

THE **2023** TIDELIFT STATE OF THE OPEN SOURCE MAINTAINER REPORT

April 2023

Top headlines from our biennial
survey of open source maintainers

TIDELIFT

Introduction

In late 2022, Tidelift fielded its second survey of open source maintainers. Hundreds of maintainers responded with thoughts about how they fund their work, what they enjoy about being a maintainer, what they don't like so much, along with a host of other interesting insights. Over the following pages, we'll share eleven of the most compelling headlines with you.

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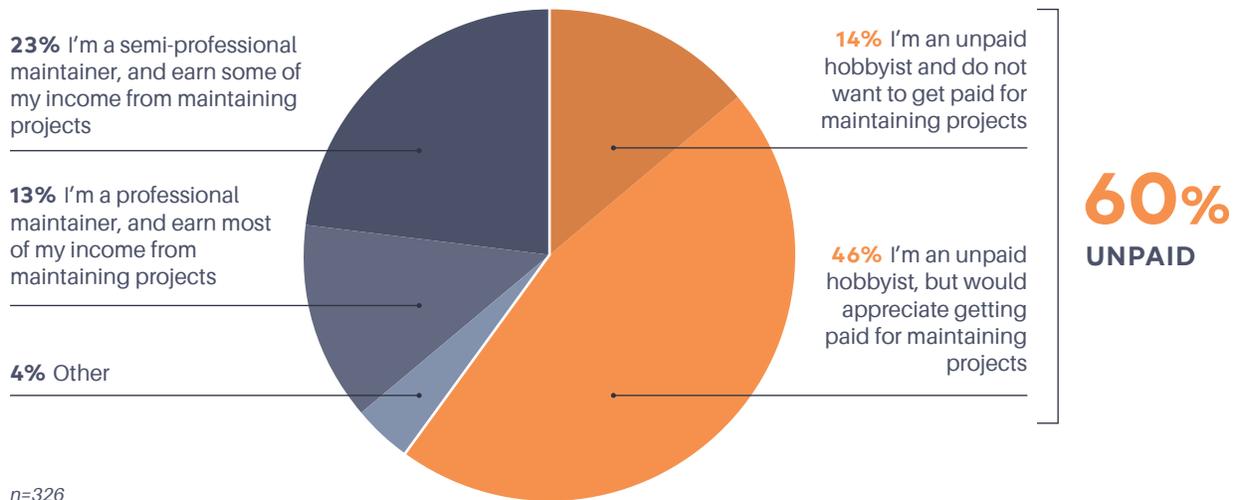
HEADLINE #1

Despite increasing demands, most maintainers still don't get paid for their work.

One of the most talked-about topics in open source today is the increasing demands on open source maintainers to do additional work to make their projects more secure—and how and if they should be compensated for it. In this year's survey, we asked maintainers to describe how they approach their role as an open source maintainer.

60% of maintainers describe themselves as unpaid hobbyists

Which of the following phrases best describes how you approach your role as an open source maintainer?



According to the data, 60% of maintainers consider themselves unpaid hobbyists, while only 13% identify themselves as professional maintainers earning most or all of their income from maintaining projects. Twenty-three percent of respondents fall in the middle, thinking of themselves as semi-professional maintainers who earn some of their income from maintaining projects.

Countering the regularly cited theory that most maintainers prefer to work on open source as an unpaid hobby, our survey found that 77% of the maintainers who are not paid would prefer to get paid. Only 23% would like to keep open source as an unpaid hobby.

Over 3/4 of unpaid maintainers would prefer to get paid

MYTH:



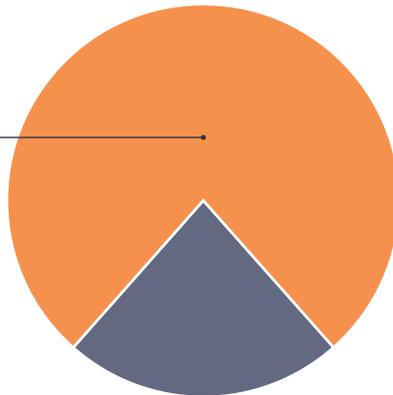
MAINTAINERS PREFER
TO WORK ON OPEN SOURCE
AS AN UNPAID HOBBY.



REALITY:

77%

of unpaid maintainers
would like to get paid



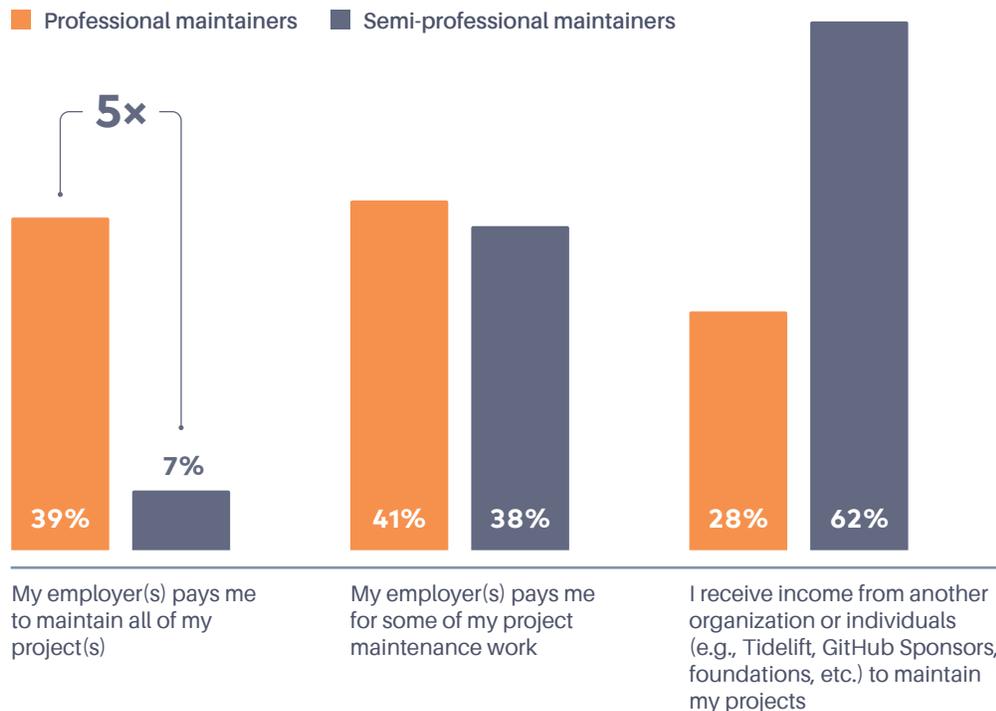
n=194

Meanwhile, for the respondents who do get paid for maintaining open source projects, we gained more insight into the sources of their income. By and large, professional maintainers who earn all of their income from maintaining open source projects are paid all or in part by their employer for this work, while semi-professional maintainers who earn some of their income from maintaining projects were more likely to earn income from other non-employer organizations like Tidelift, foundations, or GitHub Sponsors.

Only 7% of semi-professional maintainers were paid by their employer to maintain all of their projects while this number rose to 39% for professional maintainers. Over twice the percentage of semi-professional maintainers (62%) received income from non-employer sources as compared to 28% of professional maintainers.

Professional maintainers are 5× more likely to be paid by their employers to maintain all of their projects

Which of the following describe how you currently earn income for your open source project maintenance work? (Choose all that apply)



