

The QA Team's Playbook:

Building a Cross-Functional and Flexible Team



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Introduction

The landscape of modern software testing has undergone a transformation so profound that it would be unrecognizable to someone from twenty—or even just ten—years ago. Technology is evolving at such a rapid pace that the technology industry itself can hardly keep up with it, and advancements like AI, advanced testing frameworks, and the integration of CI/CD tools to accelerate the software development lifecycle have impacted QA on a fundamental level.

In response, QA itself has evolved—Agile and Shift-Left methodologies are now assumed to be the default, and automation is an essential component of any QA strategy to keep up with the modern demands of delivering more releases faster than ever.

The evolution has been profound, and some fear that this may even be the end of the software tester role as we know it. This is clearly not the case—software still needs to be tested, and even with the help of AI and automation, human expertise remains critical in managing this testing. However, the modern software testing role is a much different beast than it was a decade ago, and those who entered the industry as manual testers in waterfall SDLCs may find themselves now feeling like a fish out of water.

The good news is that just as QA and technology evolves, testers can evolve, too. Tester jobs aren't disappearing; they just look different. And with that evolution, companies need to look beyond hiring just 'testers' to see results.

This ebook is designed for QA managers looking to build a well-rounded and flexible team that can roll with the punches and pivots of a modern SDLC. We believe approaching hiring, training, and upskilling with a "T-shaped" framework lends itself to building a cross-functional foundation for your team that includes both technical expertise and valuable soft skills, ensuring your team is ready for anything.

While this ebook might be tailored to QA managers, the guidance and templates contained within are equally valuable to the individual quality contributor looking to make career moves, score that promotion, or build a professional development plan.

Without further ado, let's dive in!

The QA Team's Playbook:

T-Shaped People



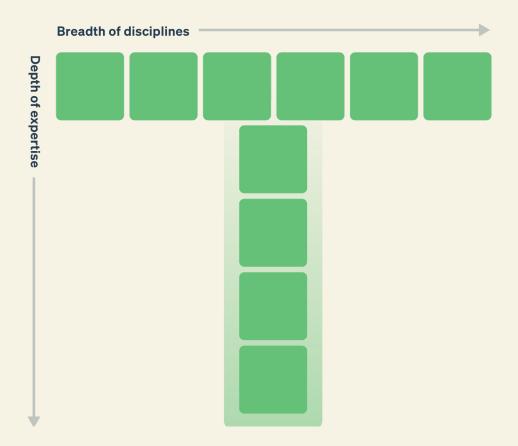
T-Shaped People

The foundation of any modern high-performing team, regardless of industry, is T-shaped people.

What is a T-Shaped Person?

A T-shaped person has a skill profile that resembles the shape of the letter "T"—a horizontal axis that contains a broad variety of functional skills, industry-specific skills, and personal/soft skills, and a vertical axis that contains a depth of expertise in a narrower set of specialized skills.

You can see that illustrated here:



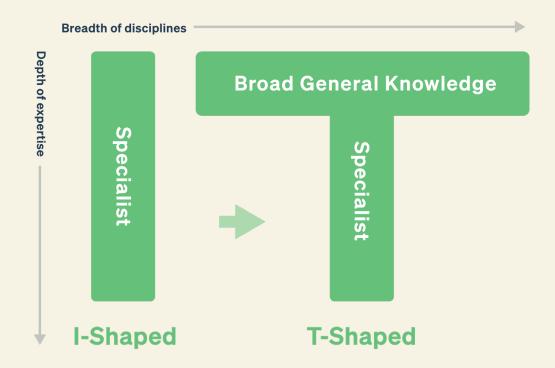
Why is this kind of skills profile valuable, especially in software testing?

As technological innovation and evolution continue to accelerate faster and faster, the way we develop and test software also evolves continuously. This rapid pace of change has paved the way for methodologies such as Agile, Shift-Left, and DevOps, but such methodologies are only as adaptable as the workers carrying them out can be.



T-Shaped People

What is a T-Shaped Person?



In more traditional methods of software development—where testing was primarily manual, and the SDLC followed the waterfall model—the I-shaped "specialist" profile was more desirable. These candidates were highly specialized at the one thing they did, which was a boon to development cycles where testing was generally conducted in the same way at the same time—using little to no specialized tools or automation.

However, this skills profile is not very scalable. As QA shifts left and teams become more crosscollaborative, the I-shaped profile will be a roadblock. The modern tester doesn't just test—the technological evolution of technologies such as test automation frameworks and CI/CD tools demands a working knowledge of their frameworks and languages, and the nature of Agile requires the full team to be able to support other functions as needed.

