

Outlining the state-of-the-art of requirements engineering tools

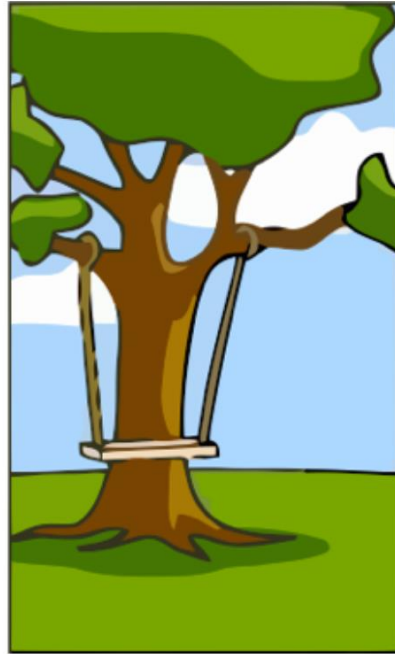
Seminar project

Elio Fritschi

Problem



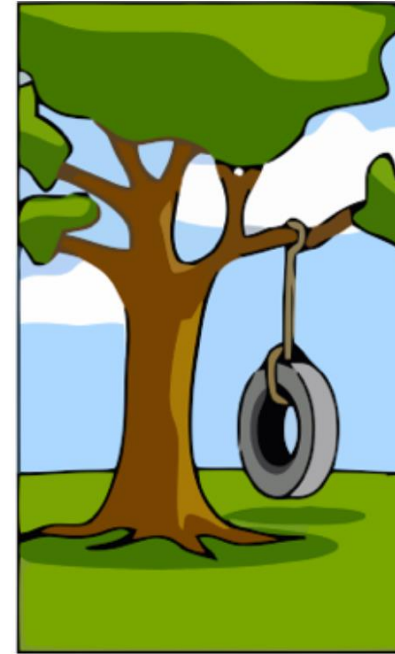
How the Customer explained it



How the Project Leader understood it



How the Analyst designed it



What the Customer really needed

Solution?

Get it done with a tool!

Today's requirements for RE tools

Essential:

- Collaboration
- Communication
- Flexibility



Questions

How are existing academic tools fitting to be used?

- Mobile?
- Collaborative?
- Online?

Methods

Literature Review

- Two search iterations
- From 2005
- English abstract
- Requirement engineering tool



Semantic **Scholar**



Springer Link

ScienceDirect



Google
Scholar



ELSEVIER



Literature Review

2000+ Search results

140 papers

121 tools

Until now: 38 tools evaluated



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Google
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Evaluation Parameters

