

Table of Contents

Introduction 11

1. Why This Book? 11

1.1 Uncle Ludwig 11

2. Enterprise Architecture 12

2.1 Where are the principles and guidelines? 14

2.2 The Why, the How and the What 14

2.3 Disclaimer 14

3. Gratitude 14

4. License & Legal 15

5. Release Notes for Edition III.TC1 15

ArchiMate Basics 17

6. An ArchiMate Map 17

7. Main Core Elements and Relations 18

7.1 Application and Business 18

7.2 The double use of the Serving relation 21

7.3 Function versus Process 21

7.4 Business Actor 22

7.5 Adding Technical Infrastructure to the Mix 22

7.6 System Software and Device 24

7.7 Composition and Aggregation 24

7.8 Nesting 25

7.9 Using a Node to encapsulate infrastructure 25

7.10 Event, Trigger and Flow 26

7.11 Modeling the Physical 27

7.12 Junctions 28

7.13 Grouping 28

7.14 Automated Processes 29

7.15 Distribution of data and matter (Path and Network) 29

7.16 Who is in Charge? 30

7.17 Abstractions 31

8. Other Core Elements and Relations 32

8.1 Product and Contract 32

8.2 (Formal) Collaboration and Interaction 33

8.3 The Association Relation 34

8.4 Specialization in the *Meta*-model 34

8.5 The Specialization Relation in an *Actual* Model 35

8.6 Representation 37

8.7 Location 37

8.8 The Complete Core 37

9. Derived Relations 39

9.1 Derived Structural and Dependency Relations 39

9.2 Derived Dynamic Relations 41

9.3 Are derived relations real relations? 41

9.4 How useful are derived relations? 42

10. Non-Core ArchiMate domains 42

10.1 Strategy 42

10.2 Implementation & Migration 43

10.3 Motivation 44

11. Some Beginners' Pitfalls 46

11.1 Pitfalls of Derived Relations 46

11.2 Don't trust the language or the tool blindly: know what you are doing 47

11.3 Misunderstanding the standard meta-model diagram 48

12. Some Noteworthy Aspects of ArchiMate .. 48

12.1 Licensing 48

12.2 ArchiMate, the modeling language 49

12.3 Separation of 'actor' and 'behavior' 50

12.4 One View Type 50

12.5 On the direction of structural relations under the assumption of 'worst case' 50

12.6 On the limitations of derived relations 51

12.7 Why two types of software? 52

12.8 There is more than one-to-one 53

12.9 Detailed or not? 53

12.10 Layering Ambiguity.....	54
12.11 The Use of the Non-core Domains.....	54
12.12 Why model?	54
13. From ArchiMate 2.1 to ArchiMate 3.0.1 ...	55
Style & Patterns	57
14. Aesthetics (Style).....	57
14.1 Why aesthetics matters	57
14.2 Arranging relations	57
14.3 Sizing and Arranging elements.....	59
14.4 Using color.....	60
14.5 Visual grouping.....	61
14.6 About labels	61
14.7 Don't Use the 'Children's Visuals'	62
15. Patterns.....	62
15.1 The Use of Patterns	62
15.2 A Basic TI Pattern: A Database	63
15.3 Modeling Spreadsheet Applications.....	65
15.4 Modeling an Internet Browser.....	67
15.5 More 'application platforms'	68
15.6 Infrastructure 'Building Blocks'	69
15.7 Deployment Pattern: Standalone PC Application .	70
15.8 Deployment Pattern: Standalone PC Application with File Server based Data	70
15.9 Deployment Pattern: Classic Two-Tier Client-Server Application.....	71
15.10 Deployment Pattern: Two-Tier Client-Server Application with mounted Client Application and two databases	72
15.11 Deployment Pattern: Two-Tier Client-Server with a Remote Server	73
15.12 Deployment Pattern: Three-Tier Application.....	73
15.13 Deployment Pattern: Software as a Service (SaaS)	75
15.14 We only model what we can see/'change'	76
15.15 Deployment Pattern: Providing a local SaaS.....	76
15.16 The Use of Patterns (reprise)	76
15.17 Infrastructure Pattern: Database Replication.....	78
15.18 Infrastructure Pattern: High-Availability Database Cluster.....	78
15.19 Infrastructure Pattern: High-Availability Server...	80
15.20 Using Collections and Abstraction in a model ...	81
15.21 External Data Services	81
15.22 Multiple Realizers.....	82
15.23 Other Parallel Relations	83
15.24 Summary of Basic Patterns.....	83
16. Some Anti-patterns	84
16.1 Application Collaboration is an Anthropomorphism	84
16.2 Using the Association Relation	86
16.3 Using properties too much	86
17. An Example from the Real World.....	87
18. Business Function and Business Process ..	91
18.1 On ArchiMate's divide between behavior and structure.....	91
18.2 Business Function or Business Process?	92
18.3 Good Old Fashioned Business Function	95
18.4 The 'End-to-end' Business Process	95
18.5 Business Process Modeling versus Business Layer Architecture	96
18.6 Dividing your enterprise's behavior into Business Functions	97
18.7 Concurrent Functional Landscapes	100
18.8 Application/Technology Process or Function	103
19. Secondary and Tertiary Architecture.....	104
19.1 Introduction.....	104
19.2 Primary Architecture.....	104
19.3 Secondary Architecture: Development.....	104
19.4 Intermezzo	105
19.5 Secondary Architecture: System Exploitation	105
19.6 Secondary Architecture: Application Maintenance	106
19.7 Tertiary Architecture: Application Owner.....	106
19.8 Tertiary Architecture: other roles	107
19.9 Making it Practical: shortcuts.....	108
19.10 Exploiting ArchiMate 3's improved flexibility ...	110
20. Modeling Risk & Security with Motivation Elements	111
20.1 Security Architecture	111
20.2 Risk	111
20.3 Modeling Risks and Controls	111
21. Using the Implementation and Migration Extension	114
22. Organizational Structure.....	115
22.1 Basic Organizational Structure	115
22.2 Using an ArchiMate landscape to design an object model.....	116
23. Virtual Machines (Parallelization)	118
24. Modeling Information Aspects	123
24.1 Messages and File Copies	123
24.2 Informational Structure	124
24.3 Status Change of Informational Objects.....	125
24.4 Access passive element from internal or external behavior?	126
24.5 Low Level Data Entry.....	126
25. Integration	128

