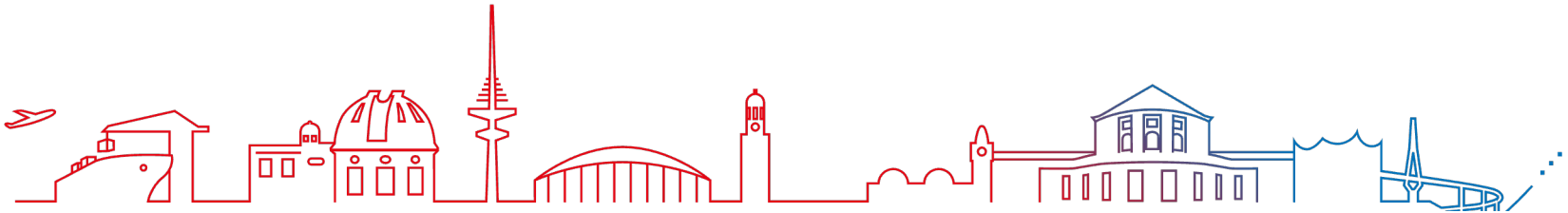
Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG

HOUSE OF COMPUTING & DATA SCIENCE

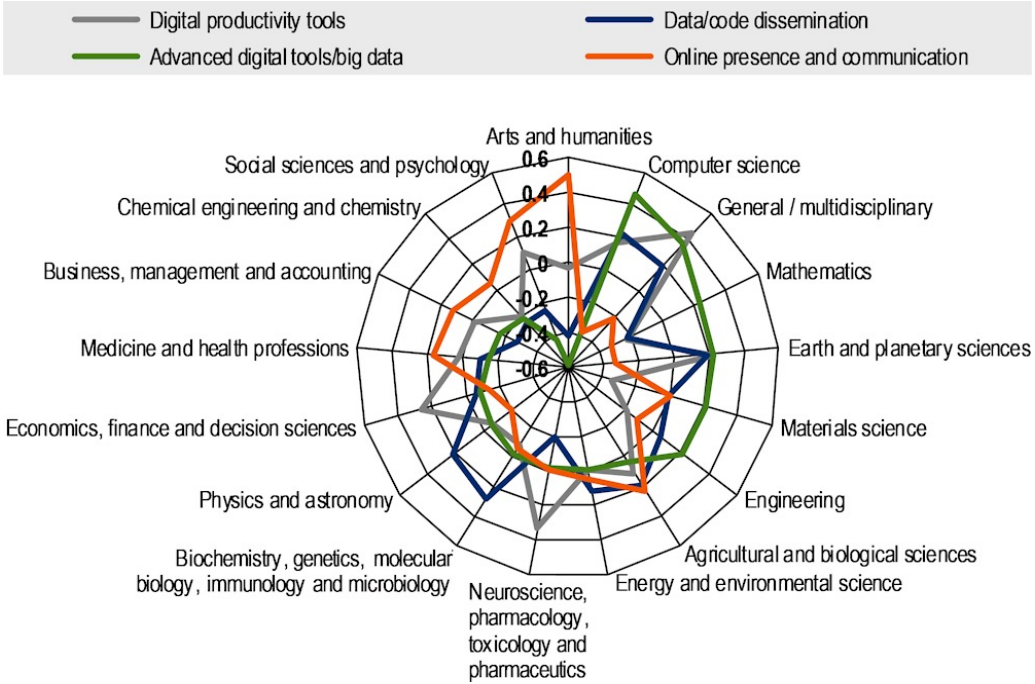


House of Computing and Data Science at Universität Hamburg
Setting the Stage for Research Software Engineering

5.3.2024

Katrin Schöning-Stierand, Martin Semmann, and Chris Biemann

Digital transformation happens very heterogeneously



Notes: This is an experimental indicator. This figure presents average scores for four latent factors representing different facets of digitalization for each scientific field. The factor analysis is based on responses by scientists to 36 questions relating to digital or digitally-enabled practices. These are combined in four synthetic indicators that have been normalized to have an overall zero average and identical variance.

How to read this figure: computer science's highest score for the factor representing the use of advanced digital tools (grey line) represents high relative intensity on this facet. Conversely, low relative intensity is seen on the digital facet representing online presence and communication (orange line) for scientists in this area.

