

Creating a Culture of Quality

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Abstract

The idea of quality in software is often synonymous with the role of Quality Assurance engineer, or assumed to only happen at a specific point in the software development lifecycle. Instead of siloing quality this way, you can help create practices that support quality throughout the whole company! By replacing the silo with a widespread culture of quality, you allow more visibility into the benefits of quality, and how those practices can support the business and the people.

Over a two-year period, I helped lead the creation of this quality culture at a software agency, and I want my experiences and lessons learned to help you do the same! My talk will break down into three general areas:

- How to effectively advocate for a culture change, including techniques for change management and introducing new processes
- How people across departments can participate in a culture of quality (it's not limited to testers and developers!)
- Why a company-wide culture of quality is important, and how the company can benefit from it

I want you to feel inspired and prepared to advocate for positive change at your own company! Everyone will have their own unique set of challenges along the way, but this talk will help set you up for success when you begin implementing the kind of change that leads to a culture of quality.

Biography

Angela believes that empathy and curiosity are driving forces of quality, and enjoys solving a variety of challenges from this perspective. Her work in quality has ranged from feature testing to leading department-wide process changes. She works to understand and create quality experiences for users, engineering teams, and the organization as a whole.

1. Understanding Quality

The concept of *quality* isn't always well-defined. It's often assumed to be equivalent to *testing*, or synonymous with the role of Quality Assurance Engineer. Neither of those definitions accurately capture the entire breadth of work and effort that *quality* entails, although they are part of the whole. While working at my first job as a QA Engineer, I came to realize that quality is something everyone contributes to at all levels, from sales to engineers to leadership.

However, having this understanding didn't automatically mean that everyone shared my perspective, or that they were immediately ready to implement this vision of quality. Over a two year period, I worked with leadership and my colleagues across departments to understand and create our own culture of quality. I learned how to lead and advocate for change; how to communicate a shared understanding of process; and how to collaborate so that everyone feels heard and involved in the changes being made.

2. Creating a Culture of Quality

Change is hard, and it's emotional. We have a tendency to react negatively to change of any kind, especially large changes that we don't have control over - such as creating an awareness and culture of quality throughout your tech or software company. This type of cultural change is where the intersection of change management and core needs is important, combined with thoughtful onboarding processes for your employees and colleagues.

Change management is a phrase that you might have heard from leadership at your company, but it can be difficult to do well. Change Management is the approach and set of processes used to prepare and support people and companies when organizational change is happening. There are some standardized approaches to how change management can be handled, but my experience has shown that any approach needs to be planned around the people being affected by the changes that are coming. One of the best ways to do that is to understand people's core needs, and take them into consideration when planning, implementing, and iterating organizational change.

2.1 Core Needs

When people are faced with change, especially unexpected change or change that someone else is creating, they often experience what's called an "amygdala hijack" - more informally known as the "fight or flight" response. An amygdala hijack can happen when people's core needs feel threatened, and change is often perceived as a threat to those needs.

In order to help mitigate the "fight or flight" response, effective change management needs to take core needs into account. It's important to understand what these core needs are, and how people react when they feel (remember, change is *emotional*) that their core needs are at risk. I like using Paloma Medina's BICEPS model to define and describe core needs: Belonging, Improvement, Choice, Equality, Predictability, and Significance.

2.1.1 Belonging

The first core need is Belonging. People like to have a sense of community and kinship - to feel that we're a part of something and we're being cared for. At work, this might look like having a good relationship with our engineering team, or feeling purposefully included in work activities. Organizational change makes us worry that our needs won't be understood or taken into account, and we're afraid that change will cause us to lose out or be left out of something.

2.1.2 Improvement

Generally speaking, people don't really like to feel stagnant. We like to know that we're able to set goals for personal and professional improvement, and that we'll be supported by our company to meet those goals. Change has the potential to introduce setbacks. Sometimes we're afraid that changes will require us to set goals we don't agree with, or that the change will distract us from the work we're doing to meet those goals.