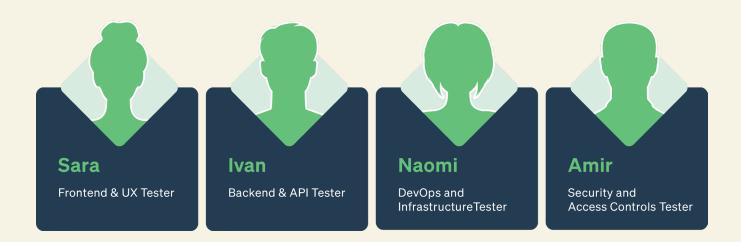
While the skills of a manual testing specialist are certainly still required in today's QA workforce, the inflexibility of the I-shaped profile will make them a less compelling candidate than a T-shaped counterpart who brings both manual and automated testing skills to the table.

So how does a team full of T-shaped people work to both own their respective domains and support each other? Let's go over some examples.

The QA Team's Playbook:

The T-Shaped QA Team





Naomi (DevOps and Infrastructure), Sara (Frontend & UX), Ivan (Backend & API), and Amir (Security and Access Controls) are all testers in an American company that has developed cloud- and server-based software testing products, created to facilitate companies with their software testing processes. Due to the complexity of products, the company needs to have employee profiles with expertise in different testing areas: frontend, backend, infrastructure, and security.

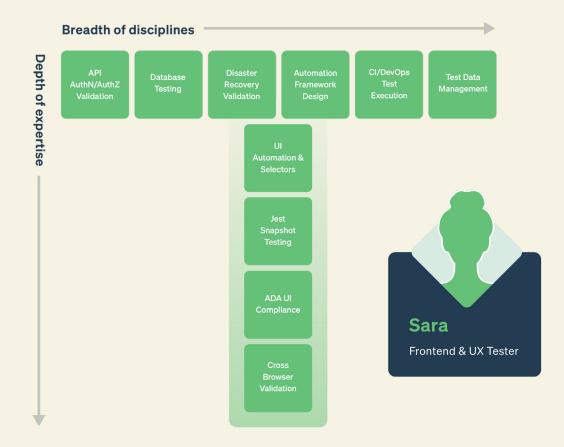
They've assembled a team of four testers who have expertise in their respective fields and also complementary sets of broader knowledge that allow them to support each other's functions and work together to contribute to the success of the whole team.

Let's take a look at each of these testers' T-shaped skills profiles and analyze how this team works.

Please note that these examples are just that—examples. There is no "perfect" T-shaped profile or team makeup, and every candidate will have their own unique set of experiences that flesh out their T—and every team will have their own unique needs that color what is desirable on the horizontal axis of the T. Your team's perfect frontend tester may look nothing like Sara, and that is okay!



Frontend & UX Tester



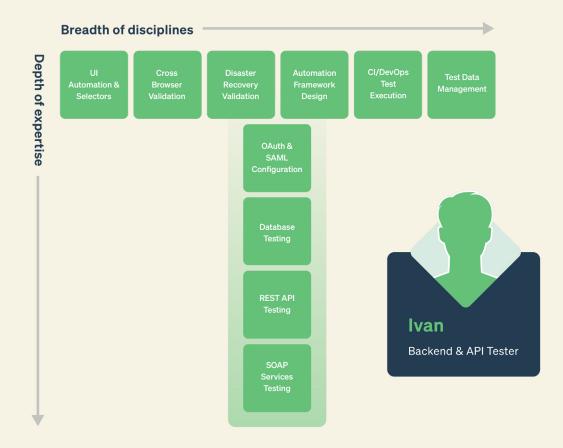
Sara serves as this company's Frontend & UX tester, and as such, brings deep expertise in areas like UI automation and cross-browser validation. She's also very well-versed in ADA compliance and accessibility standards, both of which have a significant impact on user experience.

Along with this deep well of expertise, she's cultivated broader knowledge in areas such as database testing, test data management, and disaster recovery validation to assist with cross-functional tasks at previous jobs (skills that also serve her well here). Sara also has a working knowledge of API validation, recognizing that frontend and backend do not work in a silo.

When Sara joined her current team, she realized she had knowledge gaps regarding test automation framework development and the ability to integrate test automation into her team's CI/CD environment. She's currently taking online courses to learn more about those areas so she can gain a better understanding of how they intersect with her work and be more prepared to jump in when her team needs DevOps testing or automation support.



Backend & API Tester

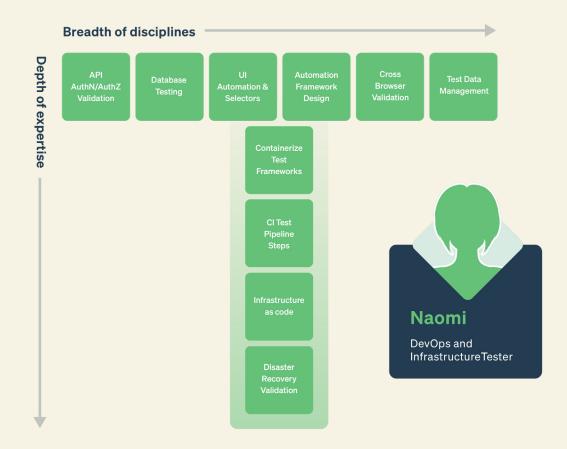


Ivan specializes in Backend & API testing, so his depth of knowledge is focused on skills like database testing, REST API testing, and SOAP services testing. He's also an expert in OAuth & SAML-based authentication and authorization validation.

