

Publication Processes and Strategy

20231116, NTNU, Trondheim

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Several of the slides are based
on material/slides by Based on slides by
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Axel van Lamsverde and Xindong Wu



Diff journal and conference paper?

Let's discuss!

Preporatory questions

- PQ1. What is the difference between a journal and a conference paper?
- PQ2. What are blind and double-blind review processes? What are the possible advantages/disadvantages of each?
- PQ3. What is a good SE research paper?
- PQ4. What is open science and how can you make your science more open?
- PQ5. What are registered reports and what are the argument for and against them?

Why should you publish?

- Communicate your findings
 - publication = ultimate/finished result of scientific research
 - “Research is never finished until published”
- Let community know about your work
 - recognition, contacts, collaboration
- Get useful feedback from peers
 - external, independent, frank (anonymous)
- Strengthen CV and career
- Show that you have learnt the skills of research

Where should you publish?

Journal	Conference	Workshop
12-40 Research article	6-10 Research paper	4-10 Research paper
4-8 Short articles	4-8 Experience reports	4-8 Experience reports
1-4 Letters/Comments/ Reviews	2-10 Industry paper	2-10 Industry paper
2-15 Magazine article	A1/ Poster	1-4 Position paper
		A1/ Poster

Pages

Where should you publish?

5-18

4-9

2-5

Journal	Conference	Workshop
More impact (especially long-term)	Faster process (sometimes)	Fastest process
More highly rated (except by some/CS)	Direct contact & discussions	Direct contact & (more) discussions
(Much) deeper reviews	More community awareness	More tentative / preliminary results
More space	Sometimes more selective	Work in progress
Wider target audience (often)	Best papers for journals	Early feedback
Fast-track special issues		

Months

Where should you publish?

- Journal vs. Conference - Not Exclusive
 - Expanded version of conf paper sent to journal
 - Specify additions clearly and up front
 - Rule of thumb: at least 30-50% new material/results/insights
- Avoid
 - Poor-quality journals/conferences
 - Check impact factors, rankings, history, peer experience

Where should you publish?

- Check
 - Previous papers in the fora; find related/relevant and “model” paper
 - Ensure that your paper is within scope (formal scope always listed on journal home page or conference “Call for Papers” (CfP))
- For conferences check
 - “Topics of interest” in Call for papers
 - Who is in the PC (suitable reviewer for your paper? are they well known!?)

Who should be an author?

- Each author should have contributed
- Order of authors should reflect weight of contribution
 - In producing results and/or idea
 - In writing the paper
 - But often considered best to be among first 2 or to be last. First two should be mentioned when cited (“Feldt and Torkar showed...”, otherwise “Feldt et al showed...”)
- Better to be inclusive than exclusive
 - You can get enemies if you disregard contributions
 - Never disregard the importance of the basic idea, but what about “just funding”?!
- For Empirical SE, authors from industry can add “relevance”

Who should be an author?

16 Writing a Research Paper

16.1 Who should be an author?

One of the main ways to assign credit in academia is through the list of authors on papers. It is thus very important to have the right authors credited on your papers. If you ‘forget’ someone this could lead to a conflict; at the very least you will have to discuss with them and ‘clear the air’ afterwards, at the worst you have created a life-long, academic enemy.

The simple rule is that the people that have helped make a paper possible should be credited. And they should be credited in the order from larger contribution to smaller. Below we outline this in more detail; this is based on the rules and process for authorship that was developed by the seniors of the SERL group at BTH in October 2010³.

³The following people should thus be credited for these rules: Claes Wohlin, Jürgen Börstler, Robert Feldt, Cigdem Gencel, Tony Gorschek, Ludwik Kuzniarz, Kai Petersen, Darja Smite, Mikael Svahnberg and Richard Torkar

Who should be an author?

A person should be one of the authors of a paper if they have made a substantial contribution to

- the *research* **OR**
- the *drafting* of the article, **AND** have
- *reviewed* the paper (for important intellectual content) **AND** have
- given a final *approval* of the version to be published.

Note that the structure is (Research **OR** Drafting) **AND** Review **AND** Approval. If a person has contributed to the research or the drafting of the paper they should be given the chance to be an author. They take that chance by reviewing and approving the paper before submission.

Who should be an author?

The contribution to the research depends on the type of paper. For an empirical study it is enough with a substantial contribution to the

- 1) conception/idea **OR**
- 2) design of study **OR**
- 3) acquisition of data **OR**
- 4) analysis **OR**
- 5) interpretation of data/results.

For other types of studies the actual steps might be different. Use your common sense to judge which are the steps of the research and what should constitute a substantial contribution. If you think that a person have reason to believe they have made such a contribution you should invite them as authors or discuss with them why you do not consider their contribution as substantial.

Academics must review and give comments on a paper to be authors; for industrial authors you might not expect as many or as rigorous comments. All authors listed on a paper should give their final approval to the paper before the paper is published.

CRediT - Contributor Roles Taxonomy

CRediT (Contributor Roles Taxonomy) is a high-level taxonomy, including 14 roles, that can be used to represent the roles typically played by contributors to research outputs. The roles describe each contributor's specific contribution to the scholarly output.

<https://credit.niso.org/>

Conceptualization

Data curation

Formal Analysis

Funding acquisition

Investigation

Methodology

Project administration

Resources

Software

Supervision

Validation

Visualization

Writing – original draft

Writing – review & editing

Whom are you publishing for?

- For the reader, NOT for you
 - (Or really for the reviewer :))
- Paper = Pedagogical explanation of the results
 - “You and me together”
 - A journey from where the reader currently is (knows) to the place where you are (understands)

Whom are you publishing for?

- Golden rules:
 - Know your readers and their background
 - Imagine yourself as a reader
 - Ask yourself questions
 - Is this interesting? Is this relevant? Is this comprehensible?
 - Does this follow from what I have already said?
 - What questions are coming to the readers mind?
 - Do not speak highly of yourself or your work
 - Leave that to the reader
 - Avoid “strong” adjectives like “extremely”, use balanced language

What to claim in a paper?