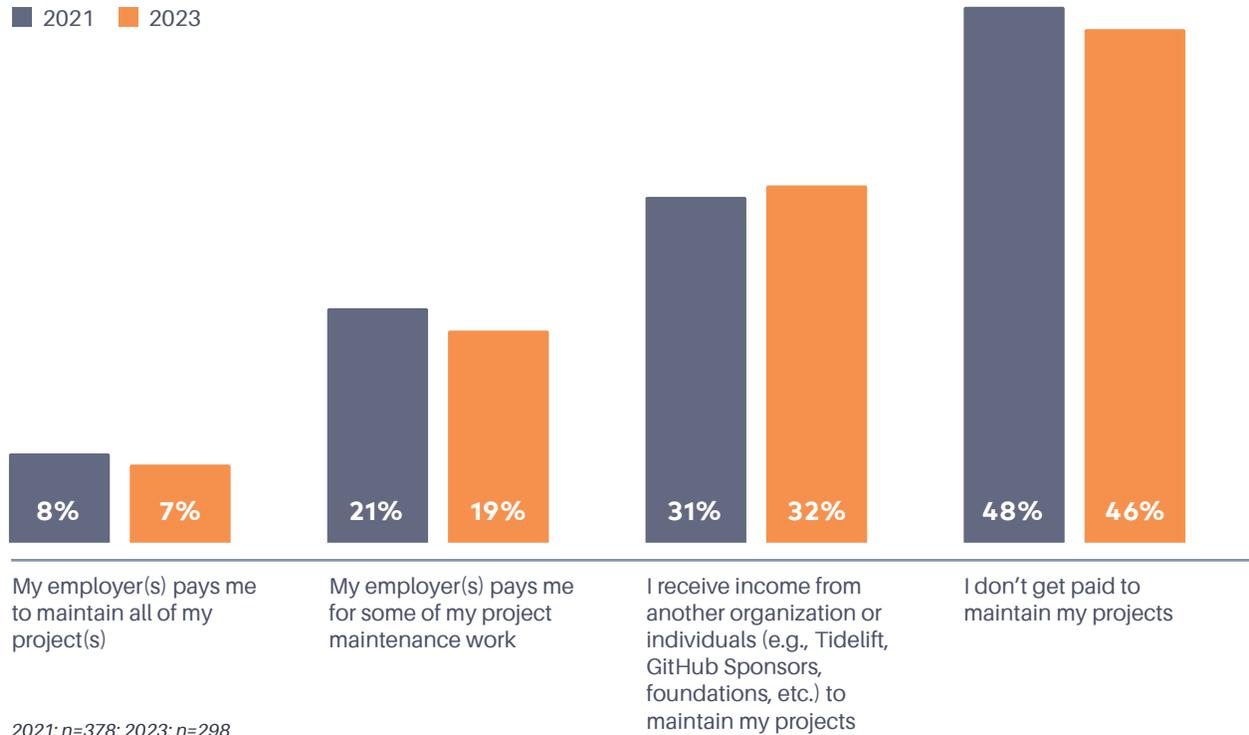
Semi-professional maintainers: n=73; Professional maintainers: n=39

Overall, reported maintainer sources of income were almost identical to what we reported in the previous survey in 2021. In fact, the results were almost carbon copies for each of the four choices we provided, as seen on the following page.

Comparing the way maintainers responded to this question and the self-identification question, we found that fewer maintainers report being paid to maintain their projects (46%) than those describing themselves as “unpaid hobbyists” (60%). The discrepancy occurs because 20% of maintainers self-identifying as unpaid also reported that they do receive some income. In these cases, the amount of income is probably so small that maintainers hesitated to choose the description “semi-professional maintainer” and chose one of the “unpaid hobbyist” answers instead.

Overall, maintainer income sources remain consistent

Which of the following describe how you currently earn income for your open source project maintenance work? (Choose all that apply)



We continue to believe that the crisis of underpaid and unpaid maintainers—especially those who would like to be compensated for their work—represents one of the biggest threats to the health of open source today.

The open source software supply chain has been impacted by an increasing number of high profile vulnerabilities over the last few years. As a result, there have been both government and industry-led efforts to improve cybersecurity by implementing stricter and more secure software development practices.

This means we'll be requiring open source maintainers to undertake even more work at a time when a large number of maintainers report that they are not being paid for the work they are already doing, or are only doing as a part-time job.

To us, the central question of "who is going to do the work, and why should they?" is one that all users of open source should be asking themselves as they think about these emerging industry and federal efforts. ■



HEADLINE #2

The more maintainers get paid, the more they work on open source.

In one of our previous surveys, we learned that open source has in many ways become the modern software development platform, [with over 90% of applications using open source](#). We've seen several other surveys over the past few years that have reached similar conclusions.

Since we rely so heavily on open source software, we also rely on the often-unpaid open source maintainers behind these packages to keep them secure and well maintained.

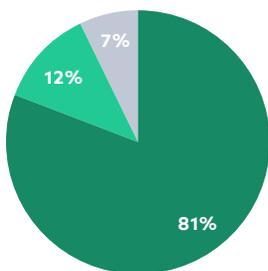
Over the past few years, there have been many [government and industry efforts](#) to improve security practices in open source, although most of them have been more focused on what needs to be done than who is going to do the work. As these efforts to improve cybersecurity gain momentum, maintainers will be asked to spend more time working on their packages to ensure they meet these new federal and industry software security standards.

We asked maintainers how much time they spent per week maintaining their open source projects. Interestingly, we found a direct correlation between maintainer compensation and the amount of time they spend working on their packages.

■ The more maintainers get paid, the more they work on open source

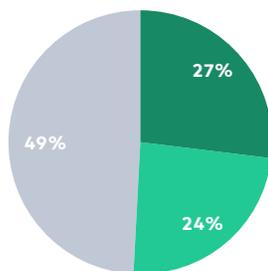
How much time do you spend per week maintaining open source projects?

■ More than 20 hours ■ 11-20 hours ■ 10 hours or less



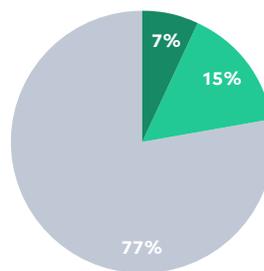
I'm a professional maintainer, and earn most of my income from maintaining projects

n=43



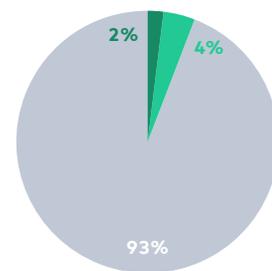
I'm a semi-professional maintainer, and earn some of my income from maintaining projects

n=75



I'm an unpaid hobbyist, but would appreciate getting paid for maintaining projects

n=149



I'm an unpaid hobbyist and do not want to get paid for maintaining projects

n=45



For maintainers who consider themselves professionals, earning most or all of their income from maintaining projects, 81% spend more than 20 hours per week on maintenance and 93% spend more than 10 hours a week.

The maintenance time drops significantly for semi-professional maintainers. Only 27% of these maintainers spend more than 20 hours per week, and 51% spend more than 10 hours a week.

The vast majority of unpaid hobbyist maintainers spend 10 or fewer hours a week on their maintenance work. Only 23% of the maintainers who are currently unpaid, but would like to get paid, spend more than 10 hours per week on their maintenance work. And a sliver (6%) of unpaid maintainers who aren't interested in getting paid spend more than 10 hours per week on this work.

As we contemplate asking maintainers to do more work to keep their packages secure and up to date, this finding provides some of the clearest evidence to date that there is a direct relationship between getting paid and the amount of time maintainers can spend working on open source.

This is not rocket science. Most maintainers are inspired to do their work by the creative challenge of solving a problem or making something that fills an unmet need. They are less likely to be inspired by [complying with unfunded mandates](#) or documenting their security practices to meet industry and government standards.

So whereas the initial open source creation process may be fed by curiosity and the desire to take on new challenges, the ongoing maintenance work may require a different, more straightforward reward: money. ■

HEADLINE #3

Maintainers are being asked to do more security work. Over 50% didn't get the memo.

Software security is a difficult challenge and [attacks on the software supply chain](#) are becoming more frequent. Leaders across government and industry are taking action. In the U.S., the government has begun a large-scale cybersecurity improvement initiative, beginning with the [White House Executive Order 14028: Improving the Nation's Cybersecurity](#), which led to the [NIST Secure Software Development Framework](#), and more recently the [government-wide National Cybersecurity Strategy](#).

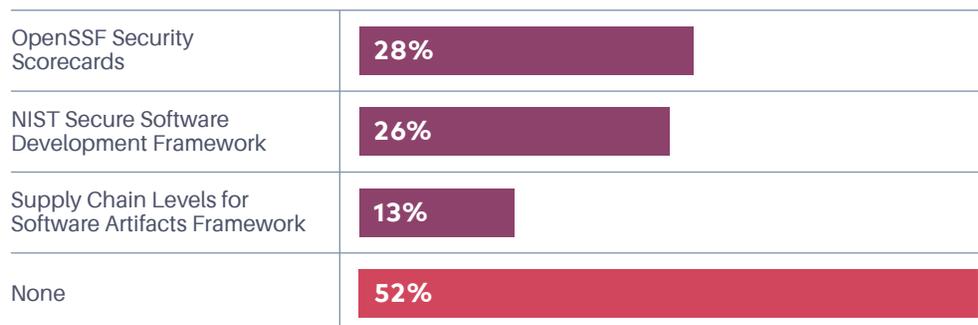
At the same time, industry leaders have come together to identify best practices and standards that will improve open source software security; examples include [Open Software Security Foundation Security Scorecards](#) and [Supply Chain Levels for Software Artifacts Framework \(SLSA\)](#).

The common thread across all the initiatives: requiring open source maintainers to undertake additional work to make sure their projects align with these new government and industry standards. With all the work expected from maintainers, we wanted to get an insight into whether they are aware of and following this activity.

First, we asked respondents to tell us which of the most commonly cited standards initiatives they are aware of today, including the OpenSSF Security Scorecards project, the SLSA framework, and the NIST Secure Software Development Framework (SSDF).

