

ISO/IEC 26558:2017-07 (E)

Software and systems engineering - Methods and tools for variability modelling in software and systems product line

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Variability modelling in software and systems product line	2
4.1	Overview	2
4.2	Reference model for variability modelling in software and systems product line	4
5	Variability model management	6
5.1	General	6
5.2	Variability model planning	7
5.2.1	Purpose of variability model planning	7
5.2.2	Design variability modelling strategy	7
5.2.3	Define quality assurance measures for variability modelling	8
5.2.4	Assign responsibility for variability modelling	8
5.2.5	Record variability model plan	8
5.3	Variability model enabling	9
5.3.1	Purpose of variability model enabling	9
5.3.2	Provide guidance for variability modelling	10
5.3.3	Mobilize roles and responsibilities for variability modelling	10
5.3.4	Enable variability model-centric variability management	10
5.3.5	Enable variability modelling operations	11
5.3.6	Enable quality assurance measurement for variability modelling	11
5.4	Variability model managing	11
5.4.1	Purpose of variability model managing	11
5.4.2	Review the plan versus actual of variability modelling	12
5.4.3	Control issues on domain/application variability modelling	13
5.4.4	Control issues on variability model-centred variability management	13
5.4.5	Control issues on variability model support	13
5.4.6	Support corrective actions for variability modelling	14
5.4.7	Make improvement actions for variability modelling	14
6	Variability modelling	14
6.1	General	14
6.2	Domain variability modelling	15
6.2.1	Purpose of domain variability modelling	15
6.2.2	Construct domain variability model	15
6.2.3	Annotate domain variability model	16
6.2.4	Verify domain variability model	16
6.2.5	Optimize domain variability model	17
6.3	Application variability modelling	17
6.3.1	Purpose of application variability modelling	17
6.3.2	Construct application variability model	18
6.3.3	Annotate application variability model	18
6.3.4	Verify application variability model	18

6.3.5	Optimize application variability model	19
6.4	Relating variability model to artefacts	19
6.4.1	Purpose of relating variability model to artefacts	19
6.4.2	Retrieve variation points and variants in relevant artefacts	20
6.4.3	Relate domain variability model to domain artefacts	20
6.4.4	Relate application variability model to application artefacts	20
6.5	Relating domain variability model to application variability model	21
6.5.1	Purpose of domain variability model to application variability model	21
6.5.2	Trace binding decisions made in an application	22
6.5.3	Establish relations between domain and application variability models	22
6.5.4	Add decision-related annotations to relations	22
6.5.5	Verify relations between domain and application variability models	23
7	Variability model support	23
7.1	General	23
7.2	Relating variability model to variability mechanism	23
7.2.1	Purpose of relating variability model to variability mechanism	23
7.2.2	Identify variability including variability mechanism constraints	24
7.2.3	Establish relations from variability model to variability mechanism	24
7.2.4	Add variability mechanism constraint annotations into variability model	25
7.3	Quality assurance for variability model	25
7.3.1	Purpose of quality assurance for variability model	25
7.3.2	Objectively evaluate variability modelling activities	26
7.3.3	Objectively evaluate variability model work products	26
7.3.4	Communicate and resolve noncompliance issues	27
7.3.5	Establish records of variability modelling quality assurance activities	27
7.4	Binding decision support	28
7.4.1	Purpose of binding decision support	28
7.4.2	Establish full of references to binding decision tables	28
7.4.3	Verify binding decisions from variability models view	29
7.5	Application configuration support	29
7.5.1	Purpose of application configuration support	29
7.5.2	Relate variability models to binding decision tables	30
7.5.3	Provide different views of variability models by binding stages	30
7.5.4	Support full of traces from variability model to artefacts	30
Annex A (informative)	Variability meta model	32
Annex B (informative)	Orthogonal variability model	33
Annex C (informative)	Formal descriptions for variability relationships	34
Annex D (informative)	Orthogonal variability decision table	35
Annex E (informative)	Orthogonal variability model validation	36
Bibliography	38