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Information Technology

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ISO/IEC JTC1/SC7
Software and Systems Engineering
Secretariat: CANADA (SCC)

ISO/IEC JTC1/SC7 /N4185

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New Work Item Proposal

PROPOSAL FOR A NEW WORK ITEM

Date of presentation of proposal: 2009-01-05	Proposer: WG4 convenor
Secretariat: National Body	**ISO/IEC JTC 1 N** XXXX ISO/IEC JTC 1/SC7 N 4185

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 Information Technology - Tools and Methods of Software Product Line Engineering

Scope

The standard will contain reference models and guidance on the tools and methods that can support full or partial automation of software product lines and families.

The project is permitted to produce multiple standards with a range of numbers forming a family of related guides.

Purpose and justification

Purpose:
- To allow users to realistically establish tool expectations on software product lines covering multiple aspects as described in the software product line framework of NP 29118.
- To allow users to adopt software product lines with confidence to reach the market place in a timely manner.
- To help users evaluate and select tools & methods that are focused on business and user related criteria covering multiple aspects as described in the software product line framework of NP 29118.
- To help development team specify, verify, validate and manage the technical functionality and managerial aspects of software product lines and families.
- To allow tool vendors to communicate the features of their tools to the market.

Justification:
The existing work (NP 29118) entitled "Information Technology - Tools and Methods of requirements engineering and management for product lines," which is under development by WG4, contains a framework that shows how the different aspects of software product lines are related. Under this framework, it is evident that areas of software product lines in addition to requirements engineering and management should be similarly addressed.

It is proposed that:
- The existing NP 29118 be restructured into a two standards as follows:
    - ISO/IEC NP xxx00 Information Technology – Reference Model and Introductory Guide for Software Product Lines
    - ISO/IEC NP xxx10 Information Technology – Tools and Methods of Requirements Engineering and Management for Software Product Lines (in 6 sections: Reference model for requirements engineering in product lines (normative), Product Line Scoping, Variability in Requirements, Domain Requirements Engineering, Application Requirements Engineering, Core Asset Management in Requirements)
- New standards be introduced address the following aspects of software product line development:
    - ISO/IEC NP xxx20 Information Technology – Tools and Methods of Architecture for Software Product Lines (in 5 sections: Reference model for architecture in product lines (normative), Modeling of Architecture, Variability in Architecture, Description of Architecture, Instantiation of Architecture)
    - ISO/IEC NP xxx30 Information Technology – Tools and Methods of Realisation for Software Product

Lines (in 4 sections: Reference model for realisation in product lines (normative), Reuse in Realisation, Variability in Realisation, Definition of Interfaces in Realisation)

- ISO/IEC NP xxx40 Information Technology – Tools and Methods of Testing for Software Product Lines (in 3 sections: Reference model for testing in product lines (normative), Reuse in Testing, Variability in Testing)
- ISO/IEC NP xxx50 consists Information Technology – Tools and Methods of Technical Management for Software Product Lines (in 4 sections: Reference model for Technical Management in product lines (normative), Configuration Management, Quality Management, Technical Risk Management)
- ISO/IEC NP xxx60 Information Technology – Tools and Methods of Organisational Management for Software Product Lines (in 3 sections: Reference model for Organisational Management in product lines, (normative), Project Management, Process Management, Project Risk Management)

Timescales:
ISO/IEC NP xxx00 and xxx10 and xxx50 will be commenced as soon as this NP is approved.
ISO/IEC NP xxx20 through xxx40 may be commenced in 2010 (estimated).and xxx60 may be commenced in 2012 (estimated).

Benefits:
The standards defining tools and methods for software product lines would provide economic benefit for enterprises engaging in the development of software product lines by:

- Acquiring tools with greater confidence of success.
- Reducing time-to-market for new products.
- Increasing the degree and the level of abstraction of reuse within products.
- Improving productivity and quality of products.
- Increasing the degree of cooperation and communication across departments.
- Fostering the creation of enterprise knowledge and assets.

There are also potential benefits for tool vendors, such as:

- Developing tools with greater confidence of success.
- Improving the quality and capabilities of their offerings.
- Communicating the benefits of their offerings to potential customers.

