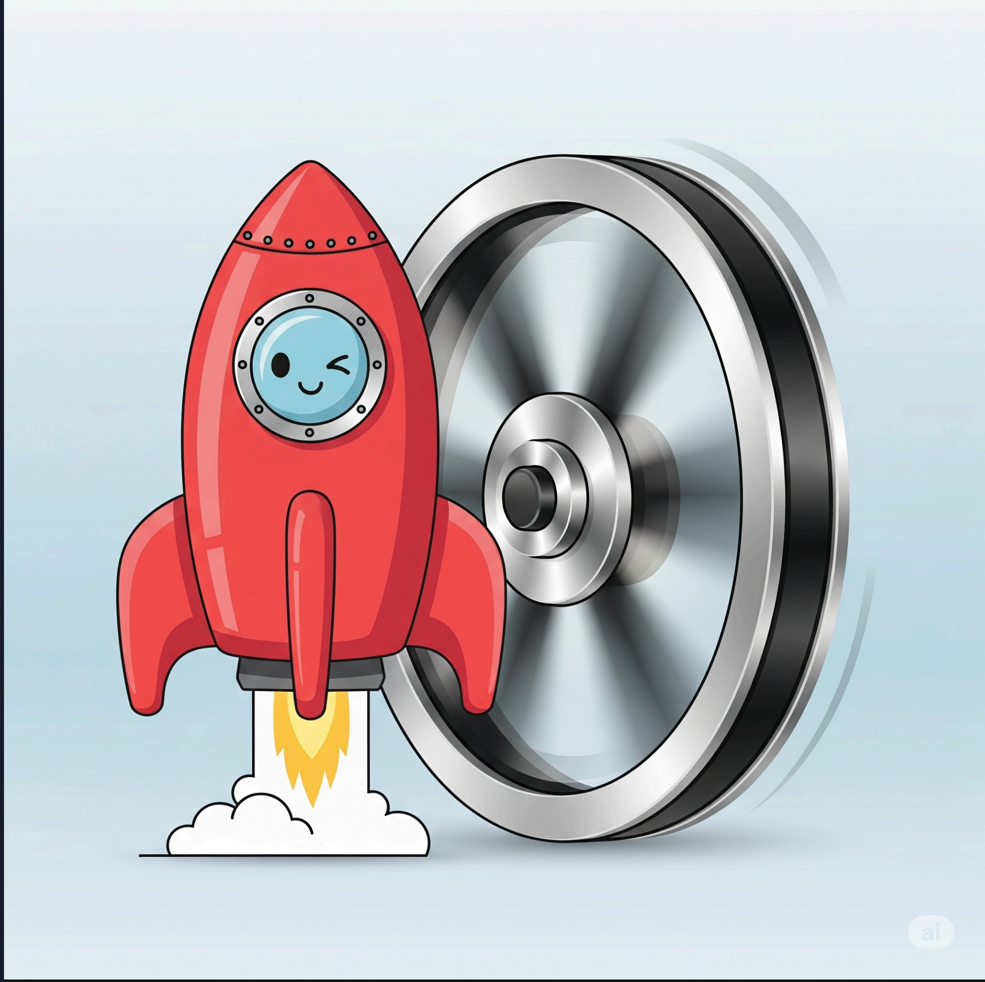
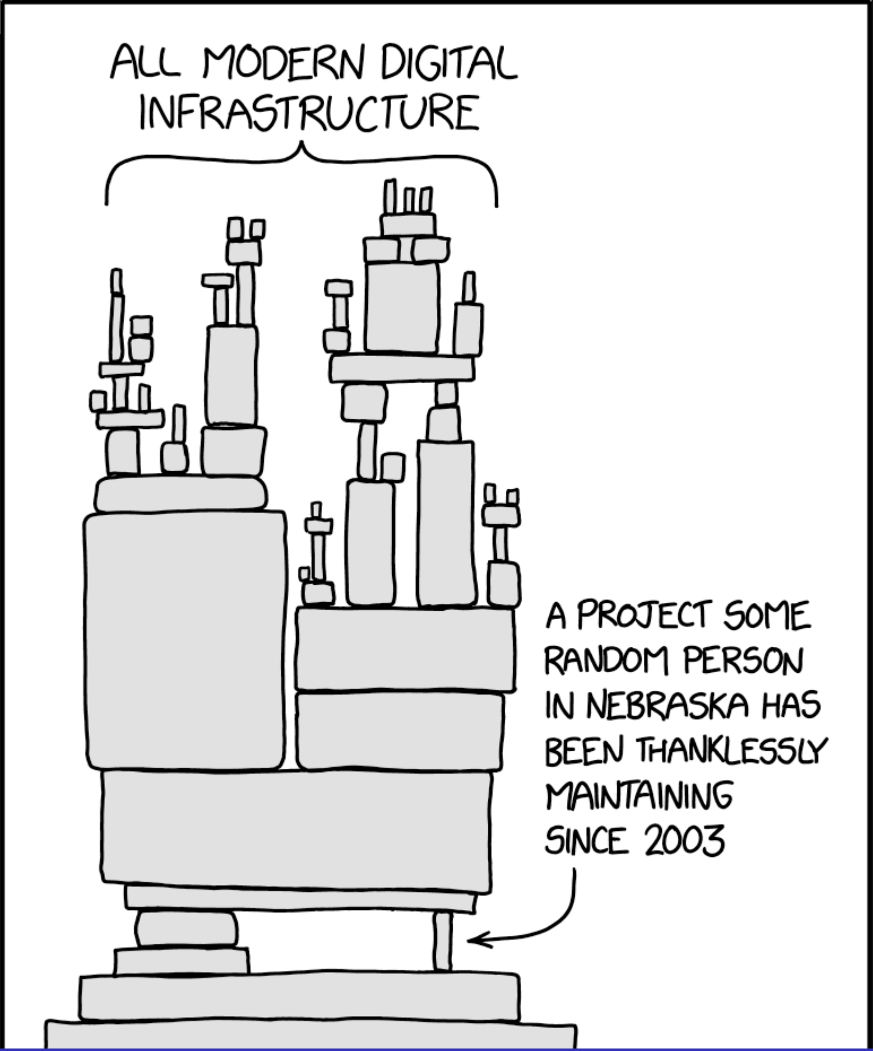
It's Not Rocket Science, It's a Flywheel

