

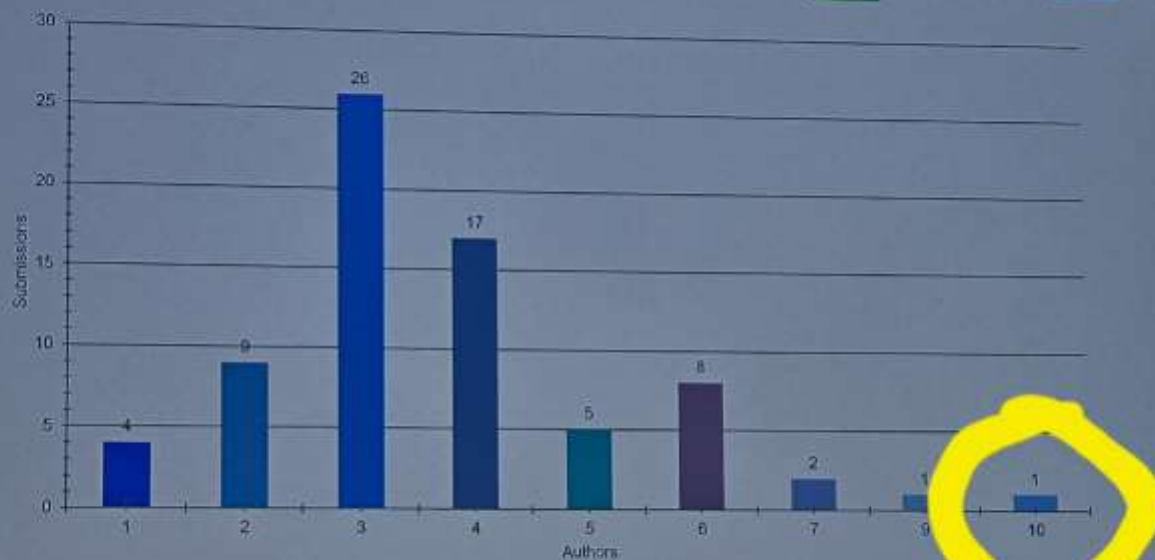
# A WINDOW OF OPPORTUNITY



Active Window Tracking  
for Mining Work Practices

Iris Beerepoot, Daniël Barenholz, Stijn Beekhuis, Jens Gulden, Suhwan Lee, Xixi Lu, Sietse Overbeek, Inge van de Weerd, Jan Martijn van der Werf, Hajo A. Reijers

# Authors per submission



⚡ GPT-3.5

⚡ GPT-4 🔒

# ~~ChatGPT~~ PipPA

**Show me a code snippet**  
of a website's sticky header

**Plan an itinerary**  
for a fashion-focused exploration of Paris

**Write a thank-you note**  
to a guest speaker for my class

**Give me ideas**  
for what to do with my kids' art

I just received an invitation to become PC member for the ICPM conference. How much time can I expect to have to dedicate to this and when will the major portion of the work take place?





Congrats! I think ;-). Mind you, this year you were PC member for the BPM conference and you spent 7.5 hours on assessing five papers alone. And I haven't even included the time spent on the bidding, preparation and discussion in that calculation.



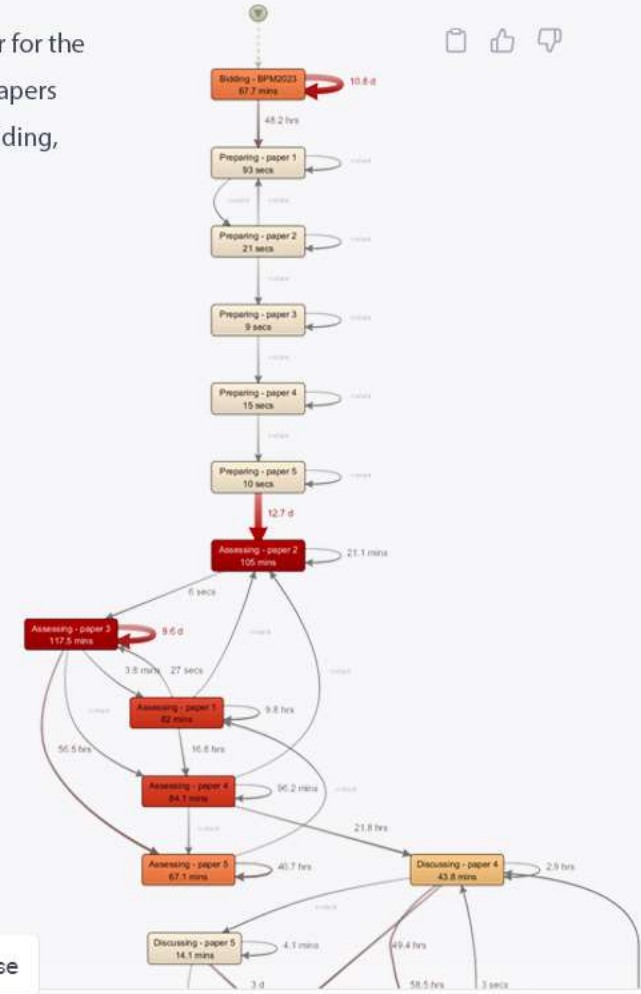
 Regenerate response

Send a message.





Congrats! I think ;-). Mind you, this year you were PC member for the BPM conference and you spent 7.5 hours on assessing five papers alone. And I haven't even included the time spent on the bidding, preparation and discussion in that calculation.