- Typical claims:
 - First time...:
 - Solves a problem for the first time
 - Describes a common problem/process for the first time
 - Improves / Extends existing results/alternatives in 1-2 of dimensions:
 - Behavior: X has (Higher quality output / Higher success rate / Easier to understand) than Y+Z...
 - Coverage: X applicable in more situations than Y+Z...
 - Efficiency: X is faster or uses less resources than Y+Z...
 - Usability: X is easier to learn/use than Y+Z...
 - Replication

Process of publishing (Before submission)

- Check:
 - Ensure that your paper is within the scope
 - Check guidelines and use checklist (often only for journals)
 - Check formatting and follow them! Use the given templates or stylesheets! (Latex makes it much easier to switch templates)
 - Ensure relation to your previous related papers is clear (if any)
- Inform all authors and send the final submission version to them a few days before deadline
- At submission: Inform co-authors and attach pdf and confirmation letter or number

The publication "landscape"

- Getting stuff out there quickly:
 - Workshops (often also better/easier feedback)
 - Technical reports (but less and less so)
 - Pre-print servers (arXiv etc, growing in importance)
- "Counts" the most:
 - Conferences (but less so over time?!)
 - Journals (focus in most other fields)
- By invitation (mainly):
 - Book chapters
 - Books
- Other (not "yet" counted, scientifically, but important):
 - Twitter, YouTube, etc

Why think about publication fora?

- Directly affects:
 - Quality, depth, and length of reviews
 - Acceptance/rejection rate
 - Time to feedback
 - and thus can improve your work/project
- Impact:
 - Scientifically, getting cited
 - Real-world impact and effect
- Career/status reasons:
 - Clear ranking of different fora
 - More prestigious if higher impact factor / rank
- Travel! :)
- Meeting community, getting contacts, planning collaboration

Journal papers are different

You have more space

You have more chances to revise

You have more time

Yes, there will be a few rounds of revision

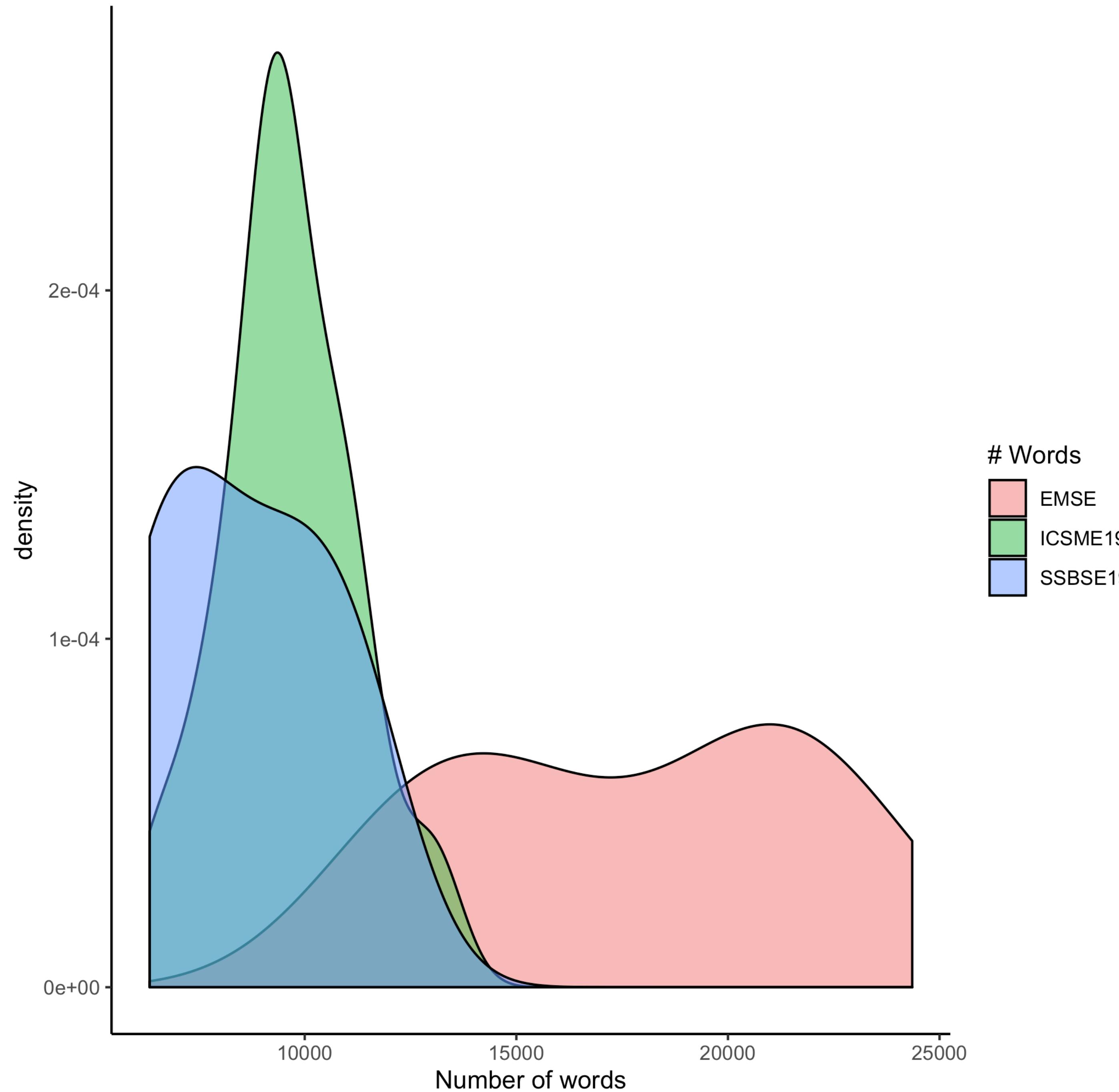
But your paper will be the better for it

If paper ~good, the process is more predictable!

