

# ISO/IEC 26558:2017-07 (E)

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

---

<b>Contents</b>		<b>Page</b>
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