TECHNISCHE UNIVERSITÄT
CHEMNITZ

Current Trends in Web Engineering

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Fakultät für Informatik

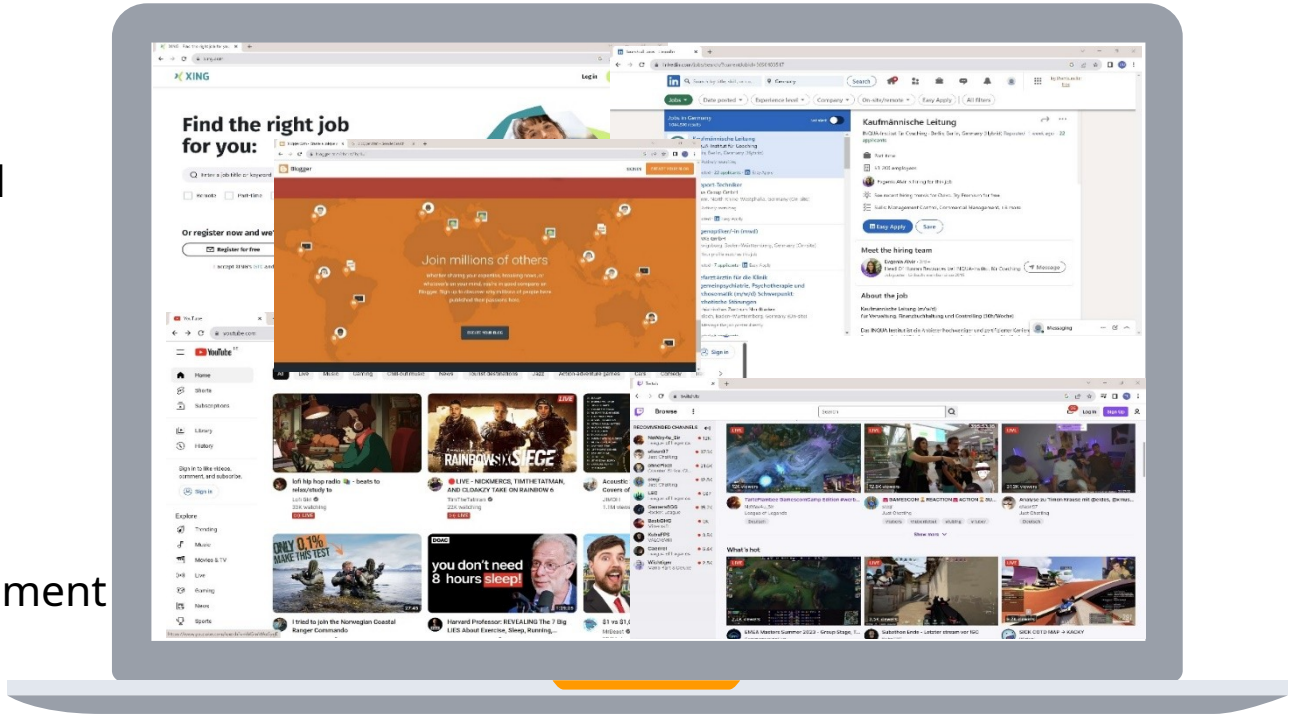
Verteilte und selbstorganisierende Rechnersysteme

(Social) **Web** (Engineering)(Science)

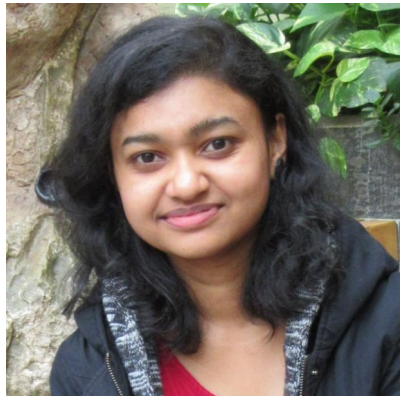
> *“The Web is all about connecting people!”*
>
> *Tim Berners-Lee*

Advanced… what?

