The Future of Work podcast is a weekly show where Jacob has in-depth conversations with senior level executives, business leaders, and bestselling authors around the world on the future of work and the future in general. Topics cover everything from AI and automation to the gig economy to big data to the future of learning and everything in between. Each episode explores a new topic and features a special guest.

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Jacob:	Hello everyone. Welcome to another episode of The Future of Work Podcast. My guest today is Judy Marks, president at Otis Elevator Company, and former CEO of Siemens in the United States. Judy, thanks for joining me.
Judy:	Jacob, I'm delighted to be here.
Jacob:	So, correct me if I'm wrong, but I think we actually first got connected via LinkedIn, right? I think either I commented on something that you were writing, or vice versa, and then, we got to talking from that? Is that how it happened?
Judy:	We did actually. I commented on something you were talking about in terms of the future of the workforce, and how to keep them engaged, and it's a little bit of a passion of mine, and especially with this, leading this industrial icon, so we got engaged, and you interviewed me for some ... as one of many leaders for one of your future books.
Jacob:	Yes, it's for the new book that's coming out next year, so LinkedIn, thank you for bringing us together. Well, to get started, maybe you can give us a little bit of background information about you, and how you got to where you are, to being the president of Otis Elevator Company?
Judy:	I'd be happy to. I am an engineer by background, and a technologist by choice, and I have spent now almost 35 years being able to apply those passions with also trying to excel customer, satisfying customers as well as motivate, and lead large groups of employees throughout the globe to be able to meet those objectives.
Jacob:	How did you start off? I mean, you started off at Siemens, and before that you were at Lockheed, you were kind of in the talent space before that, weren't you?
Judy:	No, actually I started in the technology space for IBM in 1984 as a systems engineer.
Jacob:	Wow, 84.

Judy:	Do you remember 1984 Jacob?
Jacob:	That was a good year, yes.
Judy:	It was a good year for both of us, and I just had a great opportunity to do, for the IBM Federal Systems Company at the time be able to provide engineering solutions that really helped our country, and allies of our country, and so, those mission critical systems were what got me, continued to get me excited about applying technology in a very different time when the PC had just come out a year, or two before that, and we were going through what I would tell you is one of many waves of changing roles, responsibilities, the application of technology to solving problems as well as just watch ... I've watched the revolution. I've lived it for almost 35 years, and it's been incredible, and I hope to continue living it.
Jacob:	It's funny that you mentioned IBM because a couple of podcast guests that I've had who are senior leaders at global companies now, quite a few of them have said that they actually worked at IBM in the '80s, and Maynard Webb is the most recent one. His podcast hasn't gone live yet, but he was a former chairman of the board of directors of Yahoo, and he was telling me about his time at IBM also, I think in '83 he said, and it seems like that place has kicked start a lot of careers for people.

How did you kind of rise up through the ranks to become the CEO of Siemens, and then the president of Otis Elevator? Did you do something special, or was it just hard work? |
| Judy: | Well, hard work is the most fundamental that I can tell you, and it doesn't stop as you continue to move up in your career. You just get to practice it far more often around the globe at all hours. I would tell you I was always very collaborative, and people focused, and always try to understand really what different objectives were for different stakeholders, so as I moved into some of my first early leadership activities, it was understanding how could we get work done? How could you delegate effectively, as well as developing people around you to coalesce, and form a team to solve an objective?

I grew up in retail. My father was in retail, so I always understood the value of a customer, and here at Otis we have a lot of customers globally as you can imagine. We support, and service 2 million elevators around the world every day. We're the largest number one company that does that, and that means we deal with a lot of customers, and we need to keep them satisfied day after day, so I would tell you it's hard work, it's an absolute focus on customers.

The other thing I would offer for people listening is, you have to know what your values are, and stay true to them, and so, always doing the right thing, making sure there's ethics and integrity in everything you're doing. To me those are just foundational, and then, on top of that, you can put your technology, and your ability to solve problems, your ability to work with people, but when you're dealing with a global environment like we are at Otis, there're certain things that are sacrosanct, and I would tell you, staying true to your values is just really sacrosanct to our culture. |

Jacob:	Well, you started talking a little bit about Otis, so maybe we can talk a little bit more about the company, because I'm sure a lot of people are using Otis products, and not even realizing they are. How big is the company? How many employees do you guys have? And, maybe a little bit of background around the different products that you guys create?
Judy:	Otis is the company that in 1853, basically invented Elisha Graves Otis invented the safety elevator. We are a company that has evolved through 165 years, and I'm just proud to say I'm one of 68, 000 colleagues now who are delivering leading edge products and services in over 200 countries, and territories around the world. We do this through a network of Otis branch offices. We have over a 1000 of those, and each of those we conduct business locally, and there's a reason for that.
	One is, because really elevators are the spine of the building, and if you think about it, without elevators, we couldn't have modern cities today, so we move on any given day, over 2 billion people touch our product.
Jacob:	Wow, that's crazy.
Judy:	Well, the population of the world is a little over 7 billion, so in three or four days we have the opportunity, and the responsibility to touch the world, and keep it moving safely. That's more people than fly, and so, it's a tremendous life safety responsibility that I know all of our colleagues really take seriously. Of all 68, 000 colleagues, 33, 000 are our mechanics who really live at our customer's facilities, who do multiple service visits, and repairs as needed really to keep cities moving, to keep buildings moving, to keep people safe, and having access to their homes, to their residences, to hospitals.
	If you really think about movement, vertical movement, that's our specialty, and we've been doing it for 165 years. Now, we've been doing it fairly mechanically in the past, and the exciting part of our industrial business is now, not only are we doing it mechanically, but there's so much involved in the electrical side, the data side of our business, because we understand movement in a building, and we understand what happens. We capture all that information. Every elevator has a controller on it, and that's really the future when you talk about the Internet of things, and having access to information so that we can serve all of our stakeholders.
	First and foremost, I want all of those 2 billion passengers every day to be safe, and get where they wanna go. At the same time, I want every one of my employees to go home safe every night, because if you think about the industry we are working in, especially in new construction, or modification of older buildings, we need to ensure that everyone is going to be safe in the entire ecosystem there, and then, lastly, we have people's whose businesses, and livelihoods depend upon vertical transportation.
	There are people who need our product and services, and need it to be up, and so, uptime is very important. I know we'll have some time during this podcast to talk about the Internet of things, and the value of data analytics, and the application of hopefully artificial intelligence to our dispatch algorithms. These are exciting times in the vertical