Over half of maintainers are not aware of prominent software security standards

Which of the following industry standards initiatives are you aware of? (Choose all that apply)



2% responded "Other."
n=292

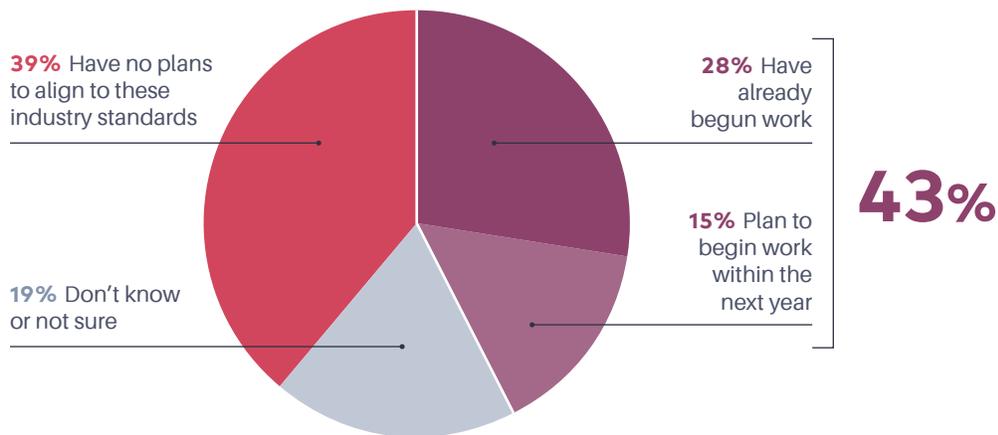


The majority of the respondents (52%) said they weren't aware of any of these new government and industry standards. Roughly 1/4 of maintainers had heard of the OSSF Security Scorecards project or the NIST SSDF, but only 13% had heard of SLSA.

We then dug a little deeper, asking those maintainers who were aware of at least one of the standards if they had plans to ensure their project aligns with those standards.

43% of maintainers aware of industry security standards have already begun or plan to begin work to align to one or more of them

Have you already or do you plan on beginning the work needed to ensure your projects align with one or more of these industry standards?



n=140. Chart only presents the findings from respondents that are aware of one of the following standards: OpenSSF Security Scorecards, NIST Secure Development Framework, or Supply Chain Levels for Software Artifacts Framework

A little over a quarter of these maintainers (28%) have already begun work to align to these industry standards or plan to begin work within the next year. Only 15% have already begun this work.

Thirty-nine percent have no plans to align to these industry standards, and 19% are still on the fence, reporting that they either do not know or are not sure whether they will do the work to ensure their packages align with these industry standards.

Maintainers are more likely to ensure projects align with OSSF security scorecards than other standards

Have you already or do you plan on beginning the work needed to ensure your projects align with one or more of these industry standards?

■ Have already begun work
 ■ Plan to begin working within the next year
 ■ Have no plans to align to these security standards

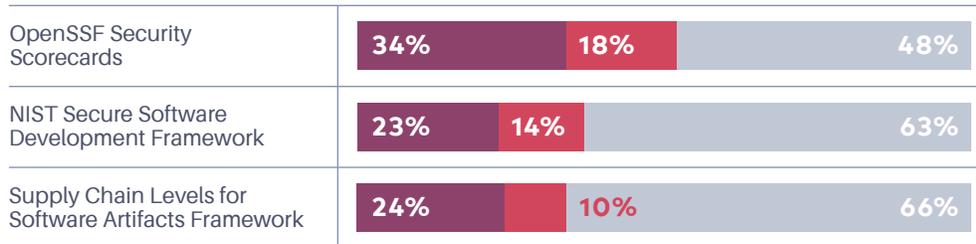


Chart represents answers of the respondents who are aware of a specific standard. OpenSSF, n=82; SSDF, n=78; SLSA, n=41.

We then looked in more detail at the intent of the folks who are familiar with each of these standards. Fifty-two percent of the maintainers who are aware of OpenSSF Security Scorecards have already started or plan on starting working to ensure their projects align to the standards. Thirty-seven percent of the maintainers who are aware of the NIST Secure Software Development Framework have already started or plan on starting working to ensure their projects align to the standard. And 34% of the maintainers who are aware of Supply Chain Levels for Software Artifacts Framework have already started or plan on starting working to ensure their projects align to the standards.

Identifying and documenting the best practices and guidelines to improve the overall health and security of the open source software supply chain is important work. However, as this data shows, a significant amount of investment also needs to be made in making maintainers aware of these standards, educating them on the work needed to be done, and ensuring they are incentivized to actually take on the additional responsibilities. ■

HEADLINE #4

Maintainers to industry: We don't have the time nor money to do more.

Over the past few years, organizations that build applications using open source software have begun to think of maintainers as suppliers and their packages as part of the software supply chain. As pointed out by Thomas Depierre in his blog post [I am not a supplier](#), maintainers usually have no contractual relationships with or obligations to the organizations that choose to use their "as is"-licensed open source project.

Meanwhile, as the aftermath of the Log4Shell vulnerability made clear, volunteer open source maintainers regularly are asked to do high stress work under tight deadlines to stop a vulnerability from impacting the organizations that rely on their packages.



Volkan Yazici
@yazicivo

Log4j maintainers have been working sleeplessly on mitigation measures; fixes, docs, CVE, replies to inquiries, etc. Yet nothing is stopping people to bash us, for work we aren't paid for, for a feature we all dislike yet needed to keep due to backward compatibility concerns.



Catalin Cimpanu ✓
@campuscodi

The Apache Log4j project is maintained by three people who are volunteering their spare time. Please don't be a jerk to them because multi-billion dollar companies are using their tool without even bothering to throw \$1,000 their way.

Maintainers have started speaking up and the message is clear: Unless they are being paid to do the work, many of them will not take on the added responsibilities required to align their packages to the emerging government and industry standards.

In this year’s survey, we asked the 48% of maintainers who said they had no plans to ensure their projects align to industry standards to provide their reasons why.

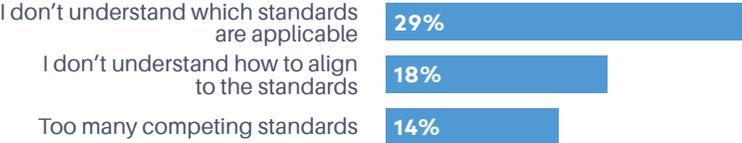
Time and money top reasons why maintainers won’t align with industry standards

Which of the following reasons describe why you do not plan to align to these industry standards?
(Choose all that apply)

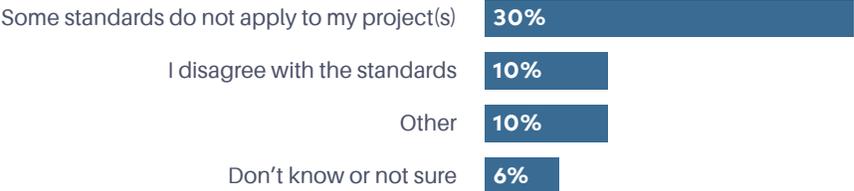
RESOURCE REASONS



CLARITY REASONS



OTHER REASONS



n=119



The two most common reasons? They don't have the time and are not being paid to do the work. Thirty-eight percent of maintainers said they don't have the time, closely followed by 37% who said they weren't being paid to do it. An additional 24% of maintainers said they didn't have enough resources to align to the standards in a timely manner.

It also appears from the answers we received that understanding the standards and how and whether they apply is also still a key issue. Thirty percent of respondents reported that some standards would not apply to their project, while 29% said they did not understand which standards were applicable. Eighteen percent said they didn't understand how to align to the standards and 14% see too many competing standards standing in the way of knowing where to focus limited time.

We also asked maintainers to give us insight into the type of support that would make them more likely to consider aligning their projects to the new standards:

Maintainers need help understanding new standards and getting paid to align to them

What type of support would make it more likely that you would consider aligning to these industry standards in the future?
(Choose all that apply)

- 1 **Help understanding** new standards/ how they apply to my project (54%) 
- 2 **Getting paid** to align to the new standards (47%) 
- 3 **Help aligning** to the new standards/ **doing the work** (34%) 
- 4 **Nothing** would make it more likely (13%) 

4% reported other reasons
n=288

A majority, 54% of maintainers, would appreciate help understanding these new standards and how they might apply to their project. Forty-seven percent of maintainers want to be paid for undertaking the work needed to align their projects with the new standards. And 34% of maintainers would appreciate help actually doing the work needed to align with the standards, while only 13% said that nothing would make it more likely for them to consider aligning to these new standards.

The effort to improve cybersecurity cannot just stop at defining and publishing new standards. We have to ask ourselves, who is going to do the work and what do they need? This data revalidates the need for investment, especially from organizations that rely on open source components, in the open source maintainer community. We need to implement programs that cover both awareness and education as well as efforts to pay maintainers for undertaking the significant amount of effort that will be required in aligning to these new standards. ■

HEADLINE #5

In a shocker, paid maintainers do more security and maintenance work than unpaid maintainers.