- This is an **introduction** to **advanced Web Engineering concepts** with a dedicated focus on Social Web and Web Science aspects
- Prerequisites
  - Ideally have deeper knowledge of RN, XML, EVS, SVS, SSE, CWA
  - Interested in learning latest development aspects
  - Students need to engage in different activities
- We are continously updating all modules – parts of this lecture
  - Moved from CWA to SMWS to Trends in Web Engineering
  - Extend other lectures, such as EVS, SVS, XML, SSE



Your CTWE Team



Dr.-Ing. Sheeba Samuel
CTWE Lecture

Maheshika Hansamalee Walpola M.Sc.
CTWE Tutorial

Lecture

- Type of event: Lecture
- Lecturers: Dr.-Ing. Sheeba Samuel
- Tutorial: Maheshika Hansamalee Walpola MSc.
- Place and Time:
  - Lecture

    Tuesday, 11:30-13:00, online
  - Exercise

    Thursday, 11:30-13:00 in A12.346

    Friday, 13:45-15:15 in A12.346
- SWS: 2 + 2

All Exams will be in WRITTEN FORM

- **Based on Faculty decision** even though your Prüfungs-/Studienordnung might still show oral exam

Lecture

The CTWE Lecture is structured in two parts

1. Asynchronous (Self-study)
   - New content about the lecture topics
   - Materials are provided (videos, slides, links, ...)
   - Contains activities to prepare at home
2. Synchronous (Live sessions)
   - No new content
   - Interactive lecture elements (Quizzes, Discussions, Demos, Q&A, ...)
   - Requires your preparation and active participation

Both are complementary, the lecture is not just the live sessions nor just the self-study

What happened to AVS, SMWS, etc?

- The name changed to reflect the core of the lecture!
- In other words:
  - The exams for AVS will be provided.
  - The exams for SMWS will be provided.
  - THEY are all called Current Trends in Web Engineering from now on.
- So, this module can be used instead of AVS or SMWS – but not in addition.

Further Information

- Literature
  - There is NO course textbook
  - However, there are different books, magazines, papers, Web-Sites that cover parts of the course
  - References to Further Readings will be given each lecture
- In addition
  - Web Site/OPAL for this lecture will provide the data
  - You can download the slides/videos there
  - We will have one problem to solve and develop
  - We will actively use social networks!

New Guiding Element

NEW: This semester, we will start increasing the use of Standards and de-facto (industry-relevant) standards from Standards organisations, NGOs, companies, political bodies etc. as guiding elements and source for content – so you will be prepared in the future where to look for updates and how to deal with them!

These include, but are not limited to e.g.:

- International Standardization Organization (ISO) – https://www.iso.org/
- Internet Engineering Task Force (IETF) – http://www.ietf.org
- Institute of Electrical and Electronics Engineers (IEEE) – https://www.ieee.org/
- World Wide Web Consortium (W3C) – http://www.w3.org
- Object Management Group (OMG) – http://www.omg.org
- Project Management Institute (PMI) – http://www.pmi.org
- Scrum Alliance – https://www.scrumalliance.org
- European Union (EU)
  - http://www.europa.eu
  - http://www.eugdpr.org
- United Kingdom (UK) – sdf sdf https://www.gov.uk/service-manual
- Companies and services, like
  - Amazon - Lambda: https://aws.amazon.com/lambda/
  - Google - Cloud Functions: https://cloud.google.com/functions/
  - Microsoft - Azure Functions: https://azure.microsoft.com/en-us/services/functions/
  - IBM - OpenWhisk: https://www.ibm.com/cloud-computing/bluemix/openwhisk

