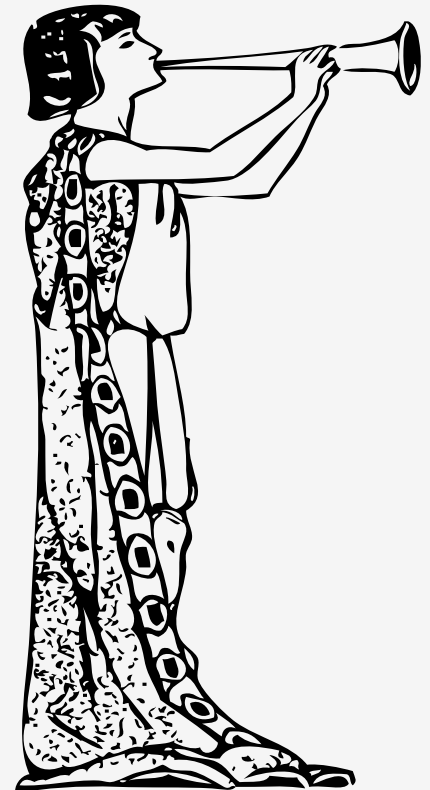


Schlüsselkompetenzen (SKO) fürs Studium

0. Announcements

Prof. Dr. Uwe Aßmann
Softwaretechnologie
Fakultät Informatik
Technische Universität Dresden
2024-0.3, 10/12/24
<http://st.inf.tu-dresden.de/teaching/sko>

- 1) Outline
- 2) Literature





**TECHNISCHE
UNIVERSITÄT
DRESDEN**

Fakultät Informatik - Institut Software- und Multimediatechnik - Softwaretechnologie – Schlüsselkompetenzen (SKO)



0.1. Kurs Schlüsselkompetenzen fürs 1. Studienjahr Inhalt und Ziele

Prof. Uwe Aßmann

TU Dresden

Softwaretechnologie

Version 2024-0.5 10/12/24

Why is Software Engineering Important

Software ist die größte gesellschaftsverändernde Kraft heute.

(Anonymous)

Software is eating the world.

