

INTERNATIONAL
STANDARD

ISO/IEC
26562

First edition
2019-11

**Software and systems engineering —
Methods and tools for product line
transition management**

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



Reference number
ISO/IEC 26562:2019(E)

© ISO/IEC 2019



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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

Published in Switzerland

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 Reference model for product line transition management	2
4.1 Overview.....	2
4.2 Product line transition management.....	3
4.3 Product line transition operationalization.....	3
4.4 Product line transition support.....	4
5 Product line transition management	5
5.1 General.....	5
5.2 Product line transition planning.....	5
5.2.1 Principal constituents.....	5
5.2.2 Establish organization’s transition goal.....	6
5.2.3 Determine organization’s transition strategy.....	7
5.2.4 Define key procedures for transition.....	7
5.2.5 Formulate schedules and required resources for transition.....	8
5.2.6 Specify how to monitor, measure, and control the effectiveness of transition.....	8
5.2.7 Document product line transition plan.....	9
5.3 Product line transition enabling.....	9
5.3.1 Principal constituents.....	9
5.3.2 Establish governance policy for transition.....	10
5.3.3 Mobilize qualified human resources for transition.....	10
5.3.4 Identify infrastructure and resource needs for transition operationalization and support.....	11
5.3.5 Enable quality assurance measurement for transition.....	11
5.3.6 Improve transition process continuously.....	12
5.4 Product line transition managing.....	12
5.4.1 Principal constituents.....	12
5.4.2 Tailor and allocate governance policy, R & R, and resources to relevant sub functions of transition.....	13
5.4.3 Collect data from SSPL transition sub functions.....	13
5.4.4 Monitor, measure, and control transition operationalization and support.....	14
5.4.5 Manage actual operation and support of transition.....	14
5.4.6 Provide feedback to planning and enabling functions of transition.....	15
6 Product line transition operationalization	15
6.1 General.....	15
6.2 Product line transition preparation.....	15
6.2.1 Principal constituents.....	15
6.2.2 Create transition scenarios to deploy transition strategy.....	16
6.2.3 Analyse the effectiveness of the transition scenarios.....	17
6.2.4 Select an optimal transition scenario.....	17
6.2.5 Specify the scenario for transition launch.....	17
6.2.6 Train human resources responsible for transition.....	17
6.3 Launching the product line transition.....	18
6.3.1 Principal constituents.....	18
6.3.2 Launch a pilot transition.....	19
6.3.3 Deliver findings from launching the pilot transition.....	19
6.3.4 Improve the transition process from the actual pilot(s).....	19
6.3.5 Retrain human resources responsible for transition.....	20
6.4 Product line transition operation.....	20

6.4.1	Principal constituents	20
6.4.2	Perform organization wide transition operation.....	21
6.4.3	Capture relevant data from the operation.....	21
6.4.4	Document the findings, strengths, and weaknesses	21
6.4.5	Assess gaps between to-be and as-is.....	22
6.4.6	Improve the transition process from the gap assessment results	22
6.5	Institutionalizing the product line transition.....	22
6.5.1	Principal constituents	22
6.5.2	Assign responsibilities of roles for institutionalization.....	23
6.5.3	Identify gaps to drive improvements for institutionalization.....	23
6.5.4	Exercise necessary actions to fill the gaps.....	24
6.5.5	Monitor the status/effects of the actions.....	24
6.5.6	Perform continuous improvement for institutionalization	24
7	Product line transition support.....	25
7.1	General.....	25
7.2	Quality assurance for product line transition	25
7.2.1	Principal constituents	25
7.2.2	Objectively evaluate transition activities.....	26
7.2.3	Objectively evaluate transition work products.....	26
7.2.4	Communicate and resolve noncompliance issues.....	27
7.2.5	Establish records of transition quality assurance activities.....	27
7.3	Measuring the success of product line transition	28
7.3.1	Principal constituents	28
7.3.2	Integrate measurement results of product line transition.....	28
7.3.3	Evaluate the success of product line transition.....	29
7.3.4	Record results and inform to the relevant stakeholders.....	29
7.3.5	Improve the product line transition process continuously.....	30
7.4	Risk management for product line transition.....	30
7.4.1	Principal constituents	30
7.4.2	Identify risks related to the success of transition	31
7.4.3	Develop mitigation plans for the identified risks	32
7.4.4	Monitor the execution of the mitigation plan	32
7.4.5	Learn from actual results of risk management for product line transition	32
	Annex A (informative) Exemplar product line transition strategies.....	34
	Bibliography	35

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see <http://patents.iec.ch>).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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.

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 transition management supports a product line organization to launch and institutionalize the product engineering and management. The results of the product line technical probe are major inputs to determine the transition strategy and continuous improvement of product line institutionalization.

This document can be used in the following modes:

- by organizations that want to switch from single-system development to SSPL for producing their products – to provide guidance on how to launch and institutionalize the product line engineering;
- by a product line organization – to provide guidance on the evaluation and selection for methods and tools for product line transition management;
- by providers of methods and 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 transition management.

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 of standards 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 26561 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 technical probe are provided in ISO/IEC 26561 (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 transition management

1 Scope

This document, within the context of methods and tools for supporting the transitioning the organization's current development approach to software and systems product line engineering:

- defines processes for product line transition management. Those processes are described in terms of purpose, inputs, tasks and outcomes;
- defines method capabilities to support the defined tasks of each process;
- 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.