In our previous headlines, we shared some data about emerging industry standards initiatives like the NIST Secure Development Framework, SLSA, and OpenSSF Scorecards, including the percentage of maintainers who were aware of these standards and whether they were planning on aligning to any or all of them.

We also wanted to dive deeper to understand exactly which security and maintenance practices maintainers have already implemented for their projects, and which they plan to implement in the future. We anticipated that this data might be interesting for organizations to see so that they can compare the security and maintenance practices followed by maintainers whose packages are being used in their applications to their organization's own security and maintenance standards and expectations.

First, we provided maintainers with a list of some of the most important security and maintenance practices we are partnering with maintainers to validate at Tidelift, and asked them to tell us which of these practices have been implemented for most or all of the projects they maintain.

Top security and maintenance practices implemented by maintainers today

Which of the following practices have been implemented for most or all of the projects that you maintain? (Choose all that apply)

SECURITY PRACTICES

Two-factor authentication for source code hosting & package managers	54%
Provide fixes and recommendations for vulnerabilities	49%
Disclosure plan on how you should be contacted about security issues	39%
Formal processes or standards to verify all new contributors	10%

MAINTENANCE PRACTICES

Reproducible and verifiable build processes	51%
Formal policy about backwards compatibility	34%
Code peer review process with multiple reviewers	33%
Defined dependency management process	24%
Formal processes or standards to prioritize the order in which pull requests and issues are addressed	6%

DOCUMENTATION PRACTICES

Clearly documented open source license	86%
Documented release notes and upgrade considerations	63%
Published contributor guide	62%
Published code of conduct	54%
Clearly defined process for conflict resolution	19%
Published release schedule	14%
Continuance or succession plan in case you or other maintainers leave the project	14%

1% responded "None of the above."
n=280

Of this list, far and away the most commonly implemented practice, with 86% of maintainers choosing it, was having a clearly documented open source license. Almost two-thirds of maintainers currently provide documented release notes and upgrade considerations (63%) or a published contributor guide (62%), the two practices that were next most commonly implemented.

We then showed our respondents a list of the practices they reported have not yet been implemented for most or all of their projects, and asked them to tell us which of them they planned to implement in the future. We combined these two data points together to get a comprehensive look at which standards and practices are either already in place or on the roadmap to be put in place in the future by maintainers.

Top maintainer security and maintenance practices, implemented and planned combined

Which of the following practices have been implemented for most or all of the projects that you maintain?
Of the practices that have not been implemented, which would you consider implementing in the future?

■ Implemented ■ Planning to implement

 SECURITY PRACTICES	%		TOTAL
Two-factor authentication for source code hosting & package managers	54	15	69%
Provide fixes and recommendations for vulnerabilities	49	15	64%
Disclosure plan on how you should be contacted about security issues	39	25	64%
Formal processes or standards to verify all new contributors	10	16	26%
 MAINTENANCE PRACTICES			
Reproducible and verifiable build processes	51	19	70%
Formal policy about backwards compatibility	34	28	62%
Code peer review process with multiple reviewers	33	19	52%
Defined dependency management process	24	22	46%
Formal processes or standards to prioritize the order in which pull requests and issues are addressed	6	23	29%
 DOCUMENTATION PRACTICES			
Clearly documented open source license	86	6	92%
Published contributor guide	62	23	85%
Documented release notes and upgrade considerations	63	15	78%
Published code of conduct	54	24	78%
Continuance or succession plan in case you or other maintainers leave the project	14	39	53%
Clearly defined process for conflict resolution	19	24	43%
Published release schedule	14	16	30%

1% reported none of the above practices implemented.
n=280



All four of the top answers relate to documentation practices. Ninety-two percent of maintainers have either already or have plans to clearly document their open source license. Next on the list is publishing a contributor guide, which 85% of maintainers have already implemented or have plans to implement, followed by documenting release notes or upgrade considerations (78%) and publishing a code of conduct (78%).

The next set of answers all relate to security or maintenance practices, including reproducible and verifiable build processes (70%), two-factor authentication (69%), a security disclosure plan (64%), and fixes and recommendations for vulnerabilities (64%).

Finally, we broke down the percentage of maintainers who had already implemented or had plans to implement each of these practices by unpaid (hobbyist) and paid maintainers (semi-professional or professional)—and the results were startling.

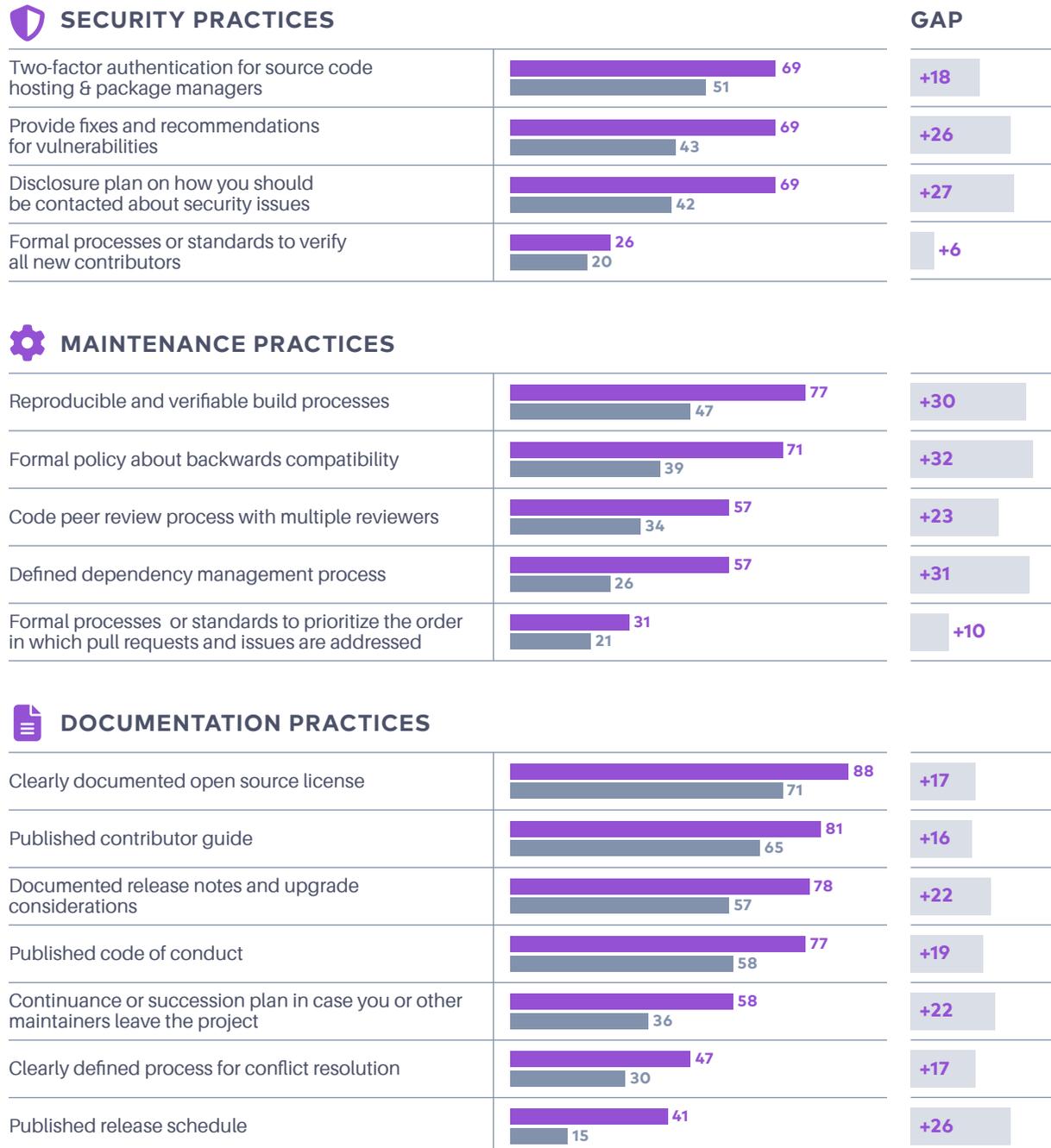
Paid maintainers complete security and maintenance tasks more often than unpaid maintainers

Which of the following practices have been implemented for most or all of the projects that you maintain? Of the practices that have not been implemented, which would you consider implementing in the future?

% implementing or planning to implement a policy

■ Professional and semi-professional maintainers

■ Unpaid maintainers



8% reported none of the above. Unpaid maintainers, n=194; Semi-professional and maintainers, n=108

Across every practice we asked about, paid maintainers were significantly more likely to have implemented it or have it on the roadmap. More than 50% of paid maintainers had implemented or had plans to implement twelve of the practices on this list (with only four not making the cut) while 50% of unpaid maintainers have implemented or plan to implement only five!

