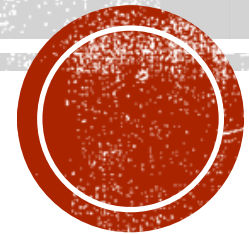


WORK PRACTICES AND CHALLENGES IN PULL- BASED DEVELOPMENT: THE CONTRIBUTOR'S PERSPECTIVE



Presented by Chris Budiman

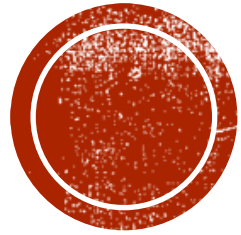
October 20, 2016

BACKGROUND

All studies involving the pull-based development model were focused on projects and integrators.

Existing studies only examine how developers collaborate in the context of OSS and no work on how contributors perceive the pull-based development model.





DEFINITIONS

- Pull-based model
- Contributors
- Integrators

BENEFITS OF PULL-BASED DEVELOPMENT

- Increase transparency
- Attract more contributions
- Improve effectiveness in dealing with incoming contributions

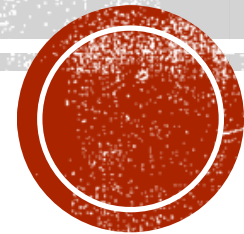
“the introduction of the pull-based development model has allowed them to become more democratic and transparent and to attract a greater participation, resulting in doubling the number of contributors”



