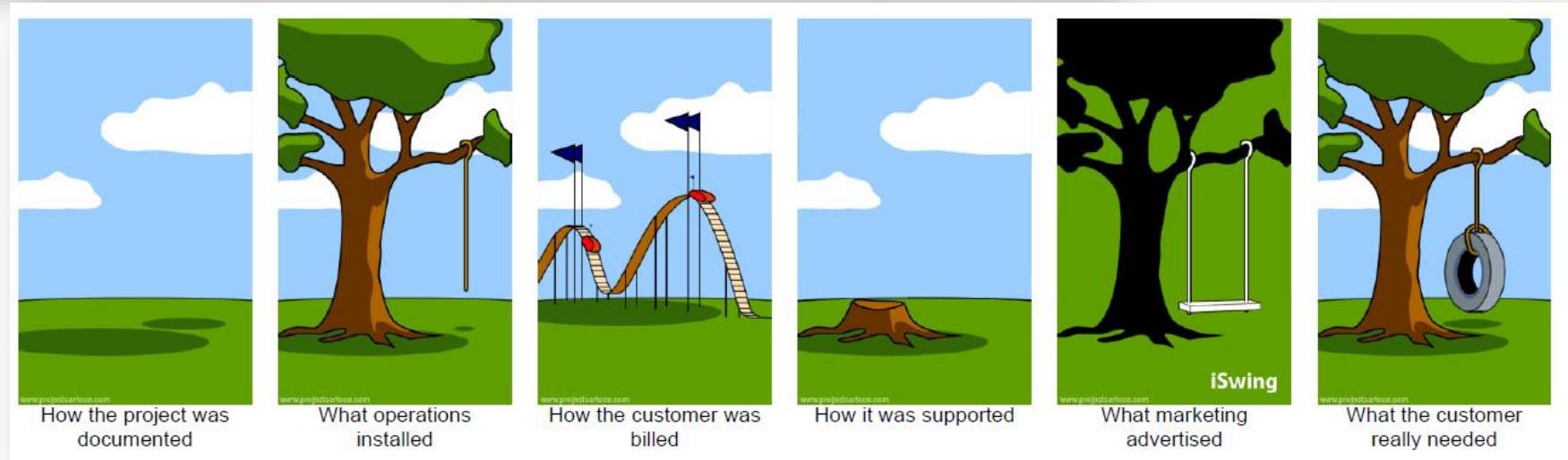
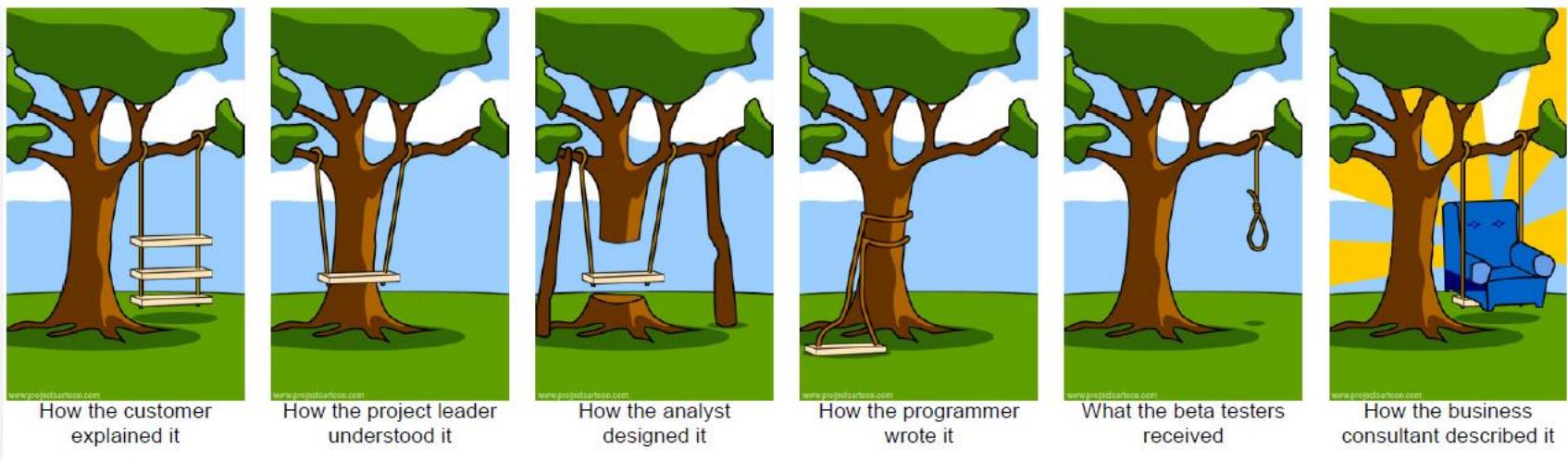


Maximize the 'green' zone, reduce the yellow/red zones...but who's managing requirements in a project? Which stakeholders should be involved?



Planning Game

Co-Creating Value (several Stakeholders)



• URL: www.projectcartoon.com



Planning Game

Co-Creating Value (several Stakeholders)?

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Notizia 14/10/2020 Procedura selettiva pubblica finalizzata all'acquisizione di manifestazi...

Notizia 13/10/2020 Incremento delle prestazioni di invalidità civile (invalidi totali e tit...

Notizia 13/10/2020 Covid-19, rateizzazione contributi sospesi: nuova scadenza domanda

Notizia 06/08/2020 Dal 1° ottobre il PIN INPS va in pensione

740 73

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- Lavoratori migranti
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PASSWORD inserisci password

Hai dimenticato il nome utente o la password?

