The COSMIC Functional Size Measurement Method

Version 3.0.1

Documentation Overview and Glossary of Terms

May 2009

ABOUT THIS DOCUMENT

The following table summarizes the changes to this document

DATE	REVIEWER(S)	Modifications / Additions
September 2007	COSMIC Measurement Practices Committee	First public version of this document
May 2009	COSMIC Measurement Practices Committee	Updated to describe the latest status of COSMIC method documents and to update the Glossary in line with changes made to the Measurement Manual v3.0.1 from v3.0

COSMIC Method Version 3.0 reviewers 2007 (alphabetical order)		
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FOREWORD

The COSMIC functional size measurement method (hereinafter referred to as the 'COSMIC method'[1]) is an internationally-standardized method for measuring a functional size of software. It is applicable to both business application and real-time software.

A 'functional size' of software, as measured by a particular functional size measurement method, depends only on the functional user requirements of the software and is independent of any technical or quality requirements. A functional size is therefore valuable as a measure of software project work-output which can be used as a component of project performance measures, and as the main input to effort-estimation methods, especially in the early stages of a software project.

Measuring a functional size of a piece of software and using functional size measurements requires a thorough understanding of the measurement method used, in order to ensure that correct results are obtained and that they can be properly interpreted and used. It is therefore imperative that the size measurement method's documentation is clear and comprehensive, and is usable for novice and experienced measurers, working in various software domains.

Purpose of this document

The purpose of this 'Documentation Overview and Glossary of Terms' is to give both a comprehensive overview of all documents concerning the COSMIC functional size measurement method, together with a brief summary of their contents. It enables the reader to quickly select those documents that are relevant for his purpose and to find out where to obtain the documents.

In addition, this document contains the Glossary of Terms used by the COSMIC method from version 3.0 onwards.

[1] When details of the method were originally published, it was known as the 'COSMIC-FFP' method. From version 3.0 onwards, the name has been simplified to the 'COSMIC' method.

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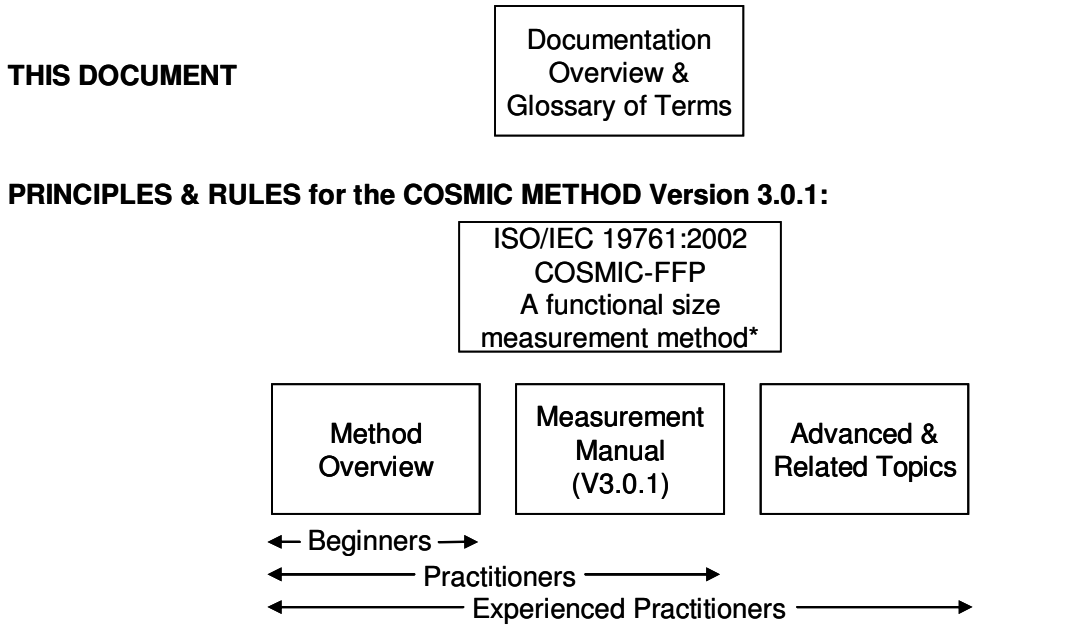
COSMIC DOCUMENTATION OVERVIEW

The following diagram shows the principal documents available for the COSMIC functional size measurement method.



