



# Aspects and correlations of (embedded) software architecture in a mind map

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## Bibliography – General

O. Vogel et al., "Software-Architektur / Grundlagen – Konzepte – Praxis", Spektrum Akademischer Verlag, 2005, ISBN 3-8274-1534-9

Mahbouba Gharbi et al., "Basiswissen für Softwarearchitekten", dpunkt.Verlag GmbH, 2018, ISBN 978-3-86490-499-8

## Bibliography – Mind Map Links

4+1	<a href="https://www.cs.ubc.ca/~gregor/teaching/papers/4+1view-architecture.pdf">https://www.cs.ubc.ca/~gregor/teaching/papers/4+1view-architecture.pdf</a> (2019/01/14)
ADR	Architectural Decision Records (ADRs): <a href="https://adr.github.io/">https://adr.github.io/</a> (2022/11/07)
agile vs. traditional	<a href="https://agilemanifesto.org/">https://agilemanifesto.org/</a> (2019/01/14)
aim42	<a href="https://www.aim42.org/using">https://www.aim42.org/using</a> (2019/01/26)
arc42	<a href="https://arc42.org/">https://arc42.org/</a> (2021/11/27)
architectural patterns	Frank Buschmann et al., "Pattern-Oriented Software Architecture / A System of Patterns", John Wiley & Sons, Ltd, 1996, ISBN 978-0-471-95869-7
ATAM	<a href="https://resources.sei.cmu.edu/library/asset-view.cfm?assetid=5177">https://resources.sei.cmu.edu/library/asset-view.cfm?assetid=5177</a> (2021/12/18)
avoid complexity	John Ousterhout, "A Philosophy of Software Design", Yaknyam, 2018, ISBN 978-1-7321022-0-0
C4	<a href="https://c4model.com/">https://c4model.com/</a> and <a href="https://en.wikipedia.org/wiki/C4_model">https://en.wikipedia.org/wiki/C4_model</a> (2022/07/31)
capabilities	<a href="http://man7.org/linux/man-pages/man7/capabilities.7.html">http://man7.org/linux/man-pages/man7/capabilities.7.html</a> (2019/01/14)
categories	Johannes Siedersleben, "Moderne Softwarearchitektur", dpunkt.verlag GmbH, 2004, ISBN 3-89864-292-5
cgroups	<a href="https://en.wikipedia.org/wiki/Cgroups">https://en.wikipedia.org/wiki/Cgroups</a> (2019/01/14)
challenges	"Challenges Using Linux as a Real-Time Operating System"; <a href="https://ntrs.nasa.gov/citations/20200002390">https://ntrs.nasa.gov/citations/20200002390</a> (2022/03/19)
characteristics	<a href="http://www.informit.com/articles/article.aspx?p=1152528&amp;seqNum=4">http://www.informit.com/articles/article.aspx?p=1152528&amp;seqNum=4</a> (2019/01/14)
concentric architectures	<a href="https://blog.cleancoder.com/uncle-bob/2012/08/13/the-clean-architecture.html">https://blog.cleancoder.com/uncle-bob/2012/08/13/the-clean-architecture.html</a> (2020/12/26)
concept	<a href="https://www.merriam-webster.com/dictionary/concept">https://www.merriam-webster.com/dictionary/concept</a> (2022/05/14)
container	<a href="https://jvns.ca/blog/2016/10/10/what-even-is-a-container/">https://jvns.ca/blog/2016/10/10/what-even-is-a-container/</a> (2019/01/15)
Conway's law	<a href="https://en.wikipedia.org/wiki/Conway%27s_law">https://en.wikipedia.org/wiki/Conway%27s_law</a> (2019/01/14)
CVEs	<a href="https://cve.mitre.org/">https://cve.mitre.org/</a> (2019/01/04)
CUPID	"SOLID vs. CUPID": <a href="https://youtu.be/2QahGarHpXQ">https://youtu.be/2QahGarHpXQ</a> (2022/02/05)
