

Company Footprint & Open Source Ecosystems



Powered by  Bitergia

Overview

Since open source is becoming the mainstream path for developing software, it is becoming crucial for their success that companies manage relationships with the open source projects they depend on.

This case study shows how one of the biggest networking and telecommunications companies worked with Bitergia to guide investment decisions. The use case has been anonymized by request of our customer.

“The adoption of open source is key to our Company’s product strategy, having an insight into different open source projects in terms of metrics, helps us make better decisions in terms of investment.”

General Tech Manager



Disclaimer

This use case comes from real data from a real organization.

However, people names and affiliations have been anonymized to ensure their privacy

Table of Contents

Software Development Analytics to guide investment decisions

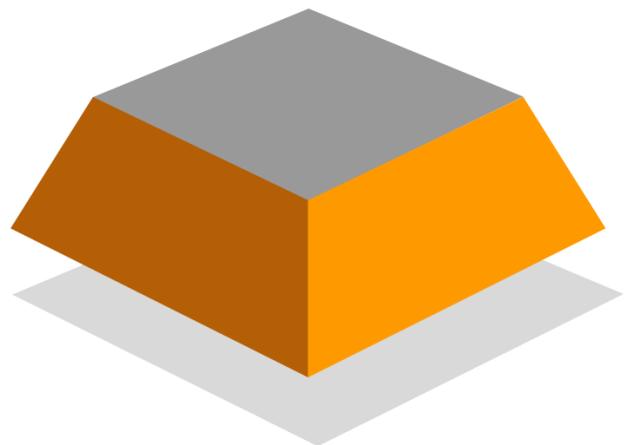
(i) Investment decision-making **goals**

(ii) Investment decision-making **questions**

- Contribution activity across projects
- Main influencers and key contributors

(iii) Investment decision-making **metrics**

About Bitergia®



Software Development Analytics to **guide investment decisions**

Open source adoption is key to Company's product strategy. By looking at open source project data, the company can identify drivers of community engagement across different projects to provide reports and insights to internal stakeholders and help them in future investment decisions related to those projects. Investment decisions include which open source projects to work with and where to contribute to.

Decision-making goals

The telecommunication company has several goals related to investment decision-making, including:

Goal 1: Improve community engagement and influence within open source projects

Goal 2: Provide reports and insights to internal stakeholders.

Goal 3: Identify contributors involved in open source projects and understand relationships

Software Development Analytics to guide investment decisions

Decision-making questions

To make sure it reaches its goals, the company has several questions. The questions can be grouped in two categories:

Contribution activity across projects

- What kind of contributions are different companies making?
- How many active contributors does each project have?
- Which projects had high levels of both: activity and contributors?

Main influencers and key contributors

- Who are the main influencers across projects?
- Which companies are engaged in which open source projects?

"We decided to implement Bitergia Analytics to provide reports and insights to internal stakeholders, as well as get insights in relation to our community activity."

