Building the Future

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Brian David Johnson grew up surrounded by technology and computers, so it’s not surprising that he ended up working in the technology field. As a futurist at Intel, the world’s largest semiconductor chip maker, Johnson travels the world gathering information from such diverse realms as sociology, economics, and even science fiction in order to determine what people will want their world to be like 10 or 15 years from now. Then he helps figure out how to create that world.

Growing up technical
My father was a radar tracking engineer for the FAA, and my mother was an IT specialist. When I was very young, my father would bring home electrical schematics from the radar and explain how electricity moved through one part of the machinery. The next week, he would bring home that part so that I could take it apart and understand it.

My mother used to bring computers home. She taught me how to speak computer. To me, writing computer software when I was young was just like writing stories. I think of the work I do today as storytelling. I believe it’s a myth that there’s a difference between creative and technical. There’s tons of creativity inherent in being an engineer or computer scientist, just as there’s tons of technical knowhow involved in being an artist or musician.

Interdisciplinary advantage
I attended college at the New School for Social Research in New York. It was interdisciplinary: I could take economics, art, literature, and technical classes and pull them all together, which is what I do in my job now. I loved writing, technology, and design, so I did different internships to try out different jobs. But I was practical—I had very good computer skills, and I wanted to be able to apply them.

By the 1990s, I was doing high-tech product design, making interactive television applications and set-top boxes. It took five to eight years from design to production. I mixed technology, creativity, and design with business and economic principles in order to build these products.

Around 2000, Intel began to design chips 5 to 10 years out, so they needed to know 10 years out what people would want to do with them. I came to Intel to work with engineers, creative people, and researchers to conceive of and build a product over this long timeline. Eventually, that role led me to be Intel’s futurist.

Shaping the future
I work with a team of social scientists, anthropologists, and ethnographers who fan out all over the world to study how people live, shop, and work. I use economics to understand gross domestic product and forecasts of population growth—the math of the future—to see what the world will look like 10 to 15 years from now. Then we consider the technical research to understand what we can potentially do with computers, and ask how this technology can make people more efficient, happier, and healthier. If you look at what people want—what they think is cool, and what makes them happy—that’s usually a pretty good indication of where technology’s headed.

Once we understand what people want, what the technology is going to be able to do, and what the world’s going to look like, I hit the road to talk with as many people as I can, from other companies, governments, and militaries to universities and students, to find out what they want from their future. Sometimes I write fact-based science fiction stories, using the Intel research, to provide a common language so we can talk about the future. I say, “Here’s this vision for the future,” and then try to learn what others think about it.

A growing conversation
The future doesn’t just happen. It’s not some fixed point on the horizon that we’re all running toward, helpless to do anything about. The future is made by the actions of people every day, and one way to change the future is to start having conversations with others about what kind of future they want.

The Tomorrow Project grew out of this desire to get everyone to be an active participant in their future. It explores the human, cultural, and ethical implications of technology through conversations with scientists and science fiction authors, experts, advocates, and everyday people. We’re prototyping ideas.
The future is now

The size of meaningful computational power is approaching zero, meaning that the size of the chip—the size of the intelligence—is getting so small that it’s becoming almost invisible. We’re talking about 14 nanometers or 7 nanometers. Seven nanometers is about 21 atoms across. That means we can turn anything into a computer: my chair, my shirt, or my body for that matter.

This fundamentally changes the questions we ask ourselves about the technology we’re developing. For decades, we’ve had to ask, “Can we?” Can we take that big bulky mainframe computer and turn it into a PC? Can we make that PC small enough to fit on somebody’s lap? Can we make that laptop fit in somebody’s pocket? With the size of meaningful computational power approaching zero and the ability to turn anything into a computer, we don’t have to ask “Can we?” because we know. Now we have to ask ourselves, “What do we want to do, and why?” We can really start thinking about how we can make people’s lives better using this intelligence.

Limits of imagination

Justin Rattner, the chief technology officer of Intel, has said that “science and technology have progressed to the point where what we build is only limited by the constraints of our imagination.” We’re to the point where if we can imagine it, we can build it. Our biggest challenge is our ability to imagine a vastly different future, a bigger, bolder future.

One of the things we’ve been thinking about is what it would be like to have a 21st century robot. What if a robot could be your friend, or could take care of your grandparents? What would it mean to have a laptop or smart phone that could walk around? What would the apps and games look like for your little robot?

Powered by people

Although the pace of technology doesn’t feel fast to me—my family jokes that I live 10 to 15 years in the future and commute home on weekends—I know that people feel a lot of fear and worry. But technologies are simply tools. All this technology is just a hammer, and a hammer is just a hammer. It’s only important when you look at what it can do. It can build a house, and it can affect people’s lives.

So much of the work we’re doing in high tech—and in chemistry, biology, and physics for that matter—requires people who are not only passionate about the sciences, but who can speak code, who can actually pick it up and do something with it. It doesn’t mean you have to be a software engineer, but it’s incredibly important to learn to code, because it’s how machines talk to machines. It’s how humans and machines talk to each other. Coding is a language, and once you understand it, you’ll have a much deeper understanding of all these machines and what you can do with them.

But I can also tell you that when I talk to CEOs and university people, they all say, “If you want to be a good coder, also take philosophy; if you want to be a really good software architect, study dance.” It’s no longer sufficient just to be the geeky, pocket-protector kid I was. You have to be able to pull it together creatively.

An ongoing conversation

The most fulfilling part of my job is being able to have this ongoing conversation about people’s dreams and futures, with everybody from government officials and CEOs to middle schoolers.

When the CEOs say, “Brian, you’re a futurist. How do I prepare for the future?” I tell them to get a 13-year-old mentor. Young people have much to say about the future, because they are going to build it. The future is made every day by people. I feel that my job is to give them the tools they need to build a better future for themselves, their families, their communities, and the world.