Regenerate response

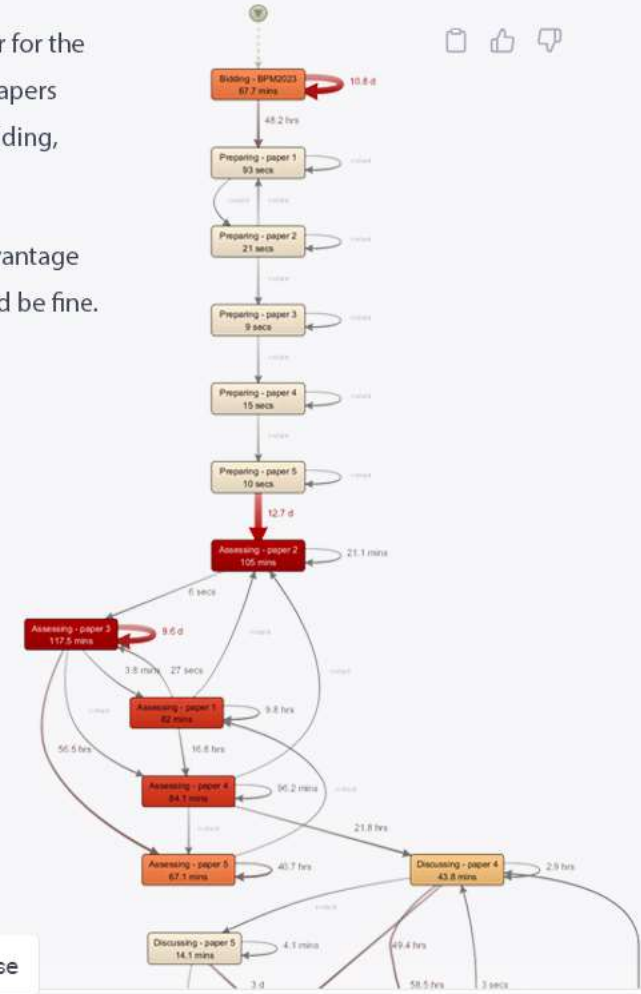
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Congrats! I think ;-). Mind you, this year you were PC member for the BPM conference and you spent 7.5 hours on assessing five papers alone. And I haven't even included the time spent on the bidding, preparation and discussion in that calculation.

Expect the majority of the work to take place in July. The advantage is that you are not teaching during that period, so you should be fine.



Regenerate response

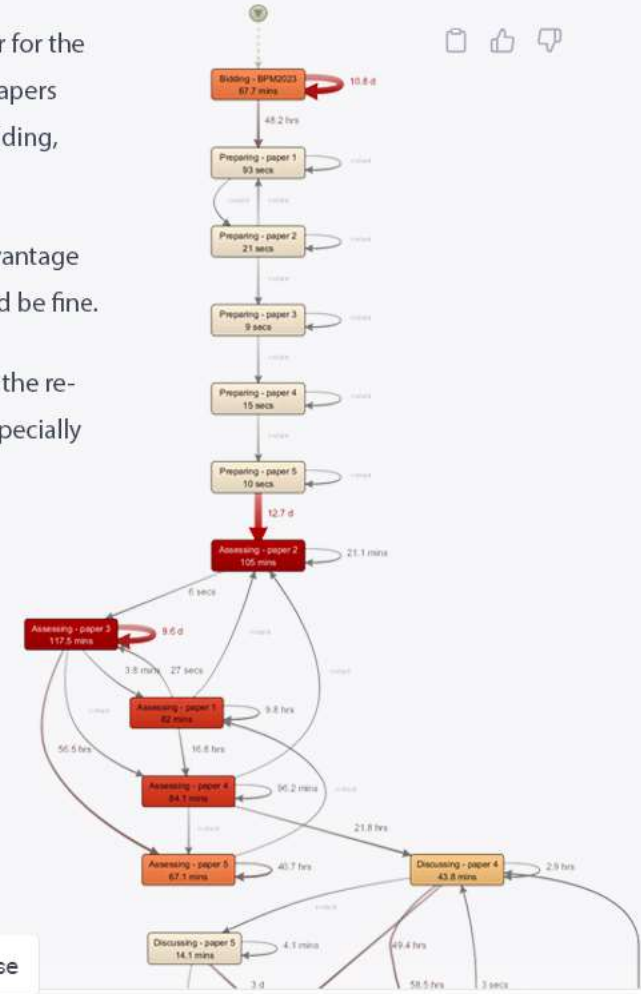
Send a message. >



Congrats! I think ;-). Mind you, this year you were PC member for the BPM conference and you spent 7.5 hours on assessing five papers alone. And I haven't even included the time spent on the bidding, preparation and discussion in that calculation.

