

BERLIN

U.S. INSIGHTS

MOBILITY

Berlin Business Office, USA	BERLIN	
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Detroit Region: Demographics & Workforce Overview

5.4 MILLION POPULATION #10 Most Populous Region in the Nation

30% POPULATION

DIVERSITY 73.4% White, 21.6% Black, 4.6% Hispanic or Latino (Any Race)

1.1 MILLION AGE 20-34 9.7% Increase, Outpacing the National Avg. of 5.5%, 2015-2020

2.5 MILLION TOTAL WORKFORCE Larger than 30 Other States Totals, 2021

5.0% UNEMPLOYMENT RATE 5.2% in Michigan, Below the National of 6.1%, March 2021

1.2 MILLION BACHELOR'S DEGREE OR HIGHER Grew by 11.7% Degrees from 2015-2019 in the Detroit Region

The Detroit region calls itself “North American’s epicenter for advanced mobility”. It ranks first in the U.S. in the number of assembly and manufacturing jobs and second in the concentration of engineering and technology jobs. In addition to five international border crossings with Canada, the Detroit region has seven cargo ports, including Michigan's largest seaport. The city attracts large investments, with \$34 billion invested in 2016-2021 and \$11.3 billion in foreign direct investment since 2015, making the city No. 1 and the state No. 3 in foreign direct investment. Michigan has a number of incentive and business development programs, such as the Michigan Business Development Program, the main incentive program that provides cash grants with flexible terms to businesses for highly competitive projects that create jobs and investment in the state.

Detroit Region’s Auto Production & Engineering Talent Is Unmatched

Detroit ranks No. 1 in total assembly and automotive manufacturing jobs in the U.S. and maintains one of the lowest turnover rates. In higher education, an increasing number of Michigan universities and colleges are offering courses on electric vehicles, batteries, and clean mobility technology. In 2010, thanks to a \$5 million investment from the U.S. Department of Energy, Wayne State University became the first to introduce a comprehensive electric-drive vehicle engineering curriculum, offering master's, bachelor's, and associate degrees in robust EV focused automotive engineering technology.

Detroit Region - World Class Mobility Cluster

26 OEM VEHICLE MANUFACTURERS Passenger & Commercial Vehicles with a Presence in Michigan

96 OF THE TOP 100 SUPPLIERS 60 have their North American Headquarters in Michigan

2,200+ SUPPLIERS & TECH CENTERS Facility Locations Throughout Michigan

\$14.0 BILLION AUTO R&D ANNUALLY 66.8% of the U.S. Total is Invested in Michigan, 2019

1.8 MILLION VEHICLES ASSEMBLED At 10 Detroit Region OEM Plants & #1 State for Volume

#1 STATE FOR CONNECTED VEHICLES U.S. DOT-Funded Operational Deployments & Largest U.S. Deployment of V21 With 600 Miles in Michigan

*Note: All stats are for 2020 unless stated & OEM is for Original Equipment Manufactures. Source: MICHauto Report, National Center for Science and Engineering Statistics, U.S. Bureau of the Census, & the Center for Automotive Research.

Michigan is the state with the highest automotive production, with annual production of 1.8 million vehicles in 2021. It also has a large network of leading testing and validation facilities where global original equipment manufacturers (OEMs) and mobility innovators are developing the next generation of automotive technologies. One of these is the American Center for Mobility, a \$120 million mobility development facility with more than 500 acres of state-of-the-art testing and validation infrastructure. Another testing facility is located at the University of Michigan's M CITY, the world's first purpose-built proving ground for testing the performance and safety of connected and automated vehicles. Other testing capabilities include technologies under controlled and realistic conditions.

Cavnue, a startup backed by Google's parent Alphabet hopes to build roads designed specifically for autonomous vehicles. Cavnue has an agreement with the state of Michigan to explore a first-of-its-kind 40-mile corridor between Downtown Detroit and Ann Arbor with dedicated lanes for autonomous vehicles, and is collaborating with all major self-driving car companies. The roads will be designed primarily for connected and autonomous vehicles, but also serve traditional transit vehicles, shared mobility, and freight and personal vehicles.

Detroit & Michigan are Top Locations for Venture Capital

Detroit is ranked first in the world for emerging startup ecosystems, according to Startup Genome’s 2022 Report, and first in venture capital growth, with an increase of more than 855% between 2016 and 2021, according to Crunchbase. The Michigan Mobility Funding Platform provides grants to mobility and electrification companies looking to deploy their technology solutions in the state of Michigan. Some of the largest mobility investment projects include General Motors' EV Assembly Facility and Ultium Cell Plant (\$7 billion investment), Stellantis' Detroit Assembly Plant (\$2.1 billion investment), and Ford's Rouge Complex Electric Vehicle Center (\$700 million investment).

1,300 foreign companies from over 38 countries are located in the Detroit region, and more than 50 foreign automotive and mobility companies have recently invested in the region. From 2017 to 2020, \$4.0 billion in automotive and mobility investments were made in the Detroit region and its 11 counties.

Source: Detroit Regional Partnership





» **JESSICA ROBINSON, CO-FOUNDER AND PARTNER AT ASSEMBLY VENTURES**

We were delighted to talk to Jessica Robinson about the (future) trends in the US mobility sector, as she is a real expert in the field.