GOAL

To gain in-depth understanding on:

- what motivates top contributors to submit pull-requests
- how they prepare them
- what challenges they face in pull-based model.



RESEARCH METHODS

It follows a mixed-method approach by collecting qualitative but also quantitative data.

The data is collected in two-rounds (pilot and main) survey with 23 and 760 respondents respectively. Additionally, the resulting dataset was augmented with trace data extracted from GHTorrent.



STUDY DESIGN

Survey

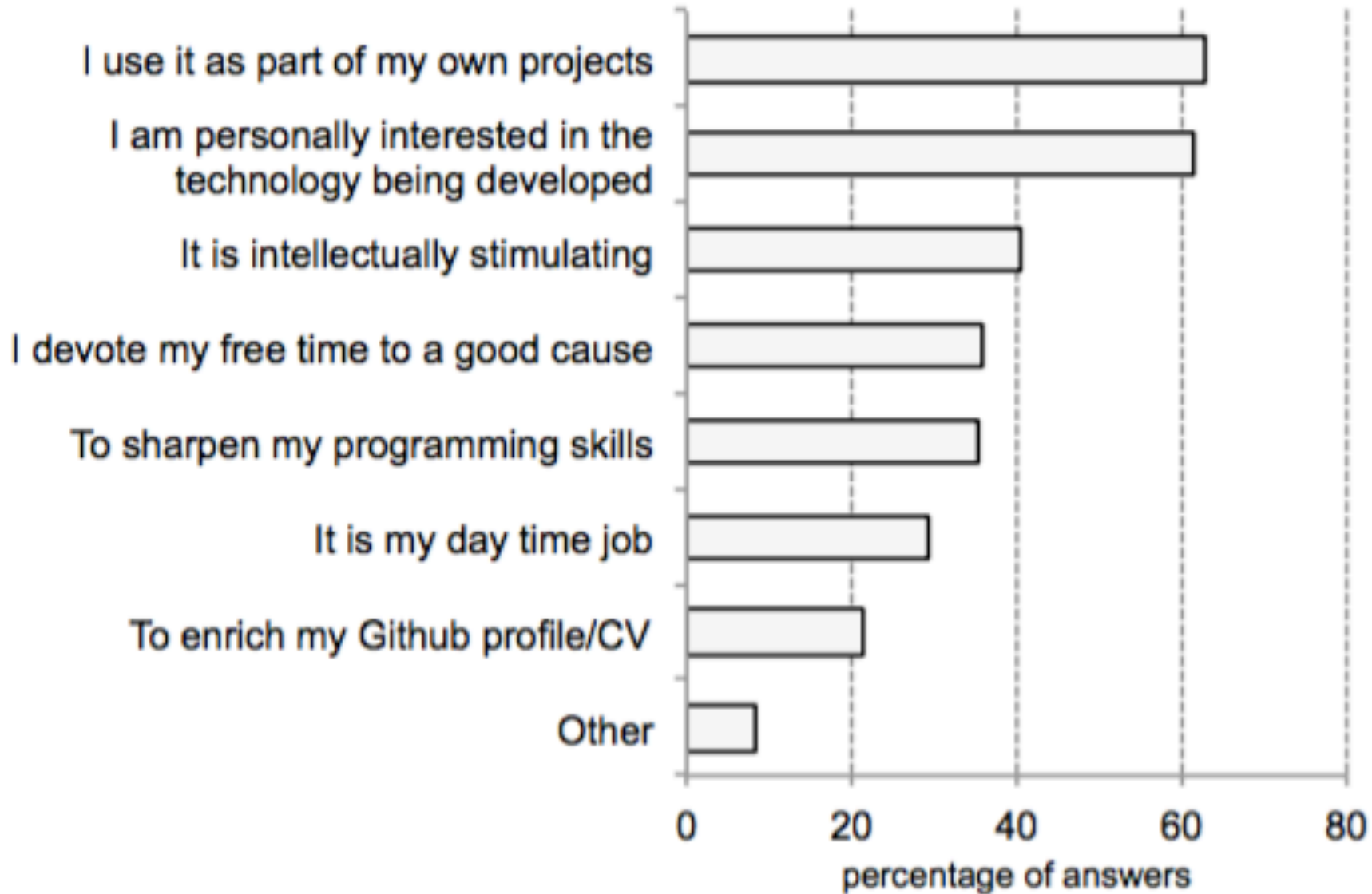
- Ran in 2014, from April 14 to May 1
- Consisted of three logical sections: demographic information, multiple choice or Likert-scale questions, and open-ended questions.
- Could be completed in about 10 minutes

