

Ramona Schindelheim, WorkingNation editor-in-chief:

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

Today we're going to talk about a new book, *The New Technology State* by William Raduchel. The book's about how our digital dreams became societal nightmares and what we can do about it. Joining me to talk about this is William Raduchel. Bill, welcome to the podcast.

William Raduchel, author, *The New Technology State*:

Thanks, Ramona. Happy to be here. Appreciate it.

Ramona Schindelheim, WorkingNation editor-in-chief:

We have been talking about technology for a long time. You've been an advisor to WorkingNation for a long time, especially on the area of technology. Before we get into what you're talking about in the book, I'd love to know a little bit and share a little bit with the audience your background in technology. You've worked at a lot of amazing places.

William Raduchel, author, *The New Technology State*:

Well, I was 15 years old and I went to a summer camp, and the summer camp was to help kids learn about STEM. Back then, in that time era, the country was worried about STEM mobility, and there was National Defense Act. There was enormous push to take kids and push us into being STEM.

And so I went to this camp and it was great. I learned all about mathematics. And one of the things they did was show us a computer. And the computer was at the Air Force base and it controlled the anti-aircraft missiles that defended the base. And we walked into this room and there was a huge RCA tube-based computer. They made it play a song and flash a flag. And as a 15-year-old, that was really exciting. But then we got back to the campus and they actually had an IBM 1620, which if people know computer history, that was the first ever digital computer made with transistors. That's when I first started programming. So that's 62 years ago.

And so I've grown up with technology all along the way. And I never intended to be a technologist. I became an economist. Economics led me into statistics, but processing numbers led me into computers. And I gradually became more and more a computer scientist until that may be, at least for a while, was my greatest area of expertise. And then I worked in various companies, ending up as chief technology officer at AOL Time Warner on the interface between technology, media, and economics as well, how do you make a business out of it?

So I've watched this all and I certainly saw it doing great things. I mean, from the beginning people thought I was a wizard. I mean, it was pretty simple to do on a computer, but to do it, I mean, when I got to graduate school, you had to book time to use the mechanical calculators to do time. And those calculators have a hundredth the power of my watch. And you had to sign up to get them. You also had to sign up to get the clicker so that you could use the Xerox machine and make a copy. I mean, it was a very different world, and that's less than 60 years ago.

Ramona Schindelheim, WorkingNation editor-in-chief:

What you're talking about I think is for some of us, depending on our ages, AOL was that first kind of our own experiences with our own intersection, personal intersection with technology other than turning on

a TV with a remote control maybe. There were no cell phones, nothing. And it was a brand, what is it? That brave new world that we saw out there that seemed to have endless positive change to society.

William Raduchel, author, *The New Technology State*:

No one talked about downsides. But I watched it and look, I watched it restructure. I mean, when I was at Sun Microsystems, I would get interviewed by business things because we had emails to everybody worldwide. Everybody was on the same network. We built that network before there was the internet. The internet is '93. We built the network at '90. And we had everybody online and we could send an email. And believe it or not, it arrived within a minute. Although today this would seem impossible, back then emails could take days because they depended upon being stored and forwarded by other computers in the chain.

And we ran the company so differently. It was much flatter. We changed totally the way things worked. You understood that nothing was going to stay secret. I wrote an article for someone, I don't even remember who I wrote it for, about how we worked and got interviewed and they couldn't believe that this is how a company operated. And that's 30 years ago. So I watched it change, but now we've got maybe too much of a good thing.

Certainly at work, you see that... The one thing I learned early on is the technology never takes away a job. It takes away part of a job and it eats away. And eventually, usually what would happen, you'd get a recession, people would then restructure and they would find that, well, they had a lot of people who were not 100% employed, and they would find a way to restructure the jobs and some jobs would disappear. But until then, there were a lot of people who were working, but technology made their jobs easier. That's going to go on and it's going to continue to go on.

But I think we've taken the job pyramid and we keep grabbing it about halfway down and then pulling it toward the middle. So we keep getting fewer and fewer great jobs at the top and a lot of jobs at the bottom. And so it isn't necessarily the number of jobs particularly that goes away, but the quality of those jobs declines.

Ramona Schindelheim, WorkingNation editor-in-chief:

That kind of goes to something you mentioned in the book, which is something that economist John Kenneth Galbraith had said, which was that the global elite would harness the potential of the computer revolution to accumulate more wealth and power. So in a way, what you're talking about is as jobs change there is a bigger divide in society economically.

