

International Function Point Users Group

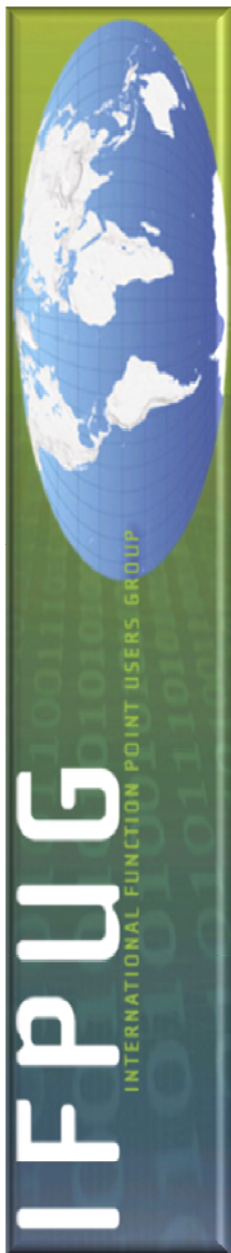
Functional Sizing Standards Committee

Tammy Preuss, Chair

Peter Thomas, Member

International Cost Estimation & Analysis Association Conference

June 18,2013



Agenda

About IFPUG/ISMA

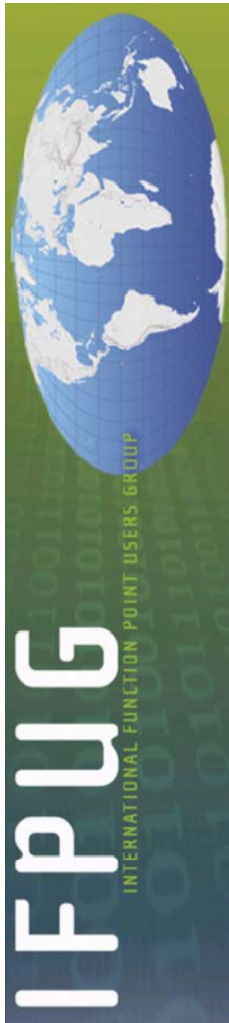
Function Points

**Software Non-Functional Assessment
Process**

Why use FP and SNAP methodologies?

Questions & Answers

About IFPUG/ISMA



- International Function Point Users Group
 - Volunteers who maintain the standards, publish materials to assist counters, and software measurement programs
 - www.ifpug.org
 - Established in 1982
 - Headquarters in Princeton, New Jersey, USA
 - Currently 1,200 members in 30 Countries
 - Members are in AT&T, Steria, IBM, HP, Accenture, Booz Allen Hamilton, Northwestern Mutual, LG CNS, USMC, Banco Brandesco, Banco Central do Brasil, US Department of Defense, Semantys
 - International Software Measurement & Analysis (ISMA) is the IFPUG annual conference

Function Points (FP)

- Brief Background/History
- What they are?
- How are they used?
- Why are they important to software measurement?

Function Points (FP)

Brief History

1979

- Developed by Allan Albrecht at IBM for better software estimation
- *A New Way of Looking at Tools*

1980's

- First Formal Function Point Guidelines
- IFPUG elects first Board of Directors

1990's

- Publication of Function Points as Assets
- Certified Function Point Specialist Certification
- Publication of Counting Practices Manual

2000's

- IFPUG FSM Method: ISO/IEC 20926:2009 Software and systems engineering - Software measurement - IFPUG is first ISO approved functional size measurement method
- CFPS certification test is automated
- Publication of IFPUG Guide to IT & Software Measurements (2012)

2013

- Counting Practices Manual (CPM) v4.3.1
- International Software Measurements & Analysis Conference 8 (ISMA8) in Rio de Janeiro, Brazil, October 1-3
- Special interest groups in Agile methodology & Cloud
- Working relationships with industry groups including TM Forum, CCC, ICEAA, OMG, NIST, ISBSG

Function Points (FP)

What are they?