debugging rules	David J. Agans, "Debugging", AMACOM, 2002, ISBN 0-8144-7168-4
design	<a href="https://dictionary.cambridge.org/de/worterbuch/englisch/design">https://dictionary.cambridge.org/de/worterbuch/englisch/design</a> (2019/01/07)
design decisions	"A documentation framework for architecture decisions"; <a href="http://www.iso-architecture.org/viewpoints/docs/Heesch_Avgeriou_Hilliard-JSS-2011b.pdf">http://www.iso-architecture.org/viewpoints/docs/Heesch_Avgeriou_Hilliard-JSS-2011b.pdf</a> (2022/05/14)
design patterns	Erich Gamma et al., "Design Patterns / Elements of Reusable Object-Oriented Software", Addison-Wesley, 1994, ISBN 0-201-63361-2
divide and conquer	<a href="https://github.com/dirkengel/articles/blob/main/DivideAlongInterfacesAndConquer.pdf">https://github.com/dirkengel/articles/blob/main/DivideAlongInterfacesAndConquer.pdf</a> (2023/08/22)
docs as code	<a href="https://www.writethedocs.org/guide/docs-as-code/">https://www.writethedocs.org/guide/docs-as-code/</a> (2022/10/22)
domain	Eric Evans, "Domain-Driven Design: Tackling Complexity in the Heart of Software", Addison-Wesley, 2003, ISBN 0-321-12521-5
element	<a href="https://www.merriam-webster.com/dictionary/element">https://www.merriam-webster.com/dictionary/element</a> (2022/05/14)
enterprise architect	Wolfgang Goebel et al., "Enterprise Design Patterns / 35 Ways to Radically Increase Your Impact on the Enterprise", Intersection Group, 2020.
environment	<a href="https://www.merriam-webster.com/dictionary/environment">https://www.merriam-webster.com/dictionary/environment</a> (2019/01/07)
evidence-based	<a href="http://www.knosof.co.uk/ESEUR/ESEUR-mobile.pdf">http://www.knosof.co.uk/ESEUR/ESEUR-mobile.pdf</a> (version 1.0 from 2020/11/08)
evolution	<a href="http://nectunt.bifi.es/to-learn-more-overview/mechanisms-of-evolutionary-change/">http://nectunt.bifi.es/to-learn-more-overview/mechanisms-of-evolutionary-change/</a> (2019/01/14)
flip book	<a href="https://github.com/dirkengel/articles/blob/main/ADependencyFlipBook.pdf">https://github.com/dirkengel/articles/blob/main/ADependencyFlipBook.pdf</a> (2023/10/31)
FURPS	<a href="https://en.wikipedia.org/wiki/FURPS">https://en.wikipedia.org/wiki/FURPS</a> (2019/01/14)
GPL infected	<a href="https://yarchive.net/comp/linux/gpl_modules.html">https://yarchive.net/comp/linux/gpl_modules.html</a> (2019/01/14)
hierachical	"The C4 model for visualising software architecture: Context, Containers, Components, and Code"; <a href="https://c4model.com/">https://c4model.com/</a> (2022/05/14)
human resources	<a href="https://github.com/dirkengel/articles/blob/main/FTEbasedPlanning.pdf">https://github.com/dirkengel/articles/blob/main/FTEbasedPlanning.pdf</a> (2018/10/11)
idioms	<a href="https://www.oreilly.com/library/view/pattern-oriented-software-architecture/9781118725269/OEBPS/9781118725269_c04.htm">https://www.oreilly.com/library/view/pattern-oriented-software-architecture/9781118725269/OEBPS/9781118725269_c04.htm</a> (2019/01/14)
Information Hiding	<a href="https://en.wikipedia.org/wiki/Information_hiding">https://en.wikipedia.org/wiki/Information_hiding</a> (2019/01/14)
