

THE
Open
GROUP

Open Agile Architecture™

A Standard of The Open Group



Open Agile Architecture™ - A Standard of The Open Group

The Open Group Publications available from Van Haren Publishing

The TOGAF Series:

The TOGAF® Standard Version 9.2
The TOGAF® Standard Version 9.2 – A Pocket Guide
TOGAF® 9 Foundation Study Guide, 4th Edition
TOGAF® 9 Certified Study Guide, 4th Edition
TOGAF® Business Architecture Level 1 Study Guide

The Open Group Series:

The IT4IT™ Reference Architecture, Version 2.1
IT4IT™ for Managing the Business of IT – A Management Guide
IT4IT™ Foundation Study Guide, 2nd edition
The IT4IT™ Reference Architecture, Version 2.1 – A Pocket Guide
Cloud Computing for Business – The Open Group Guide
ArchiMate® 3.1 Specification – A Pocket Guide
ArchiMate® 3.1 Specification
The Digital Practitioner Pocket Guide
The Digital Practitioner Foundation Study Guide
Open Agile Architecture™ - A Standard of The Open Group

The Open Group Security Series:

O-TTPS - A Management Guide
Open Information Security Management Maturity Model (O-ISM3)
Open Enterprise Security Architecture (O-ESA)
Risk Management – The Open Group Guide
The Open FAIR™ Body of Knowledge – A Pocket Guide

All titles are available to purchase from:

www.opengroup.org

www.vanharen.net

and also many international and online distributors.

Open Agile Architecture™

A Standard of The Open Group

THE
Open
GROUP



Title: Open Agile Architecture™ - A Standard of The Open Group
Series: The Open Group Series
Author: A publication of The Open Group
Publisher: Van Haren Publishing, 's-Hertogenbosch - NL, www.vanharen.net
ISBN Hardcopy: 978 94 018 0725 8
ISBN eBook: 978 94 018 0726 5
ISBN ePUB: 978 94 018 0727 2
Edition: First edition, first impression, December 2020

Layout and Cover Design: The Open Group

Copyright: © 2019-2020 The Open Group. All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of the copyright owner.

Any use of this publication for commercial purposes is subject to the terms of the Annual Commercial License relating to it. For further information, see www.opengroup.org/legal/licensing.

Open Agile Architecture™

Document Number: C208

Published by The Open Group, December 2020.

Comments relating to the material contained in this document may be submitted to:

The Open Group

Apex Plaza

Reading

Berkshire, RG1 1AX

United Kingdom

or by electronic mail to: ogspecs@opengroup.org

Table of Contents

Open Agile Architecture	1
Preface	3
The Open Group	3
This Document	3
Trademarks	5
Acknowledgements	8
Referenced Documents	10
Normative References	10
Informative References	10
1. Introduction	21
1.1. Objective	21
1.2. Overview	21
1.3. Conformance	21
1.4. Normative References	21
1.5. Terminology	22
1.6. Future Directions	22
2. Definitions	23
2.1. Accountability	23
2.2. Alignment Diagram	23
2.3. Allowable Lead Time	23
2.4. Architectural Runway	23
2.5. Architecture	23
2.6. Architecture Principle	23
2.7. Architecture Style	24
2.8. Capability	24
2.9. Catchball	24
2.10. Continuous Architecture	24
2.11. Customer Experience	24
2.12. Customer Journey	24
2.13. Design Thinking	24
2.14. Digital Platform	25
2.15. Digital Practices	25
2.16. Digital Technology	25
2.17. Digital Transformation	25
2.18. Domain Model: Domain-Driven Design	25
2.19. Ecosystem	25

2.20. Epic	26
2.21. Event Storming	26
2.22. Evolutionary Architecture	26
2.23. Evolvability	26
2.24. Feature	26
2.25. Hardware	27
2.26. Information Security	27
2.27. Integrality	27
2.28. Intentional Architecture	27
2.29. Job-To-Be-Done	27
2.30. Journey Mapping	28
2.31. Lead Time	28
2.32. Lean Value Stream	28
2.33. Modularity	28
2.34. Modularization	28
2.35. Operating System	28
2.36. Outcome	29
2.37. Persona	29
2.38. Platform Business Model	29
2.39. Process	29
2.40. Product	29
2.41. Product Backlog	30
2.42. Product-Centric Organization	30
2.43. Refactoring	30
2.44. Responsibility	30
2.45. Service	31
2.46. Social System	31
2.47. System	31
2.48. User Story	31
2.49. Value Stream	32
2.50. Work System	32
Part 1: The O-AA Core	33
3. A Dual Transformation	34
3.1. Why Organizational Agility Matters	34
3.2. Connecting Touchpoints to the Operating System	35
3.3. Developing Business and Organizational Agility	36
4. Architecture Development	39
4.1. Architecture	41

4.2. Development Building Blocks	42
4.2.1. Strategy	42
4.2.2. Corporate Brand Identity, Culture	44
4.2.3. Value	44
4.2.4. Perspectives	45
4.2.5. What the Enterprise “Is”	45
4.2.6. What the Enterprise “Does”	46
4.3. Data, Information, and Artificial Intelligence	46
4.4. Software and Hardware Architecture	47
4.5. Architecture Development Styles	47
4.5.1. Emergence	48
4.5.2. Intentional Architecture	48
4.5.3. Concurrent, Continuous, and Refactored	49
4.5.4. Tailoring Architecture Development	49
5. Intentional Architecture	51
5.1. Enterprise Architecture <i>versus</i> Solution Architecture	51
5.2. Architecturally Significant Decisions	52
5.3. Architecture Decision Record	53
5.4. Example: Car Sharing Platform (CSP)	54
5.5. From Intentional to Continuous	55
5.6. When Intentional Architecture is Recommended	57
5.7. Set-Based Concurrent Engineering (SBCE)	57
5.8. SBCE of the CSP	58
5.9. A Few Concluding Words	59
6. Continuous Architectural Refactoring	61
6.1. Introduction	61
6.1.1. Refactoring	61
6.1.2. Architectural	61
6.1.3. Continuous	62
6.2. Planning for Continuous Architectural Refactoring	62
6.3. Understanding and Guiding the Architecture	62
6.3.1. Constraints	63
6.3.2. Fitness Functions	63
6.3.3. Guardrails	64
6.4. Creating the Right Technical Environment	65
6.4.1. Continuous Delivery	65
6.4.2. Componentization	67
6.5. Creating the Right Non-Technical Environment	67

