Squashing Diversity, Equity, and Inclusion Bugs in Open Source Projects

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Abstract

Open source software projects are **hyper collaborative environments** but **surveys** reveal that project members **lack diversity**. There are many reasons why open source projects **appear uninviting** to people of underrepresented groups. We would consider these reasons “bugs” if the system was software. We’ll use the idea of DEI bugs to discuss how we can **identify where** open source projects fall short in being inviting and inclusive. The goal of this framing is to find ways to **squash these bugs** and bring out the potential of everyone who has an interest in our open source projects. A concrete suggestion is to **walk in the shoes of others** and take a fresh look at your project. The audience will walk away with actionable steps to take a new look at their own open source projects and start making a positive difference.

The Four Opens

OpenInfra's Philosophy on Open Source

- Open Source
- Open Design
- Open Development
- Open Community

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Any software developed under the Four Opens must be released under an **open source license**.

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It's about **letting go of the control** of the design of the software and its feature road-map, and accepting that it **should be driven by the community**.

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"Open Development" refers to the adoption of transparent and inclusive development processes that **enable everyone to participate** as an equal on a level playing field.

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It is about ensuring that the community is a cohesive, inclusive, level playing ground where **all the voices are heard** and **anyone can rise to leadership positions**.

Diversity, Equity, and Inclusion in OSS

We Have a Gender Imbalance in Open Source

GitHub's Open Source Survey 2017

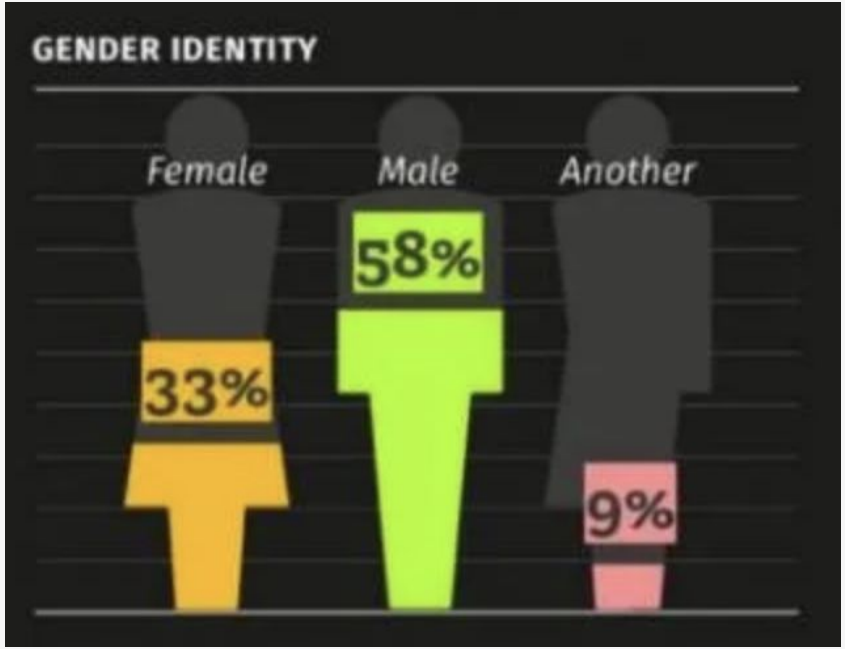
The gender imbalance in open source remains profound:

- 95% of respondents are men;
- **just 3% are women** and
- 1% are non-binary.

