

SMEF 2009

Roma, 28/05/08

CSI-Piemonte

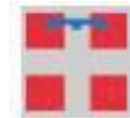
Gianfranco Lanza

Applications Development Department

Regional-based **inter-University Consortium**
and
Leading Italian **ICT operator**



Founded in 1977 by



Regione Piemonte
Piedmont Region



Università di Torino
University of Turin



Politecnico di Torino
Polytechnic of Turin

82 Consortium members



- ◆ 3 Promoter members
- ◆ All the 8 Provinces in Piedmont
- ◆ 34 Municipalities
- ◆ 1 Municipalities Association
- ◆ 8 groups of Associated Municipalities
- ◆ 19 Local Health Corporations and Hospital Corporations
- ◆ 7 Agencies
- ◆ University of **East Piedmont**
- ◆ **EDISU** - Regional Agency for the Right to the University Study

CSI for the “Piedmont System”

CSI

- ◆ promotes **INNOVATION** in local Public Administration through the use of **ICTs**
- ◆ helps the public sector to meet the **EXPECTATIONS** of **CITIZENS** and **ENTERPRISES**
- ◆ spreads the benefits of the Information Society to encourage **SOCIO-ECONOMIC GROWTH** of Piedmont

CSI for the “Piedmont System”

CSI

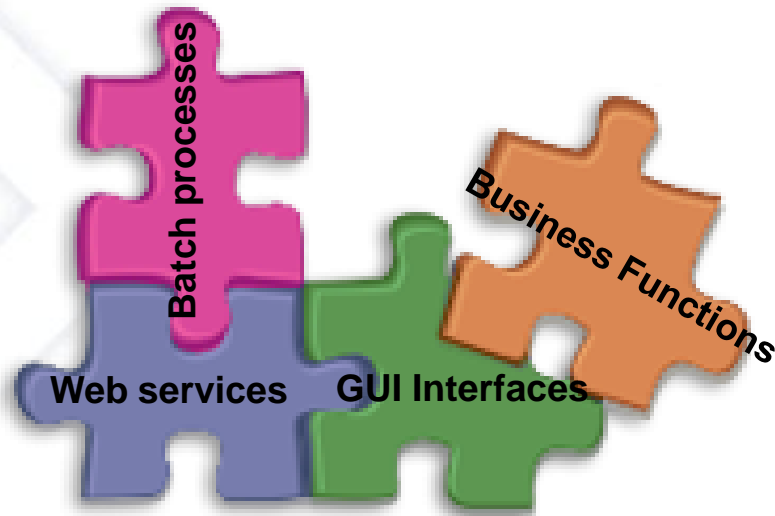
- ◆ Has been using Function Point since 2005 for the **functional dimensional sizing** of development and enhancement projects
- ◆ Has been using Function Point to regulate the relationship with its **suppliers**
- ◆ Has measured in Function Point (Ifpug and Cosmic) its application asset for “Comune di Torino” (more than 65000 ifpug and 15000 Cosmic)

CSI for the “Piedmont System”

CSI

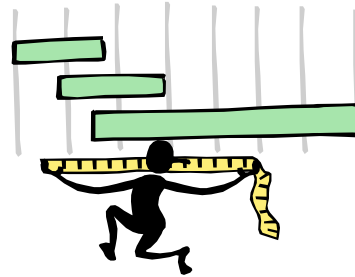
- ◆ Is collecting data to build a proper repository
- ◆ Is dimensioning, where possible, every product in Function Point with more counting during the life software development cycle
- ◆ Has a discrete level of maturity in Function Point obtained through training courses

- ◆ **Introduction**
- ◆ **The Elementary Process**
- ◆ **Case 1: Batch Processes**
- ◆ **Case 2: Reuse in SOA Applications**
- ◆ **Case 3: Complex Function**
- ◆ **Different dimensional metrics in the same application**
- ◆ **Conclusions**



Today applications are made by many modules: each one with its proper distinct characteristics and complexity.