Paper lengths: Number of words

Venue	#Papers sampled	Min #Words	Max #Words	Avg. #Words	Median #Words	% Diff. in medians
EMSE 18-19	12	11649	24354	17825	18122	194.4
ICSE 2022	10	8739	14512	12168	12047	129.3
ICSME 2019	15	6530	13026	9623	9320	100.0
SSBSE 2019	5	6336	11358	8637	8523	91.5
EMSE 2022	10	12287	30130	19217	18375	197.2

Paper length grouped by venue



Journal reviews are different

Reviewers write deeper & longer reviews

**Their review comments can evolve & be refined
as revisions allow “discussion” back & forth**

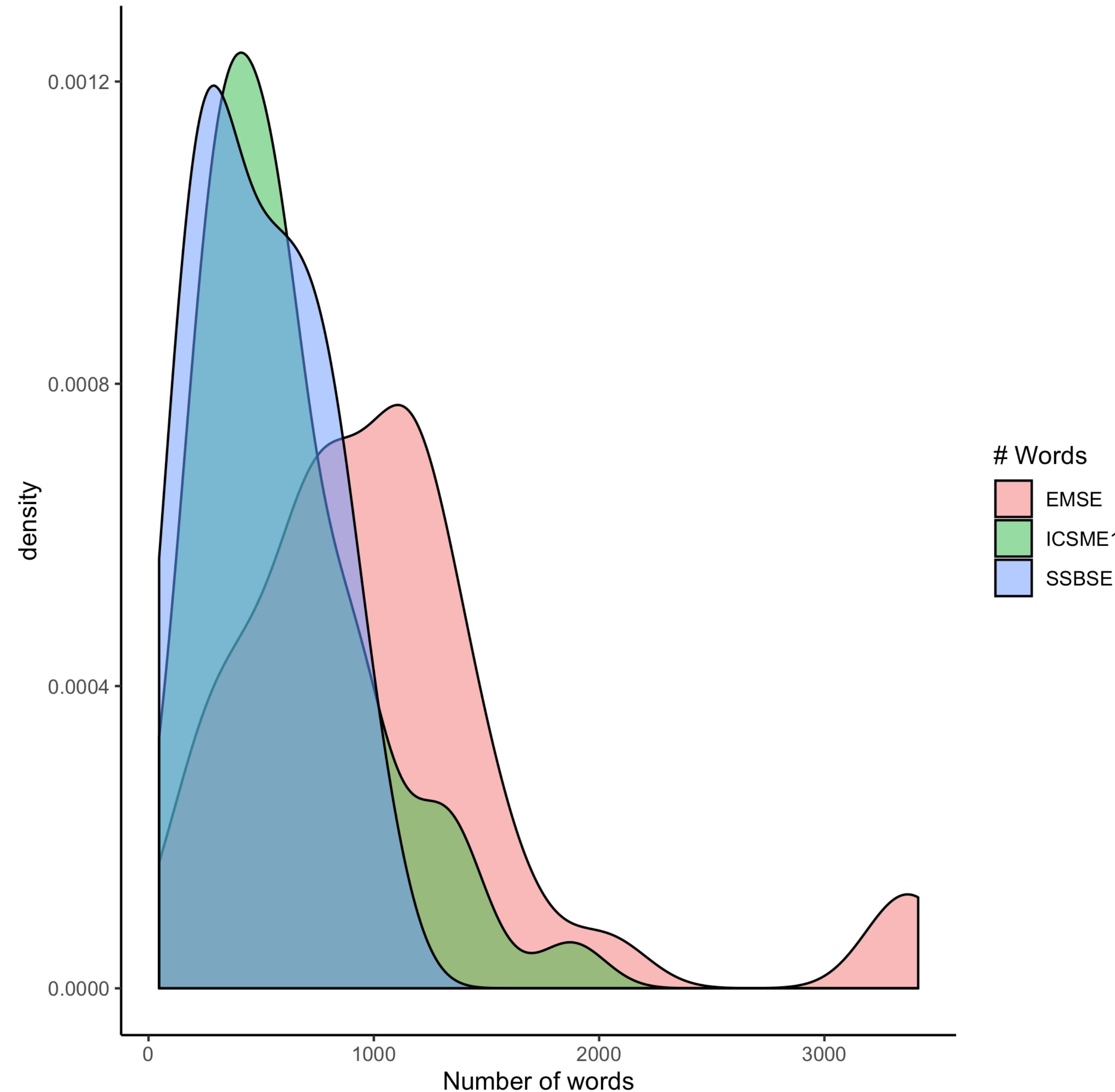
**Rejoinders from authors can clarify why certain
choices were made**