OpenSourceSurvey.org/2017

We Have a Gender Imbalance in Open Source

Mozilla's Survey 2017



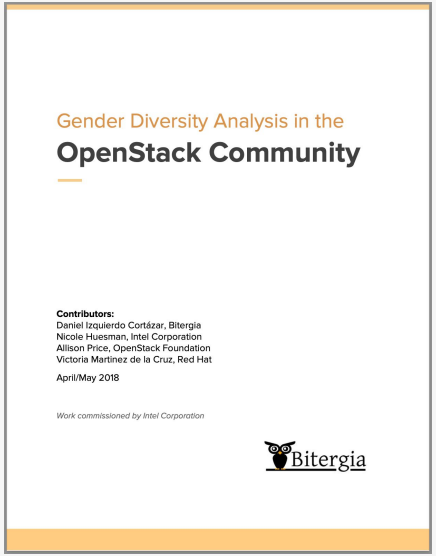
https://opensource.com/article/17/9/diversity-and-inclusion-innovation

We Have a Gender Imbalance in Open Source

OpenStack Community Report 2018

Typically, females account for **ten percent** of open source communities. [In OpenStack,] their activity levels range from

- **7-8% of code contributions**
- **up to 20% of leadership and governance**



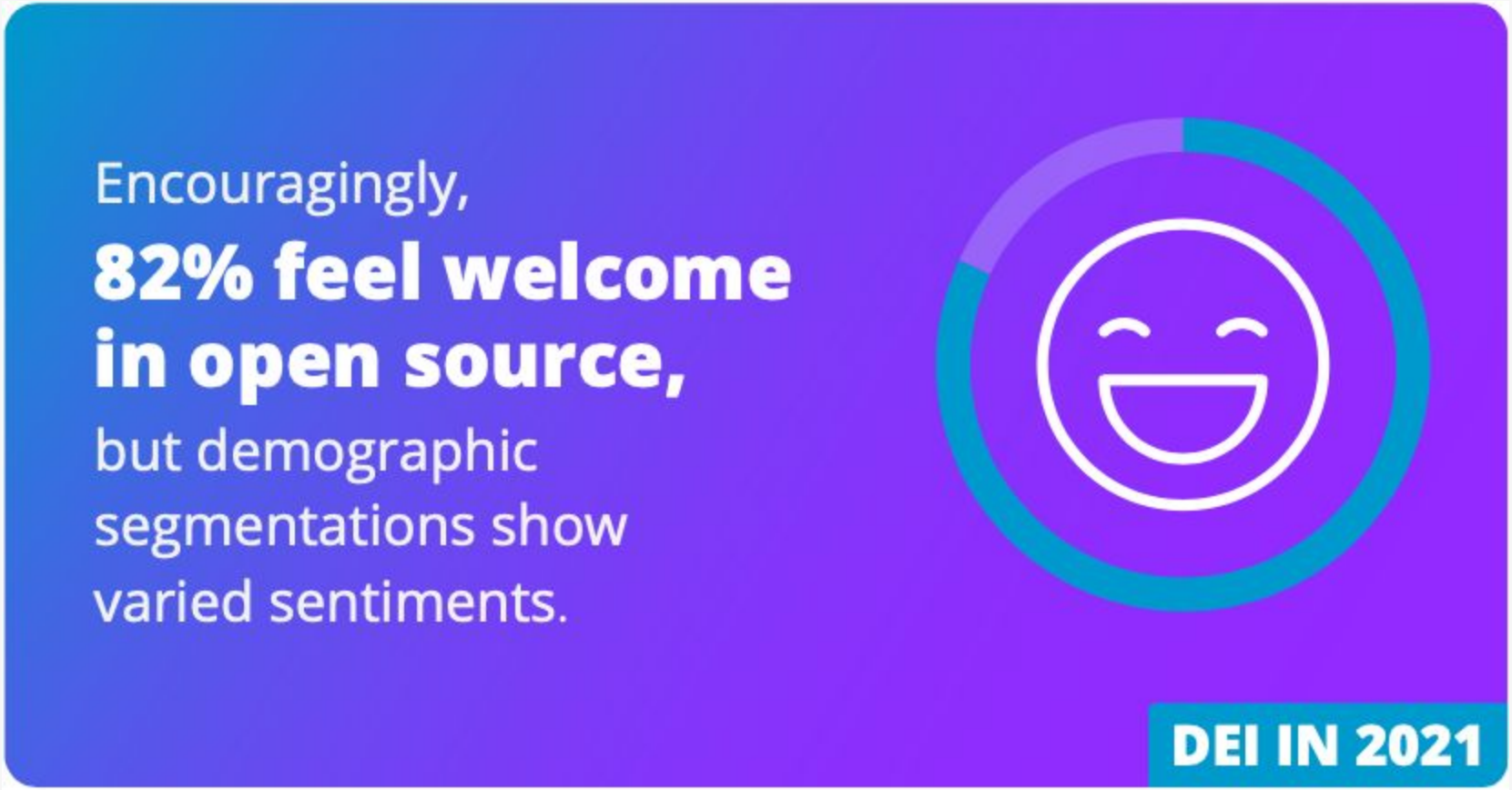
https://superuser.openstack.org/wp-content/uploads/2018/06/Gender-Diversity-Analysis-in-the-OpenStack-Community-2018.pdf

