Monthly Maturity Report: April 2025

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Organization:
Open Source Committee
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Cardano Ecosystem

Review Process	Approval
1st Pass: Tex M, OS Program Manager	✅**Approved**
2nd Pass: Christian T, Head of OSO	✅**Approved**

Summary

In **April 2025**, the Cardano open-source ecosystem **entered a consolidation phase** following March's delivery peak. While overall **contribution volume declined**, the month remained marked by **strong core activity, regional diversification, and continued repository-level focus**. The drop in PRs and issues reflected a natural cooldown after sprint completions, while time-to-resolution increases hinted at more complex or long-lived engineering tasks.

Major contributors like **IOHK** maintained high commit and author counts, while previously prominent sources such as **Unknown** and **BinarApps** continued to recede. Activity consolidated around core repositories like cardano-node, cardano-ledger, and cardano-cli, signaling a pivot toward integration and interface stabilization.

Although total contributor participation narrowed slightly, new regions such as **UTC +2** and **UTC +10** emerged strongly, supporting the **ongoing decentralization of development** across the Cardano ecosystem.

General Observations

Organizational Contributions

- **IOHK** led with 906 commits and 54 authors — continuing its lead role with a modest 8% growth in contributors.
- **Unknown** and **BinarApps** saw sharp pullbacks in both commits and authors, suggesting a sustained taper in unaffiliated or automated participation.
- **Well-Typed** and **Tweag** both increased their contributor counts, indicating stable or slightly expanded engagement despite reduced commit volume.

Geographic Distribution

- **Central Europe (UTC +1)** activity declined by 71%, shifting Cardano's engineering core further east and south.
- **UTC +2** and **+10** surged — increasing by 345% and 5,600% respectively — reflecting new participation from Eastern Europe and the Asia-Pacific region.
- **India and Central Asia (UTC +5)** dropped again, continuing the downward trend seen in March.

Repository Activity

- **cardano-node** became the most active repo with 198 commits (+58%), underscoring its role in protocol-level implementation.
- **plutus**, **lsm-tree**, and **ouroboros-consensus** all saw declines of 30–40%, suggesting a cooldown after prior intensive development.
- **cardano-cli** gained activity (+21%), reflecting greater investment in tooling and CLI refinements.

Code Volume

- Modified files decreased from 13,673 to 7,942 among top orgs, while **IOHK** remained dominant in technical footprint.
- **Well-Typed** and **Unknown** dropped file changes by 60–90%, aligning with broader volume contraction.
- **Cardano Foundation** expanded file modifications by 75%, reinforcing its increasing development presence.

Issue Lifecycle

- Issue submissions dropped 20–50% across key orgs, reversing March's QA surge.
- Median resolution times rose for **IOHK**, **cardano-ledger**, and **cardano-cli** — suggesting increased issue complexity or triage delays.
- Projects like **ouroboros-consensus** and **formal-ledger-specs** maintained solid responsiveness with moderate QA loads.

Pull Requests

- 392 PRs submitted (−29.5%) by 56 contributors across 17 repos — reflecting consolidation and fewer concurrent delivery threads.
- Unique submitters and touched repositories declined by 16% and 39% respectively,

consistent with a focused delivery cadence.

Conclusion

April 2025 marked a **strategic deceleration** following a highly active March. While contribution volume declined across several metrics, the ecosystem maintained a healthy delivery rhythm. **IOHK** remained the engine of development, while increased activity from **Cardano Foundation** and a **broadening geographic footprint** reinforced ecosystem resilience. As the Cardano community continues through Q2, the emphasis will shift to **sustaining quality, improving resolution throughput, and onboarding wider participation** into stabilized infrastructure workstreams.

1. Github Overview

This section provides a comprehensive overview of activities and dynamics within the Github platform. It encompasses various metrics and statistics concerning the usage, engagement, and performance of projects and contributors.

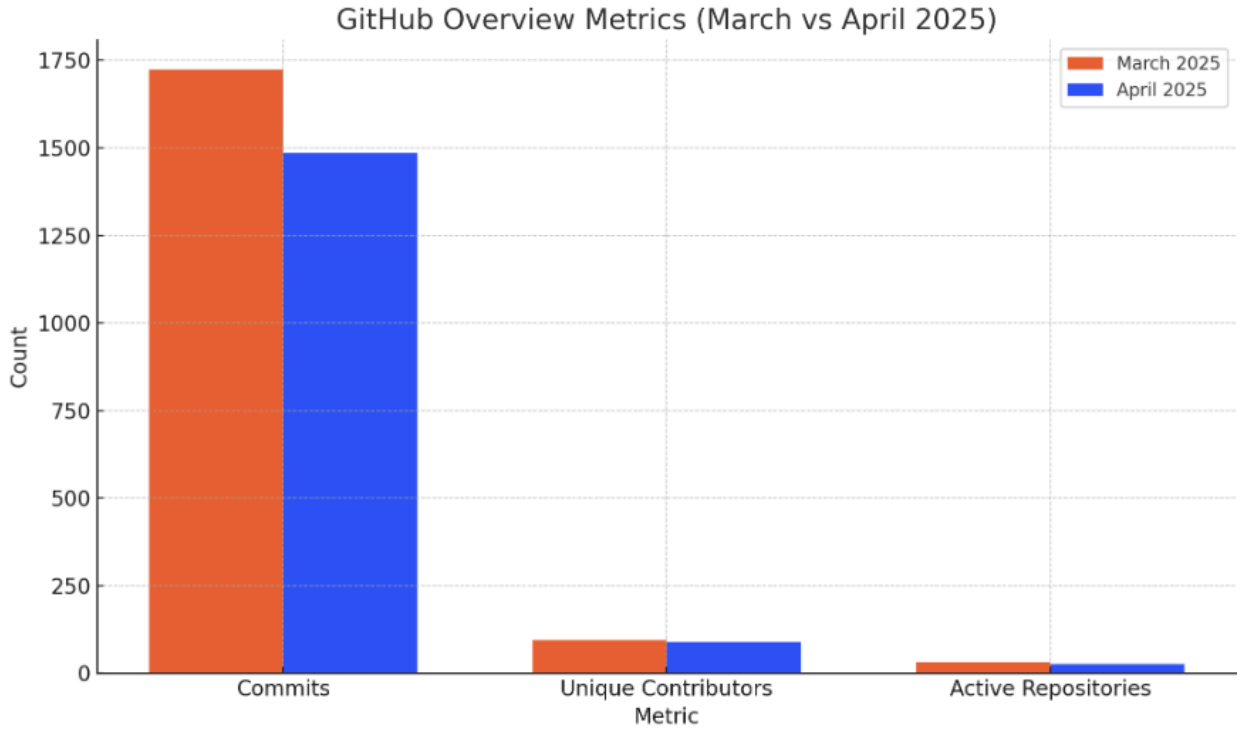
Summary:

In April 2025, the Cardano open-source ecosystem showed a shift from high-velocity delivery to more concentrated activity. Total commits decreased to 1,486 from 1,723 in March (−13.8%), and contributor count dipped slightly to 88 (−7.4%). The number of active repositories also contracted to 25 (−19.4%), reflecting reduced parallelism in engineering focus.