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Indicatori Area Dati FAQ

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Progetto i cui indicatori impegnano sull'indice europeo DESI (The Digital Economy & Society Index)

Identità SPID erogate

Ultimo aggiornamento: 13/10/2020

Numero di identità SPID erogate (numero aggregato, totale dei gestori)

Numero totale

11.681.368



- ...the ones from your own (Q)MS
- ...otherwise refer to «external» models (e.g. best practice such as RUP, CMMI, ITIL, ...)



WIBAS CMMI BROWSER

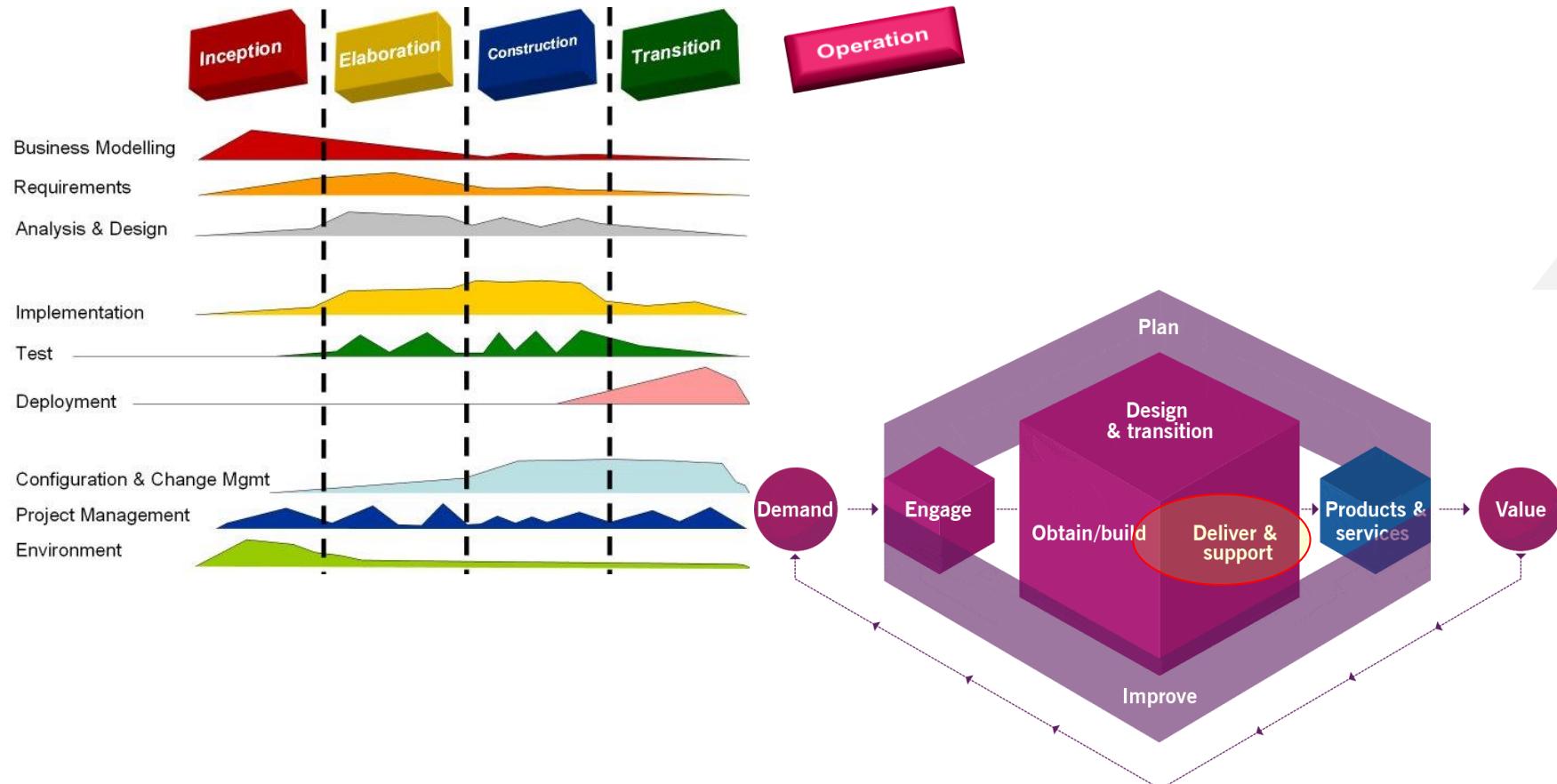
[CMMI for Development \(CMMI-DEV\) v1.3](#)

[CMMI for Acquisition \(CMMI-ACQ\) v1.3](#)

[CMMI for Services \(CMMI-SVC\) v1.3](#)

[CMMI für Entwicklung \(CMMI-DEV deutsch\) v1.3](#)

[Glossary](#)





ISMA 15

15th IFPUG International Software Measurement & Analysis (ISMA15) Conference
Rome (Italy) – May 9-11, 2018

The 'Balloon Effect'

How (an improper) Scope Management can impact from Size to Effort, Duration and Costs