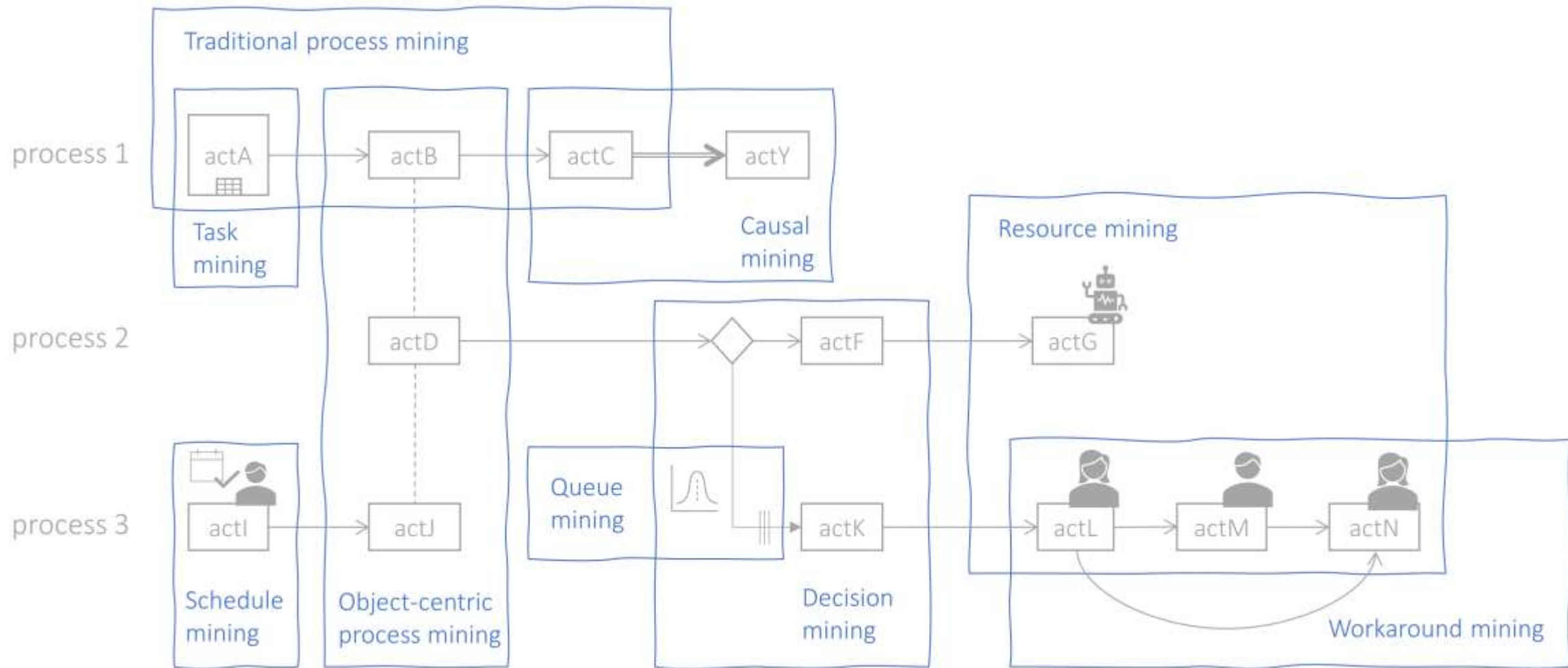
Expect the majority of the work to take place in July. The advantage is that you are not teaching during that period, so you should be fine.

Would you like me to block two mornings in July to work on the reviews? Typically, you are more productive in the morning, especially when you only check your emails after lunch.



Regenerate response

Send a message. >

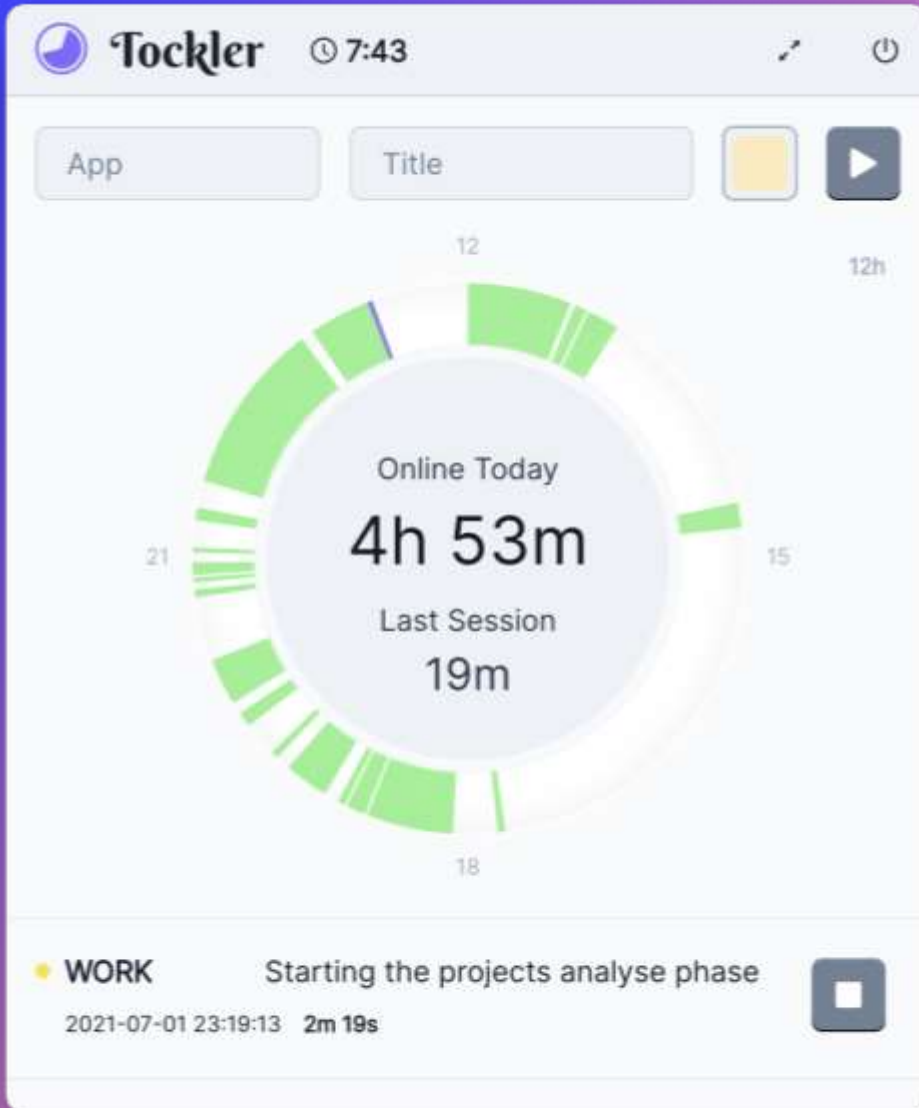






# WHAT DATA TO COLLECT?

- *Cross-system* data
- *Cross-process* data
- Reasonable in terms of privacy



# Active Window Tracking using Tockler

- Automatically records active windows
- Records app, window title, start time, and end time
- Option to export locally to csv
- Open source, lightweight

