



# Soft Measures

## Special Interest Articles:

- New software for recording Function Point Counts.
- Estimating Toolkit Industry Metrics data
- Metrics Conferences
- ISO standards for functional size

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## What's News in Metrics?

Welcome to the new format of the Total Metrics quarterly newsletters. This is the first of our new downloadable newsletters that will enable you to download and print to read at your leisure.

As you may be aware, over the last 12 months, Software Measurement has made enormous advances in becoming an accepted and integral part of the software development process. This edition looks at some

of these advances, particularly in functional size measurement tools and techniques. We review the new product release for recording and reporting IFPUG 4.1 function point counts. This tool based on the latest technology looks set to lead the field in functional size measurement tools. We also review the new Estimating Toolkit and Benchmarking Research suite developed by the

International Software Benchmarking Group (ISBSG) and supported by their data.

Functional Size Measurement is still news as four methods are in their balloting stages of becoming International ISO Standards

Since our last newsletter Total Metrics has released a practice exam for the IFPUG CFPS Exam which is available on our WWW site.

## What's On in Metrics?

The year 2001 has a series of Metrics conferences planned. **IFPUG** are holding their Metrics conference in Las Vegas from October 1st to the 5<sup>th</sup>. For more information contact: [WWW.IFPUG.Org](http://WWW.IFPUG.Org)

In Australia from October 23rd to 26<sup>th</sup> **IQPC** are presenting their inaugural IT Performance Metrics conference which follows on from their tremendous success in the United States earlier this year, IQPC has specifically tailored the conference to

the Australian market. Presentations will provide insight on how leading national and international companies have adopted IT metrics to radically improve core business outcomes. Total Metrics is the official Web site for the conference which has the goal of having attendees learn from their experiences to enable their organization to

- DEFINE the measures necessary to address the IT function and
- ALIGN their IT goals with their company's

overall business strategy

- UNDERSTAND how IT affects business strategy and what IT investments this strategy demands
- DISCOVER how the correct use of performance measures can lead to improved CRM strategies, gaining the competitive advantage and a higher ROI!

Register by phoning 61 (0)2 9223 2600 or [www.registration@iqpc.com.au](mailto:www.registration@iqpc.com.au) (...continued page 3)



## Practical Project Estimation



*“The Practical Project Estimation Toolkit takes the mystery out of estimating. It clearly explains the factors which impact project budgets and to what extent.”*

## International Software Benchmarking Group

The stated goal of International Software Benchmarking Standards Group (ISBSG) is to *“help improve global software engineering practices and the business management of IT resources through the provision of software benchmarking data which is standardized, verified, recent and representative of current technologies.”* Since 1996, over 17 countries have worked together as a volunteer

group to develop a set metrics standards to measure the productivity and quality of software development projects and establish a repository of metrics data from a range of industry organizations.

The Analysis of the ISBSG Repository data is presented on an annual basis in their Repository report. The latest offering from ISBSG is their Estimating Toolkit and their Estimation and

Benchmarking Research Suite. Both products were designed to enable project managers to confidently develop project effort, team size and duration estimates, knowing that their predictions are supported by quantitative industry experience.

The benchmarking data in the Research Suite enables effective comparison of an organization’s performance against its competitors.

## Project Estimation Toolkit

This “Toolkit” is based on the ISBSG data of around 1,000 completed projects from across the globe. It is targeted towards novice project managers as well as experienced estimators and consists of a book and CD containing project repository data and software tools. It has been designed as a practical tool to assist in the challenging task of estimating software projects. It uses

estimation equations and project delivery rate tables to give step-by-step guidance on developing project resource estimates of effort, cost and schedule, using different estimation techniques.

The CD contains project size, work effort and attribute data from more than 300 recent software projects, plus tools that allow you to do your own macro-estimation of

projects.

The data is from a range of PC to mainframe projects using such languages as C++ and COBOL. The CD also contains a copy of the project data collection package “Venturi” and detailed bar charts showing the contents of the ISBSG software project Repository.



