

Innovation in Practise

How Open-Source Enables Modern Software

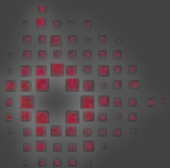


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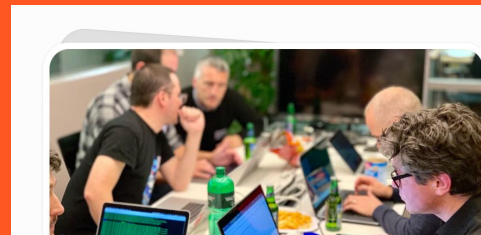
swiss ICT



Hackergarten Zürich - monthly

hack.commit.push in Winterthur on the 05th of June

<https://winterthur2026.hack-commit-pu.sh/>



Hackergarten Zürich

★★★★★ 4.8 • 204 ratings

📍 Zürich, Switzerland

👤 1,587 members

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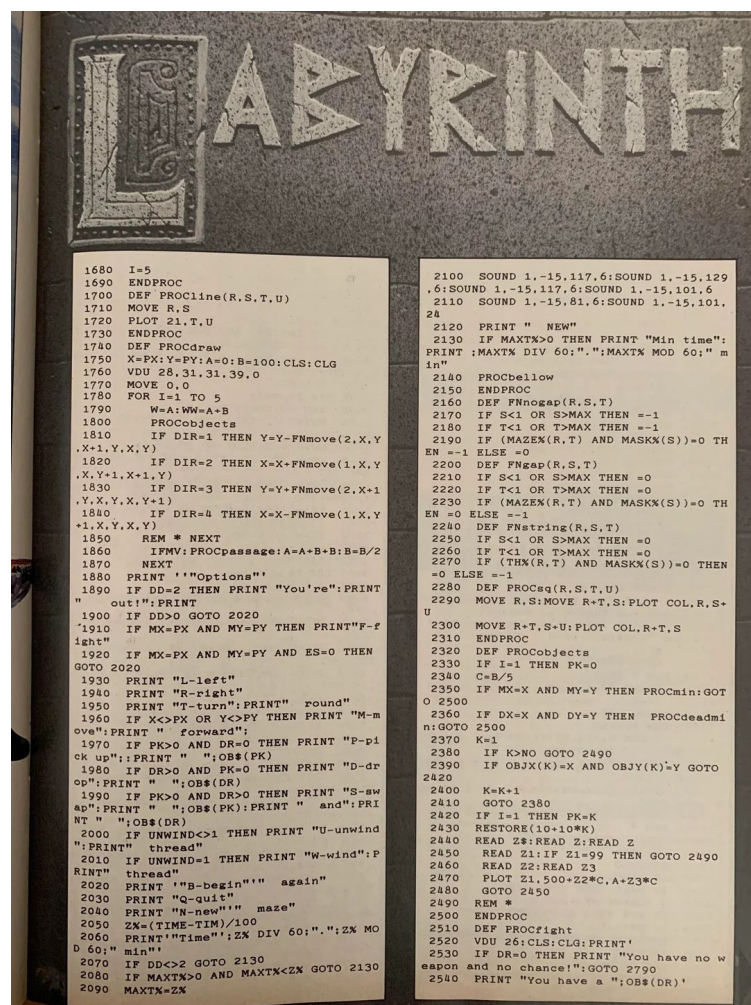
In Manila



Der rote Faden - The thread

- Where does Open Source (**OS**) come from?
 - Evolution: The Cathedral vs. The Bazaar
- The Science of Innovation
 - Open Source: The cornucopia that never stops inventing
- The Economics of the Bazaar
 - From zero to world domination
 - The conversion from enemy to friend for the big firms
 - Gain speed, security, reputation and money with OS
- Practical Levers: How to Execute
 - Pick some tasks to start next Monday

The Origins





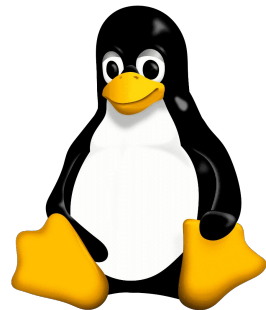
The Origins

- The Ideological Roots, *Richard Stallman* founded the Free Software Foundation (**FSF**) in **1985**.
 - *Moral Goals*: freedom to study, share, and modify the software
- The Pragmatic Explosion, *Linus Torvalds* released a "hobby" kernel called **Linux** in **1991**.
 - Linus released his code early and often, accepting messy contributions from anyone
- **The Cathedral and the Bazaar**, *Eric S. Raymond* analyzed it in his seminal essay in **1997**.
 - Corporate vs seemingly chaotic software development



The Origins

- The Free Software Foundation (**FSF**) launched the GNU Project to build a free operating system (**GNU OS**) and created the **GPL** (General Public License), a legal hack that used copyright law to enforce freedom (**Copyleft**).
 - Many of the foundations were laid then, free tools and libraries and a legal licensing framework to keep them free!
 - The GNU Compiler Collection (**GCC**) was born
 - The GNU OS was missing a **kernel** though (and still is)
 - Most of those tools and libraries still exist, they're essential!