Much like Sara, his horizontal axis includes working knowledge of UI automation and crossbrowser testing, as frontend and backend testing must always work in consideration of each other. Ivan has also put effort into his understanding of test automation framework design and test execution in CI/CD pipelines to meet the needs of this particular team and has brought in experience with test data management and disaster recovery validation from previous roles.



DevOps and Infrastructure Tester

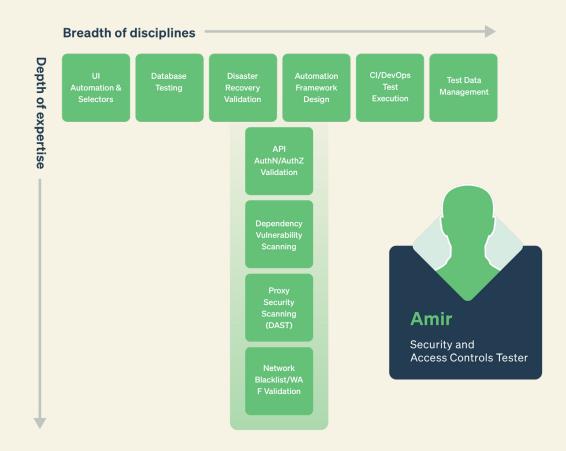


Naomi is probably the least functional tester in the group, with her focus being on DevOps and Infrastructure. All of the company's cloud infrastructure environments and container orchestration—along with load, stress, and performance testing—are in her domain of responsibility and expertise.

However, this doesn't mean that Naomi is siloed from the others. All functions of testing are critical to her areas of oversight, so she must be able to understand what her teammates are working on. She has a broad knowledge of API validation, UI automation, and cross-browser testing that allows her to communicate efficiently with Sara and Ivan. While Naomi owns the team's disaster recovery validation and CI/CD efforts, Sara, Ivan, and Amir have the skills necessary to contribute to their execution. Additionally, like the rest of the team, Naomi has the skills needed to support the company's test automation and test data management needs.



Security and Access Controls Tester



Finally, we have our security and access controls specialist, Amir. His depth of expertise is centered on key areas such as vulnerability management, authentication, authorization, and API security. But, much like Naomi, all functions of testing intersect with security, so it's critical for him to have broad supporting knowledge in other areas.

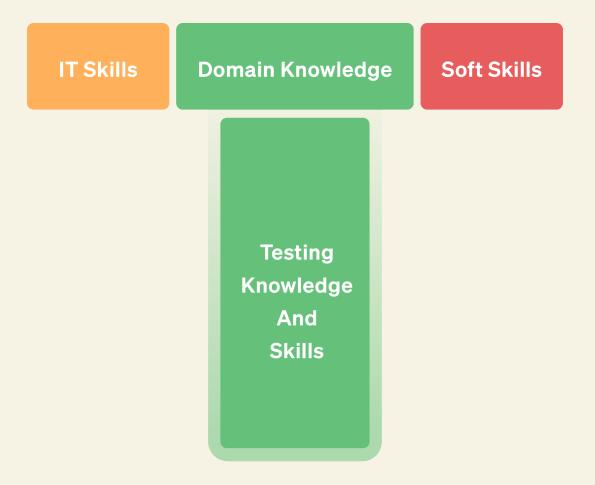
His core skills already provide insight into backend testing, which Amir has supplemented by learning more about UI automation to further his understanding of the frontend. He brings a working knowledge of disaster recovery validation to help support Naomi's work and has cultivated an understanding of database testing, test automation framework design, test execution in CI/CD pipelines, and test data management to help support the team holistically, along with his other teammates.



Components of the "T"

We hope those examples helped illustrate how vital the T-shaped skills profile is to modern QA. If Sara, Ivan, Naomi, and Amir were all strictly I-shaped, their jobs would be a lot harder (and their product would suffer as a result). They'd lack visibility and understanding into each other's work, efforts that need "all hands on deck," such as disaster recovery validation, would likely fall to the wayside, and bottlenecks would surface whenever one function gets overloaded due to limited capacity for cross-functional support.

As we mentioned earlier, there is no perfect T-shaped profile. The ideal skills present on both the horizontal and vertical axes are entirely dependent on each person's unique background and career goals, as well as the functions needed for your particular team. While we can't tell you exactly what should be in each box, we can tell you the general mix of skills that you should be looking for.





