How Google Is Turning Cities Into R&D Labs

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From autonomous vehicles to building codes, Sidewalk Labs is thinking about problems and solutions that could shape cities for centuries.

When **Google**'s city-focused **innovation** company, Sidewalk Labs, launched in June of 2015, few specifics were known despite the fanfare. Its founders said that it would "pursue technologies to cut pollution, curb energy use, streamline transportation, and reduce the cost of city living."

Soon afterwards, the company announced it had bought the **design** firm Control Group and media company **Titan** before formally merging them into a separate "media and technology" company called Intersection. The new company's first project? Ripping out obsolete payphones and replacing them with Link kiosks, a new type of communication infrastructure that offers free public Wi-Fi and phone calls, a tablet for web browsing, USB charging for mobile devices, and wayfinding tools. The first of 7,500 Links are already being installed throughout New York City,

Yet LinkNYC is just the first of a long laundry list of solutions that Sidewalk Labs plans to address. Today, the company is revealing a big step forward, announcing new members of its senior leadership team. Joining **CEO Dan Doctoroff** are **Craig Nevill-Manning, Chief Technology Officer; Anand Babu, Chief Operating Officer; Rit Aggarwala, Chief Policy Officer; and Josh Sirefman, Chief Development Officer.**

Looking at the team's expertise hints at where Sidewalk Labs may going in the future. Nevill-Manning led projects like **Google** Maps. Babu was part of **Google**'s Machine Intelligence team. Aggarwala **design**ed the Bloomberg Administration's aggressive sustainability plan, PlanNYC. Sirefman's policy background included helping Cornell establish its plan to build a science and tech campus on Roosevelt Island. We spoke with Doctoroff about how the startup is defining its scope and developing the technology to tackle the challenges of 21st-century cities.

Co.Design: This is an exciting time for Sidewalk Labs as New York Mayor Bill de Blasio just launched LinkNYC to the public. What lessons from this project will you apply to future

Sidewalk Labs initiatives?

Dan Doctoroff: In many ways, [LinkNYC] is emblematic of everything we want to do at Sidewalk Labs and Intersection. Ultimately our mission is to use technology to solve big urban problems and in doing that we talk a lot about the "Triple C" test. First it's got to have a positive impact on cities. In the case of LinkNYC, there's a whole bunch of ways it does that, not the least of which is the amount of revenue it will generate in the city. Second, it has to offer valuable public services for citizens. In the case of LinkNYC the most important one is really paring down the **digital** divide. One of the biggest issues we face is **digital** equality. Providing fast, free Wi-Fi to every community in the city is very, very compelling. The third is a valid commercial model.

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What [LinkNYC] also illustrates is working very successfully arm in arm with a city administration. In this case, we couldn't be more pleased with the relationship of the De Blasio Administration. It's an incredibly complicated product and roll out: hundreds of millions of dollars of capital invested, 7,500 locations, and a lot of **coo**rdination with various agencies and City Hall.

Working with government is an acquired skill. Dealing with cities is different. It requires operating at two speeds at the same time: patience and urgency. What we're trying to do with the team we are assembling is to combine that city knowledge with deep technological expertise, deep product-development expertise, and deep **design** expertise. That's where we think [Sidewalk Labs] will be uniquely successful.

Navigating public-private partnerships is complex. What worked especially well in the process of LinkNYC's implementation?

The most important lesson—and I want to point out that the team at [Intersection](#), which Sidewalk Labs formed, really deserves the credit—is interests have to be aligned. Anything you do has to be a win for the city—meaning the city operating in the citizens' interest—and make sense for the private partner. In this case there was a complete alignment. We shared a common mission and we worked closely together to develop a model that worked for both parties where our interests were almost perfectly aligned.

The other thing is you have to have an appreciation for how cities function and how they think. It's not the same as a private-sector actor. One of the things I learned in my experience with government is that cities do operate at a different rhythm and you have to understand that rhythm. You have to be patient because there's process for everything. On the other hand, if you don't act with a sense of urgency at all times, everything tends to die of its own weight because these things are so complicated. So we learned more from this, but we're also applying the lessons we brought into it as well.