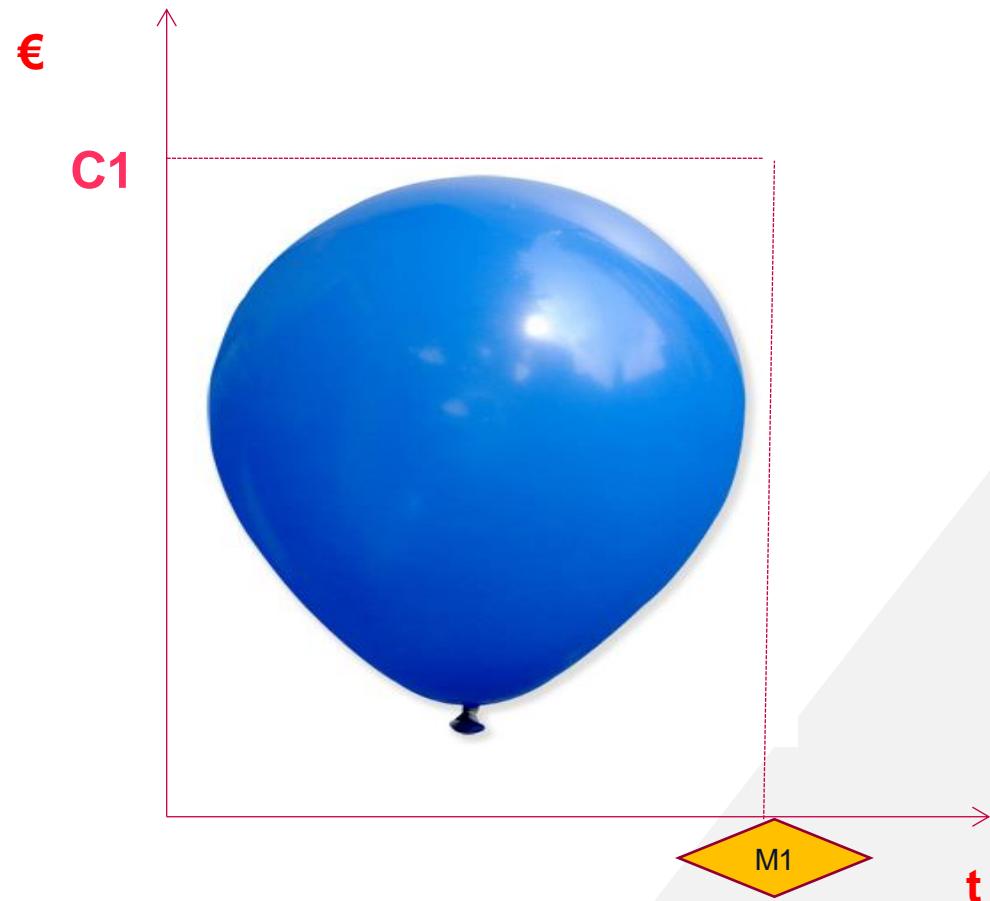
Luigi Buglione

<http://www.ifpug.org/isma15>

ISMA15 – May 9-11, 2018

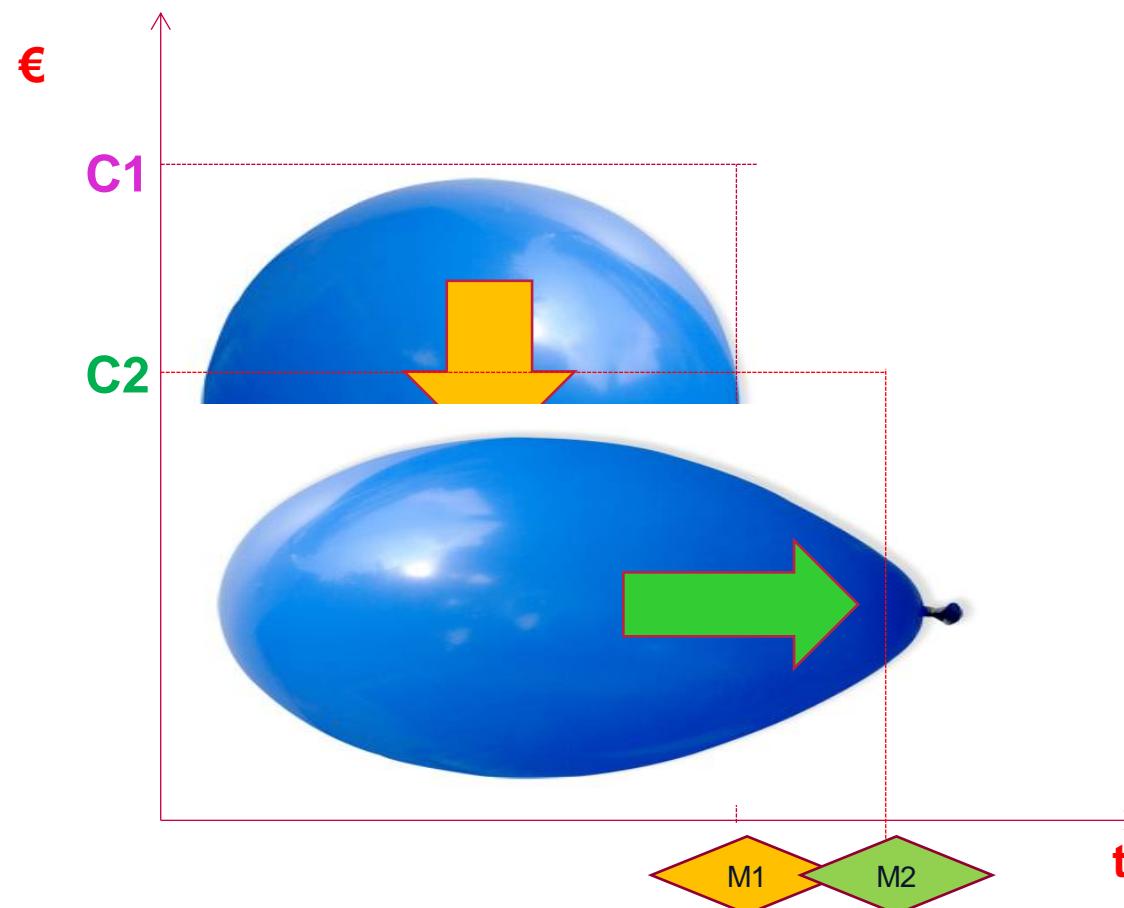


[1] The balloon area expresses effort (t) and costs (C_1) for a solution, defining