Metric	April 2025	March 2025	Δ (%)
Commits	1,486	1,723	−13.8%
Unique Contributors	88	95	−7.4%
Active Repositories	25	31	−19.4%

Insights:

- **Total commits fell 13.8%**, signaling a slowdown from March's peak — a natural decline following intense sprinting activity.
- **Contributor count decreased modestly**, suggesting minor disengagement or tighter focus within smaller teams.
- **Active repositories dropped by 19%**, indicating that fewer codebases were being touched — likely as a result of narrowing delivery scope or wrapping of earlier multi-stream efforts.
- Despite the slowdown, April's metrics still reflect sustained ecosystem maturity, with nearly 1,500 commits across 25 repositories — comparable to many prior growth months.



1.a) Organization Activity

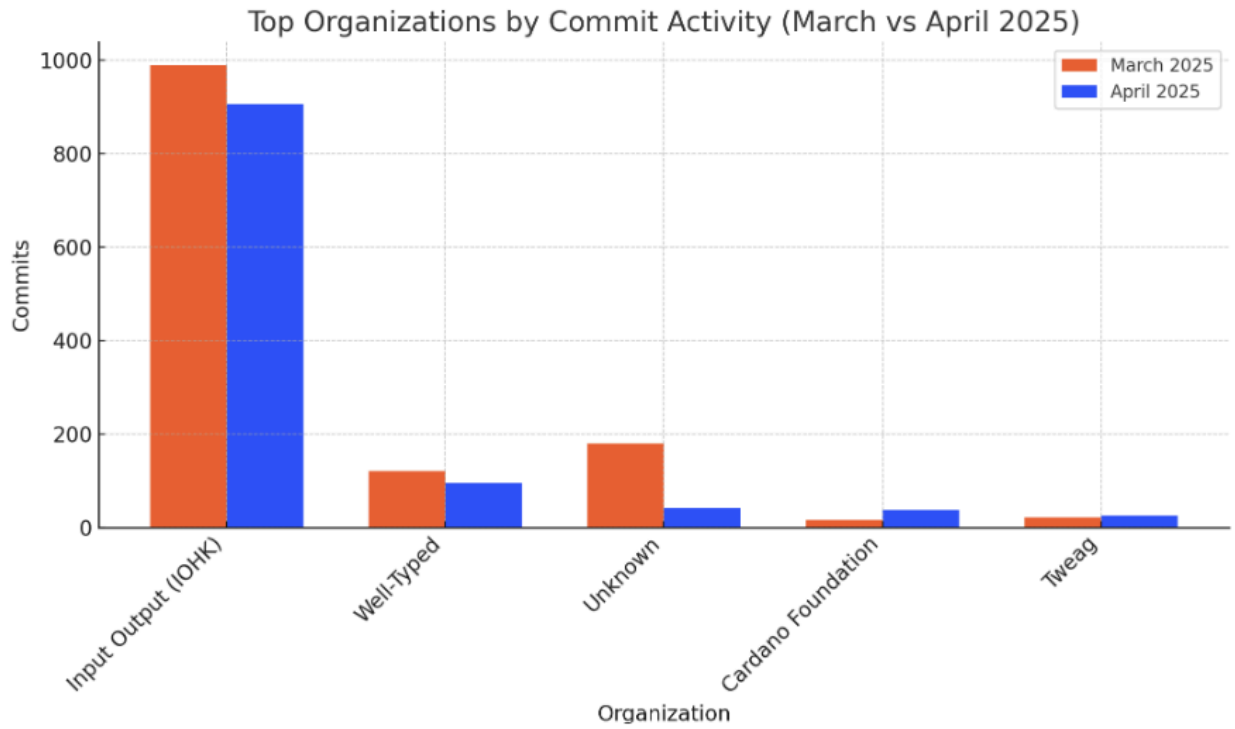
Here is the data for how different organizations within the Cardano ecosystem were contributing to open-source projects during the current timeframe. Complete data available [here in Bitergia](#).

Summary:
In April 2025, ecosystem contribution volume moderated across most major organizations. IOHK remained the lead contributor, though its commit volume slightly declined. The most significant changes were seen among previously high-volume sources such as Unknown, which dropped off considerably. Meanwhile, Cardano Foundation increased its footprint, signaling broader participation from governance-linked contributors.

Comparative Table: April vs. March 2025

Organization	Commits (Apr)	Commits (Mar)	Δ Commits (%)	Authors (Apr)	Authors (Mar)	Δ Authors (%)

Input Output (IOHK)	906	990	−8.5%	46	48	−4.2%
Well-Typed	95	120	−20.8%	6	5	+20.0%
Unknown	41	180	−77.2%	6	18	−66.7%
Cardano Foundation	37	16	+131.3%	2	2	0.0%
Tweag	25	21	+19.0%	2	2	0.0%



Insights:

1. **IOHK's output decreased moderately** (−8.5%), but it remained the primary development driver. A small dip in author count suggests minor downscaling or project transitions.

2. **Unknown contributors fell significantly** in both commits and authorship, likely tied to the end of automated or untagged third-party workflows active in March.

3. **Cardano Foundation's 131% commit growth** marks a meaningful uptick, possibly reflecting deeper involvement in governance tooling, infra support, or repo hygiene.

4. **Well-Typed maintained steady team presence**, despite reduced commit volume. Author count actually rose, suggesting distribution of work rather than decline in activity.

5. **Smaller contributors like Tweag** posted light but steady activity, showing continued presence from niche or specialized contributors.

