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## Review of 14143-1

### Introduction

ISO/IEC 14143-1 was published in 1998. In May 2003 SC7 passed Resolution 734 to confirm the retention of 14143-1:1998. At the same May 2003 meeting in Montreal, members of the study group within SC7/WG12 identified a potential need for revising 14143-1 to ensure that it remained consistent with the other 14143 series and other SC7 standards. SC7 approved Resolution 730 to set up a study group to establish if there was a need for revision and how and under what constraints the revision would proceed.

### Terms of reference

#### SC7 Resolution 730.

***Study Group to review IS 14143-1:1998 Information Technology – Software Measurement - Functional size measurement – Definition of Concepts.***

***730***

*JTC1/SC7 instructs its Secretariat to establish a study group to review IS 14143-1:1998 Information Technology – Software Measurement - Functional size measurement – Definition of Concepts.*

*The terms of reference of this Study Group are to:*

- establish whether IS 14143-1:1998 needs to be changed*
- establish justifications for any recommendations*
- define limitations to control the impact of potential changes on existing documents and data*
- establish the process by which any change will be conducted.*

*Its membership will consist of:*

*Pam Morris (Australia), Martin D'Souza (Australia), Serge Oligny (Canada), Jean-Marc Desharnais (Canada), Pekka Forselius (Finland), Eberhard Rudolph (Germany), Suraya Adam (South Africa) Debbie Dickson (South Africa), Insoo Hwang (Korea), Kyung-Moon Jin(Korea), Shigeru Nishiyama (Japan) Mitsuhiro Takahashi (Japan), Peter Fagg (UK), Marie O'Neill (Ireland), Frank Mazucco (USA), John Phippen(USA), Carol Dekkers (IFPUG).*

*This study group will be chaired by Pam Morris and will submit a report by 2004-02-29 to SC7.*

*Depending on the recommendation of the Study Group, a draft NWI proposal (with accompanying Requirements Document) may be submitted to the SC7 Secretariat by 2004-03-15 for consideration at the Brisbane SC7 plenary.*

### Background

The Study Group is very conscious of the significance of changing 14143-1 since it provides the basis for establishing if a software sizing method can claim to be a conformant Functional Size Measurement Method (FSM Method). Since publishing 14143-1, four software sizing methods have demonstrated their compliance to 14143-1 and have been approved as ISO standard FSM Methods. Any changes to 14143-1 would have the potential of making these four methods (and other non-ISO registered FSM Methods) non-compliant to the new revised 14143-1 version. Changing the Definition and Concepts of Functional Size Measurement is therefore a commercially sensitive area from the perspective of existing compliant FSM Methods.

### Study Group Structure

To ensure that the views of the published FSM methods were considered, the Study Group included members from the two PAS submitting organisations (IFPUG – Ms Carol Dekkers and UKSMA – Mr Peter Fagg - MKII). It also

included WG12 members who have been very active in the development of the ISO developed FSM method COSMIC-FFP ( Serge Oligny, Jean-Marc Desharnais, Pam Morris, Marie O'Neill, Peter Fagg).

To ensure that the views of the international metrics community were considered, the Study Group included key metrics experts from nine countries. Each of these experts are past or present executive members of their countries Metrics Industry Group eg (*Pam Morris (ASMA -- Australia)*), *Pekka Forselius (FISMA -Finland)*, *Eberhard Rudolph (DASMA -Germany)*, *Insoo Hwang, Kyung-Moon Jin (KFPUG-Korea)*, *Shigeru Nishiyama, Mitsuhiro Takahashi (JFPUG - Japan)* *Peter Fagg (UKSMA -UK)*, *Marie O'Neill (UKSMA –Ireland)*, *Carol Dekkers, Frank Mazucco (IFPUG - International)*. There was no available representative of *NESMA (Netherlands)* at the time the Study Group was set up.

The views of all the interested parties were raised, discussed and considered by the study group as part of it's decision making process.

## Study Group Strategy

The Study Group wanted a process for revision that minimised any commercial impact that might be perceived to be the result of changing 14143-1, and a process that would minimise controversy surrounding the changes. The mandate for the Study Group was to ensure that the review of 14143-1 was done such that it was visible, auditable, transparent, verifiable and documented.

The first step in the revision process was to identify the issues in the current standard (ie. the potential flaws, omissions, inconsistencies or ambiguities). The Study Group collated a number of issues that had been raised in SC7/WG12 meetings or documented in comment disposition reports prior to, and since the publishing of 14143-1. These issues were assembled into a list of potential Change Requests.

At the SC7 Montreal Meeting members of the Study Group developed an Evaluation Process by which Change Requests (or defect reports) raised at the ballot would be dealt with. This Evaluation Process was further developed in the interim between the Montreal meeting and the Dublin meeting and was tested for its effectiveness using some of the currently documented issues.

The Study Group in Dublin evaluated the outcome of the tests and further refined the Evaluation Process into Guidelines for Change Requests<sup>1</sup> and <sup>2</sup>Checklist of Items to be assessed. This Evaluation Process was used initially within the Study Group as part of its review process to 'test' if any of the proposed changes provided sufficient benefit to propose changing 14143-1. If the group decided to recommend that 14143-1 be changed then the Evaluation Process would be the basis on which the project team would implement changes.

The potential changes raised to date cover the need to :

- correct identified ambiguities, and inconsistencies
- bring 14143-1 in line with current FSM knowledge in the industry
- align 14143-1 terminology and content with other SC7 standards and particularly other standards in the 14143 series.

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<sup>1</sup> Refer Annex A – Guidelines for Change Requests

<sup>2</sup> Refer Annex C – Checklist for Evaluating Change Requests to 14143-1

## Study Group Results

In order to make the final decision as to whether the review of 14143-1 was justified, the study group took two of the most critical proposed issues and assessed them using the proposed Evaluation Process.