Particularly interesting were the stark differences between paid and unpaid maintainers on some important practices like having reproducible and verifiable build processes (47% unpaid, 77% for paid), providing fixes and recommendations for vulnerabilities (43% unpaid, 69% paid), security disclosure plan (42% unpaid, 69% paid), formal backwards compatibility policy (39% unpaid, 71% paid), defined dependency management process (26% unpaid, 57% paid), and published release schedule (15% unpaid, 41% paid).

Which leads to an obvious conclusion: when maintainers are paid, they have the time and motivation to more completely address common security and maintenance practices than when they are not paid.

If your organization is using open source in your applications, how does this data make you feel? Did you see most of the security practices you'd be expecting maintainers to have in place at the top of the list? Are there things on this list you'd expect to have been implemented for any open source package you use? And finally, looking at the differences between what paid and unpaid maintainers are able to do when it comes to security practices, what investments are you making to ensure the maintainers behind the open source components you use have the time and incentives to complete this important work? ■

HEADLINE #6

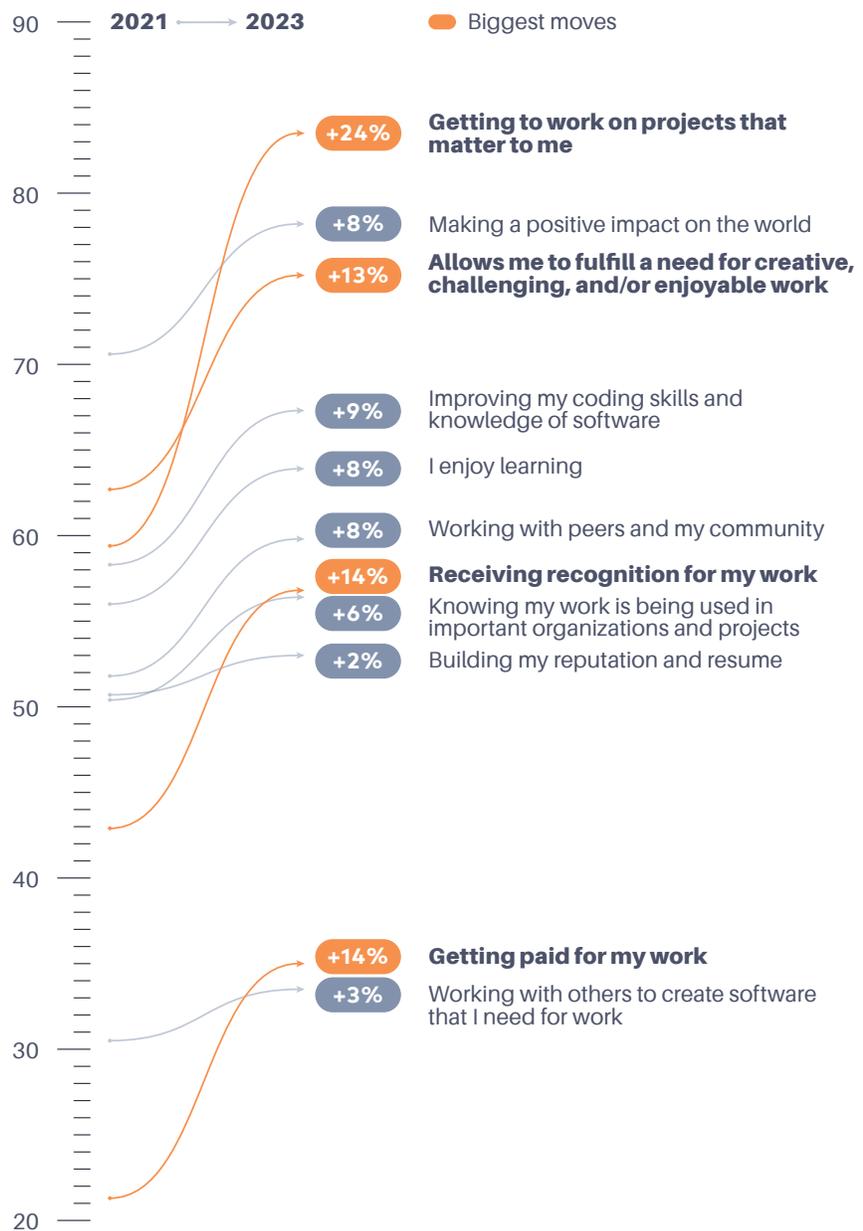
Maintainers want to do creative work that matters and makes an impact.

Over the years, as we've explained the concept of open source to people who are unfamiliar, one common question often comes up: "why do maintainers work on these projects if they aren't being paid for it?"

In our previous maintainer survey, we asked maintainers what they enjoy about being an open source maintainer, and in our new survey we asked the same question again to see if the answers had changed.

Maintainers want to do creative work that matters and makes an impact

What do you enjoy about being an open source maintainer?
(Choose all that resonate with you)



2021: n=357; 2023: n=253



The number one answer in this year's survey was "getting to work on projects that matter to me," which was cited as something enjoyed by a remarkable 83% of maintainers, up from 59% in our previous survey.

While last time the top answer was "making a positive impact on the world," this came in a close second in our new survey, followed once again by "allows me to fulfill a need for creative, challenging, and/or enjoyable work," "improving my coding skills and knowledge of software," and "I enjoy learning."

While other answers like "working with peers and my community," "knowing my work is used in important organizations and projects," and "building my reputation and resume" all were answered by similar percentages of maintainers in our previous survey and this new one, there were two other big movers up this year.

"Receiving recognition for my work" was mentioned by only 43% of maintainers in our last survey, but this time around was mentioned by 57% of respondents. And while we pointed out in our previous survey that "getting paid for my work" was the LEAST cited reason for enjoying being a maintainer, there was a slight—but noticeable—increase this year from 21% to 35%. It is nice to see getting paid moving up the list of things maintainers enjoy about the work, and we hope this percentage will continue to accelerate. ■



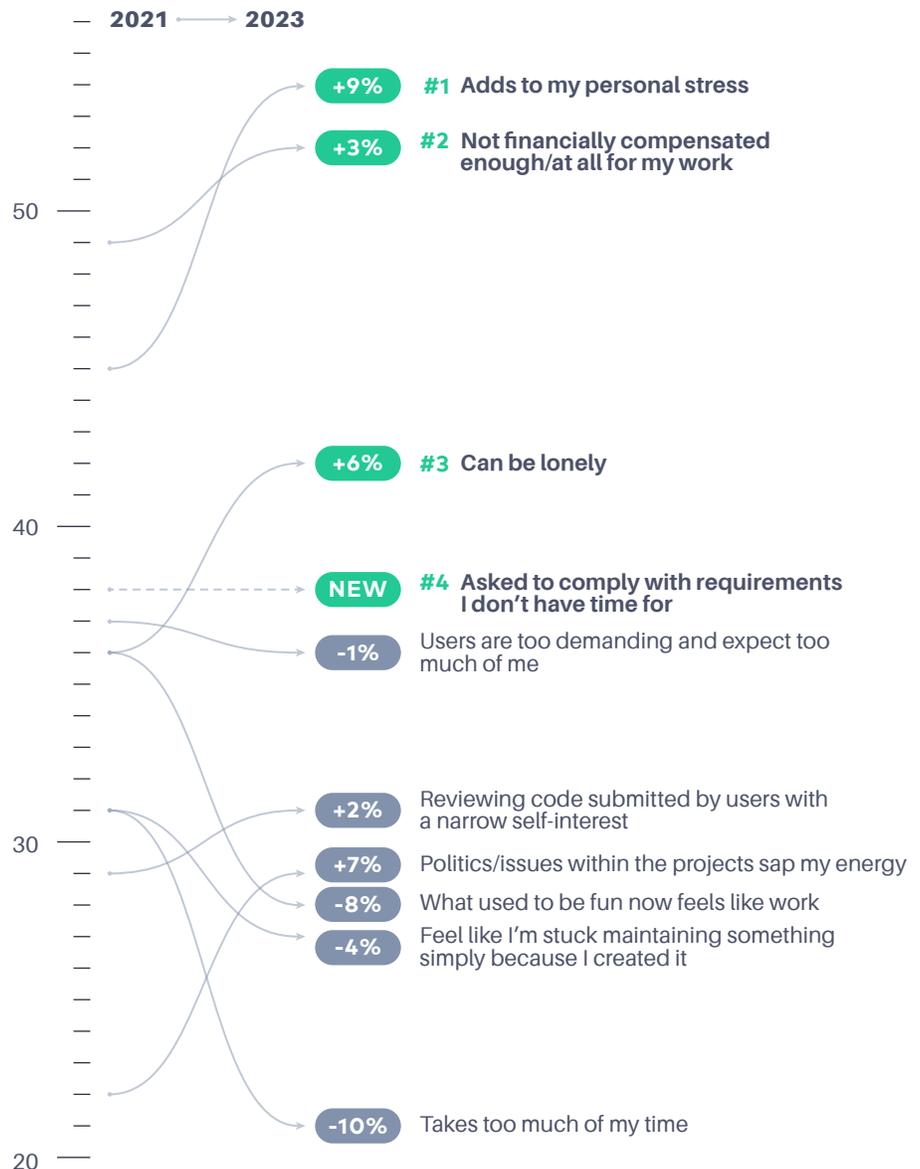
HEADLINE #7

Open source maintenance can be stressful, lonely, and financially unrewarding.