Respondents

- 76% project contributors
- 65% working for industry
- 68% have more than 7 years of software development experience
- 59% have more than 3 years experience in geographically distributed software development



Why do you contribute to this specific project?



RESEARCH QUESTION 1

WHAT MOTIVATES THE CONTRIBUTORS OF PROJECTS THAT USE THE PULL-BASED DEVELOPMENT MODEL?

“[application] is very nice program, that I use daily”

“[it is] part of my master’s thesis”

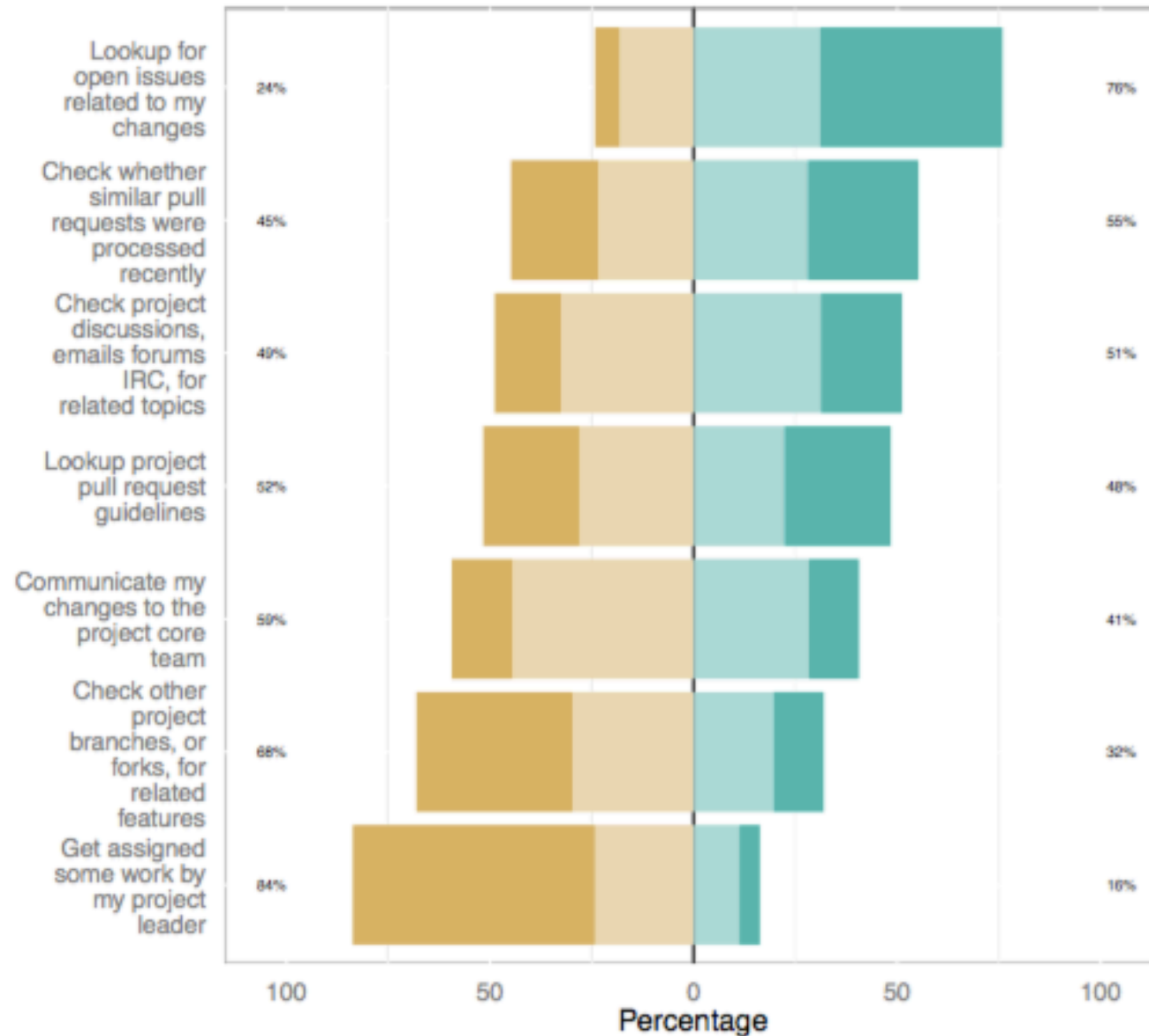
“I use it to learn from by reading others’ code”

“I enjoy coding for it and the community”



Before starting to work on a pull request, I

Response Never Occasionally Often Always



RESEARCH QUESTION 2

HOW DO CONTRIBUTORS PREPARE (FOR) A CONTRIBUTION?

2.1: What happens before coding a PR?

