

Week of Women in STEM:

Keynote Speech by Gerri Martin-Flickinger

MARY REZAC: Today's distinguished keynote address is sponsored by the Voiland College of Engineering and Architecture Student Club Coordinating Council. To introduce our keynote speaker today is Rachel Forbes. Rachel is chair of the Coordinating Council and a Voiland College ambassador. Rachel has a double major in computer science and in digital technology and culture, and she anticipates graduating this May.

She is not only the chair of the Coordinating Council but also the chair of the Association of Computing Machinery's Chapter here at WSU and a co-chair and co-founder of the ACM Women's Chapter. Apart from her academic studies and her extracurricular activity, Rachel holds positions in the School of Electrical Engineering and Computer Science and the in the Carson College of Business as a part-time web developer.

Upon graduation, Rachel is planning to move to San Francisco and join Salesforce, where she will be a software engineer. So with that, I'm going to introduce Rachel. And she will introduce our speaker. Rachel.

[APPLAUSE]

RACHEL FORBES: So welcome again to the Week of Women in STEM keynote event. It's so great to see all of you here. Thank you so much for taking the time today to come and join us. Events such as this are a really wonderful way to celebrate the amazing achievements of women in STEM, as well as to support and inspire them. By celebrating, inspiring, and supporting the women [AUDIO OUT] build a future. Are we getting this? Oh. We can build a future where the people who imagine and build and innovate in STEM are the people who represent the whole population that they innovate for, which is really cool.

The many events that are planned for this week will create a lot of new opportunities for women in STEM. So I highly encourage all of you to go if you can. Before I introduce our keynote speaker, we just have a little bit housekeeping to do.

The keynote speech will last for about 30 to 40 minutes. And then we'll have Q&A session afterwards. We'll be passing out microphone so that the speaker can hear all of your amazing questions. So please be sure to wait for a microphone. And please ask questions because Gerri's very excited to hear everything that you have to say.

So now to introduce our keynote speaker. Gerri Martin-Flickinger is the Starbucks executive vice president and chief technology officer. She is responsible for technology strategies on teams that enable the company and connect with customers worldwide. Gerri holds a Bachelor of Science in Computer Science from Washington State University. Go, Cougs.

She has been a member of the Wall Street Journal's CIO network and the Sierra Ventures CIO advisory board. And Gerri will continue to talk about more of her journey through technology during her keynote address. So we'll get to hear all about that. Now please join me in welcoming the Week of Women in STEM keynote speaker, Gerri Martin-Flickinger.

[APPLAUSE]

GERRI MARTIN-FLICKINGER: Thank you. Happy STEM Week. I see a lot of smiley faces out there. Thanks for coming and joining us this afternoon. I know you've been very busy with classes. So hopefully for the next 30 to 40 minutes we'll have a chance to kind of step out of your classwork and talk a little bit about technology, what it's like out there in the real world, and a little bit about my journey from this amazing university out into the world of technology.

But I have to start off, and I love starting at the beginning with a little bit about my journey. So I was here. I graduated in 1985. Was anybody in this room born by then? No. OK. So how many of you have seen-- there's a new movie. What's it called? You just told me, the movie with video games.

AUDIENCE: Ready Player One.

GERRI MARTIN-FLICKINGER: Ready Player One. Did anybody see that? Was there jousting in that? Nobody remembers jousting, the video game Joust? Nobody remembers that either. See, I have all these stories. And you don't know any of this stuff.

So, OK, here we go. We got the slide. So you'll notice that picture in the left-hand corner. That's right here at WSU. That was on graduation day 1985. That's my lovely mom and dad. And that is right at the bottom of the hill.

You recognize the sign. I think they put new letters on it. But that is the sign. This is my high school picture. Is anybody in this room from Skagit Valley? Nobody. One person! OK, where in Skagit Valley? Mt. Vernon, OK. I went to Anacortes High School. And that's my Anacortes High School senior picture.

I grew up in the San Juan Islands. I grew up on Lopez. And when I was 15, there were only 12 kids in my class. And I decided that maybe I should go to the big city school. So I went to Anacortes. And there were 175 kids in my class, which felt like a big step up. So I definitely came from small-town Washington. And then I came to WSU.

But before that, I actually met my husband. We were high school sweethearts. We were both in band together. I played the French horn. He played the trumpet. He was across the room from me. And our parents thought we were a little too serious. So they sat us down and they said, we really think you should go to different colleges. And so we said, OK.

So I went to WSU, and he went to U of I. And so that worked out pretty well. And then we went to school for four years. He was a computer-- or a chemical engineer. And I was a computer scientist. And we graduated, and we moved to California. And I'll come back to that in a bit.

Two years ago, we moved back to Washington state with my beautiful daughters, who are twins, and they're 14 years old. 14 is a frightening age, for those of you who remember it. You probably put your parents through a lot of agony at 14, and mine are doing the very same.

That's Dad up there. And this is Dad down here. Seattle, some of you might be from Seattle. Seafair, Green Lake, milk carton boat race, any of you ever seen that? Nobody. One person, OK.

Well, it's kind of fun because everybody gets out there during Seafair and they build boats with milk cartons, literally milk cartons. And my husband-- this was a memory that he had as a child that was really important to him. He built milk carton boats with his dad. And he went into the milk carton boat race three years as a kid.

Of course, back then you had to actually drink all the milk in the milk cartons. So you'd save up milk cartons all year long. And his mother loved him for this because could you imagine stinky old milk cartons in the backyard all year? And then they would build this boat. They lived in Anacortes, so they had to put it on a trailer and take it all the way down to Green Lake.

They'd put it in the water, and the first year, of course, it sank right away, right? Second year he did a little bit better. He came in dead last. But he got all the way to the finish line. And the third year, he was 13-- he was 13, third year, he builds this great boat with his dad.

They get it down there. It doesn't sink. He comes in second. And he loses to twins who are 13 years old, girls, no less, girl twins from a boat-building family. Now, this ate at my husband for his entire adult life. I heard about this story forever. And so you know we had twin girls. And so when they became 13, we decided we were going to the milk carton boat race. And so this picture right here is last summer.

