

Why We Engage in FLOSS: Answers from Core Developers

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背景

- ▶ 多くの企業でオープンソースのオペレーティングシステム、データベース、およびWebサーバーに依存して、基本的な操作を実行している
- ▶ 人気プロジェクトの多くで一部の開発者に依存した開発形態となっていることがわかった

目的とアプローチ

- ▶ 目的

- ◆ コア開発者のモチベーションを知りたい

- ▶ アプローチ

- ◆ 52人の開発者に聞いた

コア開発者の定義

- ▶ Commit-Based Heuristicを使用
 - ◆ コアチームはプロジェクトの総コミットの80%を形成している
- ▶ 複雑なプロジェクトでもコアとなる開発者は10~15人しかいない

新コア開発者の定義

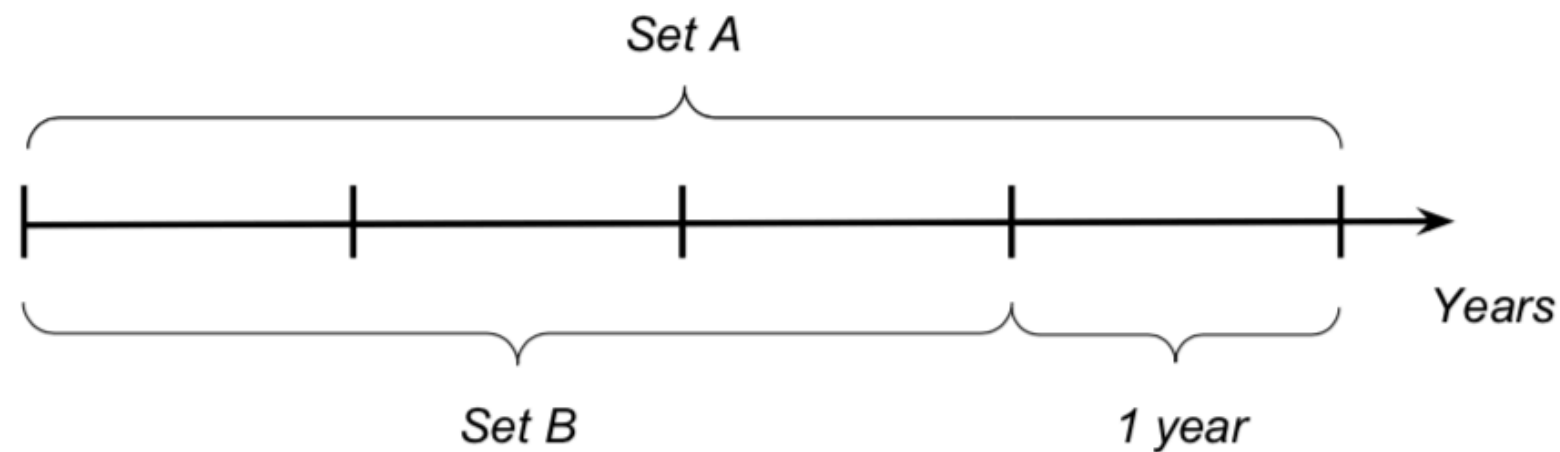


Figure 3: Set A= core developers computed considering the complete commit history; Set B= core developers computed considering the commits until the year before the study;
New Core Developers = Set A - Set B

- ▶ RQ1
プロジェクトに貢献した動機は何か
- ▶ RQ2
プロジェクトの特徴や習慣で役立ったものはあるか
- ▶ RQ3
貢献時に直面した障壁は何か

調査の方式

- ▶ 開発者にアンケートをとった
- ▶ テーマの解釈は意味解析で行なった
 - ◆ テーマの特定
 - ◆ マージ
 - ◆ 最終テーマの定義

RQ1 プロジェクトに貢献した動機は何か

Table 1: What motivated you to contribute?

Motivations	Dev.
To improve the project because I am using it	31
To have a volunteer work	10
I have interest or expertise on the project domain	7
I am a paid developer	5
To contribute to a widely used or relevant project	4
Other motivations (≤ 3 answers each)	9

RQ2 プロジェクトの特徴や習慣で役立ったものはあるか

Table 2: What project characteristics/practices helped you?