The documented outcomes of both evaluations are available in Appendix D.

After reviewing the results of these two trial evaluations, ie. the degree of impact, positive and negative outcomes, benefits and costs the study group found that the benefits of the proposed changes outweighed the 'cost' of implementation.

**After reviewing the results of the two proposed issues and after much deliberation, the Study Group decided that 14143-1 needed upgrading.**

## Conclusions

The Study Group made the following findings in response to the tasks set for the Group in SC7 Resolution 730.

### 1. Establish whether IS 14143-1:1998 needs to be changed

The Study Group agrees that IS 14143-1:1998 needs to be changed.

### 2. Establish justifications for any recommendations

Anecdotal evidence and evidence extracted from previous WG12 meetings was collected and extensively reviewed by the study group. (Refer Annex D for outcomes of evaluation of critical issues)

### 3. Define limitations to control the impact of potential changes on existing documents and data

An rigorous evaluation process was developed to identify and minimise the impact of any changes (Refer Annex C)

The Guidelines to control the impact of potential changes on existing documents and data are outlined in the Annexes. In summary they are :

- Minimise the impact to FSM industry data ;
- The benefits must exceed the negative impact (including cost of standardization and impact in use); and
- A 'higher standard of care' must be applied to any change that has the potential to change the conformance status of any existing FSM Method. The 'owners' of the ISO registered FSM Method(s) will be consulted and invited to participate in the change evaluation process.

*Note : The Study Group agreed to exercise 'a higher standard of care' to ensure that any fixes would have minimum impact on the conformance of published methods. As is the case, for any 'bug' fix the editors and working group need to test the 'fix' to assess the impact of the change. The decision to proceed or not will be based on that impact.*

#### **4. Establish the process by which any change will be conducted.**

The Study Group recommends that the process by which any change will be conducted will be as follows:

- Use Clause 14 of the Procedures for the Technical Work of ISO/IEC JTC 1 on Information Technology as the basis for a process for change.
- The Study Group asks National Bodies where possible to submit their Defect Reports in accordance with Clause 14.4. (See *Annex B – Defect Report Template.*)
- ISO/IEC 14143-1:1998 will be the base document for any further action including comments or defect reports.
- The Study Group has provided templates, which may be useful in identifying points to be considered in drafting the Defect Reports. (See Annex A –Guidelines for Proposed Changes, and Annex C Checklist for Evaluating Proposed Changes.)
- This Study Group Report contains, in Annex E, a New Work Item Proposal for consideration with the Study Report. This will be submitted in accordance with the terms of the resolution & JTC1 Directives.

## Annex A - GUIDELINES for PROPOSED CHANGES

### Proposed Evaluation Process

The Evaluation Process requires each submitted Change Request to use the Evaluation Process Checklist:

- identify the Problem and recommend a solution
  - locate and assess the impact of the solution on the 14143-1 standard, related 14143 and SC7 standards
  - identify if the Change Request corrects existing problems or potentially introduces new problems
- assess the benefits versus the cost of impact before deciding whether to recommend the change

**(use the information from the Change Request form in Annex C)**

<b>1.1</b>	<b>Consider issues</b>	
1.1.1	Maintain current scope of part 1	
1.1.2	Assess the impact on informative text or normative text	
1.1.3	Assess coherence with existing concepts within Part 1	
1.1.4	Determine if it is a new concept or a change to an existing concept	
1.1.5	Assess if the introduced concept is generic to all Methods	
1.1.6	Establish if there is possible and reasonable upgrade path for all existing FSM methods	
1.1.7	Minimize potential impacts on the other parts i.e. aim for changes that do not cause a need for changes to other parts of the standard.	
1.1.8	Minimize potential changes on methods	
1.1.9	Establish if change required changes to parts 2, 3, 4 or 5	
1.1.10	Establish if there is no substantive changes to existing document	
1.1.11	Ensure the document reflects the scope	
1.1.12	Ensure scope fits requirements	
1.1.13	Verify if the order of sections in Part 1 is consistent with Part 2	

<b>1.2</b>	<b>Analyze semantics</b>	
1.2.1	Check any obvious contradictions	
1.2.2	Check if there is no upgrade path for any existing methods	
1.2.3	Check consistency	
1.2.4	Check ambiguity	
1.2.5	Appropriateness of negative versus positive statements	

<b>1.3</b>	<b>Analyze: generic</b>	
1.3.1	Assess whether the benefits of implementing the change outweighs the negative impact on other 14143 documents and current FSM methods. Need to be able to:	
1.3.1.1	Characterize benefits and impacts	
1.3.1.2	Quantify the benefits and impact	
1.3.1.3	Justify change where benefits outweighs negative impact	
1.3.2	Verify if all terminology is generic for all FSM Methods	
1.3.3	Minimize potential impacts on the other parts ie. Aim of changes that do not causes reballoting	
1.3.4	Minimize potential changes on methods	
1.3.5	Check if there is no substantive changes to existing document	
1.3.6	Check if there is no upgrade path for any existing methods	
1.3.7	Check the conformance to ISO editing template and provisions	

<b>1.4</b>	<b>Analyze understandability</b>	
1.4.1	Ensure the proposal improves understandability	
1.4.2	Do not want to require changes to parts 3, 4 or 5	
1.4.3	Ensure it is demonstrable	
1.4.4	Appropriate negative versus positive statements	
1.4.5	Verify if it can be implemented in practice by an FSM Method	
1.4.6	Ensure the conformance to ISO editing template and provisions	
1.4.7	Does it improve understandability	
1.4.8	Check the ease of Conformance Checking	
1.4.9	Ensure the conformance to its Scope	