Tockler

Timeline Summary Search Settings Support

Yesterday 07/01/2021 → 07/01/2021 Today New Task

Task  
Status  
App

09:45 09:50 09:55 10 PM 10:05 10:10 10:15 10:20 10:25 10:30 10:35 10:40 10:45 10:50 10:55 11 PM 11:05 11:10 11:15 11:20 11:25 11:30 11:35 11:40 11:45

July 01 AM 02 AM 03 AM 04 AM 05 AM 06 AM 07 AM 08 AM 09 AM 10 AM 11 AM 12 PM 01 PM 02 PM 03 PM 04 PM 05 PM 06 PM 07 PM 08 PM 09 PM 10 PM 11 PM Fri 02

Online 07h 35m Selected range 01h 30m Tasks 02m 04s Selected range 02m 04s First online 00:00 Last online 23:21

Visible range All Day AM PM Evening Hour

APP USAGE

APPS LOGS Clear filters Clear filters and sorters

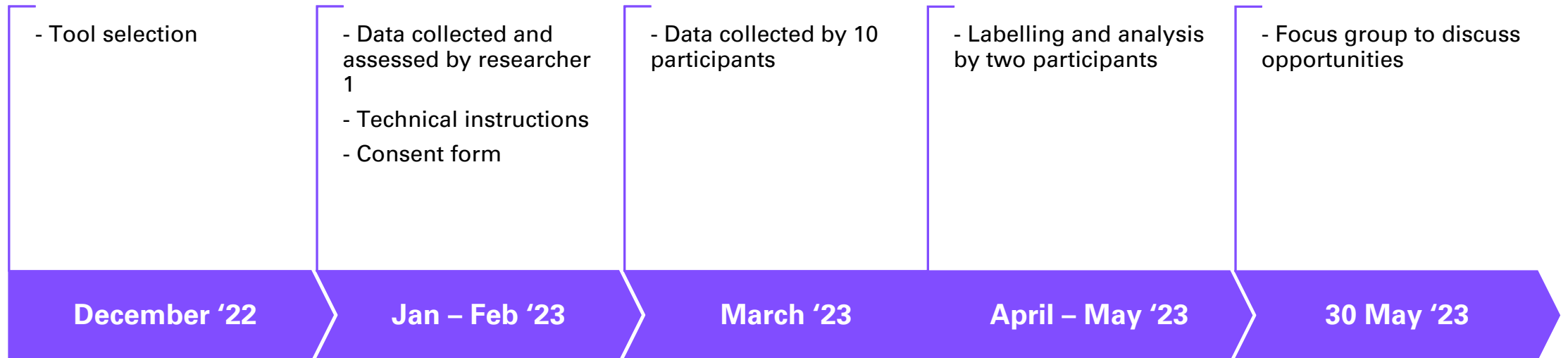
App	Title	URL	Begin	End	Duration
<input type="checkbox"/>	Code	app-manager.ts — tockler (Workspace)	21:42:41	21:43:53	1:12
<input type="checkbox"/>	Code	MainRouter.tsx — tockler (Workspace)	21:43:53	21:43:56	0:03
<input type="checkbox"/>	Code	app-manager.ts — tockler (Workspace)	21:43:56	21:45:11	1:15
<input type="checkbox"/>	Code	electron.d.ts — tockler (Workspace)	21:45:11	21:45:38	0:27



# OUR APPROACH

Exploratory case study in our research group

# Data collection



<b>PERFORMANCE AREAS</b>			
<b>Core activity</b>	<b>Framework</b>	<b>Results</b>	<b>Activities</b>
Coordinating and monitoring the progress of their own research	Individual research plan	Realising objectives of the research plan	<ul style="list-style-type: none"> <li>• Coordinating with other research or substudies</li> <li>• Assigning responsibilities and giving instructions to academic and research support staff</li> <li>• Monitoring the progress and quality of the execution of job assignments issued to academic and research support staff</li> </ul>
<b>7. Execution of research</b>			
Collecting, analysing and interpreting research data	Research plan Scientific criteria Protocols	Formulating an answer to the problem the research is centred on	<ul style="list-style-type: none"> <li>• Drafting a research plan</li> <li>• Coordinating the research questions and working hypotheses with the Professor or Associate Professor</li> <li>• Creating a literature review, attending symposiums and conferences and discussions with experts</li> <li>• Formulating the research question, working hypotheses and specifying the research data required, research methods and target groups</li> <li>• Exchanging knowledge with fellow national and international researchers and experts</li> <li>• Safeguarding the academic integrity of the research</li> </ul>
<b>8. Publication of research</b>			
Publishing research results	In consultation with co-authors Criteria of the selected medium	Sharing the knowledge and insight with colleagues, as well as receiving relevant feedback, and improving the positioning of the field of expertise	<ul style="list-style-type: none"> <li>• Drafting publications for recognised academic journals and trade journals</li> <li>• Drafting conference papers and giving lectures at conferences</li> <li>• Giving presentations at external organisations</li> <li>• Adapting the publication following responses from reviewers and fellow researchers</li> </ul>
<b>9. Student supervision</b>			
Supervising students as well as assessing students in their execution of and their progress regarding assignments		Enabling students to complete the assignments within the prescribed period	<ul style="list-style-type: none"> <li>• Discussing possible assignments with students</li> <li>• Discussing the structure, provision and progress of the assignment with students</li> <li>• Assessing the students' assignments and submitting the assessment to the Board of Examiners</li> </ul>
<b>10. Supervising PhD candidates</b>			
As the co-supervisor, providing in-depth supervision of PhD candidates regarding the execution and progress of the PhD research	After consultation with the supervisor	Contributing to high-quality research and the timely completion of the PhD candidates' theses	<ul style="list-style-type: none"> <li>• Informing PhD candidates on possible doctoral thesis subjects</li> <li>• Discussing the progress of research and substudies with PhD candidates</li> <li>• Co-assessing the PhD theses of PhD candidates</li> <li>• Providing the supervisor with input for the assessment of PhD candidates</li> <li>• Supervising PhD candidates in the preparation and provision of a course component to be taught together and providing relevant</li> </ul>
<b>11. Patient care</b>			
Drafting a treatment plan (specialist dental care, specialist veterinary care) and having it carried out	After referral by an external practitioner (dentist, veterinarian)	Development of treatment skills and/or improving patients' health	<ul style="list-style-type: none"> <li>• Supervising trainee specialists/dentists on their patient care responsibilities in the relevant field of research</li> <li>• Ensuring the implementation and evaluation of the practices considered appropriate for diagnostics and/or treatment</li> <li>• Providing care</li> <li>• Participating in or leading patient case reviews</li> <li>• Updating and monitoring medical reports</li> </ul>



