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A newsletter!

Over the last year, the COSMIC-FFP method of sizing software has made substantial progress on several fronts. In this Newsletter you will learn on new publications, the first COSMIC-FFP based benchmark data established with the ISBSG, new

research investigations, findings and tool support, improvements to the COSMIC organizational structure and web-sites and other progress.

Whilst the new publications include refinements to the explanation of the method

with more helpful examples and case studies, the underlying principles are unchanged and the method remains remarkably stable, in spite of being tested in ever-wider software environments.

Method stability

The COSMIC-FFP method is defined and maintained by the Measurement Practices Committee (the MPC), a group of 17 software measurement experts from nine countries (see www.cosmicon.com for details).

COSMIC-FFP was first published as a functional sizing method in October 1999 and the International Standard for the method

(ISO/IEC 19761:2003) was published in February 2003. Over those five years, only one concept definition (that of a Layer) has been found to require further clarifications. 'Method Update Bulletin #1', proposing an improved definition of a Layer, was published in May 2004. (All COSMIC-FFP documents are available from the www.lrgl.uqam.ca website.)

A second Method Update Bulletin proposing a minor improvement to the definition of an 'object of interest' is being prepared for publication shortly. Overall the method has proved remarkably stable, having been successfully applied to a wide variety of business, real-time and infrastructure software – see below for details.

New publications

A 'Guideline for sizing Business Application software using COSMIC-FFP' is in an advance stage of preparation by the MPC. It should be published in early 2005. Publications such as this aim to provide more detailed guidance on applying the COSMIC-FFP method, for instance

covering the mapping of commonly-used software requirements analysis and development methods to the COSMIC-FFP method, and giving many examples of applying the method.

This first Guideline focuses on sizing from the End-user Measurement Viewpoint.

Later it is planned to publish Guidelines to deal with measuring Business Applications from the Developer Measurement Viewpoint, and for sizing Real-time software.

Several case studies on applying COSMIC-FFP to measure real-time and

New publications (continued)

"Users of the COSMIC-FFP method are strongly urged to submit more data to the ISBSG benchmark database"

several case studies on applying COSMIC-FFP to measure real-time and business application software were published in the past years. Some case study requirements were taken from an ISO Technical Report ISO/IEC 14143-4 (2000). The case studies are now being updated and will be re-published over the next few months. They

cover software to control:

- A rice cooker,
- A valve in a vehicle automatic gear box,
- An automatic switch between a main and a back-up telephone line depending on various line conditions,
- A university course reservation system,
- A hotel reservation system.

For almost all these case studies, the need for the revisions arises because we have found ambiguities or deficiencies in the statements of requirements (not because of the COSMIC-FFP method). We will discuss these ambiguities in the revised versions and will detail the assumptions that have had to be made in the analysis for the size measurement.

Benchmark data

In 2003 an exercise was undertaken by COSMIC with the International Software Benchmarking Standards Group (ISBSG) to gather measurements using COSMIC-FFP on a variety of software development and enhancement projects in order to establish initial performance benchmarks. Data were submitted from organizations in seven

countries. Reports published in early 2004 to the organizations that supplied data established three basic performance levels for real-time and embedded software, communications software, and business application software.

The ISBSG Repository data is available on the

'Estimating, Benchmarking and Research Suite Release 9' CD from: www.isbsg.org.

Users of the COSMIC-FFP method are strongly urged to submit more data to the ISBSG benchmark database to help improve understanding of project performance levels measured using COSMIC-FFP.

New lines of research

In July 2004, the Australian Research Council awarded a grant to '*drive innovative research into ways of better understanding and measuring software development costs*' to Curtin Business School (contact Dianne Jamieson, Jamiesond@cbs.curtin.edu.au) in collaboration with several industry partners and two other Western Australian universities. The total budget will be \$1.38

million over four years. The industry partners include part of the Australian Department of Defense, ADI Ltd (Australia's largest defense supplier) and Total Metrics headed by Pam Morris, a member of the COSMIC IAC (see below). The research will particularly explore the relationship between Use Cases and the COSMIC-FFP functional size

measurement method.

Another line of research that we expect to start with a defense-industry partner in the coming months is to explore the application of COSMIC-FFP to size systems before the allocation of functions to hardware or software has been made.