Source: Bello, M., & Galindo-Rueda, F. (2020). *Charting the digital transformation of science: Findings from the 2018 OECD International Survey of Scientific Authors (ISSA2)*. OECD. https://doi.org/10.1787/1b06c47c-en

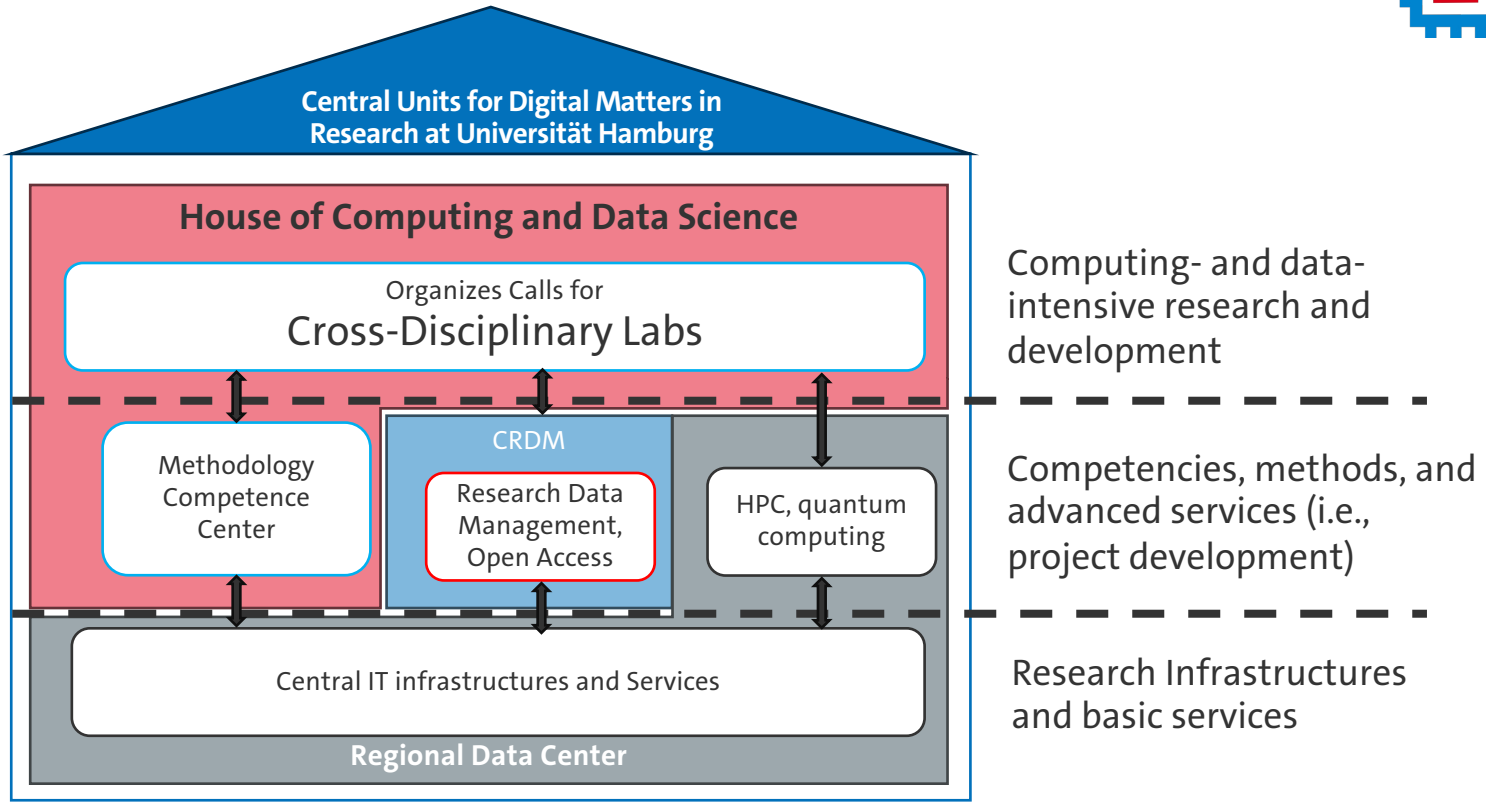
StatLink https://doi.org/10.1787/888934075906

Suggested solution: “House of Computing and Data Science”

