



## **Bruce Sterling: "The future is about people navigating urban Internets"**

**Poptronics:** What has Internet of things to do with spimes, a word you invented in your book "Shaping things" composed of space and time ? What's the difference between these two concepts ?

**Bruce Sterling:** An Internet of Things naturally focusses attention on the Internet, while a "spime" is a "Thing" within an Internet of Things. I used the invented word "spime" in order to approach the subject from the perspective of industrial design.

It seemed to me to help a lot to focus on physical objects rather than networking issues -- on the Thing, not the Internet. But there could be many different kinds of "Internets of things."

They wouldn't necessarily have the qualities of "spimes." Spimes are things within a comprehensive production system that is clearly focussed on sustainability. I see "spimes" as part of a general struggle with major environmental problems.

**After a few years of development of the Internet of things, what are the key step(s) in designing and handling spimes ?**

There are six of them: digital plans for objects, digital identities for objects, digital manufacturing or "fabrication", a tracking system, a searching and datamining system, and a recycling system. But even if these six key technologies all develop and converge at a brisk pace, they will still need interaction design and probably social media in order to work.

**In "Shaping things", you wrote that 2010 would be the society for gizmos or spimes. How do you feel about it today?**

In order for "spimes" to come into existence, six technologies would have to converge. Since I wrote that book, some of those six have done rather well while others have clearly faltered.

Probably the worst laggard is RFID technology, which would likely be required to give things within the Internet of Things unique and trackable identities.

I wouldn't say that RFID technology has completely failed, but "item-level RFID" is quite rare today. Without that capacity, spimes will remain a mere visionary idea, a design theory.

The precursor to spimes were called "gizmos," meaning complex things with brief lives but large technical capacities, that exist outside any Internet of Things. We have plenty of "gizmos" today -- cellphones, iPads and laptops are all good examples of "gizmos." Gizmos have many virtues, but they're certainly not sustainable.

The technologies I wrote about are advancing, but not congealing into a single comprehensive ubiquitous system. There are some signs of this happening here and



there, but I wouldn't call it a major groundswell. We're certainly not approaching sustainability. Basically, we're approaching poverty.

**Do you see spimes around us? Could you describe the most emblematic/interesting of them?**

I'd say the objects most nearly like spimes are mobile handheld units with GPS tracking wifi and web-browsing, but those devices are quite clumsy and primitive compared to "spimes" -- they're mere "gizmos." However, it may be that we will never have an "Internet of Things." It may be that "urban informatics" is a better model for what is happening to us -- in other words, the future is not about thing-based Internets, but about people navigating urban Internets. Not RFID, but Foursquare.

**What are the most unexpected uses and products related to Internet of things that you have seen emerging lately ?**

Probably barcodes, fiducial markers and Augmented Reality. It did not occur to me that there might be a new method of interacting with things that involved realtime embedded video on screens. But obviously the interaction-design of an Internet of Things would be crucial -- it's not just a matter of improving industrial design by digitizing the life-cycle of physical objects.

I'm also impressed by new social-media sharing networks that allow things to circulate between users in a kind of post-rental, network-economics system. Some people call this "collaborative consumption". My book from 2005 scarcely hints at this.

**Designers, you say, construct objects that anticipate our future. What do you think about fablabs communities and activists, who are not so-called designers? What are they doing?**

They are mostly social hobbyists, like people who pool their knowledge to paint toy soldiers, build model airplanes or collect stamps. Popular mechanics have a long and interesting history. The Internet is having a big impact on that community. However, if one wants to reshape industry in general, as opposed to making craft objects for a circle of friends, it's a good idea to take design very seriously.

**Do you think Internet of things will be part of metahistories people do construct about their environment? It seems people don't yet dream about Internet of things. Do you have an explanation?**

I can assure you that there are people quite busy dreaming about that subject.

**Have you been observing Internet of things' own version of luddites ? Many critics go with the Internet of things (political, civil rights, privacy, social...). Which ones seem most interesting ?**

That would be Dr. Katherine Albrecht. She's interesting. Not correct, but interesting. I think the Chinese are good and interesting critics of the Internet of Things, but not from the



perspective of civil rights or privacy. They just want it to work for a Chinese competitive advantage.

**You said acceptance is a condition for successful design. What do you think about the social resistance for chips and barcodes and for invisible devices that permit Internet of things exchanges?**

Chips and barcodes are hitting some stubborn limits, but they're not social resistance limits. The technology itself is still quite primitive and it fails a lot in embarrassing ways.

**The Internet of things which has developed now, isn't it more and more a way of controlling our datas, ie our lives?**

I don't think it makes much sense to speak of "controlling" people's lives when most people are leading precarious lives on the brink of economic collapse. You can't "control" people's lives when they lack steady jobs, pensions or health insurance. You can police them and oppress them, but if they don't know what to do next, you are not "controlling" them. Controlled people always assent to their lives because their lives seem entirely natural to them. These times are much too unhappy for people to feel controlled.

**How important is datamining nowadays? You talk about a "synchronic society": who do you think is synchronizing our society? If data are more or less ignored, who can control and organise the datamining ?**

Data doesn't need to be humanly comprehended in order to be useful to people. You can put two random words into Google and instantly get results no human being has ever seen.

There's no human control or organization there. Google is a set of data-mining algorithms, and until you put those search-terms into there, that page of results is so thoroughly "ignored" that it doesn't even exist.

Data in French is ignored by people who don't speak French, but that doesn't mean that French data is unimportant. Conscious awareness of data is not the same thing as usefulness of data.

**Internet of things after barcodes, chips and Arduino... You assume naming is an important step in accepting objects. In French, Internet of things is named Internet of objects. What do you think of that?**

I am quite a fan of *ordinateurs* and *réalité augmentée*, and nobody but the French has any of those. France has quite a long history of trying to impose politically correct French speech on technological developments. An Internet-of-French-Things would be interesting. It likely would fail like the Minitel and the Chappe optical telegraph, but it might push development into some unexpected spaces. I see no point in scolding the French for behaving like the French have behaved for centuries.

The idea of unique individual names for individual objects has severe semantic problems.

People have been talking about the "Semantic Web" for a long time, but not even the French have a Semantic Web, despite their keen cultural interest in semantics.

**Electronics is one of the dirtiest industry on the planet. How can they become part of everyday objects in a way that is not detrimental to the environment (as it is today) ?**

There are vast industries far dirtier and more hazardous than electronics. The ugliest industries are commonly the oldest ones. Electronics is guilty of many environmental crimes, but no one is so entirely filthy as fossil fuels.

**How do you feel about futurity as a sci-fi writer?**

I think we sci-fi writers need to reassess history and futurity from the point of view of thinkers in a network society, as opposed to remaining "science fiction writers."

**Last question, with no direct relation to Internet of things: what do you think about the vision (which seems opposite to yours) of French thinker Paul Virilio concerning the society of speed (and his theory of "the big accident")?**

I prefer Baudrillard to Virilio, but I suppose that's a matter of taste.

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