* Being revised in 2009 within ISO to align with v3.0.1

** Under development 2009

Figure 1.0 - Principal documents available for the COSMIC functional size measurement method

English-language versions of all of the documents mentioned above may be down-loaded, free-of-charge, from the www.gelog.etsmtl.ca/cosmic-ffp web-site. In some cases, translations into other languages are also available from this site. An exception is the ISO/IEC 19761 standard, which may be obtained from www.iso.ch.

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In addition to these documents, research papers on topics related to the COSMIC method are listed on, or can be down-loaded from www.gelog.etsmtl.ca/cosmic-ffp.

More general background information on functional size measurement and its uses, on the advantages of the COSMIC method, on the COSMIC organization and its activities, on suppliers of COSMIC-related services, COSMIC Newsletters, etc., can be found on www.cosmicon.com

COSMIC Editorial Policy

All documents that define or are related to the COSMIC method are published after thorough discussion and approval by members of the COSMIC Measurement Practices Committee (the 'MPC'). (For current membership, see www.cosmicon.com.) MPC Members are all experts in software functional size measurement, from several countries around the world.

The current COSMIC standard definition of the method in the Measurement Manual, is 'version 3.0.1'. Version 3.0.1 differs from v3.0 only in a few minor corrections and editorial improvements. These changes affect only the Measurement Manual and this Documentation Overview and Glossary of Terms. All other documents designated 'v3.0' remain valid. COSMIC documents that were published prior to version 3.0, will be reviewed and updated if necessary by the MPC so as to bring them into line with version 3.0.

In 2009, work is in progress within the International Organization for Standardization to update the ISO/IEC 19761:2002 standard to bring it into line with version 3.0.1. This update is being carried out by an ISO Working Group whose members are representatives of National Standardization Bodies, according to ISO procedures.

All such updates to bring all documents in line with version 3.0.1 will principally involve changes in terminology and presentation of some concepts. **It must be emphasized that the basic size measurement model, principles and rules have not changed since the method was first published in 1999.**

All COSMIC method documents and guidelines contain a 'Change Request and Comment Procedure'. The MPC welcomes feedback on its publications and will respond to any Comments and/or Change Requests.

As new versions of the COSMIC method are only published at intervals of some years, if any significant changes to the method are approved by the MPC, they will be published as 'Method Update Bulletins', pending their incorporation in the next version of the method. With the publication of version 3.0.1 of the method, there are no outstanding Method Update Bulletins affecting the Measurement Manual.

The evolution of the COSMIC method may be traced by reference to each version of the Measurement Manual, which summarizes the principal changes from the previous version.

The MPC also plans to establish a FAQ (Frequently Asked Questions) facility, probably via the www.cosmicon.com web-site.

The COSMIC Measurement Practices Committee

May 2009

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COSMIC METHOD DOCUMENTS

The three documents described in the following sections form the basis of the COSMIC method.

2.1 The COSMIC Method v3.0: 'Method Overview', 2007

Status

Public domain version available, September 2007. The content is partly based on chapter 2 of the Measurement Manual v2.2 but was largely extended.

Purpose and relationship to other COSMIC documents

The purpose of this document is to provide a general introduction to and an overview of the COSMIC method.

Intended readership

The Method Overview is intended to be read by those who need a general introduction to the COSMIC method but who do not (yet) need to know all the details. These include people who are new to the subject of functional size measurement and all those who may need measurements and/or who may use the results of measurements as part of measuring software project performance, controlling software contracts, estimating, etc.

The document will also be of interest to those who are familiar with an existing '1st generation' functional size measurement method (such as IFPUG, MkII or NESMA Function Point Analysis) and who are considering advancing to the COSMIC method

2.2 The COSMIC Method v3.0.1: 'Measurement Manual', 2009 ('The COSMIC implementation guide to ISO/IEC 19761')

Status

Public domain version available, May 2009. The content of the Measurement Manual version 3.0 was developed from chapters 3 through 6 of the Measurement Manual v2.2, updated with some changes of terminology and some new material, especially in the area of setting the Measurement Strategy. The most important changes in deriving version 3.0.1 from version 3.0 are improved wording of a few definitions, principles and rules. Most of the changes had been published in the three Method Update Bulletins (numbers 3, 4 and 5) prior to publishing version 3.0.1. Additionally, several editorial improvements have been made.