Tool name & year of first publication

RE technique & RE phase

Tool type

Accessability & installation

Evaluation & improvements

Research group

Main & online features

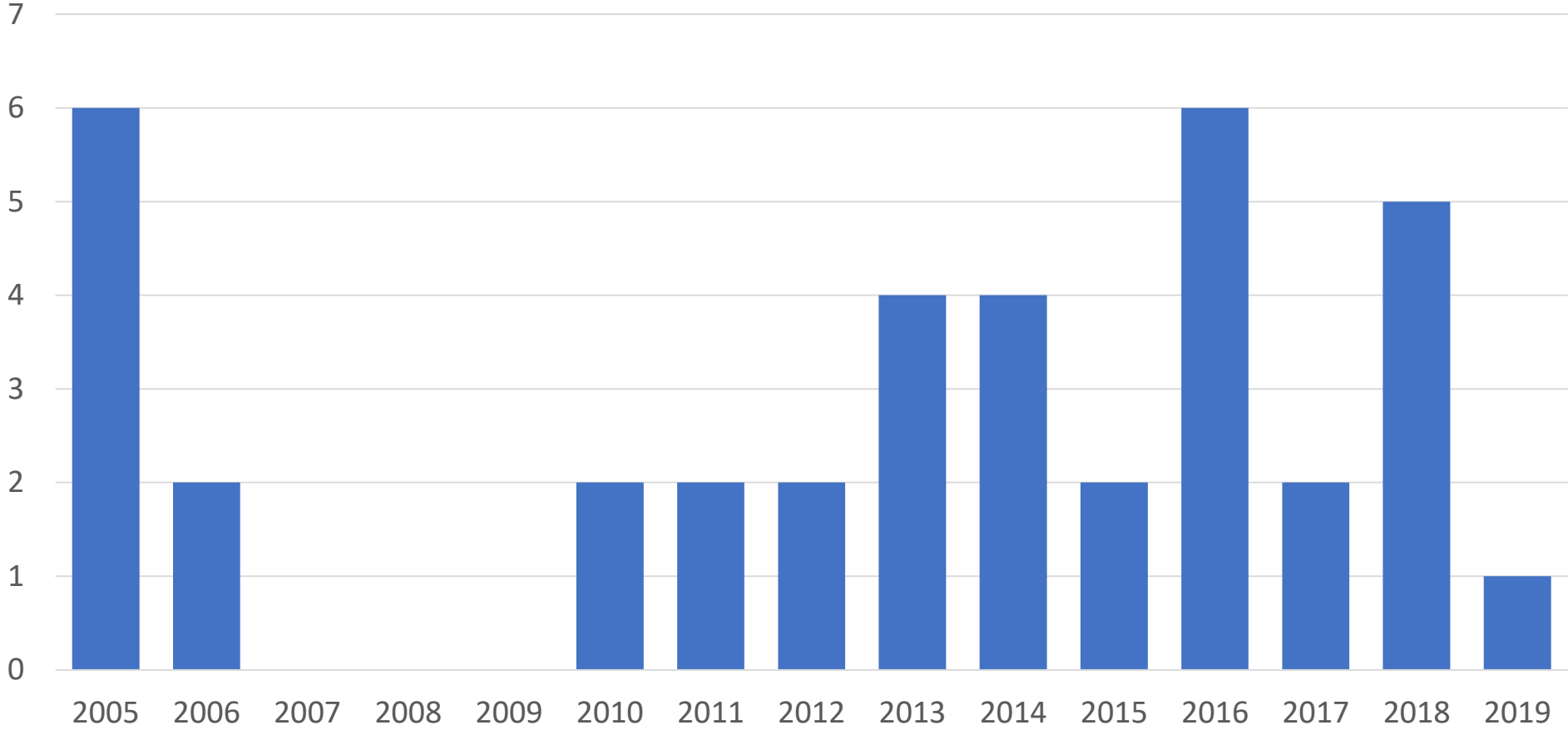
Technologies used

Intended users & collaboration

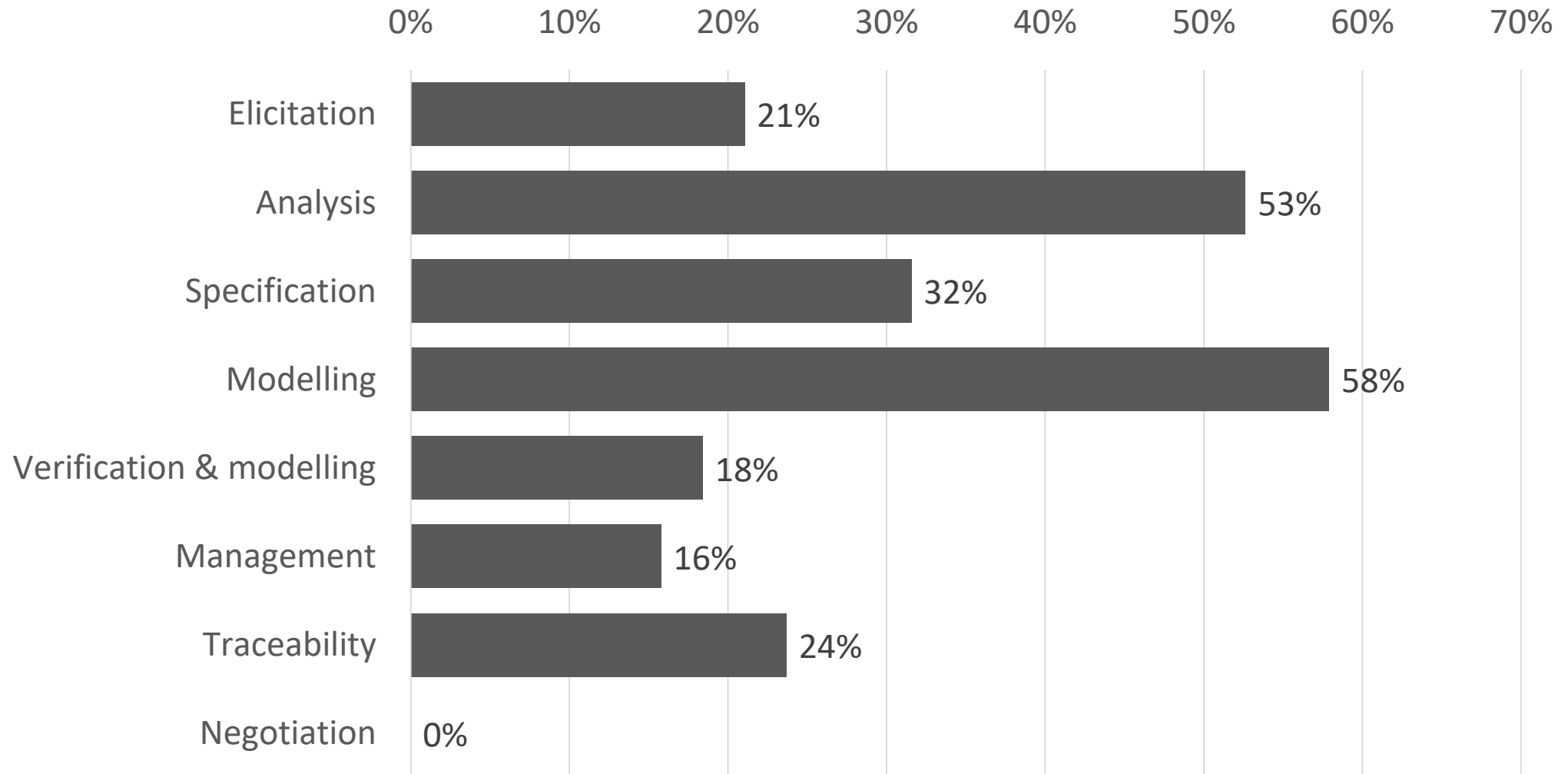
Capabilities

Findings

Tool publication years



RE Phases



Most popular technologies used

| Java | Eclipse | HTML | SQL | PHP | XML | No Value |
|------|---------|------|-----|-----|-----|----------|
| 14 | 7 | 5 | 4 | 2 | 6 | 9 |
| 37% | 18% | 13% | 11% | 5% | 16% | 24% |

