DdA Digitalization of working worlds

DFG Deutsche Forschungsgemeinschaft

2C-NOW

COLLABORATION & COORDINATION IN NETWORKS OF WORK

Visualising Collaborative Activities:

Online Meetings and Social Documents

	May 2023					June 2023					July 2023					August 2023				
	1*	2	3	4	5				1	2	3	4	5	6	7		1	2	3	4
Mon	Tue	Wed	Thu	Fri	8	9	10	11	12	5	6	7	8*	9	10	11	12	13	14	7	8	9	10	11
Mid-April 2023					15	16	17	18*	19	12	13	14	15	16	17	18	19	20	21	14	15	16	17	18
17	18	19	20	21	22	23	24	25	26	19	20	21	22	23	24	25	26	27	28	21	22	23	24	25
24	25	26	27	28	29*	30	31			26	27	28	29	30	31					28	29	30	31	

September 2023					October 2023					November 2023					December 2023					January 2023				
				1	2	3*	4	5	6			1*	2	3					1	1*	2	3	4	5
4	5	6	7	8	9	10	11	12	13	6	7	8	9	10	4	5	6	7	8	8	9	10	11	12
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25	26	27	28	29	30	31				27	28	29	30		25*	26*	27	28	29	29	30	31		

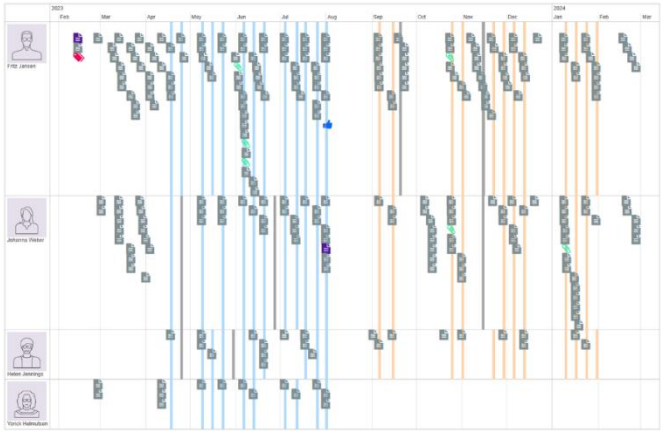
Legend: Remote | Face-to-face | Cancelled

Days marked with * are public holidays

University of Koblenz

Jennifer Gerbl, Julian Mosen,
Petra Schubert, Susan P. Williams

university of koblenz



Long-term research programme

Enterprise collaboration technologies and the design of the digital workplace

- Examines sociotechnical change and the **design of digital workplaces**
  - shaping and reshaping of working worlds and the **appropriation and use of information and communication technologies to support distributed collaborative work**
- **Distributed collaborative work** in organisations has significantly increased in both **scale, scope and complexity** (esp. post-COVID19 pandemic)
  - Wider **range of employees involved** (Milasi et al., 2021; Eurofound, 2022)
  - Greater **diversity of working arrangements** (Ferreira et al., 2021; Smite et al., 2023)
  - Increasingly **complex collaboration technology landscape** (Vailshery, 2022, Schubert and Williams 2022)
- **Work practices and work processes are being redesigned and reshaped as working arrangements and technologies change**

Research challenge: making distributed collaborative work visible (visualisable, analysable and interpretable)

"The way in which people work is not always apparent. Too often, assumptions are made as to how tasks are performed rather than unearthing the underlying work practices. By making (collaborative) work visible, designers create a more intimate view of the workplace landscape." (Suchman, 1995)

> *"Allow researchers to carefully follow coordination practices, information flows, situated routines, and other social and organizational phenomena across a variety of scales."* (Geiger and Ribes, 2011)

Theoretical and analytical challenge

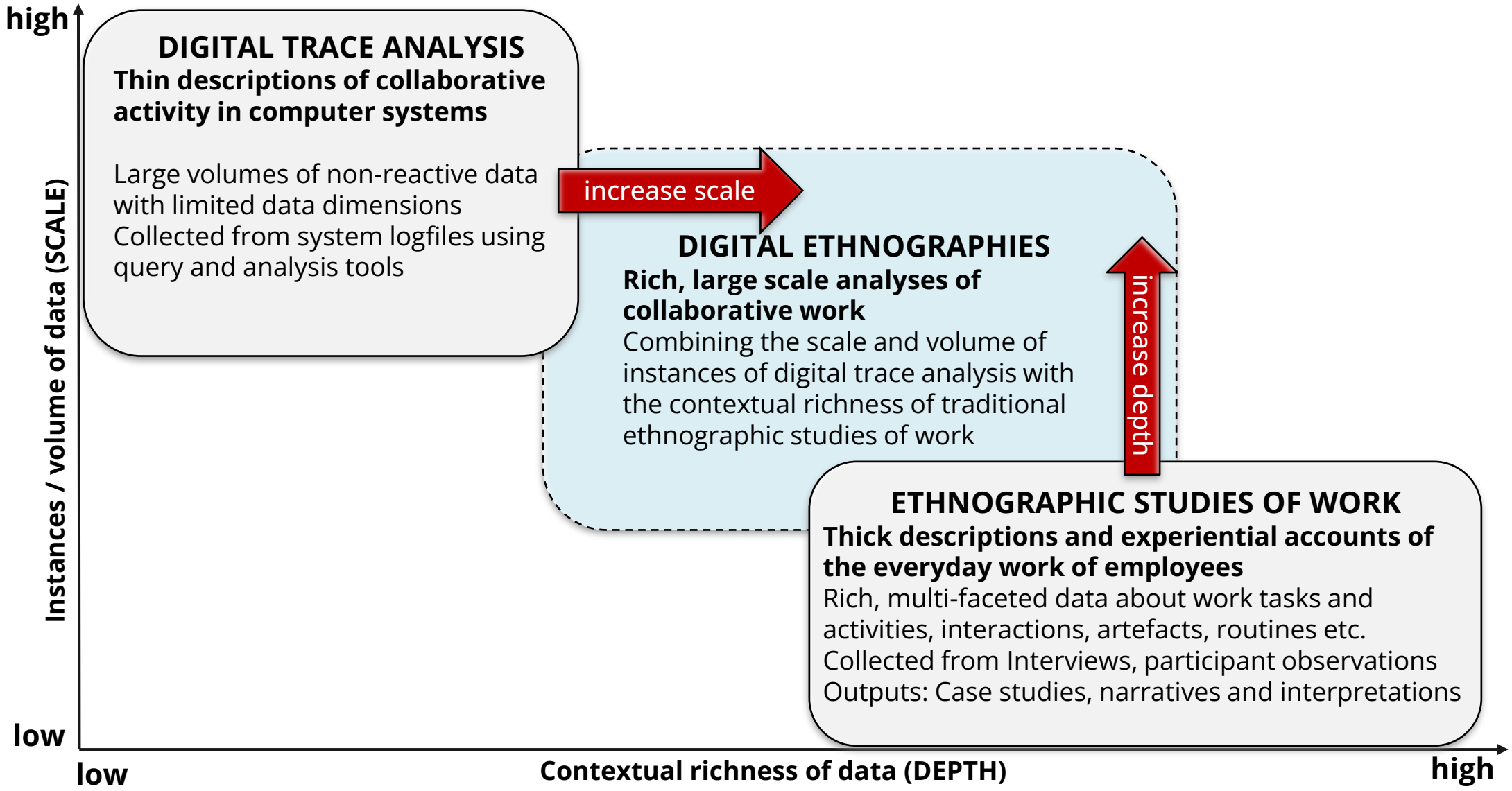
To traverse between scales and levels (**situated workplace studies → information infrastructures**) over extended timeframes **(longitudinal view)**