a milestone (M_1) compatible with the engaged assets.

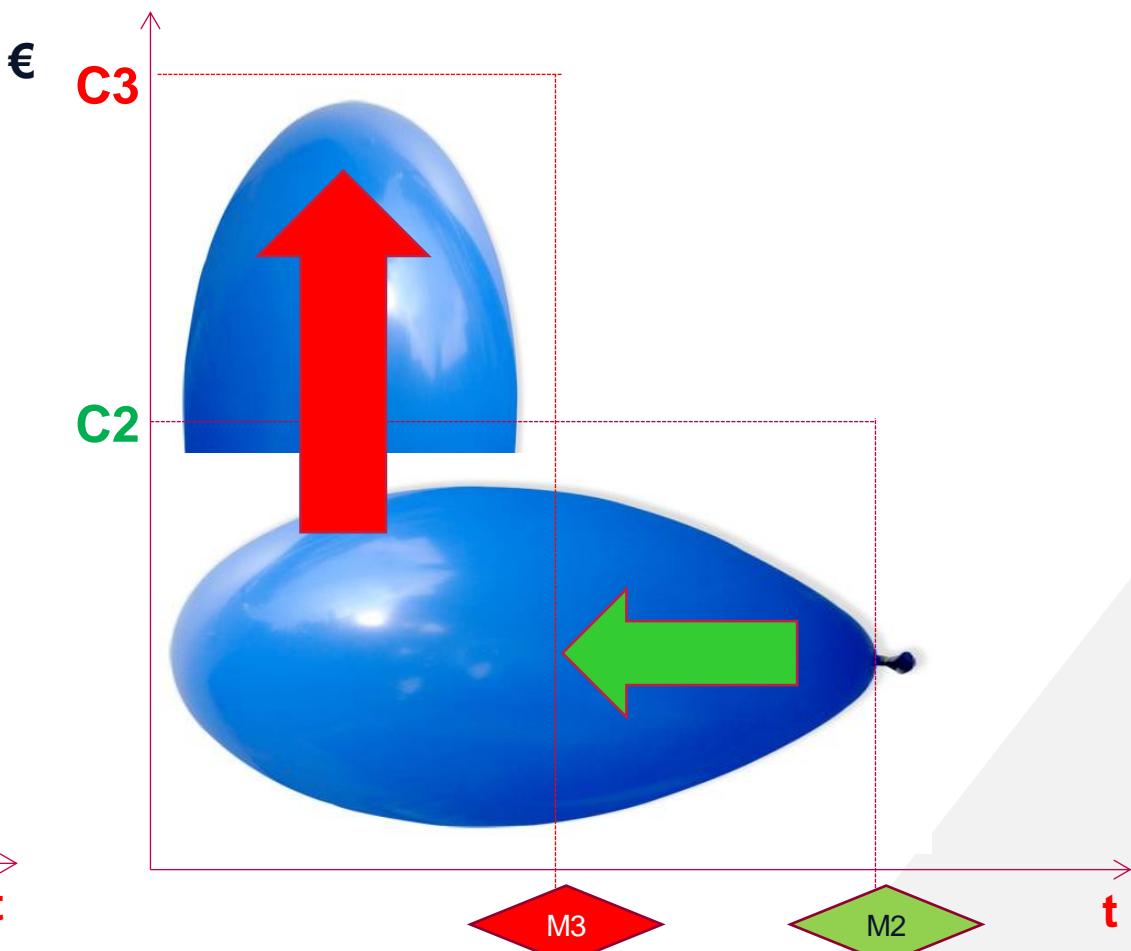




[2] In order to reduce effort/costs (**C2**) with the same 'area' (tasks), the milestone should be delayed ($M1 \rightarrow M2$)