William Raduchel, author, *The New Technology State*:

Somebody who would be clearly recognized as a member of the global elite posted last week that AI was going to mint billionaires, and he's probably right, right? It's going to increase that.

I mean, AI is really nothing new. It's just a really enhanced form of algorithm. And algorithms have been making our life from the ancients had algorithms. They weren't very computationally complex, but Stonehenge is an algorithm to try to predict what's going on because it mattered for agriculture and agriculture meant survival.

So AI is just an enormously more complicated form of algorithm. So we've seen it. But I think that if you think of the future, Ramona, that every business is going to become like a professional sports team in my view, and you're going to have players and you're going to have employees, and the players are going to be scarce and they're going to get compensation that is very different. How do we manage that? I don't know. I talk to people that I know in professional sports and that's one of the biggest

problems. But I know who a great professional sports player is because I see him or her on the course performing and it's easy to recognize that this person is great. But if somebody is different, that isn't there.

I think it's going to be a huge challenge to manage this world. I mean, you see the mainline automobile manufacturers competing against Tesla, and it's just hard. I mean, the CEO of Ford did a TikTok interview, I'm not quite sure why, in which he explained that in his cars there are 150 software suppliers and he has to integrate among 150 suppliers and doesn't control any of that software. Tesla has one. Tesla has one computer, he has 150. I mean, you can't get from here to there.

Tesla just spent \$2 billion buying new, faster chips from Nvidia, \$2 billion. That's the kind of expenditure that you really need to make. That's how he's going to make his software better. I don't see a GM or a Ford spending \$2 billion on doing that. I mean, it's just very hard for mainline companies to think that way or to realize that that is going to be your future.

Elon Musk understands the power of the genius programmer and compensates accordingly. Robert Scoble, who is a well-known commentator on Silicon Valley, was down at SpaceX and he tweeted, he asked The Coast, "I want to interview the team that wrote the software that sends the rocket into space and brings it back down." And they said, "Yeah, he's over there." He said, "No, I want to see the team." And they go, "Well, there was no team. One person wrote that." It's a mindset.

In the late 90s, I think it was Brent Schindler at Fortune was interviewing Bill Gates. Gates was, as he sometimes is cocky about this, and Schindler goes, "How can you be so confident that you are going to beat all these?" And he named all the CEOs of the major tech firms that are out there. And he looked at him and he said, "I understand software. They don't." He was right.

You now have a situation where probably two-thirds or more of the CEOs running companies are really obsolete. They have an enormous set of skills, but they don't understand a world in which because of AI you now have to worry about how many Nvidia H100 processors you have. And the number isn't 10, the number is 10,000. I mean, it's just such a different world. Technology makes people obsolete.

Ramona Schindelheim, WorkingNation editor-in-chief:

You're saying that technology does make people obsolete, but at the same time not everybody's losing jobs though, that there are jobs that are being created from this new technology. It's just that not everybody's able to do them. They don't have the skills for them.

William Raduchel, author, *The New Technology State*:

One of the concepts I discuss in the book is Halstead length. Halstead length is the intellectual equivalent of height for a basketball player. And no one would say, "I'm going to take somebody who's five feet tall and retrain them to be an NBA player." Because you would realize that at the end of the day, being 7'3" is a huge advantage. And the same thing is true, we don't know why some people have very high Halstead lengths. And it certainly isn't anything... I mean, the Aborigines in Australia that know where every single waterhole is in the Outback and how to get around between them, or a London cab driver who is memorized knowledge and knows how to drive you to any address in London, they have high Halstead lengths too, but we don't know why. We have no idea. Is it the way the brain is trained? Is it the way that you are born? Is it DNA? Is it... We don't know.

I mean, Mozart, Beethoven, I mean, there are people who, and these people now, if they're writing software, their leverage is enormous. I mean, Beethoven could write a song, write music, but now today you can write software that takes a rocket up into space and brings it back down and lands it on the launchpad. The amount of leverage that a single person has is enormous. And those people now are

incredibly valuable. And the tech giants are the companies that can pay them. The tech companies are the ones that know how to build a work environment that attracts them. And guess what? If you're that kind of a person, you like working with other people like yourself. You get more done. It's a cycle that allows them to dominate and the rest of the companies struggle. They can't hire.

Ramona Schindelheim, WorkingNation editor-in-chief:

And at the same time, they do need that technology because it's touching everything in our lives.