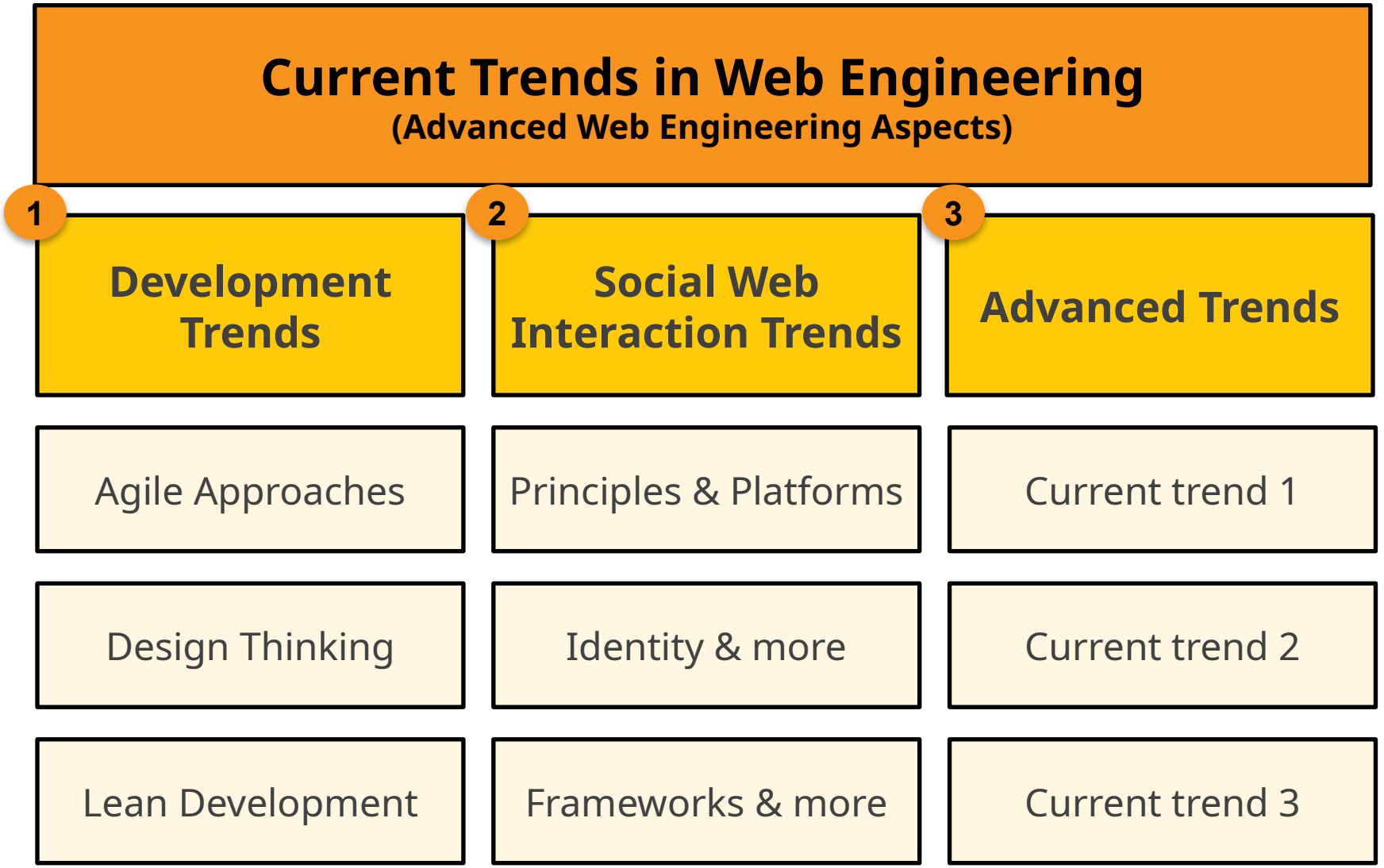
Further Information

- Website of the professorship
  - http://vsr.informatik.tu-chemnitz.de/
- Website of the lecture
  - http://vsr.informatik.tu-chemnitz.de/edu/current/ctwe
- Education-related News
  - http://vsr.informatik.tu-chemnitz.de/news/edu

Expectations…

- We **STRONGLY expect** that you read all assignments/watch all videos for the next live session
  - In case you and many other haven't we can't run the live sessions
- **This lecture will be a lot of work! Learn hard, enjoy later!**

Lecture Outline



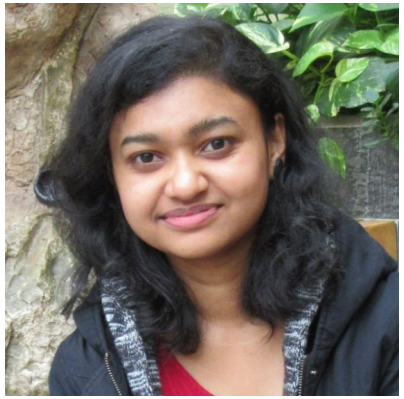
Lecture Style: Workshop

- We want to apply all topics during hands-on sessions
- We will design, build, and more
- We will use one single scenario that you all know from your own experience – and we will implement it during the course of this semester