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Purpose and relationship to other COSMIC documents

The Measurement Manual is the COSMIC method core text, describing the COSMIC implementation of ISO/IEC 19761[2] in detail. It is the indispensable reference document for the COSMIC practitioner.

Intended readership

The Measurement Manual is intended to be read by those who will have the task of measuring functional sizes of software according to the COSMIC method at any point in a software life-cycle. It will also be of interest to those who have to interpret and use the results of such measurements in the context of project performance measurement, software contract control, estimating, etc. The COSMIC method and the contents of the Measurement Manual are not tied to any particular development methodology or life-cycle.

2.3 The COSMIC Method v3.0: 'Advanced and Related Topics', 2007

Status

Public domain version available, December 2007. The content includes updated chapters 6 and 7 from the Measurement Manual v2.2, with an additional chapter on 'Ensuring the comparability of size measurements'.

Purpose; relationship to other COSMIC documents

The purpose of this document is to deal with subjects additional to but related to the COSMIC method. Specifically, the chapters deal with

- ensuring the comparability of measurements of software requirements that exist at varying levels of granularity and/or on software at varying levels of decomposition
- variants of the basic sizing method needed for approximate, rapid sizing or approximate sizing early in the life of a software project as its requirements are evolving
- conversion of sizes obtained via three functional sizing methods (IFPUG, MkII and FFP v1.0) to sizes measured using the COSMIC method.
- ensuring accuracy and repeatability of COSMIC measurements (in preparation, 2009)

Intended readership

The document contains material that will probably be important to measurers who have mastered the basic rules of the COSMIC method given in the Measurement Manual.

[2] The standard ISO/IEC 19761:2002 'Software Engineering – COSMIC-FFP – A functional size measurement method' contains the basic definitions and rules of the method when it was first published as an International Standard. The Common Software Measurement International Consortium has introduced improvements and refinements of the method made since 2002 into an updated ISO standard. This should become available from ISO in the course of 2009.

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COSMIC METHOD GUIDELINES FOR SPECIFIC DOMAINS

3.1 Guideline for sizing business application software using COSMIC, version 1.1

Status

Public domain version available, , May 2008, updated to bring it in line with the Measurement Manual version 3.0. The principal change has been one of terminology, namely the concept of 'end user' from version 2.2 is replaced by the more general concept of 'functional user' in version 3.0. Measurement results should not be affected by the update.

Purpose; relationship to other COSMIC documents

The purpose of this guideline is to provide additional guidance beyond that given in the 'Measurement Manual' on how to apply the COSMIC method to size software from the business application domain, where the functional users of the software being measured are typically humans and/or peer applications.

The guideline contains extensive examples of measuring typical features of business application software using the COSMIC method.

Intended readership

This guideline is intended to be read by those who will have the task of measuring and using functional sizes of business application software according to the COSMIC method.

The guideline is not tied to any particular development methodology or life-cycle, but it does discuss the relationship between the COSMIC concept of an 'object of interest' and its equivalents in the data analysis methods of Entity-Relationship Analysis, Relational Data Analysis, and the Unified Modelling Language.

3.2 Guideline for sizing real-time software using COSMIC, version 1.0

Status

In development, 2009

Purpose and relationship to other COSMIC documents

The purpose of this guideline will be to provide additional guidance beyond that given in the 'Measurement Manual' on how to apply the COSMIC method to size software from the real-time domain, where the functional users of the software being measured are typically engineered hardware devices and other pieces of software.

The intention will be to describe and give comprehensive examples of the use of the COSMIC method in terminology that is commonly used by software engineers in the real-time world.

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Intended readership

This guideline is intended to be read by those who will have the task of measuring and using functional sizes in the real-time software domain according to the COSMIC method.

3.3 Guideline for sizing Data Warehouse system software using COSMIC, version 1.0

Status

First version under review by the MPC, May 2009.

Purpose and relationship to other COSMIC documents

The purpose of this guideline will be to provide additional guidance beyond that given in the 'Measurement Manual' on how to apply the COSMIC method to size the software of Data Warehouse systems, Such systems have complex data structures and have proven difficult to measure using '1st Generation' functional size measurement methods.

Intended readership

This guideline is intended to be read by those who will have the task of measuring and using functional sizes of Data Warehouse software systems according to the COSMIC method.

3.4 Guideline for sizing Service-Oriented Architecture software using COSMIC, version 1.0

Status

First version under review by the MPC, May 2009.