<b>1.5</b>	<b>Analyze translatability</b>	
1.5.1	Check if it requires changes to parts 2, 3, 4 or 5	
1.5.2	Ensure there is no upgrade path for any existing methods	
1.5.3	Verify if it can be implemented in practice by an FSM Method	
1.5.4	Ensure the conformance to ISO editing template and provisions	
1.5.5	Ensure the conformance to its Scope	

<b>1.6</b>	<b>Analyze usability</b>	
1.6.1	Evaluate any comments from the User of standards	
1.6.2	Minimize potential impacts on the other parts ie. Aim of changes that do not causes reballoting	
1.6.3	Verify it there is no substantive changes to existing document	
1.6.4	Check if it is outside the scope of part 1	
1.6.5	Verify if it can be implemented in practice by an FSM Method	
1.6.6	Ensure the conformance to ISO editing template and provisions	
1.6.7	Check the ease of Conformance Checking	





**Annex B – Template for submitting a Change Request**

**Part 1 - To Be Completed By Submitter**

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**Originator:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Nature of Issue:**      **Definition**      **Technical**      **Editorial**      **Ambiguity**      **Clarification**  
    **Other (Please indicate)**

**Description of Issue:**

**Proposed solution:**

On a scale of 1 to 4, Where 4 is Very Important, 3 is Important, 2 is Of Limited Importance and 1 is Of No Importance.

How important is this Change to you?    1            2            3            4

On a scale of 1 to 4, Where 4 is Very Urgent, 3 is Urgent, 2 is Of Limited Urgency and 1 is Of No Urgency.

How Urgent is this Change to you?    1            2            3            4

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**Part 2 - To Be Completed By WG Secretariat**

Defect report number:
WG Secretariat:
Date circulated by WG secretariat:
Deadline on response from editor:

## Annex C - CHECKLIST FOR EVALUATING A PROPOSED CHANGE

CR #

<b>1.1</b>	<b>IDENTIFY</b>	
1.1.1	Document identification information	
1.1.2	Provide unique identifier to CR	
1.1.3	Record CR in database	
1.1.4	Initialize CR status	
1.1.5	Document 14143-1 paragraphs impacted by CR	
1.1.6	Communicate with submitter	

<b>1.2</b>	<b>FILTER</b>	
1.2.1	Is CR within the scope (against the goals) of 14143-1? If not then dispose of CR	
1.2.2	Does the CR contain Information within current scope of part 1	
1.2.3	Does the CR claim benefits?	
1.2.4	Does the CR propose a solution?	
1.2.5	Does the CR state the problem it addresses?	

<b>1.3</b>	<b>IMPACT</b>	
1.3.1	Does the CR impose additional constraints on FSM Methods?	
1.3.2	Does the CR remove constraints on FSM Methods?	
<i>Consider constraints related to the 14143 standards:</i>		
1.3.3	Does CR require changes to parts 2, 3, 4 or 5?	
1.3.4	Will the CR impact Part 6 project	
1.3.5	Does CR impact the normative part of the document?	
<i>Consider constraints related to FSM</i>		
<b>1.3.6</b>	<b>Is there a potential impact on existing FSM methods?</b>	
1.3.7	Assess the impact on informative text or normative text	
1.3.8	Assess coherence with existing concepts within Part 1	
1.3.9	Determine if it is a new concept or a change to an existing concept	
1.3.10	Assess if the introduced concept is generic to all Methods	

<b>2.1</b>	<b>CONSOLIDATE</b>	
2.1.1	Identify locations impacted by CR	
2.1.2	Identify "hot spots" – locations impacted by many CR	
2.1.3	Identify 'ripple effects' – CR impacting many locations	
2.1.4	Group CR according to impacted location	
2.1.5	Identify contradictory CR and group them	
2.1.5	Identify duplicate CR and merge them	

CR#

<b>2.2</b>	<b>ANALYZE OUTCOME (User Perspective)</b>	+ , - , or n/a & degree (low, medium, high)
2.2.1	<i>Does the CR correct(+) or introduce errors(-) such as..</i>	
	Inconsistency (internal & external)	
	Contradiction	
	Non-Generic to FSM Methods	
	Ambiguity	
	Non-Conformance to its Scope	
	Other	
2.2.2	<i>Does the CR improve attributes such as..</i>	
	Ease of Translation	
	Ease of understanding	
	Ease of conformance checking	
	Support an increase in the use of FSM throughout the world	
	Maintain or improve conformance of existing FSM Methods to Part1	
	Other	
2.2.3	<i>Alignment with other standards</i>	
	Does the CR assist in re-aligning the standard with other SC7 standards, especially those referenced in 14143-1	
2.2.4	No obvious impact on existing FSM methods	
2.2.5	Confirm expected benefits on a 4-step scale (none, low, some, high)	

<b>2.3</b>	<b>RECOMMEND CHANGES</b>	
2.3.1	Evaluate the outcomes	
2.3.2	Decide on method of disposing of CR(reject, corrigendum, amendment...)	
2.3.3	Recommend appropriate action	
2.3.4	Estimate workload	
2.3.5	Prepare report based on CR for which implementation is recommended	
2.3.6	<i>Document results of recommendation:</i>	
	Disposal status of each registered change request	
	Analysis & status of CR	

## Annex D – Assessment of Proposed Issues

### ISSUE 1 – Documented as CR019<sup>3</sup>

**Issue:** Current definition within Part 14143-1 of User is as follows:

**3.13 User:** Any person that specifies Functional User Requirements and/or 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.*

#### **Description:**

Issue is that this definition combines two quite distinctly different concepts of the word User. Meaning Type 1 is a 'person' who specifies what they want the software to do. Whereas Meaning Type 2 is any 'thing' that interacts with the software. It is ambiguous to use a single term to define two separate concepts. This has led to difficulty when FSM industry has adopted our definition of user but only need one of the meanings and by default inherit both meanings. It also introduces ambiguity in the meaning of the standard as in some cases the word user could have one or other or both meanings as outlined below.