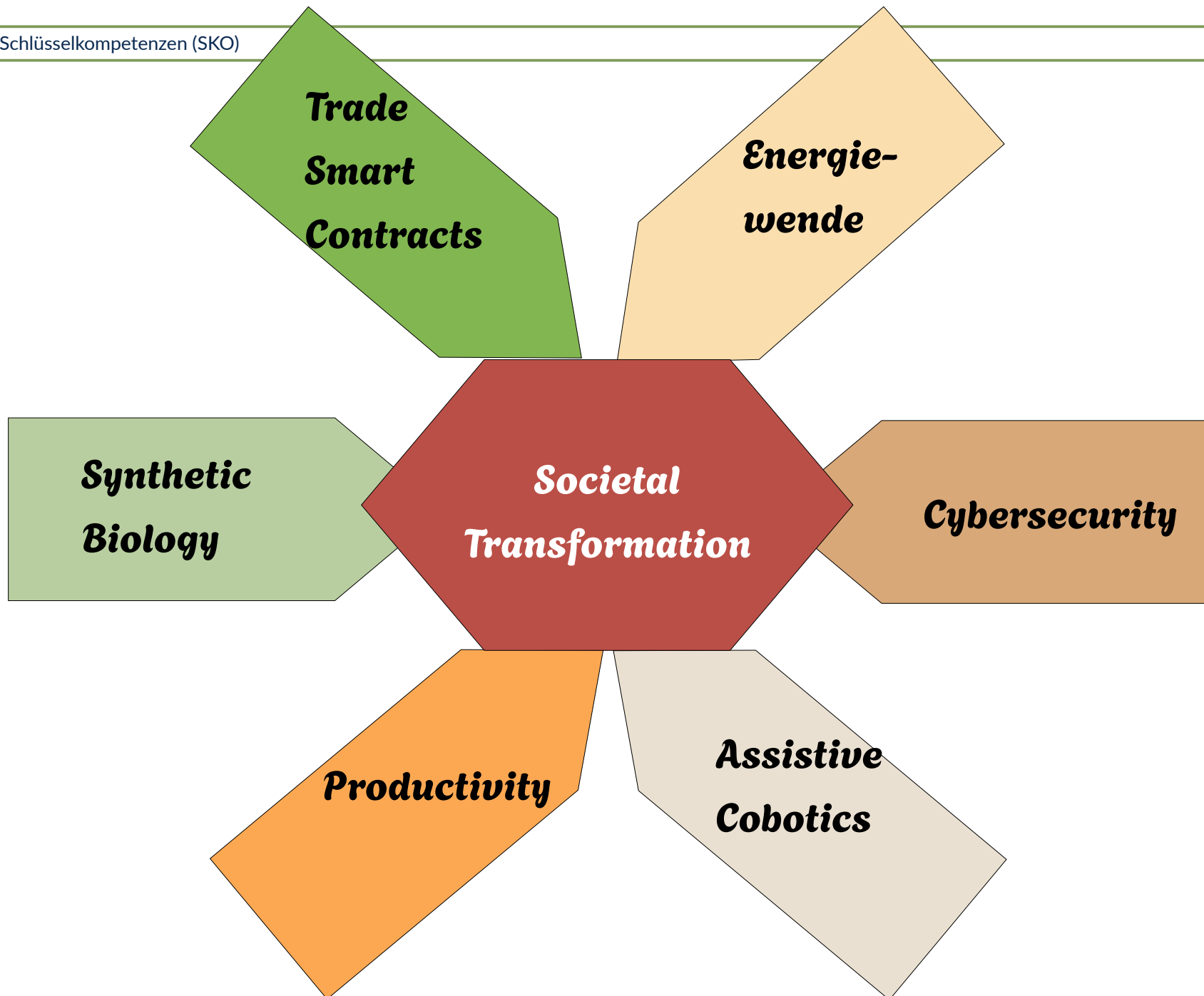
(Marc Andreessen, Mosaic web browser)

<http://online.wsj.com/news/articles/SB10001424053111903480904576512250915629460>

