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Document type	Study Group report
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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, 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 Mazzucco (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

WG12 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 and WG12 wanted a process for revision that minimised this commercial impact. 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 potential changes that may be proposed. The working group collated a number of issues that had been raised in 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 Montreal Meeting WG12 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[1] and [2]Checklist of Items to be assessed.

Evaluation Process

The Evaluation Process requires each 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

Testing the Evaluation Process

An exercise to test the Evaluation Process was conducted, by selecting some key change requests thought by the Group to be critical and performing an evaluation using the Evaluation Process Checklist. After reviewing the degree of impact, positive and negative outcomes, benefits and costs the study group **decided that there was a need to change 14143-1.**

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.

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

Limitations to control the impact of potential changes on existing documents and data 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.

[1] Refer Annex A – Guidelines for Change Requests
[2] Refer Annex C – Checklist for Evaluating Change Requests to 14143-1

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 D, 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

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

1.1	**Consider issues**	
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	

1.2	**Analyze semantics**	
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	Appropriativeness of negative versus positive statements	

1.3	**Analyze: generic**	
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	

1.4	**Analyze understandability**	
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	

1.5	**Analyze translatability**	
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	

1.6	**Analyze usability**	
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

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

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 #

1.1	**IDENTIFY**	
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	

1.2	**FILTER**	
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?	

1.3	**IMPACT**	
1.3.1	Does the CR impose additional constraints on FSM Methods?	
1.3.2	Does the CR remove constraints on FSM Methods?	
Consider constraints related to the 14143 standards:		
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?	
Consider constraints related to FSM		
1.3.6	**Is there a potential impact on existing FSM methods?**	
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	

2.1	**CONSOLIDATE**	
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#

2.2	**ANALYZE OUTCOME (User Perspective)**	+, - , or n/a & degree (low, medium, high)
2.2.1	*Does the CR correct(+) or introduce errors(-) such as..*	
	Inconsistency (internal & external)	
	Contradiction	
	Non-Generic to FSM Methods	
	Ambiguity	
	Non-Conformance to its Scope	
	Other	
2.2.2	*Does the CR improve attributes such as..*	
	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	*Alignment with other standards*	
	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)	

2.3	**RECOMMEND CHANGES**	
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	*Document results of recommendation:*	
	Disposal status of each registered change request	
	Analysis & status of CR	

Annex D - 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	**ISO/IEC JTC 1 N** XXXX 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.

Title

Revision of ISO/IEC 14143-1:1998 - Information technology - Software measurement - Functional size measurement - Definition of concepts

Scope

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:

- measure Functional Size of software using a particular Method;
- use the results obtained from a particular Method;
- select a particular Method.

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.

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.

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Purpose and justification – see attached Appendix A:

Programme of work

If the proposed new work item is approved, which of the following document(s) is (are) expected to be developed?

____ a single International Standard

___ more than one International Standard (expected number: .....)
____ a multi-part International Standard consisting of ..... parts
__**X**_ an amendment or amendments to the following International Standard(s) **ISO/IEC 14143-1:1998**...
____ a technical report, type .....

And which standard development track is recommended for the approved new work item?

_**X**__a. Default Timeframe

____b. Accelerated Timeframe

____c. Extended Timeframe

Relevant documents to be considered

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.

Co-operation and liaison

Preparatory work offered with target date(s)

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. **The Study Group recommended that National Bodies submit any proposed changes for 14143-1:1998 as** Defect Reports 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 *Annex C – Defect Report Template*.) 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.

If NP is approved,the work is planned for completion by May 2006.

The following countries have offered to provide resources for this project.

- Australia
- Japan
- Germany
- Ireland
- Finland

Signature:

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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).

Date of circulation:	**Closing date for voting:**	**Signature of Secretary:**
YYYY-MM-DD	YYYY-MM-DD	

NEW WORK ITEM PROPOSAL – PROJECT ACCEPTANCE CRITERIA		
Criterion	**Validity**	**Explanation**
A. Business Requirement		
A.1 Market Requirement	Essential _X_ Desirable ___ Supportive ___	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 ___ Desirable _X_ Supportive ___ Not Relevant ___	Standard is used for conformity evaluation and verification of FSM Methods.
B. Related Work		
B.1 Completion/Maintenance of current standards	Yes _X_ No___	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 ___ No___	

B.3 Other Source of standards	Yes ___ No___	
C. Technical Status		
C.1 Mature Technology	Yes _**X**_ No___	
C.2 Prospective Technology	Yes ___ No_X_	
C.3 Models/Tools	Yes _X_ No___	TR 14143-4:2002
D. Conformity Assessment and Interoperability		
D.1 Conformity Assessment	Yes _X_ 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__X_	
E. Cultural and Linguistic Adaptability	**Yes____** **No__X__**	
F. Other Justification	**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