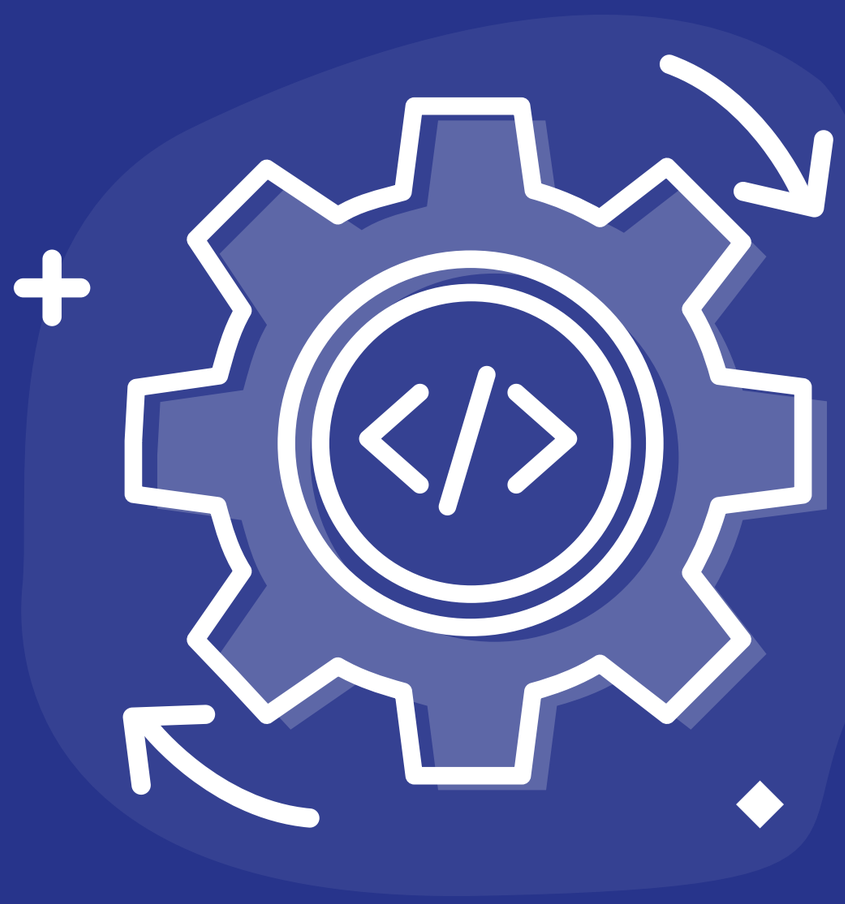


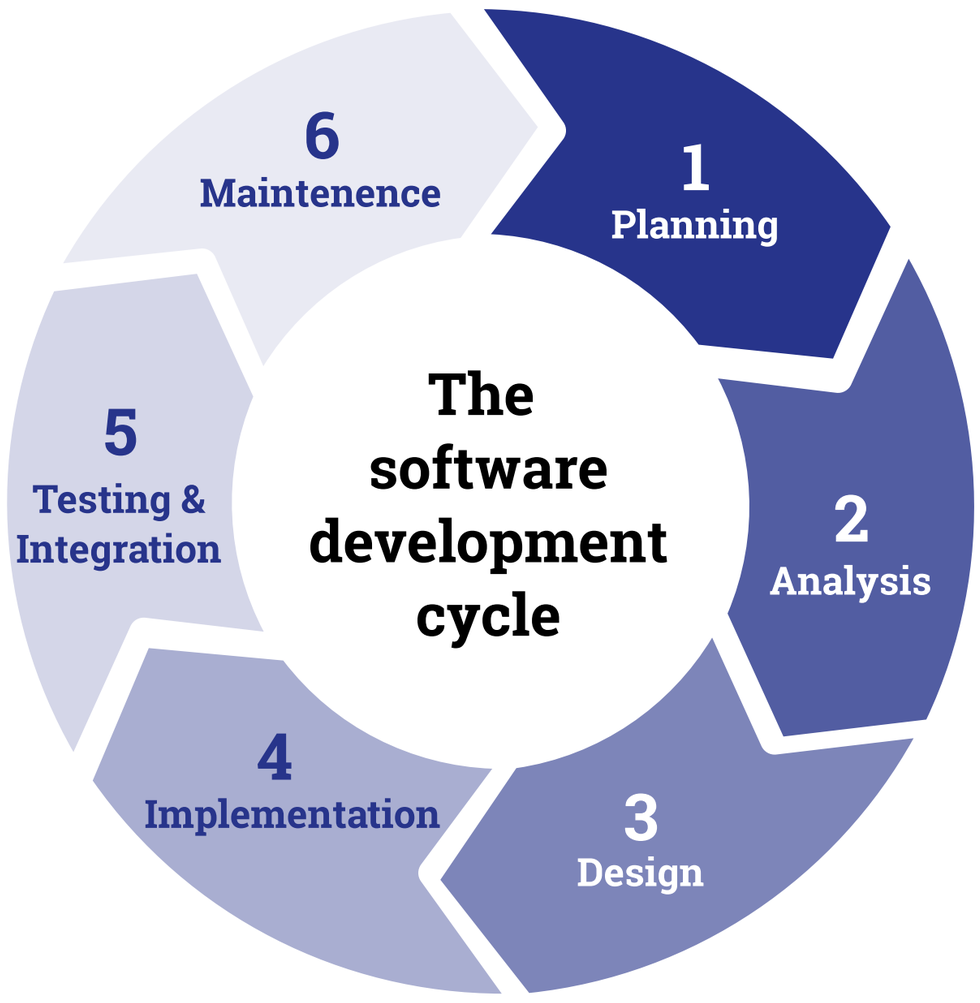
Stack Overflow for Teams at Every Step of the Software Development Lifecycle