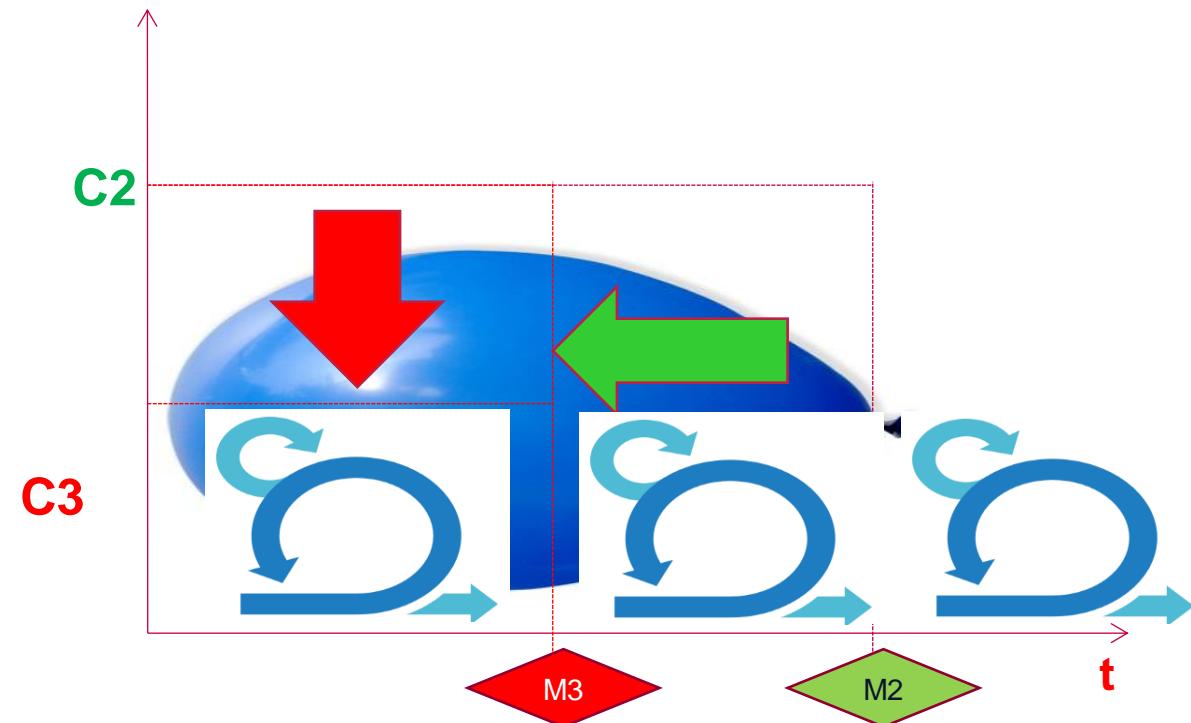


[3] ...but willing to anticipate the delivery/milestone ($M2 \rightarrow M3$), the amount of engaged assets should increase ($C2 \rightarrow C3$)

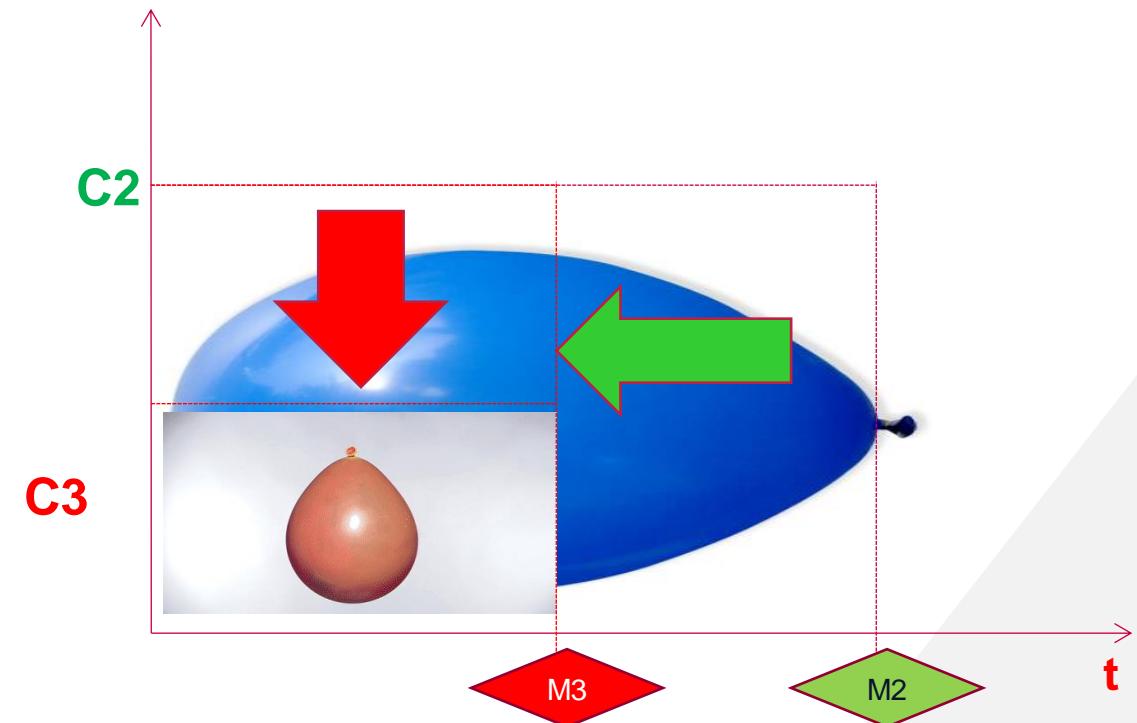




[4a] ...but willing to anticipate the delivery/milestone (M3) reducing at the same time costs (C3), it'd be possible to consider a project '**de-scope**', planning more Sprint/Iterations (agile)...



[4b] ...but willing to anticipate the delivery/milestone ($M2 \rightarrow M3$) reducing at the same time costs ($C2 \rightarrow C3$) **maintaining the same project 'scope'**, thus...