Can we use **one single functional dimensional metric** for all the modules?



Or would it be better to use **different functional dimensional metrics**?



- ◆ **Introduction**
- ◆ **The Elementary Process**
- ◆ **Case 1: Batch Processes**
- ◆ **Case 2: Reuse in SOA Applications**
- ◆ **Case 3: Complex Function**
- ◆ **Different dimensional metrics in the same application**
- ◆ **Conclusions**

In order to determine the functional dimension of an application it is necessary to identify the **elementary processes**, independently by the metric used



The elementary processes are elementary units of **FURs** (Functional User Requirements)

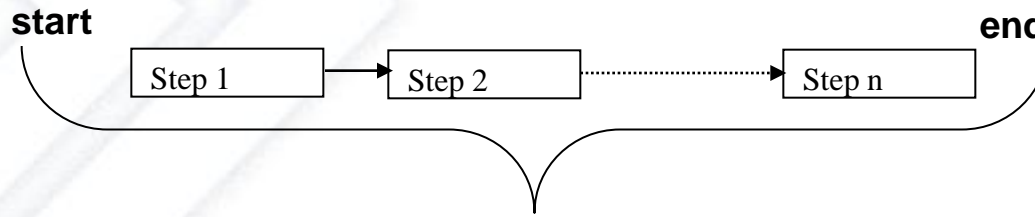
The elementary process is the smallest unit of activity, which satisfies all of the following:

- 1. it is meaningful to the user;**
- 2. constitutes a complete transaction;**
- 3. is self contained;**
- 4. leaves the business of the application being counted in a consistent state.**

Ifpug definition

- ◆ Introduction
- ◆ The Elementary Process
- ◆ **Case 1: Batch Processes**
- ◆ Case 2: Reuse in SOA Applications
- ◆ Case 3: Complex Function
- ◆ Different dimensional metrics in the same application
- ◆ Conclusions

In some cases a batch process is a stream of steps, each of them linked together to constitute a **unique elementary process**



In IFPUG Counting

one single Batch is
an EI or EQ or EO Transactional Function

Each Batch will be maximum **7 Function Point** .

At this value we could sum a portion of the Data Function
if it is not yet counted in other parts of the application

In COSMIC Counting

Each Batch is a Functional Process and there
is no limit to the number of its data movements,
minimum two Cosmic Function Point

Below the result of sizing in IFPUG and COSMIC Function Point of 32 stream batch processes

