

PROSPER

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MAPBOX IS ONE OF

Washington's fastest-growing geospatial companies. This summer, the company closed on \$52 million of venture capital backing and now has more than 100 employees, 30 of whom are based in D.C. But locating the Mapbox office isn't easy. It sits in an alley north of Logan Circle on the backside of bustling 14th Street, where employees go for freshly brewed filter-drip coffees at Peregrine and local beer at Batch 13.

THE D.C. AREA'S CONCENTRATION OF GOVERNMENT, ACADEMIA, AND TALENT CREATES A UNIQUE ADVANTAGE FOR STARTUP INNOVATORS.

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BY MELANIE D.G. KAPLAN



PHOTO COURTESY OF MAPBOX

The Mapbox "garage" in D.C. is located in a former auto shop.



PHOTO COURTESY OF FIRST MILE GEO

FIRST MILE GEO is located in the Chinatown neighborhood of Washington, D.C.

Inside the former auto shop, dozens of bicycles compete for space on wall hooks, bare bulbs hang from the ceiling, and Herman Miller chairs roll around the concrete floor, catching occasionally on a manhole cover. The office is uncannily quiet as workers communicate through GitHub and Slack, standing or sitting at desks and tapping away on MacBook Pros.

The five-year-old, open-source startup builds maps for developers, including Foursquare and Pinterest, and recently partnered with MapQuest in an effort to overhaul the navigation company's branding and product. Although the commercial market primarily drives the company, the value of its proximity to the federal government is significant.

"We're working with federal agencies that are tackling some of the toughest and most complex geo problems in the world, like NGA mapping West Africa's malaria epidemic in real time or the U.S. Geological Survey finding better ways to serve terabytes of open imagery data," said Matt Irwin, Mapbox's government and humanitarian lead. "It's a ton of fun to have someone from the government approach you and say, 'We're trying to solve X.' These are massively compelling problems."

Clusters of geo-focused organizations are popping up in cities across the country, including San Francisco, New York City, and Boulder, Colo. But perhaps

nowhere is this happening with more energy and potential than in Washington, D.C. In profound and exciting ways, the government and private sector are overcoming cultural differences and testing the waters of collaboration.

The days of government-designed and built capabilities such as GPS devices and unmanned aerial vehicles with virtually nonexistent civilian applications are long gone. Today, countless geospatially-enabled products are coming out of the commercial marketplace and being adopted not only by civilians but by the military. Earlier this year, the Department of Defense (DoD) gave a clear

signal that it seeks private sector alliances with the opening of its first outpost in Silicon Valley, called the Defense Innovation Unit Experimental, or DIUX.

Still, geospatial technology opportunities inside the Beltway abound. Among government, academia, nonprofits, and startups, Washington boasts a density of geospatial professionals and enthusiasts unmatched in other cities.

Washington is an "amazing place to grow a business," Irwin said. "There's a ton of talent here." As Mapbox continues to grow—seeking people who are great communicators, have empathy, and are fired up about Mapbox technology and culture, according to its website—being in a city full of highly educated workers is vital.

THE WASHINGTON GEO-PLAYERS

Another D.C. area startup to watch is HumanGeo, based in Arlington, Va. The four-year-old company of 70 employees was acquired by Radiant Group this summer and focuses on building custom solutions for data analytics. President and CEO Al Di Leonardo said it's easy to see why GEOINT startups are

clustering around D.C., which is home to agencies for which geospatial data is mission-critical—such as the National Geospatial-Intelligence Agency (NGA), U.S. Geological Survey, and U.S. Census Bureau.

Furthermore, trends such as the proliferation of location sensors, the rate at which publically available geospatial data and open-source software are growing, and the adoption by industry and government of cloud computing software are driving the expansion, awareness of, and demand for geospatial technology.

"The traditional ways of doing geospatial analysis simply cannot keep up with the volume and variety of data being generated in 2015," Di Leonardo said.

First Mile Geo, located in Washington's Penn Quarter neighborhood, is a cloud-based business intelligence platform provider that simplifies data analysis by combining Big Data with geospatial analytics. Co-founder and CEO Matt McNabb previously worked in international security and development at strategy consulting firm Caerus Associates.

"One of the problems I kept coming across was that the gap between what happens in the field and the conversations that take place in Washington

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was substantial," McNabb said. "The process was fragmented and not geared for non-technical people. So we did a lot of work bending technology to be useful for capturing insights and data and then connecting it rapidly to visualizations for the non-GIS person."

