

## 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)

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 <u>https://arc42.org/</u> (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://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="https://en.wikipedia.org/wiki/C4\_model">https://en.wikipedia.org/wiki/C4\_model</a> (2022/07/31)

capabilities

<a href="https://en.wikipedia.org/wiki/C4\_model">https://en.wikipedia.org/wiki/C4\_model</a> (2022/07/31)

capabilities

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"; https://ntrs.nasa.gov/citations/20200002390 (2022/03/19)

characteristics <a href="http://www.informit.com/articles/article.aspx?p=1152528&seqNum=4">http://www.informit.com/articles/article.aspx?p=1152528&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 https://www.merriam-webster.com/dictionary/concept (2022/05/14)

container https://jvns.ca/blog/2016/10/10/what-even-is-a-container/ (2019/01/15)

Conway's law https://en.wikipedia.org/wiki/Conway%27s\_law (2019/01/14)

CVEs <a href="https://cve.mitre.org/">https://cve.mitre.org/</a> (2019/01/04)

CUPID "SOLID vs. CUPID": https://youtu.be/2QahGarHpXQ (2022/02/05)

debugging rules David J. Agans, "Debugging", AMACOM, 2002, ISBN 0-8144-7168-4

design https://dictionary.cambridge.org/de/worterbuch/englisch/design (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

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)

element <a href="https://www.merriam-webster.com/dictionary/element">https://www.merriam-webster.com/dictionary/element</a> (2022/05/14)

enterprise architect Wolfgang Goebl 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)

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 https://www.oreilly.com/library/view/pattern-oriented-software-architecture/9781118725269/OEBPS/9781118725269\_c04.htm (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)
ISO-21343 <a href="https://www.iso.org/standard/70918.html">https://www.iso.org/standard/70918.html</a> (2022/10/26)

ISO-25010 https://iso25000.com/index.php/en/iso-25000-standards/iso-25010 (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">https://en.wikipedia.org/wiki/Tracing</a> (software)#Event\_logging\_versus\_tracing (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"; https://onlinelibrary.wiley.com/doi/epdf/10.1002/smr.2296 (2022/01/26)

metrics (tracking) <a href="https://github.com/dirkengel/articles/blob/main/TheOzoneHoleMetric.pdf">https://github.com/dirkengel/articles/blob/main/TheOzoneHoleMetric.pdf</a> (2021/10/24)

https://www.thoughtworks.com/insights/articles/fitness-function-driven-development (2021/10/24)

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 <u>http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2019/p1743r0.pdf</u> (2021/12/03)

obstructive Stefan Toth, "Wie Architektur agile Zusammenarbeit fördert oder behindert", OBJEKTspektrum 01/2018
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)

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 <u>https://www.ietf.org/rfc/rfc2119.txt</u> (2019/01/14)

microservices

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 https://www.flecsim.de/images/download/AutomotiveSpiceShortened/Automotive%20Spice%203.1/SWE.2.html (2022/10/26)
SWE.5 https://www.flecsim.de/images/download/AutomotiveSpiceShortened/Automotive%20Spice%203.1/SWE.5.html (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, 4th ed., 2021.

team Thorsten Janning, "Scaling Agility: Wie führt man 100 agile Teams?" OBJEKTspektrum, Ausgabe Agility/2014

test coverage Peter Liggesmeyer, "Sofware-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)

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