2.1.3 Choice

This is a big one. People want choices - we like options and flexibility. We want to know that we have ownership over our environment and working conditions. We like being empowered with some level of autonomy, where we have ownership to be a decision-maker. Change can remove that autonomy and ownership, and make us feel like we have less control. It makes us afraid that we won't have a voice in the decisions being made, or that the decisions someone makes will be bad for us.

2.1.4 Equality

At work, we want to know that we have access to resources as our colleagues, whether that's time or money or opportunity. We want transparency, and the same access to information that the people around us get to have. We want management to make decisions that are fair and affect everyone equally. When change comes along, people worry that the balance of equity will shift and they'll be worse off than they were before. Some people worry that the burden of change will be unfair, and they'll have to support other people without being supported in turn.

2.1.5 Predictability

People like predictability, and the comfort of knowing our routines. We like being able to prepare in advance. For instance, it's good to know that your company's work is stable, so you can focus on doing your job without wondering if you'll still have one tomorrow. Predictability allows us to get ready for upcoming challenges, so we can be successful. Change, even positive change, is uncomfortable and disruptive to our daily work. It also makes us worry that we won't be prepared for things introduced by change, like new goals or expectations from leadership.

2.1.6 Significance

People like to feel valued. We like to know that our work contributes to the company or the people around us in some way, and we take pride in being recognized for the work we do. We also think about the title or role that we're in currently, and how we want to continue gaining status by the work that we do. When change happens, we worry about a loss in current status or recognition, or that our work won't be valued in the same way anymore.

2.2 Change Management that Considers Core Needs

Creating a culture shift was introducing a lot of change - new workflows, new tools, and a new way of looking at our work. In order to effectively manage all of these changes, we had to take those core needs into account. We needed to make sure our changes weren't a threat to people's needs, and we also needed to make sure we proved it to everyone through our actions in change management.

Thinking of people's need for Predictability, make sure your changes include transition periods so your teams have time to adjust. Most of our process and tool changes started on a small scale, usually a single product or team. This allowed us to find and solve blockers quickly in early stages with shorter feedback loops.

Feedback is an important part of change management. It helps ensure that the changes you're making will meet the needs of the people you're expecting to change. Proactively asking for feedback also lets your team know that collaborating with them while change is being implemented, and their voices matter while it's happening. This all comes back to the core needs of Significance and Choice. People need to know that their expertise and their opinions are valued, and important to the process of creating this new culture. Ask for their input when you're still in the planning stage, get their feedback while changes are being rolled out, and make time to listen to their suggestions or pain points after.

When you're having these conversations with your teams, it's also helpful to include the reasoning and context behind the decisions being made. Be transparent about the problems you're trying to solve, and include that context: *Why are we doing it this way? Why is this a pain point? Why should we change it? Why haven't we changed it before? Why will this iteration make it better?* The factors that you considered when you decided to implement a change are the same questions that everyone else will ask when that change comes along. This calls back to Belonging and Equality - making sure people feel understood, that their needs are being considered during these changes, and that they all have access to the same information as you do.

Proactively giving people access to information and communication is also important. People like being kept in the loop, and well-informed people can make better decisions. This relates to our need for Equality - making sure people know they're not being left out, and offering them transparency around process and the decision-making that goes into creating a culture of quality. When your teams are involved in the conversations, they're also more invested in the decisions that are being made. That means they'll be an active part of the culture shift, which increases your likelihood of success.

2.3 Onboarding

During all of these changes, we also had to consider onboarding, which was closely tied with our change management. Onboarding can be really difficult to execute well - something many people experience when they've started a new job. And although onboarding usually refers to ramping up new employees to

the company, I'm using "onboarding" to talk about ramping up existing teams to new tools and workflows. It's a different context, but offers a lot of the same challenges.