## Estimation and Benchmarking Research Suite

The ISBSG Estimation, Benchmarking and Research Suite is a CD that contains the latest release of the ISBSG data. In addition it includes an interactive estimation tool, (ISBSG Reality Checker), software

to assist in the collection of ISBSG data and a demographic analysis of the Repository contents of over 1,238 projects almost half of which were collected during 2000/2001.

**Total Metrics has been a member of the Australian ISBSG volunteer group since its inception and is a proud sponsor of the Estimating Toolkit. For more information on how to buy the ISBSG products contact: [www.isbsg.org.au](http://www.isbsg.org.au)**

## Whats on in Metrics? (...cont. page 1)

The Australian Software Metrics Association is hosting the Australian Conference of Software Metrics – ACOSM 2001 in Melbourne from November 27<sup>th</sup> to 29<sup>th</sup>.

The theme for the conference is “Relevance in an ‘E’ World”

Key local and international speakers will present their practical experiences in the area of software measurement.

The conference will also host a series of workshops centered on the theme of better project management

and process improvement.

The IFPUG Certification exam will be hosted by the conference and will enable Function Point Practitioners to update their qualifications or certify for the first time.

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**ACOSM  
2001**

*Hosted by ASMA and  
SEA*

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**“Visit us at :  
[WWW.totalmetrics.com](http://WWW.totalmetrics.com)  
to get your free copy of the  
Total Metrics practice exam to  
prepare you for the IFPUG  
CFPS Certification Exam**

## NEW METRICS BOOK FOR PRACTICAL MEASUREMENT

IFPUG (International Function Point User Group) has announced that they are about to publish a book on practical software measurement.

More than 45 articles have been submitted for inclusion in the manuscript. Industry experts such as Capers Jones, Howard Rubin, Lawrence Putnam, Sam Bayer and Pam Morris from Total Metrics are among the contributors. In addition, articles from practitioners and

experienced consultants further enhance the content and usefulness of this book.

The book is sectioned into major categories with topics that include:

- establishing a measurement program
- effective project estimation
- project related metrics
- measuring the impact of IT and SE and ISO standards.

The intent of the book is to provide indepth coverage

on topics that are critical to the software development environment. Each article is written from the perspective of either a practitioner or an experienced consultant in the field of Software Measurement.

The book is planned to be available through IFPUG and via its publishers later in 2001.

For more information contact:

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*“At last a book written by metrics practitioners which talks about the ‘do’s and don’ts of implementing a measurement program by the people who know.”*

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*“The latest state of the art technology combined with a graphics tool to functionally model, measure and document your planned or existing software.”*

### \*\*\*NEW - IFPUG 4.1 COUNTING SOFTWARE

Total Metrics is set to release a new functional size measurement tool that enables counters to functionally model their software and record its size in IFPUG 4.1 function points.

This software takes all the best features found in current products that extra step to enable counters to

have a completely auditable documented count by cross-referencing against any number of customizable attributes. For example it will allow you to cross-reference all processes and data to their relevant counting decisions, screens, specifications, programs or test cases. Processes can be graphically linked

to the data groups that they reference. The software allows you to count ‘what-if’ scenarios, for example – what would be the project size if we only implement the mandatory functions? It will import your current count data from commonly used repositories. To be released December 2001. For more details: [admin@totalmetrics.com](mailto:admin@totalmetrics.com)

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*“Immediate expert help on nearly every counting issue you can think of. Now you can get help on your counting problem online when you need it.”*

### FPA COUNTING ISSUES AND RESOLUTIONS ONLINE

Total Metrics has a strong international reputation for our functional size measurement expertise. Our consultants Pam Morris, Ewa Wasylikowski and Martin D’Souza have spent a combined total of over 10 years on the IFPUG counting practices committee developing counting guidelines for IFPUG CPM 4.0, 4.1 and 4.1.1. Based on their

counting experiences in over 100 organizations they have identified a series of over 60 counting situations that need a documented resolution conformant with the concepts of IFPUG 4.1.