DEI Today

82%

Identified as **men** in

2021 Linux Foundation survey



Source: The Linux Foundation Report on Diversity, Equity, and Inclusion in Open Source from 2021

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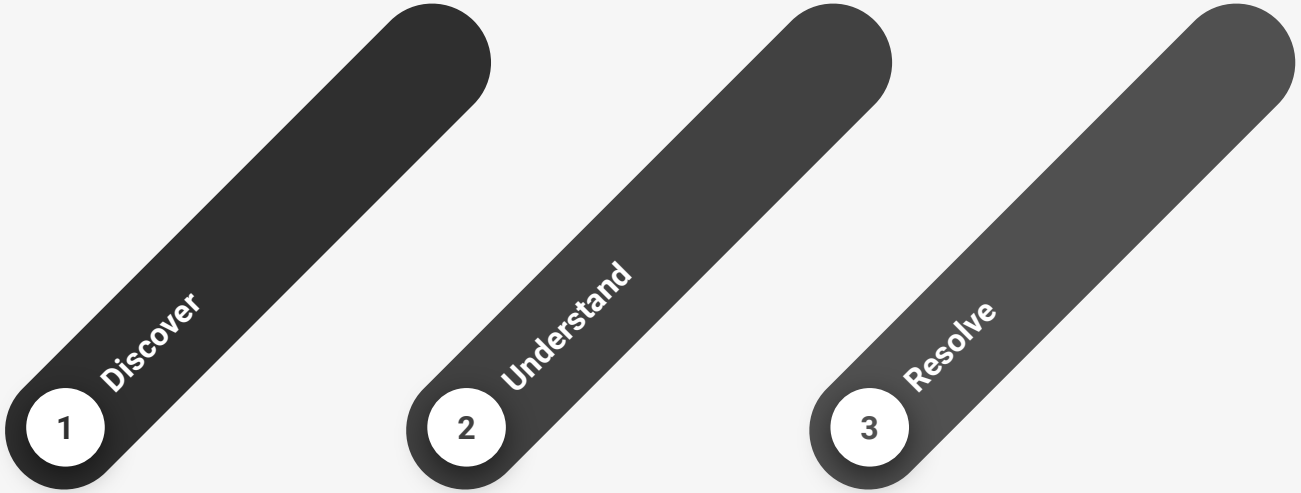
What to do?

Many recommendations include

- Have and enforce a Code of Conduct
- Identify and counter toxic behavior
- Enact structural change
- Create identity groups
- Improve documentation
- Provide a space for newcomers
- Localize efforts, avoid jargon
- Take a data-driven approach to learning and improving
- ...

Squashing DEI Bugs

Squash Diversity Bugs!