transportation industry, and the elevator, and escalator industry, and it's something you're right. Everyone assumes it's going to be there, and it's gonna be working, and that's fine with us. We want that assumption that it's gonna be safe, reliable, and there for people every day, at every hour when they need.

Jacob: It's funny because a lot of people also don't think about how escalators and elevators have changed over the decades, because I'm sure when, famously called the people mover, everything used to be very manual. I think everything used to be made out of wood, then we had the cables. I think some of that was also manual, and so, today's elevators and escalators are pretty different than they were 20, 30, 40, 50 years ago, so kind of a weird question, how have elevators and escalators, I mean, how have they changed? You mentioned like data for example. What's the difference between the modern day elevator and escalator versus the ones of the past?

Judy: Great question. The ones of the past were really designed based on ropes and pulleys. It's gravitate, gravity, and gravitational pull, and obviously they're far more mechanized today that the value, and the smoothness of the ride, and ride performance is critical. The heights we take elevators to today are staggering whether you're going to an observation deck at the Burj Khalifa, the tallest building in the world, whether you're going to the observation deck at the Empire State Building, or in Lotte Tower, in Seoul, Korea, or Willis Tower in Chicago. There's this excitement to be able to be part of a high rise building, and to have the expanse in front of you to see the world.

           To do that, we had to apply new technologies. We had to reach greater heights, and we did that mechanically, we did that electrically, and through information and data, and I think what a lot of people don't understand about elevators is, they even generate power on their way down, and actually put power back in the building. They're actually a distributed generation system for power, so they're energy efficient, and as well as just being that go to technology.

           And then, you think about escalators, and how those have been basically proliferated because of infrastructure growth across the globe, so metros, airports, as the rising middle class has just demanded more access to travel, not just air travel, all travel, and we've people have migrated back to cities, and cities are dealing with transportation planning. There's been a great increase, and improvement in infrastructure writ large, above ground, below ground, and the way you get there is elevators and escalators.

           And so, those escalators actually move at much higher speeds. We call those public escalators versus the commercial escalators you see on a lot of retail facilities, and so, they're two very different product sets for two very different needs, but the commonality is pretty direct, safely, rapidly move people from place to place.

Jacob: You also mentioned data, and, of course, we're seeing a lot of smart devices, smart elevators, smart escalators. Can you give us a sense of maybe what information do you guys know, or what information does an elevator, or an escalator collect? Because, people that usually get on these things are probably just thinking, "What information could this thing possibly have?" So, what do you guys understand in there?

Judy: Well, there's multiple sets of data. I'll take you to a more standard elevator, and remember, we're still maintaining elevators that could be up to 100 years old. There's about 15, 15 and a half million elevators in use today. They get maintained by ourselves, and our competitors, but they really are ubiquitous, right? And, they really do exist almost everywhere in the world, but a typical standard elevator, the data you collect is everything from door mechanism, and door openings, how many times ... how many floors it's been to? Where it may have run into issues? Self diagnoses, error codes, fault codes, usage, runs, weights that occur, so you can assess how many people were in an elevator. All of that's pretty standard information, and really as you think about the ability to use that brings you to preventive and predictive maintenance in the future, and I'll talk more about that in a little bit.

But, the more exciting, in some of the elevators you probably see on the West Coast have something in them we call destination dispatch, and so, these elevators for your podcast listeners, this is our compass, and compass 360 product out of Otis, but in destination dispatch, you either personally enter your floor number, and then you get told which elevator to go to, and [crosstalk]

Jacob: Oh, yeah. I've seen those.

Judy: Yeah?

Jacob: Yeah.

Judy: Or, in a more advanced state actually be it your iPhone or, or be it your access credentials especially in a commercial building, or an office building. When you get past that first security checkpoint, and you transmit the information, and the credential that it's you, we know where you're going. We know where your office is, so then we send you to that elevator, and that elevator can get you there far more effectively and efficiently.

When you start about where buildings are going in the future, and mobility in general, and is going in the future, I wouldn't say we're the last mile, we're the last floor, and so, we bring people to that last destination they need to go to once they enter a building, and we have all of that information today. We have about 350, 000 elevators connected, and sending that information every day, we're gonna continue to expand that, but beyond what that gives us for the specific elevator that we get the information from, it gives us an incredible rich data set to be able to actually prevent and predict when any elevator in that family may be approaching a period where they need some advanced maintenance activity so that the elevator doesn't shut down.

