Why People Really Love Technology: An Interview With Genevieve Bell

The thing I love about Intel researcher Genevieve Bell is that she finds surprising things by looking at what's left out of the dominant narratives about technology. She finds data that's ignored because it didn't fit into the paradigm of, say, how people adopt technology. The dominant narrative is that young men determine the popularity of phones, computers, websites, and the like. But when Bell looked at the data, the story we told ourselves about how the world worked was not reflected in the numbers.

That's why I wanted to talk to her about what gadgets people around the world might be using over the next decade. I figured she was someone who could look past the conventional wisdom and find the missing pieces of the future. What follows is an extended remix of the conversation we had, which appears in a shorter version [in the latest issue of our magazine](https://www.theatlantic.com/magazine/archive/2012/12/what-makes-her-click/309163/).

**How did your current role at Intel come to be?**

About two years ago, Justin Ratner of Intel approached me and asked if I would consider coming back to the R&D labs. The start of my career in Intel was in the R&D labs, but I had moved into the products groups, because I was determined to work out how to make social science and anthropology have a business impact.

I said, I think what I want to do is reinvent the way we experience computing. He looked at me and said, "You're already late." And I was like, "Is that a yes?" He said, "Yes, that'd be excellent." And I was like, "Good. Well, I've got an idea for the sort of people I want to assemble to do that." I knew I needed social scientists other than myself, because you want people who have that training, that deep connection to people, and an ability to understand what they're telling you even when they're not saying anything. And I wanted a bunch of interaction designers, human-factors engineers, user-experience people, because I really wanted that ability to start bridging from the ethnographic work I know how to do into things you can start to move engineers with.

Then I decided sort of radically that it would be good to actually have some engineers this time. I said to my boss, "Could I have some engineers please?" And he was like, "What do you think you'll do with them?" Well, after he processed the initial shock, I said, "I want to have the conversation." I realized if you want to talk about the future, you also have to start building it. And what I realized about my time in the tech industry is that people were stumped for ideas. You have to put things in people's hands to start letting them imagine what's possible. I wanted to start to be able to push the boundaries of what was happening, in terms of having people who understood the latest gear build their own and hack their own. And I realized, too, that I was incredibly interested in the hacking/DIY/making movement--running the gamut from the kind of classic maker's fare to the kind of stuff I grew up with in Australia.

You know any Australian worth their salt has a shed somewhere on their property that is full of stuff that they're inevitably cobbling together, right? I was back in Australia over the weekend and talking to some of the farmers out near where my family has a farm, and they are just mesmerized by idea of 3-D printing. Here's a bunch of pretty burly boys with their harvests, tractors, and dirt under their fingernails for the past 35 years. And they're going, "This 3-D printing? That's pretty cool."

And I'm like, "What? Why is that cool?" And they were like, "Mate, you've been in my shed, you know it's full of stuff I've been collecting because one day I'm going to need to make a thing that will hold that bit and that bit, and I'm always cobbling it together and finching it and [using the Australian version of crazy glue] and a four-inch nail. But 3-D printing might just *make* it." And they were like, "Here is this thing that could make the thing that could make *the* *thing* out of the stuff."

**Could you go through the traditional way of thinking about gadget adoption? Which new users does it leave out?**

One of the things we told ourselves for a long time was that there was a particular group of early adopters. When I joined Intel, my boss sat me down and said, "We need your help on two things. [One,] women." I said, "Which women?" And she said, "All women."

We had this fascination with what the youths are doing and this notion that technology was being used by men. The data just didn't reflect that. When you look the globe over, women are 44 to 45 percent of the world's Internet users. They spend more time online than men--17 percent more a month. If you look at social-networking sites on a global scale, women are the vast majority on most sites, with the exception of Linked-In. Facebook is an extension of social communication, which has often been the realm of women.