6.5.1. Justifying Ongoing Investment in Architectural Refactoring	67
6.5.2. Developing an Architectural Roadmap	68
6.5.3. Progressive Transformation (Experience)	69
7. Architecting the Agile Transformation	70
7.1. Accountability	70
7.2. Incremental Agile Transformation	71
7.3. Architecting the Organization	72
7.4. DevOps Culture	73
7.5. Leadership Drives Change	74
8. Agile Governance	76
8.1. Classical IT Governance	77
8.2. Governance in the Face of Agile	78
8.3. Agile Governance	79
9. Axioms for the Practice of Agile Architecture	83
9.1. Axiom 1. <i>Customer Experience Focus</i>	83
9.2. Axiom 2. <i>Outside-In Thinking</i>	83
9.3. Axiom 3. <i>Rapid Feedback Loops</i>	84
9.4. Axiom 4. <i>Touchpoint Orchestration</i>	84
9.5. Axiom 5. <i>Value Stream Alignment</i>	84
9.6. Axiom 6. <i>Autonomous Cross-Functional Teams</i>	84
9.7. Axiom 7. <i>Authority, Responsibility, and Accountability Distribution</i>	85
9.8. Axiom 8. <i>Loosely-Coupled Systems</i>	85
9.9. Axiom 9. <i>Modular Data Platform</i>	85
9.10. Axiom 10. <i>Simple Common Operating Principles</i>	86
9.11. Axiom 11. <i>Partitioning Over Layering</i>	86
9.12. Axiom 12. <i>Organization Mirroring Architecture</i>	86
9.13. Axiom 13. <i>Organizational Leveling</i>	86
9.14. Axiom 14. <i>Bias for Change</i>	87
9.15. Axiom 15. <i>Project to Product Shift</i>	87
9.16. Axiom 16. <i>Secure by Design</i>	87
Part 2: The O-AA Building Blocks	88
10. Building Blocks Overview	89
10.1. Building Blocks Logic	89
10.2. Enterprise Decomposition	91
10.3. Segmentation Approach	92
10.4. Mental Model Shifts	93
10.5. Navigation Table	94
11. Agile Strategy	96

11.1. Agile Strategy Tenets	96
11.1.1. Tenet 1. Grasp the Situation	96
11.1.2. Tenet 2. Frame Strategy Around “Hard-to-Reverse” Choices	97
11.1.3. Tenet 3. Anticipate Unintended Consequences	97
11.1.4. Tenet 4. Strategy is a Journey	97
11.1.5. Tenet 5. Mix Stability and Dynamism	97
11.1.6. Tenet 6. Do Not Deploy Strategy in Silos	98
11.2. Bending the Law of Unintended Consequences	98
11.3. Succeeding Strategy Deployment	99
12. Agile Organization	102
12.1. Learnings from Socio-Technical Systems	102
12.1.1. Example: English Coal Mines	102
12.1.2. Principles	103
12.2. Autonomy and Self-Organization	104
12.3. Team Taxonomy	104
12.3.1. Stream-Aligned Teams	104
12.3.2. Platform Teams	106
12.3.3. Competency Teams	106
12.4. Product Teams	106
12.4.1. Product Manager <i>versus</i> Product Owner	107
12.4.2. Lean Chief Engineer	107
12.5. Shifting to an Agile Organization	108
13. Experience Design	112
13.1. Experience Design Approach	113
13.2. What is a Product?	113
13.2.1. Intangible Goods	115
13.3. Customer Research	116
13.3.1. Market Research	116
13.3.2. Jobs-To-Be-Done	116
13.4. Combining Product Discovery with Customer Research	117
13.4.1. Experience Mapping	117
13.4.2. Goods Features	119
13.4.3. Service Features	119
13.4.4. Feature Outcomes and Benefits	119
13.4.5. Digital Products: Connected Goods and Fingertip Services	120
13.4.6. Quality Properties: The “ilities” of Products	120
13.5. Example: Ride-Hailing Company	121
14. Product Architecture	124

14.1. Defining Product Architecture	125
14.2. Interdependence and Modularity	126
14.2.1. Modularity Wins	126
14.2.2. Integration Wins	127
14.2.3. Modular Goods	127
14.2.4. Modular Services	127
14.3. Modularity-Integrity Trade-Off	128
14.4. Product Platforms	129
14.5. Concluding Words	131
15. Journey Mapping	132
15.1. Moments of Truth	133
15.2. The Human Side	134
15.3. The Role of Automation	134
16. Lean Value Stream Mapping	136
16.1. From Process to Value Stream	136
16.1.1. Visualizing Processes	136
16.1.2. Value-Driven	137
16.1.3. Value Stream Mapping	138
16.1.4. Granularity Level	138
16.2. Approach Overview and Key Concepts	140
16.2.1. Current Conditions	142
16.2.2. Ideal “Clean-Slate” Vision	144
16.2.3. Waste	145
16.2.4. Mura and Muri	147
16.3. Future State Mapping	148
16.3.1. Schedule an Appointment	148
16.3.2. Discover, Offer, and Choose Products	149
16.3.3. Collect and Control Documents	149
16.3.4. Capacity Management	149
16.3.5. Increase On-Boarding Capacity	151
16.3.6. Printing Credit Cards in Branches	152
16.4. Key Points to Take Away	153
16.4.1. Benefits	153
16.4.2. Organizational Implications	153
17. Operations Architecture	154
17.1. Capability	155
17.2. Operations Architecture Decisions	156
17.3. Leveraging Digital Technology	157

17.4. Example: AR	157
17.5. Product Variety	158
18. Data Information and Artificial Intelligence (AI)	160
18.1. Data Streaming Architectures	160
18.2. Coupling Data Streaming with AI	161
18.3. Data Model and Reality	161
18.4. The Monolithic Data Model	162
18.5. Moving Away from Monolithic Data Architectures	164
18.6. Machine Learning Pipelines	165
18.7. Deep Learning for Mobile	166
18.8. A Few Concluding Words	166
19. Event Storming	167
19.1. Summary: Why? How? Who?	167
19.2. Domain Event	167
19.3. Event Storming Principles	168
19.4. Types of Event Storming Session	168
19.5. Event Storming Notation and Concepts	168
19.6. Benefits	169
19.7. Event Storming Workshop Facilitation Techniques	169
20. Domain-Driven Design: Strategic Patterns	171
20.1. Problem Space	171
20.1.1. Domains and Sub-Domains	171
20.2. Solution Space	172
20.3. Context Map	173
20.3.1. Upstream Patterns	174
20.3.2. Midway Patterns	175
20.3.3. Downstream Patterns	177
20.3.4. Mapping the Context Map Patterns	179
21. Software Architecture	181
21.1. What is Software Architecture?	181
21.2. Event-Driven Architecture	182
21.2.1. Concepts of Command, Query, and Event	182
21.2.2. Benefits of Event-Driven Architecture	184
21.2.3. Event Sourcing	186
21.2.4. Command Query Responsibility Segregation (CQRS)	186
21.2.5. Command, Query, and Event Metadata	186
21.2.6. System Consuming Other Systems' Events	187
21.2.7. Ensuring Global Consistency with Saga Patterns	187

