



ISO/TC 211 N 1293

Supersedes N 1253

2002-06-13

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ISO/TC 211 Geographic information/Geomatics

- Title:** New Work Item proposal: Geographic information - Data quality measures
- Source:** ISO/TC 211 Secretariat
- Status:** New Work Item proposal
- Target date:** 2002-09-13
- Required action:** P-members are requested to complete and return the ballot form to the ISO/TC 211 secretariat no later than 2002-09-13
- Reference:** N 1253
- File names:** 211n1293c.doc, 211n1293_1.doc, 211n1293_2.doc - 211n1293.pdf – Voting forms: 211n1293b.doc - 211n1293b.rtf
- Distribution:** P, O and L members
Chairman
WG Convenors
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NEW WORK ITEM PROPOSAL	
Date of presentation 2002-06-13	Reference number (to be given by the Secretariat)
Proposer ISO/TC 211 Secretariat	ISO/TC 211 / SC N 1293
Secretariat NSF	

A proposal for a new work item within the scope of an existing committee shall be submitted to the secretariat of that committee with a copy to the Central Secretariat and, in the case of a subcommittee, a copy to the secretariat of the parent technical committee. Proposals not within the scope of an existing committee shall be submitted to the secretariat of the ISO Technical Management Board.

The proposer of a new work item may be a member body of ISO, the secretariat itself, another technical committee or subcommittee, or organization in liaison, the Technical Management Board or one of the advisory groups, or the Secretary-General.

The proposal will be circulated to the P-members of the technical committee or subcommittee for voting, and to the O-members for information.

See overleaf for guidance on when to use this form.

IMPORTANT NOTE: Proposals without adequate justification risk rejection or referral to originator.

Guidelines for proposing and justifying a new work item are given overleaf.

Proposal (to be completed by the proposer)

<p>Title of proposal (in the case of an amendment, revision or a new part of an existing document, show the reference number and current title)</p> <p>English title Geographic information - Data quality measures</p> <p>French title (if available)</p>
<p>Scope of proposed project</p> <p>This Technical Specification will define a set of measures for the data quality sub-elements identified in ISO 19113 Geographic information - Quality principles. A registry of data quality measures will be established, to include for each measure, an identifier and a code. The measures will be applicable when evaluating the quality of geographic datasets and assessing their fitness for their intended purpose. Multiple measures will be defined for each data quality sub-element, and the choice of which to use will depend on the type of the data and its intended purpose.</p>
<p>Concerns known patented items (see ISO/IEC Directives Part 1 for important guidance)</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If "Yes", provide full information as annex</p>
<p>Envisaged publication type (indicate one of the following, if possible)</p> <p><input type="checkbox"/> International Standard <input checked="" type="checkbox"/> Technical Specification <input type="checkbox"/> Publicly Available Specification <input type="checkbox"/> Technical Report</p>
<p>Purpose and justification (attach a separate page as annex, if necessary)</p> <p>ISO 19113 Geographic information - Quality principles establishes the principles for describing the quality of geographic data and specifies components for reporting quality information. ISO 19114 Geographic information - Quality evaluation procedures provides a framework of procedures for determining and evaluating quality. It gives examples of data quality measures for different data quality sub-elements, but does not provide a definitive set of such measures. This work item will build of the examples given in ISO 19114 Geographic information - Quality evaluation procedures to establish a set of data quality measures that can be used in appropriate circumstances for different types of data. Such a set will help with the understanding of the quality of the data, and assist in the evaluation of its fitness for purpose.</p> <p>Target date for availability (date by which publication is considered to be necessary) 2004</p>
<p>Relevant documents to be considered</p> <p>ISO 19113 Geographic information - Quality principles, ISO 19114 Geographic information - Quality evaluation procedures</p>
<p>Relationship of project to activities of other international bodies</p> <p>None</p>