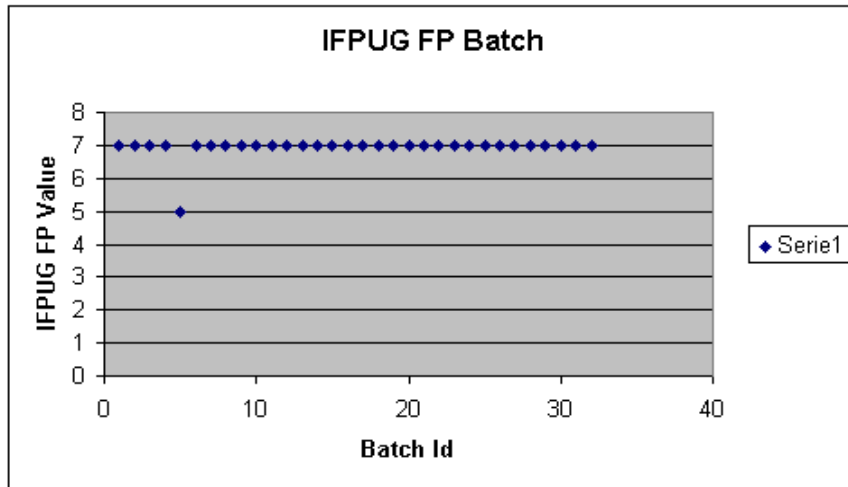


Figure 3 – Distribution of IFPUG FP Batch

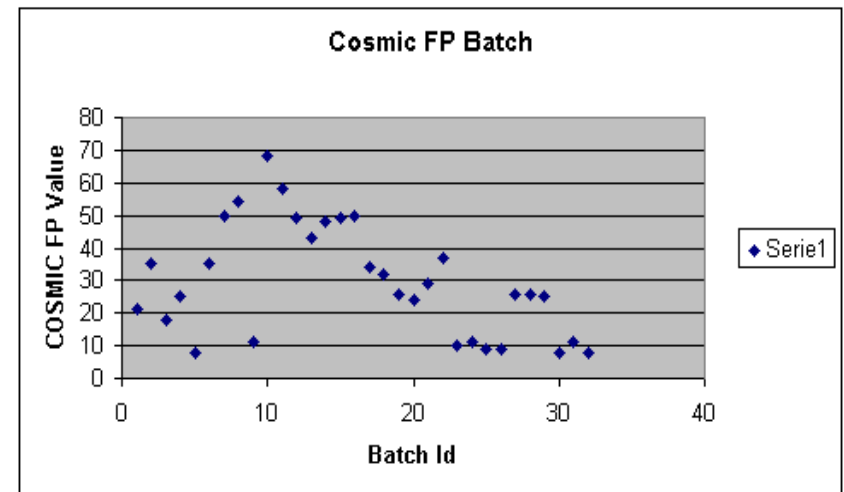


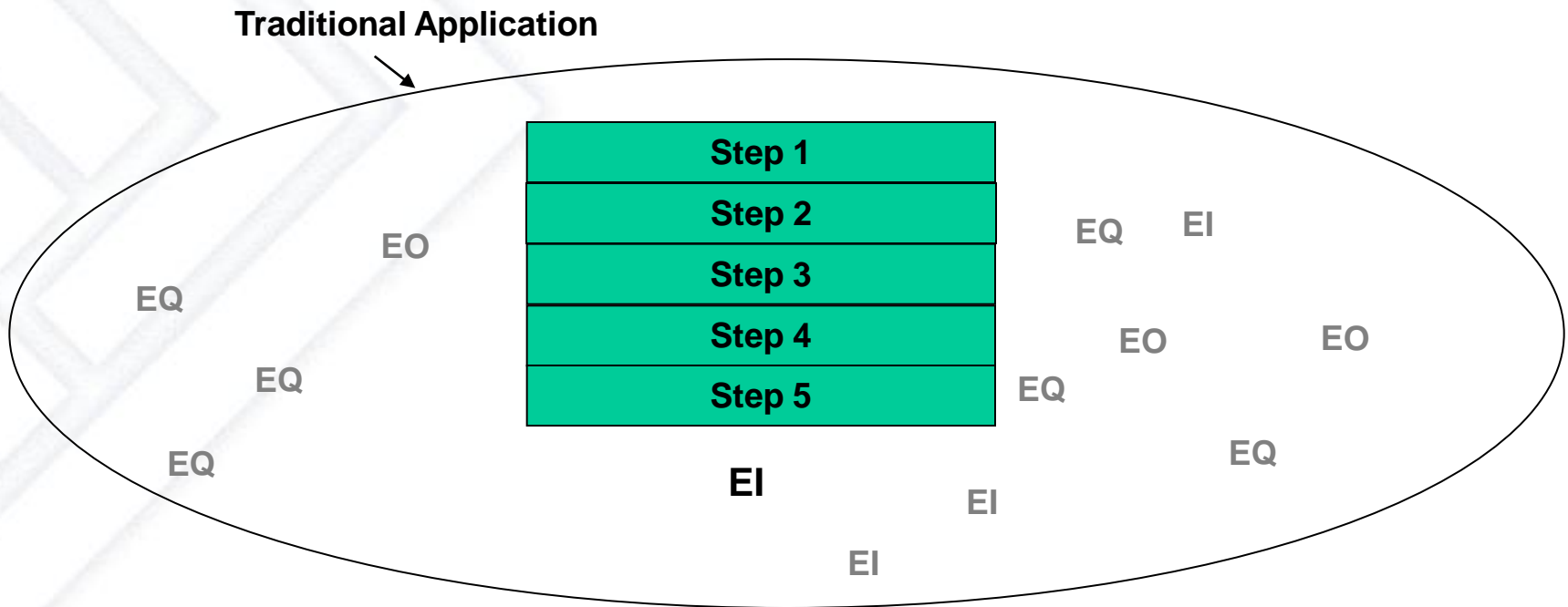
Figure 4 – Distribution of COSMIC FP Batch