**Downside: Rarely discussion between reviewers.
OTOH, the Editor weighs reviews to a whole.**

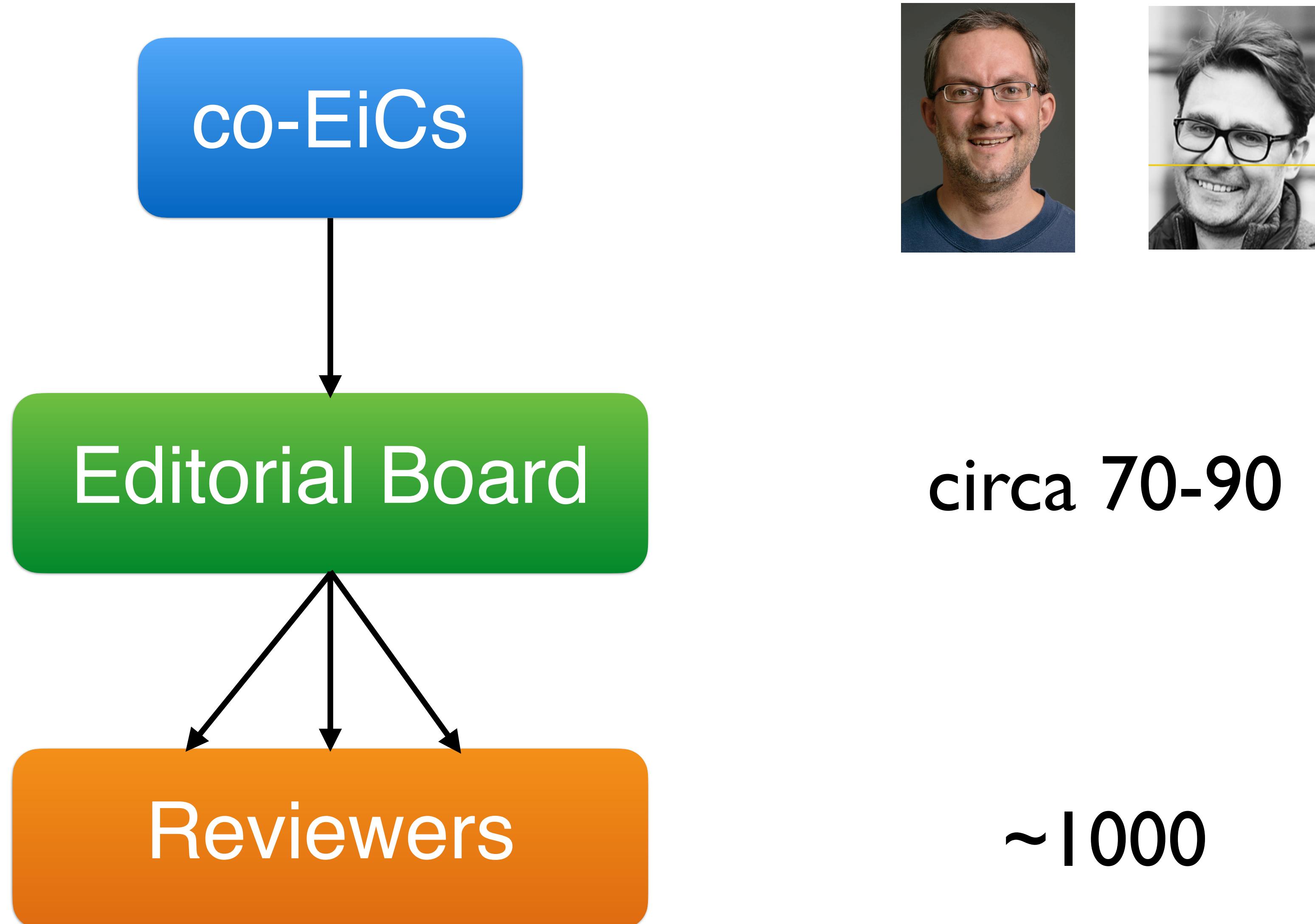
Review lengths: Number of words

Venue	#Reviews sampled	Min #Words	Max #Words	Avg. #Words	Median #Words	% Diff. in medians
EMSE 18-19	35	162	3416	1066	1029	196.8
ICSE 2022	24	345	1382	739	664	126.9%
ICSME 2019	45	47	1878	613	523	100.0
SSBSE 2019	15	135	1013	494	470	89.9

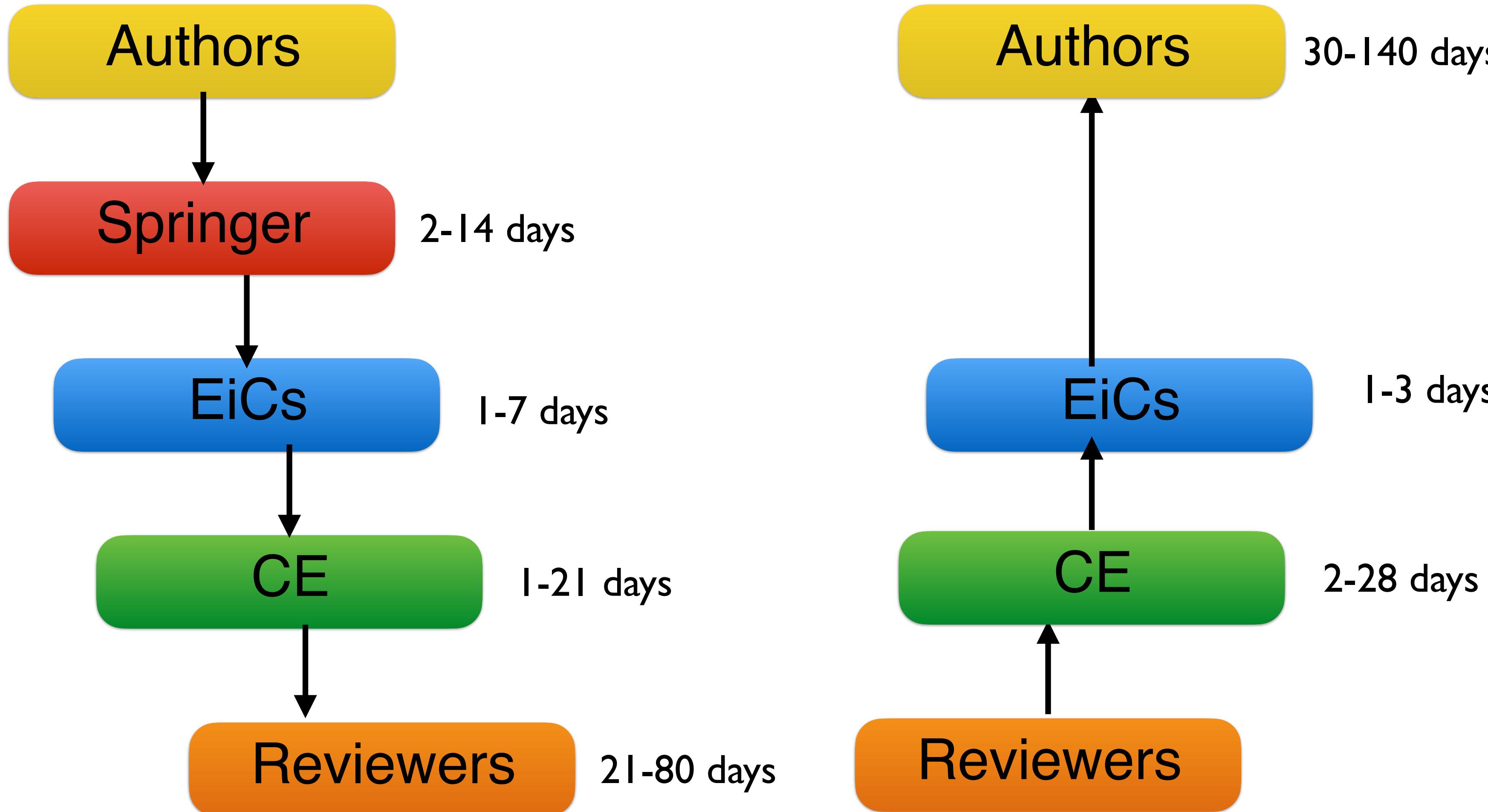
Review length grouped by venue



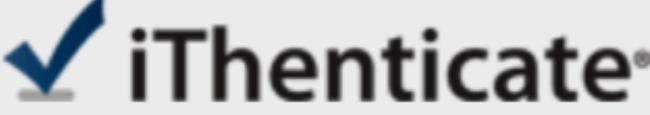
EMSE Organisation



The overall reviewing process (I)



Plagiarism check

iThenticate Document Viewer
https://api.ithenticate.com/en_us/dv/...
29-Sep-2019 01:23AM 16277 words • 179 matches • 18 sources | FAQ
 Quotes Excluded
Bibliography Excluded 23% SIMILAR

Empirical Software Engineering manuscript No.
(will be inserted by the editor)

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Match Overview

Rank	Source	Words	Percentage
1	Internet	963 words	7%
2	Crossref	958 words	7%
3	Internet	903 words	7%
4	Crossref	96 words	1%
5	Internet	51 words	<1%
6	Crossref	30 words	<1%
7	Crossref	22 words	<1%