- A software sizing metric-measures how “Big” the software is based on functional requirements
- Measuring functionality provided to the user based primarily on logical design. It is language and platform agnostic.
- User can be a person using the system, another application, a system administrator, etc



Function Points (FP)

Counting Process

1. Gather Available Documentation and Identify Subject Matter Experts (SME)

2. Determine counting scope & boundaries. Identify functional user requirement

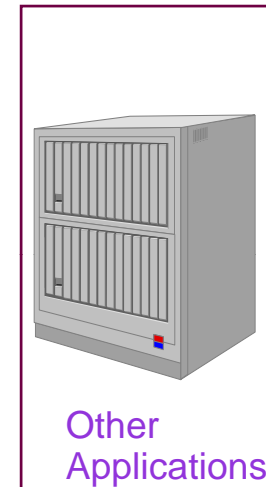
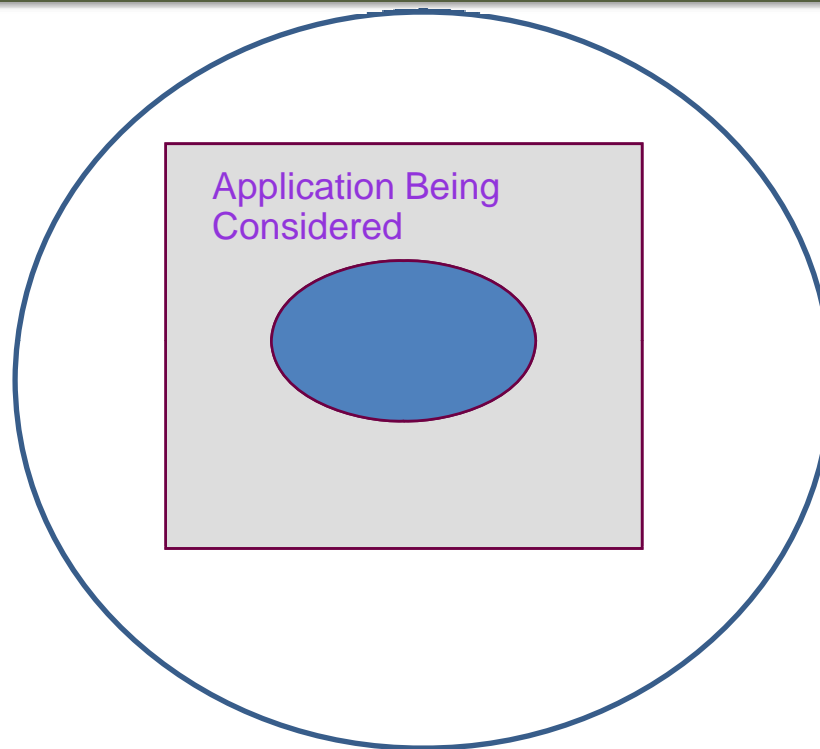
3. Measure Data Functions

4. Measure Transactional Functions

5. Calculate Functional Size

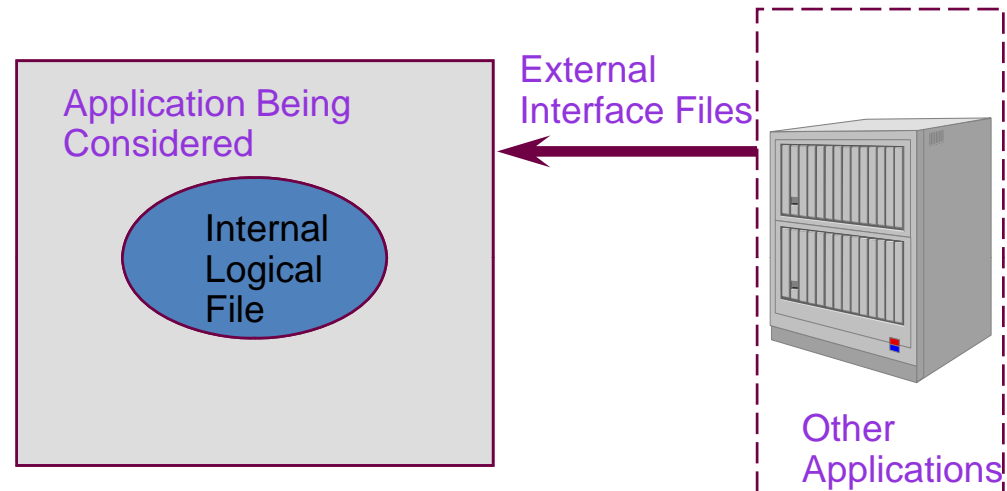
6. Document & Report

Function Points (FP) Let's Get Started



- Gather documentation & identify the Subject Matter Experts
- Determine counting scope and boundary
- Identify functional user requirements