stack overflow
FOR TEAMS

Introduction

How do engineers create something out of nothing? To program and develop software in an orderly manner, they work according to the **software development life cycle** (SDLC).

The SDLC is a methodology that breaks down the software development process into phases, from planning all the way through to deployment and maintenance.



80%

of **developers use Stack Overflow at least once per week**[1]

Stack Overflow's public platform is used by nearly everyone who codes, to learn and share knowledge with their community. When we built Stack Overflow for Teams, we wanted to preserve that trove of questions and answers, and take it one step further. If done correctly, each organization has all legacy and current company knowledge in a single, easy to access knowledge base. It informs, expedites, and drives positive outcomes through each step of the SDLC.

[1] 2021 Developer Survey, Stack Overflow

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The six phases of the SDLC are:

1. Planning
2. Analysis
3. Design
4. Implementation
5. Testing and Integration
6. Maintenance

Let’s walk through each phase, and explore how companies improve best practices in each one with the help of Stack Overflow for Teams. Whether you need to speed up your SDLC or make it more robust, there are several checkpoints of which you should be aware.

STAGE 1

Planning

At this stage, developers are gathering information in order to make a roadmap of the journey ahead. They start thinking about collaboration with other teams. The scope comes from other stakeholders (product, designers, product managers).

Stack Overflow for Teams best practices

Software developers and product managers need to access institutional knowledge to plan a new product or update an existing one. What decisions have people made in the past, and why did they make them? What did they research, and how much of that research is relevant for your upcoming project?

One way of gathering this information is by conducting several internal interviews and doing your own research. But there is a better way. What if legacy company information is already available, in one place, and easily searchable?

Use Stack Overflow for Teams to access organization knowledge such as:

- Which SDLC model does the company use?
- What solutions have been tested or tried in the past?
- Who are the stakeholders?
- What are the organization's best practices?
- What forms and processes do we use to collect requirements?
- Is this a new product or an update to an existing one?

Start with these questions as you trawl through your Stack Overflow for Teams instance. Search Tags, Articles, Collections, and Q&A. You'll find that your planning is already underway.

Doctolib, the French e-health service, used Stack Overflow for Teams. They used Stack Overflow for Teams during the planning stage to implement a better onboarding experience for new developers as they quickly ramped up.

Stack Overflow for Teams usage guidance

- Use Teams Articles and Collections to map out software development planning and frequently asked questions.

Teams involved

- **Responsible —** Product management
- **Accountable —** Engineering
- **Consulted —** Sales, Customer Success, Marketing

The bottom line

Developers in the planning stage use Stack Overflow for Teams to capture, communicate, and access company-wide technical knowledge and plans.

- What exists?
- Where are the gaps?
- What blanks should be filled in?

Through Collections, Articles, and Q&A, developers gain the clarity and visibility to orient themselves in the project-planning roadmap. Subject matter experts can provide their expertise once, then a whole group of people can benefit from it in perpetuity.