Poorly significant

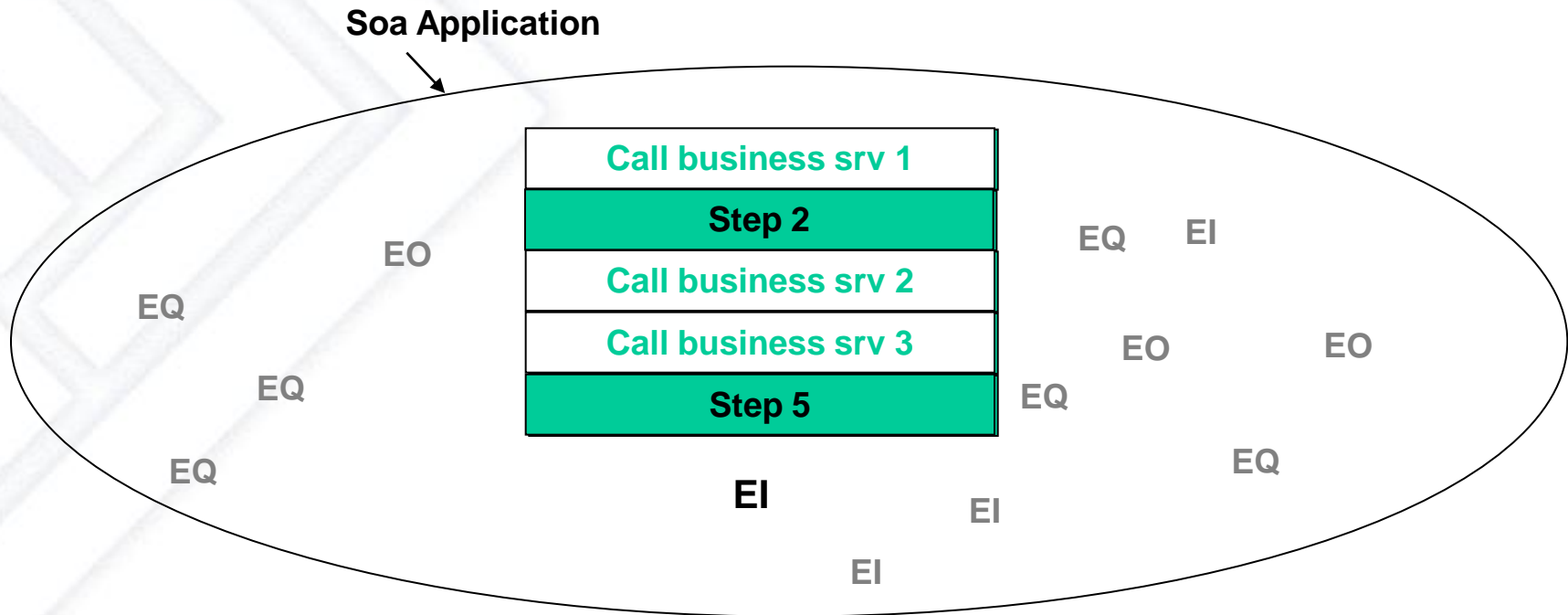
More significant

- ◆ Introduction
- ◆ The Elementary Process
- ◆ Case 1: Batch Processes
- ◆ **Case 2: Reuse in SOA Applications**
- ◆ Case 3: Complex Function
- ◆ Different dimensional metrics in the same application
- ◆ Conclusions

Business Services: dimensional reuse



Business Services: dimensional reuse



We can have an elementary process that call business services: how can we determine the amount of reuse? As a percentage of software?