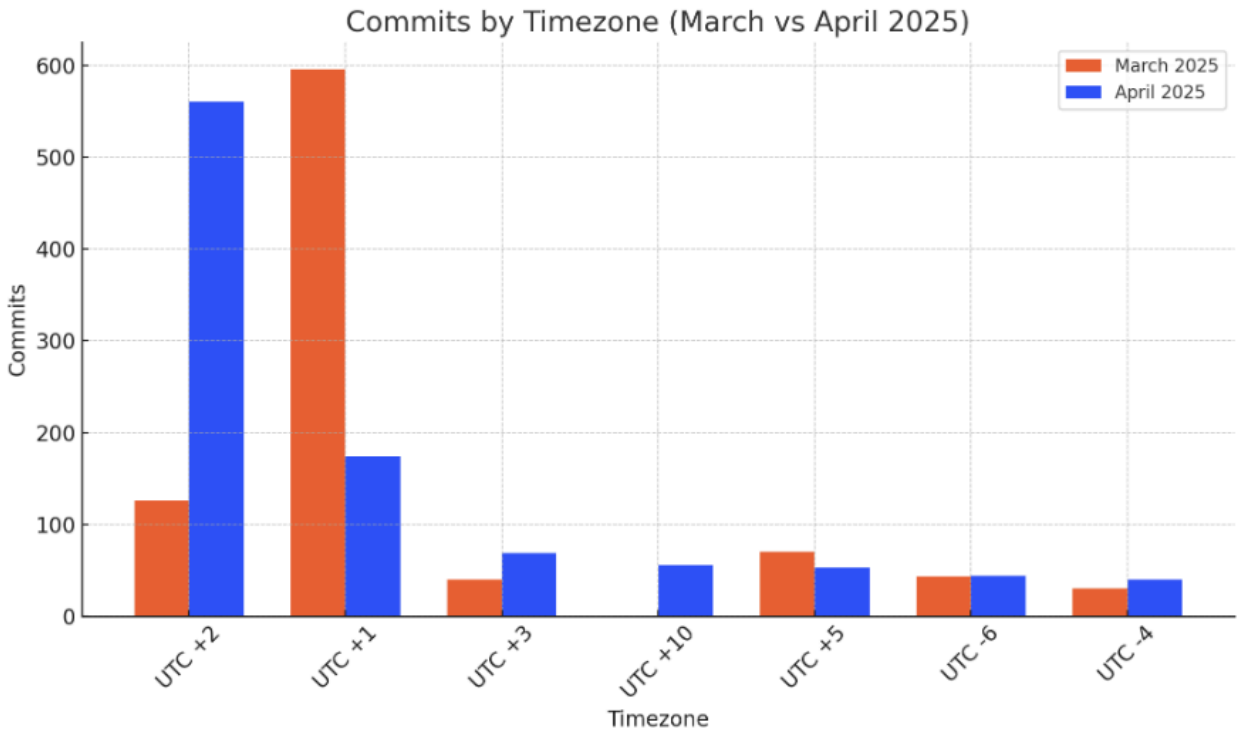
1.b) Commits by Timezone

Here is the data for commits per timezone. This view is important to understand how the contributors are spread geographically. Complete data available here in Bitergia.

Summary:
April 2025 introduced significant shifts in contributor geography. While Central Europe (UTC +1) saw a noticeable decline in commit activity, other regions — notably UTC +2 and +10 — posted major gains, reflecting Cardano's growing global development footprint.

Comparative Table: April vs. March 2025

Timezone (UTC ±)	Commits (Apr)	Commits (Mar)	Δ Commits (%)
+2	561	126	+345.2%
+1	174	596	−70.8%
+3	69	40	+72.5%
+10	56	0	+5,600.0%
+5	53	70	−24.3%



Insights:

- **UTC +2 saw explosive growth** (+345%), rising from 126 to 561 commits — highlighting increased engagement from Eastern Europe or East African contributors.

- **Central Europe (UTC +1)**, historically the top zone, dropped by 71%. This could indicate delivery shifts, sprint gaps, or decentralization toward other regions.

- **New participation from UTC +10** emerged, registering 56 commits. This likely reflects fresh engagement from Australia, East Asia, or Oceania — promising for regional diversification.

- **UTC +3 activity rose 73%**, suggesting more engineering involvement from Turkey, Eastern Africa, or Russia-based contributors.

- **India/Central Asia (UTC +5)** continued its downward trend, slipping another 24% after March's dip, hinting at paused efforts or transition phases in key teams.

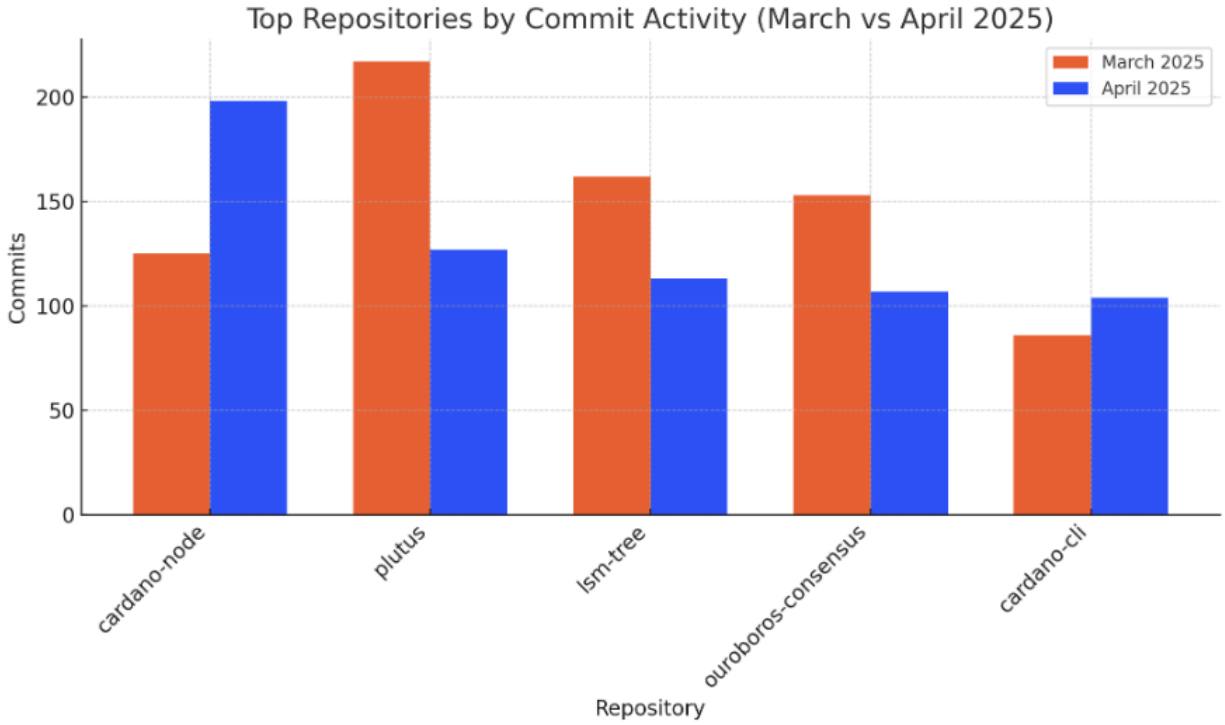
1.c) Per Repository Activity

This section shows activity for each repository in Cardano open-source. Complete data available here in Bitergia.

Summary:
April 2025 saw a shift in repo-level focus. `cardano-node` became the most active repository, while several infrastructure and research-heavy repos like `plutus` and `lsm-tree` tapered. The spread of activity suggests a movement from R&D toward integration and implementation.