New work item proposal

Liaison organizations	Need for coordination with: <input type="checkbox"/> IEC <input type="checkbox"/> CEN <input type="checkbox"/> Other (please specify)	
Preparatory work (at a minimum an outline should be included with the proposal) <input type="checkbox"/> A draft is attached <input checked="" type="checkbox"/> An outline is attached. It is possible to supply a draft by The proposer or the proposer's organization is prepared to undertake the preparatory work required <input type="checkbox"/> Yes <input type="checkbox"/> No		
Proposed Project Leader (name and address) Dr. Gerhard Joos, AGIS - GIS Lab, University of Bundeswehr, DE-85577 Neubiberg, Germany	Name and signature of the Proposer (include contact information)	
Comments of the TC or SC Secretariat Supplementary information relating to the proposal <input checked="" type="checkbox"/> This proposal relates to a new ISO document; <input type="checkbox"/> This proposal relates to the amendment/revision of an existing ISO document; <input type="checkbox"/> This proposal relates to the adoption as an active project of an item currently registered as a Preliminary Work Item; <input type="checkbox"/> This proposal relates to the re-establishment of a cancelled project as an active project. Other:		
Voting information The ballot associated with this proposal comprises a vote on: <input checked="" type="checkbox"/> Adoption of the proposal as a new project <input type="checkbox"/> Adoption of the associated draft as a committee draft (CD) (see ISO Form 5, question 3.3.1) <input type="checkbox"/> Adoption of the associated draft for submission for the enquiry vote (DIS or equivalent) (see ISO Form 5, question 3.3.2) Other:		
Annex(es) are included with this proposal (give details) <input checked="" type="checkbox"/> Outline of project		
Date of circulation	Closing date for voting	Signature of the TC or SC Secretary
2002-06-13	2002-09-13	Bjørnhild Sæterøy (signature on file)

Use this form to propose:

- a) a new ISO document (including a new part to an existing document), or the amendment/revision of an existing ISO document;
 - b) the establishment as an active project of a preliminary work item, or the re-establishment of a cancelled project;
 - c) the change in the type of an existing document, e.g. conversion of a Technical Specification into an International Standard.
- This form is not intended for use to propose an action following a systematic review - use ISO Form 21 for that purpose.
 Proposals for correction (i.e. proposals for a Technical Corrigendum) should be submitted in writing directly to the secretariat concerned.

Guidelines on the completion of a proposal for a new work item

(see also the ISO/IEC Directives Part 1)

- a) **Title:** Indicate the subject of the proposed new work item.
- b) **Scope:** Give a clear indication of the coverage of the proposed new work item. Indicate, for example, if this is a proposal for a new document, or a proposed change (amendment/revision). It is often helpful to indicate what is not covered (exclusions).
- c) **Envisaged publication type:** Details of the types of ISO deliverable available are given in the ISO/IEC Directives, Part 1 and/or the associated ISO Supplement.
- d) **Purpose and justification:** Give details based on a critical study of the following elements wherever practicable. *Wherever possible reference should be made to information contained in the related TC Business Plan.*
 - 1) The specific aims and reason for the standardization activity, with particular emphasis on the aspects of standardization to be covered, the problems it is expected to solve or the difficulties it is intended to overcome.
 - 2) The main interests that might benefit from or be affected by the activity, such as industry, consumers, trade, governments, distributors.
 - 3) Feasibility of the activity: Are there factors that could hinder the successful establishment or general application of the standard?
 - 4) Timeliness of the standard to be produced: Is the technology reasonably stabilized? If not, how much time is likely to be available before advances in technology may render the proposed standard outdated? Is the proposed standard required as a basis for the future development of the technology in question?

New work item proposal

5) Urgency of the activity, considering the needs of other fields or organizations. Indicate target date and, when a series of standards is proposed, suggest priorities.

6) The benefits to be gained by the implementation of the proposed standard; alternatively, the loss or disadvantage(s) if no standard is established within a reasonable time. Data such as product volume or value of trade should be included and quantified.

7) If the standardization activity is, or is likely to be, the subject of regulations or to require the harmonization of existing regulations, this should be indicated.

If a series of new work items is proposed having a common purpose and justification, a common proposal may be drafted including all elements to be clarified and enumerating the titles and scopes of each individual item.

e) Relevant documents: List any known relevant documents (such as standards and regulations), regardless of their source. When the proposer considers that an existing well-established document may be acceptable as a standard (with or without amendment), indicate this with appropriate justification and attach a copy to the proposal.

f) Cooperation and liaison: List relevant organizations or bodies with which cooperation and liaison should exist.