Engineering OS Communities with DevEx




ALL MODERN DIGITAL INFRASTRUCTURE
A PROJECT SOME RANDOM PERSON IN NEBRASKA HAS BEEN THANKLESSLY MAINTAINING SINCE 2003

source: xkcd

The Maintainer's Dilemma

> "I want to grow my open source project/community, but that's going to require a lot of time and effort that I don't have… So I guess I'll just wait and hope for the best."

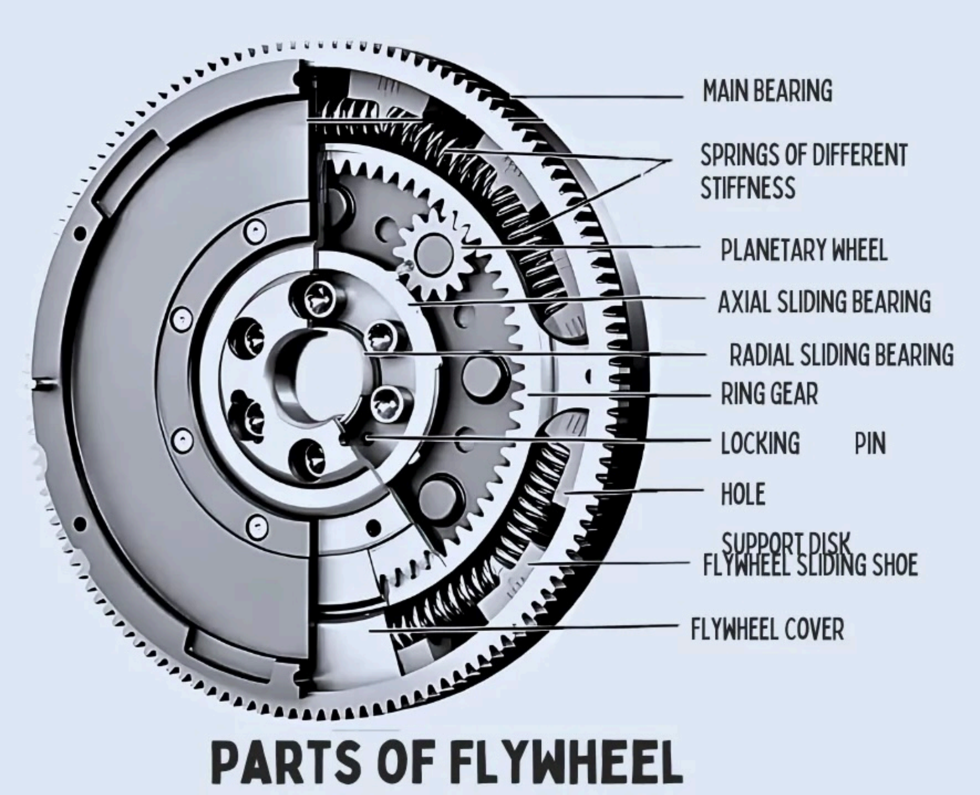
Hope is Not a Strategy

Jeremy Meiss

Director, DevEx & DevRel

OneStream Software

DevOpsDays KC Organizer



What is a "flywheel?"

> "a mechanical device that uses the conservation of angular momentum to store rotational energy; a form of kinetic energy that is proportional to the product of its moment of inertia and the square of its rotational speed.
>
> A flywheel is a heavy wheel attached to a rotating shaft to smooth the transfer of power from an engine to a machine."

- The Engineering Choice

What is a "flywheel?"

For the Physicists in the room...

$$\frac{1}{2} I w^2$$

`` `w` `` = angular velocity, `` `I` `` = moment of inertia

What is a "flywheel?"