App	Type	Title	Begin	End	Activity	Case
Google Chrome	AppTrackItem	New Tab - Google Chrome	28-3-2023 10:51	28-3-2023 10:51	Adapting the publication following responses from reviewers and fellow researchers	RCIS paper on recording techniques
Google Chrome	AppTrackItem	EasyChair Home Page - Google Chrome	28-3-2023 10:51	28-3-2023 10:51	Adapting the publication following responses from reviewers and fellow researchers	RCIS paper on recording techniques
Google Chrome	AppTrackItem	Your Projects - Overleaf, Online LaTeX Editor - Google Chrome	28-3-2023 10:51	28-3-2023 10:51	Adapting the publication following responses from reviewers and fellow researchers	RCIS paper on recording techniques
Google Chrome	AppTrackItem	Log in to EasyChair - Google Chrome	28-3-2023 10:51	28-3-2023 10:51	Adapting the publication following responses from reviewers and fellow researchers	RCIS paper on recording techniques
Google Chrome	AppTrackItem	Iris Beerepoot, Welcome to EasyChair! - Google Chrome	28-3-2023 10:51	28-3-2023 10:51	Adapting the publication following responses from reviewers and fellow researchers	RCIS paper on recording techniques
Google Chrome	AppTrackItem	Paper 106 - Google Chrome	28-3-2023 10:51	28-3-2023 10:52	Adapting the publication following responses from reviewers and fellow researchers	RCIS paper on recording techniques
Google Chrome	AppTrackItem	Update or Upload Files for Paper 106 - Google Chrome	28-3-2023 10:52	28-3-2023 10:52	Adapting the publication following responses from reviewers and fellow researchers	RCIS paper on recording techniques
Google Chrome	AppTrackItem	Research Paper - A Peek Into The Working Day - Hajo - Iris - Tea - Online LaTeX Editor Overleaf - Google Chrome	28-3-2023 10:52	28-3-2023 10:57	Adapting the publication following responses from reviewers and fellow researchers	RCIS paper on recording techniques
Adobe Acrobat	AppTrackItem	Research_Paper__A_Peek_Into_The_Working_Day__Hajo__Iris__T ea (4).pdf - Adobe Acrobat Pro (32-bit)	28-3-2023 10:57	28-3-2023 10:57	Adapting the publication following responses from reviewers and fellow researchers	RCIS paper on recording techniques
Adobe Acrobat	AppTrackItem	Save as PDF	28-3-2023 10:57	28-3-2023 10:57	Adapting the publication following responses from reviewers and fellow researchers	RCIS paper on recording techniques
Adobe Acrobat	AppTrackItem	Save As	28-3-2023 10:57	28-3-2023 10:57	Adapting the publication following responses from reviewers and fellow researchers	RCIS paper on recording techniques