Stack Overflow for Teams is critical for surfacing input from cross-functional departments and external stakeholders, including customers. Specifically through:

- Access to previous knowledge and history that can inform the planning phase such as dependencies, the tech stack, and development best practices
- Supporting the input and approvals from cross-functional teams in a non-distracting and asynchronous manner

> [Stack Overflow for Teams] is a place to discuss open questions in the company or team that are difficult to solve or need many points of view, not only from a technical point of view. By using all the answers we can reach a consensus or a solution in less time.
>
> Stefano C, IT engineer[2]

Integrations

Jira

Custom integrations with our read/write API

[2] G2

STAGE 2

Analysis

In the analysis stage, developers break down high-level deliverables into detailed business requirements and timelines. This is also the time when they create detailed strategy documents.

Stack Overflow for Teams best practices

Business requirements are gathered and dependencies are documented in this stage. Because this information isn't always housed directly in the Engineering org, it's important that this documentation is stored in highly accessible, highly visible areas.

Check in at this stage: are you operating in an knowledge silo, and if so, what can you do to break it down?

Use Stack Overflow for Teams to access organization knowledge such as:

- Business decisions behind the development environment that exists today, like the tech stack and compliance regulations
- Past development estimations on similar project to help predict timelines and delivery
- Subject matter experts who can provide answers on particular technology or infrastructure implications

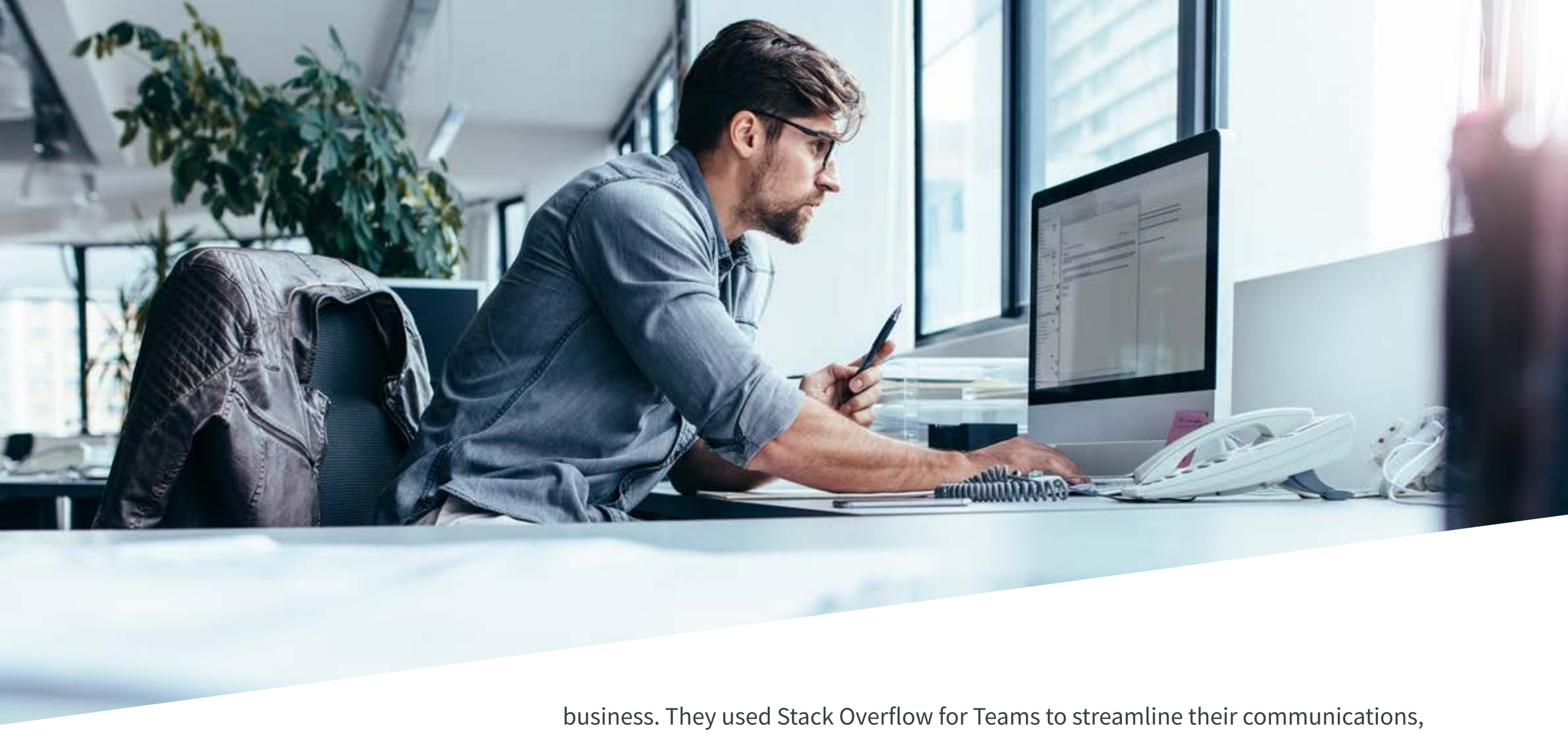
Project planning and metrics that sit in a corner of Google Drive won't suffice for those coming in and out of an important project. Your technical resources need to get up-to-speed and contribute straight away.