21.3. Hexagonal Architecture: Why? Benefits?	188
21.3.1. Domain, Application, and Infrastructure Code	189
21.3.2. Inside and Outside, Ports and Adapters	189
21.3.3. Inbound Ports and Adapters (or Primary, Driving, Left, API)	190
21.3.4. Outbound Ports and Adapters (or Secondary, Driven, Right, SPI)	190
21.4. Non-Functional Software Requirements	191
21.4.1. Security	191
21.4.2. Reliability	192
21.4.3. Performance	194
21.4.4. Operability	195
21.4.5. Maintainability	197
21.4.6. Interoperability	198
21.5. Software Cross-Cutting Concerns	199
22. Software Engineering for Hardware	201
22.1. Infrastructure as Code	201
22.2. DevOps Example	202
22.2.1. DevOps Objectives: Organizational and Software-Delivery Performance	202
22.2.2. Four Key Metrics	202
22.2.3. DevOps Principles	202
22.2.4. Capabilities	204
22.2.5. Behavior and Practices	204
22.2.6. DevOps Tools	205
22.3. Site Reliability Engineering (SRE)	205
22.3.1. SRE Principles	205
22.3.2. SRE Practices	206
22.3.3. Cloud-Native Infrastructure	208
Appendix A: Acronyms	209
Index	216

Open Agile Architecture

A Standard of The Open Group

Copyright © 2019-2020, The Open Group
All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of the copyright owners.

Any use of this publication for commercial purposes is subject to the terms of the Annual Commercial License relating to it. For further information, see www.opengroup.org/legal/licensing.

A Standard of The Open Group

Open Agile Architecture™

ISBN: 1-947754-62-1

Document Number: C208

Published by The Open Group, September 2020.

Comments relating to the material contained in this document may be submitted to:

The Open Group, Apex Plaza, Forbury Road, Reading, Berkshire, RG1 1AX, United Kingdom
or by electronic mail to:

ogspeccs@opengroup.org

Built with [asciidoc](https://asciidoc.org/), version 2.0.10. Backend: pdf Build date: 2020-09-30 08:10:15 UTC

Preface

The Open Group

The Open Group is a global consortium that enables the achievement of business objectives through technology standards. Our diverse membership of more than 750 organizations includes customers, systems and solutions suppliers, tools vendors, integrators, academics, and consultants across multiple industries.

The mission of The Open Group is to drive the creation of Boundaryless Information Flow™ achieved by:

- Working with customers to capture, understand, and address current and emerging requirements, establish policies, and share best practices
- Working with suppliers, consortia, and standards bodies to develop consensus and facilitate interoperability, to evolve and integrate specifications and open source technologies
- Offering a comprehensive set of services to enhance the operational efficiency of consortia
- Developing and operating the industry's premier certification service and encouraging procurement of certified products

Further information on The Open Group is available at www.opengroup.org.

The Open Group publishes a wide range of technical documentation, most of which is focused on development of Standards and Guides, but which also includes white papers, technical studies, certification and testing documentation, and business titles. Full details and a catalog are available at www.opengroup.org/library.

This Document

This document is The Open Group Open Agile Architecture™ standard, also known as The Open Group O-AA™ standard. It has been developed and approved by The Open Group.

This document follows a modular structure and is organized in the following parts:

- [Part 1: The O-AA Core](#) describes the fundamental concepts of Agile Architecture
- [Part 2: The O-AA Building Blocks](#) describes the O-AA building blocks

Examples and case studies are provided as illustrations to foster understanding of the standard. Examples and case studies are not a normative part of the standard and therefore do not include requirements.

The target audience for this document includes:

- Agilists who need to understand the importance of architecture when shifting toward an Agile at

scale model, and who want to learn architecture skills

- Enterprise Architects, solution architects, security architects, and software architects who want to stay relevant in an Agile at scale world and who need to learn new architecture skills for the digital age
- Business managers and executives who need to learn the importance of the architecture discipline, and who need to influence architecture decisions

Trademarks

ArchiMate, DirecNet, Making Standards Work, Open O logo, Open O and Check Certification logo, Platform 3.0, The Open Group, TOGAF, UNIX, UNIXWARE, and the Open Brand X logo are registered trademarks and Boundaryless Information Flow, Build with Integrity Buy with Confidence, Commercial Aviation Reference Architecture, Dependability Through Assuredness, Digital Practitioner Body of Knowledge, DPBoK, EMMM, FACE, the FACE logo, FHIM Profile Builder, the FHIM logo, FPB, Future Airborne Capability Environment, IT4IT, the IT4IT logo, O-AA, O-DEF, O-HERA, O-PAS, Open Agile Architecture, Open FAIR, Open Footprint, Open Process Automation, Open Subsurface Data Universe, Open Trusted Technology Provider, O-SDU, OSDU, Sensor Integration Simplified, SOSA, and the SOSA logo are trademarks of The Open Group.

Agile Alliance is a registered trademark of Agile Alliance.

Amazon, Amazon Web Services, and AWS are trademarks of Amazon.com.

Apache Spark is a trademark of the Apache Software Foundation.

Azure is a registered trademark of Microsoft Corporation.

Capital One and Auto Navigator are registered trademarks of Capital One.

Compaq is a trademark of Hewlett-Packard Development Company, LP.

DEC is a trademark of Digital Equipment Corporation.

eBay is a registered trademark of eBay, Inc.

Facebook is a registered trademark of Facebook, Inc.

Fannie Mae is a registered trademark of Fannie Mae.

Flink is a registered trademark of the Apache Software Foundation.

Ford is a trademark of the Ford Motor Company.

Forrester is a registered trademark of Forrester Research, Inc.

Freddie Mac is a registered trademark of Freddie Mac.

Gartner is a registered trademark of Gartner, Inc.

General Electric is a registered trademark of General Electric Company.

Google is a registered trademark of Google LLC.

Grafana is a trademark of Coding Instinct AB.

IETF is a registered trademark of the IETF Trust.

Java is a registered trademark of Oracle and/or its affiliates.

JPMorgan Chase is trademark of JPMorgan Chase & Co.

Kafka is a trademark of the Apache Software Foundation.

Li & Fung is a trademark of Li & Fung (BVI) Limited.

loanDepot is a registered trademark of loanDepot.com, LLC.

Microsoft is a registered trademark of Microsoft Corporation.

MQSeries is a registered trademark of International Business Machines (IBM) Corporation.

Netflix is a registered trademark of Netflix, Inc.

Poiray is a registered trademark of Poiray International.

Pomodoro Technique is a registered trademark of Cirillo Consulting GmbH.

Prometheus is a trademark of the Linux Foundation.

Python is a registered trademark of the Python Software Foundation.

Quicken Loans is a registered service mark of Intuit, Inc.

R is a registered trademark of the R Foundation.

SAS software is a registered trademark of the SAS Institute, Inc.

Scaled Agile Framework and SAFe are registered trademarks of Scaled Agile, Inc.

Scrum Alliance is a registered trademark of Scrum Alliance, Inc.

Slack is a registered trademark of Slack Technologies, Inc.

Spotify is a trademark of Spotify AB.

Swatch is a registered trademark of the Swatch Group.

Tableau is a registered trademark of Tableau Software, LLC.

Teradata is a trademark of Teradata Corporation.

Toyota is a registered trademark of Toyota Motor Corporation.

