

# Research and Startup

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**COSS D02**

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# Agenda

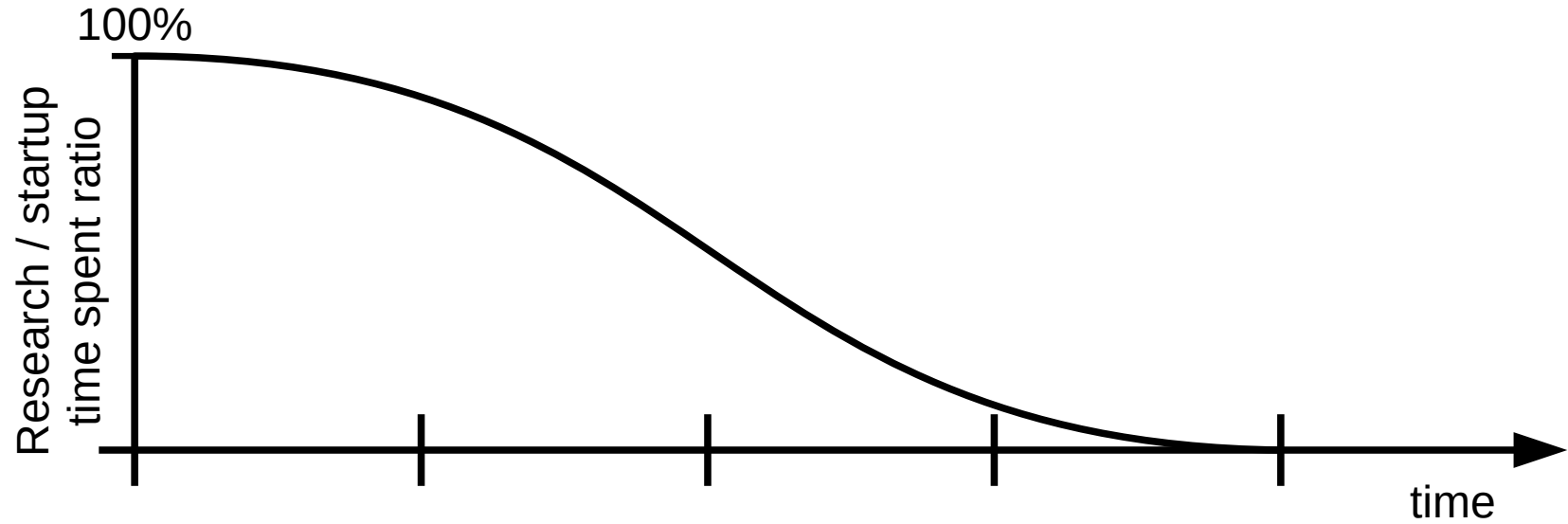
1. Research vs. startup
2. Project management
3. Lead programming
4. Open source strategy
5. Getting users
6. Getting contributions

# 1. Research vs. Startup

# Goal Conflict

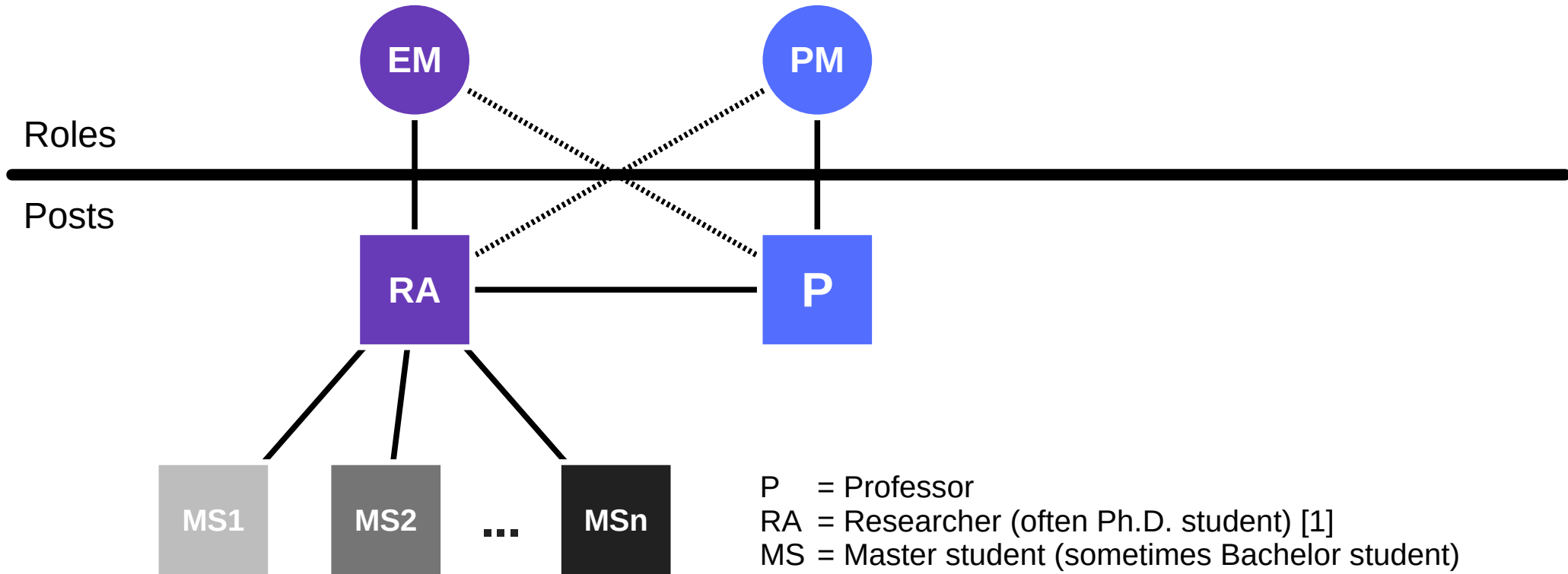
- Research
  - Desired output
    - Research papers
    - A dissertation
- Startup
  - Desired output
    - Software product
    - A startup