Section	Text from 14143-1	Meaning of User
<b>Introduction</b>	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 <b>users</b> of the software.	This the is another type of User who could be the same as <b>Type 1</b> but not limited to the "specifiers of the software" eg. Could be project manager
	The concepts of <i>Functional Size Measurement</i> (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 <b>user</b> .	<b>Type 1 or Type 2</b> or Both? Not clear
<b>3.3 Boundary</b>	A conceptual interface between the software under study and its <b>users</b> .	<b>Type 2</b>
<b>3.8 Functional User Requirements</b>	A sub-set of the <b>user</b> requirements. The Functional User Requirements represent the user practices and procedures that the software must perform to fulfil the users' needs. They exclude Quality Requirements and any Technical Requirements.	<b>Type 1 or Type 2</b> (not clear) but probably <b>Type 2</b>
	A sub-set of the user requirements. The Functional User Requirements represent the <b>user</b> practices and procedures that the software must perform to fulfil the users' needs. They exclude Quality Requirements and any	<b>Type 1 or Type 2</b> (not clear) but probably <b>Type 2</b>

<sup>3</sup> The output documents from the review process are numbered according to an earlier version of the template. The numbering has not been altered, so as to reflect the actual output from the Study Group's work.

	Technical Requirements.	
	A sub-set of the user requirements. The Functional User Requirements represent the user practices and procedures that the software must perform to fulfil the <b>users'</b> needs. They exclude Quality Requirements and any Technical Requirements	<b>Type 2</b>
<b>3.12 Technical Requirements</b>	NOTE - Examples of Technical Requirements include programming language, testing tools, operating systems, database technology and <b>user</b> interface technologies	Type 1 or Type 2 or Both? <b>Not clear but probably Type 2</b>
<b>5.1.1.1 a</b>	An FSM Method shall have the following characteristics: a) it is based on a representation of the Functional User Requirements from the perspective of the <b>users</b> ;	<b>Type 1 or Type 2 or Both?</b> Not clear
<b>5.2.1.2c</b>	c) describe the purposes for which the FSM Method can best be used such that the <b>users</b> of the FSM Method can judge its suitability for their purpose;	Users is used but with another meaning type ie. Users of an FSM Method
<b>A.1 Introduction Annex a</b>	The <b>user</b> requirements for software may include Quality Requirements and Technical Requirements (refer to section 3. Definitions), in addition to the Functional User Requirements.	<b>Type 1 or Type 2 or Both?</b> Not clear
	NOTE - The adjustment via these additional steps is outside the scope of FSM because it measures features rather than functions that the <b>user</b> requires.	<b>Type 1 or Type 2 or Both?</b> Not clear
<b>A2.2 Managing Scope change</b>	FSM Methods can determine the scope of the software by creating an inventory of BFCs agreed to by the <b>users</b> and the software supplier.	<b>Type 1</b>
<b>A3.2 Productivity Management</b>	Examples are staff experience, tools usage, <b>user</b> relationships, working conditions, staff business knowledge and development language.	<b>Type 1</b>

### **Proposed Solution:**

Split the definition of the User into separate definitions reflecting the different meanings.

**3.13 Interfacing Entity::** *Any person or thing that communicates or interacts with the software at any time.*

**3.13 Specifier:** *Any person that specifies Functional User Requirements .*

Note: it would avoid some of the confusion if the text used the word User when we are using the reserved word rather than the general english meaning of user to avoid confusion

Section	Text from 14143-1	Revised Text
<b>Introduction</b>	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 <b>users</b> 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 <b>people associated with</b> the software.
	The concepts of <i>Functional Size Measurement</i> (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 <b>user</b> .	The concepts of <i>Functional Size Measurement</i> (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 <b>entities interfacing</b> with the software.
<b>3.3 Boundary</b>	A conceptual interface between the software under study and its <b>users</b> .	A conceptual interface between the software under study and its <b>interfacing entities</b> .
<b>3.8 Functional User Requirements</b>	A sub-set of the <b>user</b> requirements. The Functional User Requirements represent the user practices and procedures that the software must perform to fulfil the users' needs. They exclude Quality Requirements and any Technical Requirements.	Not changed
	A sub-set of the user requirements. The Functional User Requirements represent the <b>user</b> practices and procedures that the software must perform to fulfil the users' needs. They exclude Quality Requirements and any Technical Requirements.	A sub-set of the user requirements. The Functional User Requirements represent the <b>interfacing entities'</b> practices and procedures that the software must perform to fulfil the users' needs. They exclude Quality Requirements and any Technical Requirements.
	A sub-set of the user requirements. The Functional User Requirements represent the user practices and procedures that the software must perform to fulfil the <b>users'</b> needs. They exclude Quality Requirements and any Technical Requirements	A sub-set of the user requirements. The Functional User Requirements represent the interfacing entities' practices and procedures that the software must perform to fulfil the interfacing entities' needs. They exclude Quality Requirements and any Technical Requirements
<b>3.12 Technical Requirements</b>	NOTE - Examples of Technical Requirements include programming language, testing tools, operating systems, database technology and <b>user</b> interface technologies	NOTE - Examples of Technical Requirements include programming language, testing tools, operating systems, database technology and <b>interfacing entities'</b> technologies
<b>5.1.1.1 a</b>	An FSM Method shall have the following characteristics: a) it is based on a representation of the Functional User Requirements from the	An FSM Method shall have the following characteristics: a) it is based on a representation of the Functional User Requirements from the