The Origins

- The Pragmatic Explosion: Linux in 1991
- Linus Torvalds released the **kernel** called Linux. Unlike the FSF's planned approach, Linus released his code **early and often**, accepting messy contributions from anyone.
- Like the *Cambrian Explosion* 538.8 million years ago, Linux was the breakthrough that opened the gates for Open Source to thrive.
- Early tools/libs that are still essential today:
 - **OpenSSL, OpenSSH, Apache, GCC, GRUB, GZIP/ZIP**, etc.

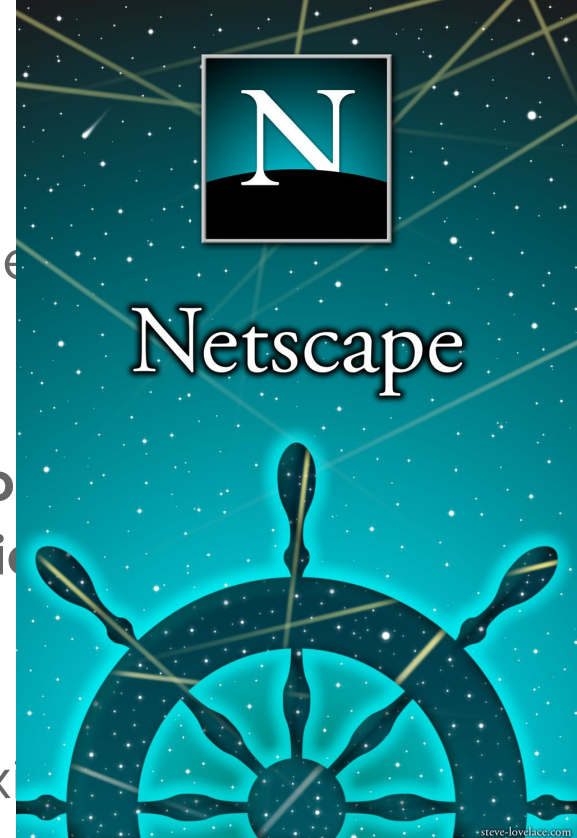
The Origins



- The Cathedral and the Bazaar: 1997 by Raymond
- The crumbling of the sacred corporate temples began ...
- **The Cathedral:** Software built by a small, exclusive group of best “wizards” (IBM, Microsoft, Apple, FSF). Releases are slow and polished.
 - Usual method: **Waterfall**
- **The Bazaar:** Software built fast, in the open, by a chaotic crowd of strangers. “Given enough eyeballs, all bugs are shallow.”
 - Usual method: **Agile** (*before it was called Agile in 2001*)

The Origins: The Turning Point

- Raymond's essay convinced **Netscape** (the the browser) to open-source its code in **1998**.
- This created Mozilla later, leading to **Firefox**
 - Marked the moment "*Free Software*" (idea) rebranded as "*Open Source*" (**business-friendly**)
- Today over **100 Linux** distributions (distros) exist
 - Every **new fork** of a Linux means a **new innovation step!**



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Innovation: Creative Destruction

- “In Joseph Schumpeter's vision of capitalism, **innovative** entry by entrepreneurs was the **disruptive** force that sustained economic growth, even as it **destroyed** the value of established companies and laborers that enjoyed some degree of monopoly power derived from previous technological, organizational, regulatory, and economic paradigms.” – *Wikipedia (1942)*
- “**Move fast, break things.** Unless you are breaking stuff, you aren't moving fast enough” – *Mark Zuckerberg*



Innovation: The Science

- What's innovation?:
 - Invention without shipping/integration is not innovation in the economic sense; **OSS lowers invention cost** — your org still wins or loses on execution (quality, speed, compliance, UX).
 - The Adjacent Possible: Stuart Kauffman and Steven Johnson's theory that **innovation** comes from **recombining existing "spare parts."**, OS is the world's warehouse of these parts.
 - **Psychological Safety**: Teams learn when people can admit mistakes, ask questions, and propose fixes **without fear**; public issue trackers and code review can model that—if leadership **rewards learning, not blame.**

Innovation: The Cooperation

- Richard Dawkins, *The Selfish Gene*: From a gene-centred perspective, **the more genes** two individuals share, the more sense it makes for them **to co-operate** — helping a relative can propagate copies of the same genes (*altruism*).
 - When two teams—or your firm and an upstream project—**share the same code lineage** (dependency, protocol, platform), investing in **common health** is **strategically coherent**, not mere sentiment: shared fate makes co-operation easier to justify than one-off “charity.”