Comparative Table: April vs. March 2025

Repository	Commits (Apr)	Commits (Mar)	Δ Commits (%)
cardano-node	198	125	+58.4%
plutus	127	217	−41.5%
lsm-tree	113	162	−30.2%
ouroboros-consensus	107	153	−30.1%
cardano-cli	104	86	+20.9%



Insights:

1. **cardano-node.git led repo activity** in April, increasing commits by 58%. This likely indicates core protocol upgrades or synchronization ahead of network-wide deliverables.

2. **plutus.git dropped 41%**, reflecting stabilization or reduced iteration following a high-volume March release window for smart contract enhancements.

3. **Both lsm-tree and ouroboros-consensus declined ~30%**, pointing to reduced ledger or consensus-layer activity — possibly concluding previously planned cycles.

4. **cardano-cli.git gained 21%**, showing increased attention to interface tooling, CLI stability, or QA pipeline enhancements.

5. The pattern suggests a delivery transition from architecture-heavy work to infrastructure deployment and tooling support.

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2. Areas of Code

This category outlines the diverse areas and aspects of code development and management within the Github environment.

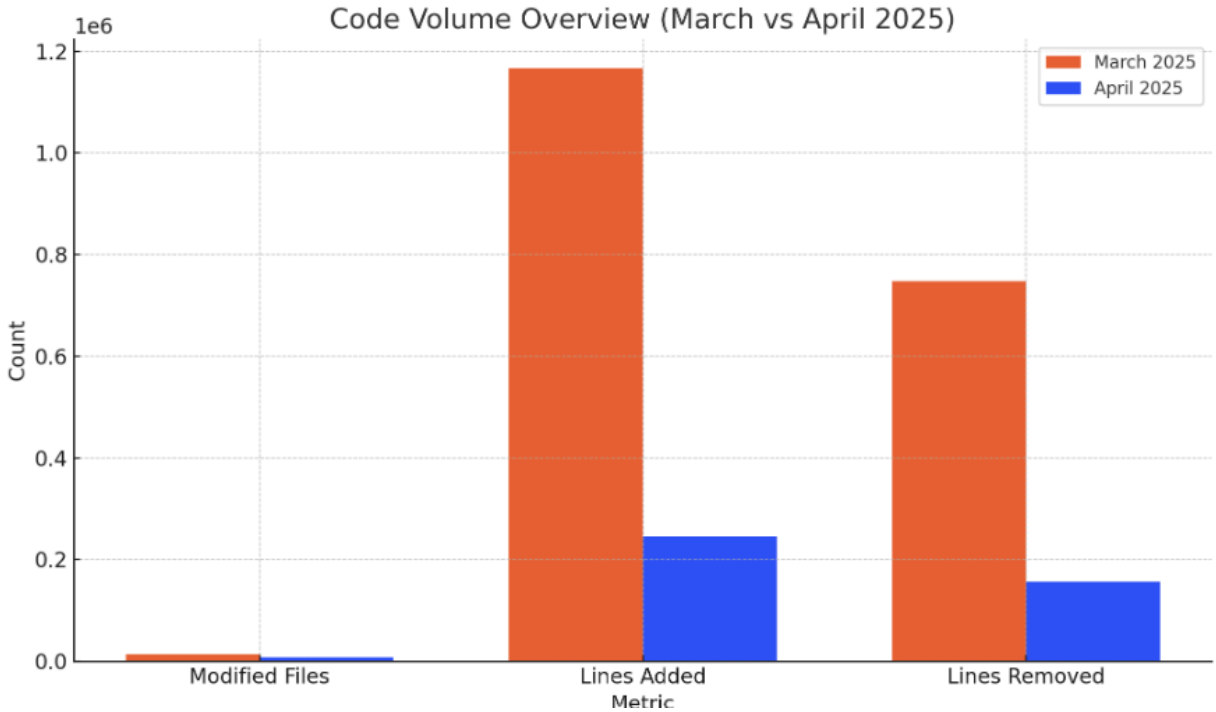
Summary

April 2025 reflected a notable decrease in code volume across the ecosystem. While development continued across key repositories, the number of modified files and total lines of code changed declined sharply from March's historic peak. This drop aligns with the post-sprint cooldown observed across multiple metrics, indicating a shift from large-scale changes to focused refinement.

Only 7,942 modified files were recorded among top contributors — a 42% decline from March — while both lines added and removed also fell, highlighting a contraction in net throughput. Despite this, activity remained concentrated in high-value areas such as `cardano-ledger`, `cardano-api`, and `cardano-cli`, suggesting stability and polish over raw expansion.

Comparative Table: Code Volume (Top Orgs)

Organization	Modified Files (Apr)	Modified Files (Mar)	Δ Files (%)
Input Output (IOHK)	7,942	9,674	−17.9%
Well-Typed	470	1,281	−63.3%
Unknown	171	2,311	−92.6%
Cardano Foundation	135	77	+75.3%
Tweag	80	276	−71.0%



Insights:

- **IOHK continued to lead code volume**, though file modifications dropped 18%, indicating a transition from large-scale delivery to more targeted updates.
- **Well-Typed and Unknown saw sharp reductions** in file changes (−63% and −93%), matching their reduced commit activity — a likely result of paused or completed sprint work.
- **Cardano Foundation nearly doubled its file modifications**, suggesting a growing presence in day-to-day development or technical tooling contributions.
- **Tweag also decreased its code footprint** by 71%, reinforcing the overall reduction in ecosystem-wide development pressure.
- These shifts mark a pivot from architectural expansion to stabilization, validation, and cleanup cycles within the codebase.