And, our goal, and it's very real, and we're offering this right now as a subscription service for certain customers is, we don't want you to call us to let us know you have a shutdown. We're actually gonna call you in advance of it, and tell you what we need to do for you so that you never have that [inaudible] shut down, and that's what building managers want. The passengers want a safe, quick, predictable ride.

The building operators, the people maintaining, and managing buildings, they want minimal downtime, and the architects, and the developers on the front end of these, the newest, latest, exciting new skyscrapers in the world. They want the latest features, the most data, and candidly they want the fastest elevators they can get that are optimized so that they know predictably they can build a building, and not have to use any more space than they need to for the hoist way in the elevator, which then lets them have more rentable space, or more space for every other use in the building as they're dreaming, and designing their new buildings.

Jacob: That's crazy. I mean, I certainly never have thought about all of those different types of data points that you guys collect, and I'm sure people listening to this have never even thought about it from that perspective either, but you really even just from kind of this up and down, you guys are collecting a lot of really interesting data about how pretty much how the world moves, because I never really thought about it that way, so that's a kind of a different way for me to think about the elevators now. You also mentioned AI, and the role that, that might play in some of this I think for your dispatchers, so what role does AI play in all of this?

Judy: Our dispatch algorithms are really the heart of our software algorithms that assess where elevators should be, how they should move, how you respond to a normal request, how you respond in a time of distress or emergency. All of that is programmed into our dispatch algorithms that run on our elevators, and the challenge, and the excitement about the future is how do you create a learning algorithm that learns the heartbeat of the building as the building basically develops, and as different, potentially different offices, or different businesses are on different floors, in mixed use buildings where you have retail, where you have people live, residential, how do you become a learning agent for that algorithm?

The algorithm itself is incredibly complex, and yet, I like to think of it as elegantly simple to assess when you send which car in a multi car family of elevators where you need it to serve people the best. AI will help us learn that heartbeat. It will help us learn as the building changes, as the building grows. When a building is built, especially a brand new building, there's an expectation. You go to a large high rise that's an office complex, you know who the anchor tenants gonna be, but you don't know who all the other tenants are gonna be.

You take The Empire State Building for example, and you may have this vision of it being an older building with a lot of law firms in it, and you think back in time. I will tell you multiple floors are now linked in, have offices in there, and you wouldn't recognize the inside of even some of our most iconic, and older buildings, and so, how the traffic patterns are highly elevators get used. What happens at lunchtime when you've got this demand signal driving elevators up and down more so, then the morning rush, and the afternoon rush for people to go home. All of that, we have, and is part of a standard elevator.

The challenge with AI, and I think the opportunity for AI is to be that learning heartbeat that lets us serve that better. Jacob, we have something we call Up to Sense. We rolled out this year which is just a really neat application of existing technology, being video

analytics, and our dispatch algorithm, and it quite simply you install this in a hotel convention center, sporting venue, and when the concert's over, or the meeting breaks up the camera on the outside of the elevator through video analytics senses the crowd, and tells the dispatch ... tells the algorithm, "Send every elevator down here so we can disperse the crowd quickly, and not let someone on floor 12, or floor eight stop an elevator for one person to go on when you've got a hundred or a thousand ready to go."

And so, there's lots of ways we can come up with some very unique applications. This one's, everyone who sees it who is in that type of market is really excited, because they get to use their current elevators, and installs a camera, and some extra video analytic software, and now they just have much happier, they have a better security situation, a better health situation, and just happier passengers, and for us right now, the passengers, they're a stakeholder in our business in buildings, but they're not a customer yet, and so, we could see a day where passengers have the opportunity to become customers. We think we have to be far more passenger centric, because that's where we believe some of the new value of offerings with data are gonna be driven.

Jacob: You mentioned that you had what like 35, 000 of your employees who were mechanics? I think it was ...?

Judy: 33, 000 globally.

Jacob: 33, 000 okay, and so, I would imagine that for the mechanics in this space, there's probably a lot of upskilling that needs to be happening as well, because it's not just kind of maintaining an elevator anymore, but, I mean, you're basically a technology company that happens to make elevators, and so, I'm curious what you're doing on the mechanic side to upskill employees, to teach them these new skills? I mean, what sort of programs if any do you have in place to help make that transition?

Judy: We are an elevator company, first and foremost, that is aspiring to be a digital industrial company, and these mechanics are our forward line, our forward family who are gonna help us get there, so we owe them skills, upskilling, and we owe them technology to be able to do this. Fairly quickly, and rapidly we've been deploying to our mechanics iPhones with specially created apps to help them become more efficient, more effective to be able to diagnose problems quicker, to be able to order parts while they're actually at the site, because they have remote access through these iPhones, to be able to share amongst themselves, to help each, and every one of them upskill.

We have a champions network where we have people where we have volunteered proven mechanics to help skill others, but real time using Yammer. All of our mechanics are on Yammer, and they're sharing realtime lessons learned. They're sending out queries to each other, but we owe them via change management, via new processes, via tools. We need to capture their institutional knowledge, because they are domain experts across an entire line of over 100 year old elevators, but we owe them new tools, and technologies to tell them where to fall, isolate, and really candidly how to serve their customers.

