

Ramona Schindelheim, WorkingNation editor-in-chief:

You are listening to Work in Progress. I'm Ramona Schindelheim, editor-in-chief of WorkingNation. Work in Progress explores the rapidly changing workplace through conversations with innovators, educators and decision makers, people with solutions to today's workforce challenges.

Today I'm joined by Jayshree Seth, chief science advocate and corporate scientist for 3M, and we're going to be talking about the skills gap in STEM and some of what 3M is doing to encourage underrepresented groups to enter the field. Jayshree, thank you very much for joining me on the podcast.

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Thank you for having me, Ramona.

Ramona Schindelheim, WorkingNation editor-in-chief:

I would love to start kind of about the current skills gap in STEM. We're seeing a lot of reporting, including our own, that says there are many unfilled jobs in the area. What do you think is causing this?

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Yes. In fact, I was just thinking about it. A few days ago, I saw the headline on why is it so hard to get a plumber to even call you back? That was also related to the gap that we're seeing. And I think it is a combination of factors. Because we have so many people retiring and youth are gravitating towards other professions and we don't have the numbers needed to fill the positions that we have and the opportunity we have as more and more high tech areas are booming. And so we've got a perfect storm in terms of the gap that we see in skilled trades.

Ramona Schindelheim, WorkingNation editor-in-chief:

A lot of that too is how fast I think technology is changing. A lot of people can't keep up with that, let alone programs.

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Absolutely. I mean, just look at the news any day and leaps and bounds technology and generative AI. In the current public, we can just see how it is meteoric rise of the adoption and nobody can seem to keep up.

Ramona Schindelheim, WorkingNation editor-in-chief:

And when it comes to STEM, what kind of fields are you seeing that there is a need in that are going unfilled?

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

It's virtually all is what I'm reading. I mean, I just read the other day, oil and gas, manufacturing, construction, telecommunication, renewable energy. That's the one that is really concerning. There's so many roles as we transition in our energy paradigm, but there are not enough people to fill these jobs. And then of course there's the whole technology piece that you mentioned. So it's across the board. The ones that are beginning to impact day-to-day life are the skilled trades because that's where people see

the impact that when they can't get that electrician, although they have committed to putting a solar panel. That's the kind of impact it can have immediately.

Ramona Schindelheim, WorkingNation editor-in-chief:

It feels like people don't realize, or maybe the story's not being told out there, that having STEM skills can apply to so many of these jobs. Just like you said, plumber. Plumber uses technology, science, math all the time, just like many other skill trades. And I just think there's sometimes a lack of understanding that those are important skills to have.

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

You are so correct. That's on point. Skilled jobs are STEM jobs. It is exactly the same skills that you need. And this is where the advances are so rapid that the skills needed also evolved. But whether it's chip making or ship building or solar panels or wind blades or EVs to 5G, the role of STEM skills is there in all of them, whether it is with associate degrees in skilled trades or whether it is advanced degrees and all the way to graduate degrees. They're highly skilled in science and engineering and they're needed.

Ramona Schindelheim, WorkingNation editor-in-chief:

Historically, there's been underrepresentation of women in some of these skilled trades or people of color. What are you seeing in that area and are you seeing any type of advancement?

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Yeah. It was interesting. In that same article I read that women make up nearly half of the US workforce, but only 2% of women are plumbers and pipe fitters and steam fitters. This is definitely an issue. There is a lot to be said about the stigmas associated with these roles. In fact, 3M does this study called the State of Science index, and in 2023 we found that people around the world are recognizing that there's a global shortage. But nine out of 10 also believe that it would encourage more individuals to pursue a trade career if perceptions of the field are improved.

Ramona Schindelheim, WorkingNation editor-in-chief:

And that's the kind of ironic part in this is that these fields are highly paying jobs, and while... You mentioned the clean energy, and these are not dirty jobs, you know? And that's not a bad thing, we need people doing all kinds of jobs, but these are jobs that require those STEM skills. They are high paying and the perception of them is so off.