PAGE: 2 OF 38 | Text-Only Report



Decisions: 4 main types

EMSE Paper Grading

Once a paper has been reviewed, the Coordinating Editor (CE) will write a brief decision summary & make a recommendation grading the paper as:

Grade	Description and comments
Accept	<p>Accepted and will go as is into the production process. Only a few typos will need to be fixed in production.</p> <p>B, Accept-with-minor-changes: If there are larger fixes needed (adding text or reference, moving sections) CE gives a “Minor” grade but makes clear in decision summary that the paper is accepted and the required minor changes. Expected time to fix: < 1 week.</p> <p><i>After fixes by authors, the CE can recommend “Accept” without sending to reviewers.</i></p>
Minor	<p>There are still things that need to be fixed before the paper can (maybe) be accepted. This is no guarantee that it will eventually be accepted.</p> <p>CE adds decision summary (with list of fixes). Expected time to fix: < 1 month.</p> <p><i>After revision the CE checks that the authors addressed the requested changes. If CE is unable to assess the changes she/he can send to (some, typically the same) reviewers again.</i></p>
Major	<p>Although we appreciate (parts of) the work we are not yet convinced it can/should be accepted. Authors need to address major aspects to (try to) convince us.</p> <p>CE adds decision summary (with list of fixes & resolving conflicting requests). Expected time to fix: 1-3 months (2 by default, another 1 month on author request).</p> <p><i>The revised paper should go to reviewers again. We will strive to invite the same reviewers and to avoid adding new reviewers (if possible).</i></p>
Reject	<p>The study has serious flaws and addressing them would typically mean that major parts of the study need to be redone.</p> <p>CE adds decision summary (and points out why the paper cannot be accepted). Expected time to “fix”: > 4 months or unclear if it can be fixed (without essentially being a new study).</p> <p>B, Possibly-resubmit-as-new: In the rare situation that there are positive aspects to the paper but we also have serious concerns and cannot see that they can be easily addressed within a reasonable time period. However, if authors can address the concerns we are not against resubmission as a new paper.</p> <p>CE adds decision summary (and mentions that a resubmit as new, if authors can fix concerns, is an option).</p> <p><i>We cannot guarantee the same CE but the CE that encourages resubmission should expect to be re-invited to handle the paper if it is resubmitted.</i></p>

Some stats for 2017 (from Oct 2018)

248 unique manuscripts submitted

Num in review/revision: 10 (4.0%)

Num with decision: 238 (96.0%)

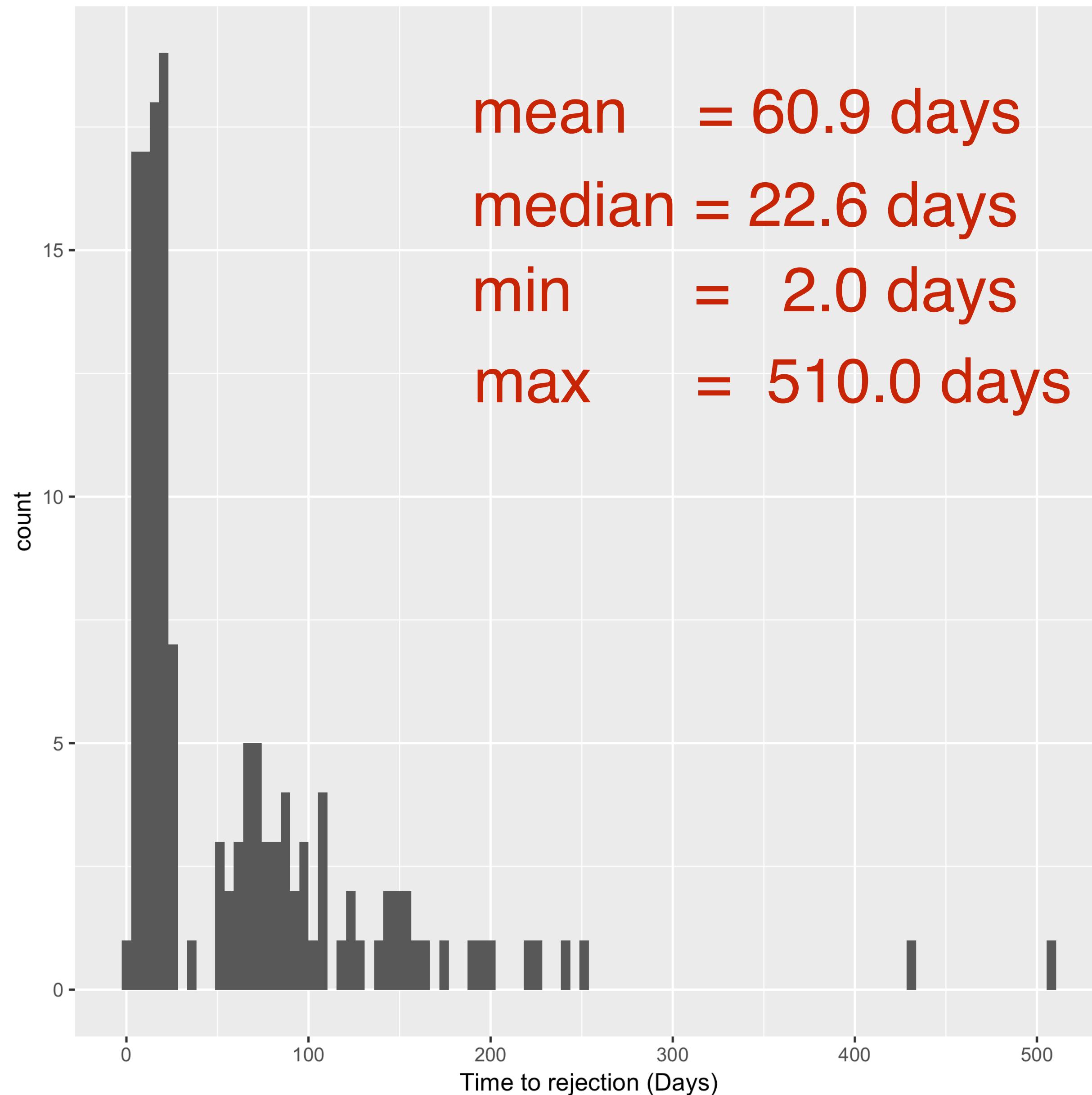
Num accepted: 77 (31.0%, 32.4%)

Num rejected: 141 (57.0%, 59.24%)

Num withdrawn: 9 (3.6%, 3.8%)

Num transferred: 11 (4.4%, 4.6%)

Time to reject 2017



What about desk rejects?