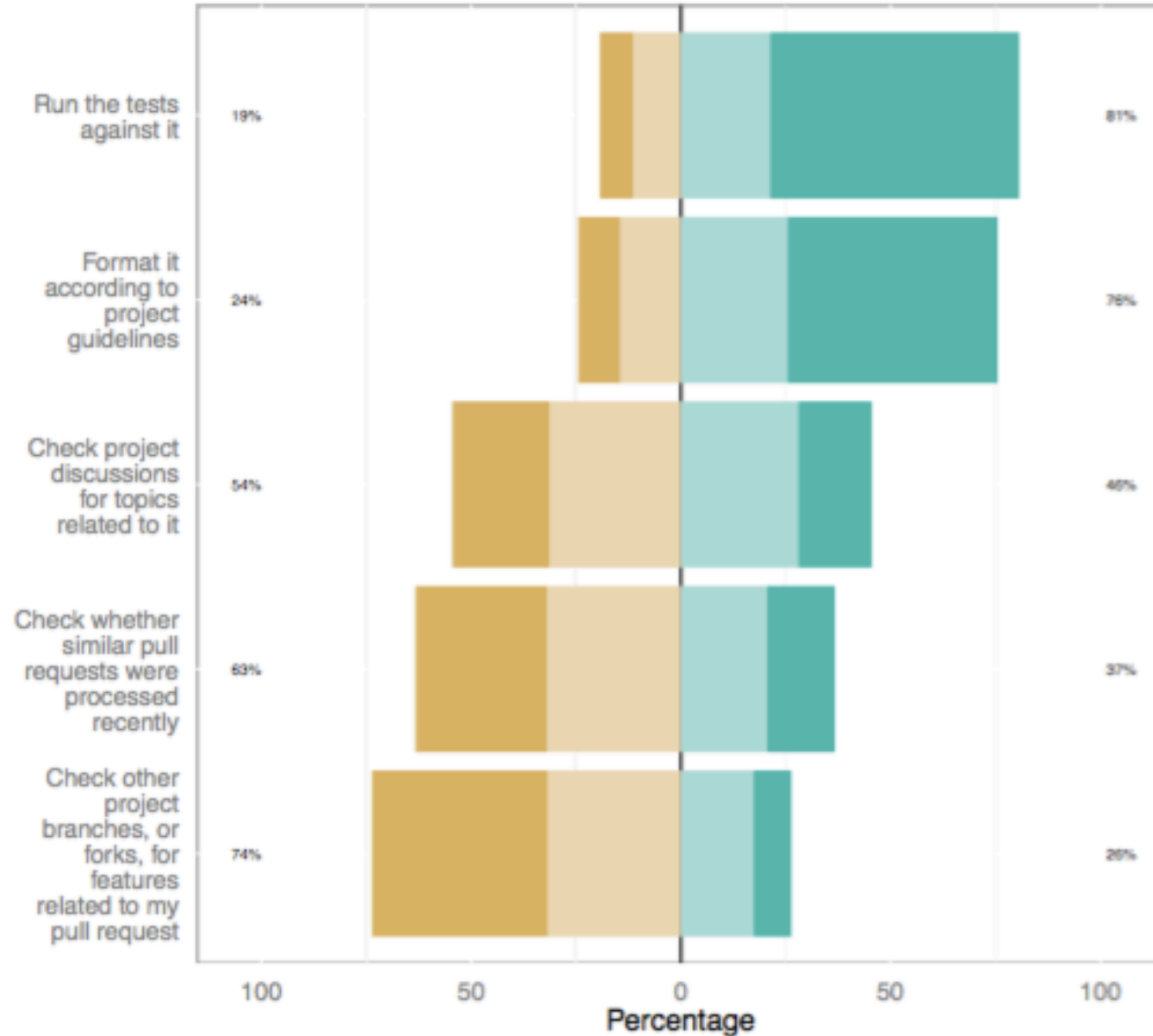
“These are all reasonable things to do”

“I almost always know what’s going on [in the issue tracker], on the mailing lists, in the PR queue, so I have an idea how relevant my PRs are long before I start working on them.”