Walmart is a registered trademark of Walmart.

Wells Fargo is a trademark of Wells Fargo & Company.

Wikipedia is a registered trademark of the Wikimedia Foundation, Inc.

Zara is a trademark of Industria de Diseno Textil, SA (Inditex, SA).

All other brands, company, and product names are used for identification purposes only and may be trademarks that are the sole property of their respective owners.

Acknowledgements

The Open Group gratefully acknowledges the contribution of the following people in the development of this document:

- Miguel de Andrade
- Jean-Marc Bunouf
- Paddy Fagan
- Jérémie Grodziski
- Peter Haviland
- Frédéric Le
- Jean-Pierre Le Cam
- Antoine Lonjon
- Eamonn Moriarty
- Jérôme Régnier

The Open Group gratefully acknowledges the following reviewers who participated in the Company Review of this document:

- Remy Alexander
- Fernando Bucci
- James Doss
- Maurice Driessen
- Chris Forde
- Christopher Frost
- Mats Gejnevall
- Sonia Gonzalez
- Angela Graves
- Andrew Josey
- Marinus F. Kok
- Ben Kooistra
- David Lounsbury
- Chalon Mullins
- Oliver F. Nandico
- Mirosław Prywata

- James Rhyne
- Sriram Sabesan
- Kalpesh Sharma
- Robert Weisman

Referenced Documents

The following documents are referenced in this standard.

(Please note that the links below are good at the time of writing but cannot be guaranteed for the future.)

Normative References

This document does not contain any normative references at the time of publication. These may be added in a future release.

Informative References

- [Adkins 2020] *Building Secure and Reliable Systems, Best Practices for Designing, Implementing, and Maintaining Systems*, by Heather Adkins, Betsy Beyer, Paul Blankinship, Ana Oprea, Piotr Lewandowski, and Adam Stubblefield, published by O'Reilly Media, March 2020; refer to: https://landing.google.com/sre/static/pdf/Building_Secure_and_Reliable_Systems.pdf
- [Adler 2020] *Bending the Law of Unintended Consequences: A Test-Drive Method for Critical Decision-Making in Organizations*, by Richard M. Adler, 2020, published by Springer International Publishing
- [Agile Alliance] *Agile Glossary*, published by the Agile Alliance®; refer to: www.agilealliance.org/agile101/agile-glossary/
- [Agile Manifesto] *Manifesto for Agile Software Development*, 2001; refer to: www.agilemanifesto.org/
- [Andreessen 2011] *Why Software Is Eating The World*, by Marc Andreessen, August 2011, published in the Wall Street Journal; refer to: www.wsj.com/articles/SB10001424053111903480904576512250915629460, retrieved April 25, 2020
- [ANSI/IEEE] *Standard Glossary of Software Engineering Terminology*, STD-729-1991, published by ANSI/IEEE
- [Atwood 2006] *The Last Responsible Moment*, by Jeff Atwood, October 2006; refer to: www.blog.codinghorror.com/the-last-responsible-moment/
- [Auto Navigator] *Capital One® Auto Navigator® App*; refer to: www.capitalone.com/cars/
- [Beaujean 2006] *The “Moment of Truth” in Customer Service*, by Marc Beaujean, Jonathan Davidson, and Stacey Madge, February 2006, published by McKinsey & Company; refer to: www.mckinsey.com/business-functions/organization/our-insights/the-moment-of-truth-in-customer-service
- [Berdjag 2019] *Automation Challenges of Socio-Technical Systems* by Denis Berdjag, Choubeila Maaoui, Mohamed Sallak, and Frederic Vanderhaegen, July 2019, published by Wiley-ISTE
- [Beyer 2016] *Site Reliability Engineering: How Google Runs Production Systems*, by Betsy Beyer, Chris Jones, Jennifer Petoff, Niall Richard Murphy, published by O'Reilly Media; refer to: <https://landing.google.com/sre/sre-book/toc/index.html>

- [Beyer 2018] *The Site Reliability Workbook: Practical Ways to Implement SRE*, by Betsy Beyer, Niall Richard Murphy, David K. Rensin, Kent Kawahara, Stephen Thorne, published by O'Reilly Media, July 2018; refer to: <https://landing.google.com/sre/workbook/toc/>
- [Blumberg 2018] *Five Enterprise-Architecture Practices that Add Value to Digital Transformations*, by Sven Blumberg, Olivier Bossert, and Jan Sokalski, November 2018, published by McKinsey & Company; refer to: www.mckinsey.com/business-functions/mckinsey-digital/our-insights/five-enterprise-architecture-practices-that-add-value-to-digital-transformations
- [Bradley 2018] *Strategy Beyond the Hockey Stick: People, Probabilities, and Big Moves to Beat the Odds*, by Chris Bradley, Martin Hirt, and Sven Smit, March 2018, published by John Wiley & Sons
- [Brandenburger 2019] *Strategy Needs Creativity*, by Adam Brandenburger, March-April 2019, published in the Harvard Business Review
- [Brandolini 2019] *Introducing EventStorming*, by Alberto Brandolini, last updated on August 23rd 2019, published as an ebook on Leanpub; refer to www.leanpub.com/introducing_eventstorming
- [Brosseau 2019] *The Journey to an Agile Organization* by Daniel Brosseau, Sherina Ebrahim, Christopher Handscomb, and Shail Thaker, May 2019, published by McKinsey & Company
- [Burton 2014] *Leverage Business Capability Modeling to Integrate Strategy With Execution*, by Betsy Burton, Gartner Vice President & Distinguished Analyst, 2014
- [C4 Model] *The C4 Model for Visualising Software Architecture, Context, Containers, Components and Code*; refer to: <https://c4model.com>
- [Cagan 2018] *Inspired: How to Create Tech Products Customers Love*, by Marty Cagan, January 2018, published by John Wiley & Sons
- [Campbell 2017] *Operating Model Canvas: Aligning Operations and Organization with Strategy*, by Andrew Campell, Mikel Gutierrez, and Mark Lancelott, April 2017, published by Van Haren Publishing
- [Charan 2019] *The Amazon Management System: The Ultimate Digital Business Engine That Creates Extraordinary Value for Both Customers and Shareholders*, by Ram Charan and Julia Yang, December 2019, published by Ideapress Publishing
- [Christensen 2013] *The Innovator's Solution: Creating and Sustaining Successful Growth*, by Clayton M. Christensen and Michael E. Raynor, November 2013, published by Harvard Business Review Press
- [Christensen 2016] *Know Your Customers' "Jobs-To-Be-Done"*, by Clayton M. Christensen, Karen Dillon, David S. Duncan, and Taddy Hall, September 2016, published in the Harvard Business Review
- [CJCSM 2005] *Operation of the Joint Capabilities Integration and Development System*, May 2005, published in the Chairman of the Joint Chiefs of Staff Manual; refer to: www.dau.edu/cop/e3/DAU%20Sponsored%20Documents/CJCSM%203170.01B.pdf
- [CloudEvents] *CloudEvents*; refer to: www.cloudevents.io/
- [Cockburn 2005] *Hexagonal Architecture*, by Alistair Cockburn; refer to: www.alistair.cockburn.us/hexagonal-architecture/