Transformational Software

5

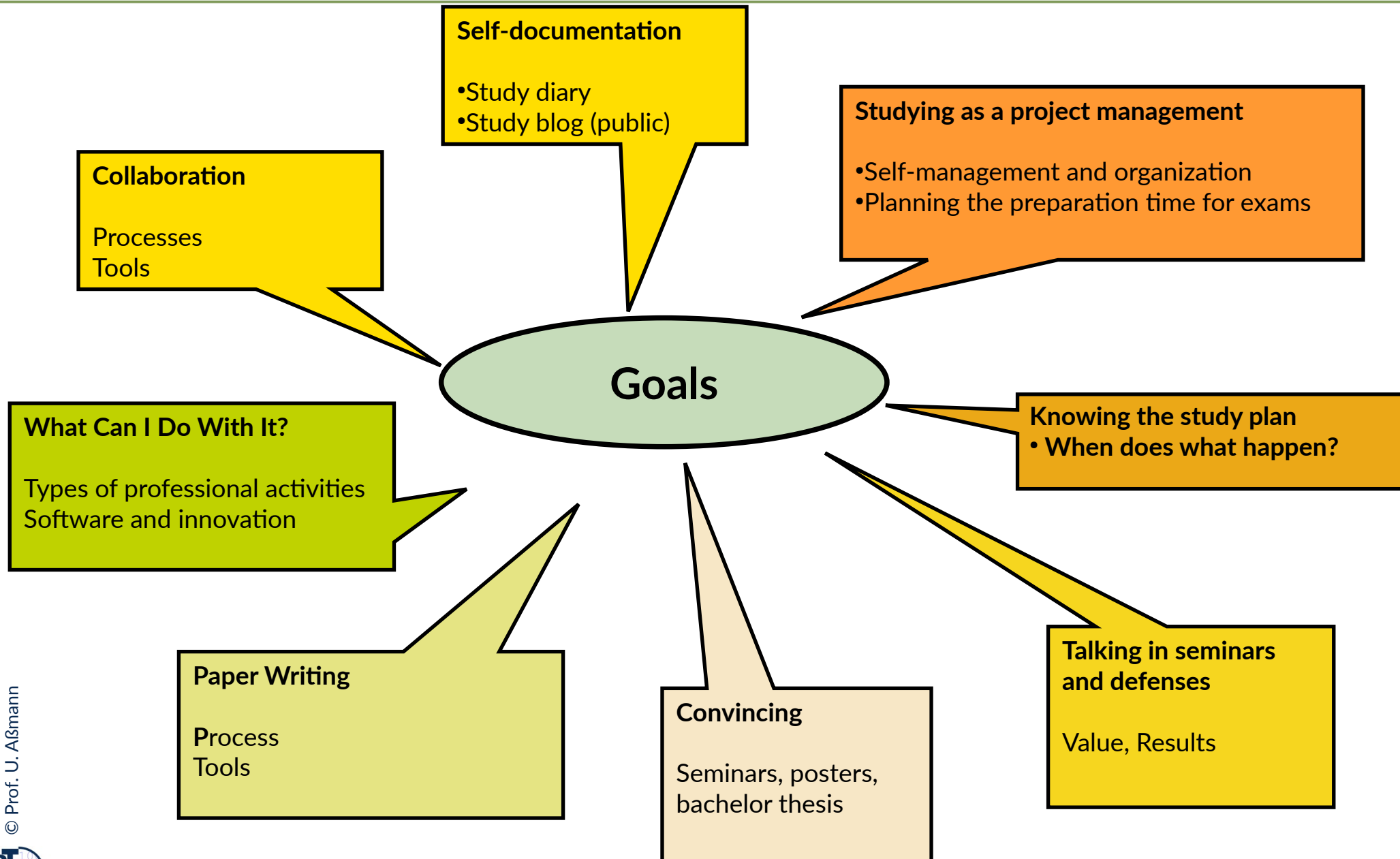
Schlüsselkompetenzen (SKO)



Objectives of the Course

6

Schlüsselkompetenzen (SKO)



Contents SKO/INF-24-G-SK, WS24/25+SS25

7 Schlüsselkompetenzen (SKO)

			Parts	
I	WS	Oct, Nov	Study management, and Group Collaboration	
			Teil 0 - Einleitung - Wozu mache ich das bloß?	
			Teil I - Techniken für das Selbststudium	
II	WS	Dec, Jan	Paper writing	
			Teil II - Arbeit in Gruppen	
			Teil III - Dokumentmanagement	
III	SS	Apr, May	Convincing	
IV	SS	Jun, Jul	Reporting	

Montag, 6. DS, 16:40 im APB E023

<https://bildungsportal.sachsen.de/opal/auth/RepositoryEntry/45817921546/>

In 24/25 anrechenbar im Modul AQUA – Allg. Qualifikation

I	WS	Study management and group collaboration	(Oct, Nov)
1	v	What can I do with computer science and software engineering?	Innovations, innovations, innovations
2	v	Self-management, study management, and project management. Personal study diary blog in Markdown.	Software tools for self-efficiency. Composition systems for self-efficiency. The Shell as composition system. Build management. "The missing semester".
3	ü	Writing your own study plan.	
4		Writing the study plan in markdown	
5	v	Techniques of self study and lecture afterprocessing	Reading, clustering, questioning, group work, lecture maps). Tool support. plantUML and other tools. Modeling tools and Jupyter notebooks
6	ü	Introduction to the shell and the power of programming	
7	v	Personal version management	Introduction into breezy
8		Discovering the power of programming: The Life of Konrad Zuse.	
9	ü	Agile work and Collaboration in Teams with git (siehe) and gitlab Chemnitz	Seminargruppen in gitlab Chemnitz. Versioning the Study Blog in gitlab Chemnitz
10		Artemis und Gitlab pipelines, shell-based build management für Dokumenten/hypermedia, svg management, LibreOffice; OnlyOffice/cloud	
11		Self management with gitlab issues; course management git portal in Chemnitz; cloning for personal study plan	
12		Web documentation of your study diary, study projects with markdown, hugo and SSG	