When I am ready to submit a pull request, I

Response ■ Never ■ Occasionally ■ Often ■ Always



RESEARCH QUESTION 2

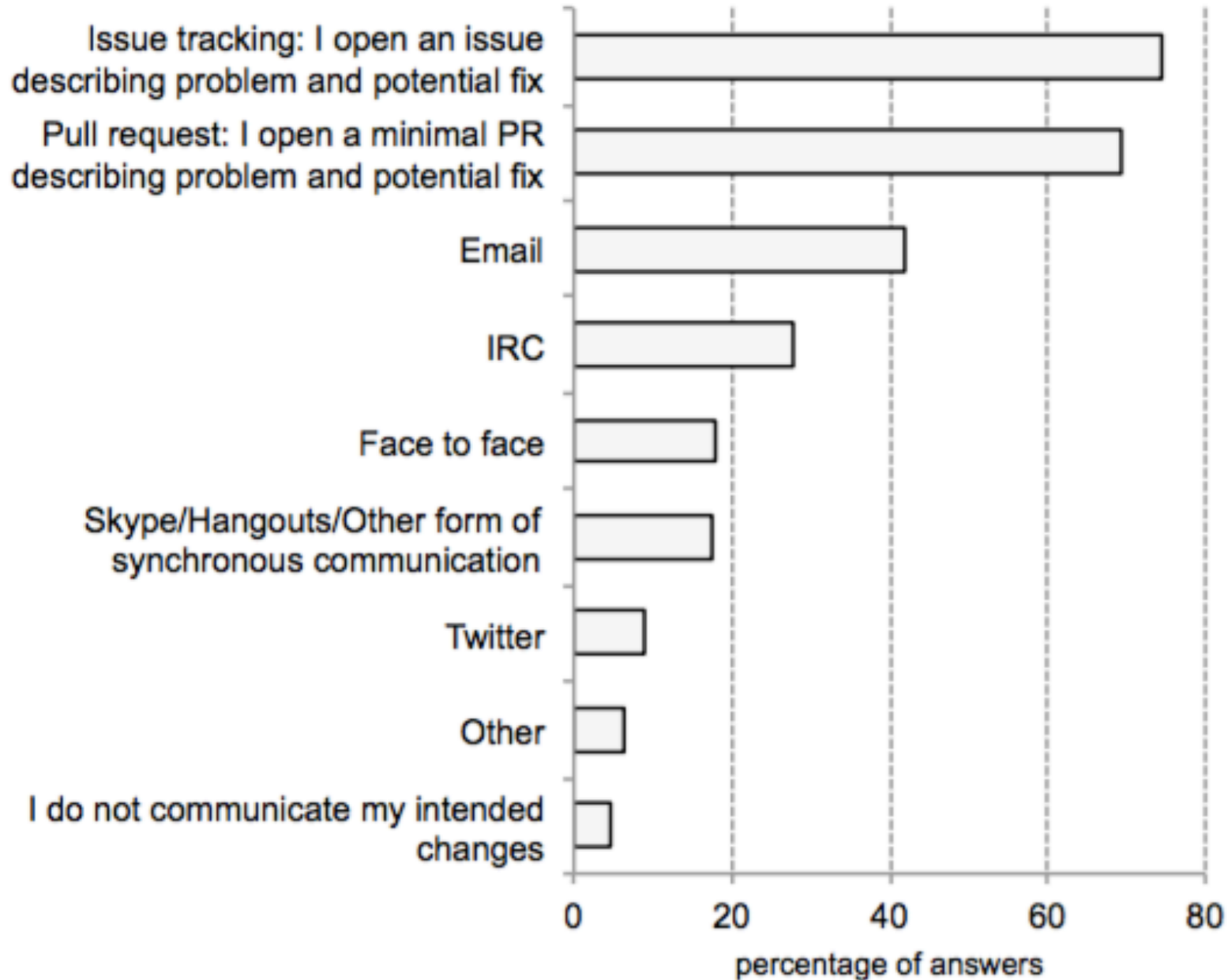
HOW DO CONTRIBUTORS PREPARE (FOR) A CONTRIBUTION?

2.1: What happens after coding a PR?

“I WOULD run tests and format according to guidelines but there are no tests or guidelines on this project”



How do you communicate the intended changes?



RESEARCH QUESTION 2

HOW DO CONTRIBUTORS PREPARE (FOR) A CONTRIBUTION?