Same with things like Skype, whose average user is 20-to-30-something, college -educated, female. If you look across the sale of e-readers, those are vastly driven by women. The same with downloading books, which is a lucrative space right now. If you look at smartphone data, again, women are about half the users on the planet, but spend more time talking, texting, and using location-based services than their male counterparts. When I put all that together, I had this moment of going, What? What is it that makes people think we're not using the technology?

**What does your analysis say about how other groups will adopt new technology?**

We have this incredible fetish for youth. I want to laugh. Of course young people are using technology: their parents are paying for it! That's like saying I took my children to a buffet and they ate themselves silly. As soon as they start paying by the course, they eat differently. When people move into having to pay for their technology, their patterns of use change. What's interesting is, if you look at the data, you also see a lot of people in their 40s, 50s, and 60s using this technology, and they're not the people we talk about either. They're the fastest-growing groups on Facebook. They're the biggest users of online dating. Unsurprisingly, they're the biggest users of online financial services, online medical-information sites, and e-readers. All of which are kind of hot things at the moment. And you know, I'm sure there's an argument to be made that Facebook got a lot less sexy when everyone's grandparents joined.

**What development are you tracking most closely right now?**

The different trajectories of technology adoption the globe over. We don't do a good job of tracing the genealogies of technology, and I think when you start to trace those out, you see these interesting threads that are deeply cultural and historical. There is a kind of anxiety in the post-Enlightenment West, fueled by 60 years of science fiction, that if computation gets too smart and achieves "consciousness," it'll kill us. I think of it as the Hal/Terminator/Blade Runner-singularity kind of anxiety.

What's fascinating is, it isn't global. I was trying to have this conversation with some of my colleagues in Japan. We'd just been out in the provinces and had seen a sign that said Autonomous Robot Zone. I said, "Aren't you worried about the robots?" They said, "No, Genevieve, because the sign says they're two meters in from the curb." And I said, "Aren't you worried they won't stay two meters in from the curb?" They said, "You don't understand. The robots are our friends." And they proceeded to tell me about growing up with Astro Boy and the notion that robots were good. One of Japan's leading lights on robotics has basically written that robots embody our best selves, our better angels.

**Let's talk about your work on ubiquitous computing. It seems like what's fascinating about the idea of ubiquitous computing is that all the user interfaces are now up for discussion again, and there's just this wide-open field as people figure out, *When I have processing power and interactivity in a place I did not have it before, how do I actually want to interact with this thing?* Why did you want to go deep into ubiquitous computing?**

I was going to these conferences with people who kept saying "Oh, you know, ubiquitous computing, it's going to come, we're going to have this world with smart devices and smart environments." And I'm thinking, *I've seen that, that's in Singapore.* They were like, "We're building it in the lab." And I'm like, "I'm pretty certain that's in Seoul."

**Yeah, Seoul is crazy.**

There's this amazing disconnect. All these engineers and computer scientists said they were building this ubiquitous-computing feature, and I'd already been in it. I think for me, this narrative about the future had become so kind of, I don't know, adopted, that people had missed the fact that it already happened. I think that part of the reason they missed it was that the ubiquitous computing that has happened in Asia in the past decade took a different form--it didn't come out of industrial research labs and private enterprise, it came out of government and it was back-ended by a vision driven by city-states about notions of citizenship in the future. It had a form that was more interested in civic good than individual rights.

The tidiness of the ubiquitous-computing story masked the untidiness of making it true. Even to this day, in 2012, the Internet is hardly ubiquitous the world over and certainly is not universally experienced. The technology is a patchwork. If William Gibson said the future is already here and unevenly distributed, I'd say the present is already here and unevenly distributed. And there's something there about *How do you unpack and unpickle that?* that, for me, was fascinating. What is the tidying-up work with the story of ubiquitous computing, about the way we experience ubiquitous technology?