Methodological challenge

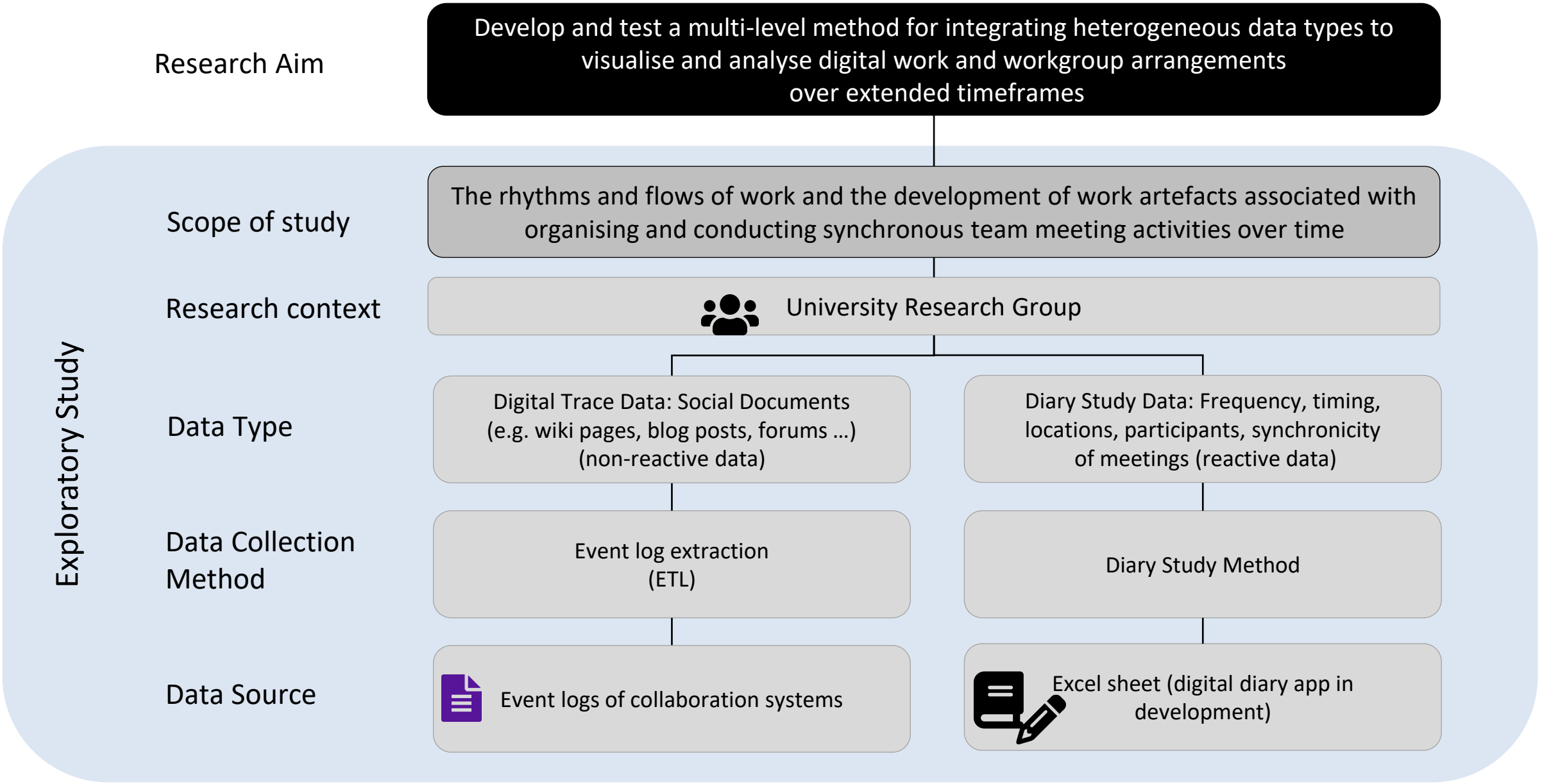
To develop research methods that enable us to capture, visualise and analyse collaborative work in-depth and across space and time

To integrate heterogeneous data types representing different dimensions of distributed collaborative working

Data integration: methodological innovation to enable rich, large-scale analyses of collaborative work



Research Study Design



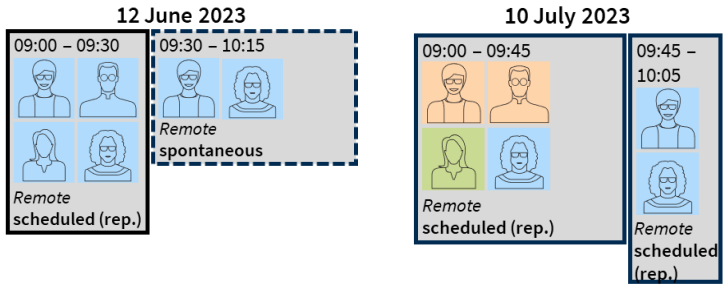
Social Documents as “Trace Data”

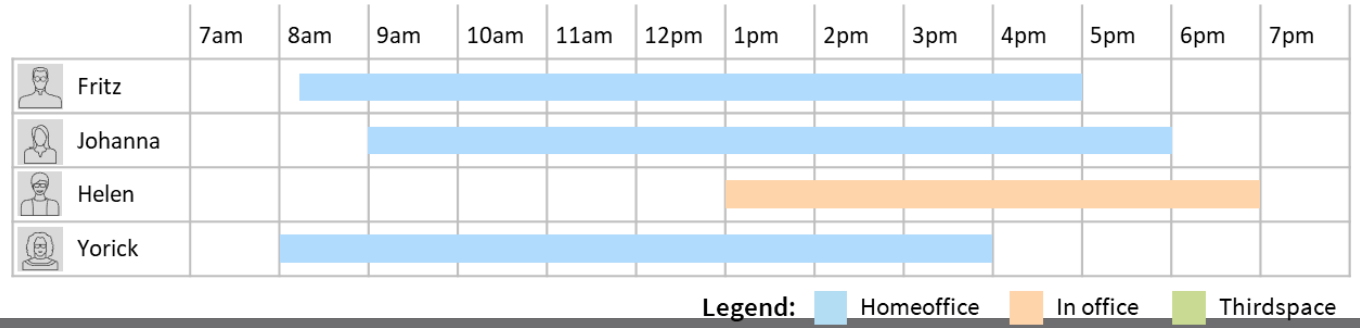
- **User-generated** digital artefacts for **collaboration** and **communication**
  - Wiki articles, blog posts, forum discussions, chat messages, shared and commented documents, …
- **Social, compound** and **highly networked** documents
  - Social: Enriched and edited by many users over time
  - Compound: Versions and histories, comments and attachments, tags, …
  - Networked: References and links to other documents, shared with workgroups and single users
- Data source for **Trace Ethnographic Studies**
  - Aims at reconstructing ***“patterns and practices of users** in **distributed sociotechnical systems**” and “combines the richness of participant-observation with the wealth of data in logs”* (Geiger and Ribes, 2011)
- General problem of **non-reactive data**: not immediately ready for analysis and limited contextual information
  - *“can rarely be accepted as found evidence ready for analysis. Researchers tend to **put significant time into preparing trace data** before they can dive into a deeper investigation.” (*Østerlund et al., 2020)

Example of a wiki article in HCL Connections (Hausmann and Williams, 2016)