Breaking projects into deliverables means resource allocation. Use the information in Stack Overflow for Teams to provide actual estimates on costs and effort from the engineering department.

Stack Overflow for Teams provides knowledge and context for code and problems that have been previously solved. This reduces the effort and time commitment of developers.

> When you are expected to hit the ground running in an unfamiliar environment, Stack Overflow for Teams has been where they turn to.
>
> WiseTech case study

WiseTech, a software provider for the global logistics industry, wanted to capture employees' knowledge and find better ways to distribute it throughout their company. By doing it well, they were able to scale and reduce the burden on experts within the



business. They used Stack Overflow for Teams to streamline their communications, which proved useful once the world was forced into remote work in the wake of COVID-19. Those same lessons can be applied to geographically dispersed teams that work asynchronously, even after the pandemic ends.

Stack Overflow for Teams usage guidance

- Use Tags to track specific projects and processes that development and ops teams will reference in the future
- Use Collections to organize frequently accessed and related knowledge content.
- Use templates for a new or updated spec document

Integrations

Jira

Github

Custom integrations with our read/write API

Teams involved

- **Responsible** — Architecture
- **Accountable** — Engineering, Product management
- **Consulted** — Adjacent engineering teams, SRE/DevOps
- **Informed** — Adjacent engineering teams

The bottom line

Developers in the analysis stage use Stack Overflow for Teams to surface high-level strategy documentation and clarify deliverable-based decisions. Well-defined deliverables, a set scope, and stakeholder buy-in ensure teams are aligned for future stages.

Rely on the trusted developer mantra: “Don’t repeat yourself.” Developers are happier and more productive when they do not need to solve the same problems twice, so make sure your knowledge base is up-to-date and healthy.

Stack Overflow for Teams supports this phase through:

- Capitalize visibility into visibility into a complete set of requirements that can be clearly understood by the development team
- The source of truth for documentation and accessibility for everyone involved in the SDLC
- Surfacing helpful knowledge that can be leveraged in future stages

STAGE 3

Design

Developers and technical architects begin the design work required to deliver each requirement. They discuss risks, tools, capabilities, constraints, and timelines. They also ask critical questions about edge cases and hypothetical scenarios.

> I've worked at places where so much information is locked up in people's heads or people who've left the company. Stack Overflow for Teams gives me confidence that we'll have all the historical context we need to hit our future engineering goals.
>
> **The Flex Company case study**

Stack Overflow for Teams best practices

Developers reuse knowledge to remove blockers and avoid repeating past mistakes. Developers use the knowledge of their forebears to remove blockers and avoid repeating past mistakes.

As developers design and build, they should follow these tips to optimize their Stack Overflow for Teams instance.

Use Stack Overflow for Teams to access organization knowledge such as:

- Design patterns to follow
- Previous and current architecture diagrams
- Historical implementation issues and errors with the linking solutions
- Up-to-date documentation on business applications, integrations, and features with input from various stakeholders, not just from the point of view of a single person
- Compliance and security regulations that must be followed

When you have a question specific to your company's technology, tools, processes or procedures, use the Stack Overflow for Teams community. If you have a general coding question that isn't related to something work-related, use the Stack Overflow public community. Your developers will be able to search both public and private communities simultaneously with Stack Overflow for Teams' Unified Search, without leaving the platform.

The design stage is where teams must get organized, like Flex in this case study.

Integrations

Github

Custom integrations with our read/write API

Stack Overflow for Teams usage guidance

- Create custom awards to drive employee contributions and strengthen knowledge repository quality
- Asynchronous collaboration helps avoid developer burnout. Use comments and notifications to stay up-to-date asynchronously, even when your teams work from home or are geographically dispersed
- Use Tags and Collections to easily find all information related to the current design

Teams involved

- **Responsible** — Engineering
- **Accountable** — SREs/DevOps
- **Consulted** — Architecture teams, SREs/DevOps
- **Informed** — Adjacent engineering teams

The bottom line

Stack Overflow for Teams helps technical architects avoid common pitfalls and planning blunders. With Q&A and Tags, they build on previous work and use acquired company knowledge as a springboard for faster development.