CTWE and You

You
Learner

please go to
https://particify.hrz.tu-chemnitz.de



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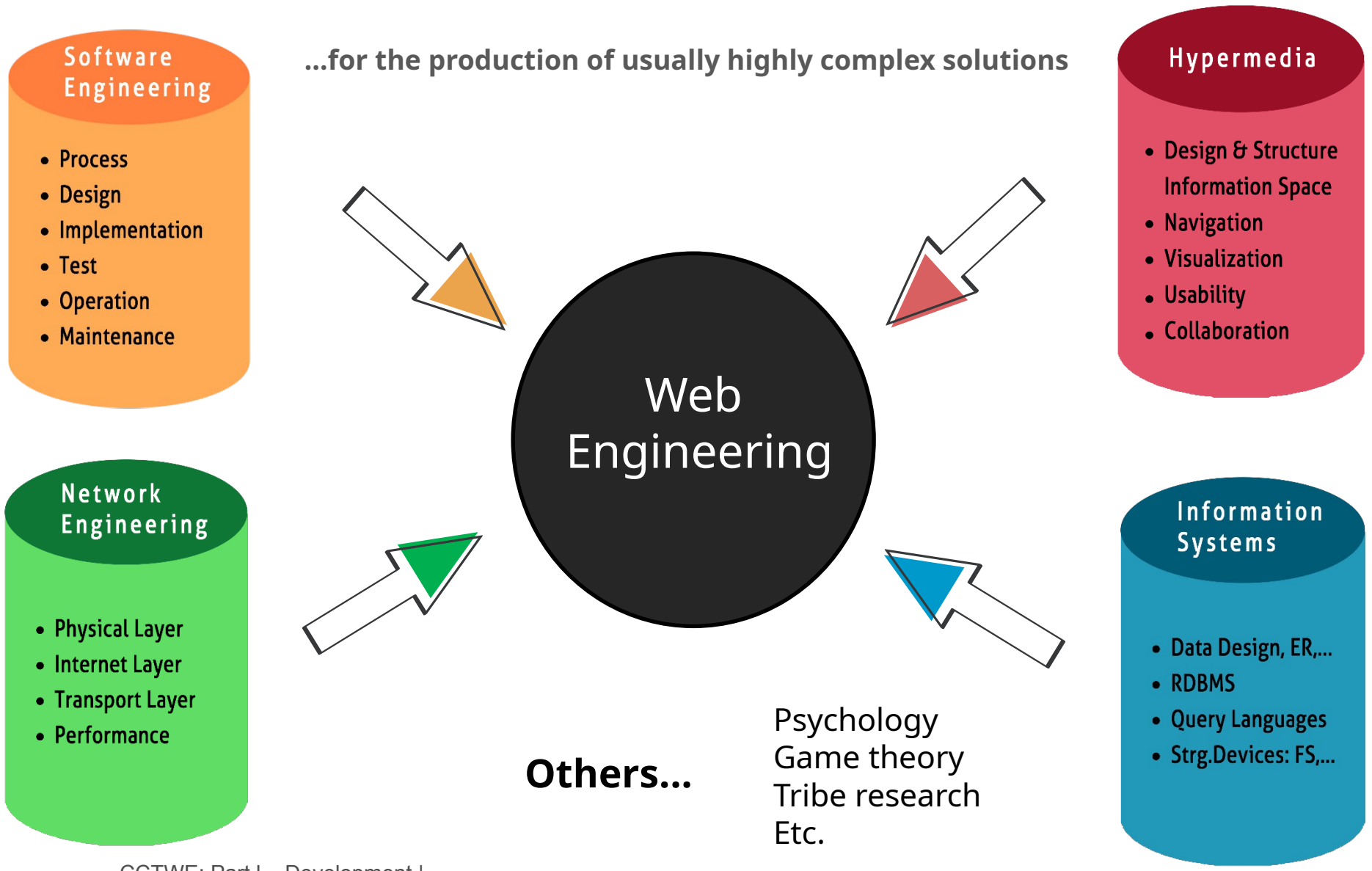
Part I