	perspective of the <b>users</b> ;	perspective of the <b>interfacing entities</b> ;
<b>5.2.1.2c</b>	c) describe the purposes for which the FSM Method can best be used such that the <b>users</b> of the FSM Method can judge its suitability for their purpose;	(not changed)
<b>A.1 Introduction Annex a</b>	The <b>user</b> requirements for software may include Quality Requirements and Technical Requirements (refer to section 3. Definitions), in addition to the Functional User Requirements.	The <b>user</b> requirements specified for software may include Quality Requirements and Technical Requirements (refer to section 3. Definitions), in addition to the Functional User Requirements.
	NOTE - The adjustment via these additional steps is outside the scope of FSM because it measures features rather than functions that the <b>user</b> requires.	NOTE - The adjustment via these additional steps is outside the scope of FSM because it measures features rather than functions that the <b>interfacing entity</b> requires.
<b>A2.2 Managing Scope change</b>	FSM Methods can determine the scope of the software by creating an inventory of BFCs agreed to by the <b>users</b> and the software supplier.	FSM Methods can determine the scope of the software by creating an inventory of BFCs agreed to by the <b>specifiers</b> and the software supplier.
<b>A3.2 Productivity Management</b>	Examples are staff experience, tools usage, <b>user</b> relationships, working conditions, staff business knowledge and development language.	Examples are staff experience, tools usage, <b>client</b> relationships, working conditions, staff business knowledge and development language.

## Background

In our experience this definition has caused confusion in interpreting the concepts of FSM.

<b>2.1</b>	<b>IDENTIFY</b>	
2.1.1	Document identification information	Definition of a basic concept
2.1.2	Provide unique identifier to CR	CR0019
2.1.3	Record CR in database	
2.1.4	Initialize CR status	Further refined during WG12 2003 Nov Interim Meeting
2.1.5	Document 14143-1 paragraphs impacted by CR	Refer to Tables 1 and 2 above column 1.
2.1.6	Communicate with submitter	N/a

<b>2.2</b>	<b>CONSOLIDATE</b>	
2.2.1	Identify locations impacted by CR	Refer to Tables 1 and 2 above column



		1. Other Parts see below*
2.2.1.1	Identify “hot spots” – locations impacted by many CR	Not known
2.2.1.2	Identify 'ripple effects' – CR impacting many locations	See *2.1.1 below
2.2.2	Group CR according to impacted location	Not known
2.2.3	Identify contradictory CR and group them	Not known
2.2.4	Identify duplicate CR and merge them	Not known

**\*2.1 1 (Additional Text ) Identify locations impacted by CR**

Impacts Part 2 – uses text directly from Part 1 in its example checklist for conformance (Annex B)

Does not impact Parts 3 and 5 of 14143 since they use the term ‘user’ in the general english term of user and have tried to distinguish different types. For example:

- Part 3 “end user” to mean the person using an FSM Method.
- Part 5 “human user” to mean person using the software

Where they have used the word ‘user’ by itself they have used the Type 2 meaning of user.

<b>2.3</b>	<b>FILTER</b>	
2.3.1	Is CR within the scope (against the goals) of 14143-1? If not then dispose of CR	Yes
2.3.2	Does the CR claim benefits?	Yes
	Does the CR propose a solution?	Yes
	Does the CR state the problem it addresses?	Yes

	<b>IMPACT</b>	
2.3.3.1	Does the CR impose additional constraints on FSM Methods?	No
2.3.3.2	Does the CR remove constraints on FSM Methods?	No
2.3.4	<i>Consider constraints related to the 14143 standards:</i>	
2.3.4.1	Does CR require changes to parts 2, 3, 4 or 5?	Yes see 2.1.1 above
2.3.4.2	Will the CR impact Part 6 project	No
2.3.4.3	Does CR impact the normative part of the document?	Yes - Definitions
2.3.5	<i>Consider constraints related to FSM</i>	
2.3.5.1	Is there a potential impact on existing FSM methods?	No. The change is not to a provision therefore does not impact conformance. Some FSM Methods have adopted the definition of User and may decide to change accordingly but it is not necessary to in order for an FSM Method remain conformant to 14143-1

<b>2.4.1</b>	<b>ANALYZE OUTCOME (User Perspective)</b>	+ , - , or n/a & degree (low, medium, high)
<b>2.4.1.1</b>	<i>Does the CR correct(+) or introduce errors(-) such as..</i>	
	Inconsistency (internal & external)	+ internal + external high
	contradiction	+ high
	Non-Generic to FSM Methods	N/a
	ambiguity	+ high
	Non-Conformance to its Scope	N/a
	Other	N/a
<b>2.4.1.2</b>	<i>Does the CR improve attributes such as..</i>	
	Ease of Translation	+High
	Ease of understanding	+High
	Ease of conformance checking	N/a
	Support an increase in the use of FSM throughout the world	N/a
	Maintain or improve conformance of existing FSM Methods to Part1	N/a
	Other	
<b>2.4.1.3</b>	<i>Alignment with other standards</i>	
	Does the CR assist in re-aligning the standard with other SC7 standards, especially those referenced in 14143-1	* see 2.4.1.3 below
<b>2.4.2</b>	No obvious impact on existing FSM methods	N/a – it is optional for them to adopt the definition of User in 14143-1
<b>2.4.3</b>	Confirm expected benefits on a 4-step scale (none, low, some, high)	

\*2.4.1.3 The term User is critical to the concepts of FSM. We defined it so we could use it within a specific context, however our definition exceeded that context and was inconsistent in the document. The word user is common throughout all SC7 documents and will not mean the same thing as User in 14143-1 in any case.

