

Soft Measures

.@Total Metrics Newsletter Publication
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What's News in Metrics?

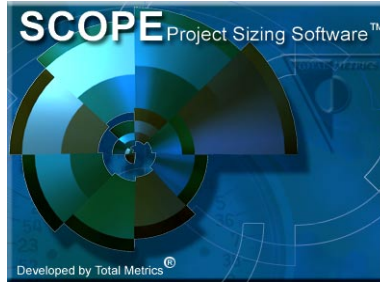
Our most significant news for this month is the launch of our new SCOPE Project Sizing Software™ tool for functional sizing and project management.

This issue explores the features in this tool that revolutionises the way you count function points and quantify your software.

Demonstration versions of SCOPE are downloadable from the Total Metrics WWW site www.totalmetrics.com

Download a copy of SCOPE and import your counts from your existing software.

Have you been tasked with setting up your organisation's metrics program in a limited



timeframe? This month Elwyn Hurst, one of our senior consultants, shares his experiences with setting up a large baseline function point count in an organisation and the activities to be considered in scheduling resources for the count.

The concept of valuing internally developed software as a capital asset to be depreciated is now gaining acceptance in accounting circles. Organisations are

benefiting from the financial reporting advantages of not expensing the development costs in a single financial year and recognising the need to financially plan the decommissioning and replacement in their future budgets. See our special interest article.

Pam Morris - Editor

SCOPE - Reducing Risk for your Software

SCOPE Project Sizing Software™ has been specifically designed to accommodate the growing need to use functional size beyond being just a final measure for project or application baseline size.

Improvements in IT capability maturity requires software development processes to better

manage project requirements, provide accurate, early project estimation and a quantifiable audit trail of scope changes during a project. Functional size can provide input into all these processes as well as quantify input to supplier contract management negotiations and project governance

SCOPE Project Sizing Software™

Quantifying your software development product





“SCOPE uses Function Point Analysis to provide an objective quantitative means of evaluating software development projects for more informed project decisions!”

SCOPE Project Sizing Software™

For more information contact Total Metrics
www.totalmetrics.com

Download SCOPE now and start getting the benefits of faster counting today.

SCOPE - Reducing Risk for your Software Projects -

continued

decisions.

SCOPE Project Sizing Software™ specifically enables an organisation to functionally model the requirements of their software projects to track the size of all change requests and rework and quantify the impact of the changes to the overall project size.

One of **SCOPE**'s unique features is the ability to track multiple concurrent change requests for a single release of an application. This enables a quantitative audit trail of 'scope creep' during development and an objective measure of rework. This tracking capability is mandatory when utilising the contract management methodology SouthernScope. (See: www.mmv.vic.gov.au/southernSCOPE) which bases contract pricing on fixed priced 'dollars paid per function point delivered or reworked (changed or deleted)'.

SCOPE is able to cumulatively track and record each change, therefore enabling the client to evaluate the price of each proposed change before confirming it.

SCOPE enables the user to create 'what if' scenarios to assess different development strategies. It provides the capability of assigning customised attributes to processes and data so they can be independently sized and compared.

For example: a project manager has been given a fixed budget and schedule such that the project needs to be limited to a size of 500 function points in order to meet the constraints. However the User Requirements Specification is 750 function points. In order to meet budget 250 function points need to be trimmed from the project. The Business sponsor and project manager can work together using **SCOPE** to assign an implementation priority to functions. Functions (processes and

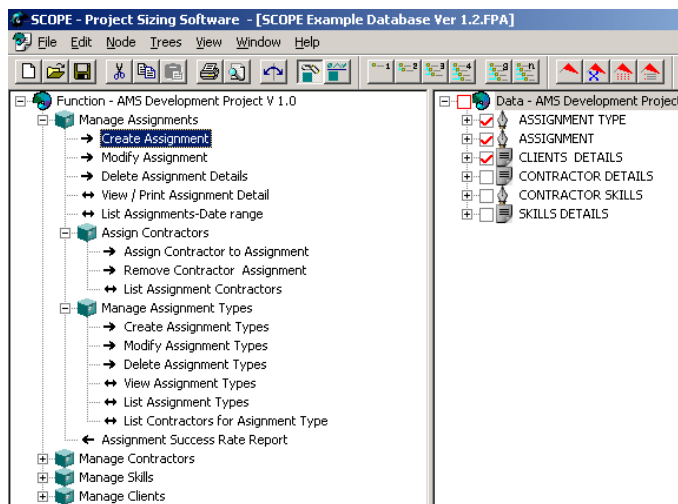
data groups) can be categorised as either 'Mandatory for this Release', 'Optional can live without' or 'Not required' (hold over to next release).