As in our previous survey, we once again asked maintainers what they dislike about being an open source maintainer. This year we added one new choice “asked to comply with requirements I don’t have time for” and removed one choice “feel underappreciated or like the work is thankless” but the rest of the answers stayed the same as in our previous survey.

Stress and not being paid are the top things maintainers dislike

What do you dislike about being an open source maintainer?
(Choose all that resonate with you)



8% responded “Other.” Option “Feel underappreciated or like the work is thankless” was removed from 2023 survey. New option, “Asked to comply with requirements I don’t have time for” was added. 2021: n=335; 2023: n=253



An increasing percentage of respondents (54% this year vs. 45% previously) responded that open source maintenance adds to their personal stress, and this took over the number one position by a hair. Yet unsurprisingly, the second most popular answer was “not financially compensated enough / at all for my work,” also up slightly, from 49% to 52%.

The life of a maintainer is also getting more lonely, up from 36% in our last survey to 42% this time. And our new reason to dislike being a maintainer (“asked to comply with requirements I don’t have time for”) came in 4th place, cited by 38% of respondents, a number that should be concerning as maintainers are being asked to do more to comply with new security requirements.

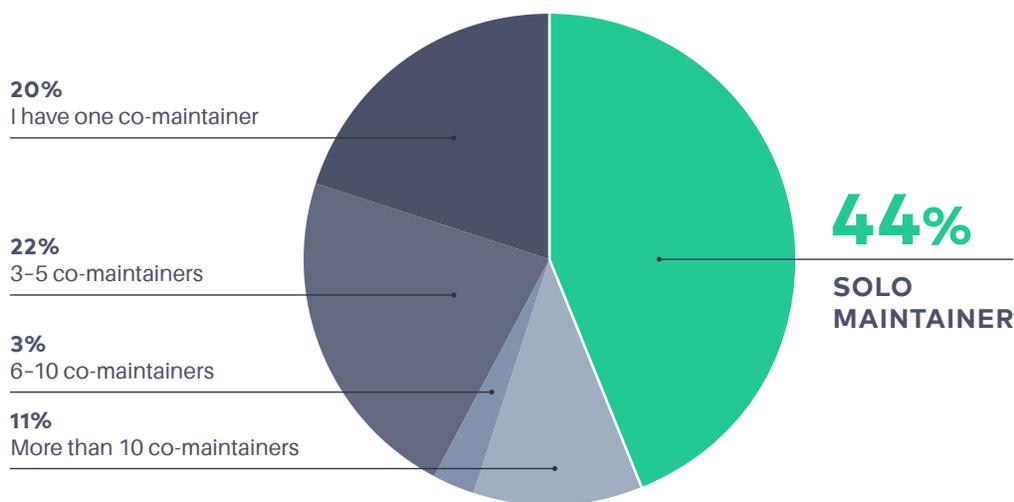
This statistic, combined with an increase (53% in 2023 vs. 49% in 2021) in maintainers reporting disliking not being financially compensated enough or at all for their work, paints a concerning picture for the health of the maintainer community.

Staying consistent with our previous survey, “users are too demanding and expect too much of me” was cited as a reason to dislike being an open source maintainer by 37% of respondents (36% in previous survey).

To learn a bit more about the “lonely” aspect of being an open source maintainer, we asked maintainers to tell us how many additional co-maintainers they have working with them on their projects.

Almost half of all open source maintainers are solo maintainers

Do you have any co-maintainers? If so, how many?



n=326



The most common answer (by more than 2:1 over the next choice at 44%) was “I am a solo maintainer,” which explains in part why such a high percentage of maintainers suffer from loneliness. Twenty percent of maintainers have one other co-maintainer, while 22% have 3-5 co-maintainers. Three percent of maintainers report having 6-10 co-maintainers, and 11% report having more than 10 co-maintainers.

So how do we keep lonely, stressed out maintainers happy doing the work we all depend on and stop them from feeling like they need to quit? According to what we learned in this year’s survey, we give them the space to continue doing work they care about and find creative and fulfilling, so they can make a positive impact on the world. We pay them better for this work so they can clear the space to do it well. We find ways to remove their stress and combat their loneliness, maybe by being more helpful and less demanding. ■

HEADLINE #8

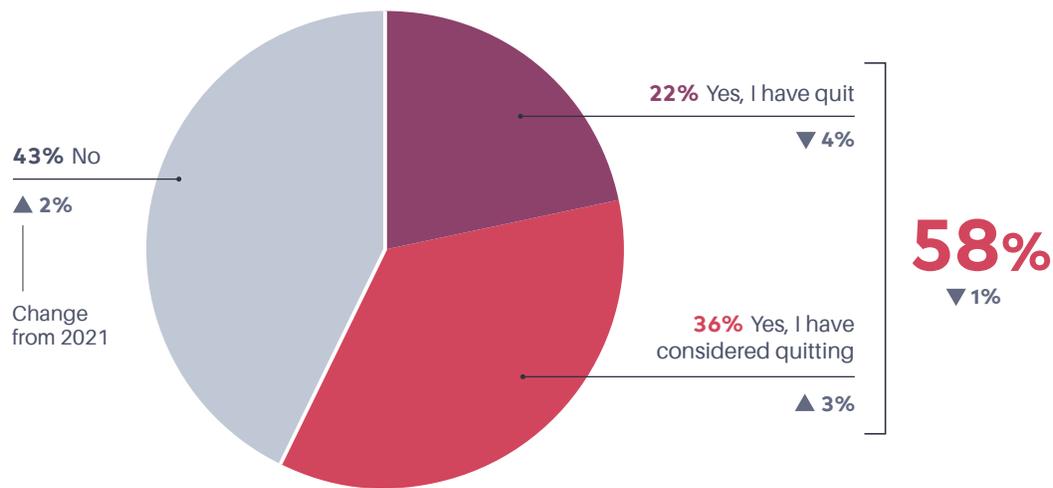
Maintainer burnout is real. Almost 60% of maintainers have quit or considered quitting maintaining one of their projects.

Against a backdrop of increasing demands on open source maintainers from industry and government, we wanted to use this year's survey to see how they are hanging in there. So we asked them a few questions that we'd asked previously to see if the answers were better—or worse.

First, we asked maintainers if they have quit or considered quitting maintaining a project.

A majority of maintainers have at least considered quitting one of their projects

Have you quit or considered quitting maintaining a project?