We went to the milk carton boat race, and we got on that boat, and we all rode and and rode, and we won first place. And you can see that smile on my husband's face. He felt so vindicated. He's got twin 13-year-olds. So apparently, if any of you ever want to win at the milk carton boat race, have twin girls. And then go in at 13, and you'll win for sure. So that's that. And then let's just keep going.

You got the idea. That's Disneyland up there. Everyone's got one of those pictures. And it's just a wonderful thing having a family, having daughters. And I tell the story. My daughters were going to come with me today because I thought this would be really fun for them to see the campus where I went to school, hop over to Moscow and check out U of I.

But you know what? They wanted to stay home because they didn't want to miss math. And I thought, what can I say except, well, of course you should stay home. So I'm going to bring them in the summer and check it out.

So let me tell you a little bit about my journey from WSU into tech. So I, small-town Washington, came here, computer science degree. So you know what I did right out of college. I left Washington state. As fast as I could, I went to California. And I ended up joining oil. And this is kind of funny because you think computer science, oil company, what was she thinking?

Well, I tell this story two different ways. When I'm with my husband's family-- he comes from a long line of chemical engineers who had all been in oil. His father had been in oil. His older brother had been in oil. And my husband did not want to work in oil.

So one story I tell his family is I kept the peace in the family by going to work for big oil because it made my father-in-law very happy. But the truth is I was actually very interested in artificial intelligence. And when I was here, artificial intelligence was really a discipline back then. And it was largely a study around neural networks and what one could do with neural networks to predict memory retention or to predict behavioral correlation, which isn't too very different from today. But that was like 30-some years ago.

So I went to Chevron Oil to do some AI research work. And so it fit me perfectly and was very much a computer science discipline. But after many years of doing that, I really wanted to get back into a mainstream computer science company, a company that made their living through computer software or hardware.

So I ended up at McAfee. And this would have been before the year 2000, so in the late 1990s. So this would have been during the time of the dotcom boom. This would have been pre-Y2K. And McAfee was a little tiny company just starting out.

People didn't even know what computer viruses were. The whole field of cyber security wasn't even called cyber security. It was just called viruses. Like, we didn't even have a name for it.

So I was involved in building McAfee, at that time to about a \$1.3 billion business. Lots of fun. Learned a lot about the business. Did a lot of international work in that role.

Then I took some time out to have kids because we hadn't done that, and I was getting older. And I did that for a few years and then ended up back in the work world as a CIO at Verisign. And then a few years later joined Adobe for nine years as their CIO and helped Adobe move their product line to what you know today as Adobe Cloud Services. And then a couple of years ago, I woke up one day and said, oh, my gosh, my kids are getting older.

I'm a long way away from family, who was all still back in Washington state. And Kevin Johnson and Howard Schultz called and said, hey, Gerri, we're really thinking about the next step for our company in Starbucks. And we're really understanding that technology is playing a bigger and

bigger role in the fabric of human engagement and human connection. And that means we have to start thinking about technology quite differently than how we thought about before as just the thing that keeps track of the financial bookkeeping or the thing that keeps the POS running, the Point Of Sale.

We have to start thinking about it as an engagement vehicle with our customers and our partners and our baristas. And we don't know how to do that. And so I said, well, I would be really excited to come and take that journey with you. So that's why I ended up back in Washington state with Starbucks. Because part of how I've always been wired is thinking all the way back from when I was here, thinking about AI and neural cognition is how does the human experience get impacted by technology? And an amazing user experience can completely change how you feel about something.

It can change how you're processing in the moment. It can take that delightful experience or it can make it a terrible experience. Have any of you ever used a terrible computer program? Everybody has, I'm sure, right? Where it's just like, oh, my gosh, like, this is too painful. I'm entering the same thing 50 times. I have to keep retyping it. Every time I restart, I have to start over.

OK, compare that to something on your iPhone, like some kind of fun game. Does anybody teach you how to play that game? No, you just play around with it, and then you know how to do it. What if work felt more like that?

How would that make you feel every day? As opposed to, oh, my gosh, I have to sit down and reenter this data in a spreadsheet again. And so that's what I mean by computer science changing how you feel. And I think that can happen for people who are in your company, or it can happen for your customers, or it could happen for society at large.

So with that, I think I'd like to show a quick video about Starbucks.

[VIDEO PLAYBACK]

[MUSIC PLAYING]

[GIGGLING]

- You know that you're always welcome here.
- We'll do what we always do, we'll go forward.
- We wanted to just shake hands and say thank you.

[END PLAYBACK]

GERRI MARTIN-FLICKINGER: One of the things that I think is so powerful about Starbucks and why it's a brand that I'm really enjoying doing technology for and with is because so much of what Starbucks is about is about giving back, giving back to our communities, making sure that all of our partners and employees have the chance to really be involved in something much, much bigger than what you might think of as a coffee brand. In fact, our mission statement as a company is really about nurturing the human spirit, which has to do with that feeling you get when you walk into a Starbucks or when you sit there all afternoon and work on homework or work on a paper or meet friends.

It's about that sense of community. And it's really core to who we are. And so as I've been, over the last couple of years, helping us rethink some of our technology strategies, it's always through this lens. It's always through the lens of how can we think about this bringing connection and community.

So let me kind of dive into that a little bit. Because somebody said to me the other day, they said, well, Starbucks, like how hard is tech at Starbucks? Do any of you kind of wonder that? Do you think it's very hard like on the spectrum of things? Maybe, maybe not, OK, that's honest, good. Maybe, maybe not.

So let me just give you some stats. And let's talk about the hard tech problems at Starbucks and what those are. So let's start with-- let's just say how many stores do you think Starbucks has worldwide? Let's just make this interactive, nice small audience. How many stores? 10,000. Any other other guesses? 50,000, wow! OK, well, somewhere in between those two, 28,000 worldwide, 28,039 worldwide.

OK, great, 330,000 employees, actually more than that. So just get your head around that for a second. How many students are on this campus? 30,000, 30-ish thousand. So 330,000 partners, who, by the way, all have to learn how to make coffee the same way.

When you order a latte, it better taste the same, right? So I mean, just think about the training involved. And by the way, they don't all speak English, right? They don't all sit in North America. In fact, they sit in 76 different countries.