Bazaar Economics: Lessons from the Giants

- Why Microsoft, Apple, IBM, and Airbnb open-source their core tools?
 - Setting **Standards**: When the market uses your tool (e.g., Android, React, VS Code, Swift), you **shape the market!**
 - One crisp claim: contributing firms **learn** and can **perform better**— follow your team behaviour change, not a seminar on the paper.
 - Security & Resilience: **Transparency** and many eyes principle establish security and **trust**.

Bazaar Economics: The Sheer Masses

- Linux Kernel, many distros
- Android Operating System (a Linux distro)
- Chromium, Firefox
- Git / GitHub, CodeBerg
- Docker + Kubernetes
- OpenSSL, OpenSSH
- AI: TensorFlow (Google) & PyTorch (Meta), Open Source LLMs
- Most programming languages are OS
- GCC, CLANG + LLVM

**Microsoft has 7.8k
repositories**

**IBM has 3.9k
repositories**

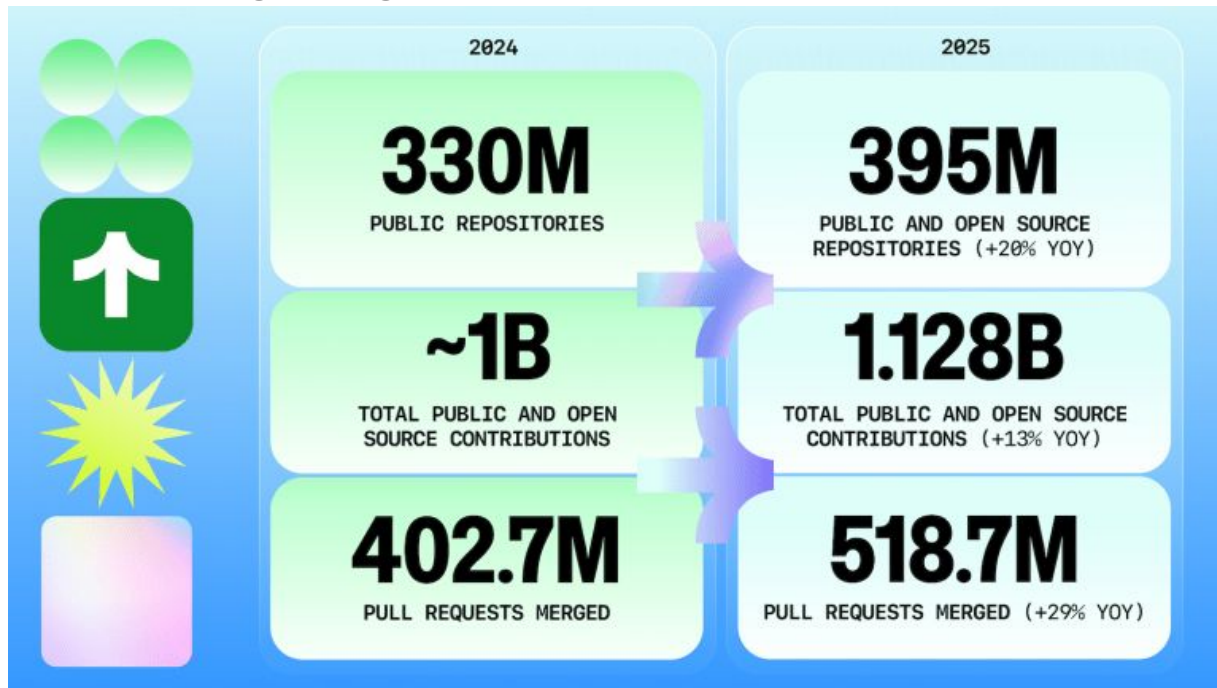
**Apple has 408
repositories**

How To Do Open Source

- Example: Microsoft's VS Code editor:
<https://github.com/microsoft/vscode>
- Example Guide OSPO: Open Source Program Office
<https://github.com/todogroup/ospodefinition.org>
- Example Hashmap library for C++:
https://github.com/martinus/unordered_dense

Bazaar Economics: GitHub Immensity

Open source development reached record levels this year with 1.12 billion contributions across public repositories (+13% YoY). March 2025 marked the largest single month of new open source contributors in GitHub history: 255,000 first-timers.



