

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

Dirk Engel, info@engel-internet.de - first version 2019/01/26, last update 2022/10/22

## 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**

https://www.cs.ubc.ca/~gregor/teaching/papers/4+1view-architecture.pdf (2019/01/14)

agile vs. traditional https://agilemanifesto.org/ (2019/01/14) aim42 https://www.aim42.org/using (2019/01/26)

arc42 https://arc42.org/ (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

https://resources.sei.cmu.edu/library/asset-view.cfm?assetid=5177 (2021/12/18) **ATAM** 

avoid complexity John Ousterhout, "A Philosophy of Software Design", Yaknyam, 2018, ISBN 978-1-7321022-0-0

https://c4model.com/ and https://en.wikipedia.org/wiki/C4 model (2022/07/31) C4 http://man7.org/linux/man-pages/man7/capabilities.7.html (2019/01/14) capabilities

categories Johannes Siedersleben, "Moderne Softwarearchitektur", dpunkt.verlag GmbH, 2004, ISBN 3-89864-292-5

CFI https://source.android.com/devices/tech/debug/cfi (2019/01/14)

https://en.wikipedia.org/wiki/Cgroups (2019/01/14) cgroups

challenges "Challenges Using Linux as a Real-Time Operating System"; https://ntrs.nasa.gov/citations/20200002390 (2022/03/19)

characteristics http://www.informit.com/articles/article.aspx?p=1152528&seqNum=4 (2019/01/14) concentric architectures https://blog.cleancoder.com/uncle-bob/2012/08/13/the-clean-architecture.html (2020/12/26)

https://www.merriam-webster.com/dictionary/concept (2022/05/14) concept 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** https://cve.mitre.org/ (2019/01/04)

**CUPID** "SOLID vs. CUPID": https://youtu.be/2QahGarHpXQ (2022/02/05) David J. Agans, "Debugging", AMACOM, 2002, ISBN 0-8144-7168-4 debugging rules design https://dictionary.cambridge.org/de/worterbuch/englisch/design (2019/01/07)

design decisions "A documentation framework for architecture decisions"; http://www.iso-architecture.org/viewpoints/docs/Heesch\_Avgeriou\_Hilliard-JSS-2011b.pdf (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

https://www.writethedocs.org/guide/docs-as-code/ (2022/10/22) docs as code https://www.merriam-webster.com/dictionary/element (2022/05/14) element

enterprise architect Wolfgang Goebl et al., "Enterprise Design Patterns / 35 Ways to Radically Increase Your Impact on the Enterprise", Intersection Group, 2020.

https://www.merriam-webster.com/dictionary/environment (2019/01/07) environment

evidence-based http://www.knosof.co.uk/ESEUR/ESEUR-mobile.pdf (version 1.0 from 2020/11/08)

http://nectunt.bifi.es/to-learn-more-overview/mechanisms-of-evolutionary-change/ (2019/01/14) evolution

https://en.wikipedia.org/wiki/FURPS (2019/01/14) **FURPS** 

**GPL** infected https://yarchive.net/comp/linux/gpl\_modules.html (2019/01/14)

hierachical "The C4 model for visualising software architecture: Context, Containers, Components, and Code"; https://c4model.com/ (2022/05/14)

human resources https://github.com/dirkengel/articles/blob/main/FTEbasedPlanning.pdf (2018/10/11)

idioms https://www.oreilly.com/library/view/pattern-oriented-software-architecture/9781118725269/OEBPS/9781118725269\_c04.htm (2019/01/14)

Information Hiding https://en.wikipedia.org/wiki/Information\_hiding (2019/01/14)

ISO-25010 https://iso25000.com/index.php/en/iso-25000-standards/iso-25010 (2019/01/14)

ISO-26262 https://www.iso.org/standard/43464.html (2019/01/14)

https://docs.microsoft.com/en-us/previous-versions/msp-n-p/ee658124(v=pandp.10)#KeyDesignPrinciples (2021/11/12) key principles

Christopher Alexander et al., "A Pattern Language: Towns, Buildings, Construction", Oxford University Press, 1977, ISBN 0-19-501919-9 language (pattern)

leaky https://www.joelonsoftware.com/2002/11/11/the-law-of-leaky-abstractions/ (2021/11/12) logging vs. tracing https://en.wikipedia.org/wiki/Tracing\_(software)#Event\_logging\_versus\_tracing (2019/01/08)

management triangle https://github.com/dirkengel/articles/blob/main/QualityAndTheProjectManagementTriangle.pdf (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)

https://github.com/dirkengel/articles/blob/main/TheOzoneHoleMetric.pdf (2021/10/24) metrics (tracking)

> 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 http://man7.org/linux/man-pages/man7/namespaces.7.html (2019/01/15)

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

obstructive Stefan Toth, "Wie Architektur agile Zusammenarbeit fördert oder behindert", OBJEKTspektrum 01/2018 https://www.oreilly.com/ideas/4-essential-skills-software-architects-need-to-have-but-often-dont (2019/01/04) people skills

platform Klaus Pohl et al., "Software Product Line Engineering", Springer, 2005, ISBN 978-3540243724

https://dictionary.cambridge.org/dictionary/english/principle (2019/01/07) principle https://en.wikipedia.org/wiki/ISO/IEC\_15504 (2019/01/14)

refactoring (patterns) Martin Fowler, "Refactoring", Addison-Wesley, 1999, ISBN 0-201-48567-2 relationship https://www.collinsdictionary.com/de/worterbuch/englisch/relationship (2019/01/07)

RFC2119 https://www.ietf.org/rfc/rfc2119.txt (2019/01/14)

microservices

process definition

SEI views https://resources.sei.cmu.edu/library/asset-view.cfm?assetid=484159 (2022/05/14)

https://en.wikipedia.org/wiki/SOLID (2019/01/14) **SOLID** 

https://www.iso.org/obp/ui/#iso:std:iso-iec-ieee:42010:ed-1:v1:en, section 3.2, (2022/05/14) SW architecture

SWE.2 https://flecsim.de/images/download/AutomotiveSpice/Automotive%20Spice%203.0/SWE.2.html (2019/01/14) https://flecsim.de/images/download/AutomotiveSpice/Automotive%20Spice%203.0/SWE.5.html (2019/01/14) SWE.5

https://www.merriam-webster.com/dictionary/system (2019/01/07) system

Len Bass et al. "Software Architecture in Practice", Addison-Wesley, 4th ed., 2021. tactics

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

Peter Liggesmeyer, "Sofware-Qualität", Spektrum Akad. Verlag 2002, ISBN 3-8274-1118-1 test coverage

tragedy of the commons https://en.wikipedia.org/wiki/Tragedy\_of\_the\_commons (2020/12/26)

unknown unknowns "The Five Orders of Ignorance"; http://www.corvusintl.com/CACM002-50I.htm (2021/10/24) Robert Cialdini, "Influence, New and Expanded: The Psychology of Persuasion", 2021. why

https://www.scaledagileframework.com/wsjf/ (2022/02/12) WSJF

ΧP Kent Beck, "Extreme Programming Explained", Addison-Wesley, 2000, ISBN 0-201-61641-6