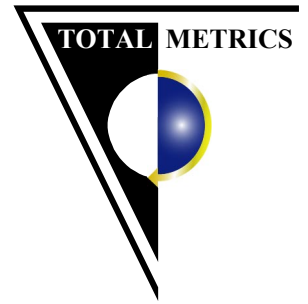
SCOPE's online interactive reporting enables the project sponsor to quantify the number of function points assigned to the *Mandatory* attributes and selectively include the *Optional* functions until the 500 function point limit has been reached. This then becomes the agreed scope of the project, which can be tracked and measured.

SCOPE can also act as a software asset management tool for organisations that record and track the functional size of each of their applications for each production release.

This asset management capability is a requirement in most outsourcing contracts. The supplier is typically required to report on the amount of functionality worked on within the reporting period and the net changes in application size over the contract period.

SCOPE uses the IFPUG 4.1 methodology for functional size measurement (FSM). This FSM Method is published as International Standard ISO/IEC 2026





So you need to do a lot of counting - FAST!

The activity of Functional Sizing large numbers of projects and applications needs to be treated as a 'project'. The activity needs to include the standard project management practices of defining the requirements, estimating schedules and resources and developing project plans.

Ongoing monitoring and status reporting is a must if the counts are to be completed on time and within budget.

Introduction

Baselining the size of an organisation's software applications portfolio is a significant task that requires extensive planning and resource management. However our experience at Total Metrics is that this exercise is often driven by senior managements urgent needs, rather than being part of a long-term strategy.

For example, management will decide to benchmark the development performance and application support ratios against peer companies, requiring significant data collection in an unrealistically short time.

Often sudden critical demands for data on software size comes from management at the 'due diligence' stage of negotiations to outsource development and support activities.

Whenever the outcome of the sizing activity is critical to management decisions, a realistic and workable plan for functional sizing is of paramount importance. An accurate schedule and effort estimation for the sizing activity will ensure the results are delivered in the most timely and cost-effective way to meet management requirements.

This article provides guidance in developing a schedule to help manage the functional sizing of a large set of applications or projects.

It may also prove beneficial in estimating the effort required to perform an individual count. The first step is to answer each of the following questions in turn:

For what purpose will the size results be used? What are the constraints on:

1. Measuring the size to the detail required?

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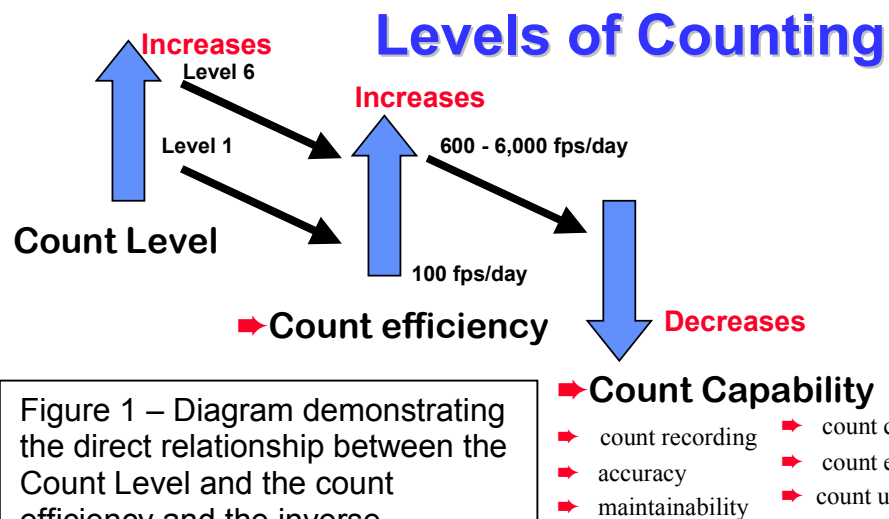


Figure 1 – Diagram demonstrating the direct relationship between the Count Level and the count efficiency and the inverse relationship between Count Level and the accuracy of the count result.