When I meet a mechanic, he or she says to me, "This is my building." And so, that ownership is incredible. They wanna be able to serve their customers better, and we owe them that technology, and the tools to do that, but, well, you do that through a learning activity, so we put out these apps, and we put them out. We talk about minimally viable products so that we can put them out, see how they're accepted, see how they're embraced, and then, the mechanics give us feedback on how to improve them, so we're, right now we're in a version 2.0 of our applications for our mechanics, and they're getting better every day.

And so, we're seeing it. The mechanics are less frustrated, the customers are happier, the elevators have better uptime, everyone's more productive, and in the end, to me that's a win-win.

Jacob: Are the apps the main way that the mechanics learn new skills? Well, it sounds like through the apps they teach each other, through the Yammer network, but those seem like those are the two main ways that employees are able to upskill themselves.

Judy: We have a variety of ways. We have a supervisor function that continues to do both in person, and digital chalk talks, if you will on new technology is it's coming in terms of the elevator business, but we now have different methods to be able to introduce new product lines to tell our mechanics, what ... how to use that fault code, and how to have visibility into where a projective failure may occur, so they can get there with the right part in enough time to have minimal downtime for the customer.

Jacob: Are you noticing any difference between older and younger workers? Not necessarily ... I suppose it could apply to the mechanics, but I'm thinking just broadly across the company, between, for example, millennials or Gen Z, Gen X, as far as how they work? Whether the mechanics are knowledge workers?

Judy: Not so much how they work. I've seen every generation embrace technology in different ways, so I hate to kind of label one generation versus the other. What we've tried to embrace is mentoring, and reverse mentoring both for our knowledge workers, and for our mechanics so that it works both ways, so we pair people up. If a mechanic just has this institutional tribal knowledge, I don't know what else to call it, of how to make a door jamb work better, how to make the rollers work better because he's done it. He or she has done it so many times, we then pair him up, and he has ... he or she has the opportunity to learn the technology from someone who may have embraced it differently, or be a little more digitally native.

But, I don't find that being as generational as, and as stereotypical as most people say. I'm probably one of the power Yammer users personally, and I'm certainly not a millennial. I have a child who's a millennial, but I think you'll find it's people who wanna embrace change, and the technology enables it, and so, we're going through a very large change management process across our enterprise, and I think across not just our industry, but most industries, and those who see change as inherently positive, and the ability to do things better, and the ability to not have to do is administrative tasks as they used to. They embrace it, and they become our change agents.

The technology to me just assists, and we've tried to really make it simple, but we're still always educating folks. What worries me Jacob is, will we have enough ... are there enough craft labor, skilled labor mechanics, people in construction, people in the trades who wanna pursue these careers globally? With unemployment really decreasing in many parts especially in Europe, we really want people who want a career in keeping buildings vibrant, in keeping people moving, and we wanna embrace those folks as apprentices. We wanna ... We do significant apprenticeship development, and then we want them to have a career with us, whether they stay in the field in mechanic, as a mechanic, or in sales, or they wanna be part of a different part of the company inside of Otis.

I think the change is required because I think the workforce of the future is going to demand both, it's gonna be multi-generational as well as they're going to demand the abilities, and the access to technology, and so, we're going through that transition, and learning it as we go. Are we making every step perfect? Absolutely not, but we're learning as we go, and we're continuing to develop as a company, and as a culture. I think culture is important.

Jacob: We're definitely gonna talk about culture, and leadership too, but you mentioned something interesting, and you said that one of the things that you're worried about is making sure that you have enough of those types of workers in the future, and people that basically wanna build a career in that space, and I know that, that's something Mike Rowe, he had a CNN show, Dirty Jobs. He talks a lot about that as well, that there're not that many people that are moving into that space. I'm curious to get your perspectives on the skill's gap that some organizations are reporting, what you're seeing, and what you're trying to do at Otis to help make sure that you do have those employees in the future, or people that do wanna go down that career path?

Judy: We are embracing STEM from the time someone can actually speak, and to us, STEM really is the ability to appreciate, and apply math and science in a variety of ways. Sometimes, that's in a mechanical application where people just have a passion, and an ability, and wanna work, not work in an office, be at a facility using tools, using technology, using their hands, and their minds, so we start very early trying to encourage all children to stay in math and science.

That doesn't mean everyone has to go get a four year college degree, and so, we believe there's an absolute great career, and we've proven it for 165 years for our workforce to be able to have a great livelihood, have a challenging position, and make a difference in moving people safely, and that's now become the culture, and we have generations of people, and I go into our branch offices, or I'll go to a site visit, and someone will say, "You know, 11 of my brothers, uncles, fathers, mothers, were all part of this industry." This is a proud industry of proud employees, and we owe them an environment where they can continue to add value.

But, you'll find it's gets kind of in your blood, and I didn't know this. I just joined Otis a year ago, but I can tell you the pride, the family feeling, and this, in a life safety business where you know that you're keeping everyone you care about safe. There's something special about that. You know, we're in a regulated business for a lot of reasons, and the

regulations are not the same in every part of the world. There's different codes we have to comply with, different safety agencies for all the right reasons, and that's so that we can keep the world moving, and that's what our employees take great pride in when they talk about their building, or their elevator, or their impact on not just the community they live in, but their families themselves.

So, we owe, we continue to embrace that early. We drive apprenticeships everywhere we can so that people get the realtime experience, they get the educational experience they need, they get the certifications they need, and then we continue to embrace that throughout their careers, and I'm proud to say here at United Technologies we have an employee scholar program that any employee who wants to go back, and get a degree, we sponsor it. We take care of it, we pay for it, we embrace it, and that's a pretty large but meaningful bill for us to pay, and we're proud to do it.