- **Q:** in a software project, what (and how much) are Function Points important? Let's move from the hypothesis of an 'end-to-end' lifecycle including ALL the possible activities...
- **A:** Let's include processes (and data) about a software product (not a project) for the solely functional side! Let's play to the 'Planning Game'...

| | | P=Q/T T=Q/p | | | | | | | | |
|------------|------|----------------|------|-----------------|-------|-------|--|---------|------|-------|
| | | P(n) | 2 | FP/gg-uu (java) | | P(f) | 3,09 | | | |
| | | FP* | 517 | | | | <th data-cs="2" data-kind="parent"></th> <th data-kind="ghost"></th> | | | |
| | | Effort* | 259 | gg/uu | | | <th data-cs="2" data-kind="parent"></th> <th data-kind="ghost"></th> | | | |
| | | Effort* | 2068 | hrs/uu | | Start | | | | |
| | | | 0 | Backlog | | | <th data-cs="2" data-kind="parent"></th> <th data-kind="ghost"></th> | | | |
| | | Duration | | | | | | | | |
| | | PM | QA | MiS | A/D | C | T | Release | Tot | % |
| A_FUR | | | | | 313 | 810 | 215 | | 1338 | 64,7% |
| B_NFR | | | | | 160 | 98 | 180 | | 438 | 21,2% |
| C_Proj | 200 | 60 | 20 | | | | | 12 | 292 | 14,1% |
| Tot | 200 | 60 | 20 | 473 | 908 | 395 | 12 | 2068 | | |
| % | 9,7% | 2,9% | 1,0% | 22,9% | 43,9% | 19,1% | 0,6% | 100% | | |



- Hp: Let's try with a MIS project with 'nominal' productivity of 2 FP/man-day...conversion to man-hours → possible sheet 'stime' (to-be)?
- A: only 64.7% of the total effort would be related to FP...why?

Which source of information about productivity? [ISBSG?](#)
Are the functional domain all the same?

• $\text{Prod}(N) = 1 / \text{PDR}$

| | P=Q/T T=Q/p | | | | | | P(f) 3,09 | | |
|----------|----------------|----------|-----------------|-------|---------|-------|--------------|------|-------|
| | P(n) FP* | 2 517 | FP/gg-uu (java) | | | | | | |
| Effort* | 259 | gg/uu | | | Start | | | | |
| Effort* | 2068 | hrs/uu | | | Backlog | | | | |
| Duration | 0 | | | | | | | | |
| A_FUR | PM | QA | MiS | A/D | C | T | Release | Tot | % |
| B_NFR | | | | 313 | 810 | 215 | | 1338 | 64,7% |
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| % | 9,7% | 2,9% | 1,0% | 22,9% | 43,9% | 19,1% | 0,6% | 100% | |

['Nominal' productivity and functional productivity? Click...](#)

The game will finish when the backlog is over...

Which impact on costs, revenues and margins?



Best Practices Contrattuali – Vol. 1: Principi ed Assunzioni

GUFPI-ISMA



GUFPI ISMA

Gruppo Utenti Function Point Italia - Italian Software Metrics Association



<https://www.gufpi-isma.org/area-riservata/documentazione-area-riservata/papbc/>

Principi, Assunzioni & Best Practice Contrattuali (PABPC) – Vol.1

v. 1.0

15. Service & Project Management – Metodologie & Cicli di Vita

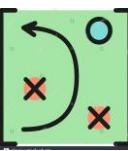
1. Ogni progetto deve dichiarare espressamente quali metodologie e cicli di vita intende applicare.
 - a. Agile vs tradizionali – nessuno è meglio, scegliere quello che abbia un fit migliore rispetto alle caratteristiche dei progetti esaminati
 - b. FSM/NFSM e Agile: è possibile! [25][26] – la quantità (Q) non è impattata dal tipo di scelta, diversamente dai tempi/impegni (T) e costi (C) del progetto
2. Un servizio non corrisponde necessariamente ad un progetto.
 - a. Un servizio di norma ha una durata maggiore di un progetto. Un servizio è definibile come 'mezzo per erogare valore verso uno o più stakeholder' [29], mentre un progetto è definito come un "*impegno temporaneo intrapreso per creare un prodotto/risultato/servizio unico*" [27]. Temporaneo: un progetto ha una inizio ed una fine chiara e precisa. Unico: ogni progetto è unico anche se analogo ad altri. Possibili standard per l'IT Service Management (ITSM): ITIL [29], MOF [32], CMMI-SVC [33]
 - b. Possibili standard per il Project Management: PMBOK [27], PRINCE2 [34], SCRUM [35], DSDM [36]
3. Fasi/attività & Ciclo di Vita del Software (SLC) nei flussi A/B/C
 - a. Le tipiche fasi/macro-attività di un ciclo di vita di progetto da considerare per i diversi flussi sono indicate nella seguente tabella:

| Stream \ Fase-attività | PM/QA/Mis/CM.. | Analisi | Disegno | Codifica | Test | Collaudo | Manut |
|------------------------|----------------|---------|---------|----------|------|----------|-------|
| A (prod-FUR) | | X | X | X | X | | X |
| B (prod-NFR) | | X | X | X | X | | X |
| C (progetto) | X | | | | | X | |

 - b. Pertanto l'effort per un'attività relativa al Project Management (flusso C) va considerata in modo differente da una relativa all'analisi di un FUR (flusso A).
 - c. Una fsu non rappresenta una 'project size' bensì la (sola) dimensione funzionale di un prodotto software.