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Absolutely. And our study that we commissioned is clearly showing that there needs to be more work to understand how we can sift through all the misconceptions, lift these stigmas, and really shift the narrative because the world needs more skilled workers and that is going to be so critical in the future, and especially with the slowing of population growth, with the retirement of baby boomers, it's just going to intensify this shortage. And the way we see is that many impressionable young minds look at societal opinion before opting for these careers. And so, if the overarching image fails to sort of capture the value of this segment in the workforce, then it's going to deter students and it's going to deter workers from these occupations at every stage of the career. And that's why parents and teachers and counselors and advisors also need to be very vigilant and look for apprenticeship programs and do it

because they say that these jobs are STEM jobs and skill jobs, and there are pathways to this. Because these negative perceptions are impacting the pipeline of the next generation of workers.

Ramona Schindelheim, WorkingNation editor-in-chief:

At 3M, what kind of jobs are you trying to fill in this STEM field?

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Well, we've always got the issue in the manufacturing plants, where we need a lot of skilled workers, and it's just been difficult. It's not unlike every other company that is facing that. In the other fields, we have work going on in every area so we always try to fill in all of that because we're in so many different businesses, whether it be transportation, electronics, industrial, healthcare. All those require STEM jobs, and it's at the heart of what we do, right? We're taking science, applying it to life to solve problems, and you need the kind of expertise to solve some of these problems, especially as they relate to where the world is going. With all the trends that are shaping our world, it's a must have, the STEM skills.

Ramona Schindelheim, WorkingNation editor-in-chief:

Are you doing any special programs at 3M to try to address this need for new workers?

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Yeah. Our whole entire STEM advocacy platform is about creating a solid pipeline of STEM talent. And we recognize that just hoping that more people join isn't going to work, you have to go deeper and actually invest in the pipeline. So we are active across, what I like to call the entire ecosystem, which is from early encouragement, exposure, empowerment, education, economics, equity. Across the spectrum is where we try to do these things. And it's important because we also want to make sure that we are getting enough diversity. Without that diversity, we are not going to be able to solve the problems that we face, not just our company or our country. I mean, it's almost like as humanity. I mean, with 9 billion people on the planet, we've already got to crack the code to a sustainable future. So we have many, many programs along this pipeline because we are committed to the sustainable development goals and we want to have a diverse science community.

And so one of the things that we did is we created this goal, a global education focused goal to create 5 million unique STEM and skill trade learning experiences specifically for underrepresented individuals by the end of 2025. So that is a bold goal that we have put forward. We also realize the stigma associated with the skill trades because our results clearly show that people around the world, as I mentioned in the state of science index results. So we actually created a docuseries and it features four skilled trade workers in different fields, and we want to highlight that their careers are exciting, they're meaningful, and they have great opportunity within the trades. Something very specific that we did to inspire goals and underrepresented minorities in STEM is also our docuseries called not the science type. And in this one we have four female scientists with different careers and show how they overcome various challenges to have a successful career in STEM.

So we're trying to get to the bottom of it from the role modeling and also the stigmas and the narratives and the stereotypes that exist and trying to shatter those. Then we're also trying to, and we've always been very active in the education in the communities that we operate in. So we have early education, we have middle school, high school programs, we have apprenticeship programs. Yesterday, I was at an underrepresented minority graduate school program to inspire them to look at corporate roles, what they entail, talk about their research. And so we are trying to work across the spectrum because we

realize that any environment that lacks diversity is going to be like a closed community, and the problems are going to be identified with a very narrow point of view, and we know that that makes science itself vulnerable and we don't want that.

Ramona Schindelheim, WorkingNation editor-in-chief:

Can you tell me a little bit about the apprenticeship program? I'm always interested in hearing how companies are bringing workers into the workforce at a young age or young adult age and helping them start the path on their career.