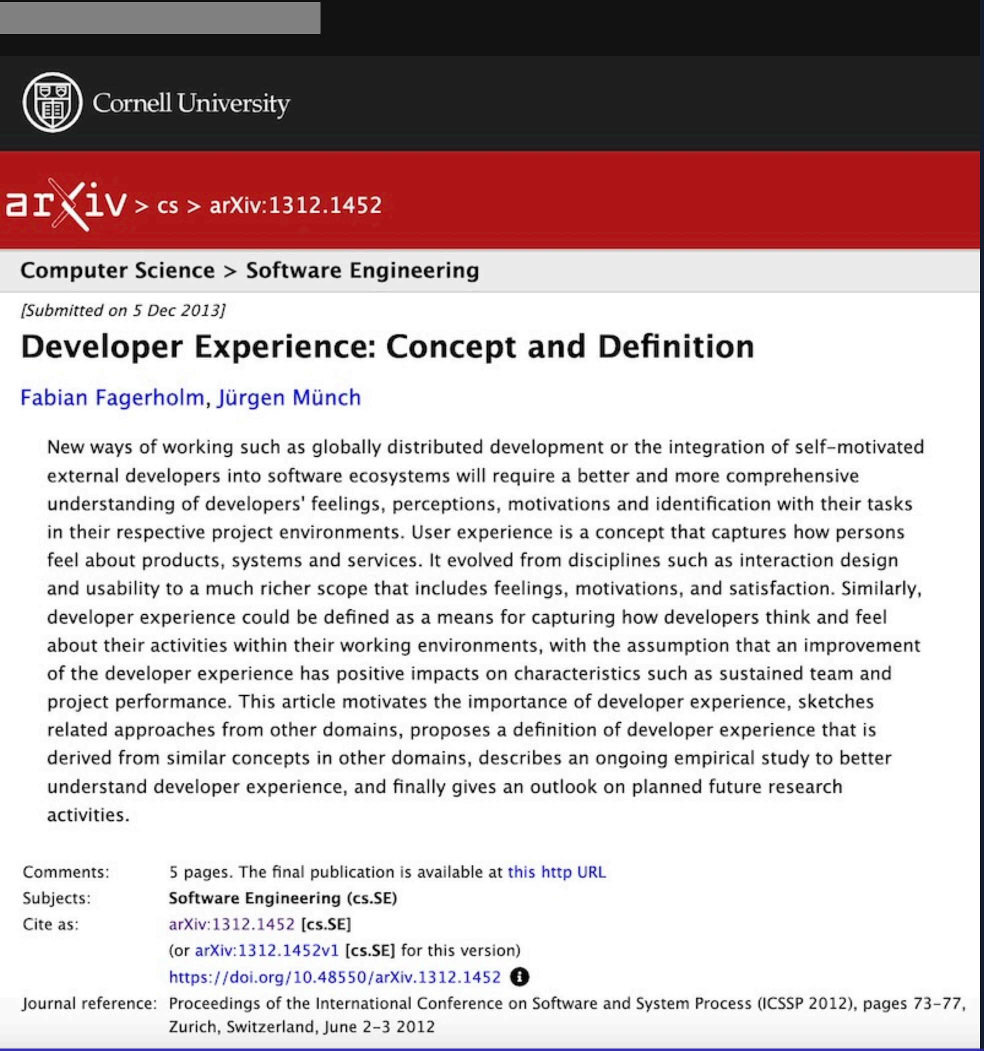
Metaphorically in Community

> a self-reinforcing loop or cycle that, once set in motion, gains momentum and drives continuous growth and improvement

Developer Experience (DevEx)

> _"…the **journey** of developers as they learn and deploy technology, which if successful, focuses on eliminating obstacles that hinder a developer or practitioner from achieving success in their endeavors."

– **Jessica West**, Director of Education & Customer Experience (Chronosphere)



Cornell University

arXiv > cs > arXiv:1312.1452

Computer Science > Software Engineering

[Submitted on 5 Dec 2013]