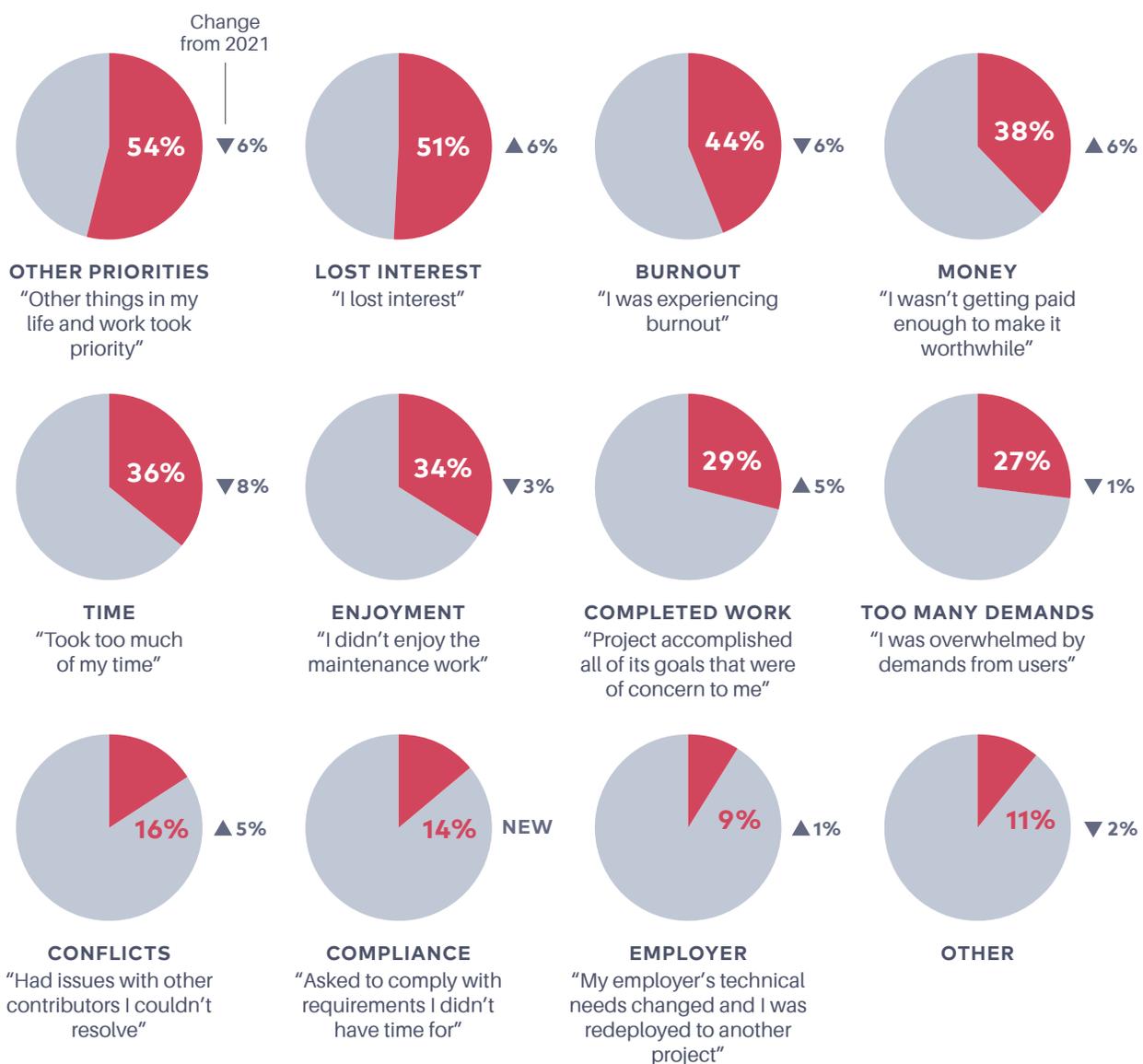
2023: n=349; 2021: n=265

Fifty-eight percent of maintainers have either quit (22%) or considered quitting (36%) their maintenance work on a project, which is almost identical to what we found in our previous survey. A minority of maintainers (43%), have not quit or considered quitting maintaining their projects.

For those who indicated that they had quit or considered quitting their maintenance work, we once again asked them to share the reasons why. The results, as you can see in the chart below, stayed very consistent.

Other priorities, losing interest, and burnout are the top reasons maintainers consider quitting

What are the key reasons you quit or considered quitting as maintainer of the project(s)? (Choose all that apply)



2021: n=349; 2023: n=265

The top reason why maintainers considered quitting was that other things in their life and work took priority (mentioned by 54% of respondents). Over half (51%) of maintainers also indicated that they lost interest in the work, while just under half (44%) said they were experiencing burnout.

The next most common reason for quitting or considering quitting included not getting paid enough to make it worthwhile, which rose from 32% to 38% of maintainers citing it in this year's survey versus our previous results.

The percentage of maintainers claiming it took too much of their time dropped from 44% in our previous survey to 36% this year. But most of the other responses, including "I didn't enjoy the maintenance work," "Project accomplished all of its goals that were of concern to me," and "I was overwhelmed by demands from users" all stayed relatively unchanged.

Organizations that rely on open source would be well served to look at these responses as valuable data points to help them understand how to ensure maintainers keep working on their projects into the future. For example, if other things in life and work are making maintainers switch priorities, or if they are losing interest, what could we do to keep them engaged? Pay them to continue the work? Help find other contributors willing to take over or share the burden? Find ways to make the work easier, less time consuming, or less stressful so they don't burn out?

Good news! There are also plenty of ways we can help open source maintainers be more successful in their work, as our next headline reveals. ■

HEADLINE #9

Maintainers to industry: We need help (and here's what we need).

Our last headline revealed that almost 60% of maintainers had quit or considered quitting work on their projects, due to (among other things) burnout, other life priorities, and losing interest. These startling statistics (largely unchanged from what we found in our previous maintainer survey) should make any organization using open source stop and take notice. After all, against a backdrop of increasing security threats, we need open source maintainers feeling well supported and having all of the tools they need to be successful.

In this year's survey, we asked maintainers to tell us more about what kind of support might have kept them working on a project they've quit or considered quitting.

More money and more help are the top two things that will stop maintainers from quitting

What support might have kept you maintaining the project(s) you quit or convinced you to keep maintaining the project(s) you've considered quitting? (Choose all that apply)

1	Earning more income for my maintenance work (56%)	
2	Help finding another experienced maintainer or maintainers to join the project and share responsibilities (56%)	
3	Help finding another experienced maintainer or maintainers to take over some of my projects so I can focus on those that interest me most (40%)	
4	Help with finding and adding diverse collaborators to my projects (33%)	
5	Community/networking/events that help connect me with other experienced maintainers (21%)	
6	Mentorship and support in meeting new and ongoing security and maintenance requirements (14%)	

7% responded "Other," 12% responded "None of above."
n=153



Of course it's no surprise that the most popular way to keep maintainers from quitting was...pay them! Fifty-seven percent of maintainers who had quit or considered quitting reported that if they earned more income for their open source maintenance work, they would be more likely to continue it.

But that is not the only kind of support that might keep them going. Fifty-six percent of maintainers reported that they would appreciate help finding another experienced maintainer or maintainers to join the project and share responsibilities, and 40% would appreciate help finding another experienced maintainer to take over some of their project responsibilities so they can focus on the parts they enjoy the most.

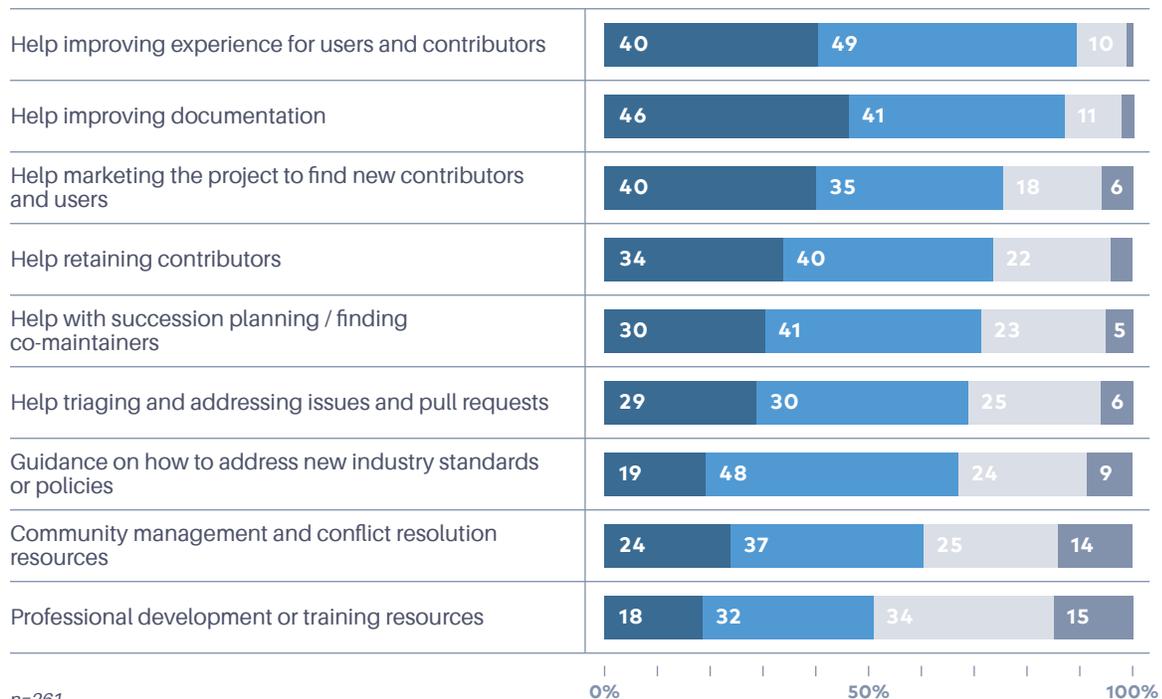
If you add the two "find experienced maintainer help" responses together, 64% of maintainers chose one or both of those, which makes getting experienced help even more important to maintainers than getting paid.

Beyond those maintainers on the verge of quitting, we also asked the larger group what sorts of non-financial support would make their lives as maintainers easier.

Beyond money, maintainers would love help improving the experience for users and contributors and improving documentation

If you were offered non-financial support for your projects, how valuable would each of the following types of help, guidance, and resources be in making your life as a maintainer easier?