Thank you

Anita Sarma

Professor at Oregon State University

Example: Add Fix to Documentation

1) Discover

Reference: gendermag.org

Example: Add Fix to Documentation

2) Understand

Reference: gendermag.org

Example: Add Fix to Documentation

3) Resolve

Work on documentation

Another nice and easy way to start contributing to the project is by fixing issues or adding information to our documentation. To do so, you just need to

1. navigate to the desired file (in this project they are usually markdown -- .md -- files);
2. edit in the GitLab editor (clicking the "Edit" button in the top-right corner of the file content);
    - You will probably be requested to create a fork. Go ahead and do that (want to learn more about forks? It is a copy of the repository to your account. More? Click here)
3. edit the file and submit your merge request following the GitLab workflow (want to know more about the merge request workflow? Click here
4. your changes will be reviewed before going to production (and some changes may be required later)

Help us with code

Hi! if you're willing to contribute with code to [redacted] in addition to find a task to contribute to, you will need to **set up the project workspace on your local machine**, so you can make the appropriate changes to the codebase.

Reference: gendermag.org

1) Discover

- What goal does a newcomer have?

Piece of project	Sample goals of a newcomer
Issue tracker	•Find a good first issue to start contributing to •Report a bug with the software •Request a new feature
Code review system (e.g., pull/merge requests)	•Submit a software change for review •Respond to a review and update the contribution
README	•Understand what the software does •Install the software •Find instructions for how to use the software
CONTRIBUTING	•Fix a bug in the software •Add to the documentation •Set up the development environment
Installation guide	•Install the software
Tutorial	•Get started with using the software •Find better ways of using the software
Website	•Understand what the software does •Install the software •Look at the software source code •Report a bug or request a feature •Evaluate the health of the project •Contact a maintainer

1) Discover

- What goal does a newcomer have?
- What are the steps to achieve it?

Goal: Make changes to Readme as a contribution to the project

Subgoal (S1): Edit Readme file

Action S1-A1: Click Edit > Readme File

Action S1-A2: Edit Readme File

Action S1-A3: Describe Commit Changes > Save Commit

Subgoal (S2): Submit a pull request
Action S2-A1: Click on “create a new branch & start a pull request” before clicking “Propose Changes”
Action S2-A2: Click on “Create Pull Request”

1) Discover

- What goal does a newcomer have?
- What are the steps to achieve it?
- What perspective will you take?

1. **Motivation**: Enjoyment or Accomplishment?
2. **Information Processing Style**: Comprehensive or Selective?
3. **Learning Style for new Technology**: Tinkerer or Reflective?
4. **Computer self-efficacy**: Low or High?
5. **Risk aversion with technology**: Low or High?

2) Understand

- Team up for the next step, ideally in team of 3

Reference: gendermag.org

2) Understand

- How does the newcomer approach the problem?

Scenario (Overall Goal):

(e.g., Abi wants to find a science fiction book.)

Subgoal #__:

1. Will <persona> have formed this sub-goal as a step to their overall goal? Why?

Yes	*Maybe*	*No*
Which, if any, of <persona's> facets did you use to answer the question?		
Motivations *Information Processing Style* *Computer Self-Efficacy* *Attitude Towards Risk* *Learn by Process vs. Tinkering* *None of the above*	*Motivations* *Information Processing Style* *Computer Self-Efficacy* *Attitude Towards Risk* *Learn by Process vs. Tinkering* *None of the above*	*Motivations* *Information Processing Style* *Computer Self-Efficacy* *Attitude Towards Risk* *Learn by Process vs. Tinkering* *None of the above*
Why?		