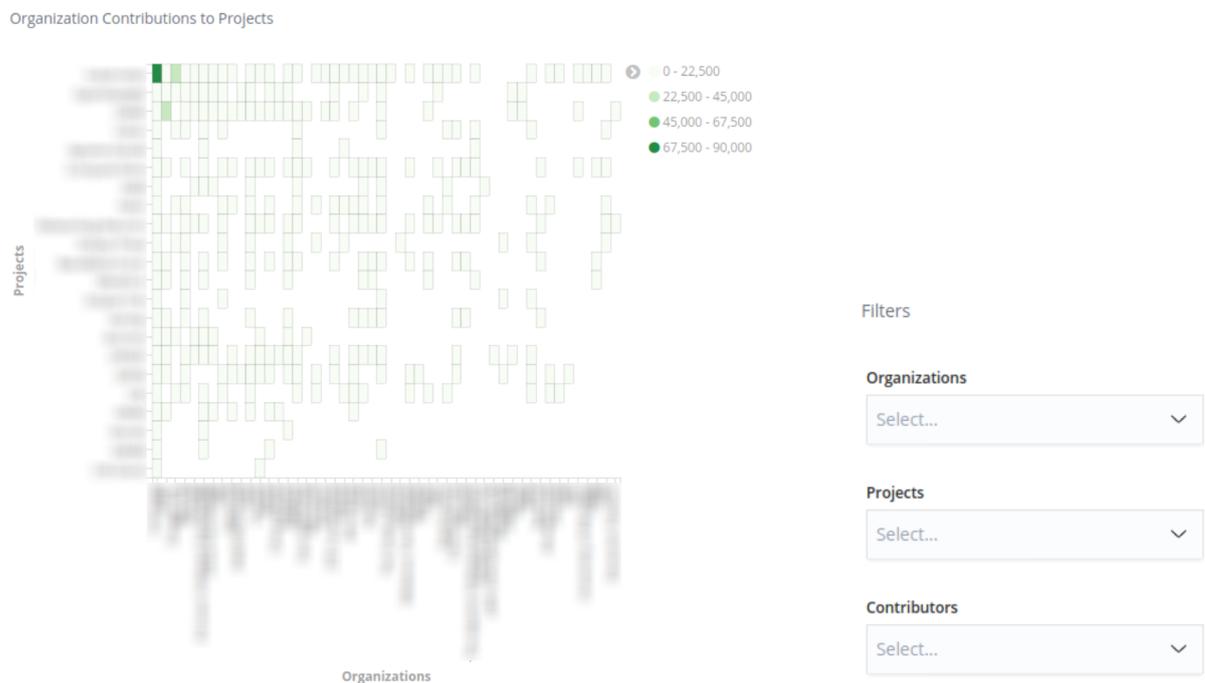
General Tech Manager

Decision-making Metrics

To make sure it reaches its goals, the company has several questions. The questions can be grouped in two categories:

Engagement: number of contributors per project

The company wanted to have an overview of which organizations were engaged in which open source projects. To satisfy this need, Bitergia provided a community dashboard to analyze Engagement in terms of number of contributions. They wanted to easily see what are the most engaged projects across organizations, so Bitergia built the following heat map to see the most active organizations and which projects they targeted their contributions to (**Goal 3**).



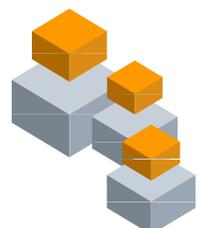
Decision-making Metrics

Active community members per organization

The company wanted to know what kind of contributions the different companies were making. Bitergia provided a table with a row per organization showing the number of contributions by data source in the columns (i.e., Git, Gerrit, Github pull requests, Github issues, Jira, and Bugzilla). The company sees from this table which organizations were involved in writing software (commits in Git, pull requests), reviewing code (Gerrit, GitHub pull request comments), or in the issue support (GitHub issues, Jira, and Bugzilla). The type of activity a company shows in a project indicates the type of influence it has on the project (**Goal 3**).

Active Community Members - Organizations Search

Organization	# Commits	# Merged Gerrit Changesets	# Gerrit Reviews (Approvals)	# Jira Issues Created	# Jira comments	# Assigned to Jira Issues	# Assigned Fixed Jira Issues	# GitHub Issues Created	# GitHub Pull Requests Created	# Bugzilla Issues Created
	37,700	11,013	42,979	5,970	11,424	6,988	4,623	19,356	66,014	204
	14,903	0	0	0	0	0	0	737	7,527	0
	6,360	2,000	12,538	1	5	0	0	1,699	3,379	0
	1,978	0	0	0	0	0	0	91	712	0
	540	118	374	0	2	0	0	31	665	0
	1,273	0	0	0	0	0	0	13	604	0
	1,139	271	983	148	321	139	82	299	600	0
	2,493	31	53	9	2	8	7	117	539	0
	2,167	1,079	843	303	88	308	257	134	524	0
	240	0	0	0	0	0	0	199	418	0