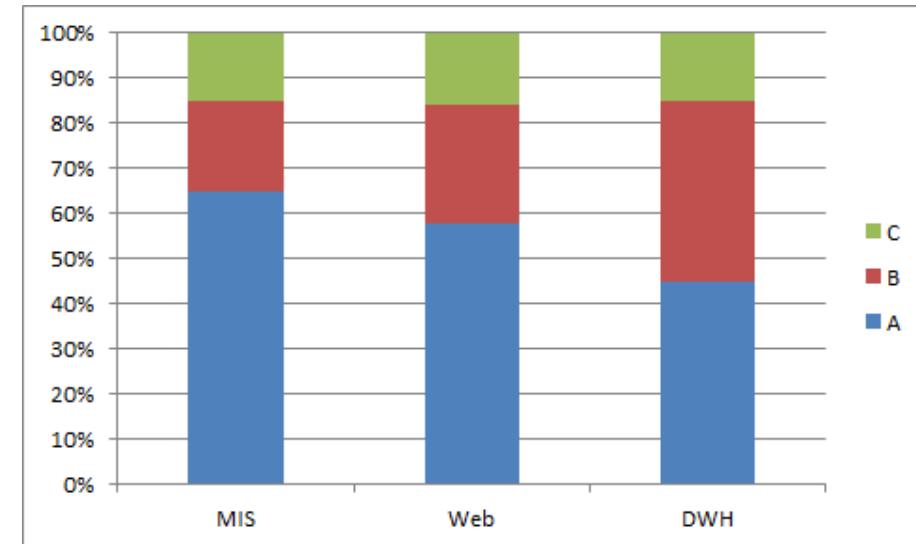
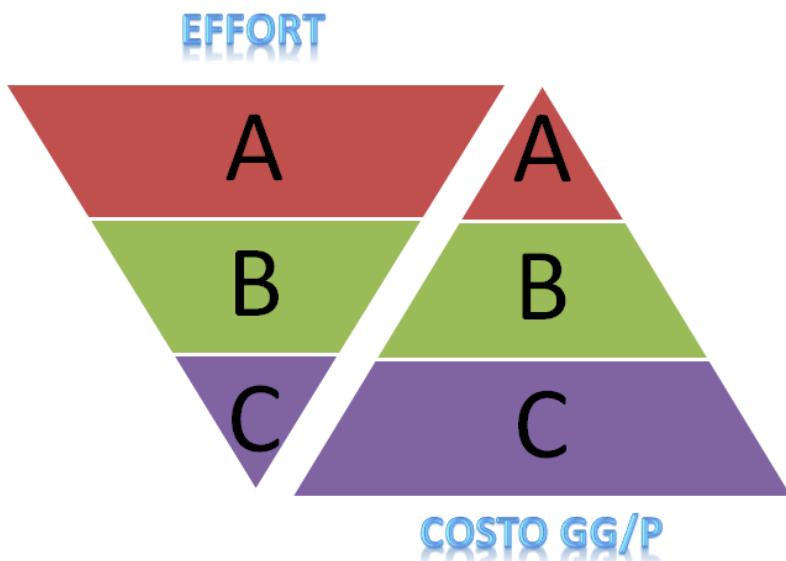
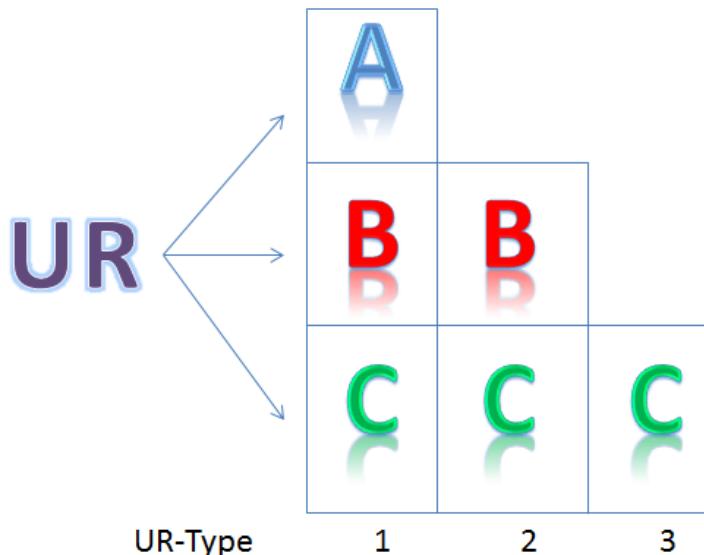
Planning Game

Let's try to play to the 'Planning Game'...



Two (2) hypothesis for ‘playing’:

- (1) compute the maximum possible effort calculated from the estimated number of FPs by a ‘nominal’ productivity value according to a reference technology (see [ISBSG D&E repository and/or PDQ tool](#))
 - (2) compute ‘nominal’ productivity levels moving from FP and effort estimations, classifying the activities included in your project Gantt according to the «**ABC schema**»



- Any project has a different ABC effort combination
 - cfr. ISO/IEC 14143-5:2004 ([Functional Domains](#))
- Hour/person and cost/m-d differs by requirement type (ABC) and skills/competence/experience
 - see *professional tarifs, internal industrial costs, ...*
 - See also [ECF](#), [SFIA](#), ...
 - An (A) profile (e.g. analyst/programmer) DOESN'T cost as well as a (B) profile (e.g. DBA, technical Specialist, ...) that DOESN'T cost as well as a (C) profile (e.g. project manager, measurer, QA, ...)
 - **How could we determine a 'standard' cost mix when every project – even if using Software Engineering technique – is «pure craftsmanship»?**

