“Digital technology is moving into urban spaces.”

Carlo RATTI, professor at Massachusetts Institute of Technology (MIT), lays out his vision of smart, “senseable” cities of tomorrow. How millions of people and billions of sensors will together shape work, play and our transportation systems.
Let’s assume a few years on, every object is location-enabled and can broadcast its status. How are humans supposed to make sense of this deluge? You can compare this problem to the early days of the Internet. People wondered how to make sense of all these links and pages, and then Google arrived. Its software hides the messy complexity under a simple-looking interface that actually answers many of our questions. We humans have actually reacted to this by changing our own behavior when and where we click, so our behavior shapes the whole system and makes it easier to navigate. There is room for a Google of the real-time observable world. Of course there are big questions: We don’t know yet what the architecture and infrastructure of a global, real-time sensor network will look like, how centralized such a system will be, who and what machines will have access to the data and can share them with other humans or systems.

What will transportation look like in these instrumented, always-on cities? Once technology becomes truly ubiquitous, it almost disappears into the environment – we don’t notice it anymore. A light switch is a given, when you enter a room – you don’t spend a second worrying if there will be light. The same is true for Wi-Fi connections, and it will be true for all kinds of other data and tools. You have your mind and hands free to do things you care about. The prime example is the computer. First they were giant machines sitting in a basement. Then they moved to our desks, forcing us to sit at one spot. Now they are moving into our pockets. That has crucial effects on architecture and space – until not too long ago the machines were dictating the layout and design of our spaces and our buildings! Humans had to arrange their work lives around the needs of machines. You could argue that half the space requirements were defined by technology. Now, we’re getting to the point where it’s almost 100 percent about human needs.

Won’t we see more traffic than ever if everyone is free to roam around all the time? Transportation will be much more intelligent and quicker than today, because all the different components are better synchronized. The advantage of the car over public transportation has been the fact that you can make individual decisions that are better tailored to your needs in space and time. Technology like my lab is developing shifts the balance. Once there are sensors on buses, in cars, embedded in roads and traffic lights, you or your technological assistants will know the status of your transportation options and let you know when it’s time to leave the house. So we cut back on wasted time – the border between public and private transportation becomes blurred. The next step would be to actuate the transportation vehicles – they can be dynamically routed because they can sense where people are waiting. Again, machines adjust to our needs, not the other way around.

What role will private cars play in this sensor-rich world of large urban centers? Cars will certainly continue to be a major component of intelligent transportation – being connected to your information, having better telematics systems, being more aware of your driving environment. The main change I foresee is that the car will lose some of its power as a status symbol, to broadcast to the world who you are. The younger generation will use other ways to tell a story about themselves: their customized iPhones, their Facebook page. Conspicuous consumption will move on to other elements of our daily lives – first from atoms to bits and in the future to a mix of bits and atoms – hardware with lots of embedded software and intelligence, sensing power that allows you to tailor technology to your needs and at the same time broadcast your profile and preferences to the world. Cars can adapt to this change if they offer a new way of expressing one’s personality and one’s ideas of transportation in a sensorable city. We live in exciting times!