Real case

FUR: inserting personal data into a register of birth.

During the elementary process the system has to control if the person is already present, if he is present in other registers of birth and so on.

The first operation of the elementary process is to control whether the user has the privilege to insert the person, otherwise an error message is displayed, then the system can proceed with the insert function.

The operation of inserting into the register of birth is done through a business service already done.

Elementary process:
Insert Data

Step 1: check privileges
Step 2: **performs "Insert Data"**
Step 3: exit

Functional Process: "Inserimento Persona Fisica"

	COSMIC FP Counting					Data movements
	Entry	Exit	Read	Write	FP	
PersonaFisica - Inserimento	2	1	9	2	14	Entry: PF, Residence Data Read: ID Utente Read : Privilege; Read: Iride, Read : PF in GMS Read: NAO; Read: BPR, Read: Topo; Read SITAD, Read: SAS Write: Anagrafica PF , Residenza Exit: message

9 Data Movements
already implemented in the
business service available



Read: Iride, Read : PF in GMS Read: NAO; Read: BPR, Read: Topo; Read SITAD, Read: SAS Write: Anagrafica PF , Residenza.

14 data movements



Reuse in SOA Applications

Business Process: "Insert in register of birth"

	COSMIC FP Counting					Data movements
	Entry	Exit	Read	Write	FP	
PersonaFisica - Inserimento	3	3	2	0	8	Entry: PF, Residence Data Read: ID Utente Read : Privilege; Exit PF , Exit: Id Utente; Entry:Result code Exit: message;