Development

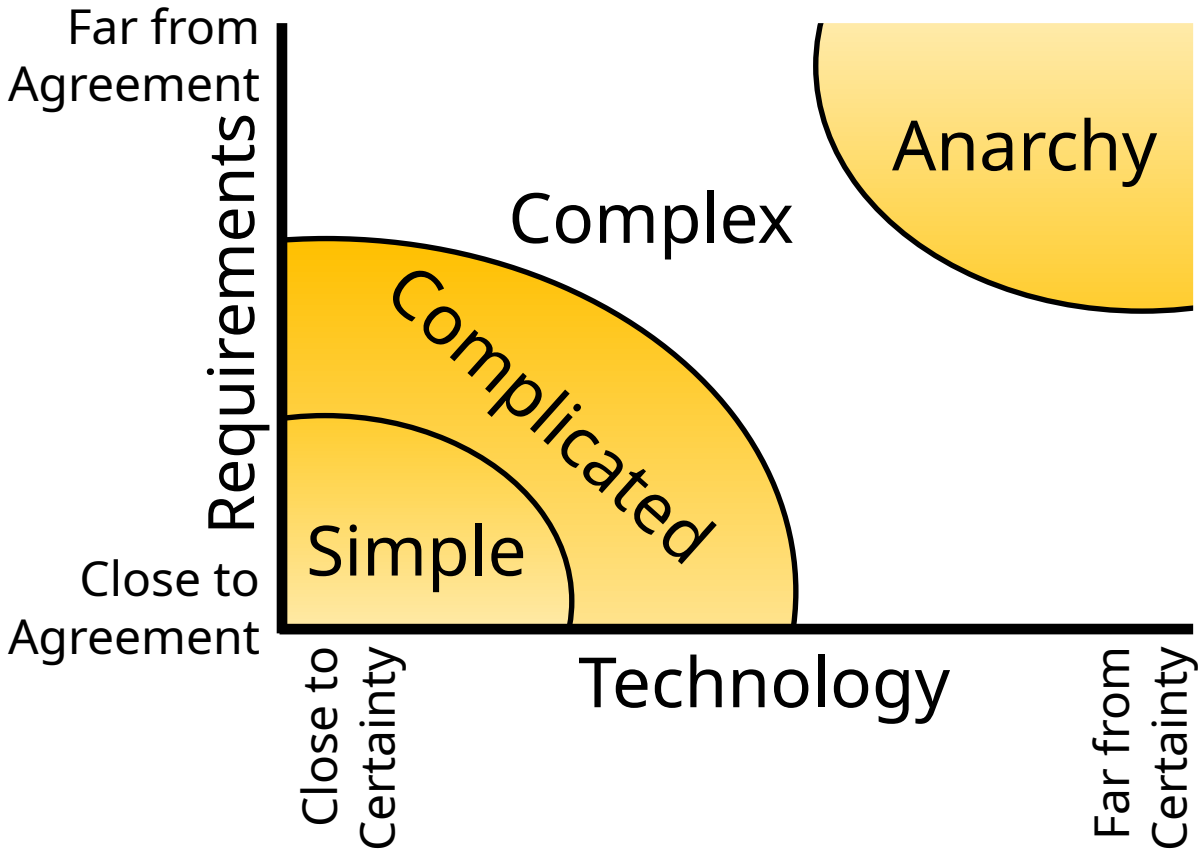
Web Engineering's Key Knowledge Areas



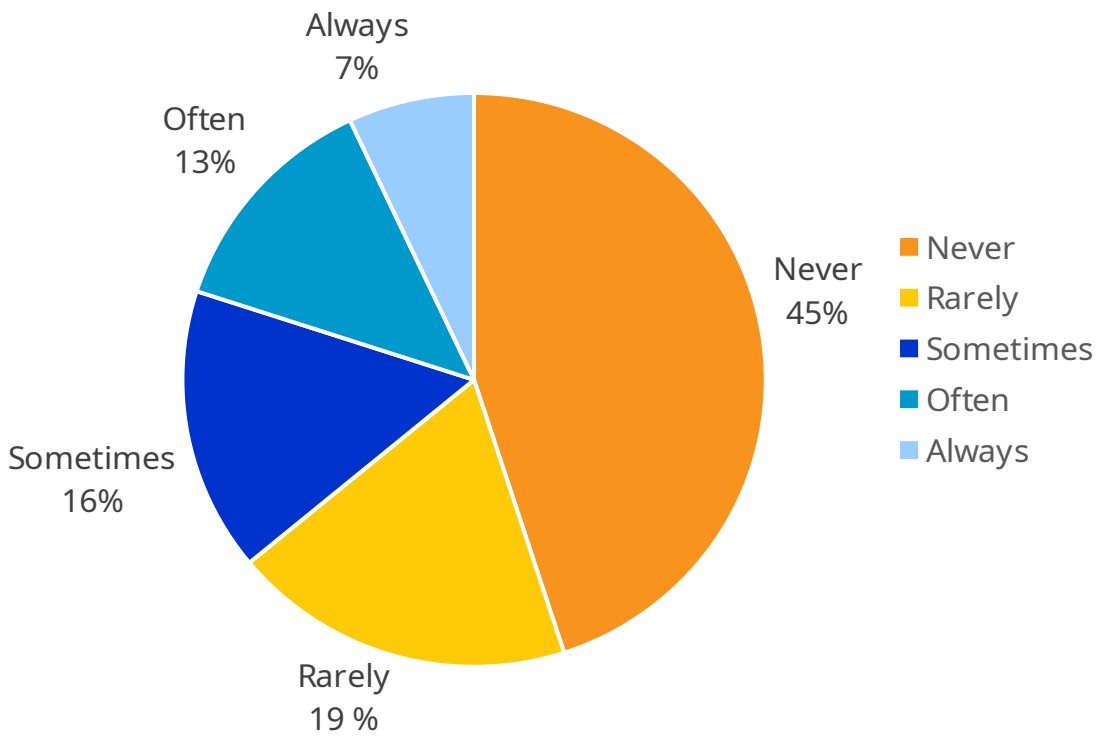
Chapter://1

Complex Problems

We focus on Complex Problems



Planning: The Cost of Traditional BRUF

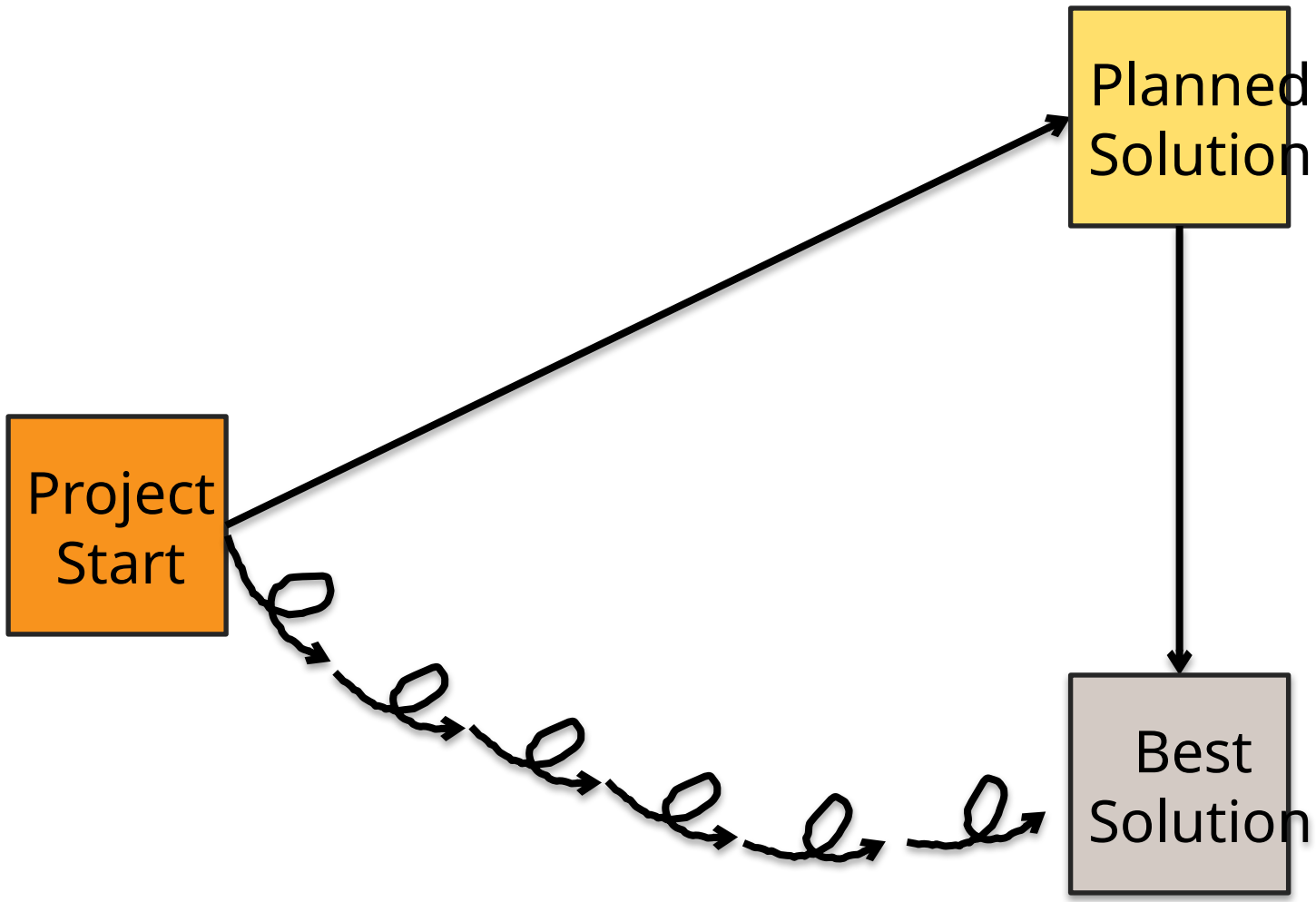


Source: Jim Johnson of the Standish Group
Keynote Speech XP 2002

Idea: Agile Processes

- Reaction to the “bureaucratic” process models
  - Lightweight methodologies (now agile methodologies)
  - Too much process vs. no process
- Apply an iterative and evolutionary approach to development
- Examples
  - Scrum
  - Kanban