Developer Experience: Concept and Definition

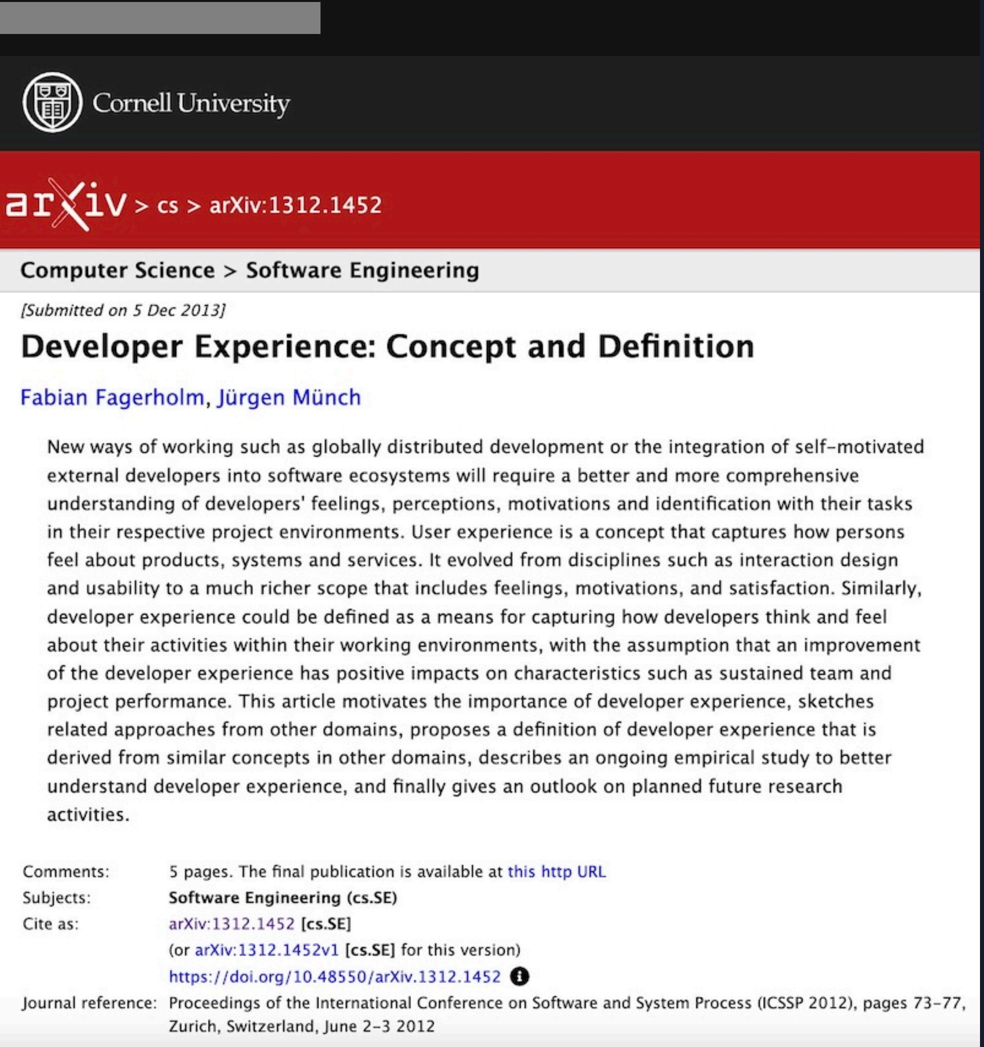
Fabian Fagerholm, Jürgen Münch

New ways of working such as globally distributed development or the integration of self-motivated external developers into software ecosystems will require a better and more comprehensive understanding of developers' feelings, perceptions, motivations and identification with their tasks in their respective project environments. User experience is a concept that captures how persons feel about products, systems and services. It evolved from disciplines such as interaction design and usability to a much richer scope that includes feelings, motivations, and satisfaction. Similarly, developer experience could be defined as a means for capturing how developers think and feel about their activities within their working environments, with the assumption that an improvement of the developer experience has positive impacts on characteristics such as sustained team and project performance. This article motivates