What was the strategy behind forming Sidewalk Labs's senior leadership team?

We really believe that by building the right kind of team here we can see opportunities everywhere. The key thing in terms of the team itself is that we're looking for people who actually understand cities and people who have experience bridging the physical and **digital** world. We build deep technology capabilities, we have experience building compelling products, and then we have the capital ultimately to do what we need to do. At the core of it, it's about the team. When you look at the senior leadership of the team, you get a sense for how we're actually achieving that.

[Rit Aggarwala](#) [Chief Policy Officer for Sidewalk Labs] worked with me at City Hall and was really the architect of [PlaNYC](#), which is the world-leading sustainability plan for a city. He's also at [Bloomberg Philanthropies](#) leading its sustainability practices.

Anand Babu, our Chief Operating Officer, worked at **Google** in a special project team focused on transportation and cities. Before that he worked on urban energy. [Editor's note: Babu also led product development in **Google**'s [Machine Intelligence](#) team.]

[Craig Nevill-Manning](#), our Chief Technology Officer, was the first **Google** engineer in New York and is the one who built what is now a thousand-person engineering team. He oversaw development of products like **Google** Maps and **Google** Shopping. That gives you a sense of the technical expertise that we're bringing to bear. He also brings the knowledge of **Google**, which is a big competitive advantage for us.

Since leaving the Bloomberg Administration, Josh Sirefman, our Chief Development Officer, led Cornell's successful effort to develop their [applied sciences campus on Roosevelt Island](#). [Editor's note: During Doctoroff's tenure as Deputy Mayor for Economic Development and Rebuilding in the Bloomberg Administration, Sirefman was his chief of staff.]

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When you bring this team together you see a group that really understands cities and that combines technology skills with urban understanding. Bridging the gulf between the two is ultimately the key to being successful. You see deep technological capabilities and experience building products and that's what we're really trying to achieve here. We think we're trying to do it during a really remarkable time in history. The opportunity to apply technology to solve big urban problems hasn't been greater in the past 100 years.

The problems that Sidewalk Labs hopes to tackle include the environment, public health, housing, and transportation. Could you explain what a specific problem-solution scenario looks like with respect to the products it's developing?

Let me give you an example of something we're working on right now, which we haven't really talked about publicly. The Federal Department of Transportation has its [Smart City Challenge](#) underway. It's going to give $40 million to one [medium-sized city](#) to reimagine mobility with a long-term view to being able to prepare for autonomous vehicles.

We're working with 10 cities that are part of that competition on what we call a completely connected streets platform, which will help them respond to the DOT challenge. What we're doing is creating a platform that will enable cities to use real-time data to understand street activity. It will enable them to manage street activity like parking, lane changing, and traffic enforcement in real time. It's a product of the deep thinking we have been doing about the long-term future of mobility in cities. To complete the circle, LinkNYC, which is a very valuable on-the-ground asset, is a key component in the platform that we are creating. What you begin to see is the way in which we're thinking about this and now beginning to implement our strategy.

If you really understand the flows of people and traffic in all forms on the streets, then you have capacity to do things like help people to a parking spot much more effectively, which dramatically reduces the amount of time people circle, which has a big impact on congestion. The question is how do you bring in that data, make it comprehensible, and actually usable to do some of these things.

How is Sidewalk Labs planning to respond to cities outside of New York and apply its knowledge elsewhere in the country and potentially elsewhere in the world?

Where appropriate, we'll try things out in New York but it will be equally or more likely that we'll try things in other cities and then the whole point of what we do is that we want it to be scalable. We want to try it in one, two, or a few places then take it nationally or globally. LinkNYC is a great example of that. Already in response to the incredibly positive reception that LinkNYC has received, we are fielding and are in active discussions on LinkNYC in other cities around the country and around the world. This notion of scalability is really quite important to what we want to do—we're not just looking to just support something in one place. We want to help address big urban problems.