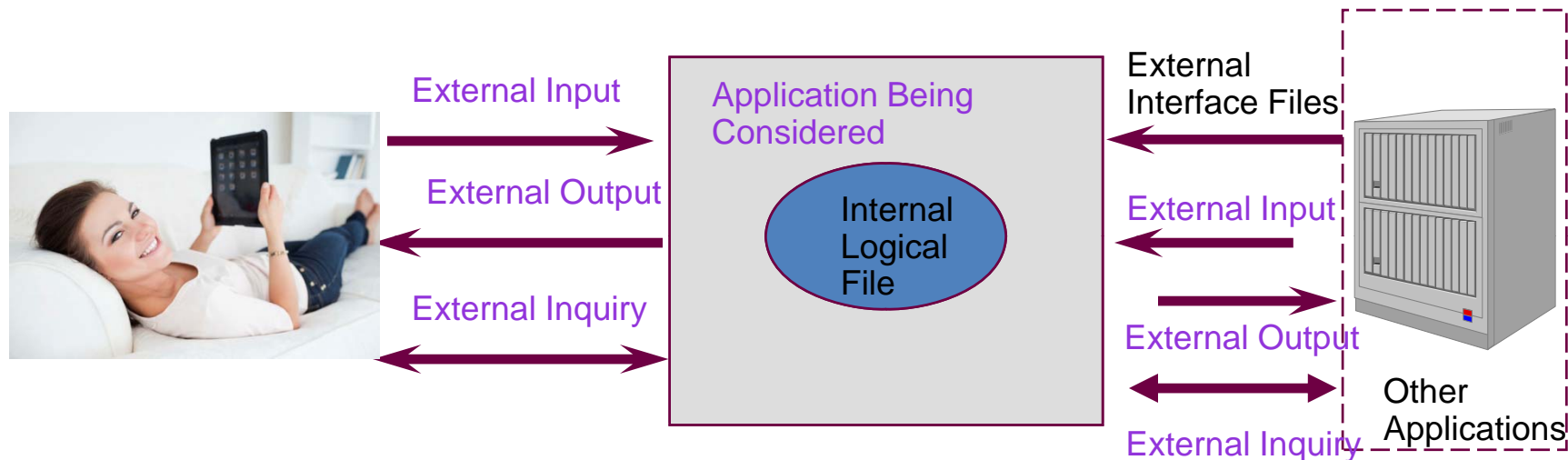
Function Points (FP) Measure Data



- ILF = Logical group of data maintained by the application
- EIF = Logical group of data referenced but not maintained

*Complexity determined by number of Data Element Types (DETs)
and number of Record Element Types (RETs)*

Function Points (FP) Measure Transactions



EI = Maintains ILF or passes control data into the application

EO = data sent out of application with added value (e.g., calculated totals)

EQ = External Inquiry (e.g. queries)

Complexity determined by number of Data Element Types (DETs) and number of File Types Reference (FTRs)

Key is that data is passed into or out of the boundary

Function Points (FP) Calculate Functional Size & Document

Function Type	Low	Average	High
EI	x 3	x 4	x 6
EO	x 4	x 5	x 7
EQ	x 3	x 4	x 6
ILF	x 7	x 10	x 15
EIF	x 5	x 7	x 10

Function Points (FP)

Where are they used?

- Estimation
- Benchmarking
- Outsourcing
- Contracting
- Productivity
- Process Improvement

Software Non-Functional Assessment Process (SNAP)

- Brief Background/History
- What they are?
- How are they used?
- Why are they important to software measurement?