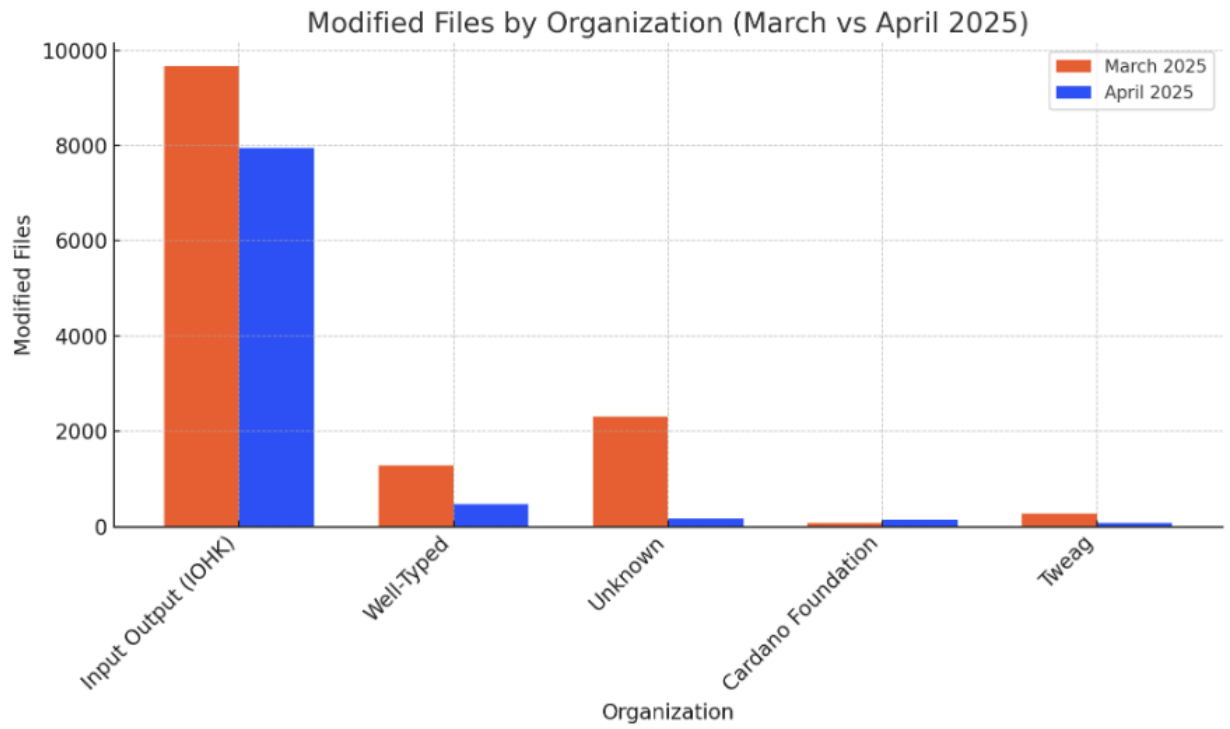
2.a) Projects

Summary:
April 2025 reflected a broad contraction in code modification volume across most organizations, following March's peak. IOHK maintained a high level of engagement, while contributors like

Unknown and Well-Typed reduced activity significantly. Meanwhile, Cardano Foundation increased its footprint, continuing its upward participation trend.

Comparative Table: Modified Files by Organization

Organization	Modified Files (Apr)	Modified Files (Mar)	Δ Files (%)
Input Output (IOHK)	7,942	9,674	−17.9%
Well-Typed	470	1,281	−63.3%
Unknown	171	2,311	−92.6%
Cardano Foundation	135	77	+75.3%
Tweag	80	276	−71.0%



3. Issues

This segment revolves around the identification, tracking, and resolution of issues within Github projects. It encompasses discussions on problem-solving methodologies, issue management practices, and related metrics.

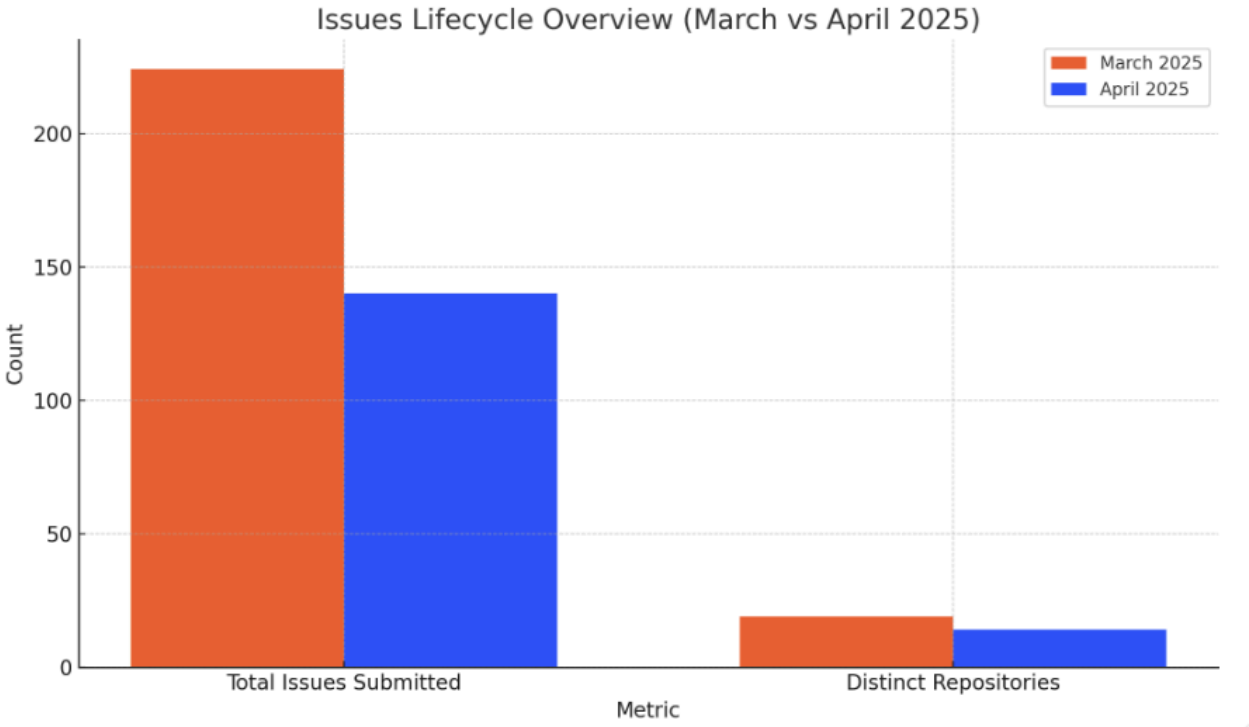
Summary

April 2025 marked a retreat from March's high-volume QA cycle. Issue submissions declined across most repositories and organizations, and the overall pace of resolution slowed. While engineering output remained strong, the data suggests that contributors focused more on delivery and integration rather than fast-cycle triage.

A total of **140 issues** were submitted (down from 224 in March), and the number of participating repositories dropped significantly. Median resolution times increased across many key components, including `cardano-ledger`, `cardano-cli`, and `IOHK`'s organizational footprint. Nonetheless, active QA remained visible in core protocol and tooling repos.

Comparative Table: Issues Overview (Derived Totals)

Metric	April 2025	March 2025	Δ (%)
Total Issues Submitted	140 (est.)	224	−37.5%
Distinct Repositories	14 (est.)	19	−26.3%
Average Resolution Time	↑ (multiple)	3.2 days	+ variable



Insights:

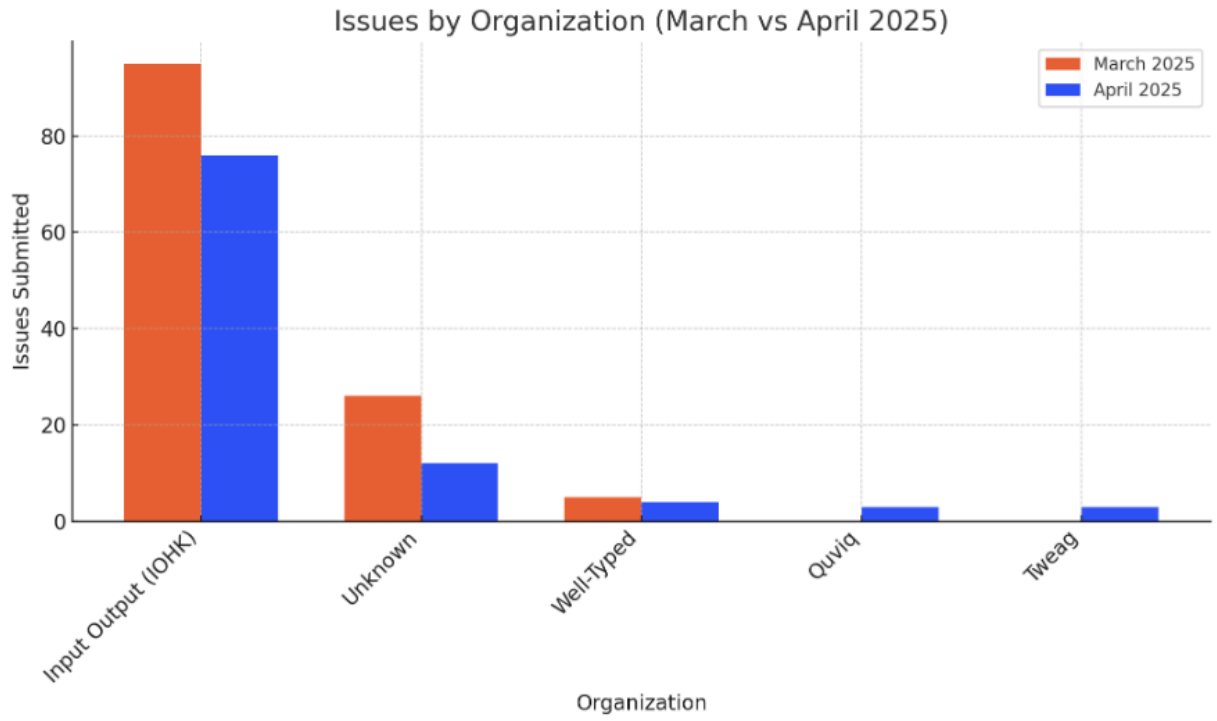
- **Total issue volume declined sharply**, down ~38% from March — suggesting a shift in contributor effort from bug resolution to forward development or feature stabilization.
- **QA activity became more concentrated**, with fewer repositories receiving issues — likely a result of focused delivery cycles in key repos such as `ouroboros-consensus` and `cardano-ledger`.
- **Resolution times increased notably** across multiple orgs and repos, including IOHK, `cardano-ledger`, and `cardano-cli` — pointing to more complex issues or resourcing bottlenecks.
- **Despite the drop in volume**, projects like `formal-ledger-specs` and `plutus` maintained stable QA throughput, reinforcing maturity in protocol-level testing.
- The shift reflects a transition from fast-paced iteration to deeper review and integration — a pattern consistent with post-sprint stability cycles in mature open-source ecosystems.

3.a) Organizations

Summary:
April 2025 saw a general decline in issue volume across top organizations, reversing March's peak QA activity. Resolution times also increased for key contributors, suggesting slower triage or a shift in focus away from issue handling toward implementation.

Comparative Table: Issues by Organization

Organization	Issues (Apr)	Issues (Mar)	Δ Issues (%)	Median Open (Apr)	Median Open (Mar)	Δ Median (days)
Input Output (IOHK)	76	95	−20.0%	7.48 days	3.15 days	+4.32
Unknown	12	26	−53.8%	6.01 days	4.43 days	+1.58
Well-Typed	4	5	−20.0%	0.56 days	0.45 days	+0.11
Quviq	3	0	+300.0%	15.48 days	0.00 days	+15.48
Tweag	3	0	+300.0%	17.05 days	0.00 days	+17.05



Insights:

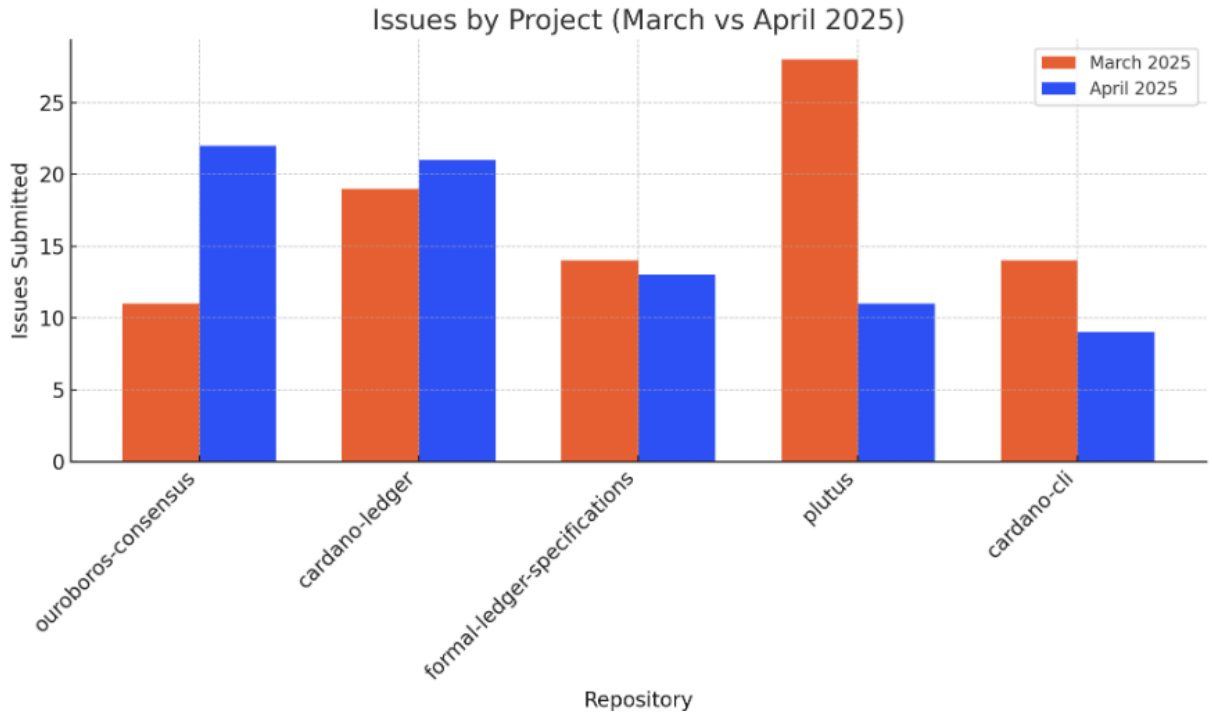
1. **IOHK's issue volume dropped 20%**, while its median time to resolution more than doubled (from 3.15 to 7.48 days). This suggests possible backlog accumulation or resource reallocation to delivery tasks.
2. **Unknown contributions saw fewer issues and slower resolution**, reinforcing the overall decline in their activity footprint observed elsewhere in the report.
3. **Quviq and Tweag reappeared with low-volume issues**, but high resolution times (15–17 days), likely reflecting long-standing or complex items newly engaged in April.
4. **Well-Typed remained stable at low issue volume**, with median resolution holding under 1 day — reflecting quick turnarounds for isolated contributions.
5. The data points to a transition from March's rapid QA cycles to longer-lived, deeper technical reviews or slower-paced triage workflows.