Over 100 million times somebody's buying coffee every week. So that means 100 million micro-transactions. The average ticket, ticket meaning how much money a single transaction is, is around \$5. So 100 million times a week, it's a \$5 transaction.

Now, if you think about it, you're like, well, so why is that a big deal? It's because if you fail to make a \$5 transaction, it really matters. But if you walk into the grocery store and you buy a cart of, like, \$200 in groceries, which is probably what you often buy these days, unfortunately, with groceries, \$200, right, you don't mind if that POS is a little slow because you've been standing there already for, I don't know, two or three minutes at checkout.

If you're at a Starbucks and POS is slow, what happens? The long gets-- yeah, the line gets long. And so then what happens? People walk out the door. Or they walk right by the door, right? So you'd be surprised how much that \$5 a time-- we measure bulk rate in seconds. If-- POS, oh, Point Of Sale, thank you, Christina, Point of Sale, the cash register thing, the thing where they take your money.

If it is one second slower today than it was yesterday, that's, like, a lot of money. Because for every five seconds, there's a bulk rate. Meaning somebody walks away somewhere in a store.

So let's think about that. Those \$5 at a time, it's \$22 billion of revenue. If you just do the math, divide 22 billion by \$5, that is a staggering number of transactions. And all that has to work perfectly every single time. So that's a pretty tough problem.

So I'm going to make it a little bit tougher. It would be hard enough if every single store in the 76 countries Starbucks owned, and if every single store the point of sale system, the cash register thing, if we actually owned that and I had a network connection plugging into it. But I don't because about half the stores, roughly speaking, around the globe are actually franchised or licensed. Meaning somebody else is paying the baristas. Somebody else owns the store. Somebody else owns the inventory in the store.

Yes, they have to have the green apron. Yes, they have to make the coffee the same way. Yes, they have to use the right coffee beans. Yes, they have to sell the same food. But none of the tech has to be the same today.

So suddenly, all those transactions, we don't even have line of sight into about half of those. And so part of the hard tech problem we're working to solve is how do you take a completely unique tech stack, in fact, 437 different unique tech stacks, and integrate them into a global business? So that's where the hard tech comes in. And that's a lot of really interesting re-architecting.

That's a lot of really interesting privacy and cyber protection. That's a lot of really interesting analytics. That's a lot of re-contracting and re-engagement with licencees and franchise partners. So it's as much a big business problem as it is a big tech problem. And frankly, for all of you who are in a computer science field, those are the best problems. When you can have a big business problem and a big tech problem to solve at the same time, that's where, at least for me, it's always been really rewarding because you're going to make a big difference.

One of the things I'm a big believer in is mission statements. And you saw a moment ago the mission statements for Starbucks as a whole. We also have a mission statement for Starbucks technology, which is what we call the technology organization that supports the basis worldwide and across all ownership models.

We really are focused on making sure that we have technology that not only ensures our business operates well today, but really brings another level of digital experience to our

customers. I'm guessing-- how many of you have cell phones? Every single one of you, of course. Those of you who didn't raise your hand, you have a cell phone. Of course, you do.

How many of you use the Starbucks app? Great. So that's an example of something that the Starbucks technology team builds and that we produce in multiple languages. There's actually 52 different versions of that app worldwide, to deal with differed geographies, different languages, different currencies, different compliance regulations.

That's the digital experience we're trying to bring to our customers. And then our partners, which is what we call our employees, those are systems where we're trying to do things like make their jobs easier. Remember that example I shared about playing an iPhone game versus being in a spreadsheet? We're trying to make their jobs feel like playing a video game as opposed to being in a spreadsheet, not quite like playing a video game, but easy to use like a video game-- engaging, exciting, interesting. Not wow, I have to go learn this thing.

In fact, one of the things I have told the team is that you have to build a training program for the things we're releasing, that's the wrong direction. Stop writing manuals. Stop holding training classes. We have to be building solutions that people can pick up and learn on their own by exploring, by using common user experience paradigms, by making them as easy as an iPhone. And you might think that's obvious to all of you because you've grown up with this technology.

But in the world of business, that's not obvious. Most people still want to think about, don't I have to go to class? You're rolling out a new system. I have to go learn that thing. I would be very happy if we never had one more class on any technology system and we were able to just rely on people exploring, inventing, and creating inside tools.

How many of you have been to the roastery in Seattle, Capitol Hill? Starbucks people, you cannot raise your hand. OK, very cool place. So if any of you are in Seattle and have a chance to wander around the city, on Capitol Hill there is the Starbucks roastery. And this is a picture of it inside.

It's got a beautiful coffee roasting environment. It has a really high-end coffee bar, amazing food that's unlike anything you'll have at any other Starbucks, really worth checking out. One of the things I would ask all of you, especially those of you in a technology field, that if you go in there, start trying to identify all the places where technology is at play. And it might surprise you some of the places.

If you walk over to the roasting machine, you're going to see some devices. Everything is controlled with control systems. You'll see displays that will show how the bean is roasting, how much longer it has, what the roasting curve looks like. You'll see the coffee master, who's doing the roasting, actually interfacing with that software to make sure that the roast is just right. And that's pretty cool.

You'll notice that there are some-- well, there's a lot of inventory systems which you won't see at all. But everything that's sourced in the store is managed through automated inventory systems. Every night, supply chain distribution comes into the store and delivers just the right amount of food based on the trend in store, which brings in big data.

There's a lot of big data analytics involved in predicting and forecasting inventory levels, which also goes all the way to the kitchens, who actually make the food. Point of sale and payment systems, pretty interesting domain for those of you who are maybe in a computer science or MIS field and going, wow, where is there a niche for me? I will tell you that the area of point of sale and payments is probably one of the most under-served technology areas that's ripe for innovation.

I would expect to see some pretty exciting startups making some noise over the coming years. And that's a really interesting area where you have to understand a business well enough to understand how point of sale fits in, everything from how pricing occurs to how SKU management occurs and how ingredient distribution occurs. It's a really great area.