Software Non-Functional Assessment Process (SNAP)

Brief History

2007

- IFPUG approval to ITPC for project 'Technical Sizing Framework
- Goal: Define a framework covering technical aspects of software not covered by Function Point

2009

- First draft version of Software Non-functional Assessment Process (SNAP) out for review
- IFPUG SNAP Release 0.1 (Oct 2009) released

2010

- First Beta version released for pilot in industry
- Post industry feedback SNAP APM Release 1.0 BETA released

2011

- Further beta test in May 2011 across globe
- SNAP APM Release 1.0 launched at ISMA 6 workshop

2012

- ISMA6 workshop feedback reviewed
- APM updated with feedback areas
- Beta test in 10 countries and 18 organizations
- APM updated post beta test findings
- SNAP APM Release 2.0 launched at ISMA 7 workshop

Software Non-Functional Assessment Process (SNAP)

Why SNAP?

Defines a framework that would size the Non-Functional/Technical aspects of software development.

It provides a quantifiable measure for non-functional size of software development by means of documented guidance, definitions and practices about non-functional software features and related sizing criteria. This will allow you to:

- Build better benchmarks
- Refine software estimates
- Establish a stronger correlation between software size & effort
- Better communication Non-Functional Requirement issues between stakeholders

Software Non-Functional Assessment Process (SNAP) Counting Process

**1. Determine
Assessment Purpose,
Scope & Boundary**

**2. Association Non-
Functional
Requirements to
Categories & Sub-
categories**

**3. Identify the SNAP
Counting Units (SCU)**

**4. Determine
Complexity of SCU**

**5. Calculate the SNAP
points of the SCU**

**6. Calculate the Non-
Functional Size**

Software Non-Functional Assessment Process (SNAP)

Associate non-functional requirements to categories & sub-categories

Data Operations

- 1.1 Data Entry Validation
- 1.2 Logical and Mathematical Operations
- 1.3 Data Formatting
- 1.4 Internal Data Movements
- 1.5 Delivering Added Value to Users by Data Configuration

Interface Design

- 2.1 UI Changes
- 2.2 Help Methods
- 2.3 Multiple Input Methods
- 2.4 Multiple Output Methods