Extremely valuable Somewhat valuable Not very valuable Not at all valuable



n=261



The top two areas where maintainers would value support: 1) help improving the experience for users and contributors (89% would find this extremely or somewhat valuable) and 2) help improving documentation (87% would find this extremely or somewhat valuable).

Three-fourths of maintainers (75%) would appreciate help marketing the project to find new contributors and users, and just under three-fourths (74%) would like help retaining contributors. Seventy-one percent would appreciate help with succession planning and finding co-maintainers, while 69% would like support with triaging and addressing issues and pull requests.

Of all of the types of help we listed, none were deemed not very or not at all valuable by more than half of maintainers, which tells us that maintainers are looking for help in a lot of different areas.

When you combine this with the data about the help that maintainers who have considered quitting would value, it paints a picture of opportunity. How can we do more to help maintainers—in obvious ways, like paying them for their work? But also in less obvious ways, like connecting them with other experienced maintainers who might help support their work, or helping them improve documentation or user and contributor experience? ■

HEADLINE #10

Maintainers need help building a sustainable community around their projects.

The community around an open source project serves to not only provide feedback and additional contributors to maintain the health of the project, but to support maintainers in keeping their projects secure, well maintained, and viable well into the future. Faced with increasing demands from users, maintainers are finding new ways to strengthen the communities around their project in ways that support long-term project health.

We asked maintainers to share the efforts they are currently making to strengthen community and project long-term health, giving them a list of common strategies to choose from.

Two-thirds of maintainers are making an effort to create a welcoming atmosphere around their projects

Across all the projects you maintain, which of the following efforts are being made to strengthen community and project long-term health? (Choose all that apply)

Creating a welcoming atmosphere for all identities	67%
Efforts to improve the inclusivity of information and communication (i.e. getting rid of technical jargon and avoiding words that express bias)	37%
Community onboarding and outreach	35%
Mentorship opportunities (e.g., Outreachy and Google Summer of Code)	28%
Tools for non-developer contributions	27%
Efforts to improve the accessibility of information and communication (i.e. for the visually impaired or non-English speakers)	21%
Efforts to address project burnout	20%
Creating/using a conflict resolution process	14%
None of the above	17%

n=269

Far and away the most popular response, with 67% of maintainers reporting, was creating a welcoming atmosphere for all identities around their project. Meanwhile, 37% prioritize efforts to improve the inclusivity of information and communication, including providing clear documentation with inclusive language, while 35% of respondents prioritize community onboarding and outreach. Having a set of onboarding and support documentation without knowledge bias [has proven an effective method to gaining contributors](#) who feel confident to participate in maintaining a project.

Maintainers understand that preparing new contributors coming in is just as important as supporting contributors and themselves. Twenty-eight percent of respondents work to provide mentorship opportunities to new and ongoing contributors.

We also found that 27% of maintainers are creating tools to help non-developer contributors submit impactful pull requests, which could also aid in both retention of longer-term contributors and the maintenance of non-code assets that serve as support and onboarding tools.

Of the choices we provided, the least commonly used strategies are efforts to improve the accessibility of information and communication (20%), efforts to address project burnout (20%), and creating / using a conflict resolution process (14%).

Finally, while we've noticed a consistent trend in maintainers taking steps to keep the community around their projects engaging and open, a small segment of maintainers are still not making any of these sorts of investments. Seventeen percent of survey respondents reported that they are not currently investing in any of the strategies outlined above for building communities around their work.

While our data provides a snapshot of what maintainers are doing currently to build and support communities around their projects, these practices continue to evolve and we look forward to sharing more innovative practices in surveys to come. ■

HEADLINE #11

The experience of being a maintainer— in their words.

Some of the most impactful findings in our survey come not from charts and graphs, but directly from the words of maintainers. From general opinions on the maintainer experience to thoughts on the state of open source now and in the future, the maintainers we surveyed were not shy to tell us their thoughts.

Here are a few unfiltered insights:

On the relationship between open source and corporate users

“If you asked me this 20 years ago I might have something inspiring to say, but now that open source has ‘won,’ it feels like we’re just giving away our work to companies who profit from it.”

“It seems like companies are starting to understand how much they rely on OSS and are becoming more willing to contribute back where they think it could help the projects they depend on remain in a state that enables the use they depend on.”

“Funding for part and full-time OSS contributors and maintainers is our biggest barrier right now. We’re very happy to ‘put in the work’ so to speak in order to earn that funding, but outside of one corporate sponsor I have not found a good way of funding our OSS projects.”

“I have a business built to support the OSS projects I have that are used by very large companies. It would be nice if the culture in OSS shifted such that companies saw value in paying to support OSS projects they depend on.”

“Recently the security side of things (stream of CVEs/vuln reports) has been a major stress factor: there are skewed incentives in reporting potential vulnerabilities, leading to pressure from scared users, for maintainers to do essentially all the work validating/ disputing findings and either fix the issue (if valid) or debunk (with lots of effort if invalid) the report.”

On the impact of open source and being a part of it

“Open source is providing the tools and protocols that currently power and will continue to power the software we use now and into the foreseeable future. Being a part of that, and helping shape both the status quo and the next generation of applications is hugely rewarding.”

“Endless possibilities of creation, even simpler work due to a myriad of tools and significant improvements of platforms like GitHub.”

“In a negative way, I fear that open source is a huge attack surface for malware and malicious actors.”

“Each day we see more and more open source alternatives that are better than their commercial closed source equivalents.”

“I’m excited that the biotech and pharma industries are beginning to see the value of open source scientific software and contribute to it.”

“I believe in the tenets of free software—I believe that this approach to software is the only viable way for the world of computing to thrive. I enjoy being part of that future.”

“Not all employers make things that matter to me or the wider world. Work is very limited. Being able to start something is important since I am able to work on things that make my life better and in turn share them with others.”

“[Open source] allows me to work on a large project I could never do by myself, even if I was paid for it. It lets me outsource knowledge and effort to people that know more than I do about various parts of the project. I think finding ways to enable people to contribute in ways like that to projects that can get a lot of use is exciting to me.”

“Open source is changing not only development practices but also transforms business expectations in other industries.”

On the challenges of being a maintainer

“If I got paid enough money to quit my day job to work on OSS full time I’d love love love that. Things would get done so much faster on my library, etc. But alas I’m well paid at my job and like the lifestyle that being well paid affords. And even if I could find a benefactor that’d pay me as much or more than my job currently pays such an individual could, at that point, have an undue influence.”

“I feel the visibility of big projects are amplified, but the work of small but often essential maintainers is not recognized. #frustrated”

“Hopefully keeping some of the remote-friendly/virtual things we’ve learned over the pandemic so far to better enable people from systemically under-represented regions in the world, and shift the balance of power away from the global North/West and the white cis-male dominated North America sector of the industry. Things like Outreachy having a cohort right now with significant representation from African countries.”

“Open source has been established as a mainstream thing and that helps. Tidelift, GitHub Sponsors and other efforts could pave the way for actual independent paid-for OSS maintenance, outside of ‘benevolent employment’ (companies that subsidize OSS by employing maintainers for non-related work).”

“I feel like not having enough time to implement all the ideas I have is leading me to getting burned out. I have a lot of ideas that I keep thinking about all the time, but I don’t have time to implement them.”

“I am paid well enough for my job, so I don’t do it for the money, just for the sheer pleasure of sharing what I make... Although, truthfully, I might feel different if I wasn’t paid as well as I am. Selflessness can only take you so far if you can’t afford to buy shiny toys once in a while.”

So there you have it, what it is like to be a maintainer today, from the mouths of maintainers themselves.

And with that, we conclude our second Tidelift open source maintainer survey. We hope you found these insights valuable. If you’d like to get future survey results like these as we get them, please sign up for updates from Tidelift and we look forward to sharing more with you soon! ■



About the survey

This is the fifth year in a row Tidelift has conducted a survey about open source and the second time it focused exclusively on the maintainers who create and maintain the open source projects we all depend on.

Participants were contacted via Tidelift’s email lists and social media in November and December 2022. After screening for quality, we analyzed the answers from 339 respondents who a) maintain at least one open source project and b) completed a majority of the questions.

	2023	2021
How many open source projects do you currently maintain?		
1	16%	18%
2-5	47%	45%
6-10	17%	17%
11+	20%	21%
What geographic region are you located in?		
Europe	46%	35%
North America	37%	35%
Asia	13%	24%
Other	3%	6%
Which of the following best describes your current employment status?		
I am employed full time	64%	59%
I am employed part time	9%	9%
I am self employed	17%	21%
I am not employed	10%	8%
Other	n/a	3%
How old are you?		
Under 26	12%	25%
26-35	28%	35%
36-45	33%	30%
Over 45	27%	11%
What is your gender?		
Man	83%	85%
Woman	9%	8%
Non-binary or other	3%	1%
I prefer not to say	5%	6%
Total number of respondents	339	378

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