Lots of other things going on, lots of internet of things. Do we have any electrical engineers in here? Nope. IoT devices, Internet of Things devices, are really everywhere. And when you walk into a coffee shop, much like any other business these days, everything from refrigeration units to coffee makers to other types of distribution vehicles in the store will be monitored and measured and all of that data reported back to some centralized system that will help do everything from maintenance dispatch to efficiency measures, in some cases, ordering of supplies or parts, all without human intervention.

It's another great example of where we're trying to change that human experience for our employees by not having them have to do routine things, like go measure the temperature in the refrigerator three times a day, which is literally on a checklist in our stores. People have to go in. They take a thermometer. They measure the temperature. It's a food safety requirement.

But wouldn't it be so much better if I could free up that barista to talk to a customer three times a day instead? And so putting automation in place to take away some of that routine work. OK, lots of fun things that we're being able to do at Starbucks technology and one of the reasons why I'm there and so excited to be part of the team.

We are doing some really cool things across all of these areas. And let me just pick a couple. In the area of AR-VR, we actually now, when we design our stores-- remember those 28,000 stores I mentioned earlier? Every single one of them has a designer at corporate that has to approve the build-out plans.

So even if you're a licensee or a franchise, not a company-owned store, you still have to get approval from corporate that the design that you're proposing is approved. And so we've started a process where all around the world, those drawings are done in AutoCAD, which isn't very surprising. But we're now doing those in an AR toolkit.

So people literally stand in a building in Seattle. They put on the gear, and they walk through the stores all around the world. And they'll move things around, and then they'll send that design back out to the field. And you know what's really cool is that the type of thing where we do a little work, but we also partner with people like AutoCAD or Microsoft and build out some of these solutions with other tech companies.

So we're now at the point where all of our store designs are going through that process from this point forward, which is a pretty cool example. Let's see, voice, we're using voice in lots of different ways. Last year, we released a version of our mobile application that actually lets you use voice to order.

You don't have to use the app. You can just talk to your phone and order your favorite coffee. We've also announced unreleased versions for in car. So that in many of the cars that are being rolled off the line right now, you can order your Starbucks coffee without touching anything, just with your voice. And vision, there's a number of different ways we're using vision, especially internationally in the Asia countries, there's a lot of demand for table space.

People want to come into our stores and sit to have a cup of coffee. It's a very ritualistic thing to do, not to pick up a coffee to go. People want to come in and sit down. And because table space and space in general's at a premium, people want to know which store has a table free. And so we've been playing with vision in those countries, that in a mobile app in those countries, you can actually see which Starbucks near you have table space free.

So you can make a decision to go there because of table space. And that's done through vision and vision analytics. And I've already mentioned a couple of areas where we do machine learning and some AI algorithms to do everything from forecast analysis to understanding behavioral preferences of our customers. And we have a very, very rich one-to-one marketing personalization engine that we have as proprietary as well.

Does that sound fun? Yeah? Kind of cool tech. Yeah, lots of cool tech. And then I have an amazing team. I am so lucky. The only thing I can say against all of these people is I'm the only one from WSU. But beyond that, a really awesome team. Really great cross-functional team from lots of different disciplines.

About a third of this team has a rich background in retail or food service industries. So they're really used to this whole model of restaurant or food and beverage businesses. About a third of them come from purely tech, like I do, who came from Microsoft or Amazon or Facebook, companies like that who are really serious in those fields. And about another third come from just very different places or different disciplines, really nice cross-functional team. All of these folks sit in our Seattle headquarters.

Oh, now I have to say something. I have a few thoughts. Somebody said to me when I'm here I should try to share with you a few of the things from my journey from WSU to the rest of my career that might be tidbits for all of you. So I only have four.

But I'm going to look tell a little story with each of. Them and I really encourage you in Q&A, please, if you have questions or want to dive into any of these or challenge me if. These don't seem like the right four, tell me what you think. Would love to hear that.

The first one's be brave. And let me tell you what I mean about by be brave. I'm guessing that every one of us in this room, at one point or another, has wondered if we can do it, whatever it is-- if we can get through this class, if we can get through this job, if we can get an A, or if we can get a C. We all have doubts about things.

We also probably all have experienced times where you're pretty sure somebody else could do it better than you could. And I'm just going to tell you, you got to forget all that stuff. You've got to just get out there and step up and be brave.

You've got to embrace things that look hard and believe in yourself and try it. Doesn't mean you're not going to fail. You're going to fail a whole bunch. I'll talk about that in a minute. But you have got to be brave.

Whatever it is that you believe, be ready to stand up and say it and say it out loud and say it clearly and build your case. Never forget that. You just gotta grab hold of that. It's probably the one thing when I look at my daughters that I want them, more than anything else, to be brave. And that when they have something to say, that they say it. When they have something to try, that they try it with their whole self. And that when they feel like they have doubt, give yourself a minute, have a good cry, whatever you've got to do, but be done with that and then move on and be brave.

Second thing, you've got to love what you do. And I can't tell you how many times in my career I've had people in work come into my office and sit down and say, I just can't do it anymore. And I'm like, well, tell me about that. They're like, you know, I don't like doing this. I don't like what I'm doing. And I got to tell you, when you're in that moment, you really got soul search and decide if is it just a moment?

Is it one of those moments where things are going to change and you've got to just get through it? Because there is going to be those moments in your career, like there are in your academic life. Or are you really doing the wrong thing? And every now and then you might be doing the wrong thing. It might not be the thing you really love. And so I really encourage everyone to do what you love, because life-- I know you've heard parents say this, life is too short.

But you really do have to do what you love. If you don't at some point wake up in the morning going, I am so excited to go to work today, if you don't fall asleep at night going, I am like having fun thinking about this problem I'm solving tomorrow, if you don't find yourself doing that at least, I don't, five out of eight days, something's wrong. So you're going to have to fix the environment you're in, or you got to do something different. But love what you do.

If you don't love it, figure that out because there's no way to make up for that later. And it will show. And it will affect everything around you, which kind of brings me to the third thing, building your community.

I'm not talking about social media here. I'm actually talking about the people you put around you in your life. The people you put around you in your life are part of that do-what-you-love thing. And I'm going to use my lovely, wonderful, amazing husband as an example.