- [Colyer 2020] *Meaningful Availability*, a blog post by Adrian Colyer on a paper by Hauer et al., NSDI, February 2020; refer to: <https://www.blog.acolyer.org/2020/02/26/meaningful-availability/>
- [Coplien 2010] *Lean Architecture*, by James Coplien and Gertrud Bjørnvig, July 2010, published by Wiley
- [Crawley 2016] *Systems Architecture: Strategy and Product Development for Complex Systems*, by Edward Crawley, Bruce Cameron, and Daniel Selva, 2016, published by Pearson Education Limited
- [Cusumano 1998] *Thinking Beyond Lean: How Multi Project Management is Transforming Product Development at Toyota and Other Companies*, by Michael A. Cusumano and Kentaro Nobeoka, September 1998, published by Free Press
- [Cusumano 2020] *The Future of Platforms* by Michael A. Cusumano, David B. Yoffie, and Annabelle Gawer, February 2020, published by The MIT Press
- [Day 2019] *See Sooner, Act Faster: How Vigilant Leaders Thrive in an Era of Digital Turbulence* by George S. Day and Paul J. H. Schoemaker, October 2019, published by The MIT Press
- [Dehghani 2019] *How to Move Beyond a Monolithic Data Lake to a Distributed Data Mesh*, by Zhamak Dehghani, May 2019; refer to: www.martinfowler.com/articles/data-monolith-to-mesh.html, retrieved January 20, 2020
- [Dennis 2006] *Getting the Right Things Done: A Leader's Guide to Planning and Execution*, by Pascal Dennis, December 2006, published by Lean Enterprise Institute
- [DevOps 2015 & 2017] *2015 State of DevOps Report*; refer to: www.researchgate.net/publication/302566896_2015_State_of_DevOps_Report and *2017 State of DevOps Report*; refer to: www.services.google/fh/files/misc/state-of-devops-2017.pdf, retrieved January 20, 2020
- [De Weck 2016] *Engineering Systems – Meeting Human Needs in a Complex Technological World*, by Olivier L. de Weck, Daniel Roos, and Christopher L. Magee, September 2016, published by MIT Press
- [DORA State of DevOps Report 2019] *DevOps Research & Assessment (DORA) 2019 State of DevOps Report*; refer to <https://services.google.com/fh/files/misc/state-of-devops-2019.pdf>, retrieved May 3, 2020
- [DPBoK 2020] *The Digital Practitioner Body of Knowledge™ Standard (the DPBoK™ Standard)*, a standard of The Open Group (C196), January 2020, published by The Open Group; refer to: www.opengroup.org/library/c196
- [Erder 2016] *Continuous Architecture: Sustainable Architecture in an Agile and Cloud-Centric World*, by Murat Erder and Pierre Pureur, Elsevier, November 2015, published by Morgan Kaufmann
- [Evans 2003] *Domain-Driven Design: Tackling Complexity in the Heart of Software*, by Eric Evans, August 2003, published by Addison-Wesley Professional
- [Event Storming] *Event Storming Workshop Format*; refer to: www.eventstorming.com/
- [Fielding 2000] *Architectural Styles and the Design of Network-Based Software Architectures*, by Roy Fielding; published by the University of California; refer to: www.ics.uci.edu/fielding/pubs/dissertation/fielding_dissertation.pdf

- [Ford 2017] *Building Evolutionary Architectures*, by Neal Ford, Patrick Kua, and Rebecca Parsons, September 2017, published by O'Reilly
- [Forrester] *Forrester® Research*; refer to: www.forrester.com/Customer-Journey)
- [Forsgren 2018] *Accelerate: The Science of Lean Software and DevOps: Building and Scaling High Performing Technology Organizations*, by Nicole Forsgren, Kim Humble, and Gene Kim, April 2018, published by Trade Select
- [Fountainaine 2019] *Building the AI-Powered Organization: the Main Challenge isn't Technology, it's Culture*, by Tim Fountainaine, Brian McCarthy, and Tamim Saleh, July-August 2019, published in the Harvard Business Review
- [Fowler] *ExpositionalArchitecture*, by Martin Fowler; refer to: www.martinfowler.com/bliki/ExpositionalArchitecture.html
- [Fowler 2004] *StranglerFigApplication*, by Martin Fowler, June 2004; refer to: www.martinfowler.com/bliki/StranglerApplication.html
- [Fowler 2013] *Continuous Delivery*, by Martin Fowler, May 2013; refer to: www.martinfowler.com/bliki/ContinuousDelivery.html
- [Fowler 2014] *Sacrificial Architecture*, by Martin Fowler, October 2014; refer to: www.martinfowler.com/bliki/SacrificialArchitecture.html
- [Fowler 2015] *Making Architecture Matter – Martin Fowler Keynote*, by Martin Fowler, July 2015, uploaded by O'Reilly Media; refer to: www.youtube.com/watch?v=DngAZyWMGR0
- [Fowler 2019] *Refactoring: Improving the Design of Existing Code*, by Martin Fowler, January 2019, published by Addison-Wesley
- [Friis Dam 2020] *Personas – A Simple Introduction*, by Rikke Friis Dam and Yu Siang Teo, 2020, published by the Interaction Design Foundation; refer to: www.interaction-design.org/literature/article/personas-why-and-how-you-should-use-them
- [Furr 2019] *Digital Doesn't Have to Be Disruptive: The Best Results Can Come From Adaptation Rather Than Reinvention* by Nathan Furr and Andrew Shipilov, July-August 2019, published in the Harvard Business Review
- [George 2005] *Fast Innovation: Achieving Superior Differentiation, Speed to Market, and Increased Profitability*, by Michael George, James Works, and Kimberly Watson-Hemphill, July 2005, published by McGraw-Hill Education
- [George 2018] *Integrating Around the Consumer: A Path Forward for the Global Apparel Manufacturing Supply Chain*, by Jon George and Peter Ting, November 2018, published by the Christensen Institute; refer to: www.christenseninstitute.org/wp-content/uploads/2019/03/Integrating-around-the-consumer-1.pdf
- [Gilbreth 1921] *Process Charts: First Steps in Finding the One Best Way to Do Work*, by F. B. Gilbreth and L. M. Gilbreth, December 1921, presented at The Annual Meeting of The American Society of Mechanical Engineers
- [GoF 1994] *Design Patterns: Elements of Reusable Object-Oriented Software*, by Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides, October 1994, published by Addison-Wesley