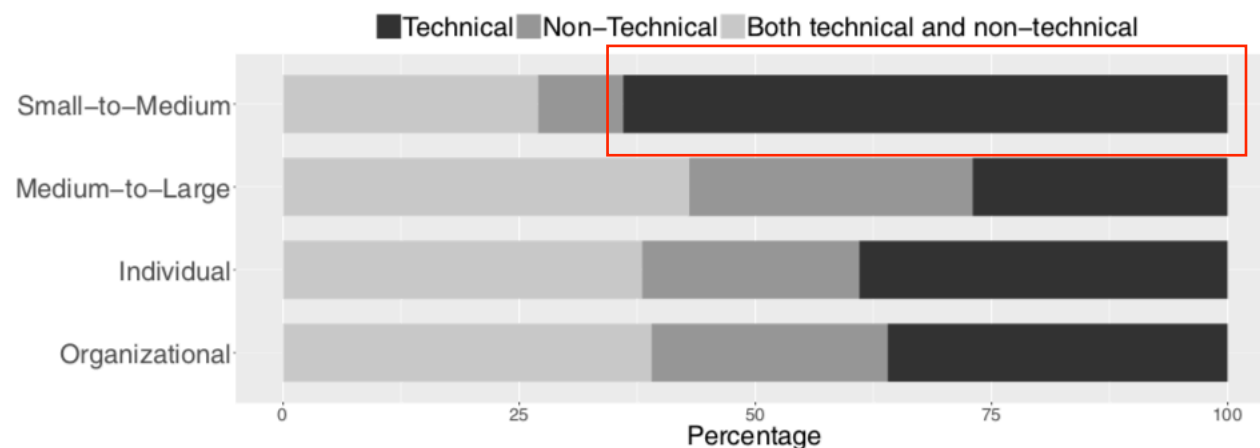
Type	Characteristics/Practices	Dev.
Technical	Unit tests	9
	Documentation	8
	Well-structured design	4
	Code review	3
	Continuous integration	3
	Programming language	3
	Open source license	3
	Small project	3
	Coding guidelines	2
	Clear code	2
	Contribution guidelines	2
	Other technical characteristics	8
Non-Technical	Friendly community	13
	Availability of the project leaders	11
	Financial support by a company	1
	Open and meritocratic culture	1
	Small number of core developers	1

RQ3 貢献時に直面した障壁は何か

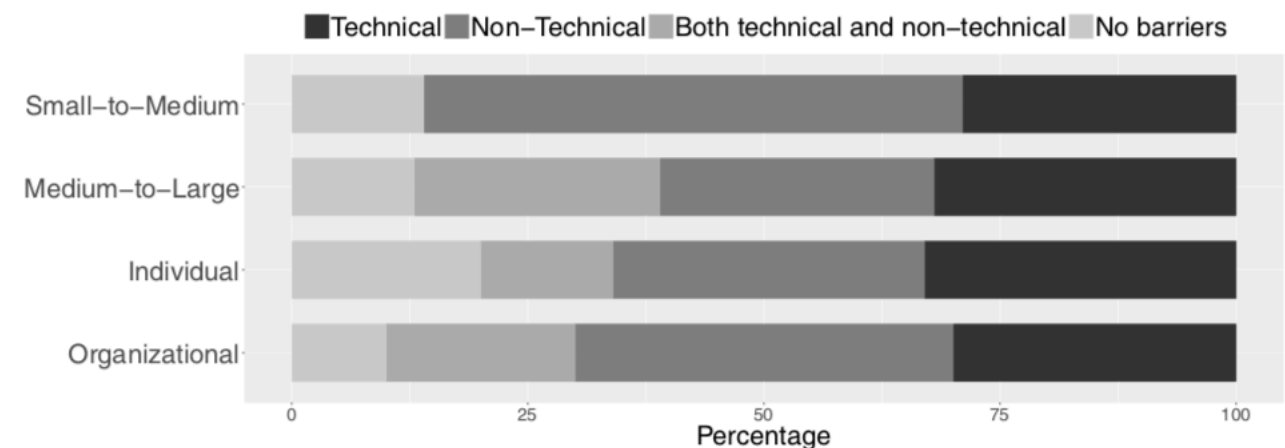
Table 3: What were the barriers you faced to contribute?

Type	Barriers	Dev.
Technical	Large and complex project	7
	Non-clear, complex or buggy codebase	5
	Inappropriate design or architecture	4
	Lack or incompleted documentation	3
	Programming language	3
	Lack of tests	3
	Other technical barriers	8
Non-Technical	Lack of time of the project leaders	8
	Lack of time of the own contributor	4
	Conflicts among developers	3
	Inexperience of the own contributor	3
	Hostile attitude	1
	Unpaid work	1
	Other non-technical barriers	7

プロジェクトの種類ごとの分析



(a) Project characteristics and practices



(b) Barriers

Figure 4: Results grouped by project categories (Small-to-Medium, Medium-to-Large, Individual, and Organizational)

- ▶ 小規模のプロジェクトの方が技術的な要素が重要となる
- ▶ Individual, organizationalに違いは見受けられなかった

論文の立ち位置

Table 4: Comparison of our findings with related studies.

Topic	Our study	Lee et al. [16]	Pinto et al. [20]	Steinmacher et al. [24]
Contributors	Core developers	One-Time code Contributors	Casual contributors	Newcomers
Motivations	To improve the project because I am using it To have a volunteer work I have interest or expertise on the project domain	To fix bugs To give back to the community I am a paid developer	To fix bugs To improve documentation To add new features	-
Project characteristics	Friendly community Availability of the project leaders Unit tests	Skilled project members Friendly project members Helpful project members	-	-
Barriers	Lack of time of project leaders Large and complex project Unclear, complex or buggy code	Lack of time of own contributor Complex submission process Complex project	Lack of time of own contributor Limited skills or knowledge Complex project	Technical barriers Lack of contribution guidelines Lack of documentation

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- ▶ 内容は・・・
- ▶ プロジェクトの規模でメトリクスの重要度が変わるのではと感じた
- ▶ 参考文献が役立ちそう