My husband was the person in my life who said, Gerri, have you thought about going to college? You're kind of smart. I'm actually serious. Because my husband, who was at that time my high school sweetheart, says that to me.

Your community or the people who are around you who encourage you, who love you. My parents also loved me. But they just were at a different place in their life and didn't see that as clearly. So my husband's been a part of my community through all of this. He's encouraged me through job changes. He's challenged me when I make poor choices. He's part of that community for me.

I also have friends. I have friends, men and women friends, through my career who are great sounding boards. And when I get stuck on something, I call them up. You know, maybe I don't talk to them once every five years, but I can call them up and say, oh, my gosh, I'm dealing with this thing. What do you think? And then I have people in my community who actually are on my team, who all sit down with a cup of coffee and say, you know, what are you thinking about this? Here's what I'm struggling with. Or who literally will just walk into my office and tell me I did a great job on something, because I need to be fed too.

You've got to pay attention to who's around you in your community. Because if you're doing what you love, that is not in endless well of goodness. It needs to be fed as well. So make sure you're putting people around you that are going to actually support you in that.

I'm going to tell you a story that is a little sensitive. But I think it's a good one to share with this group. I was in a session with some young women on a STEM Week probably about seven or eight years ago. And they were all women who were either just graduated from university or were like one or two year into their career. And during the Q&A, this one woman raised her hand and said, well, my boyfriend doesn't want me to work. How do I handle that?

I mean, she really wanted me to answer that. And I said, listen, let me talk to you afterwards. Because what I really wanted to say was you got to decide. Like, you got to decide. And if it really is something you can't work through, then that's sort of a big decision. And that's what I mean by community.

That community isn't just the people you work with. It's also the people you live with. It's the people you live around. It could literally be the community live in. Try to just make sure you're

grounding your whole self because that's going to help you get through the tough times, which kind of gets to the last one.

You're going to need to take risks. And when you first start your career, they might be little risks, and that's good. Take all those little risks you need because failure early isn't going to hurt as bad as failure later. And I mean that with all sincerity.

In my role today, when I take a risk, and I still take some risks-- Christina back there, who works with me, will tell you I take risks quite frequently. But the implications if those risks go the wrong way are big, right, big for me, big for my team, big for the company. Falling is crash, right?

When you're just starting out, you can stub your toes a little bit. Do it. Take risks. Try things. Try things you didn't think you could do. Take an assignment to work that you think is a crazy idea and make something out of it or fail trying, but really try with your whole heart. And then try again. Take the next risk.

Between being brave and taking risks, it will be amazing how much you will accomplish, especially if you're doing something you love and you've got the right people around you to continue to feed you and be a sounding board back and forth. Does that make sense? Does it sound like four reasonable things?

I'm looking forward to the mic, because I want to hear what your ideas are for the best four things. And I think that's all I have. So let's see if we have a mic, a couple of mics. Dying for questions. I was over at the Honors Hall earlier. Is what you call it, the Honors Building, yeah? And got some great questions from the group here. So I'm just waiting for some more good ones from this group.

AUDIENCE: So, Gerri, with your community over all your years and all your different sectors of community, how do you keep in touch with them over time?

GERRI MARTING-FLICKINGER: I don't always, to be completely transparent. And that's something you have to pick and choose along the way. I will tell you, every year my family has a big Halloween party. And it's serious. Like everybody dresses up. And we invite people from all throughout our life. And we still have people come who I worked with in my very first job at Chevron. And that's when you know it's meaningful.

You don't see them all come, but like one or two. And I'll have people who I'll occasionally reach out, and I really mean every few years. And it's like we were just talking to each other the day before. I don't use Facebook for my personal life. And that's partly because I have a really visible role, and I just-- I choose not to use that.

I do use LinkedIn. I do have a lot of contacts on LinkedIn that stay in touch with me professionally. But I tend to pick up the phone still. And that's how I do it. For me,

personally, it's not about keeping big numbers of people connected. It's about keeping the right people connected. And there will be people who might be the right community at this phase in my life, who aren't the right community later. And that's OK, because everybody's kind of on a journey. Yeah?

AUDIENCE: Hi, Gerri.

GERRI MARTING-FLICKINGER: Hi.

AUDIENCE: I was hoping to ask something about something you mentioned at the beginning of the speech today. And that was you were talking about having a community of people involved in the company that, I believe you said, it represents-- the people and technology represent the people that the technology's being made for. I got from that you might place a bit of importance on representation, and I was hoping you could possibly speak to that--

GERRI MARTING-FLICKINGER: Let's see, what did I say that-- technology supports the business, yeah. So what I was meaning by that is that when you're in a technology field, it's so easy to get really honed in on the technology to the point that you kind of forget you're doing it for people. I don't know if you've ever been there.

But have you ever gotten like so deep in a program that you sort of lost track of why you're even doing it? And so I think it's important at some point in your career, most people I know that feel really like they've achieved what they've set out to achieve, there's a point at which your humanity has to fit into it somewhere. Meaning you're doing technology for people, right? And that might not mean that they're actually-- this may not be a program people are going to interact with.

But maybe it's a control system inside an airplane that's going to keep people safe in the sky, right? That's for people. And so I've always found it's very, very rich when you can connect the technology you're doing to the people or AKA the business that it's part of.

So I find myself most fulfilled when I'm dealing with big business problems and technology as a way to help solve them, as opposed to technology looking for a business problem to solve. Does that make sense?

AUDIENCE: [INAUDIBLE]

GERRI MARTING-FLICKINGER: That's right. That's right. So in my story example about Starbucks and all these 28,000 stores, only a portion of them we actually control all the technology. But we want our customers to feel like these other stores are exactly the same as those stores. And part of how that's happening is the mobile application doesn't work in these stores. It only works in these stores.

So the business problem I'm trying to solve is how do I get our customers to have the same experience in these stores as these stores? Now, I know how to build the technology to do that. But it has to start with framing the business problem, the business opportunity. Makes sense? So when you start with the basis problem, which is we want our customers to have the same experience in these franchised stores as you have over here in the company-owned stores, now I can start building technology solutions to solve that problem.