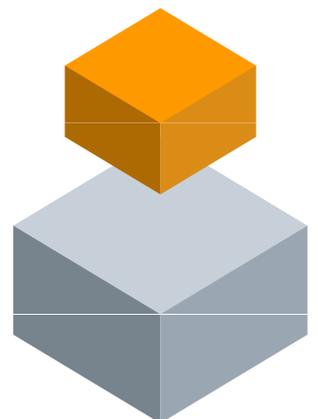
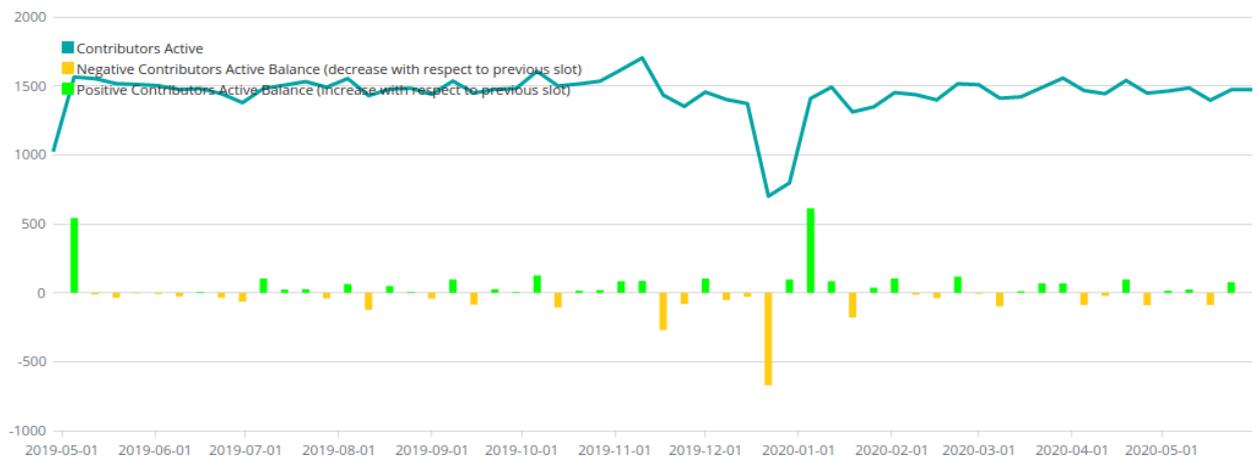


Decision-making Metrics

Active contributors over time and growth

The company wanted to know how many active contributors were in projects. This information is important to know for assessing the business risk of relying on a project's technology. Bitergia provided the following graph, showing the evolution of active contributors over time. The consistent level of active contributors is a positive sign for the health and sustainability of a project. Knowing this can lead to better decisions to improve community activity (**Goal 1**).

Active Contributors over time and Growth Analysis

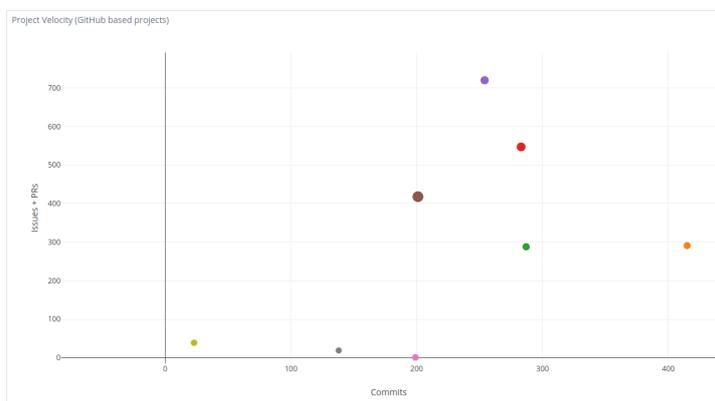


Decision-making Metrics

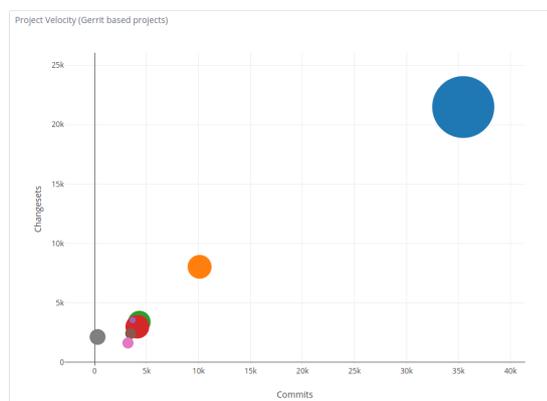
Project Velocity (custom dashboard)

The company wanted to know which projects had high levels of both: activity and contributors. The concept of project velocity combines metrics for number of issues, the number of pull requests, and volume of commits as an activity measure. Activity combined with the number of contributors serves as an indicator of innovation. This helps to:

- Report project velocity of contributed open source projects vs released projects (**Goal 2**)
- Understand relationships: Compare project velocity across projects and identify promising projects in which to get involved (**Goal 3**).