Components of the "T" Continued

Our example profiles largely focused on domain and testing knowledge, but it's critical to not overlook general IT skills—and most importantly, soft skills.

Soft skills include communication, collaboration, curiosity, critical thinking, empathy, and problem-solving. Every role has soft skills that are inherently critical to its success—imagine a salesperson who struggles to communicate effectively or a doctor who lacks problem-solving abilities. QA is no different in this regard, and we'll dive into the soft skills that make for an excellent tester in a later section.

While it may be tempting to overlook soft skills in favor of a resume loaded with relevant technical skills, it's important to keep in mind that most technical skills are actually easier to learn. Getting a new team member up to speed on the platforms and methodologies you use will likely be faster and more efficient than attempting to overcome a lack of communication, organization, or problem-solving ability.

Not to say it isn't possible—programs like Toastmasters exist precisely to challenge people to stretch out of their comfort zone and develop important soft skills. But that will likely be far more challenging than hiring a candidate who already has strong soft skills and training them to fill a few gaps in their broader technical knowledge.

The QA Team's Playbook:

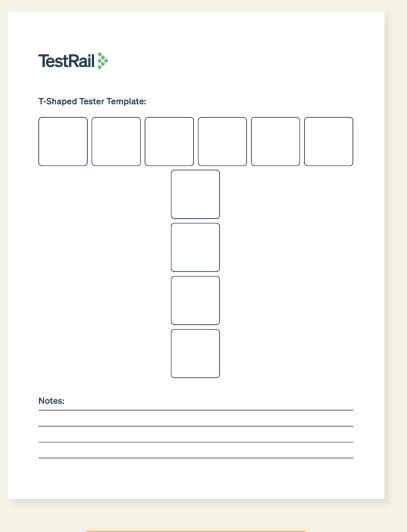
Building a T-Shaped Team



Now that you have a good sense of how T-shaped testers work together to form a cross-functional team, let's talk about how you can build a cross-functional team of your own.

Hiring Using the T-Shaped Framework

Here is a blank T-shaped template. Fill one of these out for every role you're hiring for—and if you're hiring for multiple roles, be sure to think about how they'll work together. You can refer back to the T-shaped team example in the section above for inspiration on how a diverse group of testers with different specializations can complement and supplement each other's skill sets!

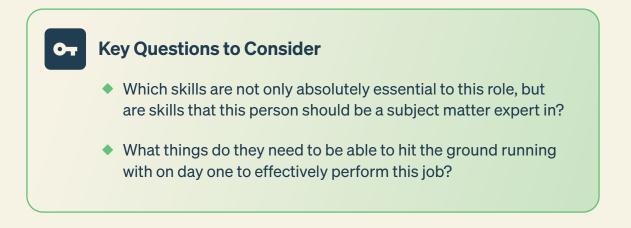


Download Template



How To Fill Out the Vertical Axis

The vertical axis of the T is where this candidate should demonstrate **mastery** and **deep expertise.**



Skills that are "nice to have" or could be easily trained during onboarding should not be included in this axis. You can probably train a new hire on the specific needs of your industry during onboarding—but you probably can't teach them how to code in Python during onboarding.

Let's imagine that you are hiring a Software Test Engineer and a Performance Test Engineer.

You know that your Web UI automation framework uses **Pytest** and **Selenium**, which is integrated with **TestRail** via the CLI for test execution and results—which is then in turn integrated with **Jira** for defect tracking.

While ideally, a candidate has experience in those exact platforms, you also know that **knowledge of any open-source automation tools, test management tools, or defect trackers would be applicable.** You also know that a candidate with no experience using such platforms would not be a good fit for this fast-paced, senior-level role.

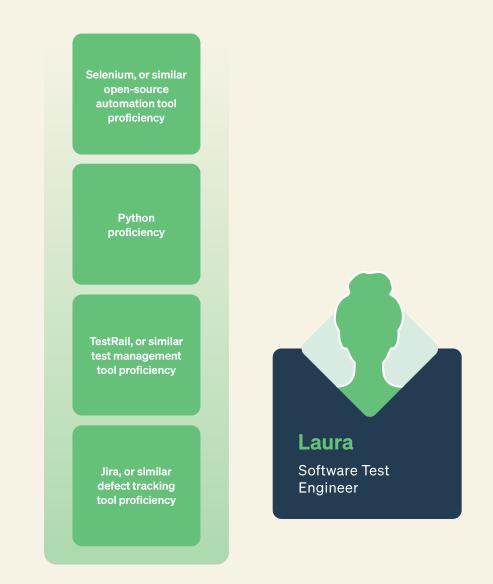
Additionally, for the vacancy you're looking to fill, it's important to be aware that the use of **Pytest** requires your candidate to be proficient in **Python**. And for **Selenium**, you may want to look for candidates who are experienced in open-source **UI test automation tools** for web and mobile applications.