As from August 2001 Total Metrics will be providing to its WWW subscribers online access to these issues with documented guidance and

solutions on how to count them. See [WWW.totalmetrics.com](http://WWW.totalmetrics.com)

Examples of Issues include:

- data warehouses
- decision engines
- Web based applications
- Rule table based
- applications etc.

An sample of how these issues and resolutions are structured is provided below.

### Example – How to Count Calculators and Simulators

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**Issue: What is the user requested business functionality provided by an application which is used to perform ‘what if’ analyses for various types of business events and products?**

#### *Functional Overview*

The prime purpose of a calculator is to provide a calculated result in response to a given set of input parameters. These systems are used in a ‘session’ mode. The user enters values for a number of parameters and a calculation/evaluation is performed. The user may then adjust the variable input parameters, and request that the calculation be performed

again. This can occur numerous times until the user has obtained the information required and chooses to terminate the session.

Most calculators / simulators share the following characteristics:

1. The prime objective of the calculator / simulator is to perform a number of calculations in response to user supplied input.

The possible number of calculations is pre-defined. The results of the calculations may be presented in summary or detailed format. It is these outputs that are the main business functions of the calculator / simulator. The calculation and results presentation are sub processes of the one elementary process.

2. The user enters data into a series of screens, which exhibit all the standard GUI

## Example – How to Count Calculators and Simulators (continued)

screen features. For example, (continued) drop down list boxes to assist with user parameter selection, on-line validation of data, mandatory and optional fields and other features available in a GUI interface.

3. Data entered may be stored permanently (indefinite persistence), exist only for the duration of the session (short persistence), or in a very simple calculator may need to be re-entered each time the calculation is triggered (no persistence)

4. The databases used by calculators may be very simple. For example one large physical file may store all the data input by the user. It is recommended that the contents of the file be examined closely and the guidelines for identifying logical files applied, (Refer Issue on Files) One large physical file may comprise more than one logical file.

5. The calculations are triggered once the user has supplied all the necessary information.

6. The results of the calculation/evaluation are presented either as:

- A single result
- A results table, for example a schedule of repayments

c) A graph  
The results are

presented on screen and, if required a hard copy may be produced.

7. The user is able to adjust the variable input parameters as many times as required, each time triggering the calculations. The changed parameter values are stored.

8. The data entry and calculation functions are usually supported by a number of reference tables which define products, interest rates, calendars and other values that are needed as input to the calculations

9. At the end of the session, the user may choose to accept one of the results, for example a leasing repayment schedule and other conditions, and proceed with making further arrangements. Typically, it is at this point that the data collected in the calculator files are sent via file, e-mail or hardcopy to another organisational unit or application.

### General Discussion and Resolution

The guidelines for counting calculators are based upon the following basic rules:

1. Only functions customised or custom built by the organisation's developers will be included within the scope of the function point count.

2. The data entry functions and the calculations are counted as

one elementary process. They are only counted as separate elementary processes, when the data entered is actually stored, because it must be retained until the end of the session for maintenance and reporting purposes. Only one data update function is counted if there is only one record per file. For add, modify and delete functions to be counted there must be multiple records eg more than one expense record per loan application.

3. If the data is not stored and must be entered each time a calculation is performed, separate data entry functions are not counted. The data entry is a sub-process of the calculate function.

The following counting guidelines present a generic solution to the FPA issues related to calculators.

### Files: Logical Files

Where they exist, the following may be counted as logical files for the calculator:

- Files that store parameters entered by the user. (Applicant Details, Income Details, Expenses, Assets, are counted as separate logical files) These files are counted if they display either Short or Indefinite Persistence. In calculators, a unique view is taken of data that is stored for the duration

of a session. As this data can be updated, viewed and reported upon, during the session, even though it may be deleted at the end it is considered to be a logical file.

