
**Information technology — Software
measurement — Functional size
measurement —**

Part 1:
Definition of concepts

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

Partie 1: Définition des concepts

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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 organizations 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. Draft International Standards adopted by the Joint Technical Committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75% of the national bodies casting a vote.

International Standard ISO/IEC 14143-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software engineering*.

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

Part 1: Definition of concepts

Further parts may follow.

Annex A of this part of ISO/IEC 14143 is for information only.

Introduction

Organizations engaged in software engineering have struggled for years in search of acceptable quantitative methods for measuring process efficiency and effectiveness, and for managing software costs, for the systems they acquire, develop, enhance or maintain. One critical, and particularly elusive, aspect of this measurement requirement has been the need to determine software size. Numerous software sizing methods have been proposed in the past. These included numbers of source lines of program code and various measures derived from the technical characteristics of the software.

These methods can have limitations in that they;

- cannot always be applied early in the software development process,
- cannot always be applied uniformly throughout the software's life time, or
- cannot always be meaningfully understood by users of the software.

The concepts of *Functional Size Measurement* (FSM) are designed to overcome these limitations by shifting the focus away from measuring how the software is implemented, to measuring size in terms of the functions required by the user.

Since the public release of Function Point Analysis, many sizing methods have been developed based on Albrecht's and other concepts. As these various sizing methods were developed without common agreement of the fundamental concepts of FSM, it was natural that inconsistencies amongst the methods would develop. These inconsistencies lessen the ability and attractiveness of any of these methods to be used as a standard method for the functional sizing of software.

This part of ISO/IEC 14143 defines the fundamental concepts of FSM, thereby promoting the consistent interpretation of FSM principles.

The text in this part of ISO/IEC 14143 has been formatted in order to facilitate the checking of a candidate software sizing method for conformance to this part of ISO/IEC 14143.

Information technology — Software measurement — Functional size measurement —

Part 1: Definition of concepts

1 Scope

This part of ISO/IEC 14143 defines the fundamental concepts of Functional Size Measurement (FSM) and describes the general principles for applying an FSM Method. This part of ISO/IEC 14143 does NOT provide detailed rules on how to:

- measure Functional Size of software using a particular method,
- use the results obtained from a particular method, or
- select a particular method.

NOTE - Guidelines on the uses of FSM are in Annex A.

This part of ISO/IEC 14143 is applicable when determining if a method for sizing software is an FSM Method. It does not prevent the development of various methods, but rather provides a basis for assessing whether a particular method conforms to FSM.

This part of ISO/IEC 14143 is intended for use by those persons associated with the acquisition, development, use, support, maintenance and audit of software.

2 Normative Reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 14143. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 14143 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 9126:1991¹⁾, *Information technology - Software product evaluation - Quality characteristics and guidelines for their use.*

3 Definitions

For the purposes of this part of ISO/IEC 14143, the following definitions apply.

3.1

Base Functional Component (BFC)

an elementary unit of Functional User Requirements defined by and used by an FSM Method for measurement purposes

NOTE - Example, a Functional User Requirement could be "Maintain Customers" which may consist of the following BFCs: "Add a new customer", "Report Customer Purchases", and "Change Customer Details". Another example might include a collection of logically related business data maintained by the software under study such as "Customer Details". There are many other examples.

3.2

BFC Type

a defined category of BFCs

NOTE - Examples of BFC Types are 'External Inputs', 'External Outputs' and 'Logical Transactions', and data stores such as 'Internal Logical Files'.

3.3

boundary

a conceptual interface between the software under study and its users

3.4

FSM Method

a specific implementation of FSM defined by a set of rules, which conforms to the mandatory features of this part of ISO/IEC 14143

3.5

Functional Domain

a class of software based on the characteristics of Functional User Requirements which are pertinent to FSM

3.6

Functional Size

a size of the software derived by quantifying the Functional User Requirements

¹⁾ Currently under revision.