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2) Understand

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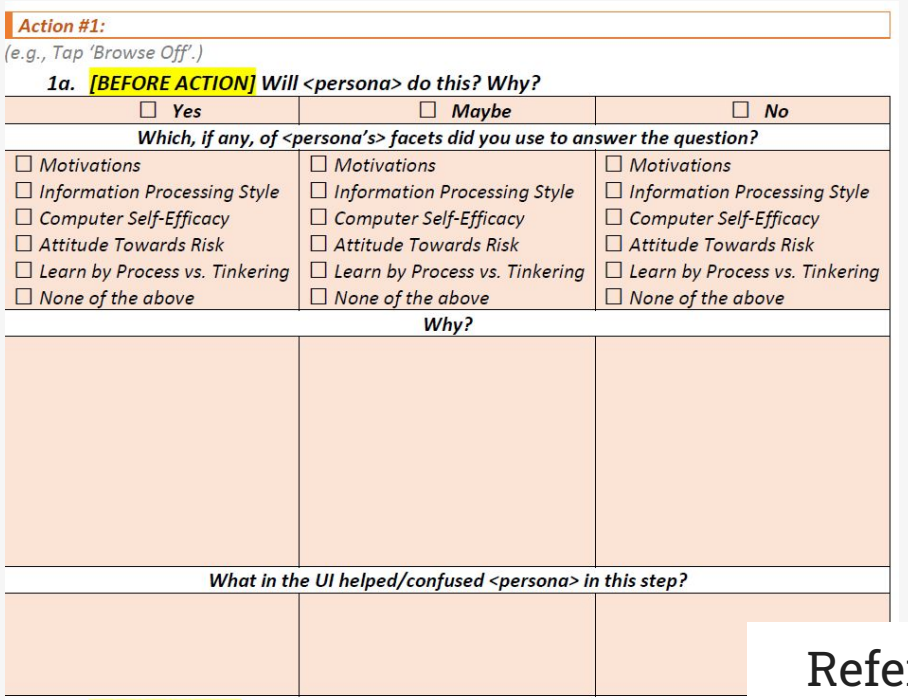

Action #1:

(e.g., Tap 'Browse Off'.)

1a. [BEFORE ACTION] Will <persona> do this? Why?

☐ *Yes*	☐ *Maybe*	☐ *No*
Which, if any, of <persona's> facets did you use to answer the question?		
☐ *Motivations* ☐ *Information Processing Style* ☐ *Computer Self-Efficacy* ☐ *Attitude Towards Risk* ☐ *Learn by Process vs. Tinkering* ☐ *None of the above*	☐ *Motivations* ☐ *Information Processing Style* ☐ *Computer Self-Efficacy* ☐ *Attitude Towards Risk* ☐ *Learn by Process vs. Tinkering* ☐ *None of the above*	☐ *Motivations* ☐ *Information Processing Style* ☐ *Computer Self-Efficacy* ☐ *Attitude Towards Risk* ☐ *Learn by Process vs. Tinkering* ☐ *None of the above*
Why?		
What in the UI helped/confused <persona> in this step?		

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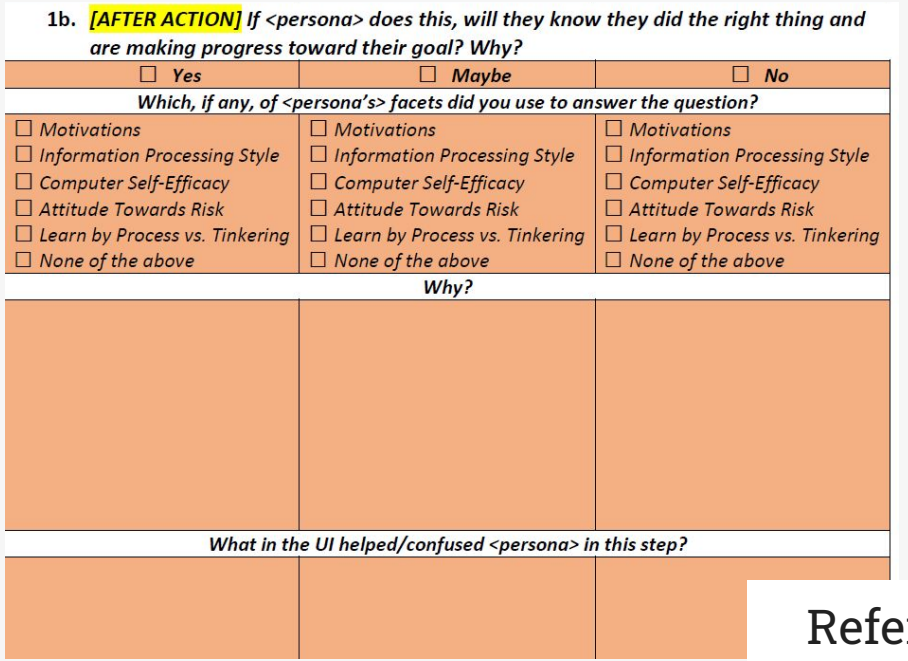
2) Understand

- How does the newcomer approach the problem?