# RESULTS

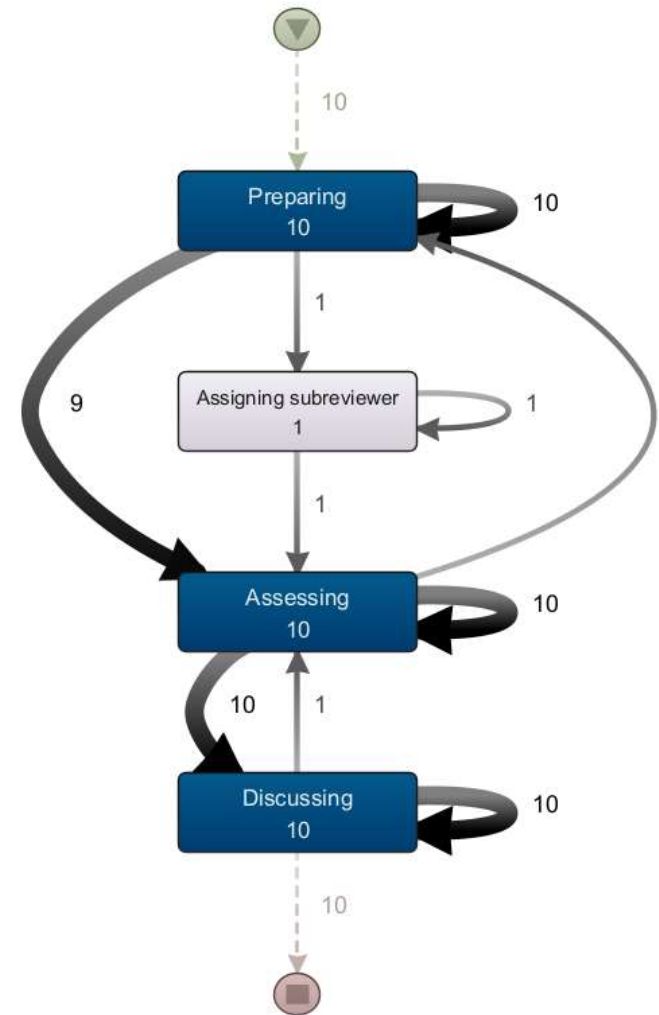
Analysis and opportunities





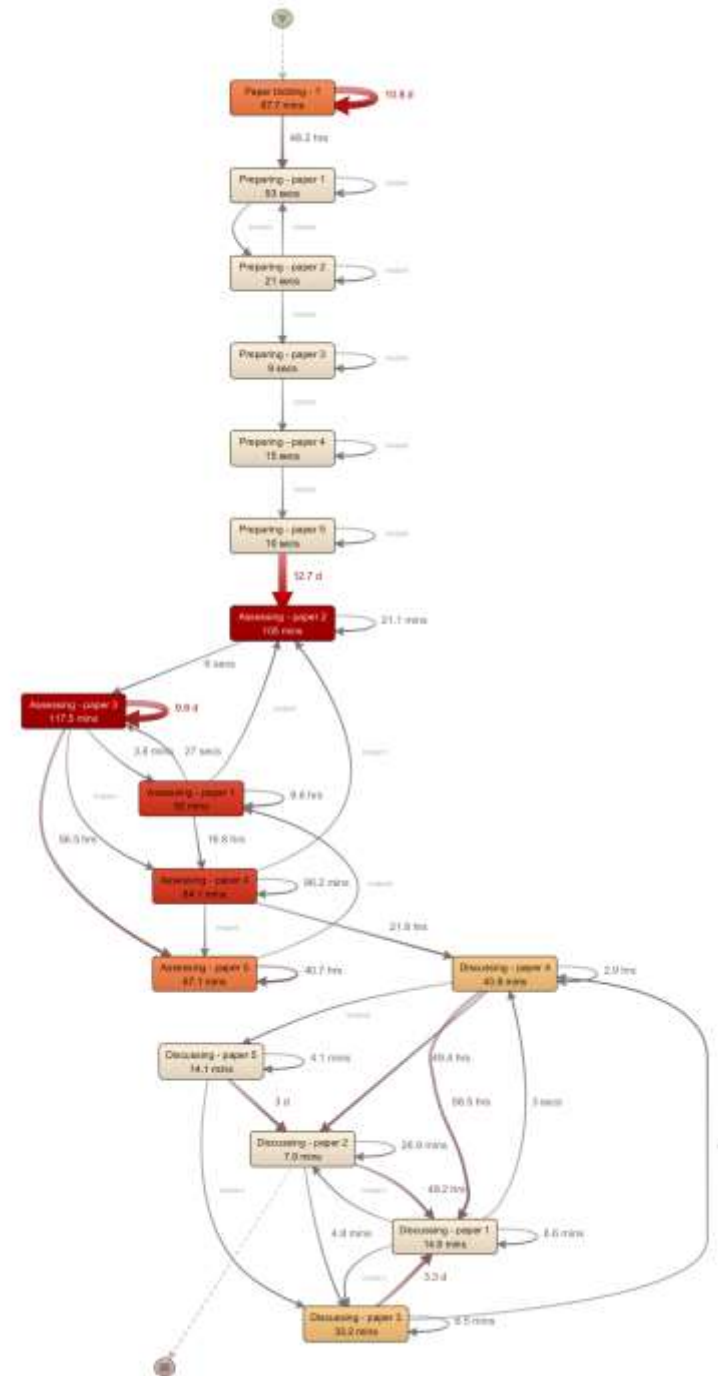
# Reviewing individual papers

Case notion = individual papers



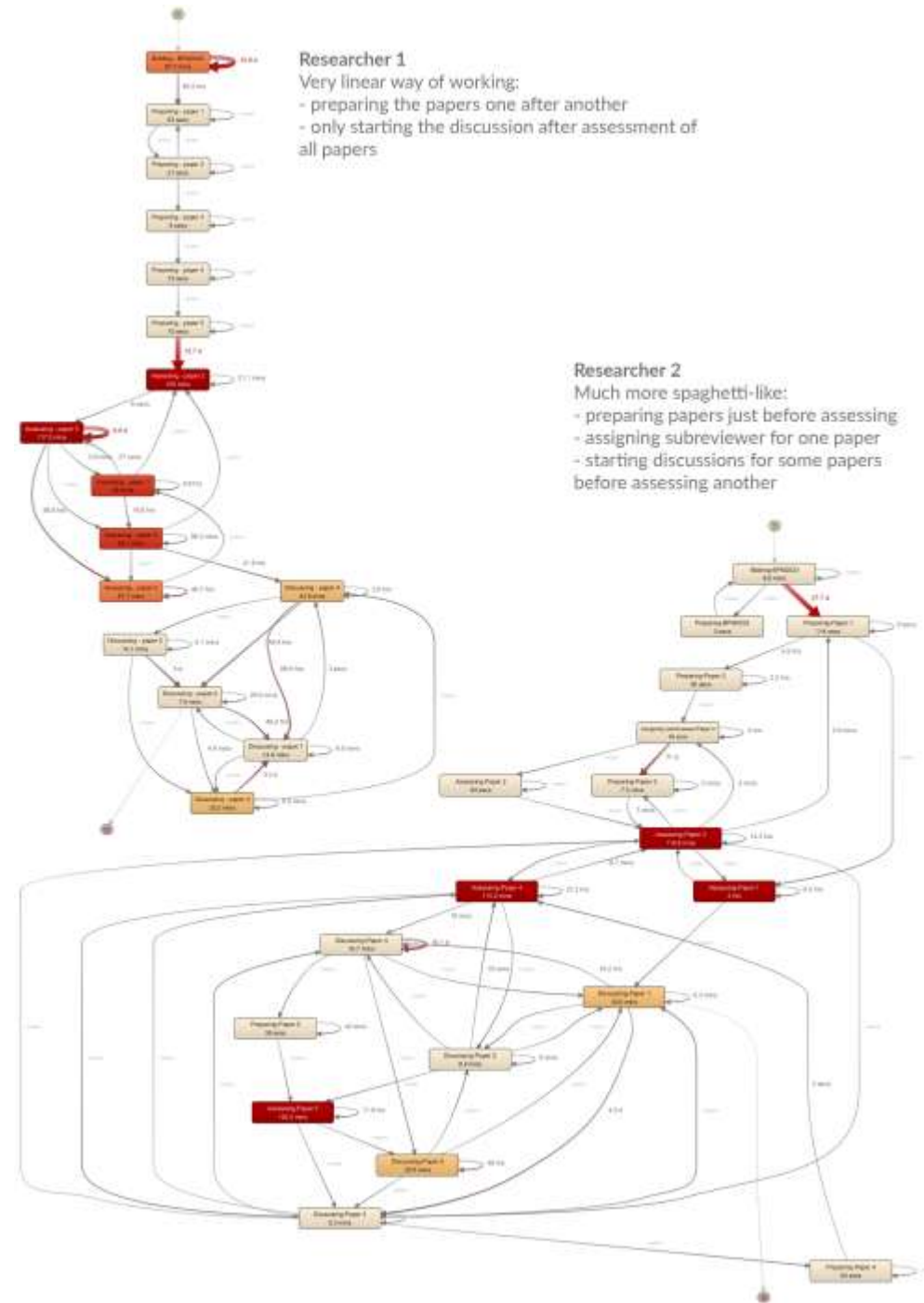
# Program Committee work

Case notion = conference



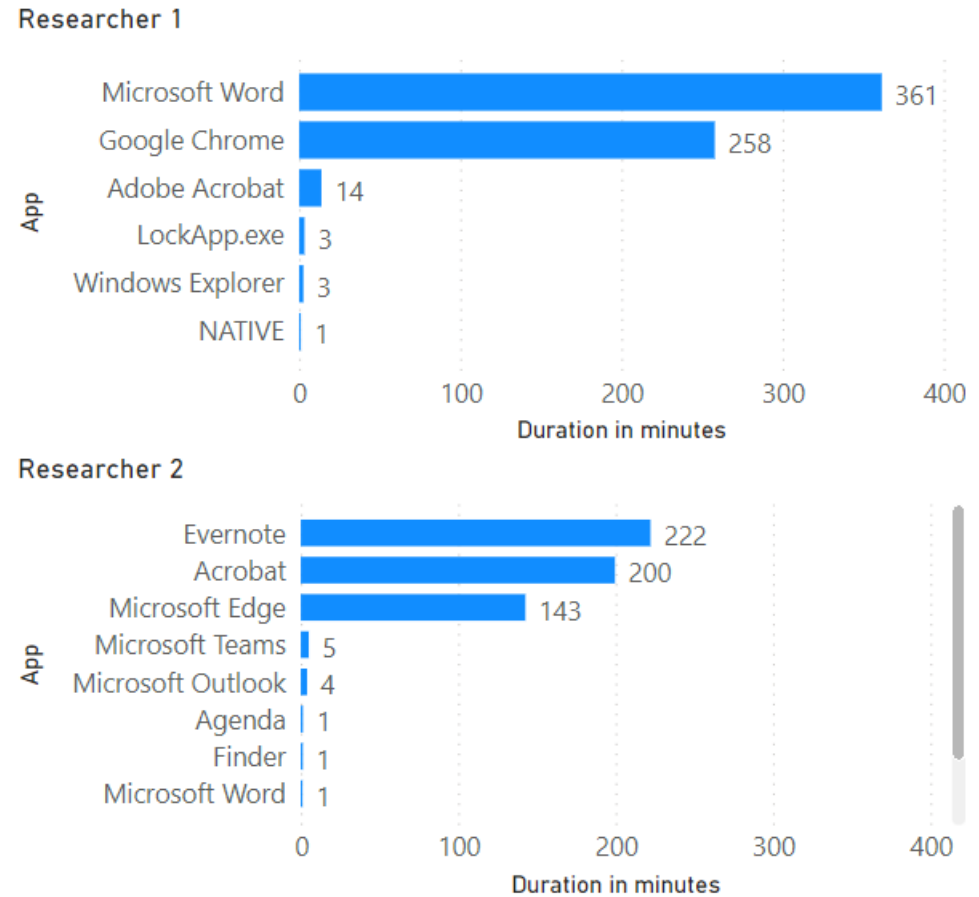
# Comparing work practices

Case notion = conference



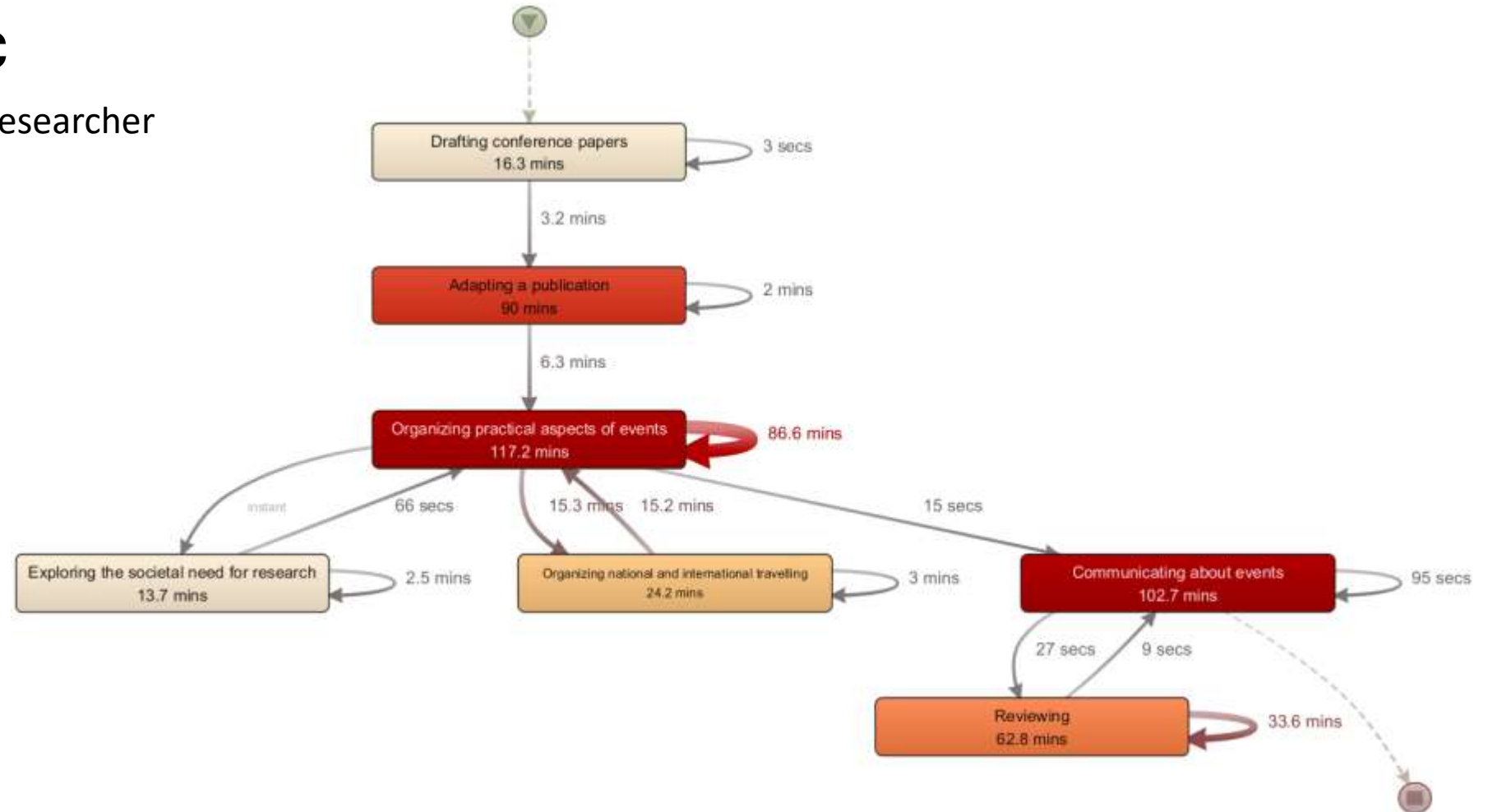