Purpose and relationship to other COSMIC documents

The purpose of this guideline will be to provide additional guidance beyond that given in the 'Measurement Manual' on how to apply the COSMIC method to size software from the Service Oriented Architecture (SOA) domain, where the functional users of the software being measured are typically applications, human users and other services.

The intention will be to describe and give comprehensive examples of the use of the COSMIC method in terminology that is commonly used by software engineers in the SOA world.

Intended readership

This guideline is intended to be read by those who will have the task of measuring and using functional sizes in the SOA software domain according to the COSMIC method.

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COSMIC CASE STUDIES

The purpose of the case studies is to present practical example material both for the novice and for the experienced measurer. Each case study consists of a realistic specification such as the reader may encounter in practice, and the details of its solution.

Since the case studies are added to and sometimes updated at different intervals from when the COSMIC method documents and guidelines are published, the case studies are not listed here.

All case studies may be down-loaded, free-of-charge, from www.gelog.etsmtl.ca/cosmic-ffp

The case studies are taken from both the business application and real-time domains.

Note that most case studies were published before the release of version 3.0 of the COSMIC method. They will therefore be updated to bring them in line with the version 3.0 terminology when time permits.

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REFERENCES TO RESEARCH PAPERS, ARTICLES AND DATA ON THE COSMIC METHOD

Many papers and presentations have already been published, and many continue to be published, at conferences and in journals, from researchers and practitioners, on topics related to the COSMIC Functional Size Measurement Method. The topics include discussions of various aspects of the method itself; applications of the method to sizing software from various domains (business and real-time); use for project estimating; benchmarking studies; conversion of measurements from '1st Generation' FSM methods; etc.

Many of these papers and presentations may be down-loaded, free-of-charge, from www.gelog.etsmtl.ca/cosmic-ffp. If the paper is not available there, often a reference is given to the site where the paper may be obtained.

More general articles on the COSMIC organization, its history and policies; on functional size measurement in general and on the COSMIC method in particular including its advantages; suppliers of services related to the COSMIC method; newsletters; etc can be found on www.cosmicon.com.

Results of measurements using the COSMIC method and early benchmark standards can be found on the web-site of the International Software Benchmarking Standards Group, www.isbsg.org. Users of the COSMIC method are strongly urged to contribute their project data to the ISBSG database.

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GLOSSARY OF TERMS

The following terms are used throughout the COSMIC functional size measurement method (the 'COSMIC method'), according to the definitions found in this section. Terms already defined by ISO, such as "Functional Size Measurement" or "Unit of measurement", together with their ISO definition have also been adopted for the COSMIC method.

For many of the terms listed in the glossary, when appropriate, the suffix 'type' is shown. Since any functional size measurement method aims to identify 'types' and not 'occurrences' of data or functions, almost invariably throughout the COSMIC method we will be concerned with 'types' and not 'occurrences'. Consequently, in the texts we will drop the suffix 'type' from these terms for the sake of readability, except when we specifically need to distinguish type and occurrence. This is also the convention adopted in the International Standard (ISO/IEC 19761:2002) definition of the method. Occasionally this convention leads to difficulties when drafting these definitions – see note 3 of the definition of 'data movement type' below, which does not appear in the International Standard.

Note: Terms that are used only in the domain-specific COSMIC 'guidelines' are defined in those guidelines; they are not shown below.

In the definitions given below, terms that are defined elsewhere in this glossary are under-lined, for ease of cross-reference. Terms that originate in the ISO Standard for the COSMIC method (ISO/IEC 19761) or that are otherwise specific to the COSMIC method are shown in **bold**. Other terms that have been adopted from ISO but that are not specific to the COSMIC method are shown in plain text.

Application-general data

Any data related to the application in general and not related to an object of interest of a specific functional process.

Base functional component (BFC)

An elementary unit of the Functional User Requirements defined by an FSM method for measurement purposes[3].

NOTE: The COSMIC method defines a data movement type as a BFC.

Base functional component type (BFC type)

A defined category of BFCs[3]. The COSMIC method has four BFC types, the Entry, Exit, Read and Write (-types).

[3] From "ISO/IEC 14143-1:2007 Information Technology – Software measurement – Functional size measurement – Part 1: Definition of concepts", clause 3.1.

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Boundary

A conceptual interface between the software being measured and its functional users.