Stack Overflow for Teams supports this phase through:

- Providing historical and proprietary knowledge about infrastructure, product functionality, and limitations
- Documented best practices for developing ideal specification and timelines
- Defined requirements to which the software will be built

STAGE 4

Implementation

At the beginning of this phase, the project has gone through planning, analysis, and design. The software developers begin translating design requirements into source code. This phase is about coding the system architecture that was designed in Stage 3.

Stack Overflow for Teams best practices

This stage is all about continuous problem-solving. As you build, your team will come up against technical challenges. Unified Search allows developers to search both the public Stack Overflow and internal Stack Overflow for Teams simultaneously.

Once you're ready to implement your code, move in small phases, gradually gaining implementation of your new code into the codebase and gathering feedback along the way to help you optimize your plan. This is not a one-and-done process. In today's world, development teams release code multiple times a day/week/month, which is known as continuous integration and continuous deployment.

Use Stack Overflow for Teams to access organization knowledge such as:

- Preferred languages and the reasoning behind them
- Proprietary information on API keys, tokens or passwords
- Points of contact for specific development-related questions, like errors or blockers
- Availability of development tools and resources

Stack Overflow for Teams is particularly helpful here for providing the space to ask questions and decide what improvements should be implemented. Enact good code comment writing and hygiene practices, so you can quickly find existing code that solves a technical problem.

Keep your team focused and reduce distractions.

When Intuit wanted to help its developers and technologists break down silos between departments and improve communication across global offices, they used Stack Overflow for Teams.

> We listened to these engineers to try and figure out what their biggest blockers and problems were ... What we realized after numerous discussions was that communication to and from the center out to the spokes was really hard. They were looking for ways to improve collaboration.
>
> **Intuit case study**

They took a phased approach to introducing Stack Overflow to its ~5,000 engineers. They took time to be thoughtful about the product's use, piloting it with small groups of users and seeding relevant questions before rolling out to Intuit's full technical community. The community has contributed over 7,000 questions and is adding more than 100 questions and answers per month.

Stack Overflow for Teams usage guidance

- Integrate with GitHub, so that this and future teams can reference specific code and projects when sharing knowledge
- Unified Search allows developers to search both public and private Stack Overflow instances at the same time when searching for answers on how to code a solution
- Use Tags to ask specific colleagues questions or make subject matter experts of your issues and errors during implementation
- Integrate Stack Overflow for Teams with your existing chat tools like Slack and MS Teams to quickly find answers with fewer interruptions.

Integrations

Github

Slack

Microsoft Teams

Teams involved

- **Responsible** — Engineering
- **Accountable** — Product management
- **Consulted** — Cross-department engineers, Product designers
- **Informed** — SREs/DevOps