# Resulting Time Allocation



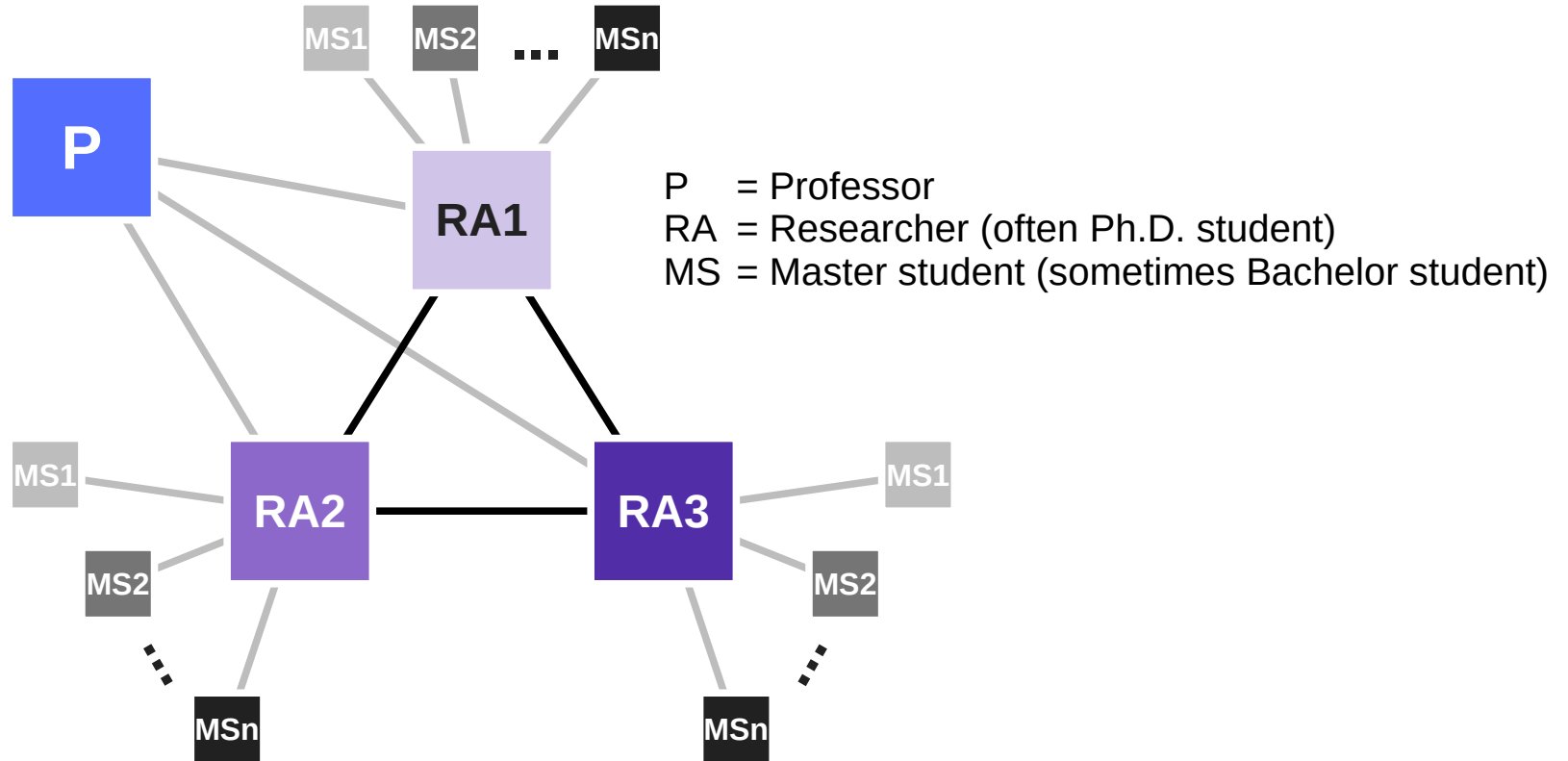
## 2. Project Management

# The Solo Founder Model



[1] The researcher (research project) acts as the lead engineer (startup)

# The Peer Group Model





# Project Recruiting

- Researchers
  - Recruited by professor
  - Funded through research grants, self-funded
- Masters students
  - Recruited by researchers with support by professor
  - Funded through research grants, self-funded