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Yeah, a particular one that comes to mind is through our safety and industrial business. They are committed to advancing equity. So they engage underrepresented students and young adults who are interested in vocational training for jobs, they identify community partnerships that support these occupations, and then connect these individuals to hands-on training and certification. In fact, one of the gentlemen in our docuseries Skilled is a welder, and he attributes getting certified to really restoring his hope and allowing him a second chance of at life and work towards becoming a master welder. So that is an example. We also have many programs where we have even high school students coming in and spending time at 3M in the summer, just working alongside some senior people so that they get a feel for what it is like to work in an environment like that. We have tech programs to broaden students' understanding and really look at interacting with a lot of role models who are enjoying their tech careers. So that's one of our science training encouragement program, we call it Step. Many of them or most of them are listed on 3m.com.

Ramona Schindelheim, WorkingNation editor-in-chief:

A lot of this is about changing hearts and minds, changing people's ideas about what STEM is about and a STEM career is about, and actually educating them on the opportunities that they may not know that exist.

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Absolutely. Even for myself, I have to say I grew up in an environment, I was surrounded by STEM professionals, but I still did not connect the fact that I could make a difference in the world by having a STEM role, because that's, like you said, just not talked about. Most of the time it is so focused on content and completely stripped of the context, and it was the context really that was inspiring to me, and I didn't figure that out till a long time later. So if we lead with that context and let people know, not only can you have a successful career, you will also be doing good things. You'll be helping the community, you'll be solving problems, that would inspire a lot more people, I believe.

Ramona Schindelheim, WorkingNation editor-in-chief:

And what was that turning point for you? What was it that changed your mind and said, I want to be in this field, I want to be a scientist?

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Believe it or not, it was in graduate school, because till then, it was all about doing what my parents kind of expected. My dad was an engineer, he had a PhD. It was like, okay, you're going to be an engineer, both my brother and I. And I never quite appreciated why I was doing it because I always thought, I want

to help people, I want to improve lives, I want to make a difference. And I wasn't sure how I would do that. It was only in my PhD program that I first started working on a project where I could build a human context easily that I felt myself being inspired. So I was working on coatings, diamond-like coatings that make tools more durable, and I thought, okay, here I can clearly see what I am doing is going to help something or someone. And that really lit a fire under me.

And then of course, I ended up at 3M where we have this culture of empowerment and an emphasis on collaboration and really a communal context of improving lives that I really thought, okay, this I can do. I get it, I understand, I'm going to be developing diaper tapes and it's going to go on babies, they're going to keep the diapers on wiggly babies so I want to make sure these tapes have all the properties that are needed. I mean, it was so real.

Ramona Schindelheim, WorkingNation editor-in-chief:

I love that, wiggly babies. You helped all the moms out there who have those wiggly babies. Your passion is very clear. So how can we make sure we share that passion with other kids, other young adults who are going, "Now, what do I do?"

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Yeah, you're absolutely right. You need to make sure people see the passion in other people having a satisfying career in these fields. And that is exactly why we spotlighted the four people we did in *Skilled* and the four people we did in *Not the Science Type*, because they talked about the paths they had in some very challenging circumstances, but now they are in careers that they really enjoy. I think that is the critical piece of that. And that's why when I'm talking to students, I also talk about that. I say, "You cannot stop because you think you have the idea of who persistent, who excels in STEM." We want to show that your potential is exponential. You can blaze trails, you can shape your careers, you can bring your interests.

And I talk about bringing my interest in humanities and social sciences into STEM, and that's the whole idea of breaking these preconceived notions and dismantling the stereotypes and archetypes that people have of these certain fields. It is so important, and the reason why it's important is that science needs that diversity. Science needs you to be you. Our world requires innovation, innovation needs science, science demands diversity, and diversity warrants equity.

Ramona Schindelheim, WorkingNation editor-in-chief:

Very well said, Jayshree. Thank you so much for spending time with me.

Jayshree Seth, 3M Chief Science Advocate and Corporate Scientist:

Thank you, Ramona. Let's spread the message.

Ramona Schindelheim, WorkingNation editor-in-chief:

I've been speaking with Jayshree Seth, chief science advocate and corporate scientist for 3M. I'm Ramona Schindelheim, editor-in-chief of WorkingNation. Thank you for listening.