How To Fill Out the Vertical Axis

HR teams—who are often the first to review and triage candidates—sometimes lack details such as those, and providing them with more specific requirements and insights can help them identify more promising candidates faster.

Your Software Test Engineer's vertical axis might look something like this:



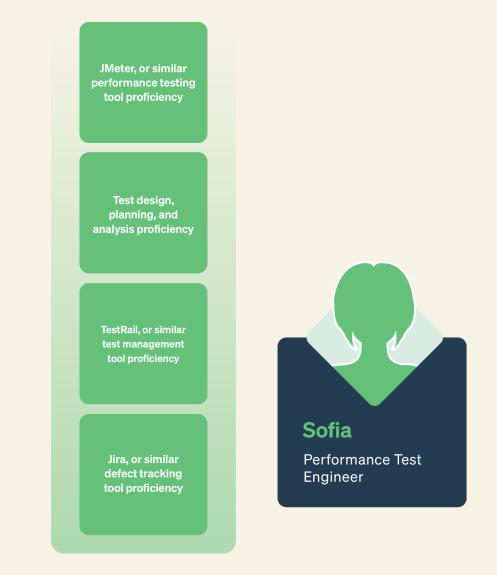


How To Fill Out the Vertical Axis

For your **Performance Test Engineer**, you know that this candidate should know how to load test functional behavior, and that this kind of testing is handled by the tool **JMeter**—which is also integrated with **TestRail** for test execution and results and **Jira** for defect tracking.

Additionally, this person will need to have experience with **strategic test design, planning, and analysis** in order to efficiently plan, execute, and improve upon load, stress, spike, scalability, and/or volume testing initiatives.

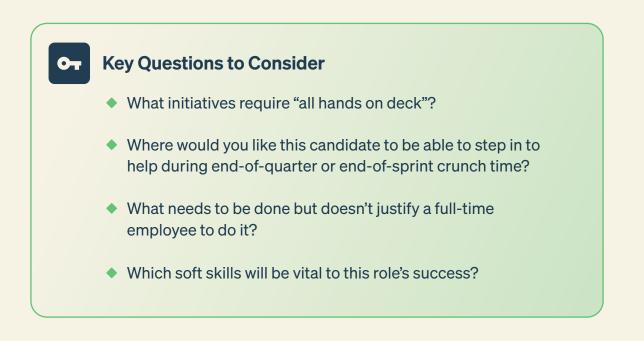
Your **Performance Test Engineer's** vertical axis might look something like this:





How To Fill Out the Horizontal Axis

The horizontal axis of the T is where you take a step back and think about how this role will work within the larger team.



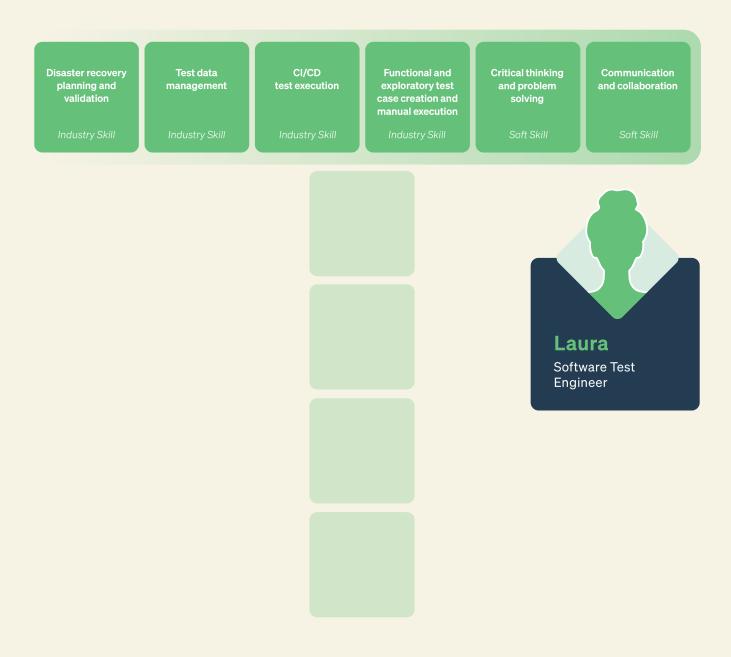
For your **Software Test Engineer**, you know that they'll be expected to pitch in when it comes to **disaster recovery planning and validation** and **test data management**. You also know that they'll work closely with your **CI/CD pipeline**, which is managed by another team member but will require their visibility and input. Although this role is mostly focused on automation testing, you do expect this candidate to be able to pitch in for **manual test case creation and execution efforts** if needed, including **functional testing and exploratory testing**.