**And what was that work?**

I think it was about all sorts of things. I think if you're saying it's going to be ubiquitous, then you have to talk about the fact that the Internet is not a seamless, global technology. It is in fact a very seamed technology. Different places in the world have different regulations and different infrastructures, which means that how you experience the Internet in Manhattan is not the way I experience it in Oregon, is certainly not the way my mother experiences it in Australia, is not the way my mates experience it in London--partly because those all have different standards about what the relationship is to upload and download speeds.

My colleagues in Singapore experience an Internet that is fast in both directions. We pay different amounts. We have different package structures. We have different configurations of the technology, so that different information moves at different speeds. If we're working on a mobile network, that's very different from a fixed network. We know that there are different regulatory frameworks so that as the Internet turns up in different countries, it is experienced and felt differently. Not all applications run the same way. And for me, to talk about the Internet is already to tidy up this incredibly interesting mess. There isn't *an* Internet; there are many Internets. And they're going to feel different--experienced differently and used differently and imagined differently.

**I want to change gears a tiny bit to talk about 3-D printing some more. I find it remarkably difficult to get into, because I'm from the software generation. I came up after the computer tinkerers; I'm not from a period where I would have learned soldering. By the time I got there, I could just get a box. I had to learn how to run the box and I had to put in RAM now and then, but the finished product came to me and I built things--the platform--on top of that. Now there's this reemergence of the physical culture of the craft DIY side, and this 3-D-printing side of things that I don't understand how to use. Who is going to adopt these physical technologies first?**

We've been in a decade of dematerialization, all the markers of identity. You and I, when we were younger, knew how to talk about ourselves, to ourselves and others, through physical stuff--music, the books on our shelves, photos. We've gone through a period where a lot of that content is dematerialized. It became virtual. You could send people playlists, but it's not the same as having someone go through your record collection. It had a different sort of intimacy.

And it doesn't surprise me that after 10 years of early-adoptive dematerialization, all the identity work and now the seduction of physical objects has come back in full force. Now it's kind of a pendulum: we move between the virtual and the real a great deal. And we have historically--that's hardly a new thing. I suspect that part of what we're seeing with the Etsy maker and that whole spectrum is a kind of need for physical things because so much has become digital, and in fact, what's being manifested in some of these places is really a reprise of physical stuff. Physicality has kind of come back.

Now, who do we think the early adopters are going to be? It's really going to run the gamut. There's clearly an Etsy world, and Etsy's really interesting, and the Etsy world is--some of it, clearly--is about small-scale cottage industry. I think some of it is about art. It's been like that for a long time. Lovingly in Australia, we call that custom "Nana art," for, like, knitting and crochet.

**You've told me that in your Intel lab, you focus on what people love. So: What do people really love about new technology?**

I have so many stories of people reflecting on the ways technology gave their parents voices they didn't know they had. I remember years ago, people--mostly 20-, 30-, and even 40‑somethings--reflecting on the fact that when e-mail and text-messaging came along, they suddenly heard their father in a way he'd never been before. It gave a generation of taciturn men a way to have affective relationships across their families. I still hear that about the way people are connecting on Facebook.

There's something in it that you recognize as being a kind of truth. The early ideology of the Internet was about radical transparency, free information, and the sense that the consequences of that would be this sort of massive social upheaval. I sometimes think the more-interesting things are the really mundane, banal things that the Internet and digital technologies are now part of: everything from how we balance our checkbooks to how we arrange our romantic lives to how we insure that there's still a paper that gets delivered to our houses every two weeks. I'm fascinated by that piece. And the ways in which the Internet has become not just part of our romantic lives but also our spiritual and religious ones, and clearly it's part of our political landscape.

It's interesting how different that looks in different places. I still remember my colleagues who worked in Southeast Asia talking about the early Web sites that were turning up across that part of the world. One of the very first Web sites that operated out of Sri Lanka was for the Sri Lankan diaspora living in Europe, and it offered tarot divinations. There was some [part] of the Sri Lankan population that, when you made decisions, consulted a priest--not that unusual. One of the things involved a box of goods and paper, and the priest read the piece of paper and made sense of it in your given situation--classic divination activity. Well, if you weren't living in Sri Lanka, you didn't have access to the priest or the tarot, so someone made a Web site that did that.