NOTE: The boundary of a piece of software is the conceptual frontier between this piece and the environment in which it operates, as it is perceived externally from the perspective of its functional users. The boundary allows the measurer to distinguish, without ambiguity, what is included inside the measured software from what is part of the measured software's operating environment.

Control command

A command that enables a functional user to control their use of the software but which does not involve any movement of data about an object of interest.

NOTE: The term 'control command' is used ONLY in the context of measuring business application software. In this context, a control command is not a data movement because the command does not move data about an object of interest. Examples are 'page up/down' commands; hitting a Tab or Enter key, clicking on the 'OK' to confirm a previous action, etc.

COSMIC measurement function

A mathematical function which assigns a value to its argument based on the COSMIC measurement standard. The argument of the COSMIC measurement function is the data movement.

COSMIC measurement standard

The COSMIC measurement standard, 1 CFP (Cosmic Function Point) is defined as the size of one data movement.

NOTE: The measurement standard was previously known as a 'Cfsu' (COSMIC functional size unit)

Data attribute type (synonym 'data element type')

The smallest parcel of information, within an identified data group type, carrying a meaning from the perspective of the software's Functional User Requirements.

Data group type

Any distinct, non empty, non ordered and non redundant set of data attribute types where each included data attribute type describes a complementary aspect of the same object of interest.

Data manipulation

Anything that happens to data other than a movement of the data into or out of a functional process, or between a functional process and persistent storage.

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Data movement type

A base functional component which moves a single data group type.

NOTE 1: There are four sub-types of data movement types: Entry, Exit, Read and Write (-types).

NOTE 2: For measurement purposes, each data movement sub-type is considered to include certain associated data manipulation – see the Measurement Manual for details.

NOTE 3: More precisely, it is an *occurrence* of a data movement, not a data movement *type*, that actually *moves* the data group *occurrences* (not *types*). This comment also applies to the definitions of Entry, Exit, Read and Write.

E

Abbreviation for 'Entry type'.

Entry type

A data movement type that moves a data group from a functional user across the boundary into the functional process where it is required**.**

NOTE: An Entry type is considered to include certain associated data manipulation – see the Measurement Manual for details.

Event type

See "Triggering event".

Exit type

A data movement that moves a data group from a functional process across the boundary to the functional user that requires it.

NOTE: An Exit type is considered to include certain associated data manipulation – see the Measurement Manual for details.

Functional process type

An elementary component of a set of Functional User Requirements comprising a unique cohesive and independently executable set of data movement types. It is triggered by a data movement (an Entry) from a functional user that informs the piece of software that the functional user has identified a triggering event. It is complete when it has executed all that is required to be done in response to the triggering event type.

NOTE: In addition to informing the piece of software that the event has occurred, the Entry triggered by the event may include data about an object of interest associated with the event,

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Functional process level of granularity

A level of granularity of the description of a piece of software at which the functional users

- are individual humans or engineered devices or pieces of software (and not any groups of these) AND
- detect single occurrences of events that the piece of software must respond to (and not any level at which groups of events are defined).

NOTE 1: In practice, software documentation containing functional users requirements often describes functionality at varying levels of granularity, especially when the documentation is still evolving.

NOTE 2: 'Groups of these' (functional users) might be, for example, a 'department' whose members handle many types of functional processes, or a 'control panel' that has many types of instruments, or 'central systems'.

NOTE 3: 'Groups of events' might, for example, be indicated in a statement of FUR at a high level of granularity by an input stream to an accounting software system labelled 'sales transactions' or by an input stream to an avionics software system labelled 'pilot commands'.

Functional Size

A size of the software derived by quantifying the Functional User Requirements.[3]

Functional Size Measurement (FSM)

The process of measuring functional size.[3]

Functional Size Measurement Method

A specific implementation of FSM defined by a set of rules, which conforms to the mandatory features of ISO/IEC 14143-1:1998.[3]

Functional User

A (type of) user that is a sender and/or an intended recipient of data in the Functional User Requirements of a piece of software.

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Functional User Requirements (FUR)

A sub-set of the User Requirements. Requirements that describe what the software shall do, in terms of tasks and services.

NOTE: Functional User Requirements relate to but are not limited to:

- data transfer (for example Input customer data, Send control signal);
- data transformation (for example Calculate bank interest, Derive average temperature);
- data storage (for example Store customer order, Record ambient temperature over time);
- data retrieval (for example List current employees, Retrieve aircraft position).