Annex. Outline of standard.

**Data quality elements, data quality subelements
and standardised measures generating
quantitative quality information**

submitted by Erik Stenborg, Sweden

- When the terms item or total number is used, it is implicit that the features, feature attributes or feature relationships defined by the corresponding data quality scope are intended.
- The process of evaluating the quantitative quality information is assumed to be unrelated to any existing conformance quality levels.
- Expected items are items that should have been present in the dataset according to the product specification. Otherwise, items are items actually present in the dataset.

Data quality element	Data quality subelement	Standardised measures
Completeness	Commission	Number of excess items
		Number of excess items divided by number of expected items
		Percentage of excess items in relation to expected items
	Omission	Number of missing items
		Number of missing items divided by number of expected items
		Percentage of missing items in relation to expected items

Data quality element	Data quality subelement	Standardised measures
Logical consistency	Conceptual consistency	Number of items adhering to the rules of the conceptual schema
	Conceptual consistency	Number of items adhering to the rules of the conceptual schema divided by the total number of items
		Percentage of items adhering to the rules of the conceptual schema in relation to the total number of items
	Domain consistency	Number of items belonging to the value domain
		Number of items belonging to the value domain divided by the total number of items
	Format consistency	Percentage of items belonging to the value domain in relation to the total number of items
		Number of items with correct (data) formats
	Topological consistency	Number of items with correct (data) formats divided by the total number of items
Percentage of items with correct (data) formats in relation to the total number of items		
Topological consistency	Number of items with correct characteristics for a certain topological aspect	
	Number of items with correct characteristics for a certain topological aspect divided by the total number of items	
Topological consistency	Percentage of items with correct characteristics for a certain topological aspect in relation to the total number of items	

Data quality element	Data quality subelement	Level	Standardised measures
Positional accuracy	Absolute or external accuracy	Instance level	Error established from measurement performed with superior tools.
			Error resulting from adjustment computation
		Aggregate level	Mean value of errors.
			Root mean square error
			Number of positions with errors less than a stated value
			Number of positions with errors less than a stated value divided by total number of positions
	Relative or internal accuracy	Instance level	Percentage of positions with errors less than a stated value in relation to the total number of positions
			Error established from measurement performed with superior tools.
		Aggregate level	Error resulting from adjustment computation
			Mean value of errors
Gridded data position accuracy	Aggregate level	Root mean square error	
		Number of positions with errors less than a stated value	
			Number of positions with errors less than a stated value
			Number of positions with errors less than a stated value divided by the total number of positions
			Percentage of positions with errors less than a stated value in relation to the total number of positions

Data quality element	Data quality subelement	Level	Standardised measures
Temporal accuracy	Accuracy of a time measurement	Instance level	Time difference computed as recorded time minus true time. Mean value of time differences Number of time differences smaller than a stated value
		Aggregate level	Number of time differences smaller than a stated value divided by the total number of time differences Percentage of time differences smaller than a stated value in relation to the total number of time differences
			Number of items that, according to stated definition, are correctly ordered
	Temporal consistency		Number of items that, according to stated definition, are correctly ordered divided by the total number of items Percentage of items that, according to stated definition, are correctly ordered in relation to the total number of items
		Temporal validity	<i>As temporal validity is a specialisation of quantitative attribute accuracy, no specific measures are presented. It is proposed that temporal validity be removed as data quality subelement.</i>

Data quality element	Data quality subelement	Standardised measures	
		Number of correctly classified items	
	Classification correctness	Number of correctly classified items divided by the total number of items	
		Percentage of correctly classified items in relation to the total number of items	
	Non-quantitative attribute correctness	Number of correctly represented items	
		Number of correctly represented items divided by the total number of items	
		Percentage of correctly represented items in relation to the total number of items	
Thematic accuracy	Quantitative attribute accuracy	Instance level	Error established from measurement performed with superior tools.
		Aggregate level	Mean value of errors
			Root mean square error
			Number of attributes with errors less than a stated value
			Number of attributes with errors less than a stated value divided by the total number of attributes
			Percentage of attributes with errors less than a stated value in relation to the total number of attributes