25.1 Service-Oriented Architecture / The API Economy	128
25.2 Who is Serving Whom Anyway?	128
25.3 Associating with Trigger and Flow	129
25.4 Routing and Orchestrating Middleware (ESB and APIs)	129
26. Additional elements for model use	133
26.1 Using extra elements to facilitate analysis	133
26.2 Keeping in sync with other administrations	134
26.3 Reducing clutter through Aggregation	136
27. Complex Environments	138
27.1 Server Farm	138
27.2 Citrix	140
27.3 Complex Software Stacks	141
27.4 A completely alternative platform approach	143
27.5 Complex Application Components	144
27.6 Business logic at the infrastructure level	147
27.7 Bitcoin (Blockchain)	148
28. The Data Center	150
28.1 Networking	150
28.2 DevOps Ready Data Center (DRDC)	151
BPMN and ArchiMate	159
29. A Very Short BPMN Primer	159
30. A Possible Linking of BPMN and ArchiMate	164
30.1 An ArchiMate-BPMN Linkage Pattern	165
30.2 BPMN/ArchiMate: Multiple Roles performing a Single Process	169
30.3 BPMN/ArchiMate: A Process calling another Process	172
30.4 BPMN/ArchiMate: BPMN has no Architecture 'Layers'	173
30.5 The Process Landscape in BPMN	175
30.6 The Process Landscape in ArchiMate	179
30.7 Processes handling Artifacts	181
30.8 Processes communicating via an ESB	182
Model Use & Maintenance	189
31. Construction & Use Views	189
31.1 Exceptional Construction Views	193
32. Model Maintenance	195
32.1 The Satellite Model Approach	195
Reflections	199
33. The Role of ArchiMate in Enterprise Architecture	199
34. Why Model? (And for Whom?)	200
34.1 Two modeling purposes	200

34.2 Better Insight	200
34.3 Overrated and Underrated	201
35. Using Abstractions	202
35.1 The price one pays	202
35.2 Too much detail?	203
Discussing ArchiMate	207
36. Proposed Improvements for ArchiMate 3	207
36.1 Fragmentation of element types	207
36.2 Remove historical baggage	207
36.3 Issues with abstractions	208
36.4 Issue with Metamodel-Specialization	209
36.5 Service as Composite Part of Function/Process	209
36.6 Automated Processes	211
36.7 Changing the Strength of Assignment and Realization	212
36.8 A better derivation algorithm	212
36.9 Allow multiple parents in a Composition	215
36.10 Make the Access relation multi-directional	216
36.11 Why change ArchiMate?	217
Tooling	219
37. Multiple Models of a Single Reality	219
38. Tool Requirements	220
Index	223
List of Figures	230
Finger	237