Technical Environment

- 3.1 Multiple Platforms
- 3.2 Database Technology
- 3.3 Batch Processes

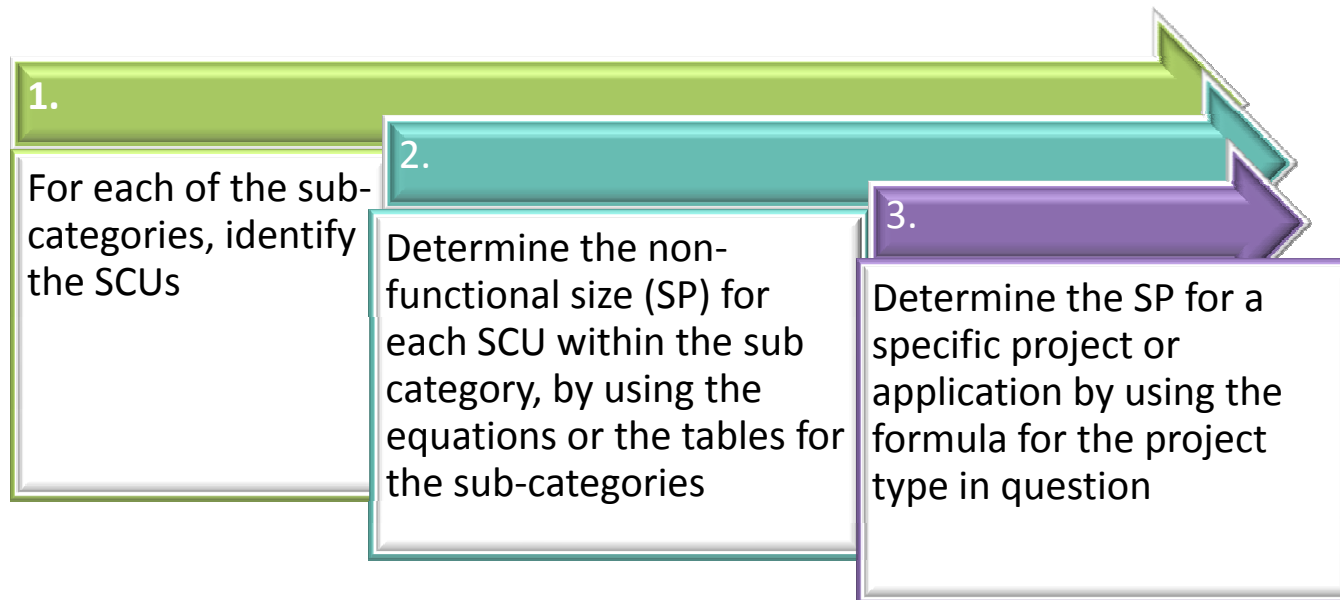
Architecture

- 4.1 Component based software
-
- 4.2 Multiple Input / Output Interfaces

Software Non-Functional Assessment Process

SNAP Calculation Steps

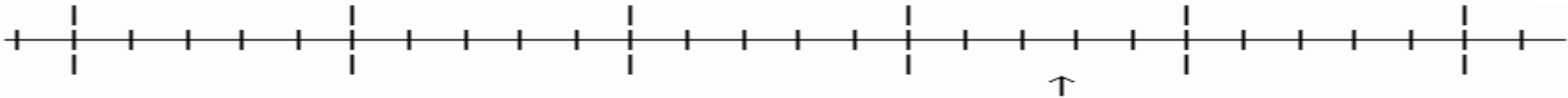
For each non-functional requirement, it is possible to determine the non-functional size in three steps







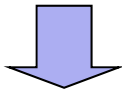
The SCU is a component or activity, in which complexity and size is assessed. The SCU can be a component, a process or an activity identified according to the nature of the sub-category/sub-categories.

Software Non-Functional Assessment Process (SNAP) Summary

Non-Functional Requirements



SNAP Cat 1 (Data Operations) 	SNAP Cat 2 (Interface Design) 	SNAP Cat 3 (Technical Environment) 	SNAP Cat 4 (Architecture) 
SCU = aa (for specific subcategory)	SCU = bb	SCU = cc	SCU = dd
Rate complexity of SCU	Rate complexity of SCU	Rate complexity of SCU	Rate complexity of SCU



SNAP Points

Why use both FP and SNAP methodologies?

A requirement may contain both functional and non-functional aspects

Functional size measured in Function Points; Non-functional size, measured in SNAP Points

Requirement should be broken into its functional and non-functional components

The segregation should be agreed by both the users and developers

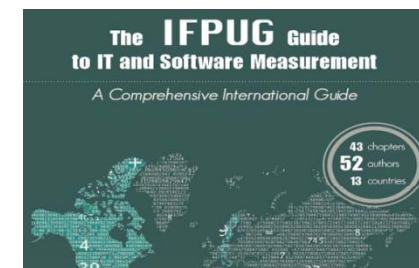
Use FP for FR related tasks and SP for NFR related tasks

Why use both FP and SNAP methodologies?

- Increase Productivity
- Improve Quality
- Improve Processes
- Measure Your Portfolio of Software Assets
- Reduce Costs
- Establish/Improve Your Software Metrics Program

More About IFPUG/ISMA Publications

- Counting Practices Manual 4.3.1 www.ifpug.org
- Assessment Practices Manual 2.0 www.ifpug.org
- The IFPUG Guide to IT and Software Measurement by CRC Press
 - http://www.amazon.com/The-IFPUG-Guide-Software-Measurement/dp/1439869308/ref=sr_1_1?ie=UTF8&qid=1364527191&sr=8-1&keywords=IFPUG+guide+to+IT+and+Software+Measurement