Diary Study Data

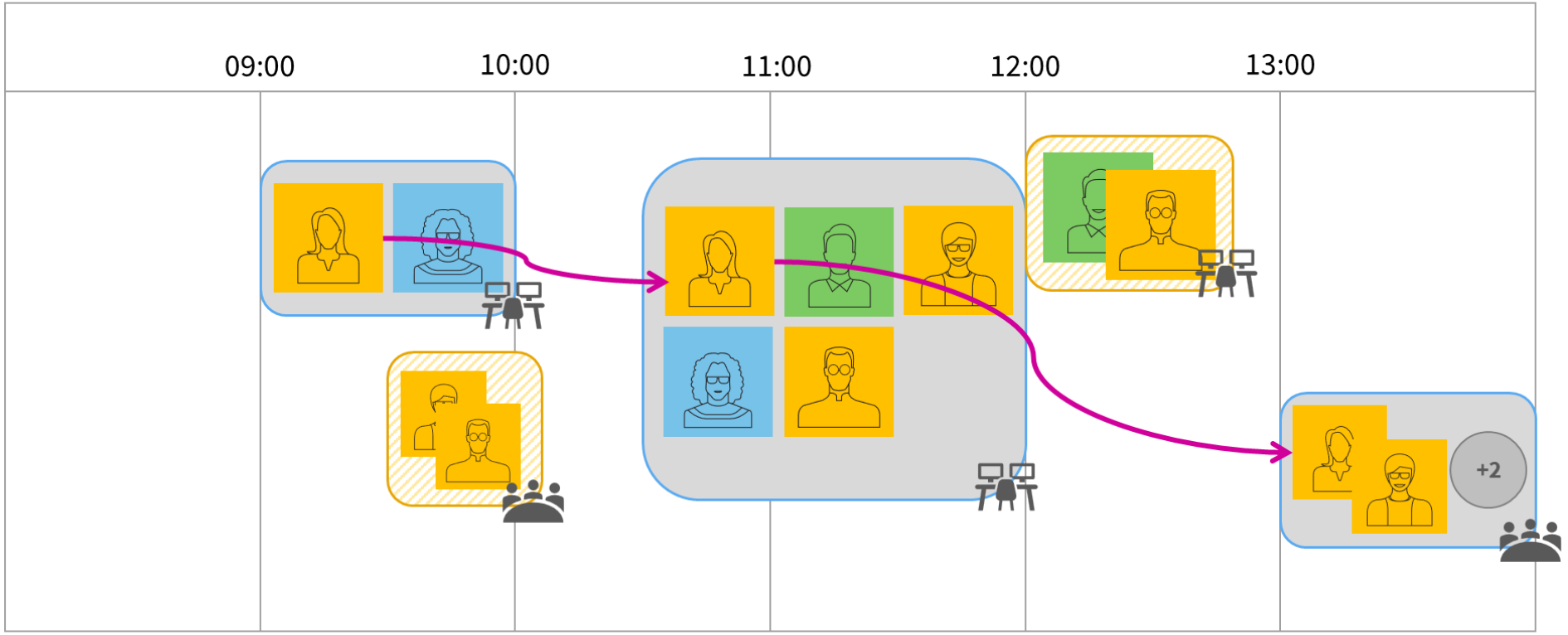
- Diary method for capturing **in-situ contextual** and **longitudinal** details about everyday work and situated practices (Czerwinski et al., 2004; Jarrahi et al., 2021)
  - Time diary as research tool for investigating patterns and behaviours over a defined period of time (Bartlett & Milligan, 2015)
  - Minimized recall bias (Hyers, 2018; Jarrahi et al., 2021)
- Our ongoing diary study captures the **daily work location and work times** as well as **synchronous work periods and events** (e.g. meetings)
  - Captured as time diary via Excel spreadsheets
  - One workgroup (ten participants, multiple subgroups)
  - Started mid-April 2023, ongoing → almost one year of data
  - Distributed and hybrid work from an **individual perspective**, but also from a **workgroup level**