So you need to do a lot of counting - FAST!- Continued

“Always know how your counts are going to be used prior to counting. If a figure within \pm .20% is all that is needed for contract negotiations then Level 6 counts are adequate. If the count is to be used as an audit trail for scope creep in a supplier agreement then a Level 1 or Level 2 count is recommended.

“It typically takes around **1 – 2 days** to do an accurate, documented, detailed count of an average project (ie Count Level 2). In contrast a size estimate (Level 6) can be completed in **1 – 2 hours** and across an application portfolio has proved to be within 12% of the result achieved by the detailed counts.

For more information on Count Levels see the Article titled Total Metrics – Levels of Counting at WWW.Totalmetrics.com”

2. How big (approximately) is the software to be measured?
3. How much effort is required to do each count?
4. What resources are required and available?

For what purpose will the size results be used?

The purpose for which the results will be used drives the overall strategy for the measurement activity. It determines the level of accuracy required for the size result and the level of detail of the count documentation, and consequently the cost and effort of the measurement activity. For example, if the purpose was to determine *application support ratios*, a quicker, less detailed and less accurate count is appropriate compared with doing the more time consuming and costly application count for the purpose of establishing a baseline for *estimating an enhancement project*.

Understanding the purpose ensures that we adopt the most cost-effective measurement strategy to satisfy the use of the resultant size.

What are the constraints on measuring the size?

Typical constraints are:

1. **The amount of time or budget available to do the measurement.**
Although the purpose of the count may indicate a detailed functional size measurement, time and budget constraints may make it necessary to do a quicker, less detailed count.
2. **Source material describing the Software's Functionality.**
A detailed, accurate measurement is not possible if subject matter experts are not available or you only have access to poor quality system documentation. Typically this occurs for older “legacy” systems or systems that are largely batch oriented.

How big is the software to be measured?

Before the effort to perform the measurement can be estimated, and the schedule and resources allocated, it is first necessary to know the scale of the measurement task.

The effort to measure is directly proportional to the size of the software. This requires you to know the end result before you even start measuring!!

To overcome this ‘catch 22’ situation *Total Metrics* has developed a *Size*

Estimation Questionnaire™ that focuses on 30 key questions about the physical and logical characteristics of the software. Questions about - how many logical data files does the system maintain and how many people support the application?

From the project team answers, combined with an in-depth knowledge of industry statistics (eg, there are about 31 IFPUG FPs for every ILF in an application) a rough estimate of the application or project size can be determined.

Determine the expected rate of Measurement

After considering the measurement constraints and the level of detail and accuracy required by the purpose of the count you need to decide on the strategy for counting or the “**Count Level**”.

Total Metrics has identified six standard *Levels of Counting*.

The *Level of Counting* determines the level of detail, accuracy and the rate that each application or project can be measured.

So you need to do a lot of counting - FAST!- Continued

Levels 1 and 2 are the most detailed and hence most accurate but also the most time consuming and costly strategies. In comparison, Level 5 is the fastest but the least detailed and least accurate. Level 6 is more of an approximation or size 'estimation' technique than an actual measurement technique.

Based on the "Level of the Count" and the skill levels of the person measuring, a 'measurement productivity rate' is calculated. I.e, the number of fps measured per hour. Based on the predicted size of the software to be measured and the estimated counting rate you can then determine the number of hours/days required to functionally measure the application.

Total Metrics has also determined a rate of measurement for IFPUG function points, applicable for each of the six Levels based on the statistics it has maintained for its experienced functional size measurement experts over a number of years. However, it is recommended that other organisations maintain their own statistics and determine their own rates of measurement. The experience and skill of their counters, along with the standard of software documentation will influence the rates. (See

Figure 1 for the relationship between the Levels, counting rates and the capability of the resultant size measure.)