# Working across systems

Switching back and forth between Word, Chrome and Acrobat / Evernote, Acrobat and Edge



# A day in the life of an academic

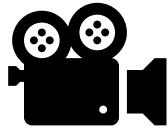
Case notion = 1 day of 1 researcher



# Opportunities of AWT

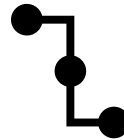
1.

Recording of previously-unrecorded work practices



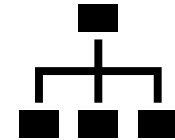
2.

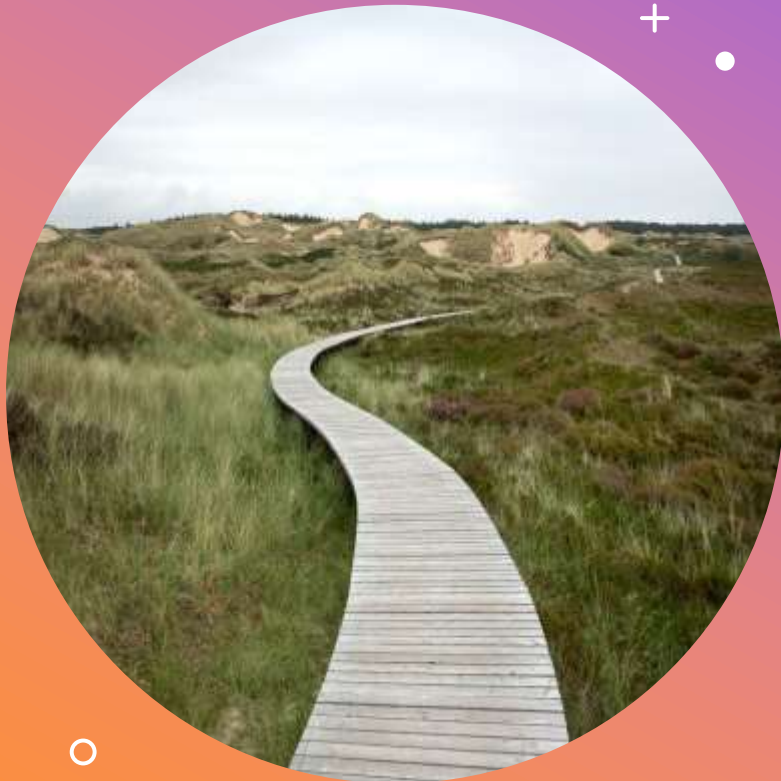
Exposing the relations between processes



3.

Navigating across levels of granularity





# WHAT'S NEXT

- Automatic labelling
- Anonymisation of titles
- Combination with other data  
(location, wearables, ...)
- Making sense of the information  
(-> Tiramisù framework!)

Join us! [tinyurl.com/ActiveWindowTracking](https://tinyurl.com/ActiveWindowTracking)



# THANK YOU

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[www.irisbeerepoot.com](http://www.irisbeerepoot.com)