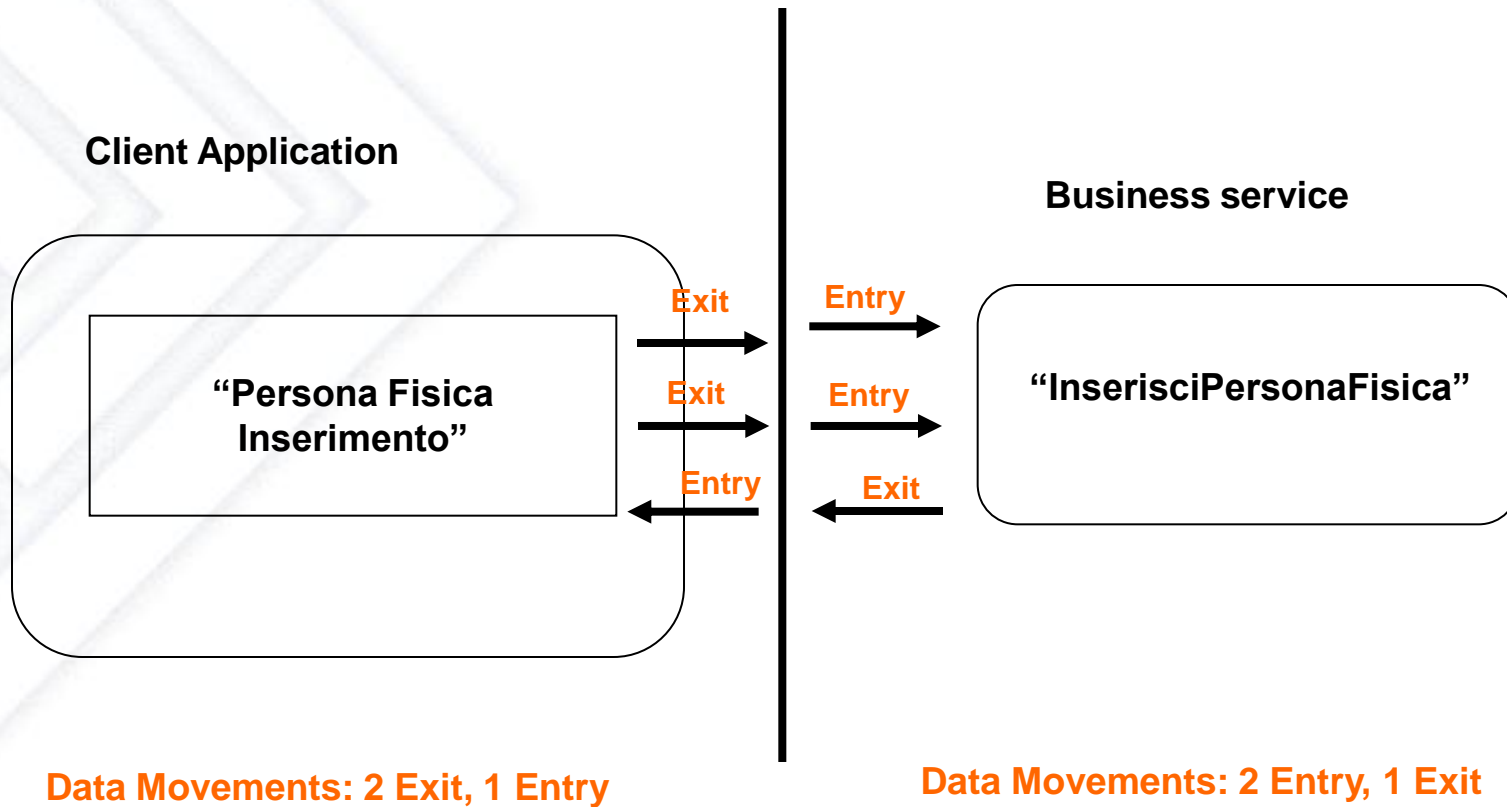
Call
Business
service

InserisciPersonaFisica (business service)	2	1	7	3	13	Entry: PF,Entry:ID Utente Iride; Read : PF in GMS Read: NAO; Read: BPR, Read: Topo; Read SITAD, Read: SAS; Read: Iride;Write: Anagrafica PF , Residenza Write: Log, Exit: result
--	---	---	---	---	-----------	---

Business service

Reuse in SOA Applications

Call of the Business Process



Reuse in SOA Applications

	COSMIC FP Counting					FP	Data movements
	Entry	Exit	Read	Write			
PersonaFisica - Inserimento	3	3	2	0	8	Entry: PF, Residence Data Read: ID Utente Read : Privilege; Exit PF , Exit: Id Utente;Entry:Result code Exit: message;	

Now

8 data movements

	COSMIC FP Counting					FP	Data movements
	Entry	Exit	Read	Write			
PersonaFisica - Inserimento	2	1	9	2	14	Entry: PF, Residence Data Read: ID Utente Read : Privilege; Read: Iride, Read : PF in GMS Read: NAO; Read: BPR, Read: Topo; Read SITAD, Read: SAS Write: Anagrafica PF , Residenza Exit: message	

Before

14 data movements

Reuse :
14-8 = 6 Data Movements

We have an objective way to determine possible reuse

- ◆ Introduction
- ◆ The Elementary Process
- ◆ Case 1: Batch Processes
- ◆ Case 2: Reuse in SOA Applications
- ◆ **Case 3: Complex Function**
- ◆ Different dimensional metrics in the same application
- ◆ Conclusions

Complex Function

In some cases we have to measure functions that are rather complex (i.e. many business checks to verify the state of a system).

These procedures are similar to a batch process (with a stream of many steps), but they are called on-line.

It would be useful to measure them separately, especially if our goal is to estimate the effort to develop them.