Diary Study

Team Meeting Constellations & Flow



Type of meeting

- Spontaneous meeting
- Scheduled meeting

Location of meeting

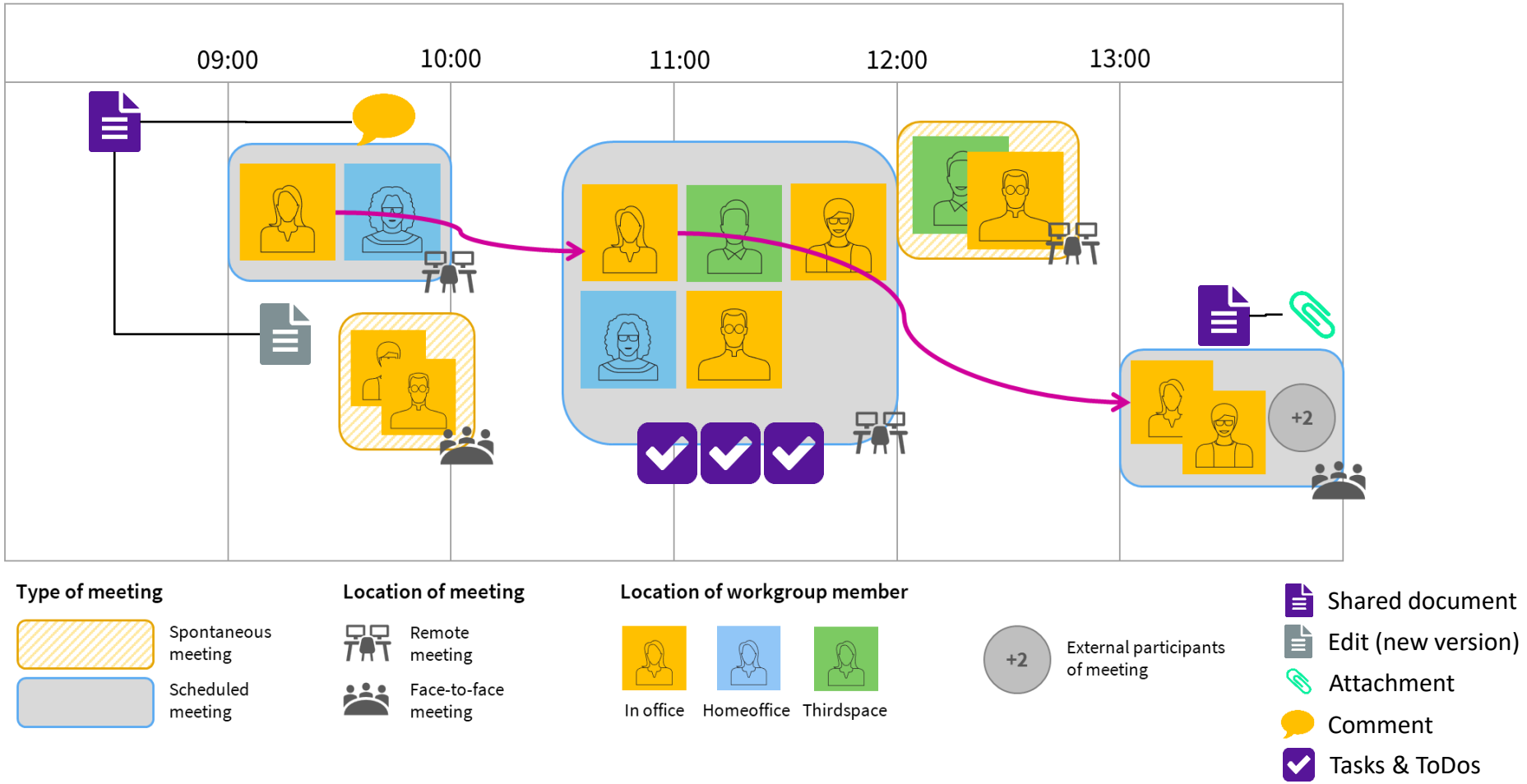
- Remote meeting
- Face-to-face meeting

Location of workgroup member

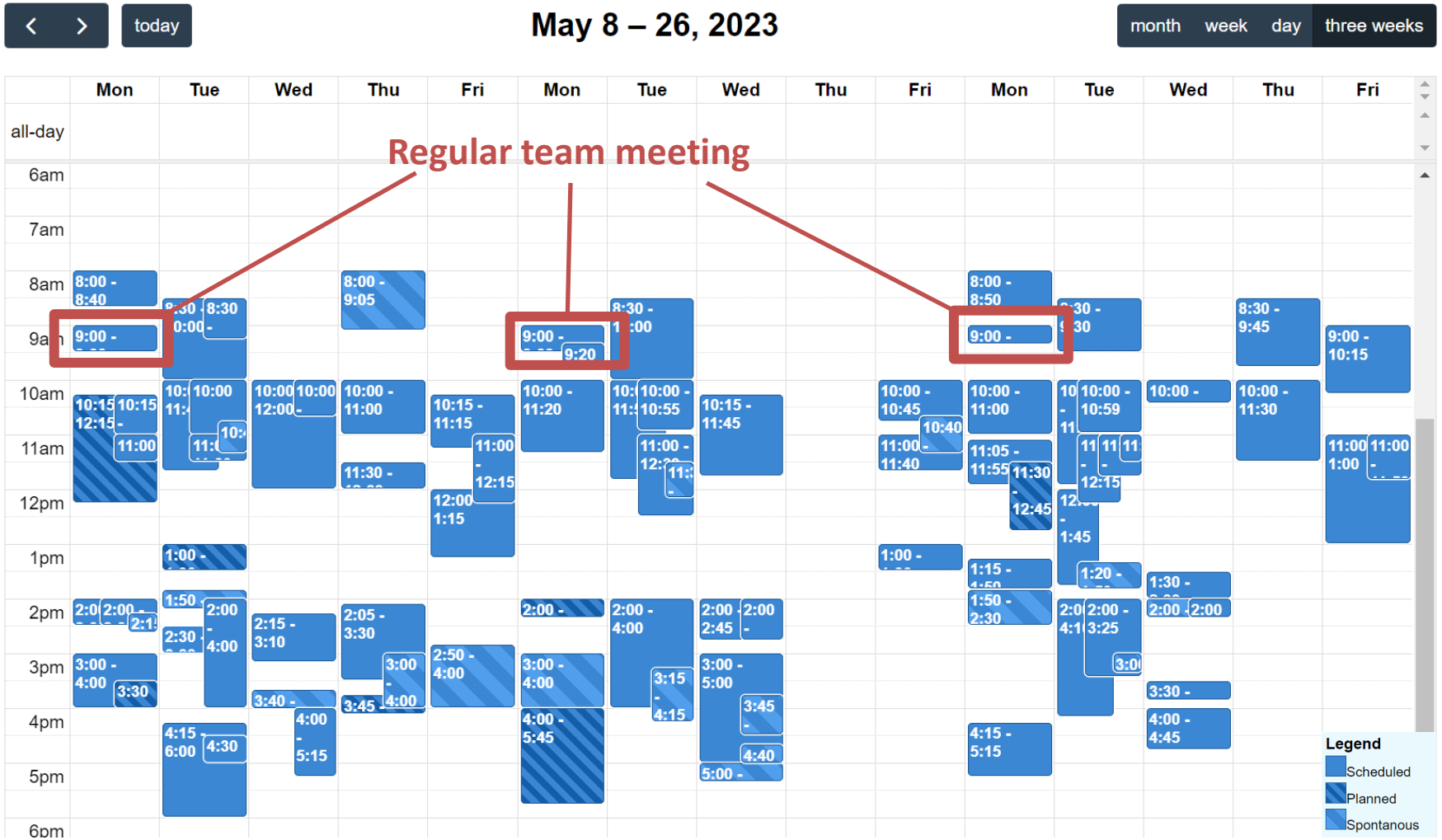
- In office
- Homeoffice
- Thirdspace

+2 External participants of meeting

Objective: to combine diary data and trace data



Scope of this study



Long-term diary study:
Period of data collection:
Mid-April 2023 – today

Participants:
1 workgroup, multiple subgroups, 10 participants (university research group)

Location entries: > 1830 entries
Meeting entries: > 2097 meeting entries, 1209 distinct meetings (as at end of January 2024)

Data selected for this study:
Period of data collection: (290 days)
Mid-April 2023 – January 2024

Participants:
1 subgroup with four members

Location entries: 863 entries
Meeting entries: 103 meeting entries, 40 distinct meetings

Diary Study Data for the “Regular Team Meeting”

Mon	Tue	Wed	Thu	Fri	May 2023					June 2023					July 2023					August 2023				
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Legend: Remote, Face-to-face, Cancelled

Days marked with * are public holidays

12 June 2023

09:00 – 09:30 *Remote* **scheduled (rep.)**

09:30 – 10:15 *Remote* **spontaneous**

10 July 2023

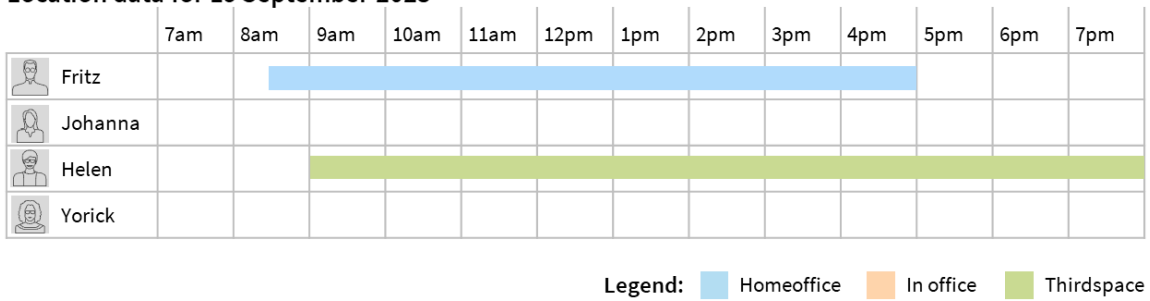
09:00 – 09:45 *Remote* **scheduled (rep.)**