AUDIENCE: [INAUDIBLE]

GERRI MARTING-FLICKINGER: Exactly. Exactly. And you would be surprised how many technologies that come out of universities have a hard time connecting the technology they're building is for a business problem. Always turn that around to talk about the business problem first.

AUDIENCE: [INAUDIBLE]. All right, is that kind of saying that people who come out of university are maybe more focused on just the technology that they're creating than any problem it might address?

GERRI MARTING-FLICKINGER: Yeah. Which is probably the right thing early in your career. But at some point, broadening it to think about the business problem you're trying to solve and pivoting to that is super valuable.

AUDIENCE: The applicability.

GERRI MARTING-FLICKINGER: Yep.

AUDIENCE: OK.

GERRI MARTING-FLICKINGER: Yep.

AUDIENCE: Does anybody else--

GERRI MARTING-FLICKINGER: Thank you. I hope I described that OK to make sense. Good.

AUDIENCE: So as you've go on a new career, what's like [INAUDIBLE] the personal and business philosophies that you've stuck by and kind of been essential to your progress and to your journey through all the companies and all the experiences you've had?

GERRI MARTING-FLICKINGER: Yeah. Number one-- wow, no. Number one, always be honest. And I'm not saying that lightly. I mean, be transparent. Be genuine. Tell the truth even when it sucks, even when it's bad news.

I think where I have noticed so many people struggle in careers is when they have a hard time figuring out how to tell good news and bad news. And I think that honesty is the key. If you just

know that what you're saying is factual, it's true, it's correct, it's everything you've heard and understood, that's, to me, the cornerstone of a good ethical business, transparency and honesty. And to me, that's above and beyond everything else. If you do that right, and you really are being honest and transparent, I found everything else kind of takes care of itself.

There was another question over here.

AUDIENCE: Hey, Gerri. My name is Shawn. I want to thank you for the talk. One question that I have for people in great leadership positions, as yours, is I'm pretty sure you have 10 very important things to do today, and all of them are top priority. My question is how do you prioritize or put yourself in a position where you can do 10 very important things in a meaningful and organized manner?

GERRI MARTIN-FLICKINGER: Yes, so I'm going to share a couple of things. First of all, everybody will always have more things on their list to do than they'll ever be able to accomplish. That is true in every company I've been in and every level position I've been in.

When I was starting off my career, I thought, oh, surely people at this level are doing more work than anybody higher up. I was sure of it. Then I'd get a little higher up in the organization. Oh, I'm sure at this level we're doing more work than anybody else and so on and so forth.

To this very day, I have this huge list of things to do. I'm sure I'm doing more than the people next door to me. But the reality is I'm not going to get all 10 things done. The trick is knowing which ones matter and when and focusing the adequate amount of attention on those and delegating appropriately.

First of all, I'm not probably the right person to do all 10 of those things. There might be three of them I really am the right person. And the other seven, other people can take on or should be taking on.

But even if they're not, even if all 10 are only things I can uniquely do, I think it's super important not to become so task-centric when you're a senior executive that you lose the ability to think outside the box. I think it's a failure to think about, hey, if I just stay up later tonight and do all that stuff on my to-do list, I'll be more effective tomorrow. In fact, I think if I stay up late tonight and do all 10 things, I'll probably be less effective tomorrow.

I think it's important at a senior executive level to always take some time out every week not to work on those 10 things and to really try to clear your mind and try to think about not thinking, because I think that's when you get the break-through thoughts. You guys have heard this twice now. But I really believe that. So I would say that prioritization is as much about choosing not to do everything on your list and making sure you've left yourself space in your brain to really help break through thought. Yeah?

AUDIENCE: Hi. We have a question from online. And Holly asks, when there's a controversy at your company, how do you handle such a controversy as you are in such a visible role in the company?

GERRI MARTIN-FLICKINGER: OK, that's a good question. It sort of depends who's in the room and the controversy. Obviously, if there's a controversy and it's a very public setting, you need to handle that very carefully. Because anything you say in a public setting could easily be reported, restated, tweeted, whatever. So part of it is about audience.

But let's imagine there's a conflict inside the company in a closed-door closed-meeting situation. In that case, conflict is normal. Conflict means you're having a healthy debate. It isn't a bad thing. Conflict isn't something you should run away from and avoid.

In fact, any company that doesn't have conflict, probably isn't challenging the norm enough. They aren't stretching in new and uncomfortable ways. Because have you ever noticed when you're learning something really tough in a class, I mean, really tough, you're really, really frustrated right before you have a breakthrough? Has anybody ever felt that? Yeah?

I go through that every week. Like, there's something in my job and I'm like pulling my hair out. I'm like ready to scream about it. And then all of a sudden, it'll be like, oh, I have an idea. I know how to fix that.

Well, controversy and conflict does the same thing. Often when you have people around a table and they're all having different points of view, it's partly because you're all actually trying to solve a new problem or you're trying to look at it from different angles. So controversy or conflict, I think, is healthy. I think you have to handle it in the right audience in the right way.

Some controversy is best handled in small groups with the doors closed. Other controversies may need to be aired quite publicly for other reasons. But it doesn't stress me out. I think it's a question of finding the right audience for the right conversation at the right time and then finding closure. If it's a conflict conversation, closure is incredibly important.

I do want to tell one story, which is not exactly what the question was asking, but it's very related. And since it's STEM week, I think it's kind of fun to share some stories about being a female and some of the things that felt uniquely female to me as I was moving through my career journey. And I think, guys, you'll like this story, too, so might relate to it as well.

I was in my first CIO job. And I was sitting at the board of directors meeting in this company. And it was a long table, and we were in there all day long. And the chairman of the board and the president of the company were at the end. And they were like fighting all day, I mean, verbal abuse. It was bad.

I'm sitting there halfway down the table, my stomach is just like churning in knots. I'm like, I think they're going to come to blows. Like, I am just like-- and all I could think was thank goodness they're not talking about my domain at all. Like, I'm out of the line of fire.

But it was bad, and I was pretty stressed out. And at the end of the day, literally, they both get up out of their chairs. And I'm thinking, I hope they're not going to come to blows. And the one guy leans over and says, hey, I'm going to go hit some balls at the course. You want to come have dinner with me? And the other guy says, yeah, that'd be great. Let me get my stuff. And I'm like, what just happened there? Like, wait, wait, wait.

