



Q&A  
GARVIN JABUSCH

## Smart cities are here. But can they stop leaky water pipes?

**+** Garvin Jabusch is cofounder and chief investment officer of Green Alpha Advisors, a Boulder, Colo.-based asset management firm that invests in companies and technologies that support a sustainable economy. Jabusch pursued a PhD in anthropology and archaeology at the University of Utah, then left to earn his MBA from the Thunderbird School of Global Management. Prior to cofounding Green Alpha Advisors, he managed assets for the Sierra Club at Forward Management.

**Q: The term “smart cities” is trendy, but what does it really mean?**

**A:** In practical terms: interconnecting everything to optimize its efficient use. A computer is going to be able to run almost every operational aspect of a city far better than any human or team of humans ever could.

**So we’re talking about connecting everything from stoplights to sewers?**

Everything—monitors in water pipes and sewers and power and traffic lights. In Denver, they’re starting to pilot some really interesting stuff: with traffic lights, for example, integrating a big solar array and battery storage system, and having all the elements

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talk to each other so that lights turn on and off at the right time. Step one in smart cities is having traffic lights combined with sensors around intersections so the lights know when there’s traffic there and when to switch to green and red. It’s a big energy savings.

**Because cars aren’t idling as long?**

Exactly. Once every intersection in the city is talking to the others, it tends to be more like air traffic control. You can regulate and monitor speeds so most lights for a given trip can remain green and really optimize not only the energy spent on the trip, but—while we’re still in the era of the internal combustion engine—also the pollution and carbon emissions of the trip. We’re in this brilliant, modern civilization, but in many ways it’s still really inefficient.

**Does improving efficiency do more than save money or help combat global warming?**

It has disproportionately positive impacts on disadvantaged neighborhoods, which are often near major routes and freeways and suffer from far worse air quality and subsequently worse health outcomes. These problems are mitigated by smart cities,

especially those powered by electric transportation. We’re talking about a force for anti-inequality.

**Does this go beyond “smart” stoplights?**

If every car has an IP address, the driver can opt to cede control to the city’s network. What if, rather than having individual drivers make route decisions and a lot of them ending up taking the same route and clogging it up, the city optimized each vehicle for the benefit of everyone? This is a world not too far from now and one that a lot of major car companies are starting to understand and plan for.

**Is water another area of innovation?**

Water is the leakiest utility in the developed world. In many aspects London has become a smart city already, but it loses about half of its water before it gets to anyone’s tap. It’s very old and leaky. They’ve been a little bit slow to integrate water monitoring.

**So what’s the solution?**

We like a couple of companies: Badger Meter out of Wisconsin and Itron, the world’s biggest smart-meter maker. They have teamed up to provide very smart water meters

that can provide real-time information about exactly what flow is going through what pipe at any time, and they can do it without being invasive to the pipe. It’s really cool technology. They actually do it via sound.

**How does that work?**

They attach a tiny microphone to the exterior of the pipe and based on the noise they can know how many liters per second are flowing through.

**Is energy the last big part of creating smart cities?**

The smart grid knows where every watt of energy draw is going and where it’s going to be needed next. The more the grid knows, the better it gets at distributing energy, and the more and more efficient the city and subsequently the economy becomes. Public spending can be reduced. Once you have automation of buildings, plus water, plus electricity, via the internet, you can also automate and optimize sanitation, incident reporting, incident response. You can promote social development. ☺

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Garvin Jabusch at his Boulder, Colo., home in April 2016