the importance of developer experience, sketches related approaches from other domains, proposes a definition of developer experience that is derived from similar concepts in other domains, describes an ongoing empirical study to better understand developer experience, and finally gives an outlook on planned future research activities.

Comments:	5 pages. The final publication is available at this http URL
Subjects:	**Software Engineering (cs.SE)**
Cite as:	arXiv:1312.1452 **[cs.SE]** (or arXiv:1312.1452v1 **[cs.SE]** for this version) https://doi.org/10.48550/arXiv.1312.1452 ℹ
Journal reference:	Proceedings of the International Conference on Software and System Process (ICSSP 2012), pages 73-77, Zurich, Switzerland, June 2-3 2012

DevEx isn't new

REF: F. Fagerholm and J. Münch, "Developer experience: Concept and definition," 2012 International Conference on Software and System Process (ICSSP), Zurich, Switzerland, 2012.



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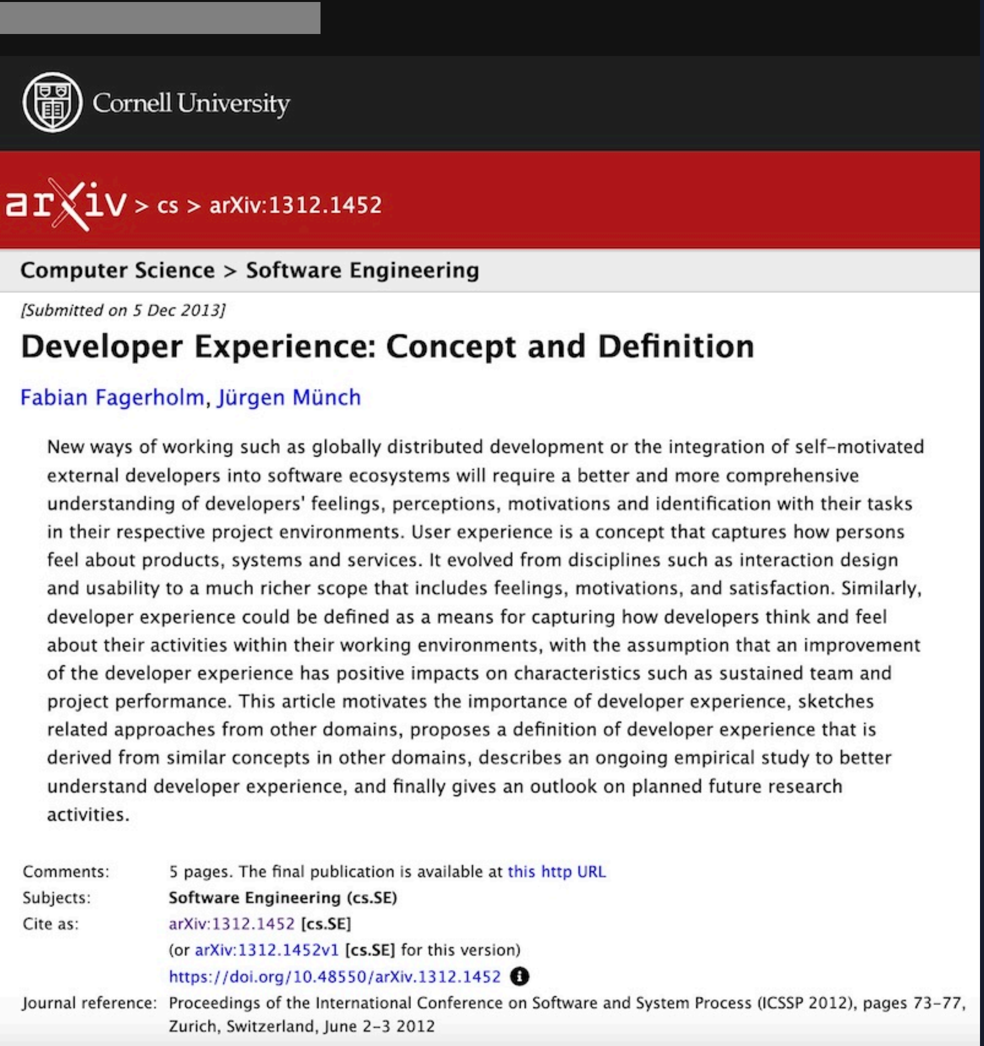