William Raduchel, author, *The New Technology State*:

Correct. You've just summarized the problem. Chris Hughes was one of the founders of Facebook. He left Facebook early and he took a job as the online fundraiser for Barack Obama. He's the one who figured out basically the mechanics of how you use all this to raise political money. The problem with this method is that it worked really well. And if you go back to that time period, there were articles praising him for eliminating the dependence on rich donors because being able to raise a lot of money from small donors gave you a freedom and independence.

But it turns out that if you want to raise money that way, hate is much better than anything, hate and fear. That's how you raise money. And that's what's driven American politics now into one where hate and fear dominate because that's how you raise money. And money is the lifeblood of politics. The rich donors are the moderating force. So it's the complete perversion of what people thought was great 15, 20 years ago, and we're there now.

Ramona Schindelheim, WorkingNation editor-in-chief:

I'm fearful and I think there are plenty of others out there that that division's going to get even deeper with AI with all the ability that technology has to fake videos, fake audio, and the bots that we already know that exist on social media.

William Raduchel, author, *The New Technology State*:

I would actually go, I'm not that worried about that. But what AI can do is there's a limited targeted advertising, and that limit is creating the copy. AI may be able to create ad copy that is highly tailored. That's what people are already looking at, creating advertising that is tailored. I've been looking at targeted advertising for 30 years, and the limit has always been, yes, I can target 10,000 people, but I can't make 10,000 different ads. Now with AI, I may be able to do that.

And then if you look at what the Trump campaign did in 2016 is they used their own database and they targeted ads, and then Facebook allows you to buy ads by name. So I can actually go and buy an ad and run it only to you, and you're the only person who's going to see it on Facebook. That's what the Trump campaign did. They bought ads by name. So Facebook really had no idea what they did except for the young guy that was working with them down there. And what they ran in Detroit is they ran to Afro-American voters videos of Hillary Clinton endorsing three strikes and you're out laws. And he didn't have to say, "This is Donald Trump," or, "I endorse this message," they just ran these clips. And the intent was to discourage people from voting.

So the ability to target and then to create ads, that's all within the normal rules. It's just a lot cheaper and a lot more effective.

Ramona Schindelheim, WorkingNation editor-in-chief:

So what do you see as other issues? I mean, we've talked about AI before in different conversations. What has changed for the worker? Because that is a lot of our focus obviously here, the impact on society, but the impact on the worker. What does a worker need to know moving forward?

William Raduchel, author, *The New Technology State*:

For society, I think it's clear what we have to do. We have to figure out how we reduce the number of hours of work per week people do and compensate them in a way they can live. I mean, what Roosevelt did and led with the New Deal with Social Security, he got people to retire, and with 40-hour a week and overtime he got people to use more workers instead of fewer workers working longer.

AI is going to do the same thing. We're going to be able to produce more GDP per hour work with AI than we are without. And we can choose to maybe get more productivity and try to drive up economic growth. That's going to have a group of people called environmentalists fairly upset because we may find ways to use energy more intelligently, which could be pro-environment. But we have to go figure it out.

If you're a worker, I think the message is the same as it's been for a long time, which is you've got to be constantly worried about your employability. You can't assume that you're employable forever. And I mean, have we trained people to do this? Do we have structures to support them? I don't know.

I mean, I was talking to someone at a country club recently that put in robotic mowers. And the people who were paid to cut the grass, they're gone because the mowers pull out of their harness, go out and cut the grass. They can do it at night. I mean, they're using GPS coordinates. Any job. I mean, ad copy. I know lots of people who are generating their ad copy using one of the LLMs. I mean, there are very few jobs that aren't going to be touched by AI. And so you're going to have what I said early on, which is AI is going to begin to eat away at jobs and take them away.

I was trying to write some commentary and it would've taken me half an hour, probably taken me a couple of hours to do it. It took me five minutes using AI to get the information and consolidated. I mean, you have to think of AI as a very intelligent index into all knowledge. And sometimes they're wrong. I mean, the problem with any of these AIs is that like a person, they can give you very confidently an answer that is totally wrong. You don't know it. And you have to have it. I mean, I just posted that when I asked about energy consumption in the US and it told me that we consume 400,000 kilowatt-hours per day and generate at 24,000 fill it. You can't generate 24,000, just consume 400,000, and yet the AI was very confident in its answers.

Employability is going to be the issue. There are very few skills that aren't going to be touched by this. I mean, an article today said that in a recent trial, ChatGPT-4 was 72% accurate in diagnosis. And I certainly can foresee the day where before you see the doctor you're going to run through, the doctor will still have the final call, and insurers may begin to say, "I want you to show me that you've looked at a AI-based diagnosis and tell me why you differ before I'm going to pay."

