

This is a preview of "ISO/IEC 26550:2015". Click here to purchase the full version from the ANSI store.

Second edition
2015-12-01

Software and systems engineering — Reference model for product line engineering and management

*Ingénierie du logiciel et des systèmes - Modèle de référence pour
l'ingénierie et la gestion de lignes de produits*



Reference number
ISO/IEC 26550:2015(E)

© ISO/IEC 2015

This is a preview of "ISO/IEC 26550:2015". Click here to purchase the full version from the ANSI store.



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

This is a preview of "ISO/IEC 26550:2015". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 From single-system engineering and management toward product line engineering and management	6
4.1 Challenges product companies face in the use of single-system engineering and management	6
4.2 Variability management	7
4.3 Key differentiators between single-system engineering and management and product line engineering and management	7
5 Reference model for product line engineering and management	9
5.1 General	9
5.2 Product line reference model	10
6 Two life cycles and two process groups for product line engineering and management	12
6.1 Domain engineering life cycle	12
6.1.1 Product line scoping	12
6.1.2 Domain requirements engineering	12
6.1.3 Domain design	13
6.1.4 Domain realization	14
6.1.5 Domain verification and validation	15
6.2 Application engineering life cycle	16
6.2.1 Application requirements engineering	16
6.2.2 Application design	16
6.2.3 Application realization	17
6.2.4 Application verification and validation	18
6.3 Organizational management process group	19
6.3.1 Organizational-level product line planning	19
6.3.2 Organizational product line-enabling management	21
6.3.3 Organizational product line management	21
6.4 Technical management process group	22
6.4.1 Process management	22
6.4.2 Variability management	23
6.4.3 Asset management	24
6.4.4 Support management	25
7 Relationships within and between domain engineering and application engineering	25
7.1 Interrelations between product line scoping and domain requirements engineering	25
7.2 Interrelations between domain requirements engineering and domain design	26
7.3 Interrelations between domain design and domain realization	26
7.4 Interrelations between domain requirements engineering and domain verification and validation	27
7.5 Interrelations between domain design and domain verification and validation	27
7.6 Interrelations between domain realization and domain verification and validation	28
7.7 Interrelations between product line scoping and application requirements engineering	28
7.8 Interrelations between domain requirements engineering and application requirements engineering	29
7.9 Interrelations between domain design and application design	29
7.10 Interrelations between domain realization and application realization	30
7.11 Interrelations between domain verification and validation and application verification and validation	30
7.12 Interrelations between application requirements engineering and application design	31

This is a preview of "ISO/IEC 26550:2015". Click here to purchase the full version from the ANSI store.

7.13	Interrelations between application design and application realization	31
7.14	Interrelations between application requirements engineering and application verification and validation	32
7.15	Interrelations between application design and application verification and validation....	32
7.16	Interrelations between application realization and application verification and validation	33
Annex A (informative) Further information on products.....		34
Bibliography.....		35

This is a preview of "ISO/IEC 26550:2015". Click here to purchase the full version from the ANSI store.

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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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).

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

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

This second edition cancels and replaces the first edition (ISO/IEC 26550:2013), of which it constitutes a minor revision.

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

This International Standard provides a reference model consisting of an abstract representation of the key processes of software and systems product line engineering and management and the relationships between the processes. Two key characteristics, the need for both domain and application engineering lifecycle processes and the need for the explicit variability definition, differentiate product line engineering from single-system engineering. The goal of domain engineering is to define and implement domain assets commonly used by member products within a product line, while the goal of application engineering is to develop applications by exploiting the domain assets including common and variable assets. Domain engineering explicitly defines product line variability which reflects the specific needs of different markets and market segments. Variability may be embedded in domain assets. During application engineering, the domain assets are deployed in accordance with the defined variability models.

The reference model for SSPL engineering and management can be used in subsequent standardization efforts to create standards having a high level of abstraction (e.g. product management, scoping, requirements engineering, design, realization, verification and validation, and organizational and technical management), a medium level of abstraction (e.g. configuration management, variability modeling, risk management, quality assurance, measurement, evaluation, asset repository), or a detailed level of abstraction (e.g. texture, configuration mechanism, asset mining) for software and systems product line engineering.