Jacob: Now that you're talking about that, that's actually a great transition into what I wanted to talk to you about next, which is, what is it like to work at Otis? We talked a little bit about the mechanics, but maybe in general, if somebody were to ask you, what is it like to work at Otis as far as maybe a typical day for a mechanic, or a typical day for a knowledge worker, what are the perks or benefits? What's the office design like? Leadership style? Anything that you wanna share so that we can get that kind of auditory tour of what it's like to be an Otis employee?

Judy: If you were an Otis employee, of which we have many, the odds are you are somewhere in the, more often than not in the field, and when I say in the field, it's because you're local. You're serving a community, a city somewhere where you live primarily, and that could be, again, in any, in multiple countries, multiple cultures. Our clock never stops at Otis. We will work in every time zone, we're supporting elevators, maintaining them all over the world, and we live a 24 hour clock.

We have amazing innovative engineers who do our research and development. We do that throughout the globe from Shanghai, to Berlin, to Connecticut, to Cork, Ireland, to Spain, to France, to Korea, to Japan, so we have a great network of knowledge workers. We have finance workers who make sure our finance community, who makes sure we have controls, we understand the actual operational backbone of all of our systems, and everything we're doing.

But, a day in the life of Otis is typically a long day, and the majority of our employees should be with customers, so we challenge our employees for lots of independence, whether they're in sales, or service, and we entrust them that they're going to represent themselves well, and more importantly represent the company, and the brand, and so, what we did is, we came up with five culture statements to represent who we are as a company, and these are, I would tell you these are probably not typical. If you asked the leader of a company, "Tell me what, you know, tell me about your culture?"

So, let me just list them for you, and then I'm happy to discuss any of them. Number one, we celebrate imagination, which means we encourage new thinking, and smart risk taking, because we started the industry, and we absolutely have to drive innovation forward. Number two, and this is that family. We believe in us. We empower and inspire

each other through support, through autonomy, and through trust, because everyone's primarily out in the field.

Number three, we're many voices. The greatest ideas come from diverse teams of thinkers with different points of view. We are part of every culture, every country we're in, we are local. We look like the country we're in, we act like the country we're in, and we speak like the country we're in. Number four, we're better together. We align as one team, and collaborate to serve our customers, and the last, we strive to be the best. We set big goals, we rise to achieve them, and we win together as a team.

Those are our five culture statements. That's what makes Otis special, in a business where so many of our employees operate autonomously almost every day, so this is the fabric that ties us together, it's trust, and empower, it's diversity, and inclusion for the best thoughts. The best ideas can come from any employee in our organization, and that's what we embrace, and celebrate.

Jacob: I love those statements. I think they make a lot of sense, and more organizations should have sort of statements, and actions that reflect that as well. I'm curious though for, so you probably have what? Like 30, 000 plus employees who are, I suppose you'd call them knowledge workers in offices, is that right?

Judy: We have a thousand branch offices. In those branch offices, which are all distributed, you'll find them in any city. We have our sales force, we have all of our back office, we have supply chain, again, because everything is local, and we need to have our parts at the point of access for both our installation crews, and our mechanics, so we do have a tremendous amount of knowledge workers, but you won't find them on huge campuses.

          Our headquarters are fairly small geographically. We have obviously our own manufacturing locations throughout the globe where we basically manufacture major parts of the elevators and escalators. Now, interesting in our business, there's no final sell off in a factory. We don't like, we're not a mass producer, because every elevator is a little unique, and every building is a little unique, so our final acceptance, the hoist way, all of the ... everything that gets aligned, and adjusted happens at our customer location at 10, 000 installations every day.

Jacob: It's really interesting because, I mean, most, I'd say most company or probably every company I can think of actually, when they, especially large companies, they always have these massive campuses, right? A headquarter is 5, 000, 10, 000 employees are there. You think of like Google or Facebook, but it sounds like you are just so distributed, which I think is a very unique model. I can't think of many companies that operate like that.

          And so, you mentioned autonomy a few times, so these 1000 offices are kind of, I guess there's a lot of trust involved, making sure that they are servicing their customers in the best way. It's not like ... was somebody constantly overseeing that or how does that work?

Judy: You have to trust these offices, so the branch manager, or the general manager, there're days, actually there are more than some days that I believe they have the best job in Otis. They control, and make decisions every day on where to send a technician, mechanic, how to solve a problem? How to get a proposal in for new scope? How to deal with a competitive bids for new buildings? How to bill? How to collect cash? They own a mini business.

Now, we're not a franchise. These are our people, and we train them, we develop them, they grow up a lot of them through the business. They start as trainees out as a lot of them are out of universities, and they just have a great opportunity to run their small business, and then we aggregate those thousand obviously through regions, and then all the way up through our global headquarters, and I have to be clear. I love those other big campuses. They're great customers of ours, and we love those campuses. They're great opportunities for us. That's just not our business model.

We are a field service company where everything is done locally except where we try to optimize for scale, and we optimize for scale obviously on purchasing, and supply chain. We optimize for scale with one ERP so that we can manage effectively. We optimize for scale with a common set of ethics, and business conduct, and won't accept any deviations to that especially throughout the world. We do business the right way every time so that the balance of what we can do globally, and especially with these new technology platforms with the ability to synthesize data more than at one branch, but the ability for us to understand how elevators are operating, can operate, and get to transparent, preventive and predictive, that's huge for us, and that's where the global strength comes in.