- [Greyser 2019] *What Does Your Corporate Brand Stand For?*, by Stephen A. Greyser and Mats Urde, January-February 2019, published in the Harvard Business Review
- [Groenfeldt 2018] *Get Car Price And Finance Info Before Even Talking To A Car Salesman*, by Tom Groenfeldt, March 2018, published by Forbes; refer to: www.forbes.com/sites/tomgroenfeldt/2018/03/13/get-car-price-and-finance-info-without-ever-talking-to-a-car-salesman/#43e794ba196a, retrieved on May 6, 2018
- [Harrington 1991] *Business Process Improvement: The Breakthrough Strategy for Total Quality, Productivity, and Competitiveness*, by H. James Harrington, May 1991, published by McGraw-Hill Education
- [Hodgson 2017] *Feature Toggles (aka Feature Flags)*, by Peter Hodgson, October 2017, published in martinfowler.com; refer to: www.martinfowler.com/articles/feature-toggles.html
- [Holland 2012] *Signals and Boundaries: Building Blocks for Complex Adaptive Systems*, by John H. Holland, January 2014, published by MIT Press
- [Holland 2014] *Complexity: A Very Short Introduction*, by John H. Holland, July 2014, published by Oxford University Press
- [Humble 2010] *Continuous Delivery: Reliable Software Releases through Build, Test, and Deployment Automation*, by Jez Humble and David Farley, July 2010, published by Addison-Wesley
- [IETF[®] 2017] *Uniform Resource Names (URNs)*, by P. Saint-Andre and J. Klensin, April 2017, published by the Internet Engineering Task Force (IETF[®]); refer to: www.tools.ietf.org/html/rfc8141
- [Ishikawa 1985] *What is Total Quality Control? The Japanese Way*, by Kaoru Ishikawa, March 1985, published by Prentice Hall
- [ISO/IEC 9126-1:2001] *Software Engineering – Product Quality – Part 1: Quality Model*, 2001, published by ISO (now withdrawn); refer to: <https://www.iso.org/standard/22749.html>
- [ISO/IEC 25010:2011] *Systems and Software Engineering – Systems and Software Quality Requirements and Evaluation (SQuaRE) – System and Software Quality Models*, 2011, published by ISO; refer to: <https://www.iso.org/standard/35733.html>
- [ISO/IEC/IEEE 42010:2011] *Systems and Software Engineering – Architecture Description*, 2011, published by ISO; refer to: www.iso.org/standard/50508.html
- [Johnson 2008] *Reinventing your Business Model*, by Mark W. Johnson, Clayton M. Christensen, and Henning Kagermann, December 2008, published in the Harvard Business Review
- [Kalbach 2016] *Mapping Experiences: A Guide to Creating Value through Journeys, Blueprints, and Diagrams* by James Kalbach, December 2016, published by O'Reilly Media
- [Kent 2012] *Data and Reality: A Timeless Perspective on Perceiving and Managing Information in Our Imprecise World, Third Edition*, by William Kent, February 2012, published by Technics Publications, LLC
- [Kersten 2018] *Project to Product: How to Survive and Thrive in the Age of Digital Disruption with the Flow Framework*, by Mik Kersten, November 2018, published by IT Revolution Press
- [Kim 2013] *The Phoenix Project: A Novel about IT, DevOps, and Helping your Business Win*, by Gene

- Kim, Kevin Behr, and George Spafford, January 2013, published by IT Revolution Press
- [Kim 2016] *The DevOps Handbook: How to Create World-Class Agility, Reliability, and Security in Technology Organizations*, by Gene Kim, Patrick Debois, and John Willis, December 2016, published by Trade Select
 - [Kniberg 2019] *Spotify: A Scrum@Scale Case Study* by Henrik Kniberg, August 2019, published by Scrum Alliance®; refer to: www.scrumalliance.org/agilematters/articles/spotify-a-scrumatscale-case-study, retrieved on April 20th at 11am
 - [Korzybski 1958] *Science and Sanity: an Introduction to Non-Aristotelian Systems and General Semantics*, by Alfred Korzybski, 1958, published by the Institute of General Semantics
 - [Krafcik 1988] *Triumph of the Lean Production System*, by John F. Krafcik, 1988, MIT International Motor Vehicle Program, published in the Sloan Management Review; refer to: www.lean.org/downloads/MITSloan.pdf, retrieved on March 22,2020
 - [Leffingwell 2011] *Agile Software Requirements*, by Dean Leffingwell, 2011, published by Addison-Wesley
 - [LEI] *The Lean Enterprise Institute*; refer to: www.lean.org/
 - [LEI] *Strategy Deployment, The Lean Lexicon, Fifth Edition*, by Chet Marchwinski, Alexis Schroeder, and John Shook, April 2004, published by the Lean Enterprise Institute; refer to: www.lean.org/lexicon/strategy-deployment
 - [LEI] *True North, The Lean Lexicon, Fifth Edition*, by Chet Marchwinski, Alexis Schroeder, and John Shook, April 2004, published by the Lean Enterprise Institute; refer to: www.lean.org/lexicon/true-north, retrieved on February 23, 2020
 - [Levitt 1960] *Marketing Myopia*, by Theodore Levitt, first published in 1960 and reprinted in the “Best of HBR” July-August 2004, Harvard Business Review; refer to: www.hbr.org/2004/07/marketing-myopia
 - [Levitt 1962] *Innovation in Marketing: New Perspectives for Profit and Growth*, by Theodore Levitt, June 1962, published by McGraw-Hill
 - [Liker 2017] *The Toyota Way to Service Excellence: Lean Transformation in Service Organizations*, by Jeffrey K. Liker and Karyn Ross, March 2017, published by McGraw Hill Education
 - [MacCormack 2007] *Exploring the Duality between Product and Organizational Architectures: A Test of the “Mirroring” Hypothesis*, Working Paper 08-039, by Alan MacCormack, John Rusnak, and Carliss Baldwin, 2007, published by the Harvard Business School; refer to: www.hbs.edu/faculty/Publication%20Files/08-039_1861e507-1dc1-4602-85b8-90d71559d85b.pdf
 - [Mandelbaum 2006] *Value Engineering Handbook* by Jay Mandelbaum and Danny L. Reed, 2006, published by the Institute for Defense Analysis
 - [Martin 1995] *The Great Transition : Using the Seven Disciplines of Enterprise Engineering to Align People, Technology, and Strategy*, by James Martin, January 1995, published by Amacom
 - [Martin 2014]] *The Big Lie of Strategic Planning*, by Roger L. Martin, January-February 2014, published by the Harvard Business Review; refer to: www.hbr.org/2014/01/the-big-lie-of-strategic-planning