But what does onboarding mean in this context? Onboarding includes making sure people know what they need to know, when they need to know it. It's knowing who to ask when they have a question, and knowing where information is stored. When you're onboarding your team to new workflows and tools, you also have to balance the time and effort of that against their existing responsibilities. As much as you can, try to simplify the process of onboarding for your team. If you can reduce the churn and uncertainty that goes along with messy onboarding, it's much easier for them to focus on the actual work, and successfully address and be a part of the changes that are happening.

2.3.1 Simplify the Process of Onboarding

In creating a culture of quality, some of the engineering teams incorporated more testing automation to their projects. In an effort to reduce the overhead of learning, I practiced "I do / we do / you do" during our testing sessions. With this practice, you can start by doing a demo for your team - run through the testing setup, and write and execute a test. Then let one of the developers on your team guide you through writing another test, or let them guide while someone else drives. This practice helps you make sure your team can understand and use their tools effectively before you hand it over for them to continue on their own. However, keep in mind that "handing it over" doesn't mean you never come back to it. Part of reducing the complexity of onboarding means checking in with the teams, and being available for feedback or troubleshooting. People can be hesitant to speak up when there's an issue, so it's up to you to work with your team to make sure things are going smoothly. If things aren't going well, take the time to understand what the blocker is, and find out what they need in order for it to work.

Because we were able to improve the process of onboarding for our teams, they had much less resistance to trying out new things. When you can lower the barrier of use with efficient onboarding, your team will be much quicker to adopt new tools and processes into their workflow.

3. Practicing a Culture of Quality

So let's say you've tackled your change management - everyone's needs are still being met, everyone agrees that the changes are useful and working for them. What does this culture of quality end up looking like? How are people actually doing this in their day to day work? The important thing to remember is that no single tool, test, or person can guarantee quality. In order to be truly effective, everyone needs to support and contribute to it. We had management, sales, product managers, architects, developers, and testers all involved in focusing on quality and helping change our company culture. Quality is the responsibility of everyone who interacts with or makes decisions about the product.

3.1 Management

To start with, a culture of quality needs buy-in from management. This culture won't be created top-down, but management does have to support the work going into it. Management can influence the conversations around change, and their support gives you certain authority and credibility to the rest of

the company. They're also in charge of the money! If you're trying out new tools or trainings as you're creating this culture of quality, they can give you budget approval, which is pretty nice to have.

3.2 Sales

Your sales team is also a part of this culture! They're in a perfect position to seed the ground early for conversations about quality. At my company, I partnered with our sales team to develop collateral on the process and benefits of quality. The sales team used that information when they responded to proposals, when they reached out to prospective customers, and even included it in contracts. Including the topic of quality in their process meant that our clients at least had a basic introduction to the idea of quality, and it's involvement in our development process.

3.3 Architects

If your company does discoveries or architecture phases, this is another chance to enhance your culture of quality. Architects take a long view of the work - they're trying to match up current state with future needs, and make sure the work can safely scale. During discoveries, architects can start thinking about high-level testing needs, and make recommendations for project architecture that will allow for easier testing down the road. The architect role can also act as a communication bridge, and make sure the product managers, developers, and testers all understand the general outline of work being planned out.

3.4 Project Managers

Your project managers also play a part in this culture of quality. Because of their relationship with your stakeholders, Product Managers can advocate for the benefits of including quality practices throughout a project. If stakeholders don't hear about the importance of quality until the project has already started, they'll feel like paying for quality means sacrificing their MVP. Product Managers can tell the stakeholder why quality is worth the team's time, and why it's worth paying for.

3.5 Software Engineers

Software engineers also contribute to creating a quality of culture. When it comes to building the product, I know that test-driven development is not always possible - timelines may be short, or maybe there's a lot of legacy code. However, TDD can always be supported by engineering teams, and setting goals to increase coverage with each pull request is great way to encourage it.

Software engineers can also contribute through code reviews. When engineers review each other's work, it means more people are familiar with what's being built. This helps decrease the chance of silos happening, where a single software engineer is responsible for part of the product, and can never hand it off for help or collaborating. Ideally, code reviews offer a way for engineers to communicate with each other - to ask questions and learn from someone else's work; or to share ideas around other solutions. It prompts a conversation around quality, and how the work someone is doing contributes to those standards.