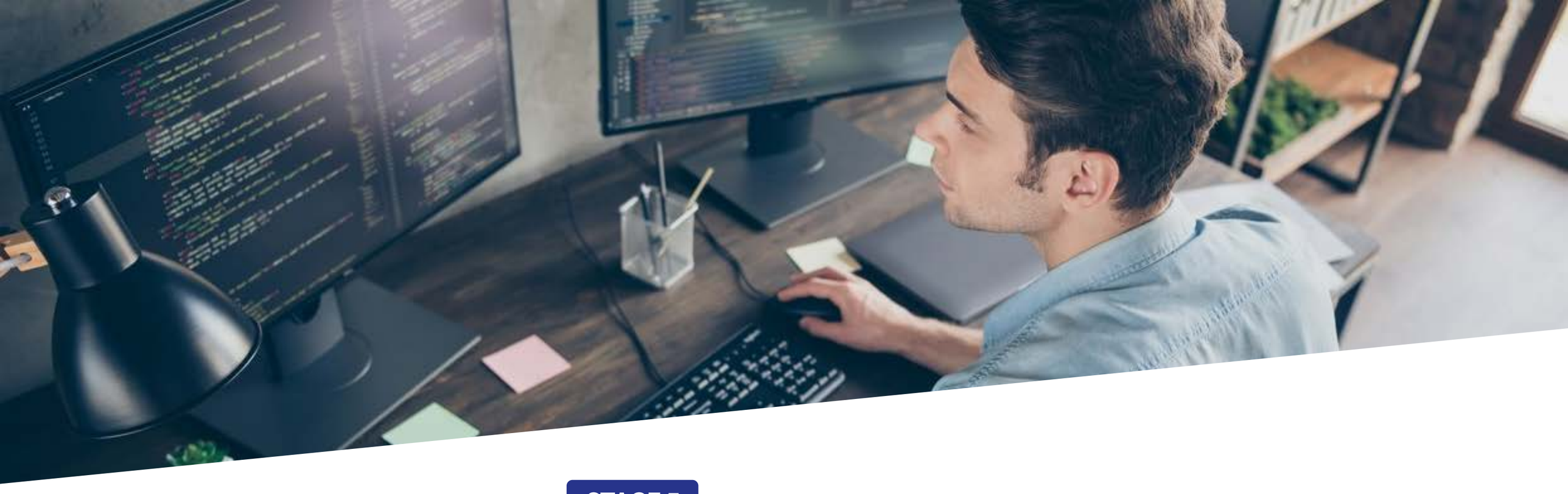
The bottom line

Stack Overflow's public site helps developers learn and provides a reference for both popular and legacy programming languages. Meanwhile, Stack Overflow for Teams helps your technical teams create code according to your organization's principles. Stack Overflow for Teams reduces silos at critical points when teams are working to meet aggressive deadlines and need to access shared knowledge quickly.

When an unexpected issue during implementation occurs, Stack Overflow for Teams can help developers troubleshoot through knowledge reuse. Devs will also feel enabled to ask new questions in a non-distracting way.

Stack Overflow for Teams supports this phase through:

- Providing context for existing code, thus reducing development time
- Resolving issues and blockers by unlocking resources and related knowledge
- A reference of code libraries and formatting



STAGE 5

Testing and Integration

In this phase, the project is handed off to the Quality Assurance team for testing against technical, security, and business requirements. It's important to break down the silos that can exist between developers and test engineers. One way to do that is through open and transparent knowledge about the product, the requirements, company processes and procedures, and security guidelines.

Stack Overflow for Teams best practices

As you ramp up your testing and integration, you'll be testing software specifically against business and technical requirements. The results of these tests may be pertinent to other teams: product, marketing, sales, data, business intelligence, and more.

It's important to keep checklists for test readiness, automation, and exit criteria in Stack Overflow for Teams. Include the processes, tools, and resources available for testing. Tracking progress validates what your engineers have already done. While many tests are run continuously, you don't want to run every test on every change. It slows down releases because larger code bases have myriad tests that may not be affected or interact with the part of code that changed.

Use Stack Overflow for Teams to access organization knowledge such as:

- Documentation on expected functionality
- Notes on unexpected outcomes of the new/enhanced features
- How-to guides and documentation on automated, visual, and manual test design
- Updates from cross-functional teams and recent deploys that might have adversely impacted the product
- Security requirements
- Regulatory compliance requirements that need testing

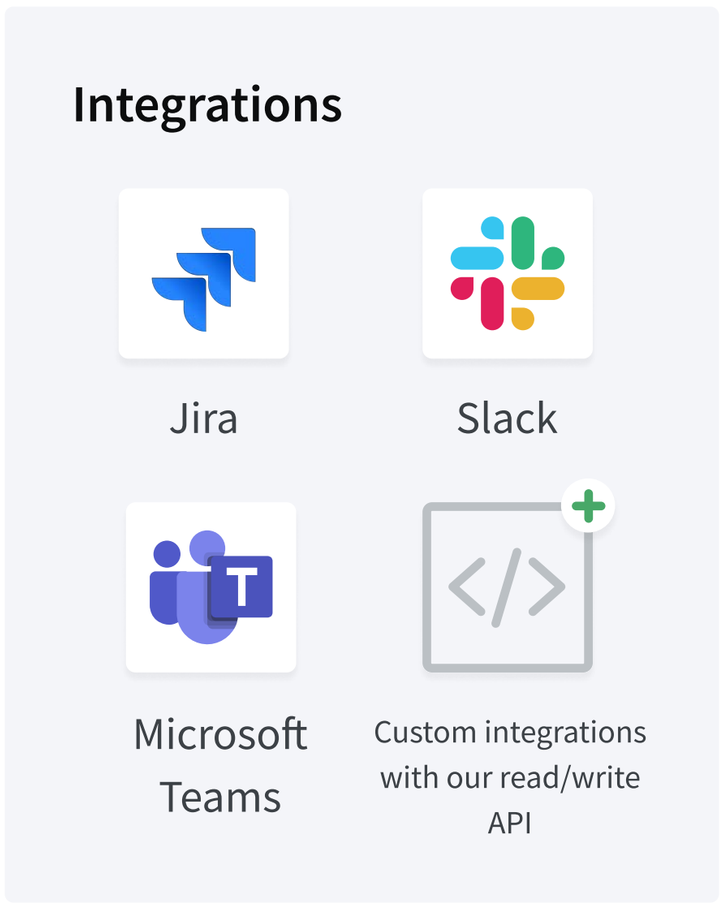
> When these questions are on Stack Overflow, I get to be more productive because I don't have to answer the same question twice.
>
> **Suraj Gupta,**
> a program manager with the
> Cloud Test Team at Microsoft