II	WS	Paper writing (Dec, Jan)	
8	v	Introduction to the ADED research process for seminars, proseminars, papers, bachelor and master's thesis (literature analysis, design, evaluation, diffusion)	
9	ü	Searching with literature search engines and AI engines, zotero	
10		Different reports in Bachelor study (literature search, outlining, theses)	
11	ü	Poster Production	
12	v	Active documents with LaTeX and overleaf for paper writing	
13	ü	Git merge conflict handling	
14	v	Advanced LaTeX (referencing, indices, glossaries, reviewing, macro generation from spreadsheets)	

SKO/INF-24-G-SK, WS24/25+SS25 (tentative)

III		Convincing (April, May)	
1	v	Presenting and talking interestingly in seminars; talking with video taping; Hooks in talks and papers	
2	ü	Slides in LaTeX and other tools	
3	v	Value proposition analysis for ideas and opportunities	
4	ü	Writing a One-Pager with NABC or POPP to convince your audience (writing a proposal for an initiative)	
5	v	Writing a short paper about your self-management process	
6	ü	Feature toggling as an agile evolution process and its git workflow; Feature toggling with LaTeX	

SKO/INF-24-G-SK, WS24/25+SS25 (tentative)

11 Schlüsselkompetenzen (SKO)

IV		Reporting (June, July)	
7	v	Writing a bachelor or Master's thesis and short exposé. Setting up an outline of the bachelor exposé in overleaf with LaTeX	
8	ü	Git Refactoring branches and quilt/topgit branches für kollaborative Dokumenterstellung	
9	v	Organizing Poster of your study project with NABC, and demonstrations of your work	
10	ü	Writing an instruction web-based cook book (programming, cook book, etc.) with stack-overflow, etc.	
11	v	Basic and Technical Science; Computer Science and Software Engineering	
12	v	Basic science ethics of work	
13	v	Writing interestingly and fluently	



0.2. Literatur/Web Sources

- ▶ <https://missing-semester-de.github.io/> MIT course on software tools
 - why is the MIT course important? <https://missing-semester-de.github.io/about/>
- ▶ [deBono] Edward de Bono. de Bono's neue Denkschule. Kreativer denken, effektiver arbeiten, mehr erreichen. mvg-Verlag, München.
- ▶ Stickel-Wolf, Christine and Joachim Wolf. "Wissenschaftliches Arbeiten und Lerntechniken." Erfolgreich studieren–gewusst wie. (2011).
 - Contents of 8th edition:
 - https://toc.library.ethz.ch/objects/pdf03/e01_978-3-658-11116-8_01.pdf

Teachful Procrastination: To be Happy About

- ▶ <https://www.youtube.com/@TypeAshton>
- ▶ Speicherkraftwerk Thiendorf <https://www.youtube.com/watch?v=zagwNfUDTbQ>
- ▶ Magnet Rail <https://www.youtube.com/watch?v=DGG9YH1XOYI>
- ▶ Stadler RS <https://www.youtube.com/watch?v=b7aF5gD1ic8>
- ▶ ECTS <https://www.youtube.com/watch?v=LpdtdWFzM94>
- ▶ Rebecca Elisabeth <https://www.youtube.com/@RebeccaElizabeth>
 - Lernmethoden https://www.youtube.com/watch?v=-XXsRFk8_K8&t=606s
- ▶ Selbststudium https://www.youtube.com/results?search_query=selbststudium
- ▶ Berufung <https://www.youtube.com/watch?v=m1FsoF64Xrk&list=PLHiUCu-r22N8dLM6LvbzvevcER2knld3L&index=5>
- ▶ Alles ist schwer bevor es leicht wird <https://www.youtube.com/watch?v=GXypjl70bOc>

How Much Time to Spend?