3.b) Projects

Summary:
April 2025 revealed a redistribution of QA attention across key repositories. While total issue volume dipped for several top repos, `ouroboros-consensus` and `cardano-ledger` saw increased scrutiny. Some projects also faced longer resolution cycles, especially those handling low-level or spec-heavy components.

Comparative Table: Issues by Project

Repository	Issues (Apr)	Issues (Mar)	Δ Issues (%)	Median Open (Apr)	Median Open (Mar)	Δ Median (days)
ouroboros-consensus	22	11	+100.0%	4.26 days	4.38 days	−0.12
cardano-ledger	21	19	+10.5%	9.47 days	1.62 days	+7.85
formal-ledger-specs	13	14	−7.1%	4.07 days	6.32 days	−2.25
plutus	11	28	−60.7%	4.08 days	4.33 days	−0.25
cardano-cli	9	14	−35.7%	9.48 days	2.84 days	+6.64



Insights:

1. **ouroboros-consensus.git saw issue volume double**, with steady resolution times (~4.3 days), indicating sustained focus on core consensus code.

2. **cardano-ledger.git posted a moderate issue increase**, but resolution time expanded sharply (1.6 → 9.5 days), suggesting growing complexity in QA cycles or resource strain.

3. **plutus.git experienced a 61% drop in issues**, consistent with its decline in commit activity — likely reflecting stabilization or post-release cool-off.

4. **formal-ledger-specs.git maintained a consistent issue load** with faster resolution, indicating efficiency improvements or simpler validation cycles.

5. **cardano-cli.git dropped in issue count but saw a 6.6-day increase in resolution time**, possibly tied to deeper reviews or emergent complexity in tooling integration.

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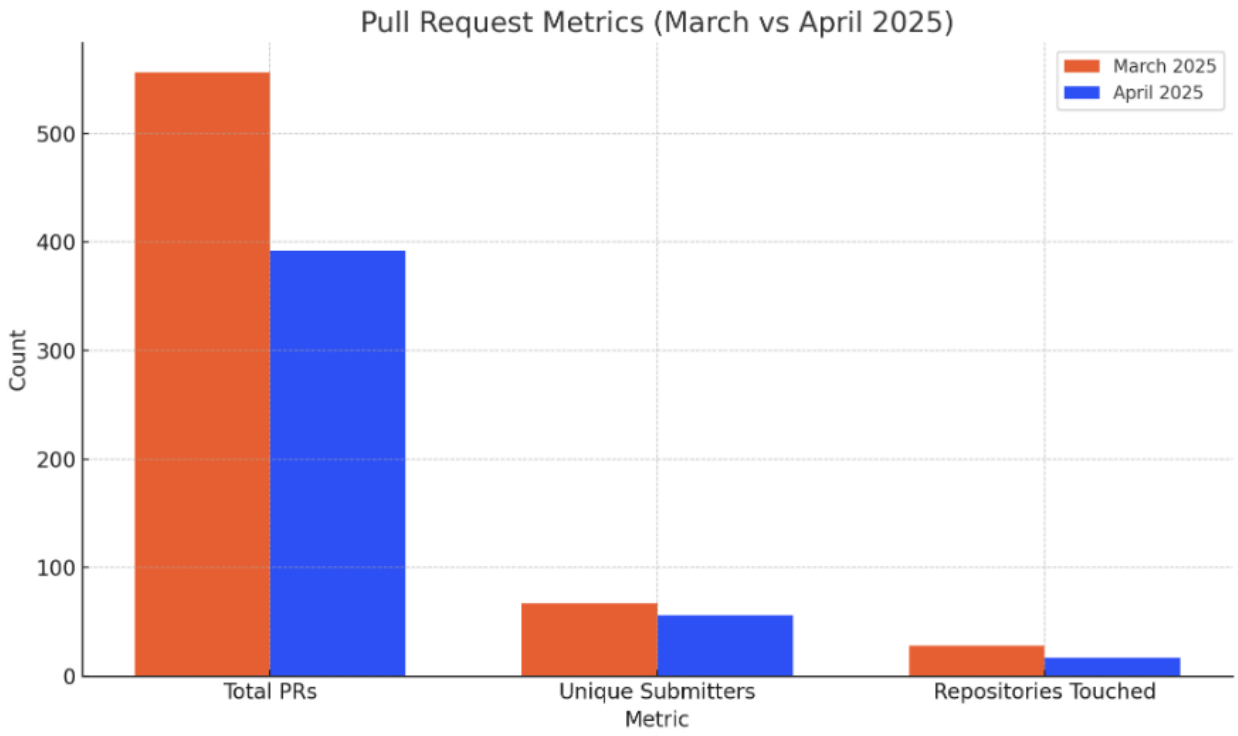
4. Pull Requests

Summary:

April 2025 recorded a significant decline in PR activity across all metrics. While still active, the number of pull requests, contributing authors, and affected repositories all decreased. This likely reflects the downstream effects of March's intense delivery cycle..

Comparative Table: April vs. March 2025

Metric	April 2025	March 2025	Δ (%)
Total PRs	392	556	−29.5%
Unique Submitters	56	67	−16.4%
Repositories Touched	17	28	−39.3%



Insights:

- **Total PRs dropped nearly 30%**, reflecting a significant cooldown in delivery velocity after March's high-volume period.
- **Contributor base shrank by 16%**, suggesting a pause in participation or reduced scope of changes from smaller teams and individuals.
- **Touched repositories declined sharply (−39%)**, reinforcing that fewer workstreams were active, possibly due to consolidation or completion of sprint phases.
- The overall picture signals a regrouping period following prior high throughput — not inactivity, but tighter focus on fewer repos with fewer hands.