- [McChrystal 2015] *Team of Teams: New Rules of Engagement for a Complex World*, by General Stanley McChrystal, Tatum Collins, Chris Fussell, and David Silverman, November 2015, published by Penguin
- [McKinsey 2019] *Planning in an Agile Organization*, by Santiago Comella-Dorda, Khushpreet Kaur, and Ahmad Zaidi, February 2019, published by McKinsey & Company; refer to: www.mckinsey.com/business-functions/mckinsey-digital/our-insights/planning-in-an-agile-organization
- [Merriam-Webster] Merriam-Webster Dictionary; refer to: www.merriam-webster.com/
- [Miraglia 2014] *Systems Architectures and Innovation: the Modularity-Integrity Framework*, by Stefano Miraglia, 2014, a Working Paper, published by the University of Cambridge
- [MIT] *Decision Rights and Governance*; refer to: www.cisr.mit.edu/content/classic-topics-decision-rights
- [MIT] *Mastering Design Thinking*; refer to: www.executive-ed.mit.edu/mastering-design-thinking
- [MIT OCW 2010] *Operations Strategy, MIT Course Number 15.769 Fall 2010*, Massachusetts Institute of Technology Open Courseware; refer to: www.ocw.mit.edu/courses/sloan-school-of-management/15-769-operations-strategy-fall-2010/
- [Morgan 2019] *Designing the Future: How Ford™, Toyota™, and Other World-Class Organizations Use Lean Product Development to Drive Innovation and Transform their Business*, by James M. Morgan and Jeffery K. Liker, November 2018, published by McGraw-Hill Education
- [Murman 2002] *Lean Enterprise Value: Insights from the MIT's Lean Aerospace Initiative*, by Earl M. Murman, Joel Cutcher-Gershenfeld, and Tom Allen, May 2002, published by AIAA
- [Norman 2013] *The Design of Everyday Things*, by Don Norman, December 2013, published by MIT Press
- [Northrop 2012] *A Framework for Software Product Line Practice, Version 5.0*, by Linda M. Northrop and Paul C. Clements, December 2012, published by the Software Engineering Institute
- [Nygard] *Architecture Decision Record Template*; refer to: www.github.com/joelparkerhenderson/architecture_decision_record/blob/master/adr_template_by_michael_nygard.md, retrieved on February 24, 2020
- [Nygard 2011] *Documenting Architecture Decisions*, Michael Nygard Blog, 2015; refer to: www.thinkrelevance.com/blog/2011/11/15/documenting-architecture-decisions
- [Nygard 2018] *Release It! Design and Deploy Production-Ready Software*, by Michael Nygard, January 2018, published by The Pragmatic Bookshelf
- [Ohno 1988] *Toyota Production System: Beyond Large-Scale Production*, by Taiichi Ohno and Norman Bodek, March 1988, published by Productivity Press
- [Olsen 2015] *The Lean Product Playbook: How to Innovate with Minimum Viable Products and Rapid Customer Feedback*, by Dan Olsen, July 2015, published by John Wiley & Sons
- [Parker 2016] *Platform Revolution: How Networked Markets are Transforming the Economy – and How to Make them Work for You*, by Geoffrey G. Parker, Marshall W. Van Alstyne, and Sangeet Paul

- Choudary, March 2016, published by W. W. Norton and Company
- [Parnas 1972] *On the Criteria to be Used in Decomposing Systems into Modules*, by S. L. Parnas, 1972, published by Carnegie Mellon University
 - [Pasmore 2019] *Reflections: Sociotechnical Systems Design and Organization Change*, by William Pasmore, Stu Winby, Susan Albers Mohrman, and Rick Vanasse, 2019, published in the Journal of Change Management, Vol. 19
 - [Patton 2014] *User Story Mapping: Discover the Whole Story, Build the Right Product*, by Jeff Patton, September 2014, published by O'Reilly Media
 - [Paulchell 2016] *Evolution of a Data Streaming Architecture: Enabling the Business to Turn Data into Insight*, by Joseph Paulchell, Principal Software Engineer, 2016, published by Capital One Digital Engineering; refer to: www.resources.sei.cmu.edu/asset_files/Presentation/2016_017_001_454648.pdf, retrieved on May 6th 2020
 - [Porter 1996] *What Is Strategy?* by Michael E. Porter, November-December 1996, published in the Harvard Business Review
 - [Prehofer 2007] *Compositionality in Software Platforms*, by Christian Prehofer, Jilles van Gurp, and Jan Bosch, 2007, published by Nokia Research
 - [Raft] *The Raft Consensus Algorithm*; refer to: www.raft.github.io/
 - [Rezai 2016] *When is Software Goods?*, by Arezou Rezai, September 2016, published by Paris Smith LLP; refer to: www.parissmith.co.uk/blog/when-is-software-goods/
 - [Richards 2015] *Software Architecture Patterns*, by Mark Richards, February 2015, published by O'Reilly Media
 - [Richardson 2010] *Understanding Customer Experience*, by Adam Richardson, October 2010, published in the Harvard Business Review
 - [Ries 2009] *Sharding for Startups*, by Eric Ries, January 2009; refer to: www.startuplessonslearned.com/2009/01/sharding-for-startups.html
 - [Ries 2011] *The Lean Startup: How Constant Innovation Creates Radically Successful Businesses*, by Eric Ries, October 2011, published by Portfolio Penguin
 - [Rigby 2018] *Agile at Scale*, by Darrell K. Rigby, Jeff Sutherland, and Andy Noble, May-June 2018, published in the Harvard Business Review
 - [Ross 2019] *Designed for Digital: How to Architect your Business for Sustained Success*, by Jeanne W. Ross, Cynthia M. Beath, and Martin Mocker, September 2019, published by MIT Press
 - [Ross 2019] *Why Hypotheses Beat Goals*, by Jeanne Ross, April 2019, published by MIT Sloan Management Review; refer to: www.sloanreview.mit.edu/article/why-hypotheses-beat-goals/
 - [Rossman 2019] *Think Like Amazon™: 50 1/2 Ideas to Become a Digital Leader*, John Rossman, May 2019, published by McGraw-Hill Education
 - [Rother 2003] *Learning to See – Value-Stream Mapping to Create Value and Eliminate Muda*, Version 1.3, by Mike Rother and John Shook, June 2003, published by the Lean Enterprise Institute