GitHub based projects and compares Issues and PRs against commits. Time frame May 2019-May 2020



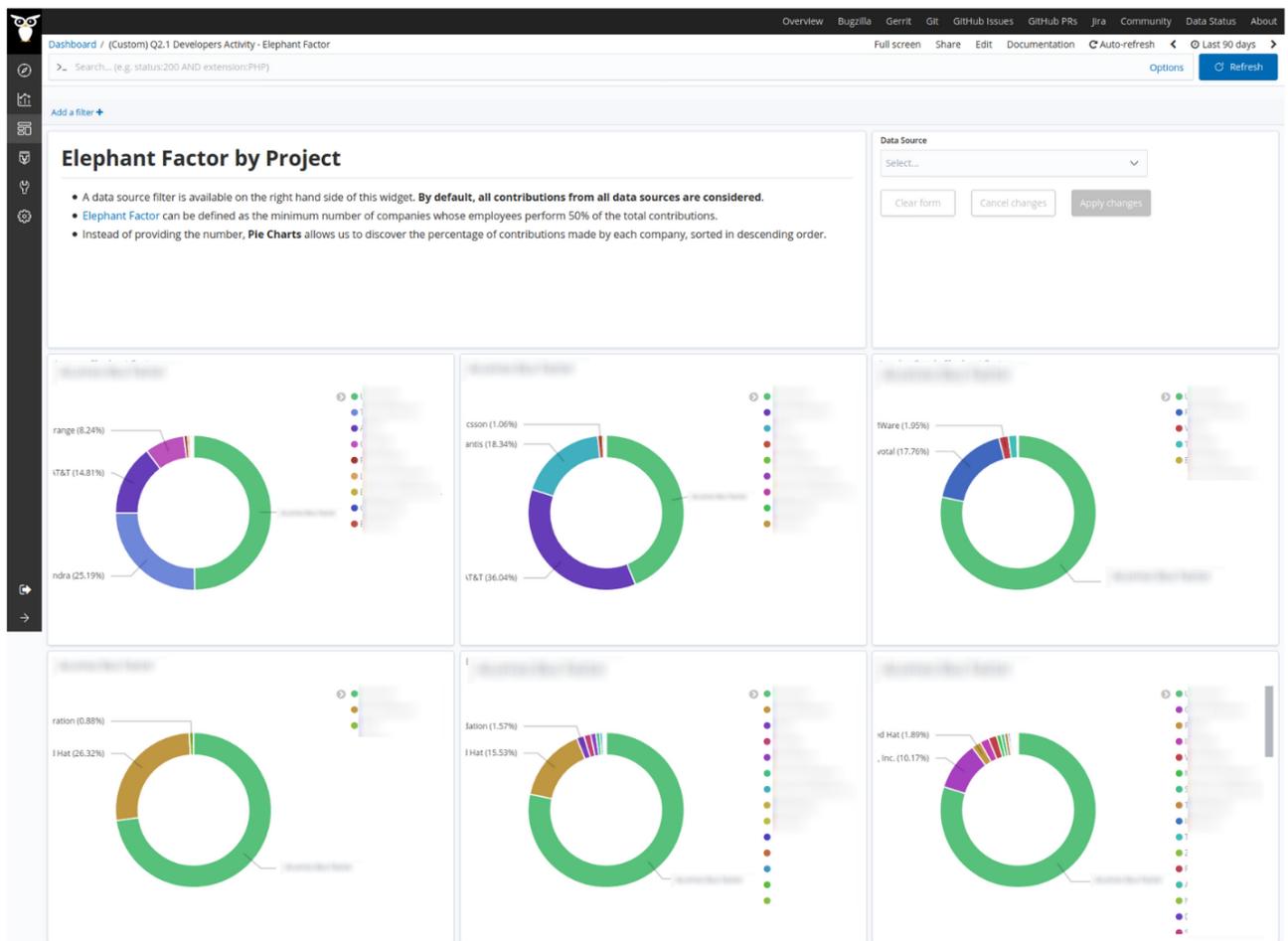
Gerrit based projects and compares Issues and PRs against commits. Time frame May 2019-May 2020

A project, displayed as a dot, in the bottom left hand corner has little activity. Projects displayed further away have higher levels of activity. The size of the dot indicates the number of contributors. The big blue dot in the top right hand corner is the project with the most activity and most number of active contributors.