	<b>ANALYZE BENEFITS (ISO)</b>	
	Conformance to ISO editing template and provisions	N/a

<b>2.6</b>	<b>RECOMMEND CHANGES</b>	
2.6.1	Evaluate the outcomes	Changes apart from the definition are only to informative text but has a great benefit in removing ambiguity.
2.6.2	Decide on method of disposing of CR(reject, corrigendum, amendment...)	Amendment
2.6.3	Recommend appropriate action	

2.6.4	Estimate workload	Minor
2.6.5	Prepare report based on CR for which implementation is recommended	
2.6.6	<i>Document results of recommendation:</i>	
	Disposal status of each registered change request	
	Analysis & status of CR	

## CR020 Definition of Functional Size Characteristics

Functional Size characteristics	Requestor: DIN
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**Current Definition:**

**5.1.3**

**Issue:**

The current definition of Functional Size characteristics is restricted to six negative characteristics (what Functional Size is not or what it is independent of). It does not state a single positive characteristic of Functional Size. As a consequence Functional Size can be derived by anything as long as it is not derived by or dependent on the effort or method of software development or support. **Although intuitively assumed there is nowhere a requirement for deriving Functional Size by BFC.**

**Proposed Solution:**

**Add** an additional characteristic (preferably a. and rename the rest):

*5.1.3 x it is solely derived by Base Functional Components*

**Benefit:**

Without the change sizing methods could qualify as FSMM which do not derive their functional size results from BFCs (but by any method other than effort and development methodology). There is only a minimal (editorial) effort required to implement the change. Existing FSMM all have already implemented the concept proposed in the change request. Not implementing the change request would weaken the standing of FSMM and the concept of Functional Size Measurement.

<b>2.1</b>	<b>IDENTIFY</b>		
2.1.1	Document identification information		Functional Size Characteristics
2.1.2	Provide unique identifier to CR		CR020
2.1.3	Record CR in database		
2.1.4	Initialize CR status		First pass review
2.1.5	Document 14143-1 paragraphs impacted by CR		5.1.3
2.1.6	Communicate with submitter		

<b>2.2</b>	<b>CONSOLIDATE</b>		
2.2.2	Identify locations impacted by CR		5.1.3
2.2.1.1	Identify "hot spots" – locations impacted by many CR		
2.2.1.2	Identify 'ripple effects' – CR impacting many locations		
2.2.2	Group CR according to impacted location		
2.2.3	Identify contradictory CR and group them		
2.2.4	Identify duplicate CR and merge them		

<b>2.3</b>	<b>FILTER</b>		
2.3.1	Is CR within the scope (against the goals) of 14143-1? If not then dispose of CR		Yes
2.3.2	Does the CR claim benefits?		Yes

	Does the CR propose a solution?	Yes
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	<b>IMPACT</b>	
2.3.3.1	Does the CR impose additional constraints on FSM Methods?	No
2.3.3.2	Does the CR remove constraints on FSM Methods?	No
2.3.4	<i>Consider constraints related to the 14143 standards:</i>	
2.3.4.1	Does CR require changes to parts 2, 3, 4 or 5?	Yes, Part 2
2.3.4.2	Will the CR impact Part 6 project	No
2.3.4.3	Does CR impact the normative part of the document?	Yes
2.3.5	<i>Consider constraints related to FSM</i>	
2.3.5.1	Is there a potential impact on existing FSM methods?	No

<b>2.4.1</b>	<b>ANALYZE OUTCOME (User Perspective)</b>	+ /- or n/a & degree (low, medium, high)
2.4.1.1	<i>Does the CR correct or introduce errors such as..</i>	
	Inconsistency (internal & external)	+high
	contradiction	
	Non-Generic to FSM Methods	
	ambiguity	+medium
	Non-Conformance to its Scope	
	<i>Other: plausibility</i>	+high
2.4.1.2	<i>Does the CR improve attributes such as..</i>	
	Ease of Translation	
	Ease of understanding	+medium
	Ease of conformance checking	+low
	Support an increase in the use of FSM throughout the world	+high
	Maintain or improve conformance of existing FSM Methods to Part1	+high
	<i>Other</i>	
2.4.1.3	<i>Alignment with other standards</i>	
	Does the CR assist in re-aligning the standard with other SC7 standards, especially those referenced in 14143-1	N/a
2.4.2	No obvious impact on existing FSM methods	Yes <i>review question</i>
2.4.3	Confirm expected benefits on a 4-step scale (none, low, some, high)	high

	<b>ANALYZE BENEFITS (ISO)</b>	
	Conformance to ISO editing template and provisions	N/a

<b>2.6</b>	<b>RECOMMEND CHANGES</b>	
2.6.1	Evaluate the outcomes	

2.6.2	Decide on method of disposing of CR(reject, corrigendum, amendment...)	
2.6.3	Recommend appropriate action	
2.6.7	Estimate workload	low
2.6.8	Prepare report based on CR for which implementation is recommended	
2.6.9	<i>Document results of recommendation:</i>	
	Disposal status of each registered change request	
	Analysis & status of CR	

<b>1.7</b>	<b>Consider issues</b>	
1.7.1	Maintain current scope of part 1	N/a
1.7.2	Assess the impact: informative text or normative text	normative
1.7.3	Assess coherence with existing concepts within Part 1	coherent
1.7.4	Determine if it is a new concept or a change to an existing concept	Improve existing concept
1.7.5	Assess if the introduced concept is generic to all Methods	Yes
1.7.6	Establish if there is possible and reasonable upgrade path of all existing FSM methods	N/a – its generic and already implemented
1.7.7	Minimize potential impacts on the other parts i.e. aim for changes that do not cause a need for changes to other parts of the standard.	N/a
1.7.8	Minimize potential changes on methods	N/a
1.7.9	Establish if change required changes to parts 3, 4 or 5	No
1.7.10	Establish if there is no substantive changes to existing document	There are changes to 5.1.3 & possible renumbering
1.7.11	Ensure the document reflects the scope	Yes
1.7.12	Ensure scope fits requirements	Yes
1.7.13	Verify if the order of sections in Part 1 is consistent with Part 2	Impacts Part 2 B:2.1.3.3