So I happened to be going to dinner that night with a group of CIO women in the Silicon Valley, which I never had done before. And I thought, OK, well, I'm just like-- my head was spinning from this. I could not process what I just saw because my stomach was upset just listening to the fighting all day, and I couldn't quite figure out how to categorize it. And here I am.

I sit down at this table at dinner. And these women are all talking, and a couple of them-- it was a very well-read group. They were much better read than I was. And two of the women start talking about a book they had just read. And the book was called Finite Games infinite Games.

I'm sure none of you ever read it. It's out of print. Don't even worry about it don't go looking for it. But it was a book called Finite Games Infinite Games. And they started talking about what the book talked about. And the book talked-- and I'm not saying I agree with this statement, but it was just-- it was very educational at this moment in time for me.

The book talked about how women, generally speaking, play infinite games. Meaning that they're keeping score all the time on every interaction. Like, AKA carrying baggage, I think they call it.

But anyways, basically, the book said women are like feeling this like, OK, I won this one. You won that one. But I always have a scorecard going between our interactions. And each interaction we either get credit or we deplete. But there's a score, and we remember every single time we had a conversation.

Men play in, according to this book, finite games. Like, there is a winner, and there's a loser. And at the end of it, it's done. And we start all over again. And the next time we interact, we're going to have a winner and a loser. And then when we're all done and we start all over again. And I sat there at this table going, oh, my god.

That was like-- it was a breakthrough for me. Because what I had just observed in that boardroom was this very finite game getting played down here. It didn't bother those two guys. They didn't have an upset stomach at the end. They went off and had dinner and a beer. And I was agonizing over it because to me, I never could look at those two guys the same way again after hearing what I had seen and heard them both do. And again, I don't know that that actually works for all people.

I don't even know that that's a completely accurate description. But it helped me understand that different people think about conflict differently. And that sometimes we don't even all carry around conflict the same way. Some of us might carry it more deeply. Others may close it off and move on. And when I started thinking about that, it changed how I dealt with conflict at work.

It helped me start to go, you know what? It's OK to have a conflict, and it's OK to be done with that conflict, to close that topic off and then move on and have a kind of a fresh relationship start. And so for me, that helped me a lot to get through some of that conflict at work.

AUDIENCE: So question right here. You talk about taking risks and learning from those. What's like an obstacle or a risk that you took in your career, and what did you learn from it?

GERRI MARTIN-FLICKINGER: Mm-hm. Well, I have one that's, again, a very personal story but was a very big risk for me early in my career that I learned a lot from. When I was at Chevron Oil, I started off as a pretty hardcore technologist. And I had been writing applications and tools that actually displaced people from jobs. It automated their jobs basically. And at one point in my career, I approached management and said, listen, I really want to attack this problem more holistically.

I want to have the ability to develop a plan that retrain these people, that helps them be part of the solution. I want to up level their roles. I don't want to just put in technology and take people out. I want to help redesign the entire organization structure to support a future. And they kind of looked at me and said, oh, my god, kid, you're so young. What are you thinking?

But they let me do it. They actually let me do it. And it was actually on one hand, really successful. So I took a risk and it paid off because I got promoted, and I got a bunch of accolades. And we did a bunch of stuff, and we saved a ton of money.

But the part that did not work out is we were not able to retrain everybody. And for me, I learned a very, very painful lesson that as much as I wanted to bring this entire population along and re-skill them, they didn't all have the motivation to be part of that. And it crushed me as a young adult, because I wanted to believe-- I really believed nurture over nature.

I totally bought in that any person, any single person, we could make a genius out of them, anyone. And so this idea that we could take this quite large workforce-- at that time, it was probably about 600 people. And systematically retrain them to higher level technology jobs was doable. I believe that. And 3 years, 3 and 1/2 years in of a five-year plan, I remember the day I walked into my boss's office and I sat down. And I looked across at the desk and I said, Chuck, it's not working. And he just went like this.

He says, well, I'm proud of you for coming in and telling me. And I probably cried. I can't remember exactly. But I was pretty crushed, because I was like, I really believed I could do this.

And it was a really hard lesson for me, and it really stuck with me. But it also made me much smarter going forward.

I haven't given up on retraining people. I haven't given up on helping people find a better career path when one closes off. But I am realistic more about it. And I spent a lot more time thinking about how to get people to motivate themselves rather than me being the motivational force for them, if that makes sense. So that's an example. Yeah.

AUDIENCE: Hi, Gerri, thanks for being here. So I'm about to graduate now with my PhD in Chemical Engineering. And I'm also the President of the Graduate and Professional Student Association. So one job is very technical, science-based, and one is a little more managerial, day-to-day sort of stuff. And I actually really like the managerial stuff.

But as somebody starting out in my career, I'm almost assuredly going to have to start that kind of technical, more hands-on side. So what's your advice? I mean, obviously you're now in a managerial role. What is your advice, or you know how did you find your transition? Or what kind of lessons can you pass along from your transition to that hard, kind of, technical side into that, sort of, managerial side?

GERRI MARTIN-FLICKINGER: Let me ask you a question first. So do you have two job potentials in front of you right now?

AUDIENCE: I have two area of interests that I have right now. But not like two interviews in front of me. If that's what you're--

GERRI MARTIN-FLICKINGER: Yeah, I mean two real job offers or anything.

AUDIENCE: I don't, no.

GERRI MARTIN-FLICKINGER: OK. Yeah, I think it is great to be a practitioner for some period of time in any discipline before you become a manager of people doing those roles, because I just think it gives you a different kind of tactile contact with sort of the domain you're in. I just think it's good. Having said that, it doesn't have to be a very long period of time necessarily, maybe just a few years.

I'll tell you the couple of things that I've really seen people, and I too struggled with when I went from being a hands-on technologist or, in your case, a chemical engineer, although I wasn't one, but I assume it's the same, to be in ever-increasing management roles. And the trick is you have to let go. And it is the hardest thing, and it is something you learn and you relearn, and every other year, I'm learning it again.