With a little more than a year under its belt, the company of five has worked with the World Bank and U.S. Special Operations Command South, and is

PARTYING WITH GEO-HIPSTERS

Once a month, at a Tex-Mex saloon on U Street in Washington, D.C., 100 entrepreneurs, students, investors, and federal workers can be found geeking out over maps and GIS. Stetson's hosts the GeoDC Meetup group, which attracts a diverse gathering of D.C. geo-enthusiasts and aims to connect individuals for networking, learning, socializing, and, as the website concedes, "probably some drinking."

While Washingtonians tend to work long office hours, those in the city's growing startup community understand how gathering in person with like-minded map-lovers can be just as valuable as online collaborations. Often, attendees make contacts for future work alliances, network for internships, or walk away with new ideas for a project. In and around D.C., one can find a growing number of opportunities to meet, greet, and learn.

Typically, the GeoDC organizers announce a meetup topic in advance, folks show up and mingle, and then everyone introduces themselves by name, employer, and three words. For example, "My name's Susan. I work for National Geographic. Maps tell stories."

Co-organizer Elizabeth Lyon (who also runs GeoNoVA, a similar but smaller scale meetup in Northern Virginia), said she's seen GeoDC diversify since it began in 2014—more women, federal workers, teachers, and students.

Another meetup group, DC Tech, attracts a broader, larger community of innovators to see

demos, launch products, and meet fellow technology enthusiasts. The Data Science DC Meetup gathers to discuss predictive analytics, applied machine learning, statistical modeling, open data, and data visualization.

For those looking to break into the government sector, D.C.-based incubator and seed fund 1776 hosts events at its downtown and Crystal City campuses on topics such as "The State of Defense of Acquisition" and "Intro to the DC Startup Community." Global startup community Startup Grind also hosts events in each of its participating cities featuring local founders, innovators, educators, and investors who share lessons learned.

The General Services Administration's 18F has hosted a couple demo days and hackathons in addition to the first White House Mapathon this spring.

"If you know where to look and you're open to it, there's a really vibrant community in D.C. around mapping," said Mikel Maron, a Presidential Innovation Fellow at 18F. "The approach is that we're all trying to do this better together."



PHOTO COURTESY OF GeoDC

THE GeoDC MEETUP group hosts monthly gatherings for geo-enthusiasts. For more information, visit www.meetup.com/Geo-DC.

starting to move into basic machine learning to allow software to identify relationships between data sets and speed up the analytic process.

On the federal side, the General Services Administration's (GSA) 18F is an agency department with a startup vibe. The 100-person team of developers, designers, and product specialists is named for its downtown location at 18th and F streets. Under the 18F umbrella is the Presidential Innovation Fellowship (PIF), which attracts talented technologists to the civil service.

Mikel Maron—co-founder of the Humanitarian OpenStreetMap Team who helped set up Map Kibera, the first open-source map of the Nairobi slums—is a PIF posted to the U.S. State Department. He's now working on a project called MapGive, which developed a tool aimed at making geospatial technology more accessible called Imagery to the Crowd (ItC). (Just prior to press time, Maron joined Mapbox.)

ItC publishes high-resolution commercial satellite imagery for volunteers to convert into OpenStreetMap.

Maron said ItC enables the State Department to work openly with the broader humanitarian community, which may be a model approach for the Intelligence Community.

"It's not just about open data," Maron said. "It's about unlocking the potential of those resources and understanding what kinds of relationships can be made. That's the widest benefit."

The nonprofit mapping scene in Washington is equally vibrant. D.C.-based MapStory.org is a two-year-old crowdsourcing resource that allows non-technical people to contribute "map stories" on a local, regional, or global scale. Users include scholars, urban historians, journalists, educators, practitioners, and policymakers. Like Wikipedia, anyone can edit the narratives about how the world has changed spatially over time.

"We're trying to provide a place that's a home for all that homeless spatial-temporal data," said MapStory creator and USGIF board member Chris Tucker. "We all experience this Earth differently. We think the facts plus narratives will lead to a very rich journey."

WHILE 18F may be full of digital innovators, its welcome board is decidedly analog with photos showing where its team members are dispatched.