We're on the Web!

See us at:
www.cosmicon.com

COSMIC FFP and software quality

"R&D work is being carried out in Canada for including automated COSMIC-FFP measurement in the RATIONAL ROSE environment"

One of the highly significant findings from practical experience of applying the COSMIC-FFP method is that measuring a statement of requirements is a very good check on its quality. If the requirements cannot be adequately measured then they are almost certainly deficient in some way.

As an illustration of how COSMIC-FFP is finding its

way into quality controls, the 2004 version of the ISO standard on software quality has just been published ('ISO 90003: 2004 - Guidelines for the application of ISO 9001:2000 for computer software').

ISO/IEC 19761:2003 on COSMIC-FFP is now referenced many times in this key ISO standard

whenever functional size measurement is recommended for the implementation of ISO 9001. Specifically, it is recommended in the clauses of ISO 90003 7.3 Design and Development, 7.4 Purchasing, 8.4 Analysis of data and in Annex A in the list of cross-references to various ISO software engineering standards.

Tool support

Suppliers of tools that support the gathering of data on COSMIC-FFP measurements and their use in project scope control and estimating are starting to appear:

. R&D work is being carried out in Canada for including automated COSMIC-FFP measurement in the RATIONAL ROSE environment. Preliminary results were reported this past February at the SMEF 2004 conference in Rome. Since then, further R&D

funding has been obtained to develop a first industrial prototype to be available in the first quarter of 2005.

. In parallel, a tool to support analysis of textual requirements is being developed in the UK to support the measurement of COSMIC-FFP upfront from the requirements themselves.

. In Europe, the R&D work has been carried out to map the COSMIC-FFP concepts to an OO CASE development

environment; the next steps for automation are being initiated.

. Further work is being carried out to transform the expert-system tool ('COSMICXpert') on the COSMIC-FFP measurement rules from an experimental prototype into an industry robust product.

See www.cosmicon.com for a list of vendors of support tools and other COSMIC-FFP related services.

Conference presentations

Notable recent presentations on COSMIC-FFP have been made in Germany, to the auto industry which will result in work to apply the method to the embedded software of car systems; in India, at the Software

Quality Summit organized by NASSCOM in Bangalore and at the SPIN-Chennai (formally Madras); in Columbia, at Guayacil and in Turkey at the International Workshop of Software Systems – IWSS2004.

Various tutorials have also been recently organized at the industry request, notably in Bangalore, Chennai, and Mumbai in India, in Northern Ireland, in the U.K., in Istanbul, Turkey and in Tokyo, Japan.

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National special interest groups (SIG)

"At the recent IWSM 2004, held in Berlin, COSMIC-FFP experts and other interested persons from 11 countries met to hear about progress with the method"

COSMIC is a global organization, it is most practical for those interested in the method to meet to share experience in local, national special interest groups (SIG) or in specialist streams in international conferences, rather than for COSMIC to organize its own international conferences.

National SIG's have already

been established in Italy, in Japan and in the Netherlands. Some will be started shortly in India, in Spain and in the U.K.

Meetings of those interested in COSMIC-FFP take place at the annual International Workshop on Software Measurement (see www.cs.uni-magdeburg.com) and at the

Software Measurement European Forum (see www.iir-italy.it/smef2005/)

At the recent IWSM 2004, held in Berlin, COSMIC-FFP experts and other interested persons from 11 countries met to hear about progress with the method, give their thoughts on ways forward and discuss specific measurement questions.

Practical usage of COSMIC FFP

COSMIC-FFP has been applied successfully in the following domains and industries:

- In the Business Application domain in

banking, insurance, telecoms utilities, supply chain management etc., for traditional transaction processing, web front-end software, document workflow control, etc.

- In Real-time software for avionics, process control, telecoms switching and transmission, embedded, military control systems, infrastructure, etc.

The COSMIC organization

The COSMIC organization has been formalized 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, has been extensively updated to describe the COSMIC organization and to provide complete background data on functional size measurement, FSM

methods, etc.

Out of curiosity, if you enter 'functional size measurement' into Google, the COSMICON site is listed second out of 843,000 references!

Further information

If you have any questions or require further information on COSMIC-FFP, please contact your national

representative on the COSMIC International Advisory Committee (see www.cosmicon.com, IAC).