TRANSCRIPT

Brian David Johnson, futurist-in-residence, Arizona State University: The future is built every day by the actions of people. You can't sit back and be passive and let the future happen to you.

Dan LeDuc, host: That's futurist Brian David Johnson, and in today's episode, we'll be talking with him about how we can invent the future. We'll start with a question—how many jobs are at risk of being overtaken by robots in the next two decades? Take a guess and here's a hint: It may be more than you think.

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Dan LeDuc: For The Pew Charitable Trusts, I'm Dan LeDuc and this is After the Fact. Our podcast explores the trends and data shaping the world today and in this episode we're talking about invention—but with a special focus. That is, how can we put knowledge to purpose in this new age of discovery that we're living in? That's the topic of our new *Trend* magazine, which you can find at pewtrusts.org/Trend.

Our data point for this episode is one way to think about the future. How many jobs in the United States are at high risk of being overtaken by robots in the next two decades? Researchers at Oxford University say it's 47 percent. That's right—nearly half.
With our world becoming more and more digitized and our increasing ability to tap big stores of data, we're finding innovative ways to put this new knowledge to work. *Trend* takes a look at automation in the workplace—how we farm and feed the world, and even changes in how we fight environmental crime.

It's all happening pretty fast. So through it all, here's another question: Can we actually invent our future? In his essay for *Trend*, Brian David Johnson says yes. He's a professional futurist who's advised major corporations and now is the futurist-in-residence at Arizona State University's Center for Science and the Imagination.

And so Brian David Johnson's essay was called "How to Invent the Future." So how do you invent the future, Brian?

Brian David Johnson: Well, how you invent the future is, you look at a wide variety of data. And you look out over the horizon, 10 years over the horizon, and ask yourself, what's the future you want and what's the future you want to avoid? And then you look backwards and say, what are the steps you need to take today, tomorrow, five years from now, to get to that future you want and avoid the future you don't.

Dan LeDuc: Well, here at Pew, we love data, so I think we're going to have lots to talk about and how to apply it. But let's take a step back first, and talk about you for just a minute. What is a futurist? It sounds pretty cool.

Brian David Johnson: Well, I appreciate that. A futurist works with organizations that need to make decisions today that may not pay off for five, 10, or 15 years from now.

Dan LeDuc: And how do you get in—how does one become a futurist? Do you get to major in this in school or something?

Brian David Johnson: Well, today, you can. Today, you can go to various universities all over the world and actually get a degree in futurism, or what's called long-term strategic foresight. I teach at Arizona State University and I lecture all over the world. But I'm a bit older than that, Dan, and so for myself, it's a mix of engineering, a mix of economics, of the humanities, of design, lots of different areas. Because to do this type of modeling, you need to have a multi-disciplinary approach to looking at the world. And then on my engineering side, it allows me to get very specific about the steps that need to be taken. The future casting process that I do now with many people all over the world, it really grew out of that need to look out to the future, weigh all the data, weigh all the facts, and then start taking action.

Dan LeDuc: So, let me ask. You talked a minute ago about needing research and data. And all of us have to remain current in our chosen lines of work. So how do you stay current when the "current" is actually the past, if you're a futurist? Now how's that for a question?

Brian David Johnson: I think you stay current by being, really, an active and engaged member of society. You have more information at your fingertips today than we ever had. When I was doing my work back in the '90s, I used to go to the library. This was just as the commercial internet was coming online. Now we have access to so many different scientific journals and so many different commentaries—and also so many different perspectives. That's something that's so incredibly important when you're doing this type of work—is to not just get one perspective, but oftentimes, I look for two opposing perspectives.

Dan LeDuc: Let's go back to the data point for this episode. It says 47 percent of U.S. jobs are now at risk for being overtaken by robots in the next 20 years. That's pretty scary for some people. So talk about what this means for the companies who are pushing progress forward.

Brian David Johnson: Well, I think for organizations that are looking at automation and robotics and the use of artificial intelligence—what I've been calling sentient tools, and writing about these tools that will be aware, that will have the ability to think, but also be social with us. It will have this dramatic effect on the job force and on the labor market. I think we need to understand that everything starts with people and ends with people. And there might be a lot of technology and processes and procedures in the middle, but it always begins with people and ends with people. And as most management specialists will tell you, the most important asset to an organization, to a corporation, is its people, because we're always going to need people. The wonderful thing about work is work is not finite. Even if the robots can come and take 47 percent of the jobs, it doesn't mean that all work goes away. That's the wonderful thing about humanity—is that we're diverse and we're creative and we make new work. There were jobs today that didn't exist 10 years ago. And certainly, there are jobs that are going to exist 10, 15 years from now that we had never even thought of. And I think it's incredibly important for organizations, as they're thinking about the growth of their business, is to think about the growth of their people, as well.

Dan LeDuc: That's for sure. I don't know anybody who makes buggy whips and I bet my grandmother didn't know anybody who was a computer programmer when she was a kid, right? But let me ask, what about the people, the folks, the workers? How do any one of us, as an individual, plan for the future?