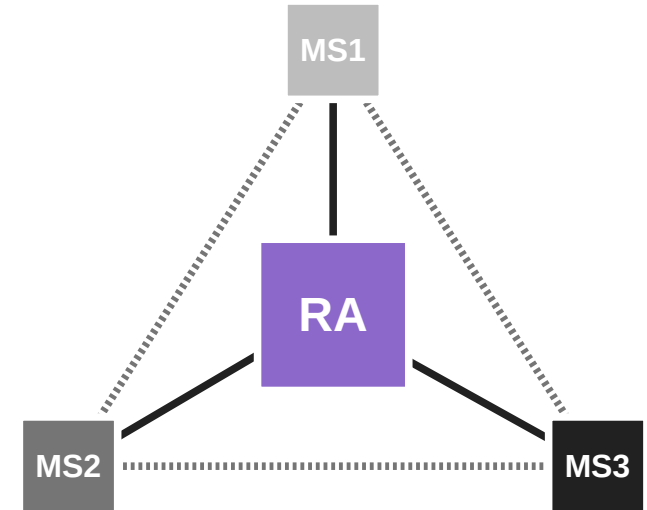
# Project End

- Research project finished
- Startup created (or failed)

## 3. Lead Engineering

# Lead Engineer [1]

- A lead engineer
  - Is an engineer who leads the development of a component / system
    - In case of solo founder: The system
    - In case of peer group: A key component
  - W.r.t. the component, is responsible for maintaining
    - Product vision and getting the features done
    - Architectural integrity and code quality
  - Manages other people as they contribute to the component
    - In the beginning, they write most of the code themselves
    - Later, they review and integrate code more than they write
- Contributors are
  - Students at the university (e.g. Master's students)
  - Later: Open source volunteers



# Role Name Equivalencies

Context	Lead role	Helper role
University	Ph.D. student	Master student
Research project	Graduate researcher	Research assistant
Startup project	Lead engineer	Student engineer
Open source project	Committer	Contributor
Company	Co-founder	Early employee

# Lead Engineer / Student Engineer Collaboration

- Lead engineer defines feature
  - If necessary breaks it down into tasks
  - Assigns tasks or waits for volunteers
- With student engineer, discusses design
  - Helps break down work into tasks / increments
  - Ideally, discussion is public (in open source anyway)
- In multiple increments, reviews and merges code
  - Student engineer provides sufficiently small commit
  - Lead programmer reviews, comments, integrates
- Until feature is fully implemented

# Central Project

Q

qdacity

Project ID: 12461679

🔔

☆ Star 2

🍴 Fork 9

🔗 8,117 Commits    🌿 36 Branches    🏷️ 24 Tags    📁 216.5 MB Files    💾 50 GB Storage

Backend Coverage 65.00%

Frontend Coverage 11.20%

master    qdacity /    +    History    Find file    Web IDE    ⬇    Clone

Merge branch 'bundlemap' into 'master'    ⋮

⚠️    293aad4b    📁

Andreas Kaufmann authored 11 hours ago

📁 Upload File

📄 README

📄 CI/CD configuration

+ Add LICENSE

+ Add CHANGELOG

+ Add CONTRIBUTING

+ Add Kubernetes cluster

Name	Last commit	Last update
📁 .gitlab/issue_templates	Update ReleaseChecklist.md	2 weeks ago

# Distributed Development

## Projects

[New project](#)

Your projects 37 Starred projects 0 Explore projects

Last updated

All Personal

Q Professorship of Open Source Software / QDAcity / **qdacit** Owner

★ 2 ♣ 9 📄 9 📄 259

Updated 9 hours ago

Q Professorship of Open Source Software / QDAcity / student-projects / **qdacit-oscar-rosner** Owner

★ 0 ♣ 0 📄 0 📄 0

Updated 9 hours ago

Q Professorship of Open Source Software / QDAcity / student-projects / **qdacit-vishwas-anavatti** Owner

★ 0 ♣ 0 📄 0 📄 0

Updated 9 hours ago

Q Professorship of Open Source Software / QDAcity / student-projects / **qdacit-hugo-ibanez** Owner

★ 0 ♣ 0 📄 0 📄 0

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Q Professorship of Open Source Software / QDAcity / student-projects / **qdacit-julian-lehrhuber** Owner

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Updated 1 day ago

Q Professorship of Open Source Software / QDAcity / student-projects / **qdacit-bharathwaj-rav** Owner

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Updated 1 day ago

Q Professorship of Open Source Software / QDAcity / student-projects / **qdacit-markus-goller** Owner

★ 0 ♣ 0 📄 0 📄 0

Updated 4 days ago



# Issue Management

Open 134 Closed 560 All 694



Edit issues

New issue

Recent searches ▾

Search or filter results...