**That is amazing.**

Isn't that fabulous? Of course that would make perfectly good sense if that was the service you needed. The matrimonial classified section of *The* *Times of India* was a huge win when it went online, because, as the Indians I did fieldwork with explained to me: "Listen, Genevieve, getting a husband is a database problem." The Internet is very good for that. So how this stuff unfolds and unravels is going to look different in different places. The same technology will be beloved and frustrating for completely different reasons in different parts of the world, which for me is the wonder of it all.

**When it comes to user experience, are there things that people love that you didn't expect them to love?**

Some of it is about tactility. Think about the number of times you have stood in the lobby of a building and watched a little kid run up to an elevator button and then just push it a hundred times.

**Or go through one of those carousel doors too many times.**

Or the traffic-light button. There's a tactile response that human beings obviously really like. I had the pleasure of being in Belgium recently with Bill Thompson from the BBC, and he was on a panel with me, and he had ... an iPhone, an iPad, a MacBook Air, and a piece of paper, and something else, and he was moving between screens. I watched him attempt to make the screen on the MacBook Air work like the iPad. And I kind of realized there that, actually, the thing that's interesting is that people don't know how to change gears.

So people who are using touch things then go attempt to touch everything the same way. There's that kind of intuitive *I've just banged on my laptop* *and am waiting for something to happen* or *I've just touched my Kindle*or the phone or whatever it is. My favorite example is watching people stand in front of ATM machines and bang on the glass. Because it makes so much sense for people when they go for the glass.

I've heard people talk to a lot of consumers in the U.K. over the past couple of years, and anyone who has got digital-TV stuff there has an enormous anxiety about the red button on their remote control. It's this very odd thing: the red button basically pushes them into a paved-wall, garden environment where it's not clear what's going to happen. So people have this really interesting anxiety about the red button, and it came up in every interview we did: "Oh my God, I don't want to push the red button." And people had strategies about the red button, like taping over it so you couldn't push it. It's really quite splendid in terms of managing that. I heard a nice one the other day about people with their Galaxy phones: they liked the ever-so-faint vibration that came up when you touched the phone. It's like pushing the elevator button: you want to feel something. I think that faint vibration is how we reassert that [when] you do something, you want a response to it.

**So what's next in gadget interface design? Will tactility return to our lives? The iPad's version of touch is so flat, and there's no feedback.**

I think we will end up seeing this incredible layering of things: standard touch for some things, haptics for others, voice for yet another thing. The best analogy I can think of is cars. When you sit in a car, look at all the different ways you have to engage with the machine. The wheel, for steering. Foot pedals, for gear changes, acceleration, and braking. It turns out having a knob for windshield wipers doesn't really make sense.

**We always talk about technology adoption. What about non-adoption? Can you think of telling areas in which people haven't wanted a new gadget?**

We have the example of the Honeywell Kitchen Computer from the 1960s, in a Neiman Marcus catalogue. I think it cost about $10,000--and $600 to teach your wife how to program it. The tagline was "If she can only cook as well as Honeywell can compute." It's so perverse. Of course, none of them sold. Every ubiquitous-computing conference I'd been to, everyone was doing something in kitchen computing, and none of it ever seemed to pay any attention to how people actually inhabited kitchens.

**Has anything changed since then?**

This last year, we were looking at really early adopters of the iPad, and we found a woman in her house, and what had she done? She had stuck the iPad in a ziplock bag and stuck it on the kitchen counter and was using it to cook. And I remember thinking, Ah, it wasn't about "kitchen computing," it was about computing you could make come to the kitchen. It was about finding an object that fitted into all the things that a kitchen already is, rather than trying to re-configure the kitchen around the Honeywell Kitchen Computer.

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