

ISO/IEC 26555:2015-12 (E)

Software and systems engineering - Tools and methods for product line technical management

Contents		Page
Foreword		vi
Introduction		vii
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Reference model for product line technical management	2
5	Process management	6
5.1	Applying process enabling processes for product lines	7
5.1.1	Establish process management group	7
5.1.2	Align resources for process definition and improvements	8
5.1.3	Govern process definition and improvement	9
5.1.4	Prepare process management and improvement	9
5.2	Domain engineering process definition	10
5.2.1	Define domain engineering processes	10
5.2.2	Validate domain engineering processes	11
5.2.3	Deploy the domain engineering processes	11
5.3	Application engineering process definition	12
5.3.1	Define application engineering processes	12
5.3.2	Validate the conformance of application engineering processes with domain engineering processes	13
5.3.3	Deploy the application engineering processes	14
5.4	Applying process monitoring and control for product lines	14
5.4.1	Plan for process monitoring and control	15
5.4.2	Define process performance measures	15
5.4.3	Measure and manage process performance	16
5.4.4	Coordinate processes for improving reusability	16
5.5	Applying process improvement for product lines	17
5.5.1	Assess processes	17
5.5.2	Estimate the impact of changes on processes	18
5.5.3	Plan process improvement	18
5.5.4	Implement process improvements	19
5.5.5	Evaluate process improvement	19
6	Variability management	20
6.1	Variability modelling	21
6.1.1	Establish variability modeling policy	21
6.1.2	Collect variability information	22
6.1.3	Verify variability models	23
6.1.4	Share and maintain variability models	23
6.2	Variability mechanism	23
6.2.1	Establish variability mechanism management policy	24
6.2.2	Operate variability mechanisms	24
6.2.3	Support variability mechanisms operation	25
6.3	Variability documentation	25
6.3.1	Establish policies for variability documentation	26

6.3.2	Collect annotations of variability models	26
6.3.3	Validate the variability documentation	26
6.4	Variability binding	27
6.4.1	Establish binding policy	27
6.4.2	Guide trade-offs analysis among alternatives of binding time	27
6.4.3	Guide binding time decision	28
6.4.4	Maintain binding information	28
6.5	Variability tracing	29
6.5.1	Establish policies for traceability management of variability models	29
6.5.2	Define links between variability model and domain assets	30
6.5.3	Manage the changes of the defined trace links	30
6.6	Variability control and evolution	30
6.6.1	Identify and analyse the evolution needs of variants	31
6.6.2	Add or remove variants	31
6.6.3	Add or remove dependencies and constraints	32
6.6.4	Change binding time	32
6.6.5	Maintain the affected traceabilities	33
6.6.6	Provide feedback for variabilities and the variability evolution process	33
7	Asset Management	33
7.1	Asset identification	34
7.1.1	Set up and maintain organizational policies for managing assets	35
7.1.2	Identity asset candidates	35
7.1.3	Estimate efforts necessary to create, reuse, and update domain assets	35
7.1.4	Determine assets	36
7.1.5	Elicit information necessary to reuse assets	36
7.2	Asset base implementation	37
7.2.1	Establish the mining (retrieval) mechanism for assets	37
7.2.2	Define and implement the CRUD method for assets	38
7.2.3	Establish asset base	38
7.2.4	Evaluate asset base	39
7.3	Asset validation	39
7.3.1	Review the selected assets	40
7.3.2	Review asset configurations	40
7.3.3	Create and release baselines of assets	40
7.4	Asset evolution (including change management)	41
7.4.1	Manage asset changes	41
7.4.2	Maintain traceability of assets	42
7.4.3	Manage feedback and take appropriate evolution actions	42
7.4.4	Transform the existing assets into assets to rehabilitate asset base	43
7.4.5	Dispose assets from asset base	43
8	Support management	43
8.1	Technical quality management	44
8.1.1	Establish technical quality management policy	45
8.1.2	Establish and maintain criteria for quality assurance	45
8.1.3	Perform quality assurance according to criteria	45
8.1.4	Communicate and ensure resolution of noncompliance issues	46
8.2	Configuration management	46
8.2.1	Identify configurations of member products	47
8.2.2	Establish configuration tree for a product line	48
8.2.3	Manage configuration of variability in space	49
8.3	Decision management	49
8.3.1	Establish decision management policy	50
8.3.2	Tailor decision procedure	51
8.3.3	Guide the decision execution	51
8.3.4	Learn from execution results	51
8.4	Technical risk management	52
8.4.1	Identify technical risks	52
8.4.2	Assess technical risks	52
8.4.3	Develop technical risk mitigation plans	53

8.4.4	Activate the mitigation plan	53
8.5	Tool management	54
8.5.1	Identify needs for tool management	54
8.5.2	Select and adapt tools	55
8.5.3	Set up and maintain tools	55
Annex A (informative) Technical management and technical readiness levels (TRL)		56
Annex C (informative) Construct for process, method, tool, and aspect		60
Bibliography		61