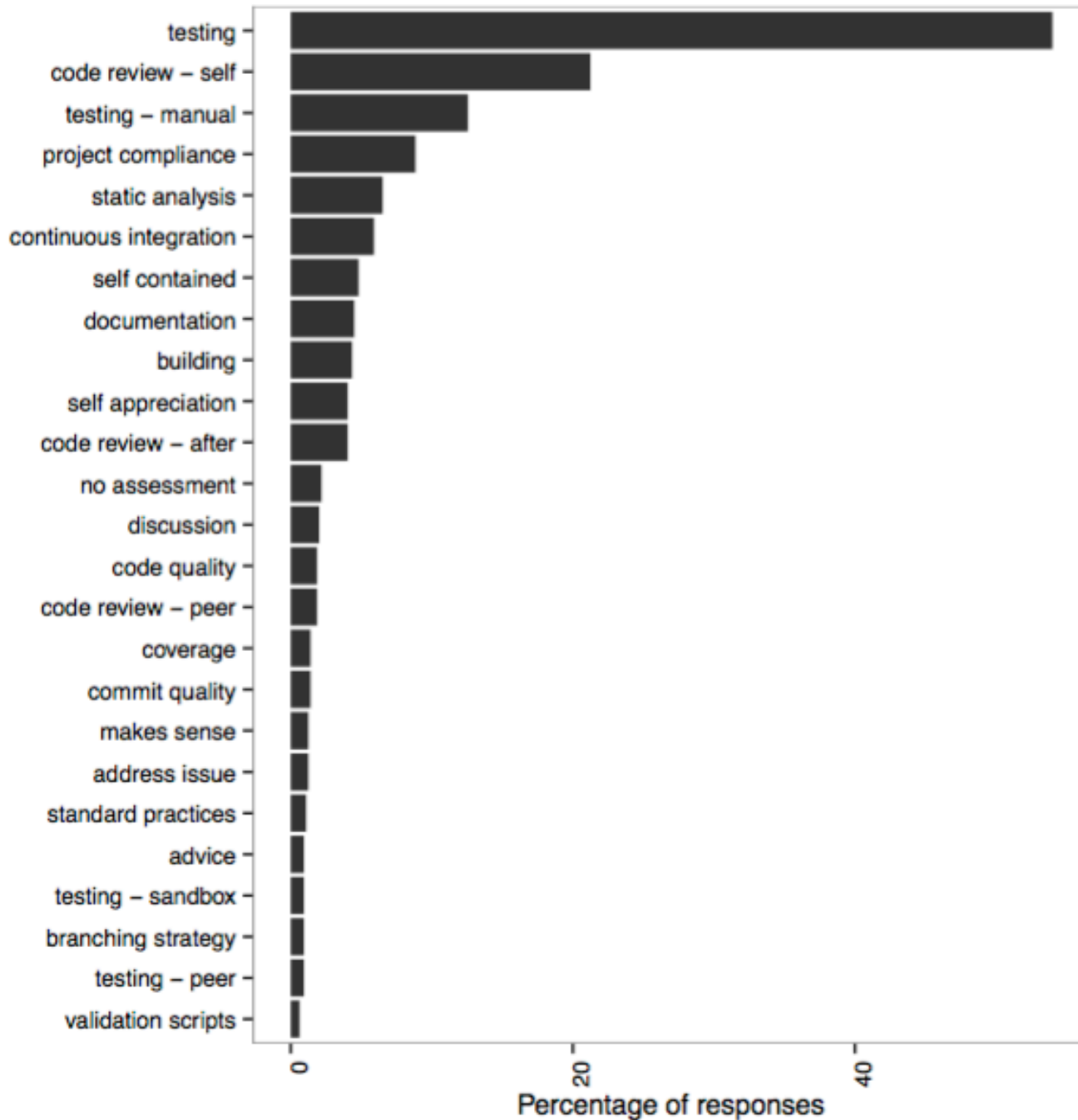
2.1: What happens after coding a PR?

“online forums for the project”

“Project Management tool such as VersionOne”

“Mailing list to get the opinion of the community and core team”





RESEARCH QUESTION 2

HOW DO CONTRIBUTORS PREPARE (FOR) A CONTRIBUTION?

2.2: How do contributors assess code quality of a PR?

“By following the contribution guidelines for a PR of that repository.”

“Following clean code principle and checking code style”