09:45 – 10:05 *Remote* **scheduled (rep.)**

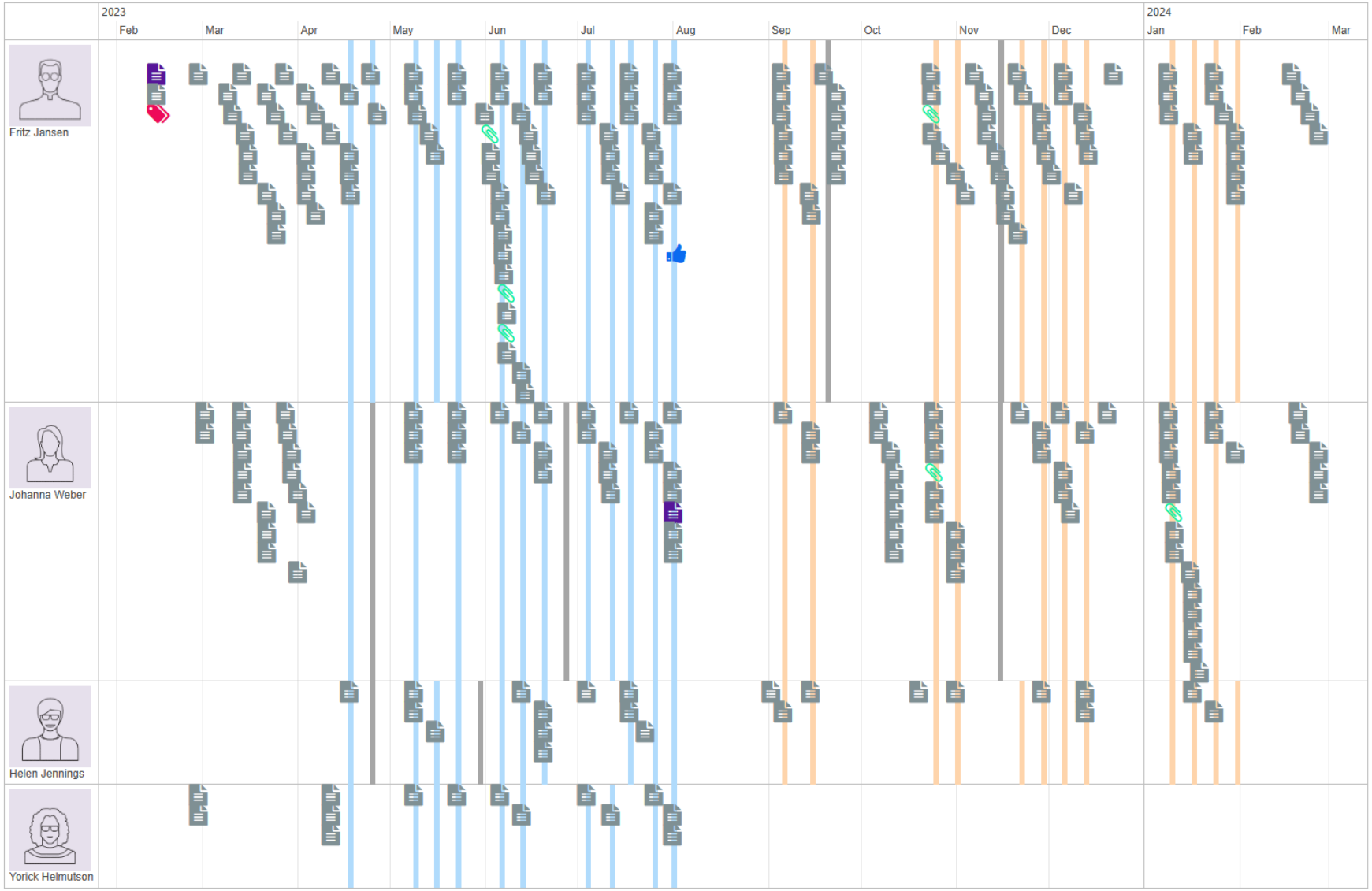
9 January 2024

09:00 – 09:40 *Face-to-face* **scheduled (rep.)**

Location data for 19 September 2023



Timeline Application – Overview



Data source 01 – HCL Connections:

Last data refresh	Days since last refresh
06.03.2024 13:13:45	2

3718 Accounts	1909466 Events
2430 Spaces	119 Organisations

Data source 02 – Diary data:

diary_id	meeting name	count
JAL		268
JGE		220
JMO		207
MJU		264
PSC		207
SBA		141
SGR		85
SME		204
SWI		245
		1841

Filter:

Fritz | Johanna | Helen | Yorick | Wiki | 2023-2024

Workgroup members

Legend

- Wiki Page
- Wiki Page Version
- Comment
- Attachment
- Recommendation
- Tag

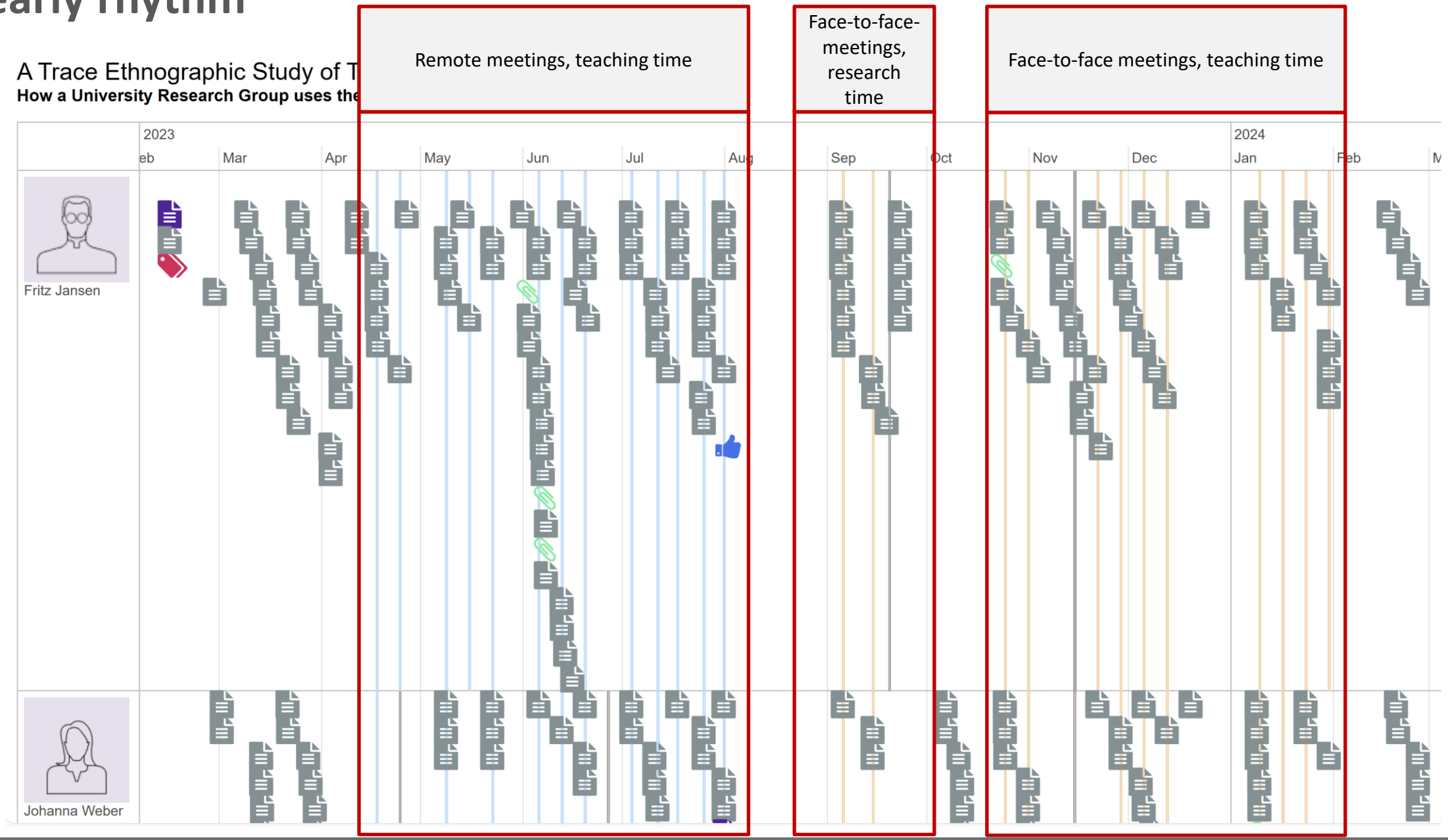
Item types

- Remote Meetings
- Face-to-Face Meetings
- Cancelled Meetings

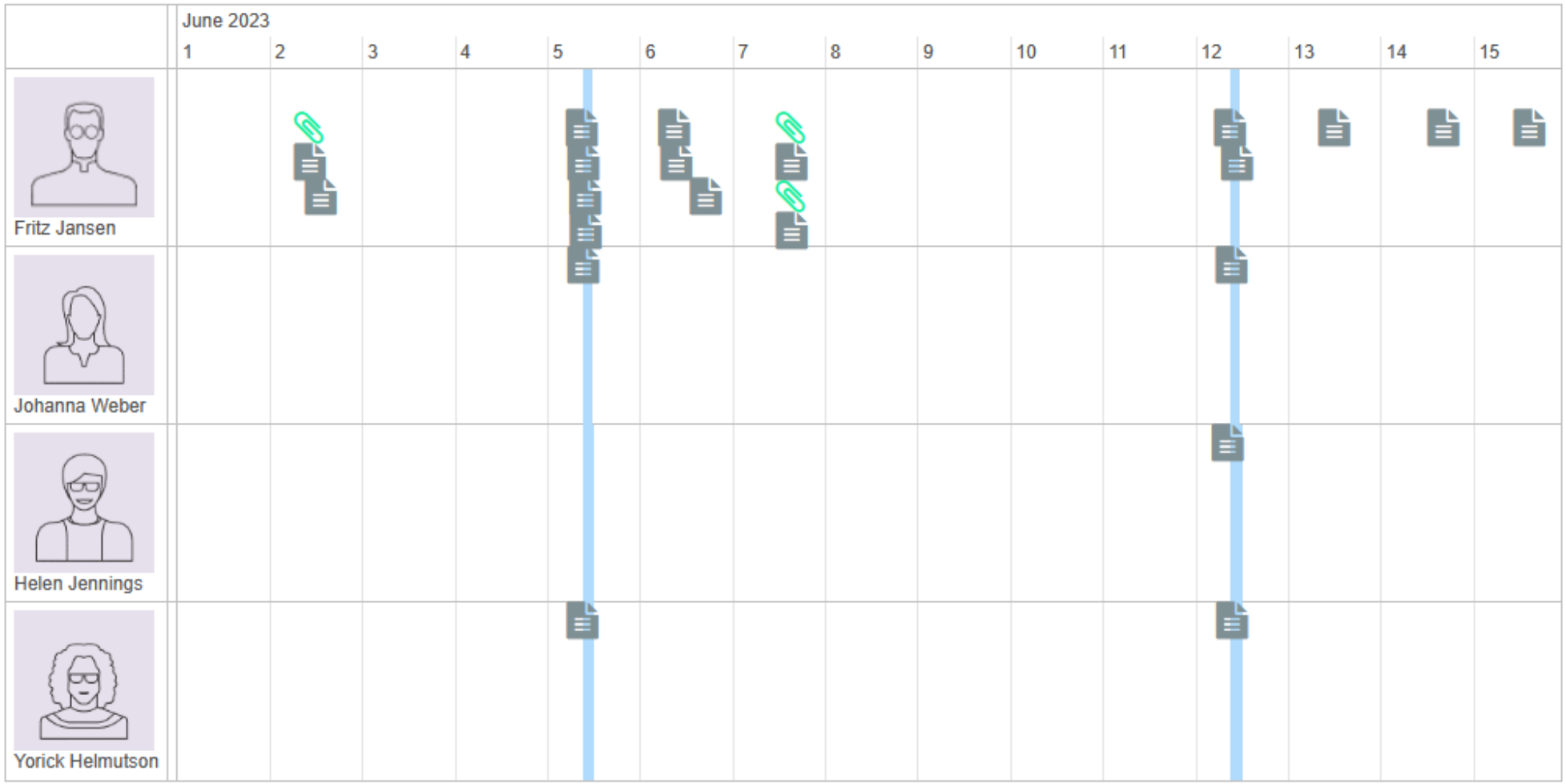
Diary data

https://bas.uni-koblenz.de/ceir/diary-study.nsf/timeline.xsp

Yearly rhythm



Recurring meetings



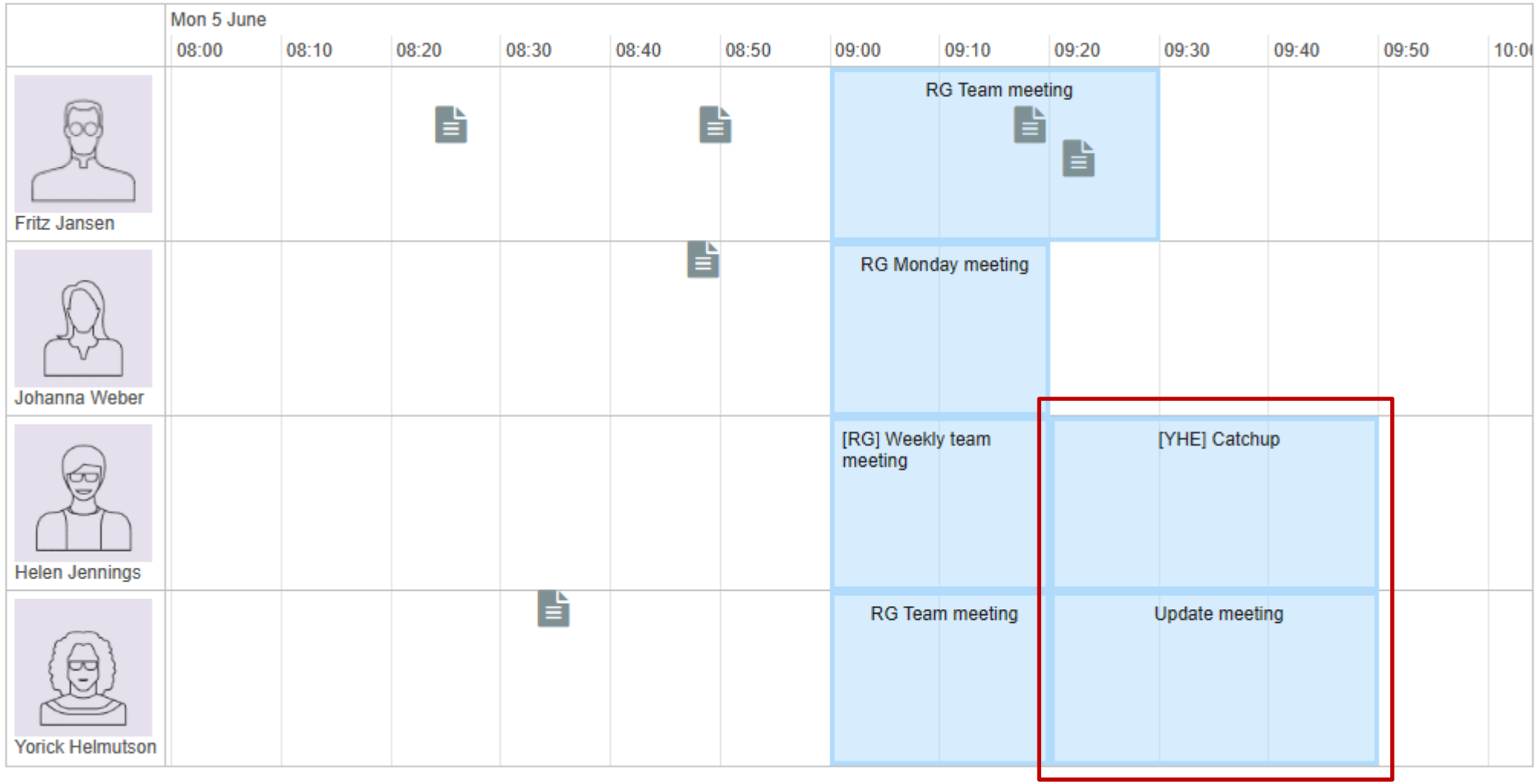
Filter:

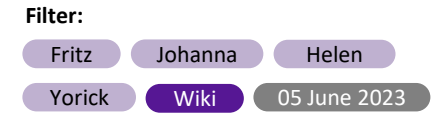
Fritz | Johanna | Helen | Yorick | Wiki | June 2023

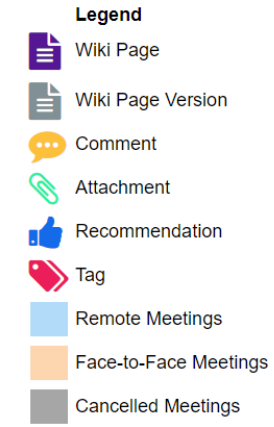
Legend

- Wiki Page
- Wiki Page Version
- Comment
- Attachment
- Recommendation
- Tag
- Remote Meetings
- Face-to-Face Meetings
- Cancelled Meetings

