



NYC'S FORMER CTO: SMART CITY LEADERSHIP IS ABOUT INFLUENCE AND FOSTERING INNOVATION

Minerva Tantoco, until recently Chief Technology Office for New York, shared some insights about her achievements in an interview with Carl Piva, TM Forum's Head of the Smart City Forum. She talked about how addressing social inequality was a major motivator, how important it is to get the buy-in of all departments and how to lead with little formal authority. She concluded with her advice to anyone applying for the job.

Carl: How did New York's smart city initiative and CTO position come about?

Minerva: It was created by Mayor Bill de Blasio, who promised to create the post of CTO to implement a city-wide technology strategy. I took the role after 30 years in the private technology sector, which included starting my own company in Palo Alto. When I went into the office in New York, I didn't even have a chair waiting for me.

There are 8.25 million people living in New York, including 1.1 million school kids, and the city has an operating budget of \$70 billion. I had no office, staff or desk, so I took empty desk in the bullpen and in two years built a startup inside city hall.

Carl: So what happened? Did you have 100 days to come up with a good plan?

Minerva: I had to have a tailored plan – I knew I'd have to rely on PPP [public-private partnership]. [LinkNYC](#) quickly put NYC [New York City] on the smart city map. I realized no one used the 7,500 pay phones in the five boroughs anymore, so we used that infrastructure and turned them into free Wi-Fi hotspots to help the 22 percent of New Yorkers who don't have fast broadband at home.

We were first to offer the fastest free Wi-Fi in the world at up to 1Gbps – and people can use the kiosks to make free phone calls too. They have USB chargers and emergency call buttons for 911, and 311 for information about the city – and it won't cost the city a penny. It's all paid for by digital

advertising in the kiosk provided by the city's partner in this venture, CityBridge. Instead it will generate money for the city. [Editor's note: around half a billion dollars, according to the [website](#)].

There is the kernel of a great business model there and it spun out a whole series of digital initiatives. The lesson is: Use existing infrastructure to generate new revenue through new business models; be innovative.

Carl: Is social inequality a serious issue for you?

Minerva: Yes. I looked at how we could collect and use data to solve some of the toughest urban challenges, so it's about the end result of technology, its social impact, and that was where the [Smart City, Equitable City](#) strategy came from. You can't be smart without being equitable.

You can pretty much predict life expectancy based on your postal code. There is a stark distinction between type of environment, income and services available, based on where you live. So you need a map of social metrics to track crime statistics, income and health statistics by area and use it to define policies and measure their effectiveness to make sure you use resources where they will have greatest impact. So when we did that, we were able to show, for example, that through LinkNYC (we started with 7,500 and now we're up to 10,000 of them), we've already provided half a million people with Wi-Fi access, many of whom couldn't have afforded internet access.

Carl: How do you lead and drive change?

Minerva: I got to define the role, and to impact the City of New York I created a three-part strategy.

First, you have to have talent. Then you need to provide access, so you need to install broadband in low-income housing as well, so people can take courses and find jobs. We've already got one person who finished college education through Wi-Fi.

Third is innovation. We created that culture, giving lighting talks within the administration, and set out smart city, Internet of Things guidelines for all the agencies. For instance, we worked with the Parks Department and now we have smart park benches that are solar powered to provide a free charger station. The bench also counts the number of people who go by: You need good data to design better parks – to know how often you need to do maintenance, if you need to add more officials, and if a place is not much used, why not?

Now the Parks Department understands it needs a data plan and upgrade plan, an operations plan and training too – it's not just buying a park bench and a light bulb any more.

Carl: How did you mandate it with so many different boroughs and agencies?

Minerva: It was a combination of push and pull. Early successes are very helpful. Then by moving towards agile development and cloud, we could be prepared to share data more efficiently. That also provided the motivation; we are all about making each agency successful at what it does. We wanted more efficiency and especially wanted to engage people themselves and get them involved, so we opened a Neighborhood Innovation Lab in each of the five boroughs.

An example is traffic signal prioritization. We connected buses to traffic lights so that they get priority over other traffic. We implemented a pilot to show this reduced commute times by 20 percent. As a commuter, that has a big impact on you personally, and now that's deploying across all five areas.

Carl: When political leaderships changes, you can lose momentum. Do you have to codify what you've done so it continues?

Minerva: Yes. We created an executive order so that the CTO office, the Information Technology Office, the Office of Management and Budget – that is the strategists, the implementers and those who handle the budgeting – are mandated to work together to reach the goals of the city administration. So yes, it will continue.

CP: What will you be most proud of that you achieved?

MT: A main motivation was that as an immigrant, from Queens, and a woman of color to demonstrate that you can arrive in US and become the CTO of New York. I wanted to encourage more New Yorkers to get into ICT and see what a great career it is.

And I wanted to come to Yinchuan to see what you could do with a blank slate and look at what you could do all at once. In New York, you have to work with existing infrastructure and limitations about where you can put fiber and so on – in a 400-year old city it's a retro-fit. That is a challenge for many cities that are looking to upgrade and it needs a lot of creativity. William Gibson [the science fiction writer] said, "The future is already here – it's just not evenly distributed." Our job is to improve that distribution.

Carl: What would be the top five things you'd give as advice to anyone applying for the job?

Minerva: We have set a lot of the foundations; now the city needs to continue data sharing and open data. Add more of the social services aspect to unique problems, such as unequal incomes, but also take advantage of diversity – because people in the administration are hungry for innovation, and see the value of it, so we were able to modernize many approaches.

Most importantly, it's about the people, building the right resources for all the people in New York.

Give a computer science education to all school kids to drive innovation.

Finally, you cannot run by command. There are too many people and agencies, so you need to influence and encourage. With 325,000 [city] employees, being able to lead by influence is the number one skill for the CTO.

[Watch a second, backstage interview with Minerva below:](#)