- ~76 desk rejects => 31-32% of all submissions and ~55% of all rejects
EiC has lots of power here!
- **Many different types:**
 - Out of scope (Reject or Transfer?)
 - Plagiarism (from others, from yourself)
 - Too short/light or Unwarranted length
 - Too little empirical basis
 - Too little analysis/insight
 - Not situated in relation to related work / Not up-to-date
 - Novelty compared to conference version unclear
 - Systematic review/map with "route" analysis/stats
 - Defer-to-CE

Always check scope!!!

Empirical Software Engineering

An International Journal

ISSN: 1382-3256 (Print) 1573-7616 (Online)

Description

Empirical Software Engineering provides a forum for applied software engineering research with a strong empirical component, and a venue for publishing empirical results relevant to both researchers and practitioners. Empirical studies presented here usually involve the collection and analysis of data and experience that can be used to characterize, evaluate and reveal relationships between software development deliverables, practices, and technologies. Over time, it is expected that such empirical results will form a body of knowledge leading to widely accepted and well-formed theories.

The journal also offers industrial experience reports detailing the application of software technologies - processes, methods, or tools - and their effectiveness in industrial settings.

Empirical Software Engineering promotes the publication of industry-relevant research, to address the significant gap between research and practice.

Process of publishing (Finding reviewers)

- Reviewers hopefully replies
- Reminder is sent if no response within a week
- Response: “Yes”, “No”, or “Yes with later deadline”
- Normal is to get 6 weeks for a review
 - IEEE SW typically gives 3 weeks (SW has shortest papers)
 - TSE gives 4-6 depending on length
- Reminders are sent if reviewer is late
- Delays in feedback to author often because reviewers do not respond or are late to deliver

Process of publishing (Decision on paper)

- ❖ Reviewer recommends:
 - ❖ Accept (almost never)
 - ❖ Minor revision (best case, quite rare)
 - ❖ Major revision (quite common)
 - ❖ Reject (~70% of papers for IST in -08, journals typically in 60-80% range)
- ❖ Handling Editor:
 - ❖ Looks at all review comments and severity of comments
 - ❖ Weighs different reviewers' comments against each other
 - ❖ Weighs the different recommendations
 - ❖ Can take decision? Decide or invite one reviewer more

Process of publishing (Revision)

- Authors get 2-3 months to:
 - Revise paper (must indicate willingness within 1 month)
 - Write a rejoinder
- Rejoinder:
 - Respond to comments
 - Be positive and polite; reviewers are never completely wrong
 - Explain what has been done, motivate what has not
 - Document changes in revised paper based on each comment
- Resubmit paper in web system
- If revision was minor: Try to be quick, HE wants to finish!

Process of publishing (Selection)

- Really good articles are always published
- Really bad articles shall never be published
- Large number of articles eventually will be published
 - No major loss if they are not published
 - No major harm if they are published
- Published or not means a lot to individual but not to journal

Process of publishing (Statistics)

- Journals collect statistics:
 - Mean time between events
 - Time to first decision is in focus (Goal: 4 months)
 - Acceptance level (currently around 30%)
 - Reviewers' behavior (response time, recommendation and each review is graded by HE)
 - Authors' behavior (time for revision, number of submissions to IST and corresponding decisions)

Process of publishing (Misc)

- Often many Special Issues - at least a couple per year
- Guest editors are invited and EiC talks to them directly
- Editorial board is frequently used for reviews (or to help with special issue)

Process of Conference/WS

- Selecting a general chair and venue
 - Venue selected 1-3 years before depending on size of conf/WS
 - Steering group selects or email discussion with previous GCs/PCs
 - Smaller WS: GC often one of the previous years PC
 - Whole organization around GC+PC depending on size: Local arrangement chairs, Industry chair, Web/PR chair, ...
 - GC and PC decides on theme/topics
 - Static for the top/strong conferences, more varying for WS
 - For stronger conferences: Steering group must give ok

Process of Conference/WS

- Stronger conferences often have a charter/rules
- Example: <http://www.cs.gmu.edu/icst/icst-charter.html>
- Main points in ICST charter:
 - Max 3 years * 2 in Steering Group
 - Max 3 years in Program Committee
 - Max 50% new TPC members per year
 - TPC: Diversity of gender, geography/location, experience, industry vs academic
 - Balance between research and practice, distinct programs

Process of Conference/WS

- PC chairs invite PC member
- Creates EasyChair or HotCRP account
- Sets up any specific rules for the reviews
- Invites Keynote speakers (this can take a long time)
- Creates Call for Papers
- Timing:
 - CfP sent out 3-6 months before deadline
 - Deadline 3-11 months before conf
 - Reviewers get 2-20 papers each, 1-5 months

Double-Blind Reviewing

- http://www.robertfeldt.net/advice/double_blind_reviewing/

Empirical evidence in relation to Double Blind Reviews

- Reviewers can guess the actual authors about 25–42% of the time (as summarised in [Budden et al 2008](#))
- US papers are evaluated more favorably (by both US and non-US reviewers), with US reviewers showing a stronger preference for US papers than non-US reviewers ([Link 1998](#))
- Blinding and unmasking made no editorially significant difference to review quality, reviewers' recommendations, or time taken to review ([van Royen 1998](#))
- Reviewers were more critical in DBR ([Blank 1991](#))
- Female authors fared somewhat better in DBR than in SBR but effects were small ([Blank 1991](#))
- Authors at near-top-ranked institutions and non-academics had lower acceptance rates but other groups largely unaffected ([Blank 1991](#))
- SB reviewers were significantly more likely than their DB counterparts to recommend for acceptance papers from famous authors and top institutions ([WSDM 2017 DBR Experiment](#)). The paper quantifies the effect and says: "...estimated odds multiplier is around 1.5x, so the result is quite strong."