One study looked into testing-related questions on Stack Overflow and used topic modeling to find topics of discussion, temporal trends, and common developer challenges. They concluded that test framework, database, and client server questions were “hot topics.” Questions related to test frameworks and databases are regularly discussed, and mobile-related discussions are increasing in testing questions. Users often post questions related to the basics of testing, app testing, test frameworks, best practices, and testing database-driven applications.

Within your organization, you may want to look at covering some or all of these topics in a central and visible place on Stack Overflow for Teams.

Stack Overflow for Teams usage guidance

Consider a comprehensive list of the different types of software testing and add it to Stack Overflow for Teams for future reuse.



Teams involved

- **Responsible** — Quality assurance
- **Accountable** — Engineering
- **Consulted** — Product management
- **Informed** — Go-to-market teams like release managers

The bottom line

Whether working on security, conformance, accessibility, performance, stress, compatibility, and/or regression, Stack Overflow for Teams can help log testing results, clear up questions, and provide a single source of truth for technical collaboration and information.

Stack Overflow for Teams supports this phase through:

- Documenting and tracking test results to ensure that software meets the requirements set forth in the design phase
- Varying departments can be kept updated through notifications and new knowledge, and when an unexpected issue arises, Stack Overflow for Teams uncovers the resources to solve those issues

STAGE 6

Maintenance

At this stage, the system is in full operation. Maintenance of software can include software upgrades, repairs, and fixes of the software if it breaks.

At this stage of development, the paper trail and the hand-off between different teams is incredibly important. As you refine project plans and learn lessons, make sure to document them and put them into a Collection on Stack Overflow for Teams.

Use Stack Overflow for Teams to access organization knowledge such as:

- Release notes
- Bugs and issues
- Feature requests
- CI/CD processes

Focus on the decision-making pathways that inform your decisions. For example, if a new version of PHP comes along and breaks your system, you will log what you did to fix the system. Engineers down the road can look back and see why you created the fix you did.

In order to maintain your application, you should ensure lead developers and other contributor knowledge is captured in the event they leave the company. Not only should you keep the system running, but you should also take the time to plan how you will scale or build upon it.

> Engineers should help solve the hardest questions, the unknowns, where being familiar with how the product was built is essential. But we don't want to keep answering solved problems over and over again. That's where Stack Overflow really helps.
>
> **Suyog Rao**
> Director of Engineering, Elastic Cloud

Elastic, a search company that helps organization use the power of search to solve business challenges, uses Stack Overflow for Teams to bridge the gap between support and engineering departments.

Stack Overflow for Teams usage guidance

- See Articles in action as you continue to document your findings
- Create a Tag for product bugs that can be easily tracked and managed, while documenting who is on bug or escalation duty through a Q&A post so it's never a mystery