You also know that strong **critical thinking and problem-solving skills** are essential for this role. Additionally, **communication and collaboration** are key to ensuring your agile team runs smoothly.



How To Fill Out the Horizontal Axis

Your **Software Test Engineer's** horizontal axis might look like this:





How To Fill Out the Horizontal Axis

For your **Performance Test Engineer**, you know that they will be called on to assist with **database testing** and **disaster recovery planning**. You know that they will work closely with the team responsible for CI/DD pipelines to keep track of its test executions and results. With time, it is expected that performance tests will be executed along with the test automation pipeline, so this tester will also be part of your **automated testing** initiatives as they work to build strategic performance testing plans.

The Performance Test Engineer role will require heavy usage of **analytical thinking, problemsolving, and communication skills**, as they will need to maintain open communication with both peers and leadership to share results and expectations.

Your **Performance Test Engineer** horizontal axis might look like this:





How To Utilize the T-Shaped Framework as an Interviewer

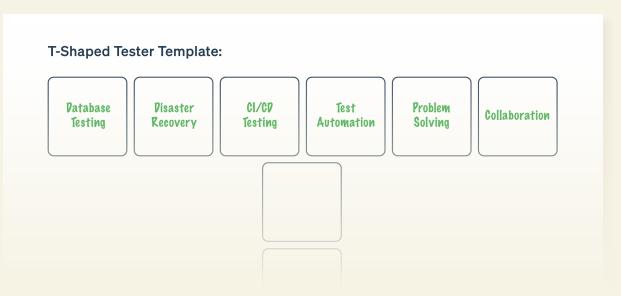
You'll notice that the axes of the T roughly correspond to the "must haves" and "nice to haves" commonly found in job listings. If filling out your T-shaped template uncovered anything not mentioned in the job description and you have the ability to edit it, consider doing so.

Use your T-shaped template to help you identify promising interview candidates—but keep in mind that many people tailor their resumes and cover letters to highlight their most relevant skills, so you may not be getting the full picture of their broader expertise or soft skills from their applications alone.

During the interview process, you can use your T-shaped framework to guide the questions you'll ask and get more information about a candidate's skills and experience. Do not allow yourself to become beholden to your T, however—finding a candidate who's an exact match for everything on your template is unlikely.

Instead, use the T-shaped framework to identify candidates whose skills are well-dispersed across deep expertise, domain knowledge, industry skills, and soft skills. Missing a skill from each category is far less of a problem than missing an entire category.

Plus, utilizing this framework from the hiring stage helps you get a jump-start on your new hire's professional development—gaps in their T can help define annual goals, areas for evaluation, and upskilling plans.



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How To Assess Soft Skills

We've covered the importance of soft skills when building a well-rounded team—but how do you assess a candidate for them? These aren't skills you can generally earn a certification for, and humans are notoriously bad at assessing their own soft skill proficiencies. So, even if their resume says all the right things, you'll want to take some time during the interview to get a better sense of where the candidate stands.

This can be accomplished by asking some targeted questions, of which we'll provide examples below. However, keep in mind that interviews (especially first-round interviews) are high-pressure environments for both sides of the table. Consider having a less formal, conversational interview session that includes other members of your team to get a better sense of the candidate's communication style and how they interact with others.

Some soft skills critical to QA, as identified by TestRail and Ministry of Testing, are: collaboration, communication, curiosity, organization, critical thinking, problem-solving, initiative, and empathy. Here are example interview questions to give you a sense of how you can better assess these areas.

Collaboration

- Tell us about a time when you worked on a project as part of a team. How did the project turn out? Why was it successful or not successful?
- Describe a time when you had to work in a group with colleagues who had different working styles. How did you collaborate to achieve your goals?
- Have you ever been in a leadership position? How did you approach fostering collaboration within your team?



How To Assess Soft Skills

Communication

- What is your preferred communication style (phone, email, text/chat, in-person) and why?
- Describe a time when you required more information in order to complete a task. How did you get what you needed? Let's say the information you need requires reaching out to someone you've never interacted with before—how would you approach that?
- Describe a time when you presented a proposal or idea to your team. How did it go? How did you react to feedback or objections?

Curiosity

- Describe a time when you had to learn a new technology, methodology, or concept for your role. How did you go about gaining expertise?
- Describe some past professional development endeavors. How do you decide what knowledge to pursue? Do you have any development goals or plans for the coming year?
- Imagine that it's your first week on the team, and you're invited to join a brainstorming session. During the session, you have questions about the topics being discussed. How do you approach getting answers to your questions?



How To Assess Soft Skills

Organization

- How do you keep yourself organized while managing multiple projects, tasks, and deadlines? What strategies do you use when prioritizing work?
- Describe a time when you were working under a tight deadline. How did you approach this project and keep yourself/your team on track?
- How do you plan your day when you don't have that many things to test?



