

Contents

1	From Ad Hoc to Agility: A General Framework	1
1.1	Introduction	1
1.2	Engineering in Software Development	2
1.3	Causes of the Crisis—The NATO Conference, the Birth of Software Engineering	4
1.4	Crisis: Myths and Reality	8
1.5	Software Development Lifecycle	13
1.6	Conclusion	15
	References	16
2	Sociocultural Aspects of Agility	19
2.1	Introduction	19
2.2	Culture in Agility	20
2.3	Cultural Challenges in Implementing Agile Methods	22
2.4	Cultural Challenges in the Global Market	22
2.5	Cultural Dimension	24
2.6	Power Distribution	26
2.7	Individualism	26
2.8	Masculinity	27
2.9	Assumed Relationship Between Agile and National Cultures	27
2.10	Egalitarian Power Distribution, Collectivism, and Agile Self-organization	28
2.11	Individuals and Interactions	29
2.12	Goal Setting and Sustainability	30
2.13	Lessons Learned from Global Agile Implementations	32
2.14	Accessible Communication Channels	32
2.15	Context for Openness	32
2.16	New Communication Channels	33
2.17	Conclusion	34
	References	35

3 Agile Knowledge Management	37
3.1 Introduction	37
3.2 Epistemological Perspectives on KM	39
3.3 Knowledge Management in Practice	42
3.4 Challenges in Agile Software Development	42
3.5 Managing Knowledge in Agile Development Process	44
3.6 Agile Knowledge Management Theories	46
3.7 Agile Knowledge Creation Theories	46
3.8 Knowledge Management Strategies in Agile Software Development	48
3.9 Knowledge Involved in Agile Practices	50
3.10 Conclusion	51
References	52
4 Agility at Scale	55
4.1 Introduction	55
4.2 Understanding the Scale	56
4.3 Leading Agile by Being Agile	57
4.4 Getting Agile Rolling	57
4.5 Create Taxonomy of Teams	58
4.6 Sequence the Transition	59
4.7 Roll-Out Agile in Steps	59
4.8 Master Large-Scale Agile	60
4.9 Building Agility Across the Business	60
4.10 Values and Principles	61
4.11 Operating Architectures	61
4.12 Talent Acquisition and Motivation	62
4.13 Annual Planning and Budgeting Cycles	63
4.14 Best Practices	65
4.15 Failure of Agile in Large Organization	67
4.16 Lack of Clarity	67
4.17 Continual Reliance on Legacy Methods	68
4.18 Inadequate Experience with Agile	68
4.19 Looking for Testing Strategy	69
4.20 Lack of Alignment in Areas of the Enterprise	70
4.21 Larger Teams and Pyramid Structures	70
4.22 Conclusion	71
References	71

5 Mastering Agility	73
5.1 Introduction	73
5.2 Disciplined Agile Delivery (DAD)	80
5.3 Agile for People	86
5.3.1 Individual Competence	87
5.3.2 Team Competence	87
5.3.3 Build Effective Relationships	88
5.4 Conclusion	89
References	90
6 Developing and Fostering Smart Ecosystems	91
6.1 Introduction	91
6.2 Case Study: Chitkara University Research and Innovation Network (CURIN)	92
6.2.1 History and Achievements	92
6.2.2 Chitkara Structure and Projects	96
6.3 Case Study: Innopolis University and Ecosystem	104
6.3.1 Timeline	105
6.3.2 The University of Innopolis	107
6.3.3 Programs	108
6.3.4 Deliverables	117
6.3.5 Innopolis Ecosystem: Conclusion	119
6.4 Case Study: Comparing CURIN and Innopolis	119
6.4.1 Project Timelines	119
6.4.2 Similarities	121
6.4.3 Research Centers	123
6.4.4 Differences	124
6.4.5 Budget	125
6.4.6 Salaries	125
6.4.7 Student Life	126
6.4.8 Arts and Culture	127
6.4.9 SWOT Analysis of the Innopolis University	128
6.4.10 Questions for Discussion	128
6.5 Conclusion	129
References	129
Conclusion. Reaching Agility in Diverse Environments	131
Glossary	137
Index	141