1b. [AFTER ACTION] If <persona> does this, will they know they did the right thing and are making progress toward their goal? Why?		
☐ Yes	☐ Maybe	☐ No
Which, if any, of <persona's> facets did you use to answer the question?		
☐ Motivations ☐ Information Processing Style ☐ Computer Self-Efficacy ☐ Attitude Towards Risk ☐ Learn by Process vs. Tinkering ☐ None of the above	☐ Motivations ☐ Information Processing Style ☐ Computer Self-Efficacy ☐ Attitude Towards Risk ☐ Learn by Process vs. Tinkering ☐ None of the above	☐ Motivations ☐ Information Processing Style ☐ Computer Self-Efficacy ☐ Attitude Towards Risk ☐ Learn by Process vs. Tinkering ☐ None of the above
Why?		
What in the UI helped/confused <persona> in this step?		

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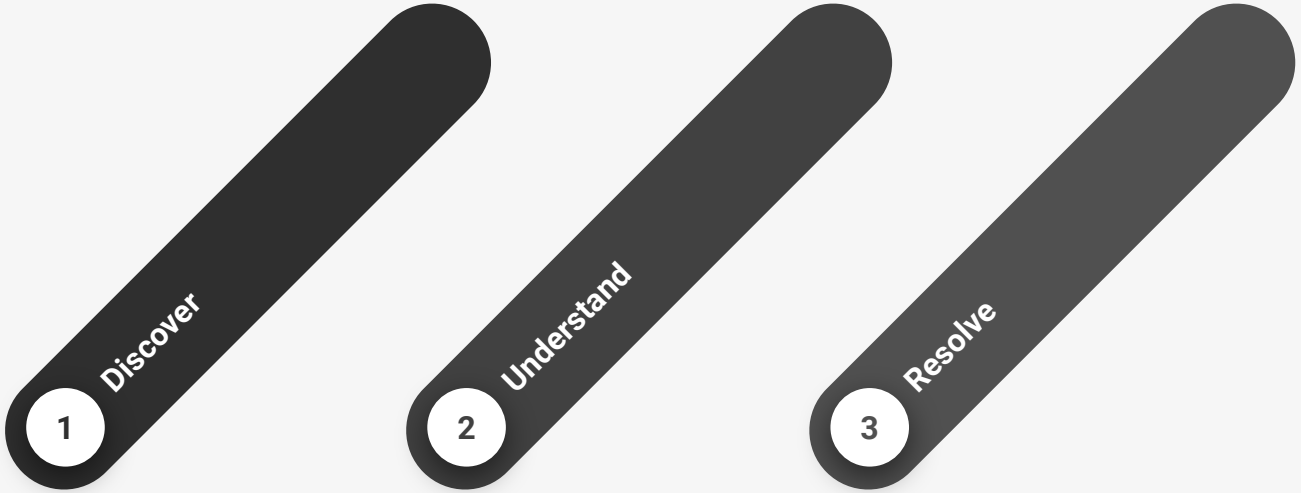
3) Resolve

Prioritize based on the issues found

- How many steps did the newcomer have issues with?
- How many issues were the result of the personality?
- Discuss solution approaches

Repeat with Different Personalities

Squash Diversity Bugs!



Resources at **gendermag.org**

- Research
- Kit & Forms
- Customizable Personas
- Flyers
- Webinars
- Trainings

Thank You!

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Bitergia

Celebrating 10 years of software development analytics!