Examples of User Requirements that are not Functional User Requirements include but are not limited to:

- quality constraints (for example usability, reliability, efficiency and portability);
- organizational constraints (for example locations for operation, target hardware and compliance to standards);
- environmental constraints (for example interoperability, security, privacy and safety);
- implementation constraints (for example development language, delivery schedule).[3]

Input

Data for which the values are independent of the software, which is entered from a user and which are used by the software at some point during its operation. The generic definition of input used in this manual is notably different from the specific definition used by the International Function Point Users Group (IFPUG). In COSMIC, input consists of all the Entries involved in a particular functional process type.

Layer

A partition resulting from the functional division of a software system which together with hardware forms a whole computer system where:

- layers are organized in a hierarchy
- there is only one layer at each level in the hierarchy;
- there is a 'superior/subordinate' hierarchical dependency between the functional services provided by software in any two layers in the software architecture that exchange data directly;
- the software in any two layers in the software architecture that exchange data interpret only part of that data identically.

Level of decomposition

Any level resulting from dividing a piece of software into components (named 'Level 1', for example), then from dividing components into sub-components ('Level 2'), then from dividing sub-components into sub-sub components (Level 3'), etc.

NOTE 1: Not to be confused with 'level of granularity'.

NOTE 2: Size measurements of the components of a piece of software may only be directly comparable for peer components, i.e. components at the same level of decomposition.

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Level of granularity

Any level of expansion of the description of a single piece of software (e.g. a statement of its requirements, or a description of the structure of the piece of software) such that at each increased level of expansion, the description of the functionality of the piece of software is at an increased and uniform level of detail.

NOTE: Measurers should be aware that when requirements are evolving early in the life of a software project, at any moment different parts of the required software functionality will typically have been documented at different levels of granularity.

Measurement method[4]

A logical sequence of operations, described generically, used in the performance of measurements.

Measurement procedure[4]

A set of operations, described specifically, used in the performance of particular measurements according to a given method.

Measurement process[5]

The process of establishing, planning, performing and evaluating software measurement within an overall project or organisational measurement structure.

Model[6]

A description or analogy used to help visualize a concept that cannot be directly observed.

Object of interest type

Any 'thing' that is identified from the point of view of the Functional User Requirements. It may be any physical thing, as well as any conceptual object or part of a conceptual object in the world of the functional user about which the software is required to process and/or store data.

NOTE: In the COSMIC method, the term 'object of interest' is used in order to avoid terms related to specific software engineering methods. The term does not imply 'objects' in the sense used in Object Oriented methods.

Operating environment (software)

The set of software operating concurrently on a specified computer system.

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[4] From "International Vocabulary of Basic and General Terms in Metrology", International Organization for Standardization, Switzerland, 2nd edition, 1993, ISBN 92-67-01075-1

[5] From ISO/IEC 15939:2002, definition 3.24

[6] Adapted from Merriam Webster's Collegiate Dictionary, 10th Edition.

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Output

Data for which the value depends on the operation of the software and which is therefore created or otherwise modified by the software during its operation before being sent to a user. The generic definition of output used in this manual is notably different from the specific definition used by the International Function Point Users Group (IFPUG). In COSMIC, output consists of all the Exits involved in a particular functional process type.

Peer

Two pieces of software are peers of each other if they reside in the same layer.

NOTE. Two peer pieces of software do not have to be at the same level of decomposition.

Peer component

One component of a set of co-operating components, all at the same level of decomposition, that results from dividing up a piece of software within one layer, where each component fulfills a portion of the Functional User Requirements of that piece of software.

NOTE: The division of a piece of software into peer components may be in response to functional and/or non-functional user requirements.

Persistent storage

Storage which enables a functional process to store data beyond the life of the functional process and/or which enables a functional process to retrieve data stored by another functional process, or stored by an earlier occurrence of the same functional process or stored by some other process.

NOTE 1: In the COSMIC model, because persistent storage is on the software side of the boundary, it is not considered to be a user of the software being measured.

NOTE 2: An example of 'some other process' would be in the manufacture of read-only memory.

Purpose of a measurement

A statement that defines why a measurement is being made, and what the result will be used for.

R

Abbreviation for 'Read type'.

Read type

A data movement that moves a data group from persistent storage within reach of the functional process which requires it.

NOTE: A Read type is considered to include certain associated data manipulation – see the Measurement Manual for details.