It's a global R&D organization, and yet we have engineers at all of our factories to be able to make things customer's need. We have to respond if a metro wants a certain size, and shape based on how they've designed the hoist way in an airport, or in a building, or in a hospital, or in a school, or in a church, or a slanted like The Eiffel Tower that we've been in since the time it was open, or The Luxor Hotel. We have to be able to do things custom, because that's the business we're in, and then we have to service those really for the life of the elevator.

Jacob: Yeah, I mean, it's amazing the amount of customization that you guys are doing over there. I had a couple of questions that people online wanted me to ask you, but before I jump into those, I'm actually curious, what's a typical day like for you?

Judy: I don't think I've had two of the same days in the year I've been here, so it starts early as you can imagine, as our Asia, Pacific and especially our China businesses are ending their days. China is the single largest market right now for elevators and escalators, an order of 10 magnitude over the next largest market which is India for new equipment. It's just, it's been a tremendous building boom, and even with the current controls and constraints, China's still growing, and we're growing there too.

We were there early, and we've been successful there, obviously, dealing with significant growth levels, and now a little bit of curving on the real estate bubble, so the morning start early, very early no matter where I am in the world because we're a 24

hour business. I would tell you I try to balance the day. A day doesn't go by where I won't hear from a customer pretty much, and those are ones that I take immediate action on because we have lots of customers, as you can imagine servicing 2 million elevators all the time.

But, when a customer feels frustrated enough to reach out to me, I like to make sure that they're listened to, and that we address it immediately, and in today's world you can get inquiries for new business, or customers through so many channels. What I get on LinkedIn is amazing, to hear, people reach out, and people figure out it's easy to find you, to get your email address, and I welcome that. From that same standpoint, I welcome employees reaching out, and I try to find time in a day whether it's walk around management, whether it's our Otis University which happens to be on our Connecticut campus this week before they go to Berlin next week for some of our future leaders.

Just find time to be with the employees, to share where we're going, to share the opportunities, to share the challenges, and most importantly to listen to them, and understand what's happening in their region of the world. What trends are they seeing? You can't sit at a headquarters in this kind of business, and monitor every geopolitical, every macroeconomic trend. It's all done locally, and that's why these branch managers are so empowered, so I try to get some with employees, and obviously try to focus on partnerships, and alliances with other companies.

If you think about the future of mobility writ large, we had Otis think we have a big plan, and we think we are a key element of that ecosystem, and that's, we're just one of many players, so figuring out what our future looks like in the new digital economy, in the continued growth of cities, in the world of autonomy. All of those challenges, and then, operationally running the business. I mean, we're, about a 12 and a half billion dollar business, and so, it's everything from tactics, to strategy, and the nights usually end fairly late. The only challenge I have is trying not to go back to Asia and China at night, or you'll never sleep.

Jacob: Yeah. I would imagine with 200 countries it's probably ... it's easy to stay awake non-stop. What are some of the big trends that you're paying attention to?

Judy: There's quite few big trends clearly, macroeconomic and geopolitical trends, and the trade war are pretty close in. We manufacture locally too, so for us, it makes sense to be closest to the point of delivery so that we can do the installations, in a logical way, in a cost effective way, so our manufacturing network is fairly dispersed. We have one manufacturing enterprise in the U.S. in Florence, South Carolina, but then we have plants that range from Brazil, to Russia, to clearly multiple in China as well as many, multiple in Europe.

So, we're trying to balance everything from currency swings, and how you deal with that to terrorists, and we use a lot of steel as you can imagine in the hoist way, so that was the first challenge earlier this year, and we do import certain parts of our products from our China factories limited, but sell them into the Americas because high rises today, the majority of them are not being built in quantity in the United States, they're being built

in Asia, they're being built in the Middle East, and so, we've located our network where it can serve us best, so that's something that's top of mind. I think any business leader would tell you that, but certainly any global business leader that's doing business in that many countries would tell you there's no way not to be concerned about that.

From a technology standpoint, I'm excited. I'm wondering where autonomous vehicles are going, and what does that mean for vehicle transportation? I'm wondering what the passenger, I'm not, I wouldn't even call it the passenger of the future. Today's passenger, if I can think of value add services for them, and how data will enable that as well as lots of interesting transmission both inside an elevator, and other places, that's exciting.

I believe that artificial intelligence, and bots will continue to help us provide a better product, and provide productivity, and efficiencies candidly, and I really do focus on the workforce of the future. How do we prepare the people we have to take, to be with us in the journey? And then, most importantly, what does ... what do the future roles look like? And, once you can envision that, then you can start redefining your business processes to align to that, so you need a vision for the company, a vision of what the future workforce looks like, and that's when the change management comes in to say, "Okay, now, what are the processes, tools, and techniques I need to change so that we don't consider ... We don't continue to do business the same way."

Every business today is being challenged. Every business is being disrupted. Our business will be disrupted if it hasn't already. I can't tell you whether that will be through the current incumbent competition, or through new entrance. What my continuous message to our 68, 000 colleagues is, we need to disrupt ourselves. We need to think through what that could look like to this iconic industrial, and we need to get there ourselves, and will it potentially cannibalize some of our business? It may, but it will posture us for the next multiple decades to come.

Jacob: The last thing I wanted to ask you before I jump into some of the other questions that people had for you was about leadership, because I realized that's one of the things that we didn't talk about, and I know you're also super interested, and passionate about that.