		Time
Semester	3cp	90h
Weeks in Semester	27 (14 WiSe+13 SoSe)	1,5h (lectures)
		1,8h= 108min (self study)
		3.3h (total)



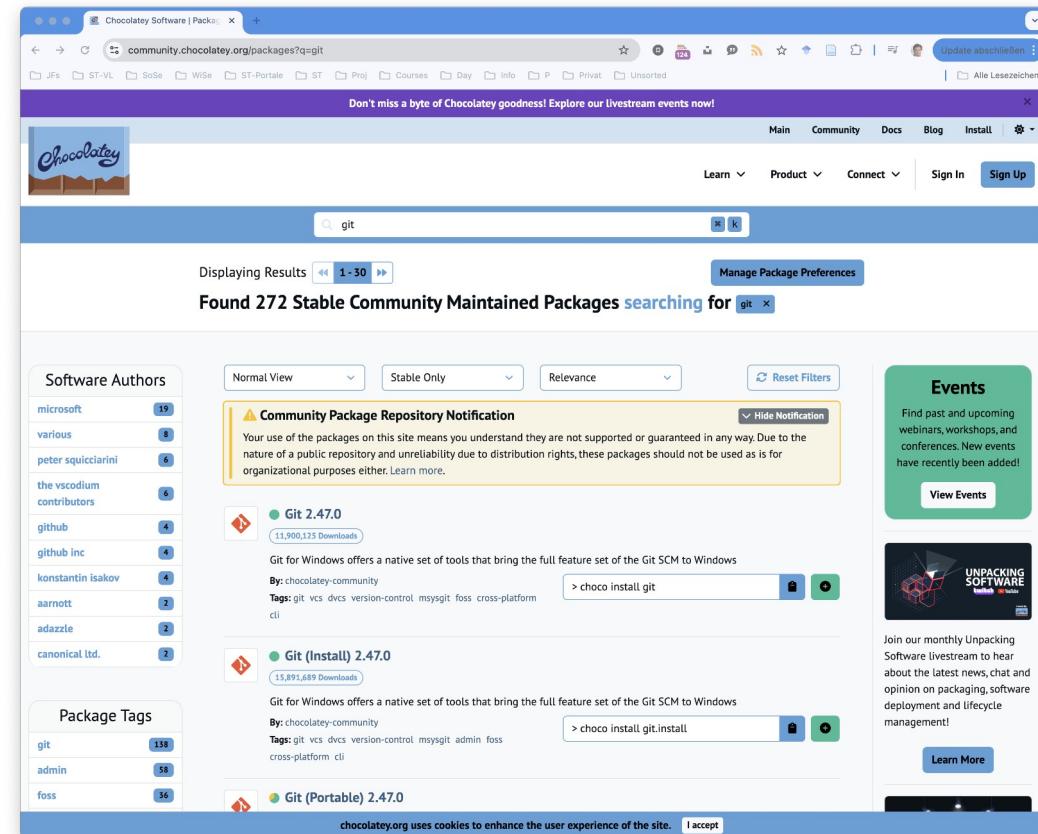
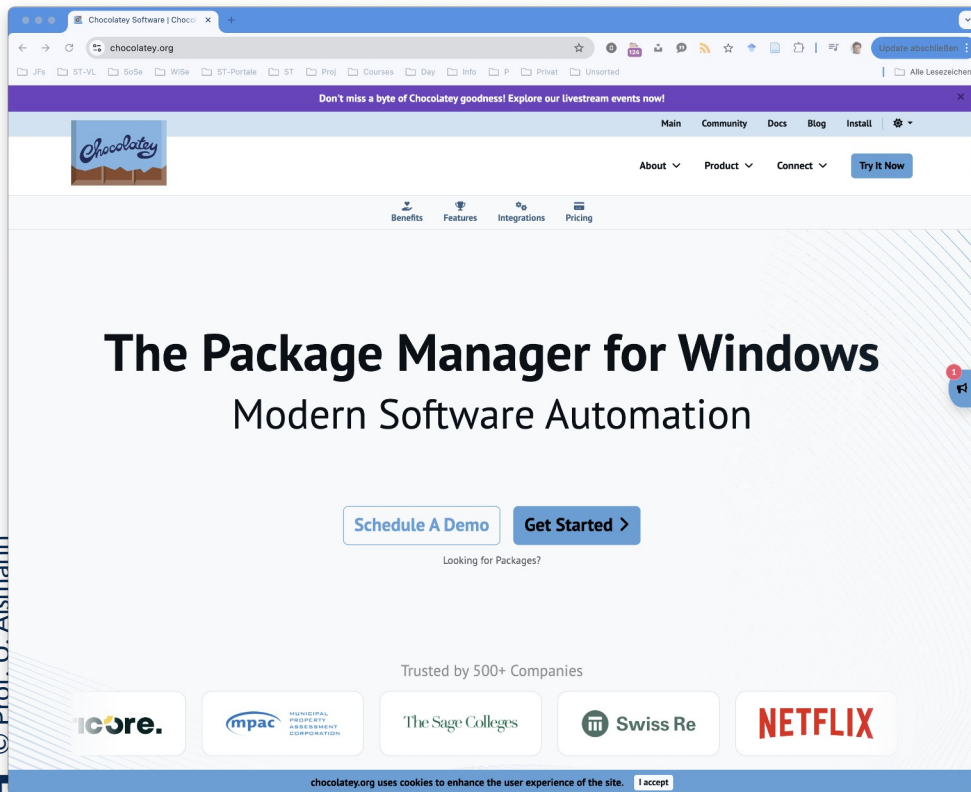
*Key
Competencies*