The **HCDS**

- central institution of the Universität Hamburg
- supports interdisciplinary research and application of innovative digital methods
- coordinates and supports the implementation of the digital strategy in research at the Universität Hamburg
- Fuels the easy adoption, usage, and research of digital methods in its Methodology Competence Center
- Offers various disciplines and projects a forum for the exchange of information and collaboration at the interface between methodological sciences and applied sciences in the Cross-Disciplinary Labs

Structure of the House of Computing and Data Science



Offerings of HCDS

Consultation in the Methodology Competence Center

- Clarification of the research subject
- Methodological status quo in application discipline
- Outlining requirements and pointing to potential solutions

01

Offerings of HCDS

House of Computing & Data Science

Service- & Third-Party Funded Projects

- Systematic development of projects based on consulting
- Check for potential of co-financing & third-party funding
- Systematic project development with application discipline

→ „Digital knowledge sociological discourse analysis“ cooperation with emp. Cultural studies

02

Offerings of HCDS

House of Computing & Data Science

Cross-Disciplinary Labs

- Interdisciplinarity at the Eye Level
- Aim for long-lasting, interdisciplinary cooperation
- Aim of knowledge generation in application discipline and methodological discipline
- Feedback in the methodology competence center for dissemination

03

Methodology Competence Center

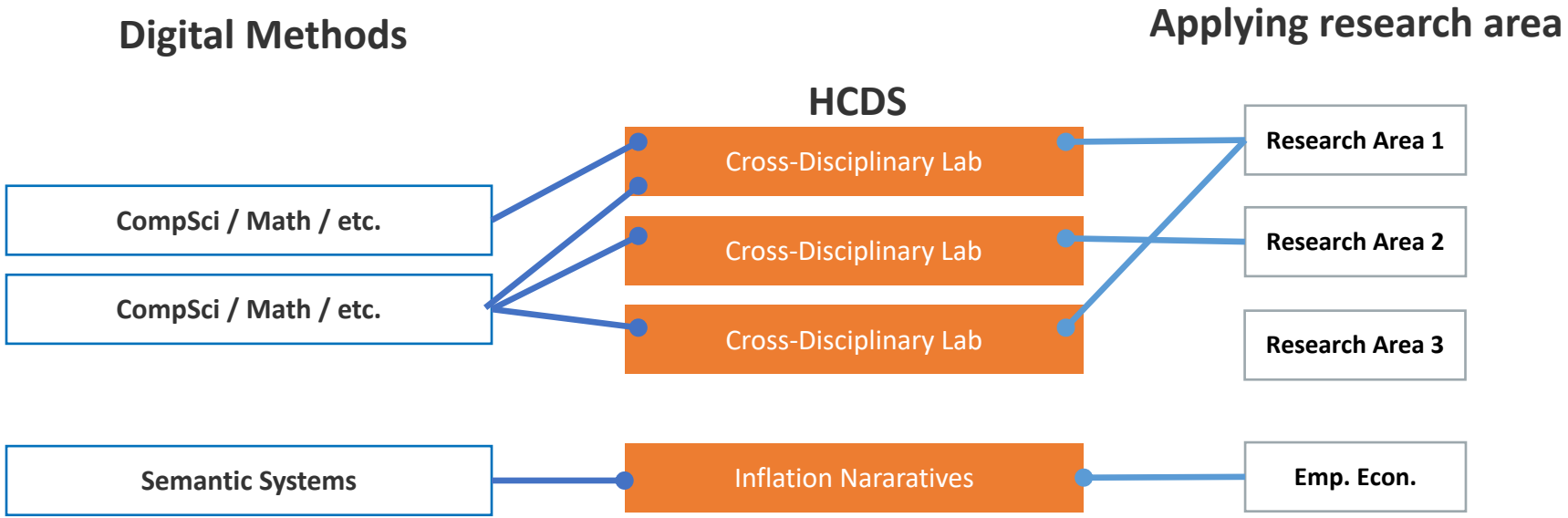
- Teaching in the field of AI / ML / Software Engineering etc.
- Consultation on digital research methods and application potential
- Implementation support and conception of digital solutions
- Application of data science methods and analysis as a service

Python / Gitlab for everyone

Musicology: scraping of song texts from the internet

Quantitative law studies: chains of citations in “Ständiger Rechtsprechung”