Created date ▾



Add new Requirement Specification View 0 of 2 tasks completed

#700 · opened 1 week ago by Julia Doing



0

updated 2 days ago

Update to Endpoint API to use Cloud Endpoints Portal

#699 · opened 2 weeks ago by Julia Backend To Do



0

updated 2 weeks ago

Save Document on switch between Text- & Coding Editor

#698 · opened 1 month ago by Julia Bug Frontend To Do



0

updated 1 month ago

Vertically center star icon

#695 · opened 6 months ago by Andreas Kaufmann Coding Editor Frontend To Do



0

updated 6 months ago

Saturation Metric Maximum

#694 · opened 7 months ago by Andreas Kaufmann Backend Bug To Do



0

updated 7 months ago

Add symbol for codebookentry to the code status bar

#693 · opened 7 months ago by Julia Frontend Nice to have



0

updated 7 months ago

Implement Lombok to support a better code overview?

#692 · opened 8 months ago by Julia Backend



0

updated 7 months ago

Save state of Code System

#690 · opened 8 months ago by Julia Backend Coding Editor Frontend



0

updated 8 months ago

# Kanban Board

Open

570+

Add symbol for codebookentry to the code status bar

FrontendNice to have

#693

Implement Lombok to support a better code overview?

Backend

#692

Save state of Code System

BackendCoding EditorFrontend

#690

Notify about not-saved code book entries

Coding EditorFrontend

#689

Better Solution for CodeIDs

BackendCoding Editor

#684

Problems with Chrome

BugFrontendLow Priority

#678

Delete coding easier

Coding EditorFeatureFrontend

#688

Down arrow key to change code segment

Coding EditorFeatureFrontend

#687

To Do

660+

Update to Endpoint API to use Cloud Endpoints Portal

Backend

#699

Save Document on switch between Text- & Coding Editor

BugFrontend

#698

Vertically center star icon

Coding EditorFrontend

#695

Saturation Metric Maximum

BackendBug

#694

Code color inherited from category

Coding EditorFeatureFrontend

#683

Duplicate code locations

BugCoding EditorFrontend

#682

Updating coding brackets on rename

BugCoding EditorFrontend

#681

Crash on switching documents

BugCoding Editor

#680

Doing

40+

Add new Requirement Specification View

#700

List support in Editor

BackendFeature

#645

Fix acceptance tests for pipeline

DevFeatureRefactoring

#673

Wiki Documentation

DevDocumentationResearch

#633

In Review

70+

Add sync for Meta Model attributes

#657

Finer grained merge

FeatureFrontend

#666

Editable Conflict

FeatureFrontend

#667

Sync positions in diff views for theirs and mine

FeatureFrontend

#669

Deploying the NLP service

BackendDev

#664

Remove coding when offline

FeatureFrontend

#611

No Updates Before Sync Finished

FeatureFrontend

#591

Closed

Restructure war folder

FrontendRefactoring

#86

Removing Codings

BugCoding EditorFrontend

#274

getCurrentUser not working

BackendBug

#327

Mixed Content

BugFrontend

#169

General Refactoring

FrontendRefactoring

#171

Update App Engine SDK to 1.

Dev

#318

Add servlet for SSL challenge

BackendFeature

#270

Landing Page

FeatureFrontend

#188

# Merge Request Backlog

Open 9 Merged 205 Closed 19 All 233



Edit merge requests

New merge request

Recent searches ▾

Search or filter results...

Created date ▾



<b>remove URL.js from project</b> !234 · created 1 day ago by Oscar Rosner ⌚ Frontend Performance Optimization (Oscar Rosner) Frontend	⚠️ 👤 🌐 🗨️ 8 updated 9 hours ago
<b>refactor loadGAPIs()</b> !232 · created 1 day ago by Oscar Rosner ⌚ Technical Debt: Q3 2021 Frontend	⚠️ 👤 🌐 🗨️ 5 updated 9 hours ago
<b>cleanup / update index.jsp</b> !231 · created 1 day ago by Oscar Rosner ⌚ Frontend Performance Optimization (Oscar Rosner) Frontend	⚠️ 👤 🌐 🗨️ 12 updated 9 hours ago
<b>Notification test - more tests added</b> !230 · created 2 days ago by Vishwas Anavatti ⌚ Improving Development Setup (OSS-SEMI) Backend Test	⚠️ 👤 🌐 🗨️ 0 updated 2 days ago
<b>Refactor notification</b> !229 · created 2 days ago by Vishwas Anavatti ⌚ Collaborative Workflows (OSS-PROJECT) Backend Refactoring	⚠️ 👤 🌐 🗨️ 0 updated 2 days ago
<b>Draft: User Group Revamp - delete UserGroup and UserGroupuser(Backend)</b> !228 · created 2 days ago by Vishwas Anavatti ⌚ Collaborative Workflows (OSS-PROJECT) Backend Feature	⚠️ 👤 🌐 🗨️ 0 updated 9 hours ago
<b>Draft: User Group Revamp - create/update/list of UserGroupUser (Backend)</b> !227 · created 2 days ago by Vishwas Anavatti ⌚ Collaborative Workflows (OSS-PROJECT) Backend Feature	⚠️ 👤 🌐 🗨️ 0 updated 9 hours ago
<b>Builder pattern NotificationFilter class</b>	⚠️ 👤 🌐 🗨️ 2

# Threaded Discussions



Professorship of Open Source Software > QDAcity > qdacity > Merge requests > !234