Decision-making Metrics

Elephant factor (custom dashboard)

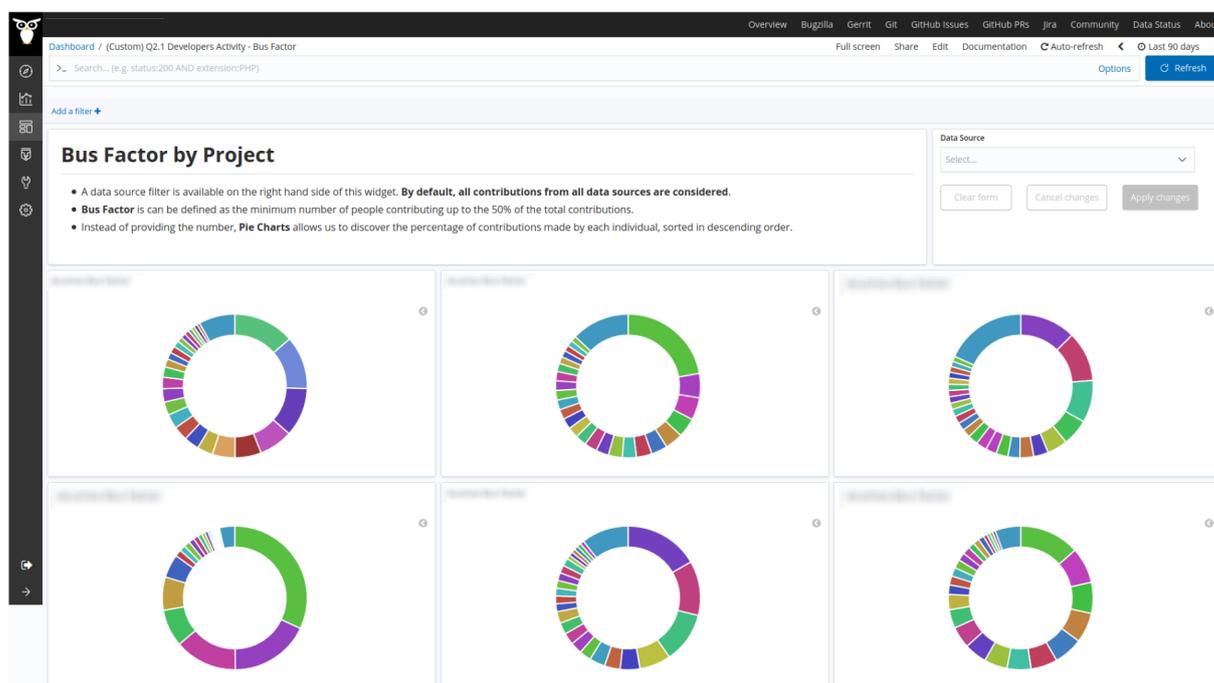
The company wanted to know who the influential companies are in projects. In order to identify the main companies on each project, Bitergia provided an Elephant Factor visualization. The Elephant Factor is defined as the minimum number of companies whose employees perform 50% of the total contributions. Bitergia provided pie charts to discover the percentage of contributions made by each company, sorted in descending order. If a pie chart is covered to 50% by one company, then that company's employees made 50% of all contributions. The company could then evaluate the risk in that project and report to stakeholders to make future decisions (**Goals 1 and 2**).



Decision-making Metrics

Bus factor (custom dashboard)

The company wanted to identify the main influencers between projects as individuals. Bitergia provided a Bus Factor visualization. The Bus Factor can be defined as the minimum number of people contributing up to 50% of the total contributions. If a project has only two people contributing 50% of all contributions, then the company knows that the project would be at risk if those two people suddenly disappeared from the project. The company is looking specifically for projects that have a larger Bus Factor. This helps them to better report and explain to the stakeholders the status of the different open source projects (**Goal 2**).



About Bitergia

Bitergia helps companies improve the ROI of their software development projects by providing tools and knowledge to improve decision making. It specializes in analyzing software development projects and its core platform is 100% open source.

The Bitergia team has 15+ years experience in research focused on collaborative software development methodologies and software development quality models. Our specialized team has been working with a wide variety of companies and organizations that had a need for actionable insights and better understanding of software development community and processes.