ZeroUno



| | |
|-------------------|--|
| CODICE PROGETTO | UNI1606040 |
| NUMERO NORMA | UNI 11621-6 |
| TITOLO ITALIANO | Attività professionali non regolamentate - Profili professionali per l'ICT - Parte 6: Profili professionali relativi alla gestione delle metriche e alla misurazione ICT |
| TITOLO INGLESE | Unregulated professional activities - ICT professional profiles - Part 6: Professional profiles related to ICT metrics and measurement |
| ORGANO COMPETENTE | UNI/CT 526 |
| CO-AUTORE | |
| SOMMARIO | <p>La norma definisce le professionalità operate da questi professionisti metri-azientali di progettazione. Tali figure utilizzano misure, derivare informazioni a partire da quelle misure per denunciare all'ottimizzazione dei processi di misurazione e di controllo.</p> <ul style="list-style-type: none"> ▲ 0 INTRODUZIONE <ul style="list-style-type: none"> 0.1 Il contesto 0.2 Introduzione alla norma e al relativo approccio metodologico 1 SCOPO E CAMPO DI APPLICAZIONE 2 RIFERIMENTI NORMATIVI 3 TERMINI E DEFINIZIONI ▲ 4 COMPITI E ATTIVITÀ SPECIFICHE DELLA FIGURA PROFESSIONALE <ul style="list-style-type: none"> 4.1 Generalità 4.2 Compiti e attività dello Specialista di Misurazione 5 CONOSCENZE, ABILITA' AUTONOMIA E RESPONSABILITA' ASSOCIAZIONALI APPENDICE A Appendice B Bibliografia |

Norma UNI

UNI 11621-6:2021

| Stato | Disponibilità | Ritiro | Azione | Lingua | Formato | Acquista |
|-------------------------------------|---------------|--------|--------|----------|--------------|----------|
| <input checked="" type="checkbox"/> | 29/04/2021 | | | Italiano | PDF (0.18MB) | 46,00 € |
| <input checked="" type="checkbox"/> | 29/04/2021 | | | Italiano | CARTA (16) | 46,00 € |

se ne hai diritto, verranno applicati automaticamente i seguenti sconti:

Sconto Soci UNI [Per saperne di più](#)

(più IVA di legge se applicabile al cliente)

Norma numero : UNI 11621-6:2021

Titolo : Attività professionali non regolamentate - Profili di ruolo professionale per l'ICT - Parte 6: Profili di ruolo professionale relativi alla gestione delle metriche e alla misurazione ICT

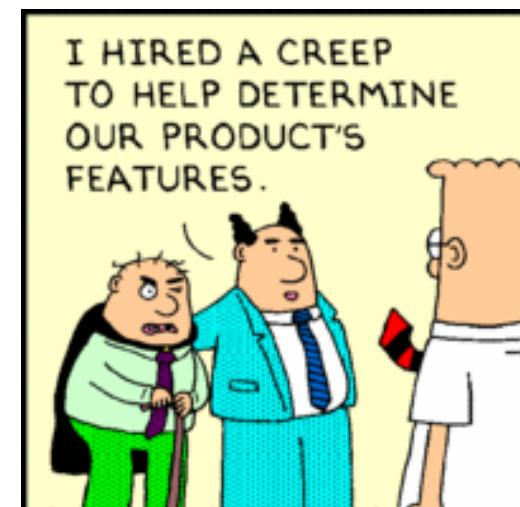
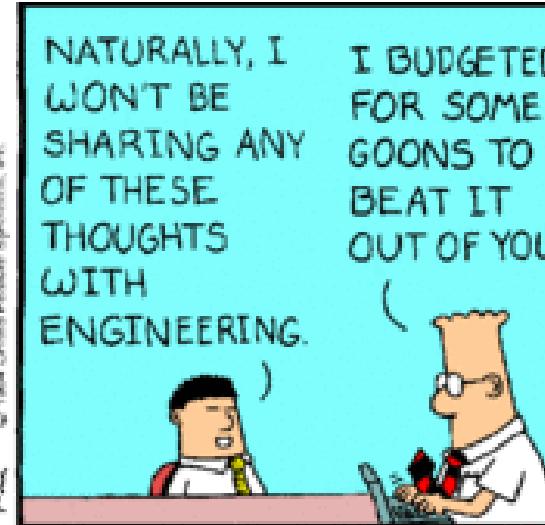
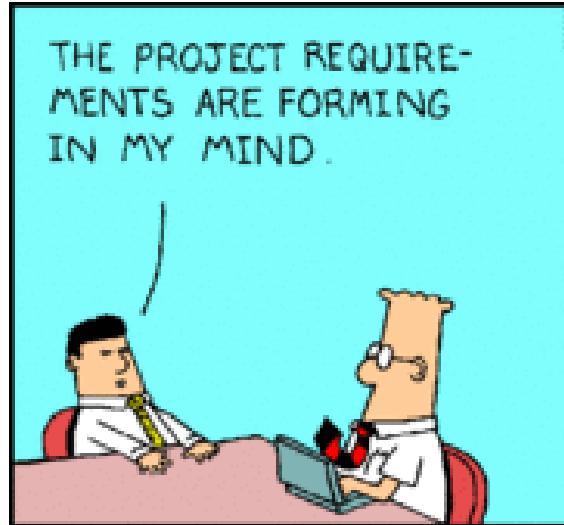
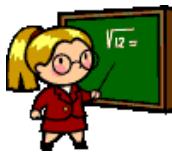
ICS : [35.020]

Stato : IN VIGORE

Commissioni Tecniche : [UNINFO Attività professionali non regolamentate]

Data entrata in vigore : 29 aprile 2021

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Thanks for the attention!



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