<b>1.8</b>	<b>Analyze semantics</b>	
1.8.1	Check any obvious contradictions	
1.8.2	Check if there is no upgrade path for any existing methods	
1.8.3	Check consistency	
1.8.4	Check ambiguity	
1.8.5	Appropriateness of negative versus positive statements	

<b>1.9</b>	<b>Analyze: generic</b>	
1.9.1	Assess whether the benefits of implementing the change outweighs the negative impact on other 14143 documents and current FSM methods. Need to be able to:	
1.9.1.1	Characterize benefits and impacts	Impacts Pt 1, 2 & possibly Pt 3
1.9.1.2	Quantify the benefits and impact	Uncertain
1.9.1.3	Justify change where benefits outweighs negative impact	
1.9.2	Verify if all terminology is generic for all FSM Methods	N/a
1.9.3	Minimize potential impacts on the other parts ie. Aim of changes that do not causes rebalotting	Requires change to Pt 2
1.9.4	Minimize potential changes on methods	N/a
1.9.5	Check if there is no substantive changes to existing document	Requires addition &

		renumbering, also impacting Pt 2
1.9.6	Check if there is no upgrade path for any existing methods	N/a
1.9.7	Check the conformance to ISO editing template and provisions	N/a

<b>1.10</b>	<b>Analyze understandability</b>	
1.10.1	Ensure the proposal improve understandability	Yes
1.10.2	Do not want to require changes to parts 3, 4 or 5	yes
1.10.3	Ensure it is demonstrable	yes
1.10.4	Appropriate negative versus positive statements	N/a
1.10.5	Verify if it can be implemented in practice by an FSM Method	yes
1.10.6	Ensure the conformance to ISO editing template and provisions	yes
1.10.7	Improve understandability	yes
1.10.8	Check the ease of Conformance Checking	yes
1.10.9	Ensure the conformance to its Scope	yes

<b>1.11</b>	<b>Analyze translatability</b>	
1.11.1	Check if it require changes to parts 3, 4 or 5	No
1.11.2	Ensure there is no upgrade path for any existing methods	N/a
1.11.3	Verify if it can be implemented in practice by an FSM Method	Already implemented
1.11.4	Ensure the conformance to ISO editing template and provisions	N/a
1.11.5	Ensure the conformance to its Scope	

<b>1.12</b>	<b>Analyze usability</b>	
1.12.1	Evaluate any comments from the User of standards	None available
1.12.2	Minimize potential impacts on the other parts ie. Aim of changes that do not causes rebaloting	Impacts only part 2
1.12.3	Verify it there is no substantive changes to existing document	Some change
1.12.4	Check if it is outside the scope of part 1	No
1.12.5	Verify if it can be implemented in practice by an FSM Method	yes
1.12.6	Ensure the conformance to ISO editing template and provisions	N/a
1.12.7	Check the ease of Conformance Checking	

**Annex E - New Work Item Proposal****March 2004****PROPOSAL FOR A NEW WORK ITEM**

Date of presentation of proposal: 2004-03-10	Proposer: DIN-NI-07
Secretariat: DIN	<b>ISO/IEC JTC 1 N XXXX</b>  ISO/IEC JTC 1/SC 7 N XXX

**A proposal for a new work item** shall be submitted to the secretariat of the ISO/IEC joint technical committee concerned with a copy to the ISO Central Secretariat.

**Presentation of the proposal** - to be completed by the proposer.

<p><b>Title</b></p> <p><b>Revision of ISO/IEC 14143-1:1998 - Information technology - Software measurement - Functional size measurement - Definition of concepts</b></p> <p><b>Scope</b></p> <p>ISO/IEC 14143-1 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:</p> <ul style="list-style-type: none"> <li>- measure Functional Size of software using a particular Method;</li> <li>- use the results obtained from a particular Method;</li> <li>- select a particular Method.</li> </ul> <p>The definition of FSM in this part of ISO/IEC 14143 is applicable when determining if a method for sizing software is a Functional Size Measurement Method. It does not prevent the development of various methods, but rather provides a basis for assessing whether a particular method conforms to FSM.</p> <p>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.</p>
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<p><b>Purpose and justification</b> – see attached Appendix A:</p>
<p><b>Programme of work</b></p> <p>If the proposed new work item is approved, which of the following document(s) is (are) expected to be developed?</p> <p><input type="checkbox"/> a single International Standard</p> <p><input type="checkbox"/> more than one International Standard (expected number: ..... )</p> <p><input type="checkbox"/> a multi-part International Standard consisting of ..... parts</p> <p><input checked="" type="checkbox"/> an amendment or amendments to the following International Standard(s) <b>ISO/IEC 14143-1:1998...</b></p> <p><input type="checkbox"/> a technical report, type .....</p> <p>And which standard development track is recommended for the approved new work item?</p> <p><input checked="" type="checkbox"/> a. Default Timeframe</p> <p><input type="checkbox"/> b. Accelerated Timeframe</p> <p><input type="checkbox"/> c. Extended Timeframe</p>
<p><b>Relevant documents to be considered</b></p> <p>ISO/IEC 14143-1:1998, ISO/IEC 14143-2:2002, ISO/IEC 19761:2003, ISO/IEC 20926:2003, ISO/IEC 20968:2003, ISO/IEC 24570, TR 14143-3:2002, TR 14143-4:2002, TR 14143-5:2004.</p>
<p><b>Co-operation and liaison</b></p>
<p><b>Preparatory work offered with target date(s)</b></p> <p>A large number of individuals and organisations already have worked on establishing a process for revision of ISO/IEC 14143-1:1998. For details see Appendix A and particularly Annex A, B and C. <b>The Study Group recommended that National Bodies submit any proposed changes for 14143-1:1998 as Defect Reports</b> in accordance with Clause 14.4 as part of their comments for this ballot. (Alternatively, NB's may submit comments on the ballot directly). (See <i>Annex C – Defect Report Template</i>.) The Change Requests analysed in the annex to the Study Report are 2 of the candidate Change Requests, and are not intended to limit the National Bodies in requesting changes.</p> <p>If NP is approved, the work is planned for completion by May 2006.</p> <p>The following countries have offered to provide resources for this project.</p> <ul style="list-style-type: none"> <li>• Australia</li> <li>• Japan</li> <li>• Germany</li> <li>• Ireland</li> <li>• Finland</li> </ul>
<p><b>Signature:</b></p>

