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Software and systems engineering — Methods and tools for product line measurement

Ingénierie du logiciel et des systèmes — Méthodes et outils pour les mesures de gammes de produits

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

Software and systems product line (SSPL) engineering and management creates, exploits and manages a common platform to develop a family of products (e.g. software products, systems architectures) at a lower cost, with reduced time to market and better quality. As a result, it has gained increasing global attention since the 1990s.

For the successful adoption of the SSPL approach, quantitative management of a product line is essential. For quantitative management, the quality of product line processes and their work products should be measured. This is important because a product line deals with products as a portfolio, and its quality is not limited to a single product but multiple different products. Product line measurements deal with the quality of domain assets, the quality of individual products associated with the quality of a product line, and the quality of a product. Besides, for variability management, a product line should measure the number of variabilities and their impacts on the success of a product line. Methods and tools of product line measurements should consider these product line specific aspects.

This document can be used in the following modes:

— to provide guidance on how to perform product line measurement by organizations that want to adopt SSPL for producing their products;

— to provide guidance on the evaluation and selection for methods and tools for product line measurement by a product line organization;

— to provide guidance on implementing or developing methods and/or tools by specifying a comprehensive set of methods and tools capabilities for supporting product line measurement by either providers of methods or tools, or both.

The ISO/IEC 26550 family of standards addresses both engineering and management processes and capabilities of methods and tools in terms of the critical characteristics of product line development. This document provides processes and capabilities of methods and tools for variability modelling in product lines.

Other standards in the ISO/IEC 26550 family are as follows: ISO/IEC 26550, ISO/IEC 26551, ISO/IEC 26552, ISO/IEC 26553, ISO/IEC 26554, ISO/IEC 26555, ISO/IEC 26556, ISO/IEC 26557, ISO/IEC 26558, ISO/IEC 26559, ISO/IEC 26560, ISO/IEC 26561, ISO/IEC 26562 and ISO/IEC 26563.

— Processes and capabilities of methods and tools for domain requirements engineering and application requirements engineering are provided in ISO/IEC 26551.

— Processes and capabilities of methods and tools for domain design and application design are provided in ISO/IEC 26552.

— Processes and capabilities of methods and tools for domain realization and application realization are provided in ISO/IEC 26553.

— Processes and capabilities of methods and tools for domain testing and application testing are provided in ISO/IEC 26554.

— Processes and capabilities of methods and tools for technical management are provided in ISO/IEC 26555.

— Processes and capabilities of methods and tools for organizational management are provided in ISO/IEC 26556.

— Processes and capabilities of methods and tools for variability mechanisms are provided in ISO/IEC 26557.

— Processes and capabilities of methods and tools for variability modelling are provided in ISO/IEC 26558.

— Processes and capabilities of methods and tools for variability traceability are provided in ISO/IEC 26559.

— Processes and capabilities of methods and tools for product management are provided in ISO/IEC 26560.

— Processes and capabilities of methods and tools for product line technical probe are provided in ISO/IEC 26561.

— Processes and capabilities of methods and tools for product line transition management are provided in ISO/IEC 26562.

— Processes and capabilities of methods and tools for product line configuration management are provided in ISO/IEC 26563.

Software and systems engineering — Methods and tools for product line measurement

1 Scope

This document, within the context of methods and tools that support the product line measurement and management and that demonstrate the quality of the products and a product line:

— specifies processes for product line measurement (the processes are described in terms of purpose, inputs, tasks and outcomes);

— specifies method capabilities to support the defined tasks of each process;

— specifies tool capabilities that automate or semi-automate tasks and methods.

This document does not concern the processes and capabilities of tools and methods for a single system but rather deals with those for a family of products.

2 Normative references

There are no normative references in this document.