What role do you think leadership plays in a lot of the things that you guys are doing, and what is Otis as an organization doing to make sure that you have the right leaders in place that encourage upskilling, that embrace these, the culture statements that you had? How do you put those right leaders in positions of power?

Judy: Well, great question. Hopefully, they're not in positions of power, and I'm just taking a little license with your word. You know, in a distributed organization, you need information sharing, you need collaboration, you need trust, and you need the ability for people to be able to make decisions, make them right on ethics and integrity in the business perspective, make them right more than wrong, but at least give them that authority and autonomy. That takes development, that takes experience, but it takes development.

We have leadership development courses we continue to promote from within significantly. Many of our leaders move around geographically in different parts of the country they're in, or in different countries so they get a truly global multicultural experience, because that's the way you appreciate how this enterprise goes to market, and succeeds, and then, we've just put together something we call Culture You, which is our culture university for leaders, that is to help elaborate these culture statements, provide that candid 360 feedback to talk about our values, and our behaviors, and our mindset, and most importantly to drive change management.

This company wouldn't still be here if it didn't evolve and change. What I'm trying to challenge our leaders to today is, with the digital economy we're in, with the technology that's available already, and will continue to not just evolve the technology, we can't even predict. We can't just evolve. Yes, physical buildings will be around for a long time, which is a great opportunity for us, but we can't just evolve. We have to lead, we have to disrupt, and our leaders need to be thought leaders, and they need to sit in their customer's shoes, sit in the passenger's shoes, and, because we're all passengers, and customers ourselves, and assess what more can we do to drive value in every element of our enterprise. From our people, to our product, to our service offering.

Jacob: I love it. Well, I have so many more questions I can ask you, but I feel like I should ask you some of the questions that people uploaded from LinkedIn, and Facebook, so I'll jump into these right away. The first one is from Susan, and she asks, "What do you see as the biggest gap in skills for AI in digital technology competence?" And, as a followup to that, she says, "What skills do you feel are the most important for people to effectively work at the intersection of technology and being human?"

Judy: On the first question, can you repeat that one just one more time?

Jacob: Yeah, so the first part was what do you see as the biggest gap in skills for AI and digital technology competence?

Judy: The gap to me is not in the data science of it. It's not in the the architecture of it. The gap today is in the application. How do you take the incredible tools that are available? The art of the possible? The technology of the possible, and reduce that to an application that adds value? That's what we seem to be missing, and that's where I believe you will see the development of actually different career path for people who have that ability to be able to make that application, and reduce that to practice.

Jacob: And, the second part to that was, what skills are most important for people to effectively work at the intersection of technology and human beings?

Judy: To me it's collaboration. It's the ability to apply, but more importantly motivate, explain what you're doing, and actually bring a team of people together to achieve an objective. The technology supports that, but it's all about having a common objective, and a collaboration activity to get there.

Jacob: Next question is from Nick Rier, I think that's how you say your last name Nick, and he says, "I would love to hear from Judy what opportunities, and resources we should be providing, or advancing for the youth of today to ensure the dynamic workforce of tomorrow?"

Judy: I would love to see the spirit of exploration, the spirit of experimentation, all the basics, and the fundamentals of problem solving. If you wanna teach skills independently teach the workforce of the future how to solve problems, and let them then figure out the venues, how to do it? But, one of the things I learned in engineering school was, with enough time you could solve any problem, and so, that to me is the value regardless of where we go as a society, regardless of where technology develops. The ability to understand a problem, and solve it would be tremendous.

Jacob: Next question is from Priyanka Komala. Well, the first part of her question, I think we already touched on with Susan's question, but she had a second part which is, "From a cultural transformation standpoint, what are some of the skills, or what do we need to do to help ensure that staff understand that humans, and AI compliment each other, and that it's not so much about AI and technology that's gonna be replacing humans?" So, how do you convince people of that? How do you teach people that? Because, there's a lot of fear out there as I'm sure you notice as well.

Judy: When you, and I spoke the first time we talked about people plus technology. We talked about humans, and technology, and AI. To me it's not an either or. I think we need some great success stories, and they can be early success stories, but we need to, instead of being afraid of technology, we need to show where humans and technology aligned, and working together make a difference, and those stories exist. They exist at Otis. Happy to share those. I think they exist in so many places in today's automated world, in manufacturing, in retail, in almost every service industry, so we need to stop talking about either or, and talking about and, and plus, because I do believe there're roles for both in the future. We're gonna need to define those roles. I think it's gonna make the human role actually far more interesting, and more challenging.

Jacob: I couldn't agree more, and last question for you before I ask you just a few Rapid Fire Fun Questions, and this one is from me, because I know you, I think you wrote an article on LinkedIn about this as well, but how do you convince others to change? I get this question a lot. Whether it comes to technology, or culture, or whatever it might be. People are always saying, "I get it, I believe it, but maybe my manager doesn't." How do I convince leaders inside of my organization to believe in X, or to move towards Y? How do you get people to see your perspective?

Judy: You share your perspective, and you share the value that can be extracted from that, and that value doesn't have to be monetary. It can be a small victory, and a small value to you, or to someone you share that value with. I believe change is inherently positive. I have believed that my entire career, and have lived through so much change that to me, I don't even question it anymore. I just expect the next day to bring change, and embrace it, and move forward, and as long as you can show that, and lead that way, and people will ... they will come on board.