PHOTO COURTESY OF GSA/18F



PHOTO COURTESY OF STARTUP SHELL

THE OasisVR team demonstrates the capabilities of virtual reality to fellow Startup Shell members.

GeoMakers, another nonprofit organization, joined the D.C. scene this summer. The GeoMakers mission is to encourage a collaborative community that dreams up, builds, and implements open-source “makers” projects that involve mapping, remote sensing, and navigation. Based in Northern Virginia but still officeless and staffed by volunteers, GeoMakers capitalizes on the popularity of the DIY culture and provides a free educational platform where people can share ideas such as a “recipe” for a mapping project.

“The great ideas aren’t going to come from us,” said GeoMakers volunteer Scott Clark. “It’s for anyone to use—from development to intelligence.”

CULTURAL CHANGES

The defense and intelligence communities have made significant strides in cracking open their traditionally closed culture. The startup community has been thrilled by NGA Director Robert Cardillo’s many speeches emphasizing transparency and collaboration.

“NGA has done an amazing job of forging these commercial partnerships and embracing different ways of doing business, including open-source software development,” Irwin said. “The fact that an intelligence agency has a GitHub account, is sharing some of its code, and is inviting others to contribute is unprecedented.” He said NGA—a “poster child” for tech innovation in the Intelligence Community—will end up with better software as a result.

Earlier this year, NGA launched its GEOINT Solutions Marketplace, a web-based platform that provides non-cleared, nontraditional vendors from industry and academia access to NGA needs, design standards, toolkits, and

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more. It also serves as a portal to submit white papers and pitch concepts to the agency. In parallel, USGIF is developing an Industry Solutions Marketplace, a digital demonstration sandbox for industry to showcase the functionality and interoperability of its solutions. ISM will allow anyone from industry—with or without government contract experience—to demonstrate existing solutions to real-world GEOINT problems, all while protecting intellectual property.

Similarly, the Defense Intelligence Agency is opening the door to non-traditional solutions with NeedipeDIA, which allows the agency to communicate capability needs to a larger community of innovators, and Open Innovation Gateway, which provides a mechanism for industry and academia to showcase capabilities without requiring security clearances.

Tucker said federal agencies should encourage their employees to “get out of the cage.” For too long, he said, fraternizing with those outside of federal agencies was frowned upon.

“That’s the worst message to new folks coming into the workforce,” Tucker said. Rather, he continued, middle management should educate young workers about little-known government GIS forums and encourage them to go “party with geohipsters” (see sidebar) after work. “You can learn a lot so quickly that you simply can’t within the walls of government.”

The most common refrain from the commercial sector is that the government moves as quickly as the Beltway during rush hour and therefore doing business with federal agencies is clunky and tedious.

“D.C. is a bit of a difficult market because of the speed with which decision-makers make decisions,” McNabb said. “It’s incredibly slow in relation to the speed of innovation.” He added that he still sees government buyers inclined to put everything on their office servers instead of in the cloud, while federal technical standards tend to be out of date.

Yet, there’s a growing appetite to bring more commercially minded companies into the government fold. Two DoD offices—largely unknown among startups—fund and scale innovative projects: The Rapid Reaction Technology Office and the Combating Terrorism Technical Support Office.

This spring, tech veteran Meagan Metzger launched Dcode42 to foster innovation and help startups overcome the barriers of working with federal agencies. The selective, six-month program is designed to provide guidance through the federal maze, from bidding to networking with lobbyists.

But for all the talk of complex government systems and help slogging through them, the startup contingent could meet the agencies halfway and work to better understand federal needs.

“Many innovators in academia and industry don’t understand the mission objectives of the federal agencies and their unique requirements,” Di Leonardo wrote in an email, citing government’s strong requirements related to IT system authentication, access control, and identity management.

Despite colliding cultures, the Washington geospatial scene continues to grow. At the University of Maryland’s student-run tech incubator and coworking space Startup Shell, Executive Director Chris Szeluga said he is actively looking to add companies working in geospatial and data analytics. He said for students, being in the Washington area is a huge asset because the proximity to the federal government and density of universities gives the region an advantage over other tech hubs like San Francisco.

“In the next five or 10 years, the relationship between startups in the D.C. area and the universities will grow,” he said, adding that the government has a unique opportunity to tap into Washington’s future innovators. “Fostering that partnership between universities and the government is something they can’t do out West.” ■