Looking at other cities and agencies domestically and internationally, are there any products or programs that are inspiring Sidewalk Labs's work?

There are a lot of cities starting to do interesting things and we're engaged in one form or another with almost all of them. [Chicago developed a data platform](#) that's very interesting. The way in which [they're experimenting with sensors](#) is interesting. [Los Angeles has a really visionary Chief **Innovation** Technology Officer](#) with whom we have a constant dialog. Boston has done some really interesting things, particularly [in the use of data](#). And I could go on and on—I don't just mean to single out those three. We intend to be a big part of that conversation, to steal good ideas wherever we can find them but also contribute back and hopefully more

importantly develop our own in other cities around the country and the world.

Affordability is one of the biggest issues that's facing cites. Are you able to share any specifics on programs or products that you're developing to tackle this challenge?

One of the results of these technologies—and really these technologies in combination—is that it enables cities to operate more efficiently whether it's the city itself or for citizens themselves. We actually do see really interesting opportunities in affordable housing. It may be the structure of buildings themselves or it might be things like the way building codes are applied. Or different ownership models. We're looking at things like that.

The cost of living is a function of lots of things. Energy costs, for example. With distributed energy or energy management, there are new business models that can be applied, which can lower cost. There are a lot of things we think technology is going to enable that's hopefully going to lower the cost and you'll see us develop a set of things that will actually try to do that.

How might data be used to reassess how a building code is authored and how would that affect affordability?

In a world in which we can monitor things like noise or vibrations, why do we need to have these very prescriptive building codes that only change once every several decades? It inhibits the transfer of land so we end up having very restrictive uses. Performance-based zoning—where you say, "I don't care what you put here as long as you don't exceed performance standards, like noise levels"—dramatically enhances the free flow of property, which lowers costs. So that may be a little further out, but that is a logical extension of a lot of these technologies.

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What is your strategy for orienting the public to your initiatives and getting them more comfortable with the increasing integration of technology with the civic realm?

For example, privacy is a big concern as it relates to the type of information that cities are collecting and how it's being used. We understand that for anything we want to do, trust is going to be critical. We also think we can help play a role in thinking through where these issues are going as well.

An important part of our strategy is thought leadership in the space. As I said earlier, one of the real issues that exists is the gulf between the technologists and the urbanists—the people who plan cities don't really understand technology and the technologists don't really understand cities. We hope to play a role in bridging that gulf. So we want to do that through thought leadership and there is no more issue of greater importance than privacy. You'll hear more from us on that.

If you look at LinkNYC, it's actually a great example of leadership. The principles we agreed upon with the city were about clear, transparent policies. We developed a consumer-first privacy policy that ensures that no personally identifiable data will be shared or sold with third parties.

Generally speaking, how do you see that relationship developing between independent consultancies, like Sidewalk Labs, and cities?

Will more collaborations happen as governments try to grapple with their systemic issues? I think it's inevitable that you are going to see significantly more collaboration between parties like Sidewalk Labs and cities. It's inevitable for a lot of reasons. One is the technology itself is beginning to mature to a place where the benefits are much greater than people would have imagined even a few years ago.

We really believe that we are at the cusp of what I would call the fourth technology revolution in modern cities. By that I mean the **digital** network sort of era where you've got ubiquitous connectivity, sensors, location-based services, **social** networks, advanced computing power, the ability to analyze data, and new **design** and fabrication technologies like 3-D printing and robotics, which are going to have a profound impact on cities. That combination of technology gives the cities the capacity to actually operate more efficiently, to build greater senses of community, to adapt more rapidly, and to give people a greater sense of personalization. We're seeing cities begin to recognize that by the number of cities that have brought on new CIOs or CTOs who are thinking this way.

This is occurring at a time when budgetary pressures for cities are greater. Cities are facing greater growth constraints where they have to figure out ways to use the assets that they have more effectively so they can focus on their priorities. We think this is at the very early stages of a real major shift. Our goal is to play a leading role in that shift occurring.

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