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Developer Experience (DevEx) The impacts of the experience

Negative

- Time wasted (technical debt, poor tooling, bad docs, etc.)
- Losing developers (attrition, burnout, etc.)
- Lost opportunities (missed deadlines, lost revenue, etc.)

Positive

- Frictionless onboarding, workflows, docs
- Clear standards, guardrails
- Fast feedback loops

Developer Experience (DevEx)

Core Dimensions

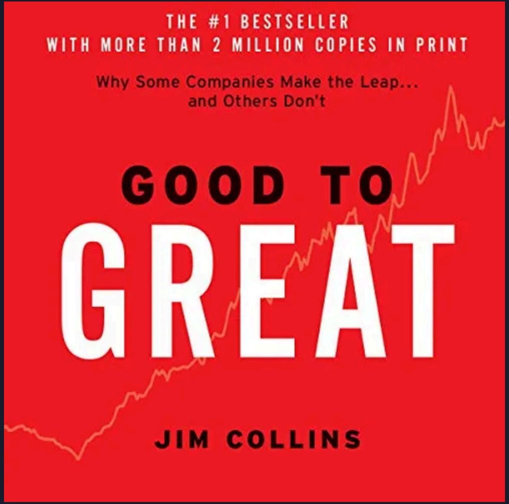
1. Feedback Loops
2. Cognitive Load
3. Flow State

Developer Experience…

…for Open Source projects?

Back to the flywheel…

The FlyWheel Effect



THE #1 BESTSELLER
WITH MORE THAN 2 MILLION COPIES IN PRINT

Why Some Companies Make the Leap…
and Others Don't

GOOD TO GREAT

JIM COLLINS

The DevEx Flywheel

The DevEx Flywheel

The DevEx Flywheel

Core Components

Onboarding & Documentation

- README.md, CONTRIBUTING.md, Code of Conduct (CNCF Templates)
- Issue templates & PR templates
- Good first issues
- Publish non-code ways to get involved 2012 Andy Lester "14-ways" post

The DevEx Flywheel

Core Components

"Time to Joy" & Tooling

- Hello World
- Dev Containers (devcontainer.json)
- Linters & Formatters (Prettier, ESLint, Conventional Commits)

The DevEx Flywheel

Core Components

Feedback Loops

- First Response (ex. GitHub Actions)
- Code Reviews
- "Office Hours"

The DevEx Flywheel

Core Components

Recognition & Value

- Celebrate all contributions (All-Contributors Bot, GitHub Action)
- Publicly thank contributors (release notes, blogs, social)