Will the service of a maintenance agency or registration authority be required? ...No.....  
 - If yes, have you identified a potential candidate? .....  
 - If yes, indicate name .....

Are there any known requirements for coding? .....No.....  
 -If yes, please specify on a separate page

Does the proposed standard concern known patented items? .....No.....  
 - If yes, please provide full information in an annex

**Comments and recommendations of the JTC 1 or SC 7 Secretariat** - attach a separate page as an annex, if necessary

**Comments with respect to the proposal in general, and recommendations thereon:**  
 It is proposed to assign this new item to JTC 1/SC 7

**Voting on the proposal** - Each P-member of the ISO/IEC joint technical committee has an obligation to vote within the time limits laid down (normally three months after the date of circulation).

<b>Date of circulation:</b> YYYY-MM-DD	<b>Closing date for voting:</b> YYYY-MM-DD	<b>Signature of Secretary:</b>
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<b>NEW WORK ITEM PROPOSAL – PROJECT ACCEPTANCE CRITERIA</b>		
<b>Criterion</b>	<b>Validity</b>	<b>Explanation</b>
<b>A. Business Requirement</b>		
A.1 Market Requirement	Essential <u> X </u> Desirable <u> ___ </u> Supportive <u> ___ </u>	The current standard is partly ambiguous. It furthermore does not apply consistently some of its own concepts. This impacts its general market acceptance.
A.2 Regulatory Context	Essential <u> ___ </u> Desirable <u> X </u> Supportive <u> ___ </u> Not Relevant <u> ___ </u>	Standard is used for conformity evaluation and verification of FSM Methods.
<b>B. Related Work</b>		
B.1 Completion/Maintenance of current standards	Yes <u> X </u> No <u> ___ </u>	ISO/IEC 14143-1:1998. Note : Current WD 14143-6 is planned to incorporate the Annex of 14143-1:1998 if this change is approved in the review of 14143-1:1998.
B.2 Commitment to other organisation	Yes <u> ___ </u> No <u> ___ </u>	

B.3 Other Source of standards	Yes ___ No ___	
<b>C. Technical Status</b>		
C.1 Mature Technology	Yes <u>X</u> No ___	
C.2 Prospective Technology	Yes ___ No <u>X</u>	
C.3 Models/Tools	Yes <u>X</u> No ___	TR 14143-4:2002
<b>D. Conformity Assessment and Interoperability</b>		
D.1 Conformity Assessment	Yes <u>X</u> No ___	ISO/IEC 14143-2:2002 – The informative annex of this part will be impacted if any changes are made to the provisions of 14143-1:1998 as part of the review. It is believed that the Normative Text would not be impacted by changes in the content of 14143-1:1998.
D.2 Interoperability	Yes ___ No <u>X</u>	
<b>E. Cultural and Linguistic Adaptability</b>		
	Yes ___ No <u>X</u>	
<b>F. Other Justification</b>		
	Refer Appendix A and D	An SC7 Study Group investigated the need for change and recommended that 14143-1:1998 reviewed for update.

## Notes to Proforma

**A. Business Relevance.** That which identifies market place relevance in terms of what problem is being solved and or need being addressed.

A.1 Market Requirement. When submitting a NP, the proposer shall identify the nature of the Market Requirement, assessing the extent to which it is essential, desirable or merely supportive of some other project.

A.2 Technical Regulation. If a Regulatory requirement is deemed to exist - e.g. for an area of public concern e.g. Information Security, Data protection, potentially leading to regulatory/public interest action based on the use of this voluntary international standard - the proposer shall identify this here.

**B. Related Work.** Aspects of the relationship of this NP to other areas of standardisation work shall be identified in this section.

B.1 Competition/Maintenance. If this NP is concerned with completing or maintaining existing standards, those concerned shall be identified here.

B.2 External Commitment. Groups, bodies, or fora external to JTC 1 to which a commitment has been made by JTC for Co-operation and or collaboration on this NP shall be identified here.

B.3 External Std/Specification. If other activities creating standards or specifications in this topic area are known to exist or be planned, and which might be available to JTC 1 as PAS, they shall be identified here.

**C. Technical Status.** The proposer shall indicate here an assessment of the extent to which the proposed standard is supported by current technology.

C.1 Mature Technology. Indicate here the extent to which the technology is reasonably stable and ripe for standardisation.

C.2 Prospective Technology. If the NP is anticipatory in nature based on expected or forecasted need, this shall be indicated here.

C.3 Models/Tools. If the NP relates to the creation of supportive reference models or tools, this shall be indicated here.

## D. Conformity Assessment and Interoperability

D.1 Indicate here if Conformity Assessment is relevant to your project. If so, indicate how it is addressed in your project plan.

D.2 Indicate here if Interoperability is relevant to your project. If so, indicate how it is addressed in your project plan

**E. Cultural and Linguistic Adaptability** Indicate here if cultural and linguistic adaptability is applicable to your project. If so, indicate how it is addressed in your project plan.

**F. Other Justification** Any other aspects of background information justifying this NP shall be indicated here