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**Software and systems engineering —
Methods and tools for product line
technical probe**

*Ingénierie du logiciel et des systèmes — Méthodes et outils destinés à
la vérification technique des gammes de produits*



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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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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 lower cost, with reduced time to market and better quality. As a result, it has gained increasing global attention since the 1990s.

Product line technical probe diagnoses an organization's ability necessary to successfully adopt product line engineering and management. Product line engineering and management require abilities to deal with markets, competitors, costs, benefits, two different and closely related domain and application engineering processes, and the distribution of different domain and application engineering over organizations. Before transitioning to product line engineering, an organization should assess its ability from these aspects and decide whether or not to switch to product line engineering. Based on the results of product line technical probe, an organization can establish plans to continuously improve its abilities.

This document can be used in the following modes:

- by organizations that want to adopt SSPL for producing their products – to provide guidance on how to probe the organization's capabilities necessary to adopt or improve product line engineering;
- by a product line organization – to provide guidance on the evaluation and selection for methods and tools for product line technical probe; and
- by providers of methods and/or tools – 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 technical probe.

The ISO/IEC 26550 family of standards addresses both engineering and management processes and capabilities of methods and tools in terms of the key 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 and ISO/IEC 26560 are published. ISO/IEC 26562 is to be published. ISO/IEC 26563 and ISO/IEC 26564 are planned International Standards.

- 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 transition management are provided in ISO/IEC 26562 (International Standard under development);
- Processes and capabilities of methods and tools for configuration management of asset are provided in ISO/IEC 26563 (planned International Standard);
- Processes and capabilities of methods and tools for product line measurement are provided in ISO/IEC 26564 (planned International Standard);
- Others (ISO/IEC 26564 to ISO/IEC 26599): To be developed.

Software and systems engineering — Methods and tools for product line technical probe

1 Scope

This document, within the context of methods and tools for supporting the diagnosis of the organization's capability to adopt or improve software and systems product line engineering:

- defines processes for product line technical probe; those processes are described in terms of purpose, inputs, tasks and outcomes;
- defines method capabilities to support the defined tasks of each process; and
- defines tool capabilities that automate or semi-automate tasks and methods.

This document does not concern 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.