Tool type, access and installation

- 14 Prototype tools
- No vision tools
- No mobile tools

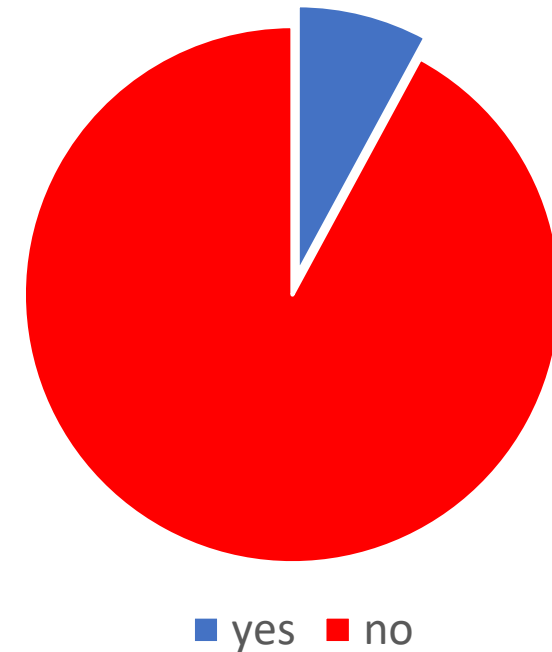
- Access to 8 out of 38 tools
 - four broken links
 - one link with restricted access

- Six tools installed & used successfully
 - One with an online function

Intended audience & collaboration

| Intended audience | | |
|--|----|-----|
| Requirement engineers | 31 | 82% |
| project stakeholders | 2 | 5% |
| Requirement engineers & project stakeholders | 2 | 5% |
| End-users | 0 | 0% |
| All above | 3 | 8% |

Collaboration possible?