interlinked	Stefan Toth, "Vorgehensmuster für Software-Architektur", Hanser, 2014, ISBN 978-3-446-43762-3
ISO-21434	<a href="https://www.iso.org/standard/70918.html">https://www.iso.org/standard/70918.html</a> (2022/10/26)
ISO-25010	<a href="https://iso25000.com/index.php/en/iso-25000-standards/iso-25010">https://iso25000.com/index.php/en/iso-25000-standards/iso-25010</a> (2019/01/14)
ISO-26262	<a href="https://www.iso.org/standard/43464.html">https://www.iso.org/standard/43464.html</a> (2019/01/14)
key principles	<a href="https://docs.microsoft.com/en-us/previous-versions/msp-n-p/ee658124(v=pandp.10)#KeyDesignPrinciples">https://docs.microsoft.com/en-us/previous-versions/msp-n-p/ee658124(v=pandp.10)#KeyDesignPrinciples</a> (2021/11/12)
language (pattern)	Christopher Alexander et al., "A Pattern Language: Towns, Buildings, Construction", Oxford University Press, 1977, ISBN 0-19-501919-9
leaky	<a href="https://www.joelonsoftware.com/2002/11/11/the-law-of-leaky-abstractions/">https://www.joelonsoftware.com/2002/11/11/the-law-of-leaky-abstractions/</a> (2021/11/12)
logging vs. tracing	<a href="https://en.wikipedia.org/wiki/Tracing_(software)#Event_logging_versus_tracing">https://en.wikipedia.org/wiki/Tracing_(software)#Event_logging_versus_tracing</a> (2019/01/08)
management triangle	<a href="https://github.com/dirkengel/articles/blob/main/QualityAndTheProjectManagementTriangle.pdf">https://github.com/dirkengel/articles/blob/main/QualityAndTheProjectManagementTriangle.pdf</a> (2021/10/24)
metrics (general)	Kan S. H. "Metrics and Models in Software Quality Engineering", Addison-Wesley, 2 <sup>nd</sup> ed., 2002.
	"Metrics in automotive software development: A systematic literature review"; <a href="https://onlinelibrary.wiley.com/doi/epdf/10.1002/smr.2296">https://onlinelibrary.wiley.com/doi/epdf/10.1002/smr.2296</a> (2022/01/26)
metrics (tracking)	<a href="https://www.thoughtworks.com/insights/articles/fitness-function-driven-development">https://www.thoughtworks.com/insights/articles/fitness-function-driven-development</a> (2021/10/24)
	<a href="https://github.com/dirkengel/articles/blob/main/TheOzoneHoleMetric.pdf">https://github.com/dirkengel/articles/blob/main/TheOzoneHoleMetric.pdf</a> (2021/10/24)
microservices	Mark Richards, "Software Architecture Patterns", O'Reilly Media, Inc., 2015, ISBN 9781491924242
namespace	<a href="http://man7.org/linux/man-pages/man7/namespaces.7.html">http://man7.org/linux/man-pages/man7/namespaces.7.html</a> (2019/01/15)
narrow contract	<a href="http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2019/p1743r0.pdf">http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2019/p1743r0.pdf</a> (2021/12/03)
obstructive	Stefan Toth, "Wie Architektur agile Zusammenarbeit fördert oder behindert", OBJEKTSpektrum 01/2018
PDCA	<a href="https://github.com/dirkengel/articles/blob/main/PDCAandTheForgottenStakeholders.pdf">https://github.com/dirkengel/articles/blob/main/PDCAandTheForgottenStakeholders.pdf</a> (2023/03/19)
people skills	<a href="https://www.oreilly.com/ideas/4-essential-skills-software-architects-need-to-have-but-often-dont">https://www.oreilly.com/ideas/4-essential-skills-software-architects-need-to-have-but-often-dont</a> (2019/01/04)