- Reference files accessed by the calculations - for example, loan products, interest rate tiers etc
- Statistics file – which may record the level of use of calculator functions.
- Use standard IFPUG guidelines, and the guidelines provided in the Total Metrics Issues and Resolutions for counting Files, to determine the file type.

### Transactions: External Inputs

Where they exist, the following may be counted as EIs for the calculator

- Maintenance functions on the parameter files, but only if the data is stored and kept for the duration of the session or longer.
- Maintenance functions for the reference files.

### Transactions: External Outputs/External Enquiries

Where they exist, the following may be counted as EO's and EQ's for the calculator.

- Results of calculations/evaluations performed. – for example, calculate repayment amount, determine repayment schedule. Apply rules for identifying unique elementary processes (continued).

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### We're on the Web!

See us at:

[www.totalmetrics.com](http://www.totalmetrics.com)

### About Our Organization...

Total Metrics is a leading software measurement company. We assist our world wide clients to better manage and control their software application environment by measuring, monitoring and benchmarking their IT performance.

### Total Metrics Philosophy...

- People and family always come first
- We are trustworthy and reliable – our word is our bond
- We are serious about customer service
- We always strive to be the best
- We are always accessible and ready to help
- We work hard to deliver what is needed
- We properly reward our people

## How to Count Calculators and Simulators<sup>(continued)</sup>

ensure you do not count functions at a sub-process level. Count a separate EO for each type of output presentation, for example, table, graph, pie chart etc. Ensure uniqueness criteria are satisfied. For example :

- a repayment schedule displayed on screen, and a hard copy print out of identical schedule information, are

counted as one output.

- Inquiry functions on input parameters – for example, View asset details.
- Inquiry functions on reference table data – List Available Products
- Transfer of Applicant/Client details to external business unit or external application via file, automatically generated e-

mail, fax etc

### Other Related Issues

- ILF and EIF – Identification and Counting Guidelines
- Identical Business Functions – Different Delivery Mechanisms
- Uniqueness Criteria for Transactions.

## Latest News on ISO Standards for Measurement

The Subcommittee of ISO/IEC that works on measurement standards is known as Sub-committee 7 (SC7). They met in May 2001 to further develop the ISO standards for software measurement. The two major sets of standards are the suite of five documents for Functional Size

Measurement (FSM) Framework Standards (ISO/IEC 14143) and the Software Measurement Process Framework Standard (ISO/IEC 15939). The 15939 standard is currently being balloted as a Final Draft International Standard (FDIS) and should be publicly available in the

next 12 months as a full ISO standard. The FSM standards are almost completed. Part 1 and 4 are now published with Part 2 and Part 3 in their final balloting stage. For more information on the content and status of these standards.

<http://www.iso.ch/iso/en/ISOOnline.frontpage>

### Functional Size Measurement

The 14143 Framework of standards provide a definition and framework to test and validate candidate Functional Size Measurement Standards. It is against this framework that the most commonly used

Functional Size Measurement Standards (IFPUG 4.1, Mark II and NESMA) are currently being assessed for acceptance as full ISO standards via the PAS submission balloting process. Results of the

ballots will be available in the last quarter of 2001. The newest FSM Method – COSMIC-FFP is seeking standardization via the traditional ISO balloting process and is due for full standardization status late 2001.

## PRACTICE EXAM FOR IFPUG CFPS Certification

The IFPUG Certification Exam for 'Certified Function Point Practitioners' is planned to be held in Nevada USA at the IFPUG conference in October and again in Melbourne November 2001. If you are an experienced function point counter and would like to be certified to IFPUG International Standards

then do not miss this opportunity. Statistics from past exams indicate a 60% pass rate but participant's chances increase by an additional 25% if they have completed at least one practice exam before attempting the official exam. Total Metrics has developed a 'practice'

certification exam for IFPUG 4.1 that you can do in the privacy of your own home or office. Even if you do not intend registering for the IFPUG exam you can rate yourself against the experts. The complete exam with answers can be downloaded FREE from our website:

<http://www.Totalmetrics.com>