Open Science

- <https://link.springer.com/article/10.1007/s10664-019-09712-x>

Published: 02 May 2019

The open science initiative of the Empirical Software Engineering journal

[Daniel Méndez Fernández](#), [Martin Monperrus](#), [Robert Feldt](#)✉ & [Thomas Zimmermann](#)

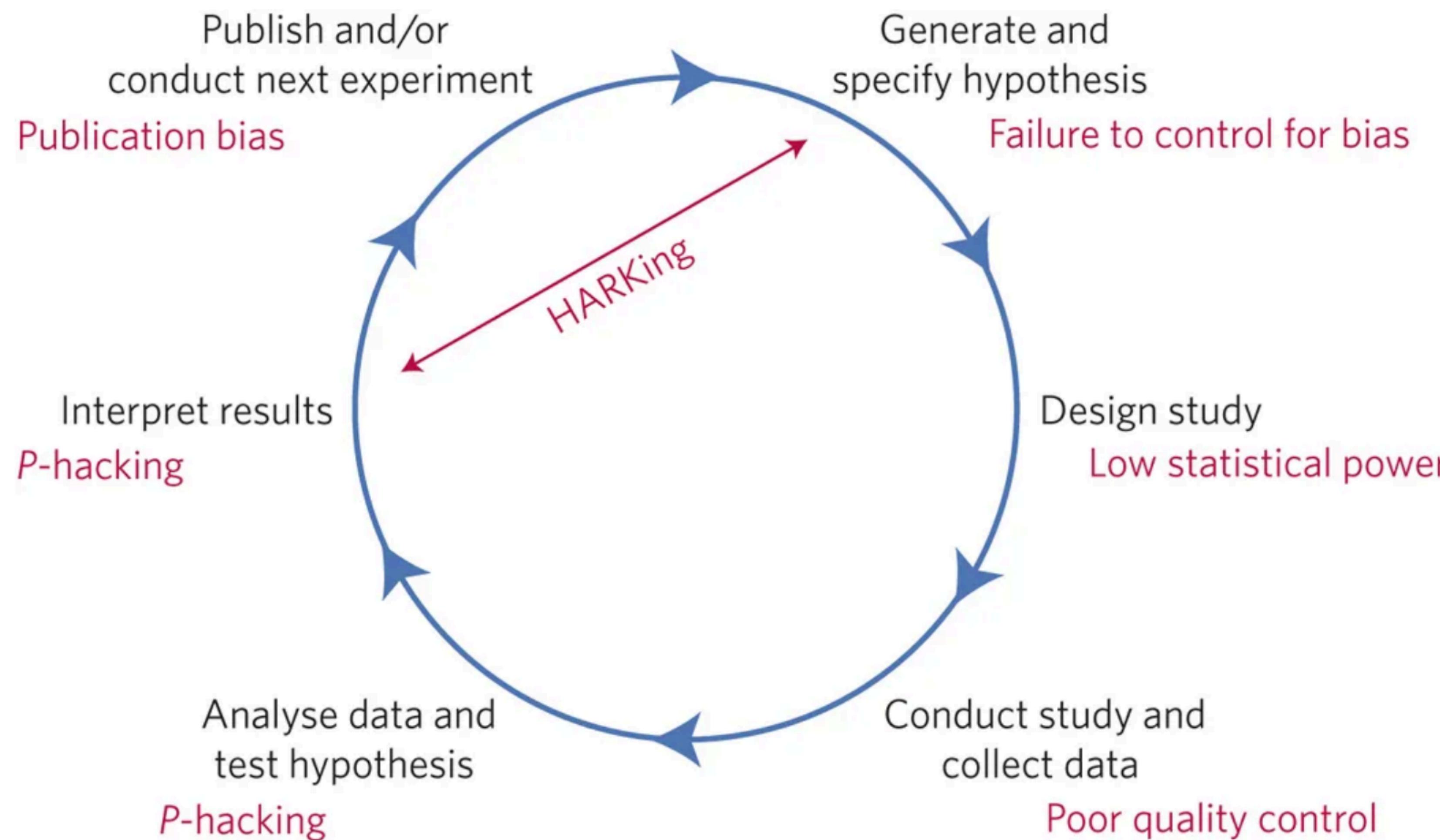
Empirical Software Engineering **24**, 1057–1060 (2019) | [Cite this article](#)

3884 Accesses | **10** Citations | **31** Altmetric | [Metrics](#)

Registered Reports

- EMSE + Conferences, example MSR 2024:
 - <https://2024.msrconf.org/track/msr-2024-registered-reports>

Some threats to finding the Truth



A **Truth** root challenge: Neophilia

neophilia / (nɪ'əʊfɪliə) /

noun

- 1 a tendency to like anything new; love of novelty

Some effects of Neophilia

Publication bias / “results paradox”: We accept clear and positive results ($p < 0.05$) while rejecting “negative” or inconclusive ones

Isolated paper islands: Authors must create new model, system, solution, idea rather than replicating and building on what is already there.