3.6 Testers

When we were creating a culture of quality, it was really helpful for teams to have a dedicated, embedded tester. When software engineers are immersed in their work, it's easy for them to take on a ground-level view of the project. Having a tester on the team offers the chance for a higher-level view - seeing the whole forest instead of just a few trees. A dedicated tester also means there is someone to focus on other opportunities for quality - integration or regression testing, increasing automation, and creating best practices for release management.

3.7 Everyone is Responsible

These roles and responsibilities are some of the ways we practiced our culture of quality, but it's not the only way for that culture to exist. If you have a Site Reliability or DevOps team, a design team, a security team - they all share in the responsibility of contributing to the culture of quality. Ultimately, a great culture of quality is flexible, with the ability to meet changing requirements.

4. Benefiting from a Culture of Quality

So - we've talked about what your culture of quality might look like in practice, and now you're familiar with some of the challenges that come along with making these changes. But why have a culture of quality at all? As you're thinking about what quality means for your teams and your company, make sure you're including the benefits of this culture in your conversations.

When you create a culture of quality, you're creating a better way for people to work together. You're building a stronger foundation of communication, and a shared understanding about the process and benefits of quality. With a culture of quality in place, you also get an increase in the actual quality of work being produced, because quality is not only encouraged, it's supported by the entire process. That increase in quality leads to increased confidence in the work you're doing, whether you're selling the project or writing the code.

4.1 Cultures Improvements from a Culture of Quality

Beyond that, a culture of quality leads to a culture of empowerment and trust. A culture of quality means your design team is empowered to build in accessibility, even if it changes the stakeholder's initial vision. It means that management trusts their engineers' expertise. It means that people and teams across verticals are empowered to say "Let's do this right", and those decisions are trusted by everyone else.

A culture of quality also leads to a culture of pride. Working within a culture of quality enables you to take pride in your work, because you're confident that it was the best work you knew how to do at the time. Having a company culture where people are empowered and trusted to do their best work, also leads to a culture of morale.

4.2 Morale as a Quality Indicator

Morale is a vital aspect of any company! Good morale within a company gives teams a sense of purpose, working together toward common goals. Morale speaks to the level of psychological safety, which is also really important. Psychological safety means that people feel safe trying new things because mistakes aren't punished. It means people feel comfortable saying "I don't know", because they know they'll be offered opportunities to learn. And morale generally means that people are happy and confident coming to work.

Morale is important to quality because morale is quality indicator. Improved morale is a result of creating this culture; but once it exists, morale becomes a strong part of what allows that culture of quality to thrive. When people and teams have high morale, they feel good about the work they're doing, and they're more engaged in the work. They're willing to take chances and innovate, and they have better relationships with their teammates. In other words, the benefits of morale reinforce the benefits we get from creating a culture of quality in the first place: people working together with a shared goal of improving quality; teams that enjoy coming to work and solving problems together; and a company that is able to have confidence in the work it produces for stakeholders and clients.

5. Creating Your Culture of Quality

How can you use my experiences here to begin creating a culture of quality within your own organization? First and foremost, I hope you take away the idea that you are empowered to begin establishing this culture!

Successfully creating a culture of quality requires effective change management, clear communication, and purposeful collaboration with your colleagues and leadership. Focus on small, incremental changes with feedback loops - make sure the people adjusting to change have their voices heard, and their needs taken into account. Create open lines of communication to build trust and transparency. It helps to give people advance notice before a change goes into effect, so they have time to ask questions and adjust to the new process or workflow. And finally, make sure you're working *with* the people you work with! Involving other people allows them to have a stake in the decisions and changes being made, which increases the likelihood of successfully implementing this culture of quality!

And of course, reap the benefits! A culture of quality enhances your ability to build and launch high-quality products that meet your stakeholders' needs - and that's a culture that benefits everyone.