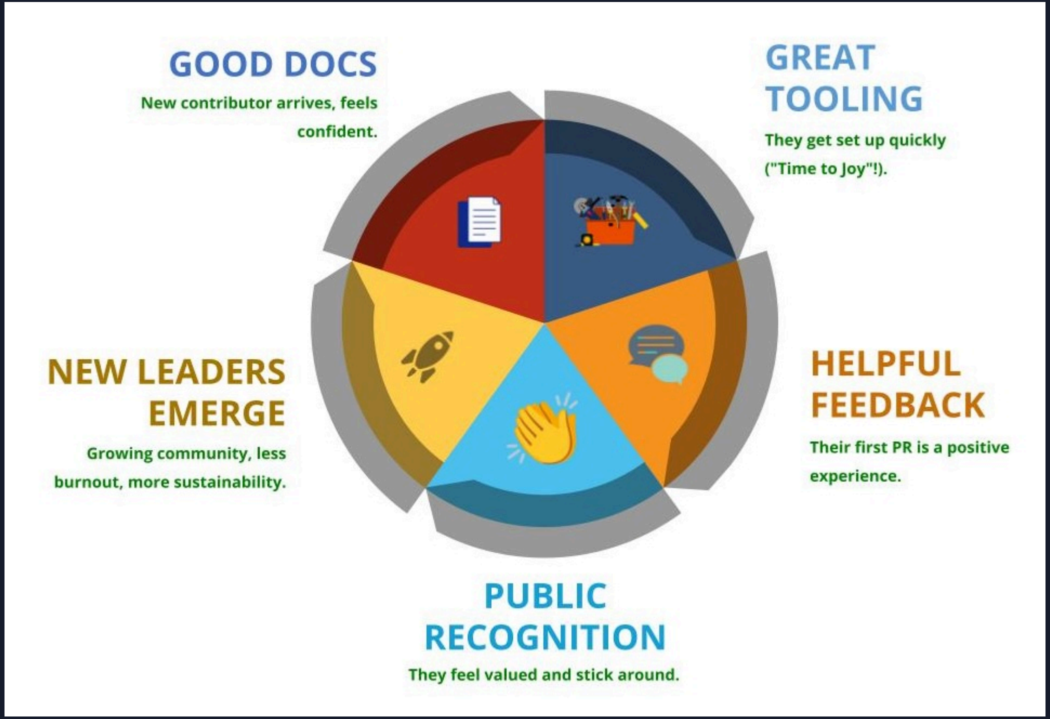
The DevEx Flywheel

Core Components

Leadership Pipeline

- Mentorship programs
- Clear paths to maintainership
- Empower contributors to lead initiatives
- Foster a culture of inclusivity and collaboration

The DevEx Flywheel in Action



GOOD DOCS

New contributor arrives, feels confident.

GREAT TOOLING

They get set up quickly ("Time to Joy"!).

HELPFUL FEEDBACK

Their first PR is a positive experience.

PUBLIC RECOGNITION

They feel valued and stick around.

NEW LEADERS EMERGE

Growing community, less burnout, more sustainability.

Measuring the Spin

- How many new contributors and who are they? (CHAOSS, OpenSource.com)`
- Contributor Absence Factor: How reliant is a project on a small number of contributors? (CHAOSS)
- How long until a first response or close? (CHAOSS First Response, Time to Close)
- Contributor Activity, Churcn/Retention: Staying for more than one PR?

Further Reading

- View the CHAOSS Metrics Catalog
- GitHub Repository Insights

It starts with a single push

1. Follow your own contribution guide. Where do you get stuck?
2. Ask a friend who isn't familiar with the project to try. Compare notes.
3. Pick the single biggest point of friction and fix it this week.

Conclusion

- Stop hoping for community growth and start engineering it.
- DevEx principles in business can be applied to OSS projects.
- Focus on Onboarding, Tooling, Feedback, and Recognition.
- Small, consistent improvements create powerful, sustainable momentum.

Thank you!

@jerdog.dev

/in/jeremymeiss

@jerdog

@jerdog@hachyderm.io

jmeiss.me

END