Brian David Johnson: Well, I think the first step is to embrace the idea that you will build your own future. The future is not set. The future is not some point off in the distance that we're running towards, helpless to do anything about. The future is built every day by the actions of people. And you have to understand that you control your future. You're going to build the future of yourself, of your family, of your community, of your church, of your state, of your country, of your world. You can't sit back and be passive and let the future happen to you. And then the next step is to say, "Well, let's look at the data. Let's look at what's out there." Again, being curious, always asking why, always looking for new data, new perspectives, things that maybe challenge you or you don't agree with.

Dan LeDuc: You've talked about this process, right? We begin with research, we develop data. What's an example of some data that you might look at if you're thinking about the future?

Brian David Johnson: The future casting process is one that I've been using for about 25 years. And it endeavors to look 10 years out. And I do 10 years because 10 years is too far. It's further than most product cycles, it's further than most election cycles, it's further than most economists will talk to you.

And so future casting is a mix of social science, of technical research, of cultural history, because history is the language we use to talk about the future. It also looks at economics. It looks at trends. Oftentimes, I just look at the big cultural shifts of things that might be happening. So I take all of that, all those interdisciplinary inputs, and start to pull those together. And I even use a little bit of science fiction, because science fiction gives us a language to talk about the future. It allows you to explore the human impact of these futures—the cultural impact, the legal and ethical impact. It gives you a way to have a conversation with somebody else about that future.

So we mix all of that together and then we ask ourselves, what's the future we want and what's the future we want to avoid? And now that you're 10 years out, based upon all these facts and this research, you can turn around and look backwards and say, "OK, well, what do I need to get done four years from now? What do I need to get done eight years from now? What are the things that are in my control or in my organization's control that we can start doing today to get there?"

Dan LeDuc: And you've also written that some of the uncertainties that are built into the future, no matter what, right, are actually opportunities.

Brian David Johnson: As an engineer, you are taught to engineer as much uncertainty out of a system. But the future casting process and what I've learned as a futurist is to say, uncertainty is the landscape of innovation. It's the landscape of opportunity. Actually, we shouldn't be scared of uncertainty. We should embrace it. We should seek it out. And as an engineer, I've worked with many companies to try to get them to put as much uncertainty into their design process as possible, because it allows you to create better products.

Dan LeDuc: A lot of what we've been talking about, in terms of technological changes that we can be putting to our advantage, are the stuff that will handle the rote things. But a lot of what I've been reading, from people like you and others, is it seems like in the future, yes, imagination is one of those human qualities that's going to have to be valued in the workplace more than ever before, which I think is a neat dichotomy. As we become more technologically oriented in the workplace so much, the human skills will be necessary more than ever, which almost seems sort of counterintuitive to what's going on.

Brian David Johnson: Ultimately, what all of this new technology could do—if we take action, if we are active participants—what all of this new technology could do is actually make us more human. This coming age of sentient tools and of artificial intelligence means that we are going to need to radically re-imagine what we value when it comes to people and when it comes to labor, when it comes to work. Whereas now, for many, many years, especially back in the Industrial Revolution, you were rewarded for what you could carry or how big a hole you could put through a piece of metal or what you could get done. And then, as we moved in the Information Age, it was all about what you knew. You'd get paid for what you knew. And as we move into this new age, as we move into the 21st century, we're moving into a time where it's more about collaboration and socialization. And that's what human beings are great at.

We're also really good at emotional intelligence. We're really good at understanding and relating with people in different ways at different times. Artificial intelligence—and I build artificial intelligence right now—is really bad at that. It's really bad at understanding if you've had a bad day or if you're really jet-lagged. But most human beings, you put them in a room with somebody—or on a phone call, or talking as we're doing—and you start to pick up these clues. So we start to value being human more than we value productivity, more than we value output. And that's what gets me really excited about some of those stats—like 47 percent of the jobs going away—because of all the new jobs and the way that we'll be able to start forcing ourselves to radically re-imagine what we value in our culture. Because that's really all culture is, is saying, "This is what we value," and then rewarding it.

Dan LeDuc: It feels like we're in this almost post-Information Age. I don't know what this new generation is going to be called, whether it's driven by the speed and the pace and everything else that's going on. But we have more knowledge than we've ever had before. And this is part of the theme of the *Trend* journal that you were nice enough to contribute to for Pew. That unless knowledge is put to purpose, it really doesn't have much use, does it?

Brian David Johnson: No, not at all. That's the thing that I teach my students every year, is that you need to use all this information, you need to gather it together, and then you need to do something. If you have a vision for the future, that's fine. But unless you can communicate it, unless you can put it to action, unless you can socialize it and start to build that, then you're absolutely useless as a futurist. And I believe that this is important for everybody, that first, you have to be informed.

Dan LeDuc: So Brian David Johnson, thank you for your time on this episode. And thank you for your contribution to *Trend*.

Brian David Johnson: It was a pleasure.

Dan LeDuc: If you've enjoyed this conversation you can read Brian David Johnson's essay about inventing the future in Pew's new *Trend* magazine. It also includes a thought-provoking look at how we are creating new ways of forming public policy, how the internet of things is changing our homes and ways of living, some thoughts on the importance of research from Bill Gates and, yes, a look at how robots could change our workplaces. You can find it at pewtrusts.org/Trend.

For The Pew Charitable Trusts, I'm Dan LeDuc and we hope you'll listen again. Sign up on iTunes and other streaming services and let us know what you think at pewtrusts.org/After the Fact.

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