0.3. A Minimal Software Infrastructure for the Course SKO

Git on Windows

17 Schlüsselkompetenzen (SKO)

- ▶ download git for windows according to the following web page
 - <https://git-scm.com/download/win>
- ▶ Install a modern package manager, e.g., <https://chocolatey.org/>



Mint Linux aside of Windows

- ▶ Website <https://www.linuxmint.com/download.php>
- ▶ Create a bootable USB stick <https://linuxmint-installation-guide.readthedocs.io/en/latest/burn.html>
- ▶ Boot from the USB stick <https://linuxmint-installation-guide.readthedocs.io/en/latest/boot.html>
 - The “live” instance can be used directly, and it will keep your computer clean
- ▶ But you also can do an installation <https://linuxmint-installation-guide.readthedocs.io/en/latest/install.html>
- ▶ see introductory video <https://www.youtube.com/watch?v=DDtMTVW1U4s>



*Key
Competencies*

0.4. What are the Documents in the Courses' Portfolio?

Seminararbeit/Portfolio of the Course (Obligatory Documents) in WiSE 24/25; SoSe25 to be announced.

20

Schlüsselkompetenzen (SKO)

Study diary (personal)

What did I learn?
What did I find with PMI?
Bullet points
Which open questions did I discover?

Study Blog (semi-public)

For your friends and relatives
Write it as if it was for the public
Major insights
What did I learn?
What did I find with PMI?

Agile Task Board for Weekly Planning

Different tools possible

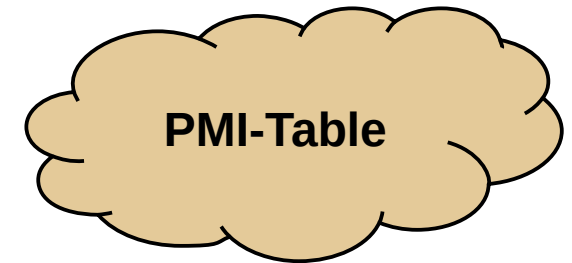
Study Plan

GANTT-Chart of study program
Exam planning
Time planning

Diary and Blogging

- ▶ For every lecture, fill a PMI canvas of DeBono

- ▶ For every lecture, fill a PMI canvas of DeBono [DeBono]
- ▶ DeBono's Plus/Minus/Interesting is a simple method for brainstorming on problems, concepts, contents, texts, decisions
- ▶ Start with Plus and Minus; if you cannot decide or explain, choose what was Interesting