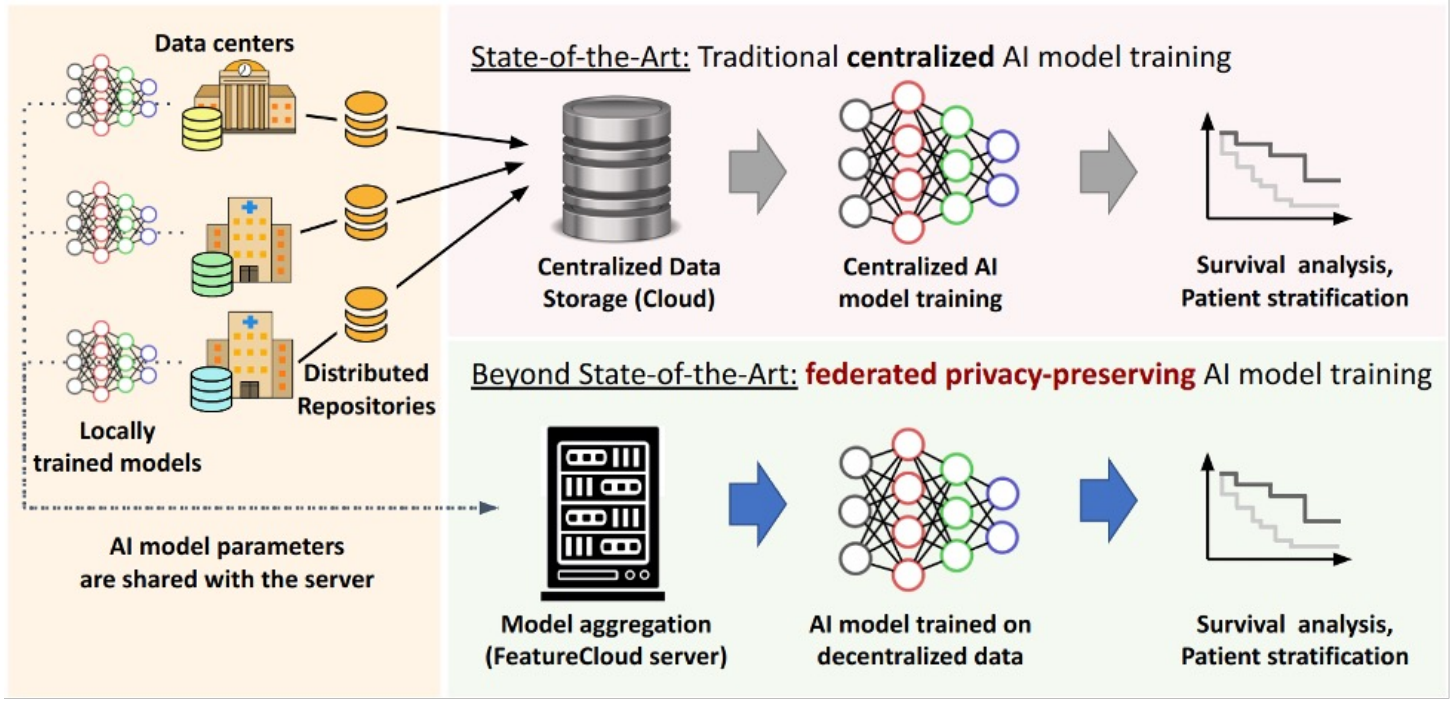
Cross-Disciplinary Labs (CDLs) – Interdisciplinary cooperation on equal terms



CDL example: FLIGHT - Federated Learning-Guided digital Health

- **Cooperation Partners**
  - Center for Molecular Neurobiology Hamburg (ZMNH) at the University Medical Center Hamburg-Eppendorf (UKE)
  - Center for Bioinformatics, Computational Systems Biology
  - Institute of Pathology with the Sections Molecular Pathology and Cytopathology at the University Medical Center Hamburg-Eppendorf (UKE)

CDL example: FLIGHT - Federated Learning-Guided digital Health



CDL example: Predicting COVID-19 Vaccination Uptake from Public Discourse - A Machine Learning Approach

- **Cooperation Partners**
  - Hamburg Center for Health Economics and Faculty of Business Administration
  - English Department, Faculty of Humanities

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