- [Rozanski 2005] *Software Systems Architecture: Working with Stakeholders using Viewpoints and Perspectives*, by Nick Rozanski and Eoin Woods, April 2005, published by Addison-Wesley
- [Samaras 2013] *Capabilities-Based Planning for Energy Security at Department of Defense Installations*, by Constantine Samaras and Henry H. Willis, 2013, published by RAND Corporation
- [Sawhney 2016] *Putting Products into Services*, by Mohanbir Sawhney, September 2016, published in the Harvard Business Review; refer to: www.hbr.org/2016/09/putting-products-into-services
- [Scaled Agile, Inc.] *Scaled Agile, Inc. The Provider of SAFe®*; refer to: www.scaledagile.com
- [Scheiber 2017] *How Uber Uses Psychological Tricks to Push Its Drivers' Buttons*, by Noam Scheiber and graphics by Jon Huang, April 2017, published by the New York Times Company
- [Schema.org] *Schema.org is a collaborative, community activity with a mission to create, maintain, and promote schemas for structured data on the Internet, on web pages, in email messages, and beyond*; refer to: www.schema.org/
- [Seddon 2003] *Strategy and Business Models: What's the Difference?*, by Peter B. Seddon and Geoffrey P. Lewis, published in the Pacific Asia Conference on Information Systems (PACIS) 2003
- [Seite 2010] *The Concept of Modularisation of Industrial Services* by Fabrice Seite, Oliver Schneider, and Andreas Nobs, 2010, published by IFIP International Federation for Information Processing and printed in *Advances in Production Management Systems: New Challenges, New Approaches: International IFIP WG 5.7 Conference, APMS 2009*, by B. Vallespir and T. Alix, November 2014, published by Springer
- [Sen 1992] *Inequality Re-Examined*, by Amartya Sen, 1992, published by Clarendon Press
- [Shoup 2014] *From the Monolith to Micro-Services*, by Randy Shoup, October 2014, published by slideshare.net; refer to: www.slideshare.net/RandyShoup/monoliths-migrations-and-microservices
- [Simon 1962] *The Architecture of Complexity*, by Herbert A. Simon, December 1962, published in the Proceedings of the American Philosophical Society, Volume 106
- [Simon 2018] *Liquid Software: How to Achieve Trusted Continuous Updates in the DevOps World*, by Fred Simon, Yoav Landman, Baruch Sadogursky, May 2018, published by CreateSpace Independent Publishing Platform
- [Singh 2020] *Mobile Deep Learning with TensorFlow Lite, ML Kit, and Flutter*, by Anubhav Singh and Rimjhim Bhadani, April 2020, published by Packt Publishing
- [Skelton 2019] *Team Topologies: Organizing Business and Technology Teams for Fast Flow*, by Matthew Skelton and Manuel Pais, September 2019, published by IT Revolution Press
- [Spear 1999] *Decoding the DNA of the Toyota Production System*, by Steven Spear and H. Kent Bowen, September–October 1999, published by the Harvard Business Review; refer to: www.hbr.org/1999/09/decoding-the-dna-of-the-toyota-production-system
- [Stanford 2010] *An Introduction to Design Thinking – Process Guide*, by the Hasso Plattner Institute of Design, Stanford
- [Steiglitz 2019] *The Discrete Charm of the Machine: Why the World Became Digital*, by Kenneth Steiglitz, February 2019, published by Princeton University Press

- [Sull 2015] *Why Strategy Execution Unravels – and What to Do About It*, by Donald Sull, Rebecca Homkes, and Charles Sull, March 2015, published in the Harvard Business Review
- [Sutcliff 2019] *The Two Big Reasons That Digital Transformations Fail*, by Mike Sutcliff, Raghav Narsalay, and Aarohi Sen, October 2019, published by the Harvard Business School
- [TFX User Guide] *TFX User Guide*; refer to: www.tensorflow.org/tfx/guide
- [TOGAF Standard 2018] *The TOGAF® Standard, Version 9.2*, a standard of The Open Group (C182), April 2018, published by The Open Group; refer to: www.opengroup.org/library/c182
- [Ton 2010] *Zara: Managing Stores for Fast Fashion*, by Zeynep Ton, Elena Corsi, and Vincent Dessain, January 2010, revised edition, published by Harvard Business School
- [Traynor 2016] *Focus on the Job, Not the Customer* by Des Tranor, 2016, published by Inside Intercom; refer to: www.intercom.com/blog/when-personas-fail-you/, retrieved on 30/04/2020
- [Trist 1951] *Some Social and Psychological Consequences of the Longwall Method of Coal-Getting* by E. L. Trist and K.W Bamforth, 1951, published by The Tavistock Institute
- [Ulrich 1993] *The Role of Product Architecture in the Manufacturing Firm*, by Karl Ulrich, December 1993, Research Policy, final version received by MIT, Sloan School of Management
- [Ulrich 2020] *Product Design and Development, Seventh Edition*, by Karl T. Ulrich, Steven D. Eppinger, and Maria C. Yang. 2020, published by McGraw-Hill
- [Van Mieghem 2015] *Operations Strategy: Principles and Practice*, Second Edition, by Jan A. Van Mieghem and Gad Allon, January 2015, published by Dynamic Ideas
- [Vanderhaegen 2019] *Automation Challenges of Socio-Technical Systems*, by Frederic Vanderhaegen, Choubela Maaoui, Denis Berdjag, and Mohamed Sallak, July 2019, published by Wiley-ISTE
- [Vandermerwe 1988] *Servitization of Business: Adding Value by Adding Services*, by Sandra Vandermerwe and Juan Rada, Winter 1988, published in the European Management Journal, Volume 6, Issue 4
- [Vaughn 2013] *Implementing Domain-Driven Design*, by Vaughn Vernon, February 2013, published by Addison-Wesley Professional
- [Ward 2014] *Lean Product and Process Development, Second Edition*, by Allen C. Ward and Durward K. Sobek II, February 2014, published by the Lean Enterprise Institute
- [Weill 2005] *How Effective is Your IT Governance?* Research Briefing, by Peter Weill and Jeanne Ross, 2005, published by MIT CISR
- [Wikipedia®] *List of System Quality Attributes*, published by Wikipedia®; refer to: en.wikipedia.org/wiki/List_of_system_quality_attributes
- [Wind 2015] *Beyond Advertising: Creating Value Through All Customer Touchpoints*, by Yoram (Jerry) Wind and Catharine Findiesen Hays, published by Wiley 2015
- [Wind 2016] *Beyond Advertising: Creating Value through All Customer Touchpoints*, by Yoram (Jerry) Wind and Catharine Findiesen Hays, February 2016, published by John Wiley & Sons
- [Womack 1996] *Lean Thinking: Banish Waste and Create Wealth in Your Corporation* by James P. Womack and Daniel T. Jones, 1996, published by Simon & Schuster

-
- [World-Class EA 2017] *World-Class EA: Governors' Approach to Developing and Exercising an Enterprise Architecture Governance Capability (W178)*, July 2017, published by The Open Group; refer to: www.opengroup.org/library/w178
 - [Wu 2010] *Operational Capabilities: The Secret Ingredient* by Sarah Jinhui Wu†, Steven A. Melnyk, and Barbara B. Flynn, November 2010, published in *Decision Sciences*, Volume 41, No. 4

Chapter 1. Introduction

1.1. Objective

This document is The Open Group Open Agile Architecture™ standard. The objective of this document is to cover both the Digital Transformation of the enterprise, together with the Agile Transformation of the enterprise.

1.2. Overview

This documents covers both the Digital Transformation and the Agile Transformation of the enterprise. It is divided into two parts:

- Part 1: The *O-AA Core* covers the fundamental concepts of the framework and introduces its structure before explaining why the enterprise needs to conduct a dual Digital and Agile Transformation, thus establishing the foundation of the Agile Architecture Body of Knowledge
- Part 2: The *O-AA Building Blocks* develops the topics introduced in Part 1 in greater detail, including chapters on topics such as Agile strategy, Agile organization, and software architecture

It includes content from the perspectives of *what the enterprise does*, such as experience design, journey mapping, and *what the enterprise is*, such as product architecture, and operations architecture.

1.3. Conformance

Refer to The Open Group website for conformance requirements for this document.

1.4. Normative References

None.