Ramona Schindelheim, WorkingNation editor-in-chief:

So Bill, what do you think government's role in this is? I mean, we're talking about this is a lot of enterprise. This is a lot of businesses creating this new technology, advancing the new technology. Do you think the government should have a role in pulling it back a little bit?

William Raduchel, author, *The New Technology State*:

I believe that the role of government is to set the rules but then get out of the way. And then observe, and if you have to change the rules, change the rules. I don't have much faith in regulation to be honest

because I don't think government can ever keep up with the pace. And I don't think that the people who lead this thing, I mean my friends in the industry think that there are fewer than 500 people who can actually do a cryptocurrency. Well, those 500 people don't work in government. And I got involved in one regulatory matter on crypto, and they were wonderful, hardworking, intelligent people, but they didn't have a clue what they were talking about. I mean, government trying to intervene is a bad thing because I don't think there's any way to do it.

If you want to slow down the AI revolution, there's a pretty simple way to do it. Put a tax on GPUs, make it more expensive to do it. Then you are going to slow it down. That would hurt the market capitalization of a lot of companies, and so it's unlikely to happen. And unfortunately, some of our adversaries are going to do that not at all. There are other people in the world, and so trying to slow down AI has consequences.

Government's got to worry about what does the future look like? I mean, we don't have any, the French used to call it indicative planning. And for a while they did it reasonably well. But we don't have a plan. We don't know what the economy looks like 20 years from now. And what is a reasonable premise? Everybody's guessing. There's no guidance. Some of the not-for-profits that used to be around are gone. They would sponsor these kinds of things and try and produce some idea of what it's like.

I do think that government has a legitimate role in thinking about robustness for our society and our economy, and they're the only ones who can do that role. As I think the pandemic showed, in many ways we've become too fragile and we're dependent on supply chains that were enabled by technology.

I mean, I suggested to a friend that I talked to yesterday and I said, "Well, you want a question to ponder? How do we staff government? How do we get people into government that understand the world and where it's going as opposed to the people who are attracted to government today where your compensation is dominated by your pension, which again, self-selects a group of people to go in. How do we get the people that are out there driving the cutting edge actively involved?" We're not doing that. I don't see it happening anywhere in the world.

Ramona Schindelheim, WorkingNation editor-in-chief:

I'd like to maybe end on this question with you. You've spent your career, you said 60-plus years in technology. You've seen it from, and I want to say the launch of the personal involvement, the more integration in our society and a personal level, but also advancements in business. So are you optimistic? Are you pessimistic? What do you see in the near future and in the distant future?

William Raduchel, author, *The New Technology State*:

Well, I wrote the book because I'm concerned. I mean, I think technology could bring us nothing but wonderful future, but we got to manage it and we got to manage it well. And I think right now we're not. And I think, I urge that we do things to break up the tech giants, which isn't going to be popular. But I mean, I think that a world that's dominated by five or six companies and government is not a good world. But it's very expensive. I mean, you read the story on Tesla. He spent \$2 billion on an order for chips from Nvidia, but he's also started a project to build his own chips in case he can't get enough of those. That's a different world, and it's a world of scale.

I mean, but technology can make... In medicine and healthcare, in daily living, are we prepared to be monitored? Technology can only work with data, and do we really want to have surveillance gear? I mean, I work with a company that's trying to do surveillance in a privacy-friendly way because it matters. If you detect a fall with a camera, it takes on average about two minutes before somebody

shows up, yet you know instantly that there's been a fall and you could get somebody there 90 seconds earlier. That matters. That's life and death in some cases.

So technology can be really helpful and has been and can continue to be, but there's a downside. So how do we limit that? And I'm an economist by training and I believe that competition is the way you do that and by empowering people to speak with their dollars about where they do things. But if you only have three companies and you really only have one for each thing, then you don't have much ability for that to happen. So that's what I'm urging is that we get more competition into the mix because that's what I think is required. I mean, so I am cautiously optimistic.

Ramona Schindelheim, WorkingNation editor-in-chief:

Thank you, Bill. I really find this conversation with you always fascinating, and I appreciate you spending some time with me.

William Raduchel, author, *The New Technology State*:

Anytime, Ramona. Anytime.

Ramona Schindelheim, WorkingNation editor-in-chief:

And I've been speaking to Bill Raduchel, the author of the new book, *The New Technology State*. There'll be a link in the article where you can find the book. I'm Ramona Schindelheim, editor-in-chief of WorkingNation. Thank you for listening.