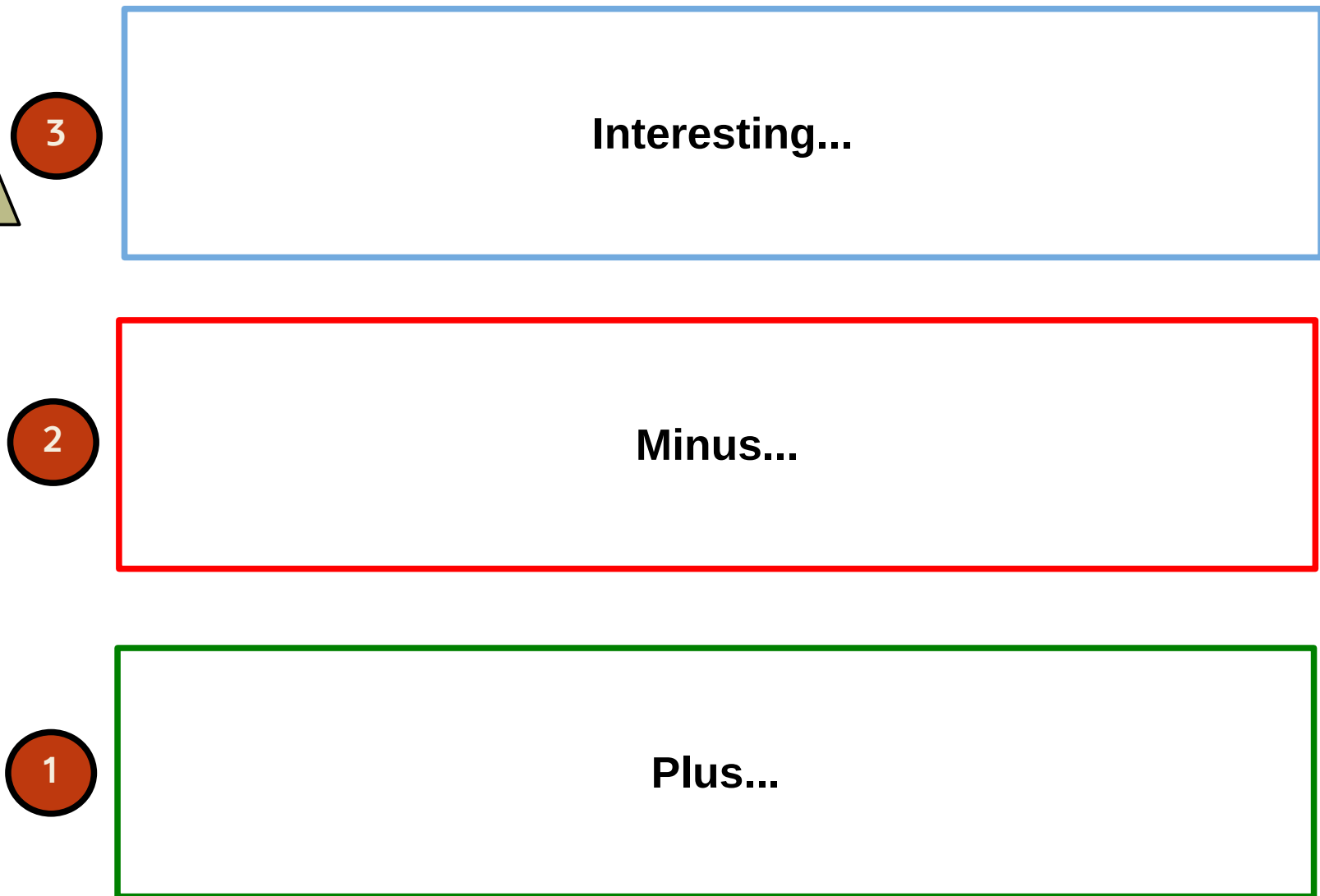


Plus	Minus	Interesting

PMI-Analyse Date:

23

Schlüsselkompetenzen (SKO)



PMI-Analyse Date:

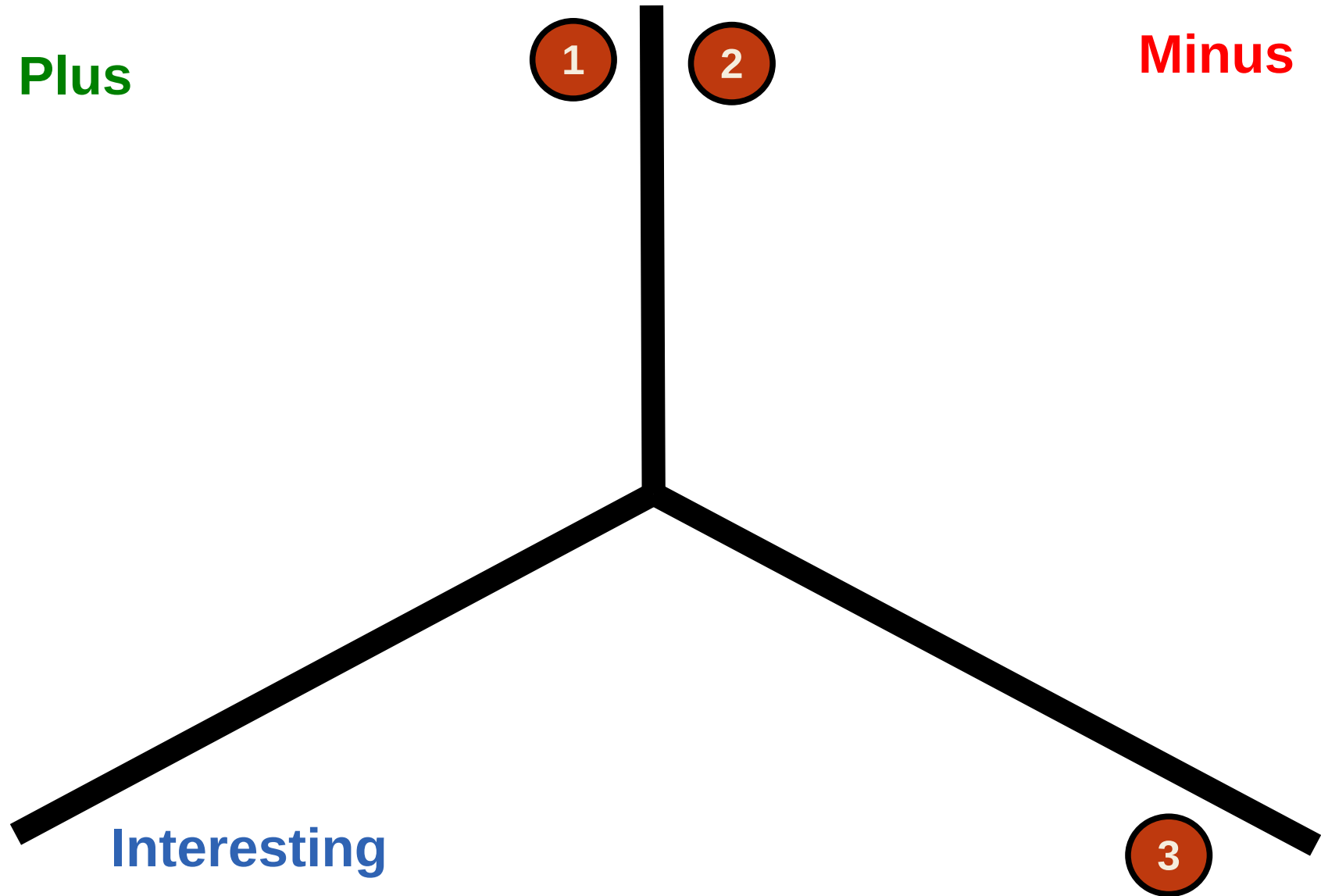
<http://www.funretrospectives.com/pmi-plus-minus-interesting/>

24

Schlüsselkompetenzen (SKO)

Plus

Minus



The End

- ▶ How do I install a package with the package manager
 - brew on mac and Linux
 - chocolatey on windows
- ▶ How do I install a live USB stick of Mint Linux?