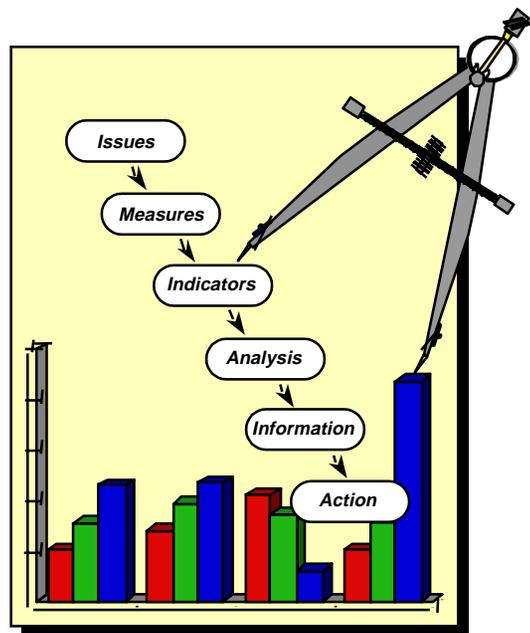


Practical Software Measurement

A guide to objective program insight



Software Product Engineering Measurement

July 23, 1997

***Joint Logistics Commanders
Joint Group on Systems Engineering***

***Office of the Under Secretary of Defense
Acquisition and Technology***

Background

- ***SPE is a working group of the PSM IPT***
- ***Initial SPE Workshop held in Roanoke, VA August 1996***
- ***Subsequent SPE WG meetings held in October 1996 and February 1997***
- ***SPE Study Group meeting held June 1997***

SPE Objectives

To develop a measurement approach that

- ***Promotes an understanding of the relationship among***
 - ***Functionality, Quality, Cost, and Schedule***
- ***while***
 - ***Recognizing that all contribute to consequent determination of Performance***
- ***Complements other system and software practices policies and initiatives***
- ***Reflects an Issues-Driven evolution***

Critical SPE Definitions

- ***Within a project, Software Product Engineering comprises those software engineering activities used to produce products that meet identified customer needs.***
- ***[Software] Functionality is the ability of the software system products to meet the needs of the customers as specified in the system requirements***
- ***[Software] Quality is determined by the degree to which product functionality is met and how well that functionality meets the customer's expectations at a point in time.***

Who is the Customer?

An SPE Customer is any person (as an individual or part of an organization) that interacts with, depends on, or relates to the software product(s). Customers fall into three categories:

users, developers, maintainers.

SPE Scope

- ***Process and product for a single project***
- ***Focus is on Functionality and Quality***
- ***Assessment, estimation and prediction***
- ***Software Engineering, not Systems Engineering focus***
- ***Customers with different objectives and needs***
- ***Excludes services, training, etc.***

Representative Context Issues

- ***Functionality and Quality***
- ***Process and Product measures***
- ***Prediction and Assessment***
- ***Diversity of customer base***
 - ***Users, Developers, Maintainers***
 - ***What are their individual needs***
- ***Measuring internal and external quality***
 - ***quality attributes of product***
 - ***quality in use***

Representative Measurement Issues

- **Quality**
 - *The “ilities”*
 - *Defect recognition*
 - *Documentation adequacy*
- **Functionality**
 - *Completeness*
 - *Requirements Volatility*
- **Quality & Functionality**
 - *Readiness to deliver*

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Workshop Objectives

- ***Identify key SPE issues and customer needs***
 - ***Context Issues***
 - ***Measurement Issues***
- ***Formulate Requirements for SPE effort***
- ***Identify SPE product(s)***

Workshop Format

- ***Initial discussion to establish understanding, focus and singularity of purpose***
- ***Partition into sub-groups***
 - ***Context issues, Measurement issues***
- ***Sub-group Activities***
 - ***Examine/discuss existing issues and identify new ones***
 - ***Share experiences***
 - ***Consolidate findings (issues, sample measures)***
 - ***Establish requirements***
- ***Report of results from Sub-groups***
- ***Discuss survey (time permitting)***