Iterations versus Planning



Agile Manifesto

We value:

- individuals and interactions
- working software
- customer collaboration
- responding to change

Over:

- processes and tools
- comprehensive documentation
- contract negotiation
- following a plan

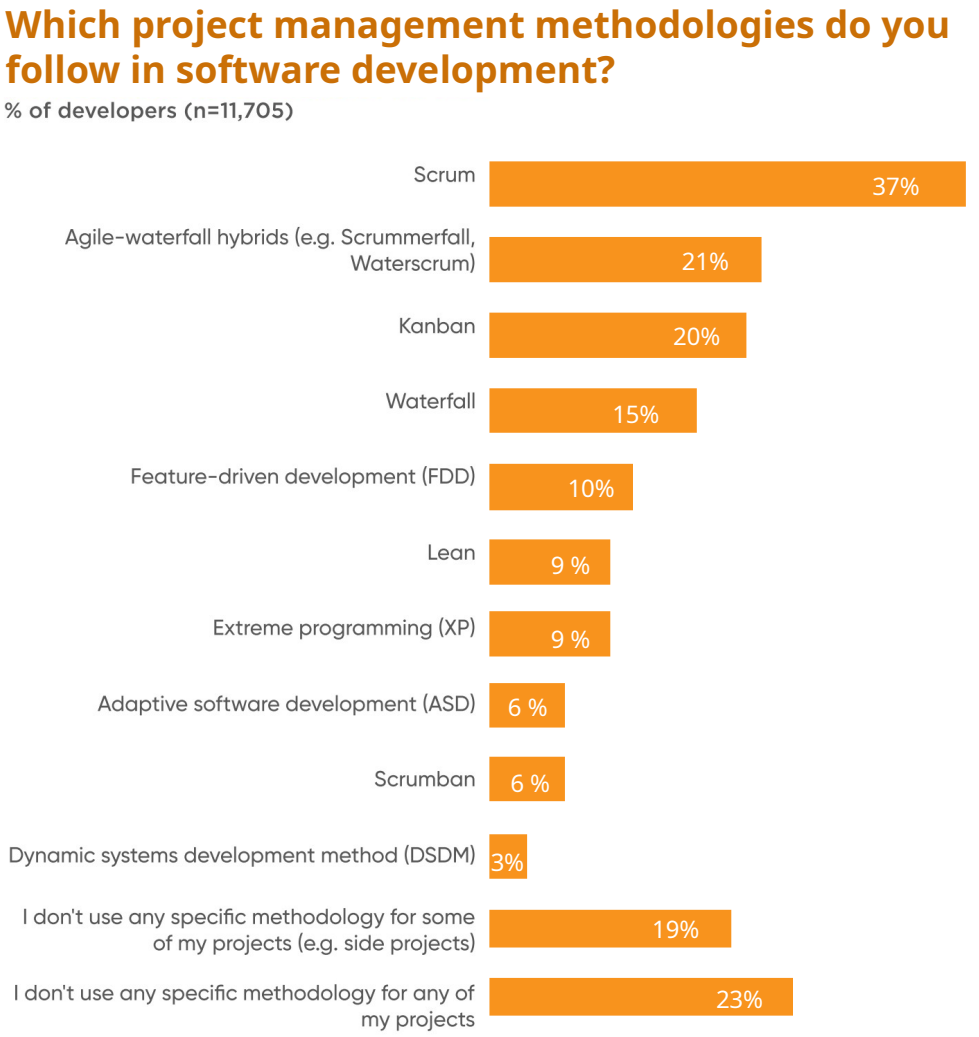
For further information, cf.: http://agilemanifesto.org/

Agile Software Development Methods

More than half (58%) of developers say they follow a project management methodology that can be classified as agile.
Scrum is the leading agile framework, used by 37% of developers.
(SlashData 2019)