Relationships to other standards:
These standards should be consistent with and leverage from other standards and relevant documents. These standards will describe relationships to other standards and relevant documents, including:
ISO/IEC 15940 Software Engineering Environment Services
ISO/IEC 14102 Guideline for the evaluation and selection of CASE tools
TR 14471 Adoption of CASE tools
NP 24766 Guide for Requirement Engineering Tool Capabilities
NP 29148 Lifecycle processes – Requirements Engineering
ISO/IEC 12207 Software Lifecycle Processes
ISO/IEC 15288 System Lifecycle Processes
ISO/IEC 250nn Product Quality documents

These standards shall quote relevant clauses from ISO/IEC 15940, NP 24766, ISO/IEC 12207, ISO/IEC 15288, ISO/IEC 25030, ISO/IEC 14102, and TR 14471, and provide reference models and guidance in implementing those clauses. Relevant clauses from other related standards shall also be treated in this manner. The tools and methods guidance shall be updated in consideration of changes in technology and practice and the provisions of the various related standards.

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

_X__ more than one International Standard (expected number: ..7....)
____ a multi-part International Standard consisting of ..... parts
____ an amendment or amendments to the following International Standard(s) .....
____ a technical report , type .....

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

___a. Default Timeframe

___b. Accelerated Timeframe

_X_c. Extended Timeframe

Relevant documents to be considered

NP 29118 Tools and Methods of Requirements Engineering and Management for Product Lines
ISO/IEC 15940 Software Engineering Environment Services
ISO/IEC 14102 Guideline for the evaluation and selection of CASE tools
ISO/IEC 14471 Adoption of CASE tools
ISO/IEC 15288 System Life Cycle Processes
ISO/IEC 12207 Software Life Cycle Processes
ISO/IEC 15289 Software life cycle process information products
ISO/IEC250nn Product Quality documents
NP 24766 Guide for Requirement Engineering Tool Capabilities
NP 29148 Lifecycle processes – Requirements Engineering
IEEE 1362 System definition - Concept of Operations
IEEE 1233 Guide for developing system requirements specifications
IEEE 830 Recommended practice for software requirements specifications
ANSI/AIAA G-043-1992 Guide for the preparation of operational concept documents
ISO/IEC TR 19759 Guide to the Software Engineering Body of Knowledge
INCOSE technical reports
ITEA/ITEA2 technical reports
SEI technical reports

Co-operation and liaison

The project will be coordinated with the INCOSE.
Liaison with WG1A on governance, WG6 on quality, WG7 on requirements, WG21 on asset management, WG26 on testing, and WG42 on architecture.

Preparatory work offered with target date(s)

Signature:

Will the service of a maintenance agency or registration authority be required .....
- If yes, have you identified a potential candidate? .....
- If yes, indicate name .....

Are there any known requirements for coding? .....
-If yes, please specify on a separate page

Does the proposed standard concern known patented items? .
- If yes, please provide full information in an annex

Comments and recommendations of the JTC 1 or SC XXSecretariat - 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 XX

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:
2009-01-06	2009-04-05	W. Suryn

NEW WORK ITEM PROPOSAL - PROJECT ACCEPTANCE CRITERIA		
Criterion	**Validity**	**Explanation**
A. Business Requirement		
A.1 Market Requirement	Essential ___ Desirable ___ Supportive ___	
A.2 Regulatory Context	Essential ___ Desirable ___ Supportive ___ Not Relevant ___	
B. Related Work		
B.1 Completion/Maintenance of current standards	Yes ___ No___	
B.2 Commitment to other organisation	Yes ___ No___	
B.3 Other Source of standards	Yes ___ No___	
C. Technical Status		
C.1 Mature Technology	Yes ___ No___	
C.2 Prospective Technology	Yes ___ No___	
C.3 Models/Tools	Yes ___ No___	
D. Conformity Assessment and Interoperability		

D.1 Conformity Assessment	Yes ___ No___	
D.2 Interoperability	Yes ___ No___	
E. Cultural and Linguistic Adaptability	**Yes**____ **No**_____	
F. Other Justification		

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