Spontaneous online meetings

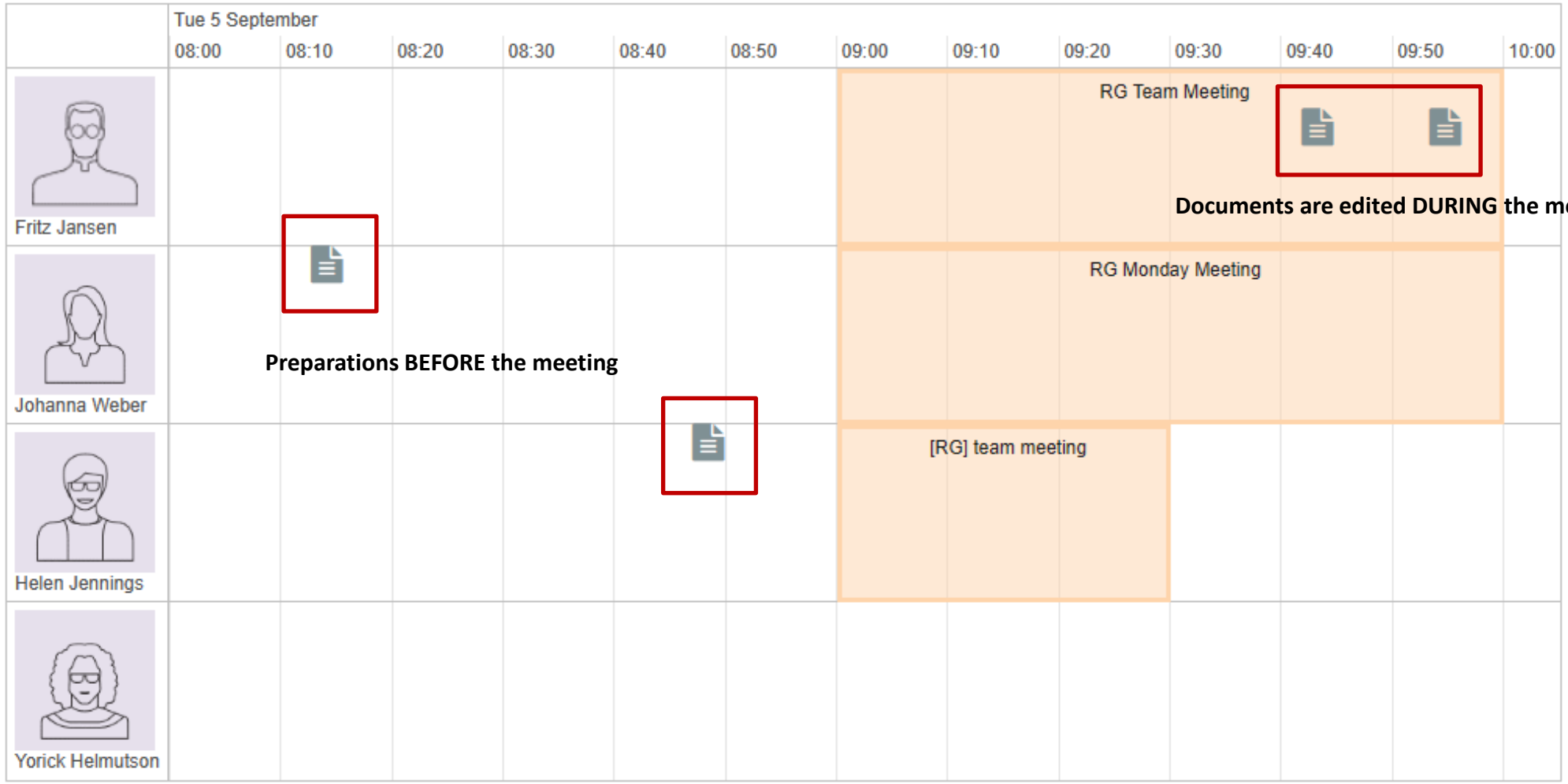






“Can you stay in the room” phenomenon

Meetings provide CONTEXT, content contribution indicates ROLE



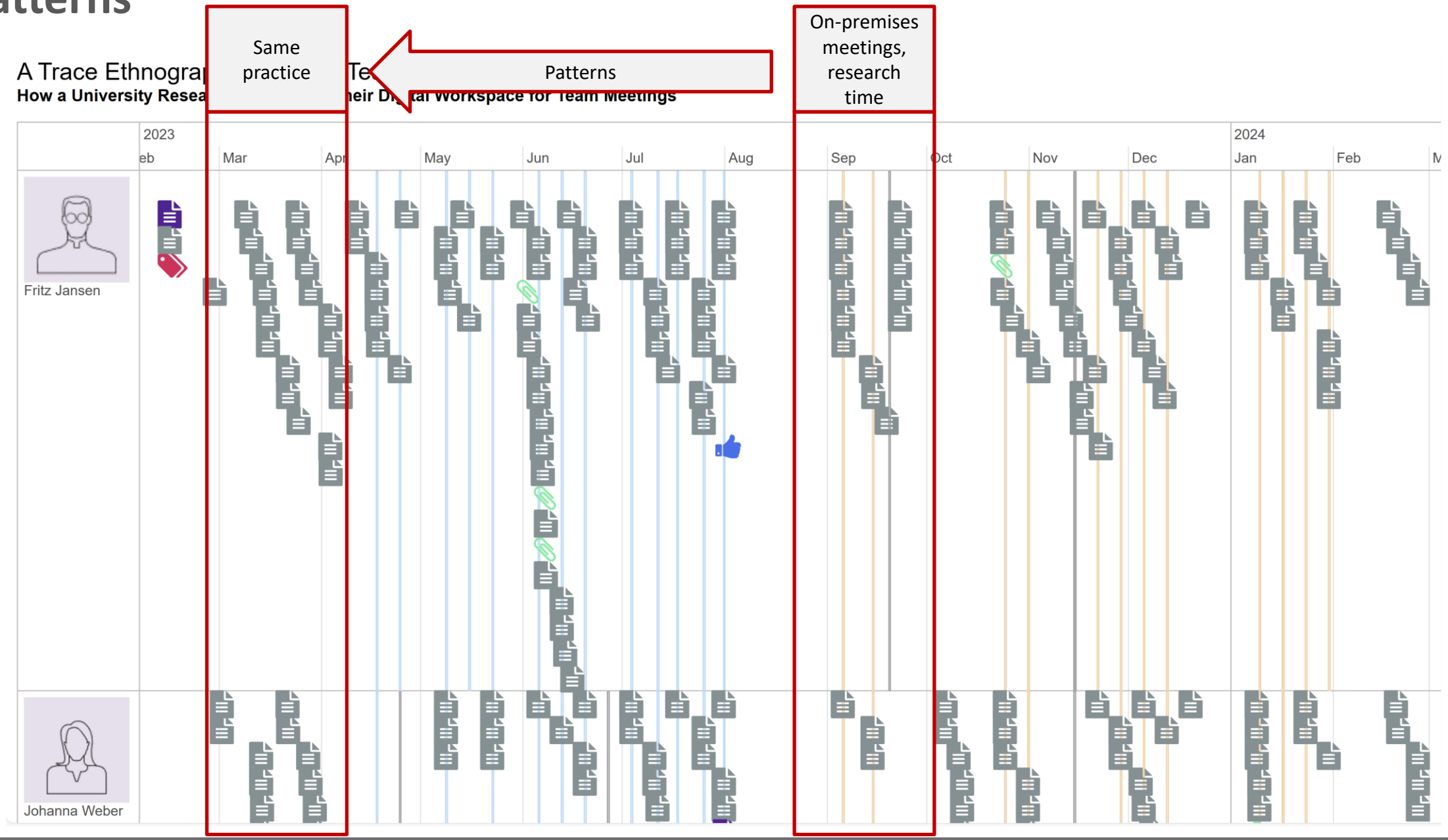
Filter:

Fritz | Johanna | Helen | Yorick | Wiki | 05 Sept 2023

Legend

- Wiki Page
- Wiki Page Version
- Comment
- Attachment
- Recommendation
- Tag
- Remote Meetings
- Face-to-Face Meetings
- Cancelled Meetings

Patterns


Same practice
Patterns
On-premises meetings, research time
2023
eb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2024
Jan
Feb
Fritz Jansen
Johanna Weber

Summary and outlook

- Developed and tested a **novel method** that brings **two types of heterogeneous data** together (diary entries & digital trace data) and allows for a **longitudinal** analysis across **different levels of abstraction**
- The method now enables the identification and analysis of …
  - work locations --> activity-based working
  - patterns and timing of synchronous and asynchronous working --> rhythms and flows, work interruptions,
  - role and importance of documents and work products --> document theory
  - work conducted in preparation for, during and following specific meetings --> articulation work, transitions and handoffs
  - patterns, shifts and changes in work processes and practices --> new roles, routine dynamics
  - longer term begin to understand the processes of standardisation and embeddedness
- Next steps for the method and tool
  - Examine complexity of distributed collaborative work on a larger scale by including
    - further data types, documents and tools
    - extending timeframes
    - improving visualisations, filtering and transitioning between levels
    - longer term development of Content Rich Data Spaces (CoRDS))

Thank you for your attention!