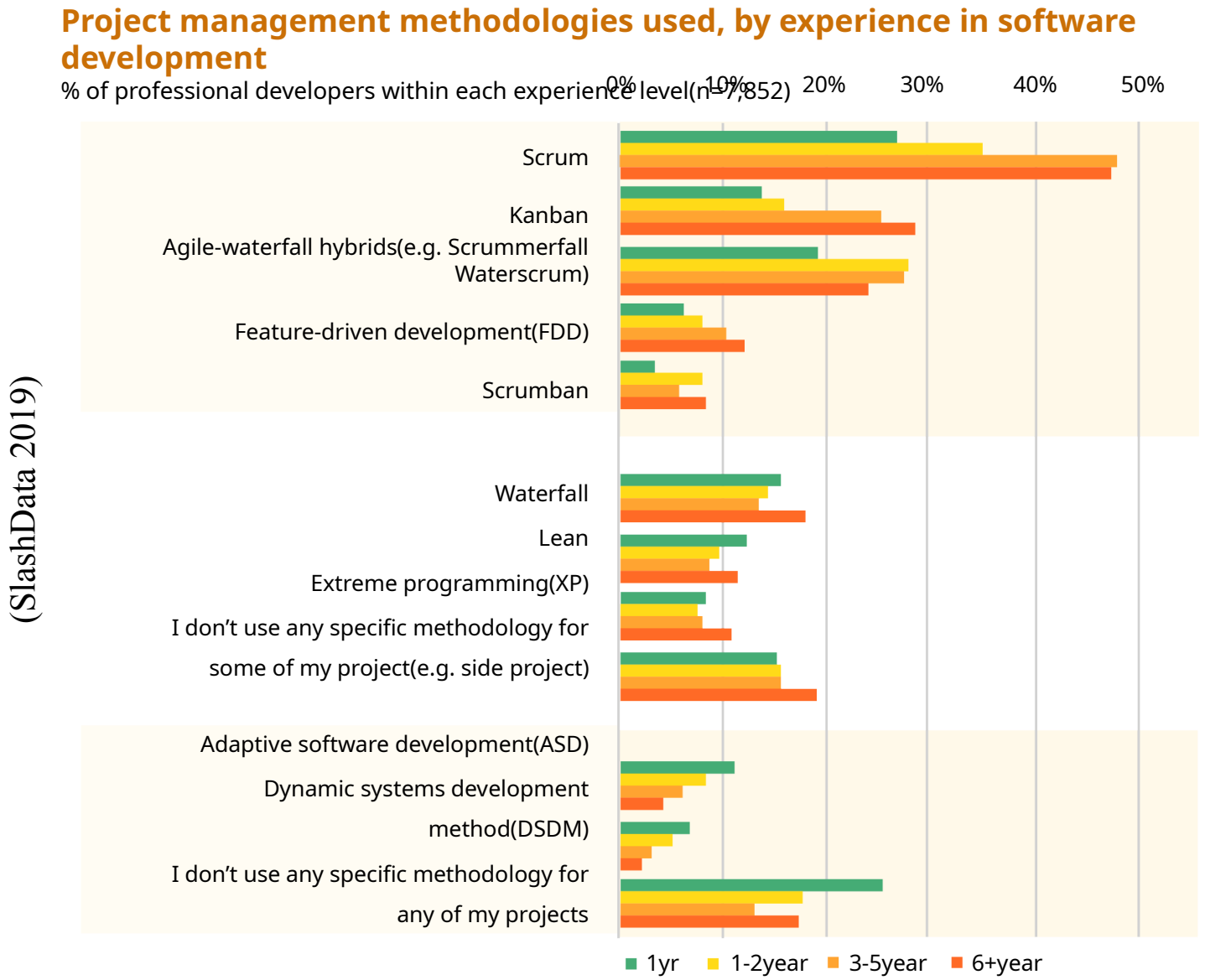
SlashData. 2019. “State of the Developer Nation.” 16th Edition. SlashData Ltd. https://s3-eu-west-1.amazonaws.com/vm-blog/uploads/2019/04/SoN{_}16{_}report.pdf.

Agile Software Development Methods



(SlashData 2019)

Agile Software Development Methods



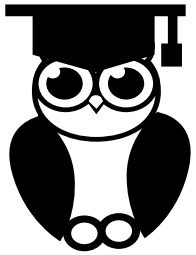
Methods? Wait!

These methods describe *Software processes*

i.e. Roles, Activities, Artifacts

Didn’t you say

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation



Sure, but I didn’t say

- No processes
- No documentation

Homework – Please be prepared!

- **By next lecture:** Find out and understand what Scrum is all about - and how it relates to the agile manifesto's values and principles (https://agilemanifesto.org/)
- The following resource provides a good introduction:
  - Ken Schwaber, Jeff Sutherland (2020):
    The Scrum Guide(
    https://scrumguides.org/docs/scrumguide/v2020/2020-Scrum-Guide-US.pdf)
- Prepare for the discussion in the next live session

Feedback

Your anonymous feedback on today's VSR session:

mytuc.org/ttbw