Predict the Effort and Cost of the Measurement

The effort required for the measurement will be based on the approximate size and the counting rate for the Count Level selected. For example, assume that the approximate size of the application to be counted is 2000 FPs and Count Level 4 is the counting strategy selected. A typical rate for this level would be approximately 400 FPs/day. Hence 5 days of effort would be allocated to actually measuring the functionality of this particular application and documenting your assumptions. You may need to add additional time if additional analysis of the measurement results is required.

Remember to include the system matter expert's time in your effort and cost estimates. For Level 1 to Level 3 counts it typically takes around 1 – 2 hours per day of measurement of their effort.

Develop the Schedule

The schedule for the measurement activity is determined by the following factors:

1. The total time (effort) for the measurement;
2. Availability of resources such as system matter experts to assist the person measuring;
3. Any constraints on the elapsed time for the measurement activity;
4. The number of people available to perform the measurement.

The actual start and end dates of each count need to be determined in consultation with the manager for the application or project concerned. They will need to be informed as to their commitments and responsibilities for providing resources to the activities.

In addition to the subject matter the expert's management need to allocate security access and physical space for the measurement personnel, current system documentation hard copy and/or online and on-line access to the actual software application when relevant (mainly

"Monitor the output (fps counted) from each of the counters on a daily basis, so you know at any point if the count is ahead or behind schedule. If the counters are not achieving planned counting rates then estimates may need to be checked or the Level of Counting re-evaluated."

"Schedule your counters to work on related and similar applications. This speeds up the learning curve on each count."

"If the same SME works on several applications then allocate them the same counter. This speeds up the process by reducing the start-up time."

Next issue we investigate the resources and infrastructure required to establish a functional size measurement within your organisation

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About Our Organization...

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

Thoughts for the Month

"Opportunities always look bigger going than coming."

"Someone who thinks logically provides a nice contrast to the real world."

"For every action, there is an equal and opposite government program."

"Not one shred of evidence supports the notion that life is serious."

"A conscience is what hurts when all of your other parts feel so good."

So you need to do a lot of counting – FAST - continued

Continued.....

for application counts of on-line systems).

We recommend that the manager of the application return a signed agreement confirming the availability of the resources and acceptance of the times scheduled to avoid disruption of the schedule due to unavailability.

As is normal, expect the schedule to be disrupted by unavoidable situations such as application crashes, staff sickness and conflicting priorities but these tend to be exceptions and occur infrequently. However, some flexibility in attitude by the measurement team organising the measurement activity will help to ensure the smooth activity.

Conclusion

As with any IT project careful up-front analysis and planning is essential, if a number of software size measurements are to be performed in a timely and cost effective manner, and deliver the required results with minimum disruption to ongoing development and support activities.



IFPUG is holding their annual conference September 15th to 19th 2003 in Scottsdale Arizona.

Pam Morris from Total Metrics is presenting - Similarities and Differences between IFPUG and COSMIC-FFP as well as the following training at the conference

- *FP 101 Introduction to Function Point Counting*
- *FP 331 FP Counting Validation*

Visit:

<http://www.ifpug.org/conferences/annual.htm>

The Secret is Out- Software is an asset

Standards released in 2001 by the Financial Accounting Standards Board have resulted in many US organisations reviewing their need to value their internally developed computer software for financial reporting purposes.

However the fact that a reliable, robust and transparent valuation methodology is available to meet their needs remains a *secret* to the majority of those responsible for producing financial statements.

The software valuation methodology utilises Function Point sizing.

In Australia the methodology has been accepted by the Federal Government as satisfying all relevant accounting standards, as well as guidelines issued by both the Department of Finance and Administration and the Australian National Audit Office.

Over 95% of Australian Government Departments have had their internally developed software valued and subsequently recognised on their Balance Sheets.

Both 'Deprival Value' and 'Fair Value', as defined by various international accounting standards, has been determined using the methodology.

For valuation purposes, only a FP sizing estimate, rather than a full count is required, making the approach very cost effective.

The good news is that now the secret is out.

For more information contact Total Metrics.
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