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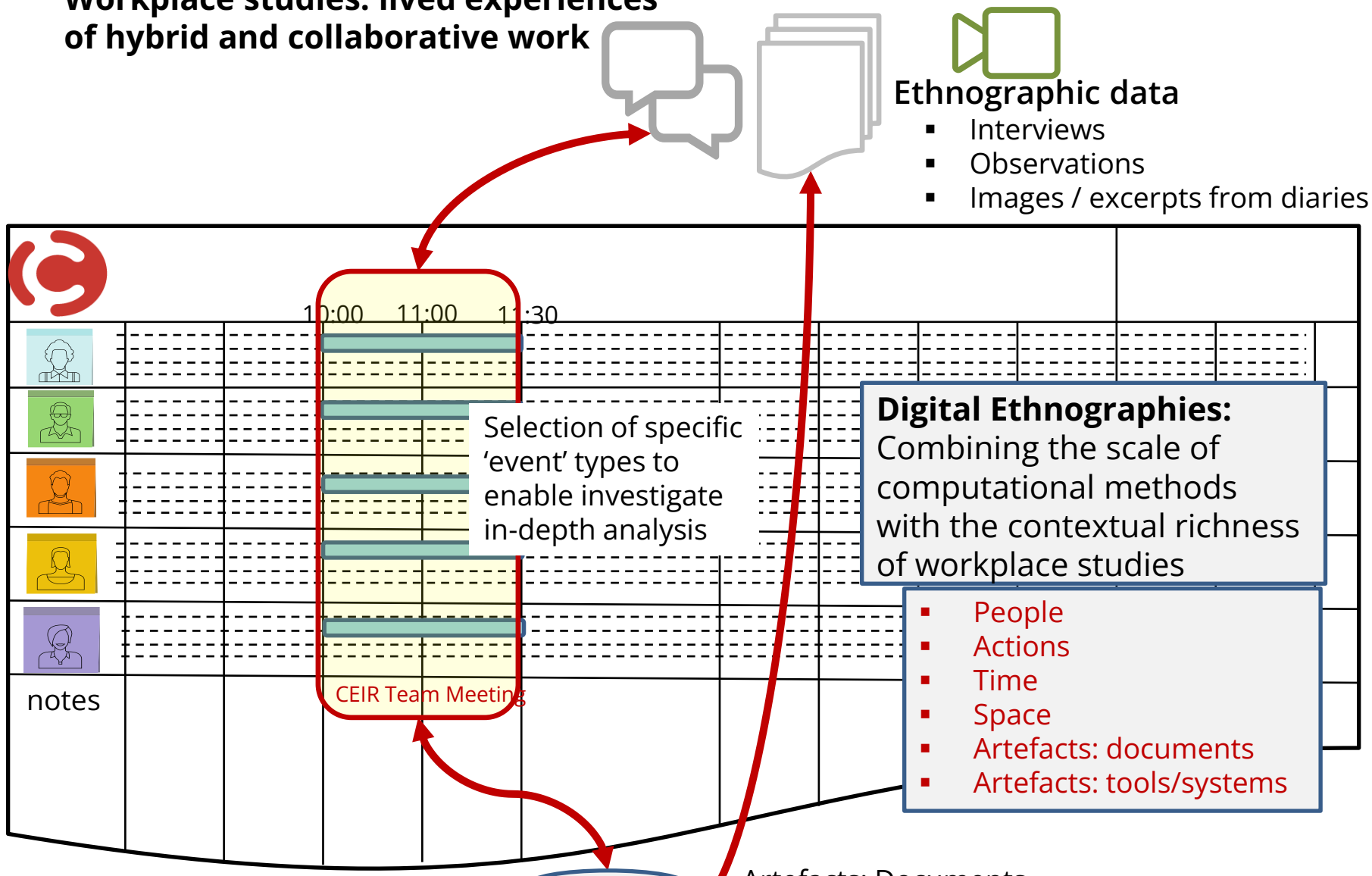
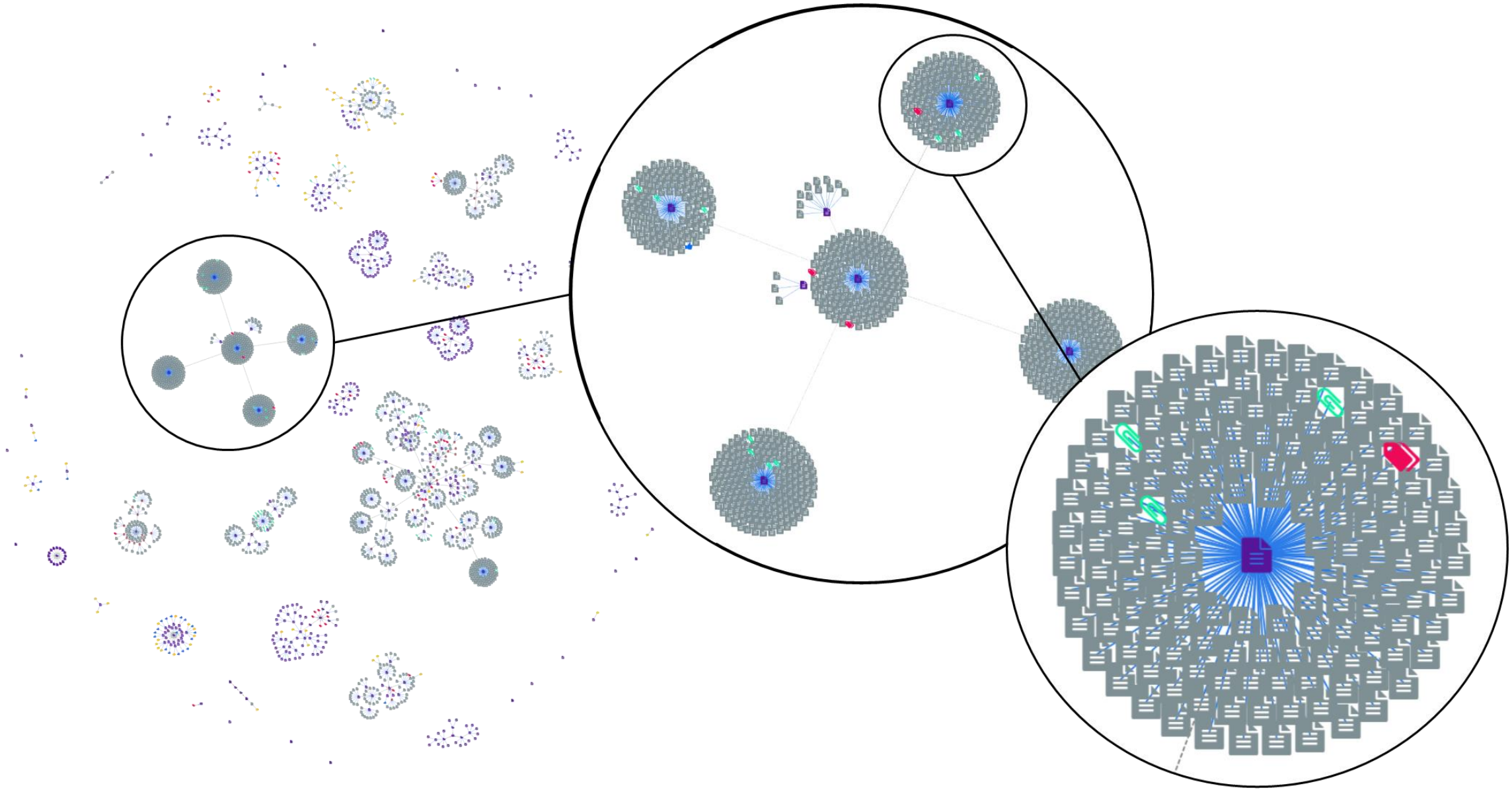
Workplace studies: lived experiences of hybrid and collaborative work



Data Collection – Social Documents