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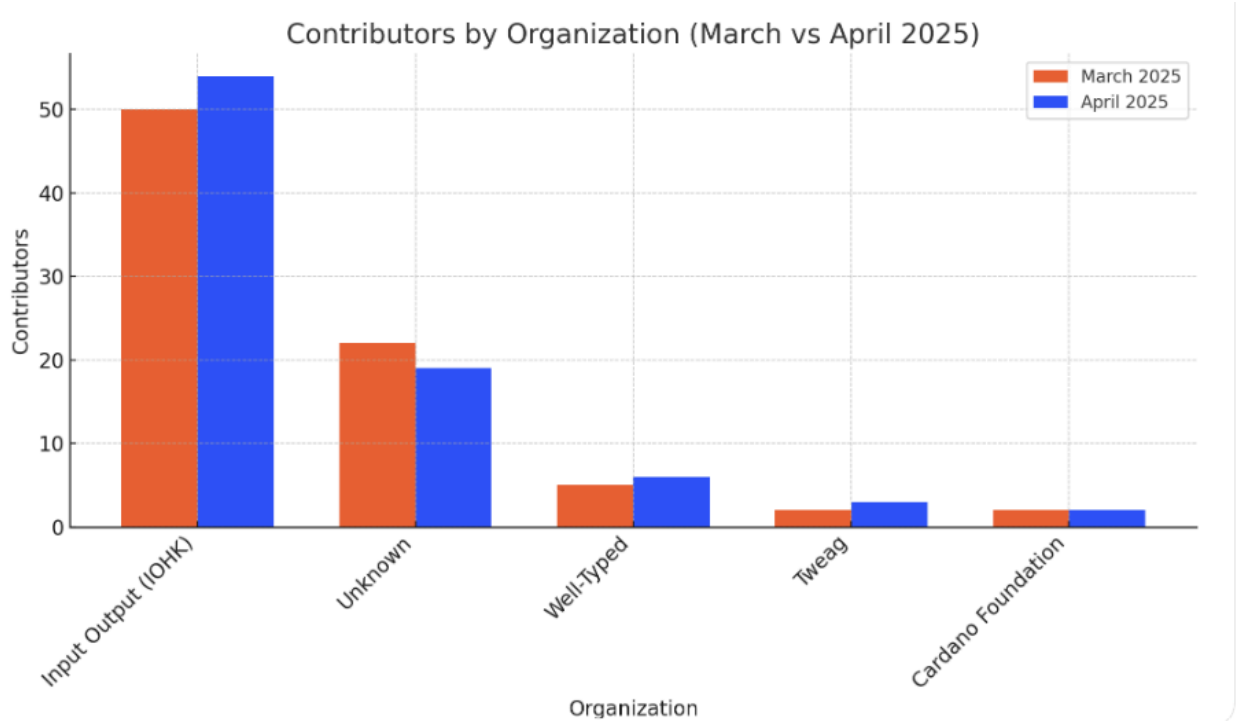
5. Analysis of Contributions by Organization

Summary:
April 2025 saw a modest reshuffling in organizational contributor participation. IOHK continued to lead with a slight increase in active contributors. Other contributors such as Unknown and Well-Typed saw minor shifts, while smaller players like Tweag increased their footprint.

Comparative Table: Contributors by Organization

Organization	Authors (Apr)	Authors (Mar)	Δ Authors (%)
Input Output (IOHK)	54	50	+8.0%
Unknown	19	22	−13.6%
Well-Typed	6	5	+20.0%
Tweag	3	2	+50.0%
Cardano Foundation	2	2	0.0%



Insights:

- **IOHK added more contributors**, increasing its author base by 8%, reinforcing its leading role in sustained and structured ecosystem development.
- **Unknown authorship dipped by 14%**, in line with trends seen across other sections, possibly reflecting fewer anonymous or automated pushes.
- **Well-Typed continued to grow incrementally**, suggesting onboarding of new contributors or increased team collaboration.
- **Tweag increased authorship by 50%**, albeit at small absolute scale — signaling renewed involvement or additional team members engaged on specific modules.
- **Cardano Foundation remained stable**, holding a consistent level of contribution across both months.

Glossary

Report Technical Definitions:

- **Repository(Repo):** In Git, a repository, often abbreviated as "repo," is a storage space where your project's files and their entire revision history are stored. It typically includes various files such as source code, documentation, images, and more. Repositories can be either local (on your computer) or remote (hosted on a server like GitHub, GitLab, Bitbucket, etc.).
- **Issue:** An issue is a feature request, bug report, task, or any other item that needs to be tracked within a project. In Git repositories hosted on platforms like GitHub or GitLab, issues are commonly used for discussing and tracking tasks or problems related to the project. They can include labels, assignees, comments, and other metadata to facilitate collaboration and organization.
- **Pull Request (PR):** A pull request is a proposed change that a user wants to merge into a target branch of a repository. It's commonly used in distributed version control systems like Git to facilitate code review and collaboration. When a developer completes a feature or fixes a bug in a separate branch of the repository, they can initiate a pull request to merge their changes into the main branch or another designated branch. Pull requests often include a summary of the changes, discussions, reviews, and automated checks.
- **Contributor:** A contributor is anyone who participates in a project by making contributions such as code changes, documentation improvements, bug fixes, feature enhancements, etc. Contributors can be individuals or organizations, and their contributions can take various forms, from writing code to providing feedback, reporting issues, or reviewing pull requests.
- **Git:** Git is an open-source distributed version control system designed to handle everything from small to very large projects with speed and efficiency. It allows multiple developers to work on the same project simultaneously, coordinating their work through branching, merging, and version tracking. Git is widely used in software development for managing source code revisions and collaborating on projects.
- **GitHub:** GitHub is a web-based platform that provides hosting for Git repositories and offers collaboration features such as issue tracking, pull requests, code review, and project management tools. It's one of the most popular platforms for hosting Git repositories and facilitating collaboration among developers and teams. GitHub also provides additional features like wikis, continuous integration, and deployment services.
- **Commit:** In Git, a commit is a snapshot of the changes made to the files in a repository at a specific point in time. It represents a single revision or change set and includes a unique identifier (SHA-1 hash), a commit message describing the changes, and a pointer to the previous commit(s). Commits are fundamental to version control in Git, as they allow developers to track changes, revert to previous states, and collaborate on code changes.
- **Organization:** In Git and GitHub, an organization refers to a group or entity that can own repositories, manage access permissions, and collaborate on projects. Organizations are often used by companies, open-source projects, or groups of developers to centralize their repositories and manage their collective work. Organizations on GitHub can have multiple members with varying levels of access, allowing for collaborative development within a structured environment.
- **Project:** A project in the context of Git and GitHub typically refers to a specific software development endeavor or initiative. It encompasses all the related tasks, code,

documentation, issues, and resources needed to achieve a particular goal. Projects are often organized within repositories on GitHub, where developers can collaborate, track progress, manage tasks, and share code. A project may involve multiple contributors working together to develop and maintain software, with each contributor contributing to different aspects of the project.

- **Community:** In the Git and GitHub ecosystem, a community refers to the collective group of developers, users, contributors, and other stakeholders who are involved in a particular project, organization, or open-source initiative. Communities are essential for fostering collaboration, sharing knowledge, providing support, and driving the growth and sustainability of projects. They often gather around shared interests, goals, or values, and may interact through various channels such as forums, mailing lists, chat platforms, and social media. A strong and engaged community can contribute to the success and longevity of a project by providing feedback, contributing code, reporting issues, and supporting fellow members.