Scaling (of a measurement)

The process of converting a size measurement at one unit of measure to a measurement at another unit of measure.

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Scope (of the measurement)[3]

The set of Functional User Requirements to be included in a specific functional size measurement instance.

NOTE A distinction should be made between the 'overall scope', i.e. all the software that should be measured according to the purpose, and the 'scope' of any individual piece of software within the overall scope, whose size should be measured separately. In the Measurement Manual, the term 'scope' (or the expression 'measurement scope') will relate to an individual piece of software whose size must be measured separately.

Software[7]

A set of computer instructions, data, procedures and maybe documentation operating as a whole, to fulfill a specific set of purposes, all of which can be described from a functional perspective through a finite set of Functional User Requirements, technical and quality requirements.

Sub-process type

A part of a functional process that either moves data (into the software from a functional user or out of the software to a functional user, or to or from persistent storage) or that manipulates data.

Triggering event type

An event (something that happens) that causes a functional user of the piece of software to initiate ('trigger') one or more functional processes. In a set of Functional User Requirements, each event which causes a functional user to trigger a functional process

- cannot be sub-divided for that set of FUR, AND
- has either happened or it has not happened..

NOTE: Clock and timing events can be triggering events.

Unit of measurement[4]

A particular quantity, defined and adopted by convention, with which other quantities of the same kind are compared in order to express their magnitudes relative to that quantity. It is to be noted that units of measurement have conventionally assigned names and symbols.

User[3]

Any person or thing that communicates or interacts with the software at any time.

NOTE: Examples of 'thing' include, but are not limited to, software applications, animals, sensors, or other hardware .

Value (of a quantity)[4]

The magnitude of a particular quantity, generally expressed as a unit of measurement multiplied by a number.

W

Abbreviation for 'Write type'.

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[7] Adapted from Merriam Webster's Collegiate Dictionary, 10th Edition, and La Petit Larousse Illustré, 1996 Edition.

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Write type

A data movement that moves a data group lying inside a functional process to persistent storage.

NOTE A Write type is considered to include certain associated data manipulation – see the Measurement Manual for details.

X

Abbreviation for 'Exit type'

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APPENDIX A - COSMIC CHANGE REQUEST AND COMMENT PROCEDURE

The COSMIC Measurement Practices Committee (MPC) is very eager to receive feedback, comments and, if needed, change requests for the COSMIC method. This appendix sets out how to communicate with the COSMIC MPC.

All communications to the COSMIC MPC should be sent by e-mail to the following address:

mpc-chair@cosmicon.com

Informal general feedback and comments

Informal comments and/or feedback concerning the COSMIC documentation, such as any difficulties of understanding or applying the COSMIC method, suggestions for general improvement, etc should be sent by e-mail to the above address. Messages will be logged and will generally be acknowledged within two weeks of receipt. The MPC cannot guarantee to action such general comments.

Formal change requests

Where the reader of the COSMIC documentation believes there is an error in the text, a need for clarification, or that some text needs enhancing, a formal change request ('CR') may be submitted.

Formal CR's will be logged and acknowledged within two weeks of receipt. Each CR will then be allocated a serial number and it will be circulated to members of the COSMIC MPC, a world wide group of experts in the COSMIC method. Their normal review cycle takes a minimum of one month and may take longer if the CR proves difficult to resolve.

The outcome of the review may be that the CR will be accepted, or rejected, or 'held pending further discussion' (in the latter case, for example if there is a dependency on another CR), and the outcome will be communicated back to the submitter as soon as practicable.

A formal CR will be accepted only if it is documented with all the following information.

- Name, position and organisation of the person submitting the CR
- Contact details for the person submitting the CR
- Date of submission
- General statement of the purpose of the CR (e.g. 'need to improve text…')
- Actual text that needs changing, replacing or deleting (or clear reference thereto)
- Proposed additional or replacement text
- Full explanation of why the change is necessary

A form for submitting a CR is available from the www.cosmicon.com site.

The decision of the COSMIC MPC on the outcome of a CR review and, if accepted, on which version of the COSMIC documentation the CR will be applied to, is final.

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Questions on the application of the COSMIC method

The COSMIC MPC regrets that it is unable to answer questions related to the use or application of the COSMIC method. Commercial organisations exist that can provide training and consultancy or tool support for the method. Please consult the www.cosmicon.com web-site for further details

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