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Information technology — Software measurement — Functional size measurement —

Part 4: Reference model

Technologies de l'information — Mesurage du logiciel — Mesurage de la taille fonctionnelle —

Partie 4: Modèle de référence

Reference number
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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

— type 3, when a technical committee has collected data of a different kind than that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

Technical Reports are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Attention is drawn to the possibility that some of the elements of this part of ISO/IEC 14143 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC TR 14143-4, which is a Technical Report of type 2, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software engineering*.

ISO/IEC 14143 consists of the following parts, under the general title *Information technology — Software measurement — Functional size measurement*:

— *Part 1: Definition of concepts*

— *Part 2: Conformity evaluation of software size measurement methods to ISO/IEC 14143-1:1998*

— *Part 3: Verification of functional size measurement methods*

— *Part 4: Reference model*

— *Part 5: Determination of functional domains for use with functional size measurement*

Annexes A and B form a normative part of this part of ISO/IEC 14143. Annex C is for information only.

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Introduction

The user of an FSM Method must establish that the FSM Method is appropriate to quantify the functional size of the software. The conformity to ISO/IEC 14143-1:1998 will be necessary but may not be sufficient. An evaluation process of an FSM Method will have to consider practical evidence of the performance of the FSM Method. Such an evaluation may require benchmarking the chosen FSM Method to compare its results for a collection of known Reference User Requirements (RUR) with those obtained from a Reference FSM Method.

Part 4 of ISO/IEC 14143 provides standard RUR together with guidance on Reference FSM Methods. Figure 0.1 shows how these are used to establish reference results. The FSM Method to be evaluated determines functional size results for a collection of appropriate RUR. The same collection of RUR is measured by one or more Reference FSM Methods and these reference results are then compared with the results obtained from the FSM Method to be evaluated.

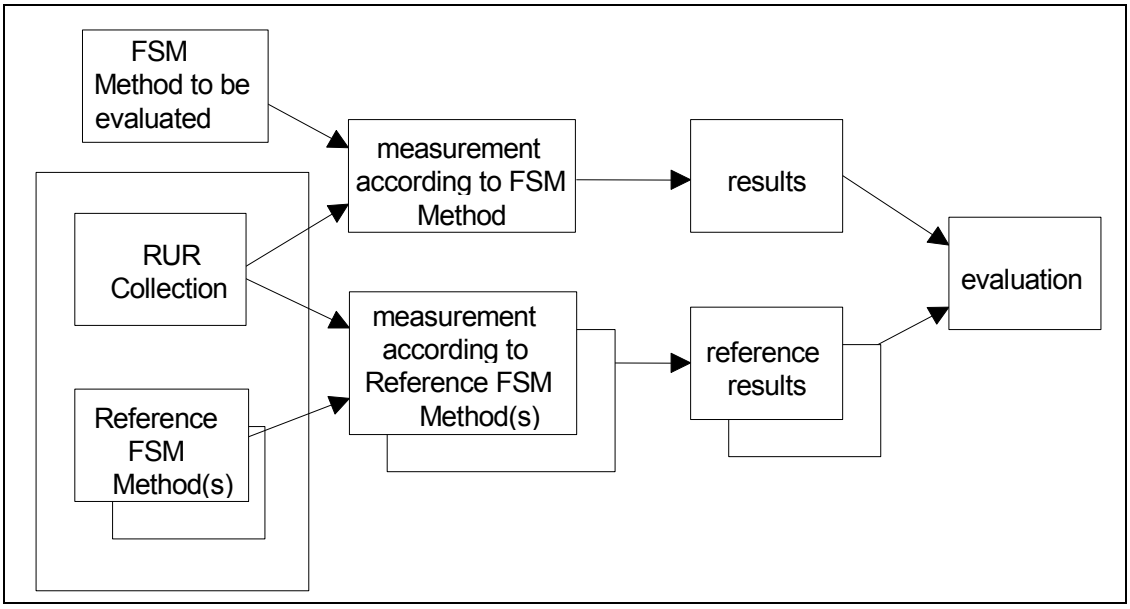

Figure 0.1: Use of RUR and Reference FSM Methods

Clause 5 of this part of ISO/IEC 14143 defines a framework for identifying, classifying and selecting RUR. Annexes A and B provide examples of such RUR in two different domains. While it would be desirable to have an exhaustive set of such RUR, the size of such collection would be prohibitive. Further RUR can be found in the RUR reference list presented in Annex C. Additional appropriate RUR may be constructed according to the basic guidelines stated in clause 5 RUR.

Clause 6 of this part of ISO/IEC 14143 introduces the general requirements for Reference FSM Methods. The reference FSM Methods provide reference points, against which other FSM Methods can be compared.

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Information technology — Software measurement — Functional size measurement —

Part 4: Reference model

1. Scope

Part 4 of ISO/IEC 14143 defines the reference model (Figure 0.1) to be used when verifying a Functional Size Measurement (FSM) method.

The reference model consists of two components:

- a classification framework of Reference User Requirements (RUR) which can be sized using an FSM Method. Included are examples of such RUR as well as references to further publications of User Requirements (UR) which can be used for RUR, and

- guidance on selecting Reference FSM Methods, against which an FSM Method can be compared.

The reference model is an input to the evaluation process of an FSM Method. The formulation and execution of evaluation tests and the interpretation of their results is outside the scope of this Technical Report.

The RUR and additional references contained in this Technical Report only represent examples of UR in some domains and situations. Additional RUR and RUR for domains and situations not covered by Annex A, B, or C may be generated with the assistance of the framework described in this Technical Report.

The requirements for Reference FSM Methods may assist in selecting Reference FSM Methods.

2. Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 14143. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 14143 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 14143-1:1998, *Information technology — Software measurement — Functional size measurement — Part 1: Definition of concepts*.

ISO/IEC 9126:1991, *Information technology — Software product evaluation — Quality characteristics and guidelines for their use*.

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