From the User's point of view each of these function is a single elementary process

Procedimento	A54
Tipologia	2
Nome	Consuntivazione
Settore	Merceologico
Livello	3
Data	2/03/2008

OK Annulla Esegui Verifica

It executes a series of control getting informations from many entities and shows a message to the user

Complex Function

Below we can see the “Esegui Verifica” measure in the valuation in IFPUG function points of the whole product and the “Esegui Verifica” measure in Cosmic Function Point

	Function	IFPUG FP		Compl.	FP
		FTR	DET		
.....					
Procedimenti					
Vsualizzazione elenco procedimenti per azienda	EQ	1	1	Bassa	3
Dettaglio procedimento	EQ	2	2	Media	4
Nuovo procedimento	EI	2	5	Media	4
Modifica	EI	2	3	Bassa	3
Richiedente	EQ	1	1	Media	4
Effluenti prodotti	EO	1	1	Bassa	4
Dettaglio effluente	EO	1	1	Bassa	4
Modifica effluente	EI	1	3	Bassa	3
Annulla	EI	1	2	Bassa	3
Elimina	EI	1	2	Bassa	3
Stampa	EQ	2	2	Alta	6
Revoca stampa	EI	1	2	Bassa	3
Esegui verifica	EO	6	23	Alta	7
U.P.A.					
Elenco UPA	EO	1	1	Bassa	4
.....					

IFPUG: 7 FP

COSMIC: 25 FP

	COSMIC FP				FP	
	Entry	Exit	Read	Write		
Esegui Verifica	1	12	12	0	25	Entry: Procedimento; Read: anagrafe aziende, anagrafe tributaria, infocamere,Iter, dati, effluenti prodotti, UPA, tecnica culturale, tipologie di smaltimento, dichiarazioni, allegati, controlli, Exit:anagrafe aziende, anagrafe tributaria, infocamere,Iter,

- ◆ Introduction
- ◆ The Elementary Process
- ◆ Case 1: Batch Processes
- ◆ Case 2: Reuse in SOA Applications
- ◆ Case 3: Complex Function
- ◆ **Different functional dimensional metrics together?**
- ◆ Conclusions

Different functional dimensional metrics together?

Can we add IFPUG FP and
COSMIC FP?



Absolutely NOT! We can apply a conversion factor from IFPUG to Cosmic, but it's better to maintain the measures distinct!



Can we apply the same indicators
(productivity, defective) for IFPUG FP
and COSMIC FP ?



Absolutely NOT! We have proper indicators for each metric!

Different functional dimensional metrics together?

We can have many scenario,



To use a functional dimensional metric to regulate and simplify the relationship Client-Supplier for development and enhancement software projects, for maintenance projects



To use a functional dimensional metric as a base to know the cost of developing software



To use a functional dimensional metric to evaluate the “Software Portfolio”



To use a functional dimensional metric as a base to obtain quality indicators (i.e. defects/FP)

Different functional dimensional metrics together?

We have many moments during the life development software cycle in which we can measure



At the beginning: signing a client-supplier contract



During the development: monitoring the development software process



At the end: evaluating the quality of the product and to register some indicators (i.e. productivity)

Different functional dimensional metrics together?

**We can have different metrics for different scenario
and situations!**

IFPUG

COSMIC

NESMA

Others.....

**What we have to know is: “can this metric
answer our needs?”**

Do we think it is sufficiently suitable?

If the answer is yes : “That can be the best metric for us”



**Above all we have to know what that metric can give us and
what not....it's a matter of culture!**



- ◆ **Introduction**
- ◆ **The Elementary Process**
- ◆ **Case 1: Batch Processes**
- ◆ **Case 2: Reuse in SOA Applications**
- ◆ **Case 3: Complex Function**
- ◆ **Different dimensional metrics in the same application**
- ◆ **Conclusions**



IFPUG Function Point or COSMIC
Function Point or...?

This is not the problem!



We **do not have** to fight for a
flag but to use our brain to
choose the right metric for our
purpose and need



**Can we use in a project different functional dimensional
metrics? why not!**

Thank you for your attention

Reference:

Gianfranco.Lanza@csi.it

<http://www.csipiemonte.it/>

Tel. +39 0113168792