platform	Klaus Pohl et al., "Software Product Line Engineering", Springer, 2005, ISBN 978-3540243724
principle	<a href="https://dictionary.cambridge.org/dictionary/english/principle">https://dictionary.cambridge.org/dictionary/english/principle</a> (2019/01/07)
process definition	<a href="https://en.wikipedia.org/wiki/ISO/IEC_15504">https://en.wikipedia.org/wiki/ISO/IEC_15504</a> (2019/01/14)
RASIC	<a href="https://en.wikipedia.org/wiki/Responsibility_assignment_matrix#RASIC">https://en.wikipedia.org/wiki/Responsibility_assignment_matrix#RASIC</a> (2022/11/07)
refactoring (patterns)	Martin Fowler, "Refactoring", Addison-Wesley, 1999, ISBN 0-201-48567-2
relationship	<a href="https://www.collinsdictionary.com/de/worterbuch/englisch/relationship">https://www.collinsdictionary.com/de/worterbuch/englisch/relationship</a> (2019/01/07)
RFC2119	<a href="https://www.ietf.org/rfc/rfc2119.txt">https://www.ietf.org/rfc/rfc2119.txt</a> (2019/01/14)
SEI views	<a href="https://resources.sei.cmu.edu/library/asset-view.cfm?assetid=484159">https://resources.sei.cmu.edu/library/asset-view.cfm?assetid=484159</a> (2022/05/14)
SOLID	<a href="https://en.wikipedia.org/wiki/SOLID">https://en.wikipedia.org/wiki/SOLID</a> (2019/01/14)
SW architecture	<a href="https://www.iso.org/obp/ui/#iso:std:iso-iec-ieee:42010:ed-1:v1:en">https://www.iso.org/obp/ui/#iso:std:iso-iec-ieee:42010:ed-1:v1:en</a> , section 3.2, (2022/05/14)
SWE.2	<a href="https://www.flecsim.de/images/download/AutomotiveSpiceShortened/Automotive%20Spice%203.1/SWE.2.html">https://www.flecsim.de/images/download/AutomotiveSpiceShortened/Automotive%20Spice%203.1/SWE.2.html</a> (2022/10/26)
SWE.5	<a href="https://www.flecsim.de/images/download/AutomotiveSpiceShortened/Automotive%20Spice%203.1/SWE.5.html">https://www.flecsim.de/images/download/AutomotiveSpiceShortened/Automotive%20Spice%203.1/SWE.5.html</a> (2022/10/26)
system	<a href="https://www.merriam-webster.com/dictionary/system">https://www.merriam-webster.com/dictionary/system</a> (2019/01/07)
tactics	Len Bass et al. "Software Architecture in Practice", Addison-Wesley, 4 <sup>th</sup> ed., 2021.
team	Thorsten Janning, "Scaling Agility: Wie führt man 100 agile Teams?" OBJEKTSpektrum, Ausgabe Agility/2014
test coverage	Peter Liggesmeyer, "Software-Qualität", Spektrum Akad. Verlag 2002, ISBN 3-8274-1118-1
tragedy of the commons	<a href="https://en.wikipedia.org/wiki/Tragedy_of_the_commons">https://en.wikipedia.org/wiki/Tragedy_of_the_commons</a> (2020/12/26)
unknown unknowns	<a href="https://www.researchgate.net/publication/27293624_The_Five_Orders_of_Ignorance">https://www.researchgate.net/publication/27293624_The_Five_Orders_of_Ignorance</a> (2022/10/26)
value stream	<a href="https://www.scaledagileframework.com/value-streams/">https://www.scaledagileframework.com/value-streams/</a> (2022/11/19)
why	Robert Cialdini, "Influence, New and Expanded: The Psychology of Persuasion", 2021.
WSJF	<a href="https://www.scaledagileframework.com/wsjf/">https://www.scaledagileframework.com/wsjf/</a> (2022/02/12)
XP	Kent Beck, "Extreme Programming Explained", Addison-Wesley, 2000, ISBN 0-201-61641-6