Open Created 1 day ago by  **Oscar Rosner**  Developer

Edit Mark as draft ▼

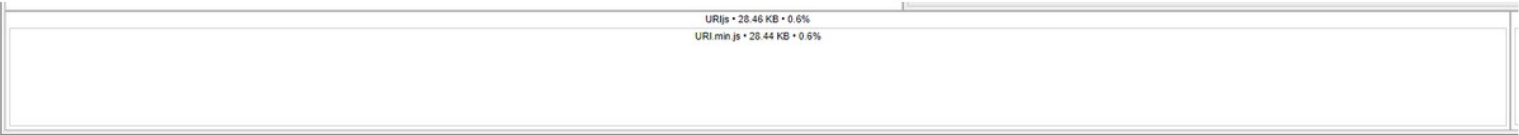
## remove URL.js from project

**Overview** 8 Commits 3 Pipelines 3 Changes 12

2 unresolved threads   ▼

We use [URL.js](#) to extract query params from urls.

The minified version of URL.js makes up 0.6% (28.44 kB) of our bundle which isn't justified considering its small usecase and the fact that we can fall back to [URLSearchParams](#).



We only use a subset of the functions provided by URL.js but it can't be treeshaked by webpack because it's a non-module javascript file and just adds functions and variables to the global namespace.


Edited 1 day ago by Oscar Rosner



 **Request to merge** [profoss/qdacity/stu...](#) :`remove urljs from p...`  **into** [master](#)

The source branch is [62 commits behind](#) the target branch

Open in Web IDE Check out branch  ▼

Add a to do »


Assignee Edit  
 Oscar Rosner  
@kexplx



Reviewer Edit  
 @kaufmann\_osr 

Milestone Edit  
**Frontend Performance Optimization**  
(Oscar Rosner)

Time tracking ?  
No estimate or time spent

Labels Edit  
Frontend ×

Lock merge request Edit  
 Unlocked

2 participants  
 

Notifications ×

# Thread Resolution



**Oscar Rosner** 🛠️ @kexplx started a thread on the diff 1 day ago  
Last updated by Oscar Rosner 20 hours ago

^ Toggle thread

war/assets/js/pages/ExercisePage/ExercisePage.jsx

```
5 5
6 6 import ExerciseEndpoint from '../../../common/endpoints/ExerciseEndpoint';
7 7 import CourseEndpoint from '../../../common/endpoints/CourseEndpoint';
8 - import 'script-loader!../../../components/URIjs/URI.min.js';
```



**Oscar Rosner** 🛠️ @kexplx · 1 day ago

Developer



An upcoming MR will remove the deprecated and unmaintained `script-loader` so this MR is a nice start.



**Andreas Kaufmann** @kaufmann\_osr · 20 hours ago

Owner



I believe since we have started using it, webpack have added better native support for importing assets as asset modules (came with v4 I think), is that the replacement for this type of loader?



**Oscar Rosner** 🛠️ @kexplx · 20 hours ago

Developer



[Script Loaders](#) [GitHub](#) says to use `raw-loader` but i think there is another more webpacky option yes.

Reply...

Resolve thread



**Oscar Rosner** 🛠️ @kexplx started a thread on an old version of the diff 1 day ago  
Resolved by Andreas Kaufmann 20 hours ago

▼ Toggle thread

Assignee

Edit



Oscar Rosner  
@kexplx

Reviewer

Edit



@kaufmann\_osr



Milestone

Edit

**Frontend Performance Optimization**  
(Oscar Rosner)

Time tracking



No estimate or time spent

Labels

Edit

Frontend x

Lock merge request

Edit



Unlocked

2 participants



Notifications



Reference: [profoss/gdacity/gdacity](#)

