

This is a preview of "BS ISO/IEC 26550:201...". Click here to purchase the full version from the ANSI store.

BS ISO/IEC 26550:2015



BSI Standards Publication

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

bsi.

...making excellence a habit.™

This is a preview of "BS ISO/IEC 26550:201...". [Click here to purchase the full version from the ANSI store.](#)

This British Standard is the UK implementation of ISO/IEC 26550:2015. It supersedes BS ISO/IEC 26550:2013 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee IST/15, Software and systems engineering.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2015.

Published by BSI Standards Limited 2015

ISBN 978 0 580 91402 7

ICS 35.080

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 December 2015.

Amendments/corrigenda issued since publication

Date	Text affected
-------------	----------------------

This is a preview of "BS ISO/IEC 26550:201...". [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 "BS ISO/IEC 26550:201...". 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 "BS ISO/IEC 26550:201...". 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 "BS ISO/IEC 26550:201...". [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 "BS ISO/IEC 26550:201...". 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.

This is a preview of "BS ISO/IEC 26550:201...". [Click here to purchase the full version from the ANSI store.](#)

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.

This is a preview of "BS ISO/IEC 26550:201...". Click here to purchase the full version from the ANSI store.

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

1 Scope

This International Standard is the entry point of the whole suite of International Standards for software and systems product line engineering and management.

The scope of this International Standard is to

- provide the terms and definitions specific to software and systems product line engineering and management,
- define a reference model for the overall structure and processes of software and systems product line engineering and management and describe how the components of the product line reference model fit together, and
- define interrelationships between the components of the product line reference model.

This International Standard does not describe any methods and tools associated with software and systems product line engineering and management. Descriptions of such methods and tools will appear in the consecutive International Standards (ISO/IEC 26551¹⁾ to ISO/IEC 26556²⁾). This International Standard does not deal with terms and definitions addressed by ISO/IEC/IEEE 24765:2010 that provides a common vocabulary applicable to all systems and software engineering work.

Whenever this International Standard refers to “products”, it means “system-level products” consisting of software systems or both hardware and software systems. It may be useful for the engineering and management of product lines that consist of only hardware systems but it has not been explicitly created to support such hardware product lines. This International Standard is not intended to help the engineering, production, warehousing, logistics, and management of physical items that, possibly combined with software, comprise the products. These processes belong to other disciplines (e.g. mechanics, electronics).

NOTE [Annex A](#) provides further information on products.

This International Standard, including the product line reference model and the terms and definitions, has been produced starting from References [6], [7], and [8] which finally resulted in a broad consensus from National Member Bodies at the time of publication. In addition to this background process, structures from ISO/IEC 12207:2008, ISO/IEC/IEEE 15288:2015, ISO/IEC 15940:2006 and ISO/IEC 14102:2008 have been used as a baseline.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

There are no normative references cited in this document.

1) Second edition to be published.

2) Under development.