They may not come full hearted, or full throated, but when they start extracting value from it, and seeing the importance of it, we would be in such a different place if we didn't change, and that has nothing to do with technology. That's just about being people, and leaders have a responsibility to help people through this, and to recognize that not everyone is as comfortable with it, so you need to create some small victories, and you need to be able to create an environment where people feel a little safe as they're going through this change.

Jacob: Perfect. All right, and last couple of series of Rapid Fire Fun Questions for you. First one, what do you think has been your greatest business failure?

Judy: I don't think you have enough time for my list.

Jacob: Or it could be mistake? Failure-

Judy: Yeah, how [crosstalk]

Jacob: Or mistake.

Judy: Very simply, I at one point in my career believed in a business plan when I knew better, and I let it get the best of me in an organization I was leading, and the organization failed, and it was absolutely my responsibility, and I knew better. I knew inherently we were trying to take on a competitor who was deeply rooted, and had every ability to outlast us, and outmaneuver us, and we were not successful, and that's my responsibility.

Jacob: Wow. What's your most embarrassing moment at work?

Judy: Wow. I know this is supposed to be rapid fire. I'm trying to think of that.

Jacob: Maybe you just don't have any embarrassing moments.

Judy: Oh, I'm sure I have plenty. Most embarrassing moment ... I'll have to come back on that one.

Jacob: Okay. What are you most proud of?

Judy: Oh, I'm proud of the Otis family. I am just so excited, and proud, and happy to have the opportunity to be part of this great company, and to lead it in the future, but I am proud of our colleagues, and the work we do that, as you said, when we started this discussion, so many people are unaware of, or just take for granted. We are part of the infrastructure of this world, and we take that responsibility so seriously, and yet when you move outside, and you have the opportunity to meet our colleagues, they are incredible humans. They are part of their communities. They love to volunteer, and they love the industry they're part of, and that's what I'm proud of.

Jacob: What is your favorite business or non-business book?

Judy: Well, not the one I'm reading now. I'm struggling through the Da Vinci biography right now which is-

Jacob: That sounds intense.

Judy: It is. It's about 750 plus pages of intense, but it's fascinating to see what happened in the late 15th century in Italy, and so, I haven't stopped, but I'm struggling. Wow, I won't give you one of our Otis books. We have a whole group on the history of the company, and the elevator industry. I'll ping you with it. I've got a whole group, and I alternate between which ones I recommend to folks. I'll ping it to you, I promise.

Jacob: All right, and the last two for you, who's the best mentor you've ever had? You don't necessarily need to give a name if you don't want to, but is there somebody during the course of your career that really was a great mentor to you, and what did they do?

Judy: So, yeah, it's interesting because there's a lot of discussion now between mentorship and sponsorship, and we're really endorsing sponsorship to keep moving ahead, and people actually taking a very active role in your career, and giving you opportunities. I was very fortunate to experience sponsorship before it was even known as that I think, and I had people who every time I thought they wanted me to take on more responsibility, and I knew in my heart I didn't know everything about the role, and it was a high risk, they had my back, and I took it every time, and I grew through it, and learned from mistakes, but they had my back, and I think that's probably the most important piece, whether it's visible or not, that someone knows, and you can see in someone the skills, the abilities, the characteristics, and the integrity to be able to succeed, and you help watch them grow.

I'm at the stage in my life where I actually thoroughly enjoy being on the other side now helping others grow, and develop, and that'll be more of a legacy I leave than I believe any financial metrics, or anything else. It's the people that you've helped develop, and grow, and let them continue to take on more responsibilities, and become better people.

Jacob: And, very last question for you, if you were doing a different career, what do you think you would have ended up doing?

Judy: Whatever it would be, it would be highly customer involved. I can assure you of that, and highly people engaged. I'm in a perfect career for someone who probably has a short attention span, who is extremely impatient, and who loves change, so those would be the attributes of whatever that career would be, and I just have to think about where that would align better, or would align for my, either my next chapter, or a chapter I didn't have. Those are the attributes of who I am, and that's who I've been forever, and that's who I will be forever. I recognize that wont change, so is that a teacher, a professor maybe? Is that something of that nature potentially? But, those are the attributes.

Jacob:	All right, well, those were all the questions. You're gonna have to get back to me on the embarrassing moment, and your favorite book question. We're gonna hold you to those.
Judy:	You'll have them before the end of your day.
Jacob:	All right, well, Judy, where can people go to learn more about you and Otis? I know you're also a LinkedIn influencer, so you publish articles on there, but anything you wanna mention, please feel free to do so.
Judy:	Yes. I welcome the followers, and the connections on LinkedIn. I think it's a great platform to exchange information, and I love watching it to be able to see even inside our Otis network to be able to watch the world in terms of what we're, the world we're impacting acting.

I can be reached at judy.marks@otis.com. That's my email, and I do read all my emails, and obviously I'm on Twitter, and other platforms as well, but if you wanna know more about Otis, it's really simple, www.otis.com, and we're proud of who we are, and I hope those who listen enjoy going through, going to our site, and learning more about us. |
Jacob:	Absolutely, and next time you get into an elevator, hopefully you'll look at it a little bit differently
Judy:	Yeah, I believe everyone will.
Jacob:	Yeah. Well, Judy, thank you so much for taking time out of your day to speak with me.
Judy:	You too, thanks Jacob.
Jacob:	My pleasure, and thanks. Again my guest has been Judy Marks, president at Otis Elevator Company. I will see all of you next week.