Critical thinking

- Describe a time when you had to solve a problem that had no clear solution or no clear process to follow. What did you do?
- Describe a time when you were faced with competing priorities or demands. How did you move forward?
- Think about the times you've been involved in brainstorming sessions. Do you tend to find yourself actively contributing by asking questions, throwing out ideas, and offering your perspective during the session itself, or do you tend to absorb information and take notes to synthesize later?



How To Assess Soft Skills

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Problem-solving

- Describe a time when you identified and addressed a problem before it became an emergency.
- Describe a past crisis or disaster scenario. How did you approach the situation and take steps to solve it?
- Imagine (or recall a time) that a bug slipped past you and made it into production. You can't risk this happening again in the next release—what steps do you take to prevent it?

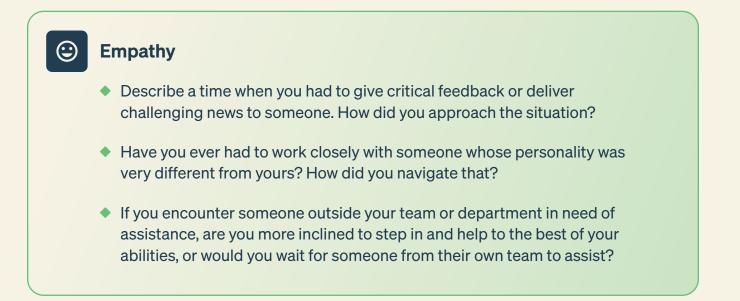
Initiative

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- Describe a time when you identified an improvement that could be made to a process or system and how you took action.
- Have you ever stepped up to take the lead on a project? What were the results?
- Do you find it exciting to share your thoughts, ideas, or discoveries with your team as they come up, or are you more comfortable waiting for a prompt or request?



How To Assess Soft Skills



The QA Team's Playbook:

Encouraging T-Shaped Growth Within Your Team



Encouraging T-Shaped Growth Within Your Team

The T-shaped framework isn't just a tool you can use to help guide the hiring process—you can also use it to encourage and develop cross-functional growth within your existing team.

Create a Professional Development Plan

Using the same guidance from the "Hiring Using the T-Shaped Framework" section, work with each one of your employees to create their own unique T-shape. These completed profiles should not only contain the technical and soft skills necessary to do their current jobs but also take into consideration each team member's career goals and areas of personal interest.

These T-shaped profiles might be more aspirational than the ones assembled for hiring, but that's ideal—each piece of the T-shape that's currently missing from each team member's skill set is an upskilling or development opportunity. Work with your team to prioritize which gaps to tackle first and assemble a unique professional development plan for each employee.

Professional development doesn't have to be time-consuming or expensive, either. Here are some examples of low-cost or free resources that you and your team can utilize, even if your learning and development budget is on the lighter side.

- Online academies such as the free TestRail Academy, LinkedIn Learning, Udemy, Coursera, Pluralsight, or Codecademy
- Free webinars, podcasts, ebooks, and other resources produced by companies in the QA and DevOps space, as well as communities like the Ministry of Testing
- Cross-training and shadowing within your organization's internal teams
- Local community colleges and universities, especially if they offer opportunities for credentials or certifications, course auditing, or other learning outside the traditional degree model

If you identify an upskilling opportunity that needs a personal touch due to the unique needs of your team—or you anticipate all current and future hires will need to undertake it—you may also consider creating your own custom training curriculum in conjunction with your HR team.



Encouraging T-Shaped Growth Within Your Team

Develop Soft Skills

Using the same guidance from the "Hiring Using the T-Shaped Framework" section, work with each one of your employees to create their own unique T-shape. These completed profiles should not only contain the technical and soft skills necessary to do their current jobs but also take into consideration each team member's career goals and areas of personal interest.

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- Host a Hackathon or Bug Crush event
- Use TestSphere cards to empower your team members to share knowledge, learn how to tackle risks, and facilitate retrospective sessions
- Have a team outing to an escape room
- Start an inter-office board game, chess, book, and/or puzzle club
- Sponsor memberships to Toastmasters, a stand-up comedy class, or similar opportunities to engage in public speaking and quick thinking
- Have a Jeopardy competition with a custom-made game board full of QA questions
- Hold a "Powerpoint presentation party" where each team member has to assemble and deliver a short presentation on a special non-work-related interest of their choice
- Have your team take and discuss an assessment, such as the CliftonStrengths 34 or 16 Personalities, to help identify individual strengths and visualize how these come together to form a strong team



Encouraging T-Shaped Growth Within Your Team

Bring Development and QA Together

A shortcut to building valuable technical knowledge, developing cross-functional collaboration, and creating a more efficient software development lifecycle is to prioritize bringing development and QA together.