More About IFPUG/ISMA

International Software Measurement & Analysis Conference #8

*Co-located with the IT Confidence
Conference*

October 1 – 3, 2013
Rio de Janeiro, Brazil

Workshops, Presentations, Networking

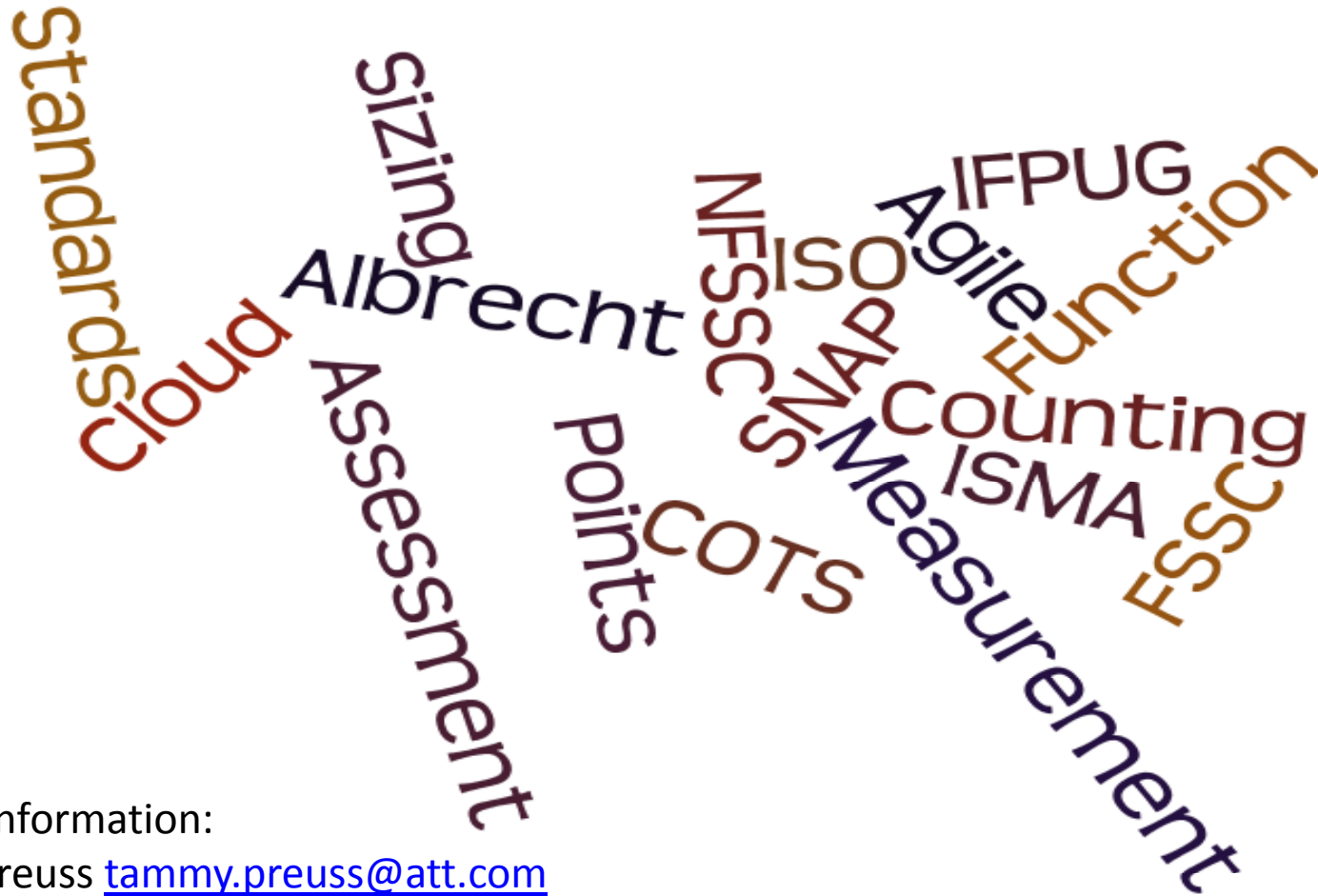


Rio de Janeiro 2013

Sponsored by IFPUG & ISBSG

Questions/Answers

Come chat with us in the Exhibitor Hall!



Contact information:

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References

- www.ifpug.org
- The IFPUG Guide to IT and Software Measurement by CRC Press
 - http://www.amazon.com/The-IFPUG-Guide-Software-Measurement/dp/1439869308/ref=sr_1_1?ie=UTF8&qid=1364527191&sr=8-1&keywords=IFPUG+guide+to+IT+and+Software+Measurement