Bazaar Economics: GitHub Immensity

Top 10 countries
by contributors
and contributions
to public
repositories

No Time -
No Code

CONTRIBUTORS

- 1 India
- 2 United States
- 3 Brazil
- 4 Indonesia
- 5 Germany
- 6 United Kingdom
- 7 Russia
- 8 Japan
- 9 France
- 10 Canada

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Bazaar Economics: GitHub Immensity

Projects attracting the most first-time contributors in 2025

1 MICROSOFT/VSCODE

2 FIRSTCONTRIBUTIONS/
FIRST-CONTRIBUTIONS

3 HOME-ASSISTANT/CORE

4 STACKBLITZ/BOLT.NEW

5 FLUTTER/FLUTTER

6 ZEN-BROWSER/DESKTOP

7 IS-A-DEV/REGISTER

8 VLLM-PROJECT/VLLM

9 COMFYANONYMOUS/COMFYUI

10 OLLAMA/OLLAMA

Bazaar Economics: GitHub Immensity

Key takeaways for 2025

- **395M** public and open source repositories (+19% YoY)
- **1.12B** public and open source contributions (+13% YoY)
- **518.7M** pull requests merged (+29% YoY)
- **60%** of top 10 open source projects by contributors are AI-focused
- Only **1 in 50** repositories ships with a Code of Conduct
- In 2025, we saw **30% faster fixes** of critical severity vulnerabilities with 26% fewer repositories receiving critical alerts.

Contributor Experience

Simulate this at home with AI so you can train it.

- The “Fearless Fix”: Overcoming “Imposter Syndrome” in contribution.
 - Communicate with people on the project. Using AI makes contributing accessible by bridging the skill gap.
- Docs Rescue: Documentation is the most valuable contribution.
 - Turn "Tribal Knowledge" into public good. Don't be so secretive. Help others understand. Also here AI can help.
- Fork in the Road: The right to fork (freedom).
 - Understand that no one can kill an Open Source project. Corporate control vs. community governance

Contributor Experience

- Fork in the Road: The story of LibreOffice
 - In early 2010, Sun was acquired by Oracle Corporation, prompting increased concern among contributors due to Oracle's handling of other open-source projects like Solaris and Java.
 - Members of the OpenOffice.org community announced the formation of The Document Foundation (TDF), an independent organization to continue the development of [OpenOffice.org](https://www.openoffice.org)
 - TDF invited Oracle Corporation, then the steward of OpenOffice.org, to participate in the new foundation and donate the OpenOffice.org trademark. Oracle declined, leading TDF to adopt the LibreOffice name permanently.
 - In April 2011, Oracle announced it would discontinue commercial development of OpenOffice.org and transition the project to a community-based model. Two months later, Oracle donated the codebase and trademarks to the Apache Software Foundation (ASF), where the project was renamed Apache OpenOffice.
 - Today [LibreOffice.org](https://www.libreoffice.org) is the default office suite in many Linux distributions and available on Mac and Windows. OpenOffice is mostly dormant.

Innovation, Musings & Necessities

- My favourite piece of wisdom on innovation:
Nothing is ever new!
- “Cultural Learnings of Open Source for Make Benefit Glorious Nation of Switzerland” – *paraphrased from ancient philosopher*
- Fork or die!
 - When you depend on an abandoned library/tool
- Contribute when you profit from it, bugfix or features
- Learn from the Bazaar, Microsoft can do it, why not you?

Tasks For Next Monday



1. Adapt the “Bazaar” Model (Decentralized Devs, Agile)
2. “Release Early, Release Often”
3. Security by **Transparency** (“Many Eyes” Theory, Cyber Resilience Act - CRA)
4. “Upstream First” Philosophy (fixing bugs in the original repo)
5. Social Coding (Pull-Requests, Interactions in projects)
6. InnerSource (Open Source inside a company to break silos)
7. Meritocracy (Influence/Reputation > Title)
8. Make **inventory** of all used OSS: You cannot govern what you have not listed
9. Transition from “Consumption” to “Contribution”
 - **Consumption** = take OSS and run; **Contribution** = fix, fund, document, upstream

Win hearts & wallets through Open Source!



open source
initiative®

CH Open

Source | Business | Community

<https://winterthur2026.hack-commit-pu.sh/>

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