HARKing: changing **Hypothesis After Results are Known**

Truth Fix: (Pre-)Registered Reports

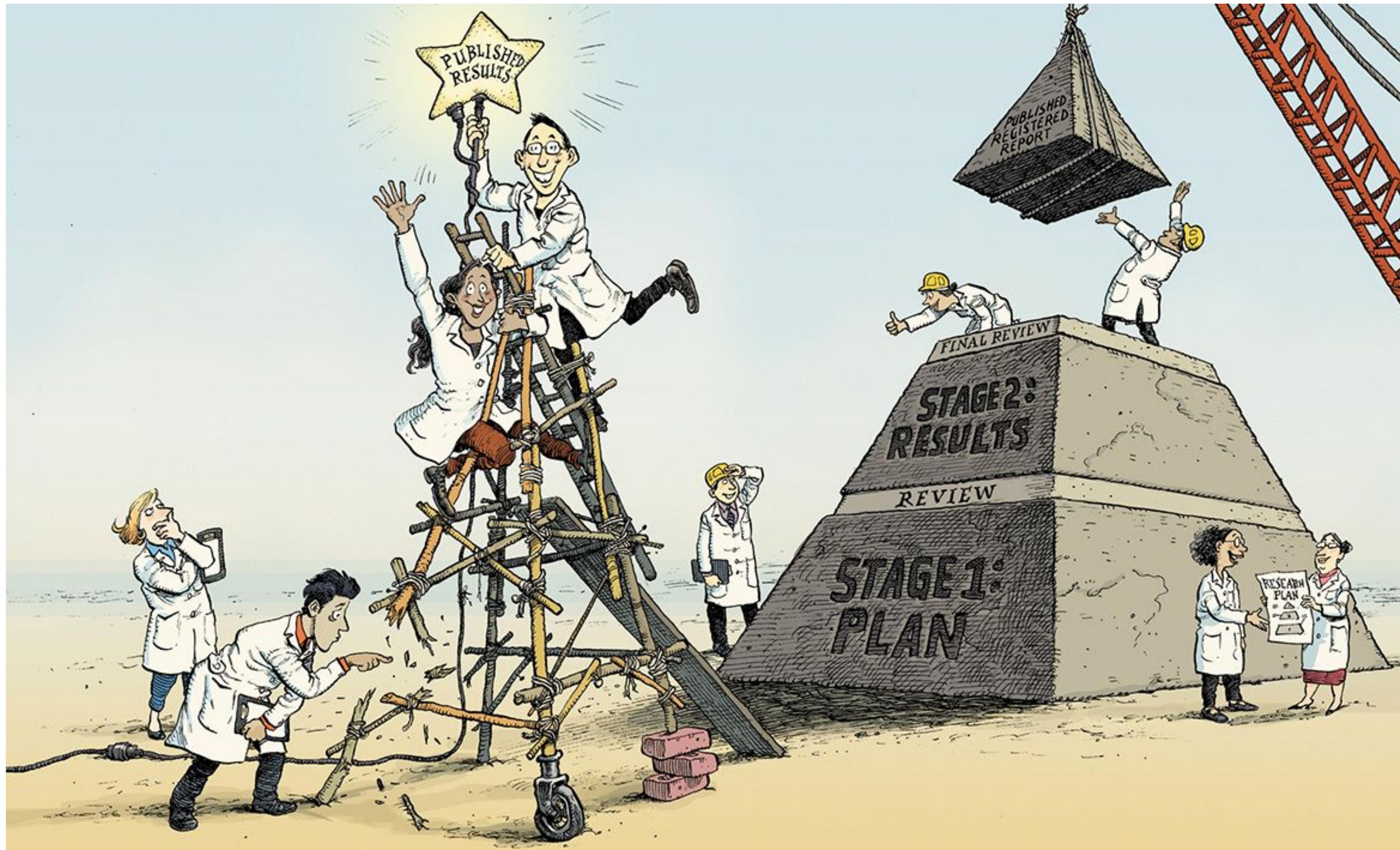
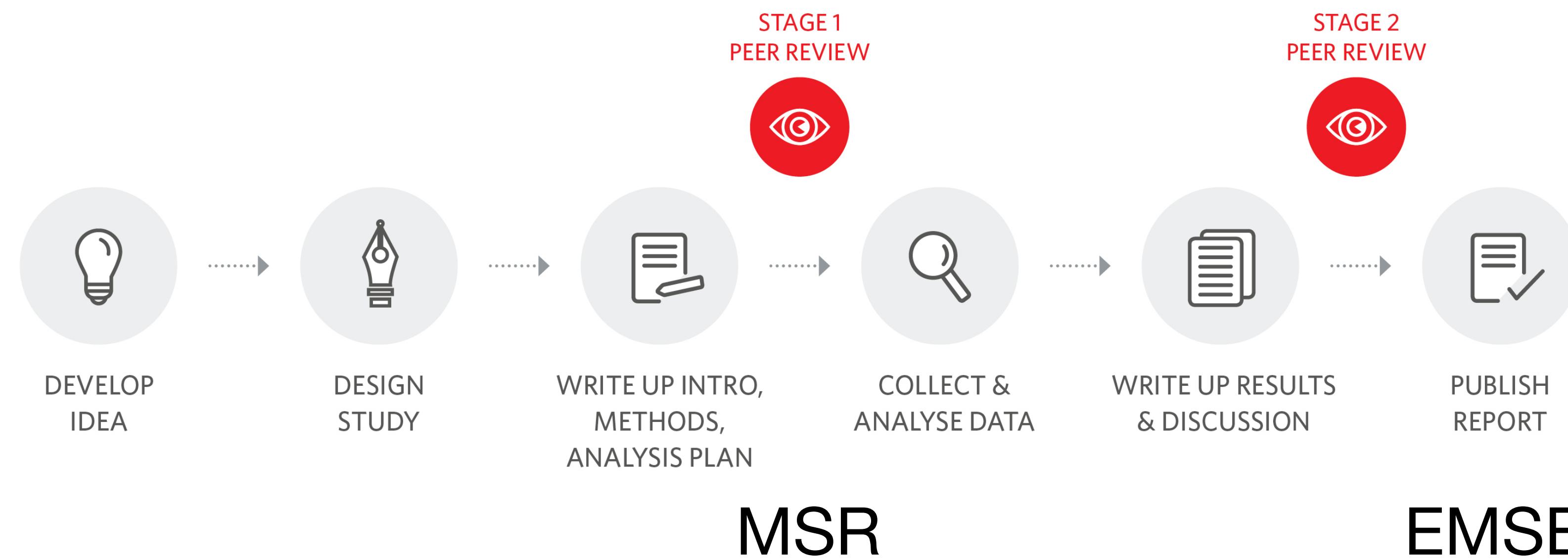


Illustration by David Parkins in Nature, September 2019

Truth Fix: (Pre-)Registered Reports



A form of self-blinding, next step after double blind!

200+ Journals today offer pre-registration!

Acceptance rate in stage 2: 90% (Cortex journal)

Null results: 66% RR replicat., 50% RR novel, 5-20% non-RR

Counterpoint: (Pre-)Registered Reports

RRs for confirmatory, hypothesis-driven research

They are not a good fit for more exploratory work

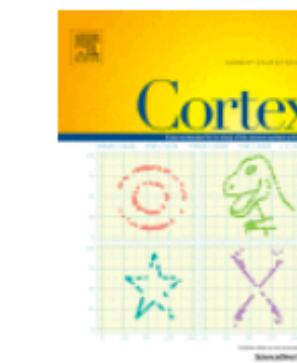
Alternative: Explorative Reports?

Counterpoint: (Pre-)Registered Reports



Cortex

Volume 96, November 2017, Pages A1-A4



Editorial

Exploratory reports: A new article type for *Cortex*

Robert D. McIntosh

[Show more](#)

<https://doi.org/10.1016/j.cortex.2017.07.014>

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There are many ways to find things out. In science, the process of discovery can be divided conceptually into exploratory and confirmatory phases. In the exploratory phase, we observe and explore, generating theories to explain the patterns that we find. Useful theories will support predictions about what we should and should not find in the future if

ACM TOSEM Registered Reports

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