COSMIC News

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A new release of the Measurement Manual...

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"Most importantly, the rules on how to measure a functional size of software using the COSMIC method have not changed"

The Measurement Practices Committee (MPC) of the Common Software Measurement International Consortium's is finalizing a new version of the COSMIC Measurement Manual, to be released within the next month or two. This will be the largest update of the past four years.

Most importantly, the rules on how to measure a functional size of software using the COSMIC method have not changed; there are only some clarifications. However the method now addresses the question of which size to measure more clearly than in previous versions.

The new material addresses the fact that functional sizes vary depending on:

- different levels of decomposition, e.g. when software is measured as a whole versus when the sizes of its components are measured;
- different levels of granularity, e.g. when the requirements of the software to be measured evolve in increasing detail as the project progresses;
- and as seen by different users, e.g. the functional size of a piece of software embedded in, say, a domestic appliance, is smaller as seen by a human operator user than how it is seen by the hardware device 'users' of the software that drive the appliance.

These 'Measurement Strategy' parameters must be carefully considered and agreed upon before a measurement exercise is started, to ensure that the results can be properly interpreted, used and compared with other measurements.

The new material represents a major breakthrough for functional size measurement in general, because the parameters are valid for all FSM Methods, not just for COSMIC. The ideas will be especially important for estimating methods and for all benchmarking activities. A paper on these new ideas ("Advancing functional size measurement – which size should we measure?") was presented by Charles Symons at the SMEF Conference in Rome in May. (*The paper may be down-loaded from www.gelog.etsmtl.ca/cosmic-ffp*)

The opportunity is also being taken with the publication of this latest release of the Measurement Manual to make some cosmetic changes to the method and its publications, notably:

- The name of the method will be simplified from 'COSMIC-FFP' to the 'COSMIC' method. (The 'FFP' suffix is now only of historical interest.)
- The unit of measure will be simplified, for ease of use, from 'Cfsu' (COSMIC functional size unit) to 'CFP' (COSMIC Function Point)
- The new documents will be split into three main parts, adapted to the needs of three classes of readers, namely those who need an overview or an introduction to the method, those who need a reference manual for the basic rules, and finally, an 'advanced and related topics' part for experienced practitioners

The new version of these documents will be available for free down-loading from www.gelog.etsmtl.ca/cosmic-ffp later this 'summer'; as understood by those in the Northern Hemisphere!

Satisfying an increasing demand for COSMIC

Arising from market demand in India to hold COSMIC Entry-level examinations, a process has been developed to enable such exams to be held anywhere in the world under the supervision of an appropriate proctor. For details on the examination process please contact Alain Abran (*aabran@ele.etsmtl.ca*)

Also, the Entry level exam is being translated into Italian and Spanish. A Spanish exam session will be held at the next IWSM/Mensura 2007 Conference in Palma da Mallorca, Spain in November (*see www.mensura2007.uib.es*). Another exam is should be scheduled in Rome either in October or November 2007.

For details on all future COSMIC certification exams, visit *www.gelog.etsmtl.ca/cosmic-ffp*.
Also worth noting, version 2.2 of the Measurement Manual has been translated in Japanese (http://www.itlab.k.dendai.ac.jp/2000/form.htm) and an Arabic translation is nearly complete.

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"[…] a process for automatic measurement of the functional size of components […] of an avionics system using the COSMIC method"

Eurocopter measures COSMIC size automatically

Richard Bridges, the Team Leader of Software Architecture and Integration for the NH90 European helicopter development project at Eurocopter in Germany gave a fascinating presentation at the European SEPG Conference in Amsterdam recently. He described a process for automatic measurement of the functional size of components of a military helicopter avionics system using the COSMIC method. The approach is based on requirement specifications held in a DOORS database and ADA source code. The results were used to measure productivity of the software development over a two-year period. These measurements were then used to estimate the effort for new features of a system using an 'early COSMIC' (approximation) sizing method.

Richard's presentation, which has many novel aspects, is available from the GELOG at *www.gelog.etsmtl.ca/cosmic-ffp*. Richard is interested to share his experience further and may be contacted directly via *richard.bridges@eurocopter.com*.

Cognizant using COSMIC in India

"Our search was for an "Industry recognized" estimation method for maintenance projects. At last we found that it was COSMIC […]"

The following article was kindly provided by Sankar Krishnadas, of Cognizant Technology Solutions, India

Estimation of maintenance requests in a maintenance project is vital for correct resource allocation and for timely delivery without any tradeoffs. There is a greater demand from customers for an industry-recognized estimation methodology for maintenance projects to enable them to compare our productivity with other software suppliers.

Cognizant has its home-grown "Complexity points" estimation approach for maintenance projects, which however is not recognized outside Cognizant. Our search was for an "Industry recognized" estimation method for maintenance projects. At last we found that it was COSMIC-FFP! We piloted it on some maintenance requests. The feedback from various pilot projects was – 'it's very simple, easy, …' and so on.

An agile (SCRUM) project was also sampled for piloting where the size in Cfsu was calculated for one sprint (increment). This data was submitted for ISBSG benchmarking and we were pleased to receive the benchmark report from ISBSG.

Due to the as-yet limited availability of industry productivity benchmarks for COSMIC-FFP, we are establishing benchmarks specific to our organization to proceed further. Work is in progress on preparing training material, developing local sizing guidelines, and on applying the COSMIC-FFP method to more projects to get more data points for benchmarking. The Key Success Indicator for COSMIC-FFP at Cognizant will be the accuracy of estimation. Once it is proved accurate, institutionalizing the method is very close at hand."

Editor's Note: COSMIC method users are strongly encouraged to inspire themselves from Cognizant's example to submit some of their data to ISBSG (via www.isbsg.org) in order to improve industry benchmarks. However, for the most accurate estimating, local benchmarks should be established when the organization has sufficient data.

COSMIC related research areas

Areas where it is felt that interesting COSMIC related research could be carried out were discussed at a recent COSMIC meeting in Rome. The following topics were suggested (e.g. for PhD candidates for instance):

- How to specify in UML so as to facilitate subsequent measurement with COSMIC. Also, how to interpret UML diagrams with the intent of measuring with COSMIC the functionality they convey.
- How to measure the size of algorithm-intensive software and how to combine that size with the size measured by COSMIC.
- What work best for "change" projects: measuring the size of the software changed, or measuring the size of the change to the software or a mix of both?

Anyone interested in pursuing these research topics is invited to contact Alain Abran. (*aabran@ele.etsmtl.ca*)

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The COSMIC organization

The COSMIC organization is structured into two different bodies: the International Advisory Committee (IAC) of 22 members from 15 countries and the Measurement Practices Committee (MPC).

The COSMICON web-site, ***www.cosmicon.com***, is kept up to date and describes the COSMIC organization. It also provides complete background data on functional size measurement, FSM methods, etc.

Further information

If you have any questions or require further information on COSMIC, please contact your national representative on the COSMIC International Advisory Committee (see *www.cosmicon.com*, IAC).

If you would like to publish an article in this newsletter relating your experience with COSMIC, please forward a draft to the editor at: *serge.oligny@bell.ca*

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