Integrations

Jira

Custom integrations with our read/write API

Teams involved

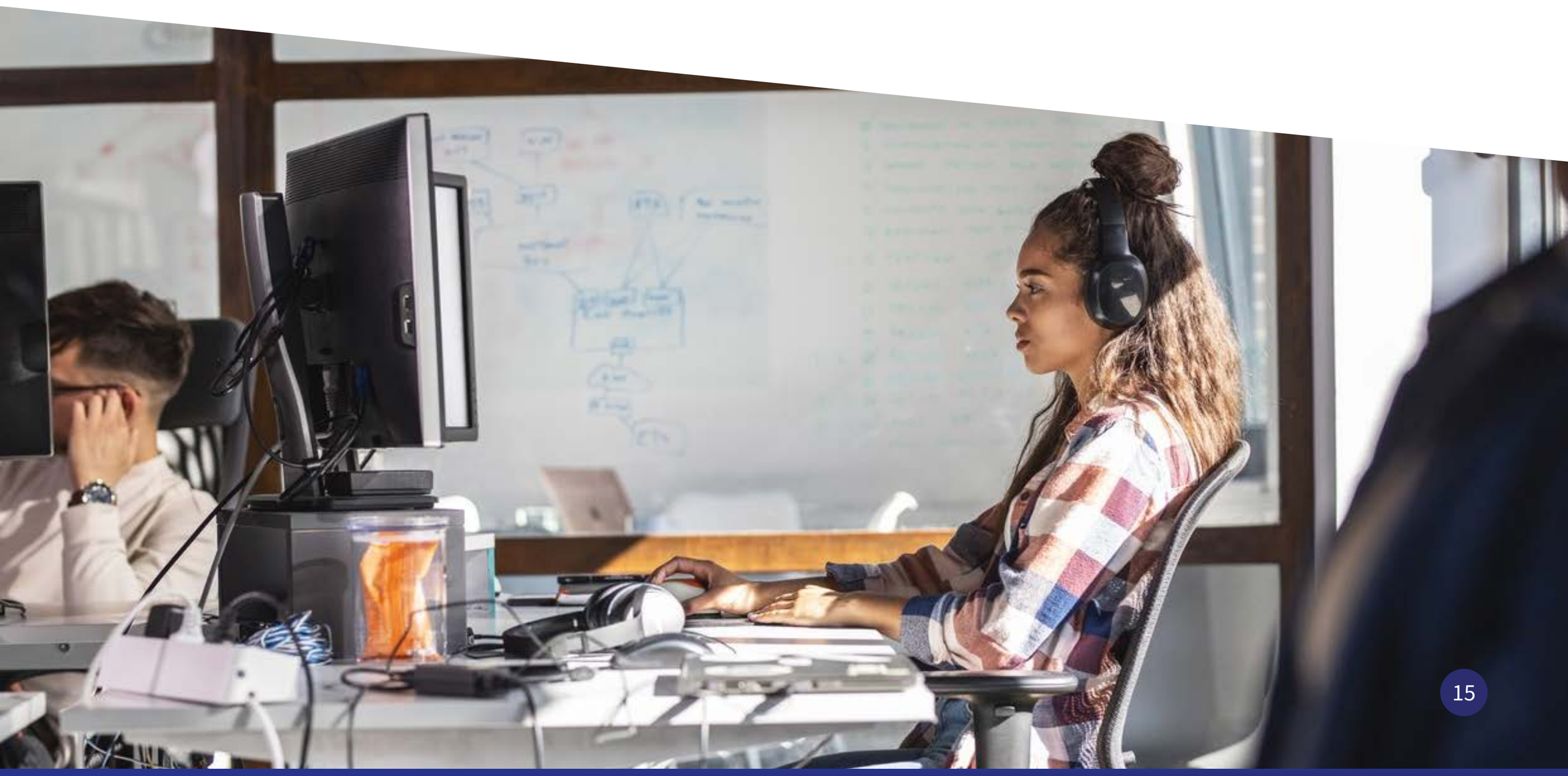
- **Responsible** — Engineering
- **Accountable** — Product management
- **Consulted** — Product management
- **Informed** — Customer-facing teams like Sales and Customer success

The bottom line

The maintenance phase is an ongoing one. This phase involves continuous feedback loops from operations back to the development teams. Stack Overflow for Teams can inform these feedback loops, by capturing knowledge that's picked up along the journey.

Stack Overflow for Teams supports this phase through:

- Documenting the results of software monitoring for continued functionality, including patching as needed
- Documenting feature and functionality requests and conversations from multiple departments



Ready to Optimize Your SDLC?

Stack Overflow for Teams can help developers at every stage of the software development lifecycle. Organizations of all sizes use the platform to serve as the guiding hand behind development projects.

Because developers of all experience levels use the public platform on a regular basis, there is a minimal learning curve to the private version of Stack Overflow for Teams.

When your engineers and adjacent teams are focused on shipping new features and updates as quickly as possible while maintaining the stability of your existing solutions, Stack Overflow for Teams is a critical piece of the puzzle.

If you're looking to remove roadblocks between your teams at every stage of the SDLC, look no further than Stack Overflow for Teams.

Learn more about Stack Overflow for Teams.

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To learn more visit
stackoverflow.com/teams