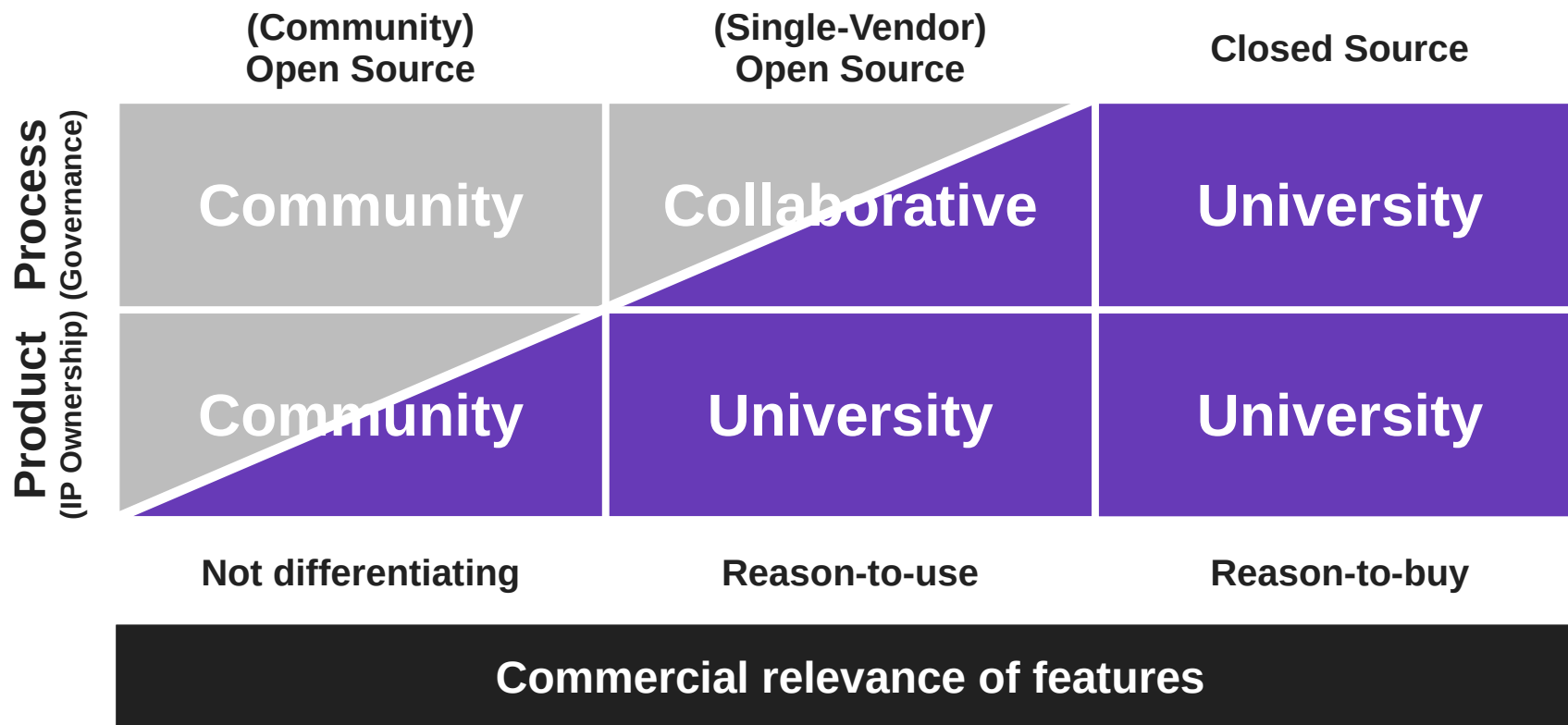


# Other Considerations

- Single (mono) repository vs. many
- Main-line vs. feature branches

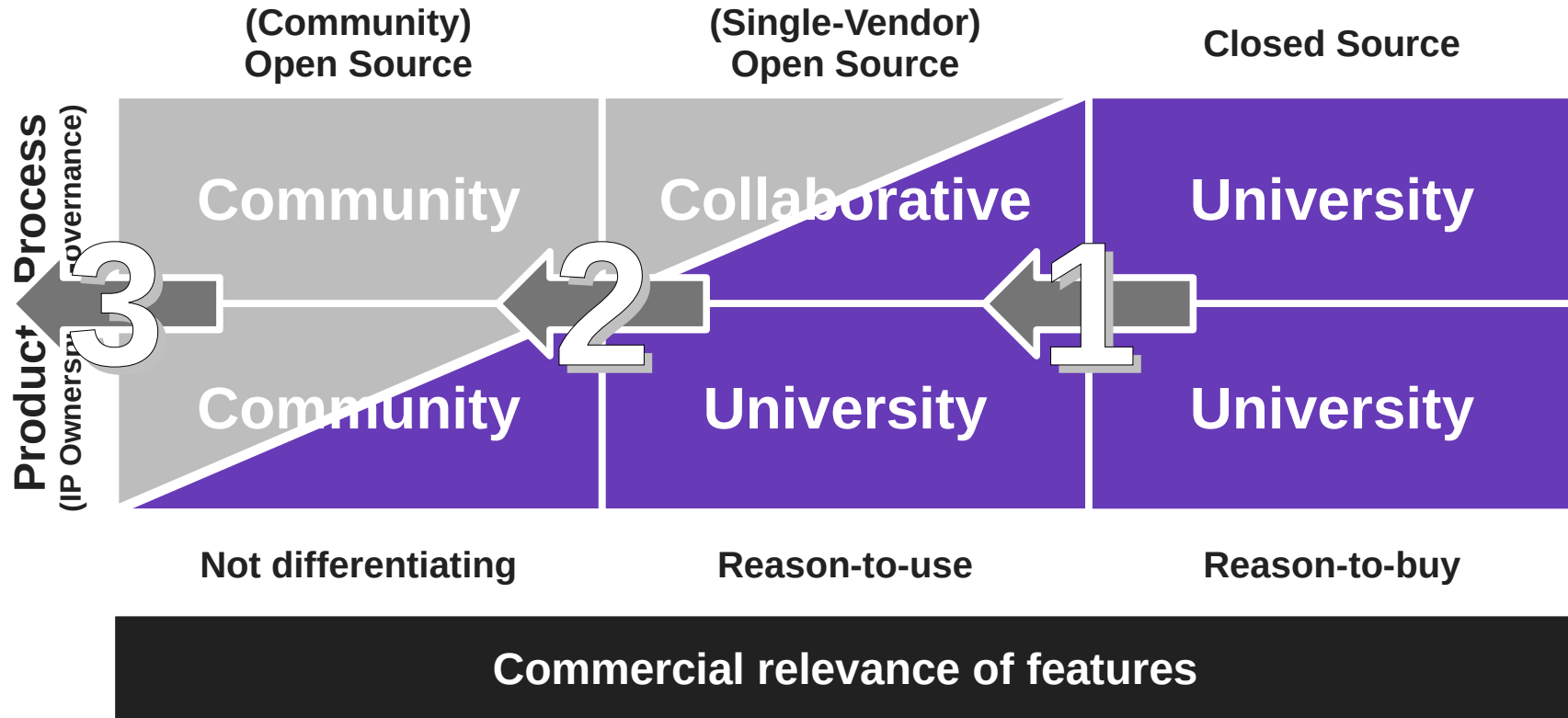
## 4. Open Source Strategy

# Open Source Community vs. University / Company

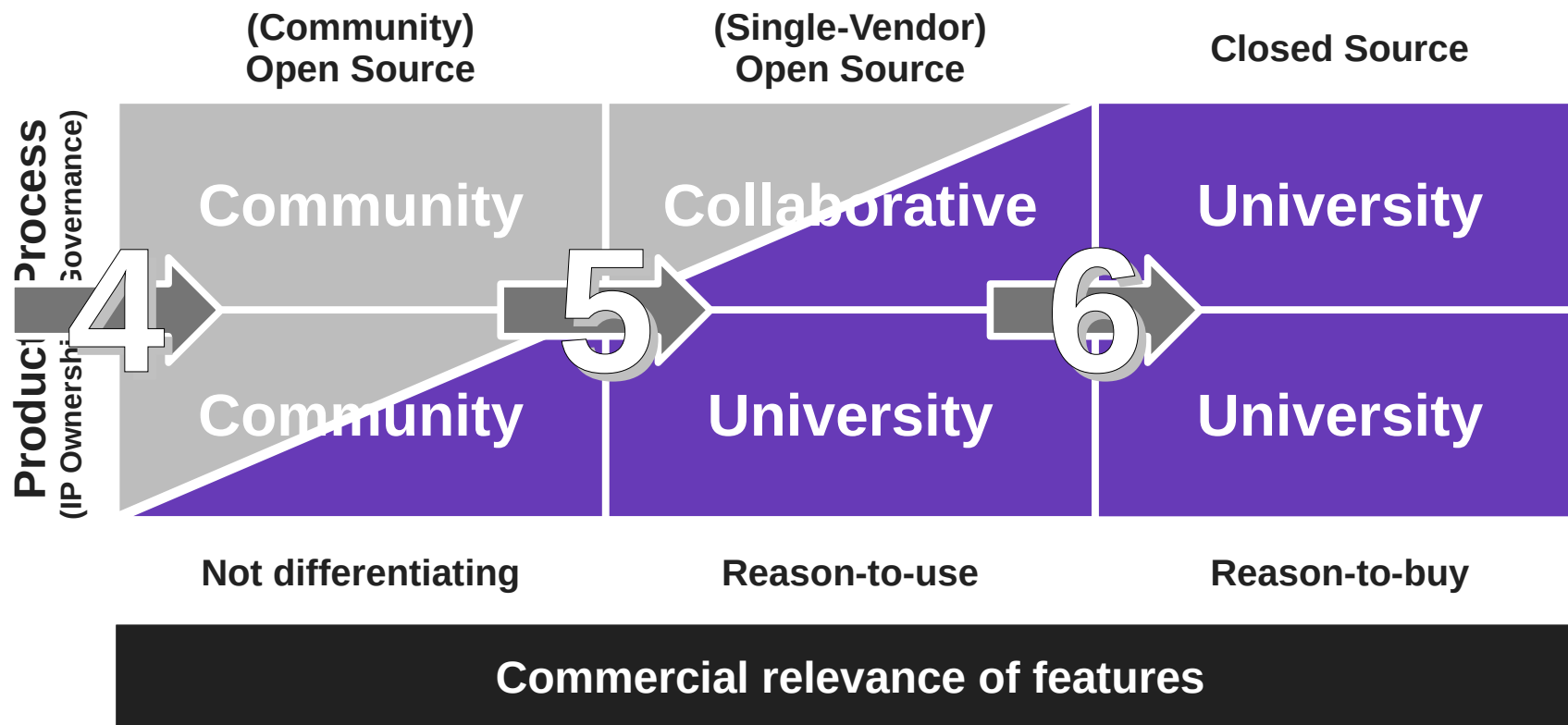




# Pushing out Features



# Pulling in Features

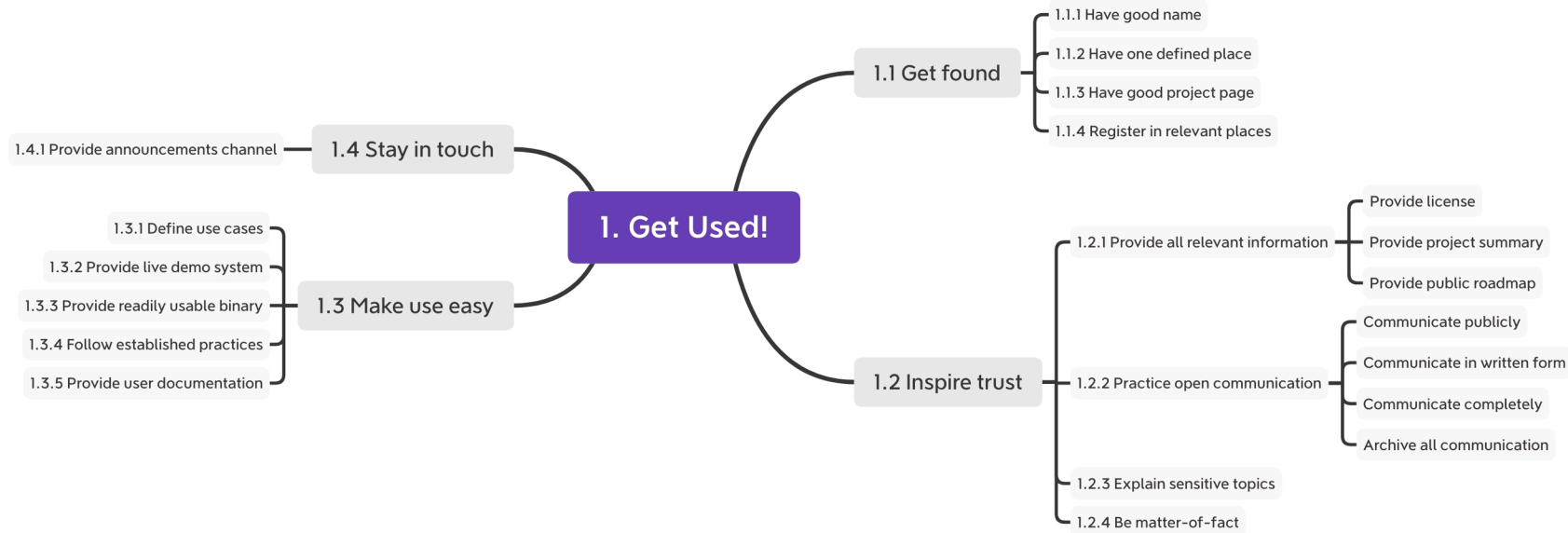