At every job I go into, I have to learn it all over again. It's just a matter of scale, right? So the kinds of things you have to watch out for is after you've done, say, a deep hands-on technical job for a couple of years, and now you've become a manager of people doing those jobs, you

have to stay out of it. And that doesn't mean you can't be a little bit involved. But suddenly you have to be off the critical path.

Maybe you sit in on code reviews once every month instead of every week. Maybe you just get product updates from your team and ask questions once in awhile rather than on every single bullet. But those are the things that are hard until you live through it to realize how hard it is to let that go. And you'll have to learn it the first time you have a team of five people. And then when you have a team of 15, you'll have to learn it again. And when you have a team of 50, it'll feel like a whole new muscle. And then it's 500. And every time you have to be letting go at something else. And you have to also figure out what is the thing I can uniquely contribute that the team can't do without me.

Because you can't just keep giving things away, or you'll have no value that you're bringing to the organization. So it's a question of at the same time you're giving those things up, how does your perspective, maybe your voice, maybe your experience bring a new type of direction to the team? And usually that will be in things that are more strategically minded. Or to my comment earlier, it's that connection between the business and the technology.

Now you're going to be looking and thinking about things three years out, not just next quarter or next month. And so just be sure that you're really clear on, OK, if I'm going to push this work off my plate, what is the thing I'm going to grow at the same time in terms of my skills? Because you're going to also be reinventing yourself continually. Yeah, thanks. All right, next question. Got another one down here?

AUDIENCE: Test. All right, I'd hope to ask, since this is Women in STEM Week, what do you see as the importance of women in STEM going forward? And how have you managed being a woman in a senior executive position in a STEM field?

GERRI MARTIN-FLICKINGER: That's a great question. I just want to look at these things back up here again, because I think I'm going to just answer with these same four items. I think it's incredibly important to do what you love. And that's true for men and women and whatever else, right? Do what you love.

I think that with STEM, the thing that I think is super important is that we make sure girls, young women, way before this university level get a lot of exposure to different things so they can choose what they love and not just assume it's not going to be math or just assume it's not going to be chemistry or engineering. Really make sure that starting from first grade, they're really exposed to stuff.

I'm going to tell you a story that just happened last weekend just to make a real point of how first of all, how different the world is today, but how maybe not so different it is from when I was growing up. We watched Hidden Figures last week with my daughters. I'm sure you've all seen that amazing movie at this point, right?

So if you haven't, you've got to watch it. Would you please watch it? OK. It's really a great movie, very uplifting, very positive. But here I am. And my daughters are asking my husband questions about the booster rockets because there's a scene in it where there's almost disaster. It's all averted. And my husband starts talking about the booster rockets. And I'm actually kind of confused by the whole thing, right?

So I start asking questions. Like, well, how does that, like, work? I don't quite get that. And my husband got really frustrated with me. Like, well, of course you should know how this works. I said, honey nobody talked about rockets when I was in grade school. Like, they didn't do that. Like, I didn't have a picture of the Apollo capsule on my wall like he did. But nobody talked to me about that.

So I really didn't have context for how that worked. And I never had a reason later in life to learn about it. So I never did, right? And so my daughters are sitting here asking these questions. They're asking probably more intelligent questions than I am. But it occurred to me that for as much as things have changed, they haven't changed that much. Because there are my daughters, 14, and they don't-- they didn't know much about space travel, but a bunch of boys in their class do.

So what's still happening? Like, how is it that-- we're not quite there yet, where we're really bringing everybody along thinking about the same stuff. And so I think that's where we have to start fixing it. In my case, and I told this story earlier today, and I just got lucky because what I love happened to pay a good salary too.

I ended up in computer science partly because I realized I had to eat after college. And I needed to get a job, and I needed to be able to pay my way. And when I looked around at all the different things I could do, the one that looked like I was really good at and paid well was computer science.

So part of me got into the field probably for all the wrong reasons. But I did happen to also love it. So it kind of all worked out. So there's a thing that's a little bit at play. It's just making sure that everybody has opportunity, making sure we expose kids to all of the options, and then support kids, all kids, with the choices they make.

I think that just the largest challenge still is keeping girls interested in the sciences in high school. I'm just not seeing enough of that sticking. And that makes it hard to stick in university if you're not feeling confident. And for those of you that are guys in the room, think about how you can support your community of female colleagues in school.

What can you do to ask them, hey, how could this work better for you? Have the conversation. Find out what they're thinking, what makes it hard for them. Some of it might even be about this internalizing thing. I think being brave also means having confidence and just kind of picking yourself back up and keeping going when it doesn't go well. And is finite game, infinite

game that I talked about a minute ago, some men, not all men, but I've met some men who are much more resilient at failure.

They fail. And they just sort of like, oh, keep going. Or they don't even notice they failed. They failed, but they keep going anyways. And I've noticed, not all women, but some women beat themselves up a lot more. And they have a harder time getting past that, especially early in career, where it might feel more personal. And so I think there might be a little bit of that in there, which is a little bit about be brave and take risks.

It's OK to fail. Just learn from it and don't do it again. Go on to the next thing. So I think it's worthy of a dialogue. Next time you're around your colleagues that are of the other persuasion, get into a conversation about it. Good.

RACHEL FORBES: OK, one more question. And then we're going to have to call it a night.

GERRI MARTIN-FLICKINGER: OK.

AUDIENCE: So I was just wondering-- I'm graduating in May. And I'm a little worried about the future in that being a woman in a technological field if I will be taken seriously or if I'm going to be disregarded in my ideas or my thoughts. And I was wondering if you've ever experienced that and how you dealt with it.

GERRI MARTIN-FLICKINGER: Well, I don't think you're going to have any problem. But let me tell you the key. If you believe what you're saying and you speak with confidence, you will be taken seriously. If you don't speak with confidence and you're not sure about your ideas and you just kind of get out there, then it will be harder for anybody to take you seriously. But that would be true for a man too.

So I would say, yes, you'll be taken seriously. But you also have to believe that in here and you have to show that, yeah? You can do it, for sure. OK. This was so much fun. Thank you for having me back. I've loved it. Thank you so much.

[APPLAUSE]