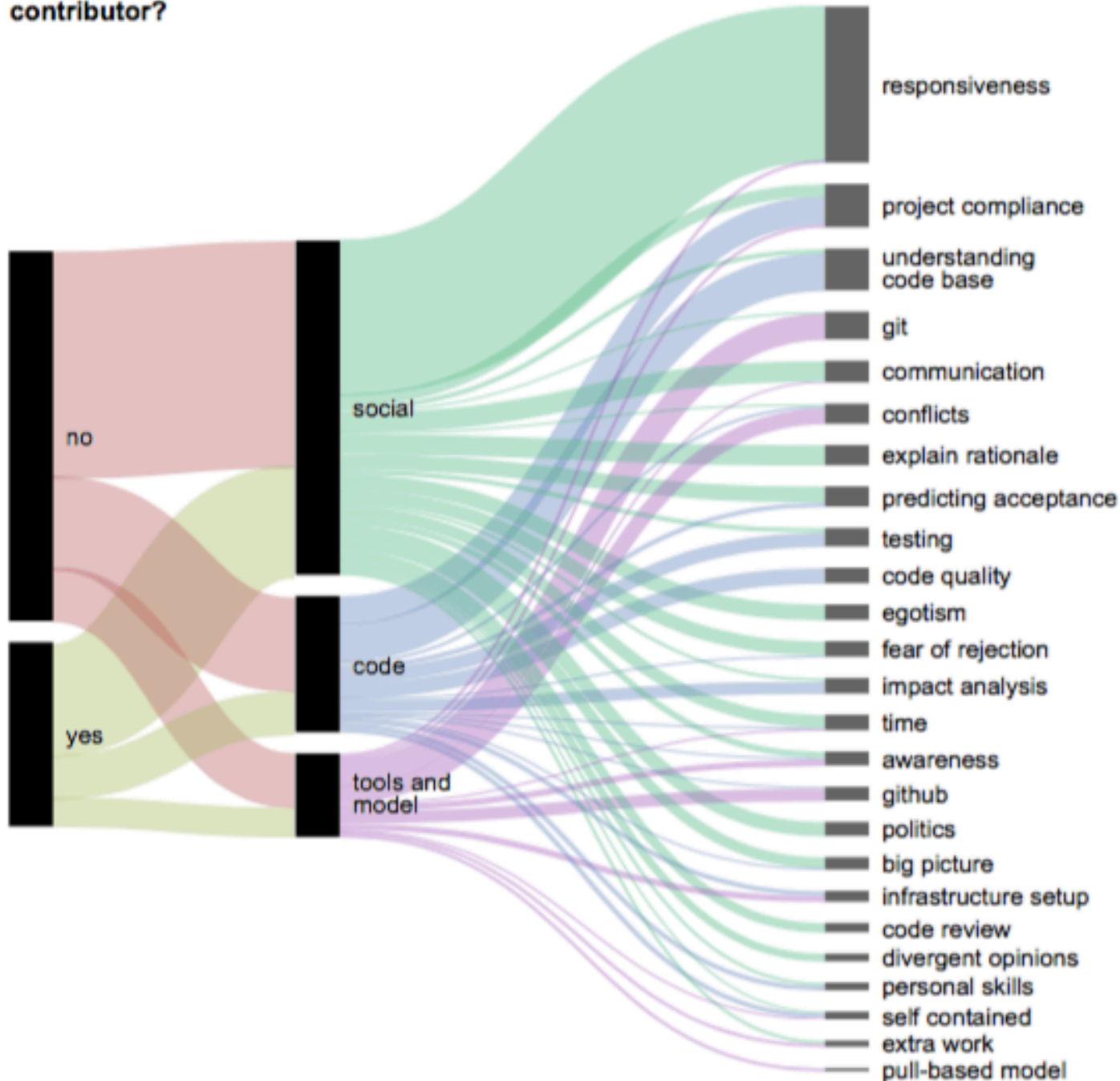
“It should be focused of the feature to implement (or bug to fix). Nothing unrelated to the topic should be in there.”



top 10% contributor?

theme

challenge



RESEARCH QUESTION 3

WHAT ARE THE CHALLENGES OF CONTRIBUTING THROUGH THE PULL-BASED DEVELOPMENT MODEL?

“The owner of the repo doesn’t ever respond to the PR, and leaves it hanging open forever”

“Fear of looking stupid. Fear of rude response.”

“[there is] no guideline or documentation”

“Usage of git is not intuitive. Especially for me as [one] who does not contribute regularly, it is every time a challenge to [use it]”



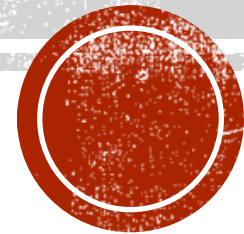
CONCLUSION

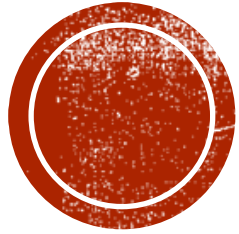
With better understanding of the motivations of contributors, the work practices involved in creating a pull-request, as well as the challenges face by contributors, the authors hope the paper can provide insights to improvement in the productivity of external contributors and researchers .



QUESTIONS

1. What are your motivations for contributing in open source?
2. Do you personally feel that pull-based development makes a big impact to the current OSS community?
3. How does pull-based development platform affect the general users?





THANK YOU