# Public Money, Public Code?

- Universities have both a non-profit and commercial part
  - Universities are tasked with research and teaching, among others
  - Universities are also tasked with exploiting their innovations
- It is the university's choice what to give away for free

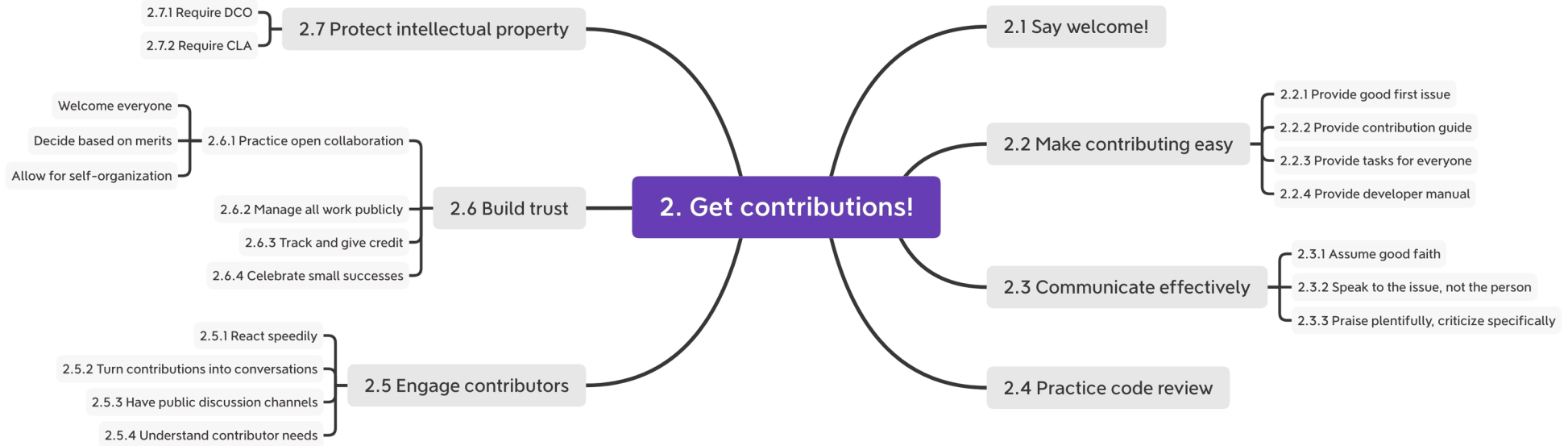
## 5. Getting Users

# Best Practices for Setting-up Shop and Getting Users [R20]



## 6. Getting Contributions

# Best Practices for Getting Contributions [R20]



# Summary

1. Research vs. startup
2. Project management
3. Lead programming
4. Open source strategy
5. Getting users
6. Getting contributions



# Thank you! Questions?

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[dirk@riehle.org](mailto:dirk@riehle.org) – <https://dirkriehle.com> – [@dirkriehle](#)

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- Contributions
  - None yet