This doesn't have to be time-consuming or complicated—just take advantage of fruitful opportunities to get QA and development at the same table for valuable face time and knowledge sharing. Some ways to accomplish this include:

- Cross-functional brainstorming
- Refinement meetings to ensure functional requirements are aligned with technical capacity and perspective
- Code reviews and/or peer reviews
- Internal demos
- Pairing up on test automation projects (pair programming)
- Internal cross-training between the two teams
- "Lunch and learn" sessions that give the teams a chance to learn more about each other and also hone their communication and public speaking skills
- Implementing Test-Driven Development (TDD) or Behavior-Driven Development (BDD) approaches to the development process
- Bi-weekly roundtable to talk about a recent concern or question related to your Software Development Lifecycle (SDLC) or Software Testing Lifecycle (STLC)

The QA Team's Playbook:

The T-Shaped Manager



The T-Shaped Manager

Now that you've learned how to apply the T-shaped framework to making great hires and developing your team, it's time to turn to the most important person: you!

Managers also need to be well-rounded and cross-functional, even if they're not the ones doing the day-to-day testing and development work. You need to prioritize your own professional development in order to help your team navigate upskilling opportunities, communicate with them regarding their technical skills and tasks, and effectively advocate to upper management on your team's behalf.

As a manager, you also need to build out your ideal T-shaped profile, with a bit of a twist—you should prioritize gaining working knowledge in the upskilling areas that are important to your team, as well as the skills that will supplement your own career goals.

Keys to T-Shaped Managers

- If you (or someone on your team) is not in management yet but aspires to be, gear your ideal T towards the skills and abilities you'll need to develop in order to effectively lead a team one day.
- A great way to learn more about the important skills to build for your team and/or industry is to chat with leaders in positions similar to the ones you aspire to.

As your career progresses from an individual contributor to a leader—and even then, from a frontline manager to a senior executive—the skills you need to develop will change. And as you progress on your leadership journey, soft skills will be more important than ever.

Soft skills are what separate good leaders from great leaders. Leadership is so much more than just making sure deadlines are met and projects are delivered. Leaders shape the culture of their team by leading through example and can be highly influential on the career outcomes of their direct reports. It takes a lot more than just seniority to be a great leader, and even those who excelled as individual contributors need to build specific skills to be an effective manager.



The T-Shaped Manager

The Center for Creative Leadership outlined the soft skills that are essential for every level of leadership. It's never too early (or too late!) to put the work into developing skills such as:

- Self-awareness
- Forward-thinking

Fostering engagement

- Political savvy
- Empathy
- Communication

Influencing

Resilience

Skill assessments (such as the CliftonStrengths 34, mentioned above) are valuable to everyone but especially insightful for new or growing managers. The results of such assessments— possibly even in conjunction with a career coach—can help you identify how to play to your

strengths and develop a more comfortable and effective leadership style.

Building a Cross-Functional and Flexible Team - 35

The QA Team's Playbook:

Wrapping Up & Resources



Wrapping Up

We hope this ebook has provided you with some actionable takeaways to guide you on your journey to building an agile, well-rounded QA team. The T-shaped framework templates we've outlined for you can be used at every level of team development, from hiring to upskilling, to foster a cross-functional team foundation and encourage the development of technical, industry-specific, and soft skills.

Just to recap the most important takeaways:



Familiarize yourself with the T-shaped people framework, in which an ideal candidate has deep expertise in one area and broad cross-functional knowledge across others.

 Are you a T-shaped person? Are the members of your team T-shaped people?



Consider how several T-shaped people can work together to form a well-rounded team.

 How does this apply to your team? What upskilling and cross-training opportunities would help your testers fill out their T-shapes?

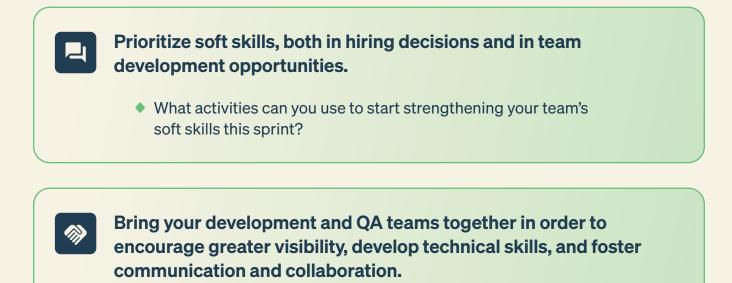


Utilize the T-shaped framework to help you write more informative job descriptions and better identify promising candidates when hiring for new roles.

 Think of a past hiring experience—where could the T-shaped framework have helped you make more efficient decisions?



Wrapping Up



What meeting or activity can you get on the books this month to help bring these two teams together?



Develop your own T-shaped profile to ensure that you're also prioritizing professional development.

What skills do you want to work on in order to be a more effective leader?



Resources