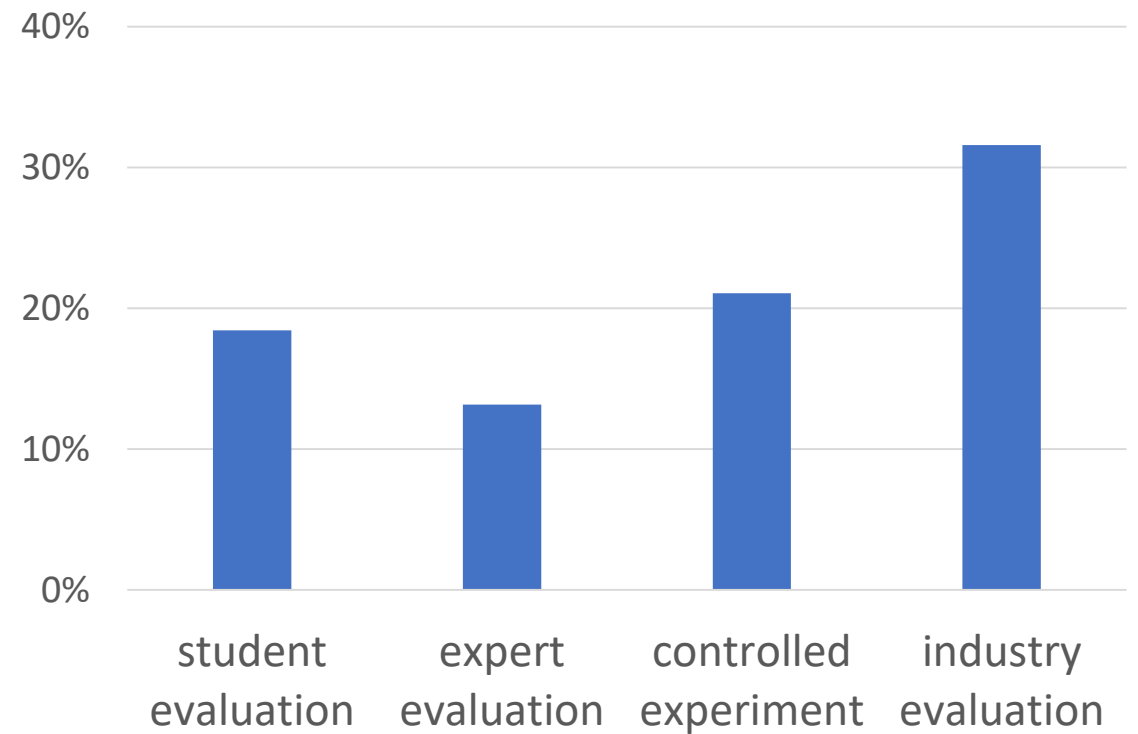


Tool evaluations

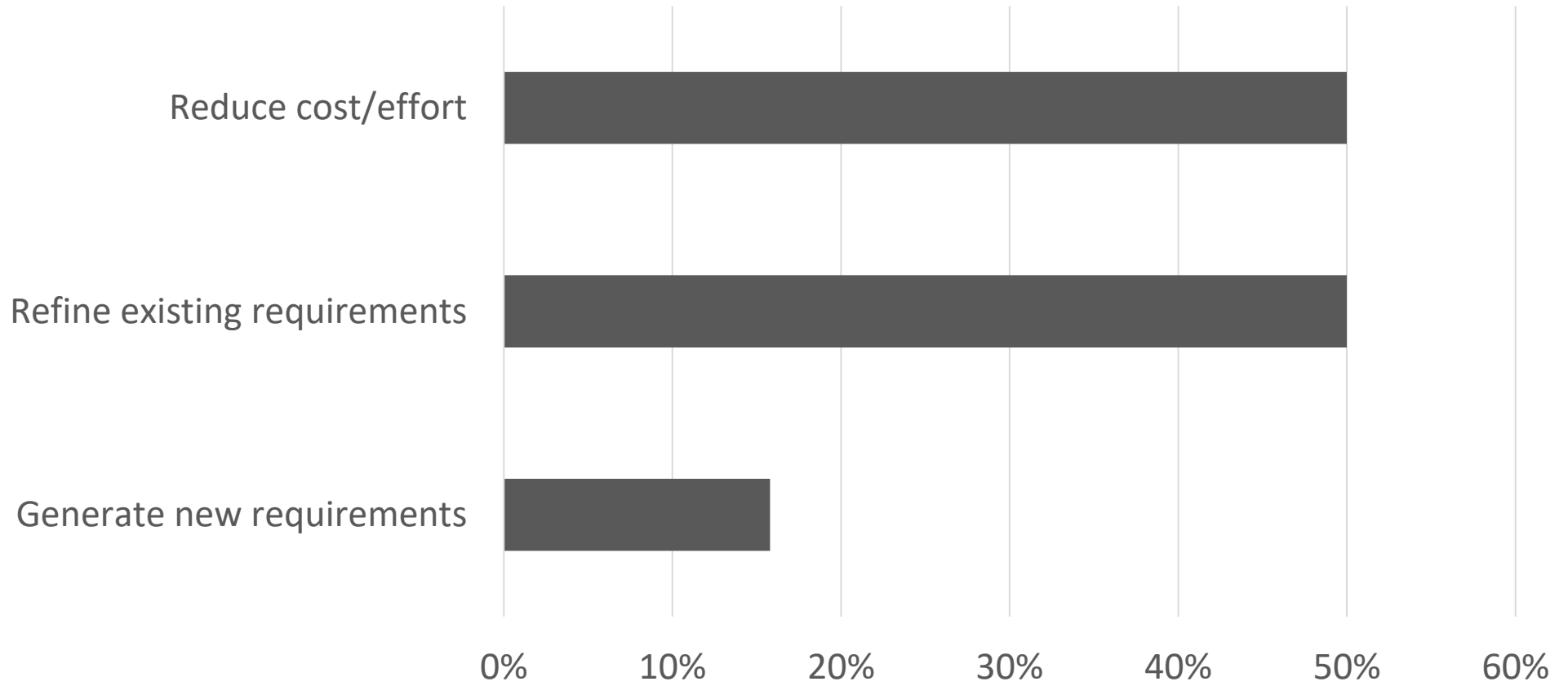
| | yes | no |
|------------|-----|-----|
| Evaluation | 28 | 10 |
| | 74% | 26% |

| | |
|------------------------|-----|
| Tested on real project | 15 |
| | 40% |

| | |
|----------------------------------|-----|
| improvements identified | 58% |
| Follow-up improvements published | 13% |



Capabilities



Challenges faced

- RE Phases don't always have clear boundaries
- Messy paper structure and broken English
- Tool dependencies

Limitations of the study

- Me, myself and I
- Scope limited to studies found in literature review
- Search procedure could possibly not capture follow-up papers

Early conclusions

- Academic RE tools are not yet ready for agility & collaboration
- A lot of tools lack proper evaluation
- RE cannot be fully automated at this point

Future work

- Finish tool evaluation
- Contact authors of inaccessible tools
- Make it a paper!

Summary

Literature Review

2000+ Search results
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121 tools



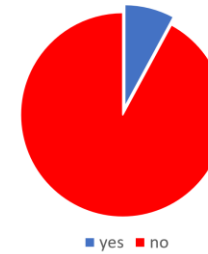
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Intended audience & collaboration

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