What problems do you deal with on a daily basis and how do you or your company Assembly Ventures try to solve them?

Most of our team members are operators at heart. That means we love to roll up our sleeves and tackle whatever it is that is the problem at hand. We do this working directly alongside our portfolio companies, particularly when it comes to business development. Weekly if not daily, we all spend time reaching out to potential customers and partners to open doors for our companies. Our team's footprint in Europe and North America has been an essential part of helping them figure out how and where to grow.

What is one area of focus that has shifted over the many years you have been in the mobility sector?

For many in this industry, particularly in places like Michigan and Germany that have a deep history of automotive manufacturing, companies historically have been focused on owning one piece of a value chain and delivering at an efficient, industrial scale. Mobility isn't so simple and often requires business model innovation in parallel with the commercialization of new technology. It requires the challenging work of figuring out where your company or technology fits within an ecosystem and addressing new stakeholders and competitors which were previously not on the map. That could be new mobility service providers working with rather than in competition with transit agencies. It could also be a battery company partnering with a competitor to jointly establish demand for a domestic raw material. It's a much more complex operating environment.

How would you summarize the main current trends in the mobility sector in a few sentences?

Just a few years ago, the industry was very focused on a set of trends described in the acronym "CASE" - connectivity, autonomy, shared services, and electrification. Those are important but don't tell the full story of what's happening. When we look at mobility, we think about technology and business model change across physical and digital infrastructure, systems which connect those digital and physical domains, and in applications and new customer interfaces. We're seeing lots of exciting innovation both within and across these three layers.

Do you see the U.S. as a pioneer when it comes to the future of mobility?

This is an interesting question to try to answer. On the one hand, my immediate reaction is to say, "Of course. Yes, we are!" The harder question is to identify the specific areas where the U.S. has led and where we might continue to do so in the future. There are two aspects of the U.S. pioneering approach that come to mind in this discussion. First, mindset. It's cliché but also true that we have a different comfort with risk. When that's overlaid on top of an industry like mobility where we have engineers and business leaders with deep, deep domain expertise, it's inevitable that a cohort of entrepreneurs with careers inside corporate organizations will decide to take a leap and start their own companies. The second area is the systems engineering behind autonomous driving. Even though this industry has seen some recent high-profile falter, the scale of the combined U.S. talent starting with universities through those working in startups and corporations is significant. This collective technical and professional experience sets the stage for better integrated and more thoughtfully designed transportation modes, services, and experiences.

Is there anything in particular that companies and startups from Berlin could have in mind while looking at the U.S. Mobility sector?

I asked my colleagues about this question and thought their observations were very insightful. We've both seen German startups with only European investors try to enter the U.S. market with a heavy operations-focused approach assuming that will be enough to win investment and customer traction. In reality, a thoughtful and very strategic setup is essential. You need to think through the right U.S. investors and have strategic partnerships in place with contracts set before making the leap. Marketing and sales matter much more here in the U.S. HERE Technologies is actually an interesting spinout case study of a group of automotive companies (Audi, BMW, and Mercedes-Benz) identifying an innovation opportunity, creating a joint venture in partnership with Intel, and having success in the U.S. market.

Finally, what are the biggest obstacles that need to be overcome now to pave the way for the trends you have described?

I'd love to see corporations within the mobility sector continue to create programs, strategies, and investment approaches which let them quickly and systematically engage with startups. The potential for partnerships is practically limitless but often gets bogged down in procurement processes or internal politics. I've been on the other side of the table and know how much is involved trying to move a new program forward, but a lot of energy ends up being wasted for everyone involved.

**ASSEMBLY
VENTURES**

Jessica Robinson is a global mobility investor, entrepreneur, educator, and champion of Detroit.

As Co-Founder and Partner of Assembly Ventures, Jessica Robinson invests in and strategically supports the entrepreneurs and mobility companies moving the Western world. She joined Assembly Ventures from her prior role establishing the Michigan Mobility Institute, an organization she co-founded to accelerate talent readiness for the mobility industry.

LIME - A U.S. MOBILITY COMPANY IN BERLIN



» **RUSSELL MURPHY, GLOBAL SENIOR DIRECTOR OF CORPORATE COMMUNICATIONS AT LIME**

We had the opportunity to speak with Russell Murphy, Global Senior Director of Corporate Communications, from Lime and ask him about Lime's activities in Berlin and what makes Berlin a desirable location.

Lime was founded in 2017 in San Francisco, when did they expand to Germany?

Lime expanded to Germany in April 2018.

Can you tell us something about Lime's expansion strategy? What factors influence their location decisions in Germany?

We're eager to work with cities interested in reducing their carbon footprint, and providing residents alternative transport options to cars. German cities provide extensive opportunities for our shared e-bike and e-scooter services as it's clear there is strong demand for other ways to get around.

When and how was the decision made to expand to Berlin?

We expanded to Berlin as the first market in Germany in April 2018. It was an easy decision as we worked to expand our service globally. Berlin is an ideal city for micromobility because it has a strong transit network, a high density level and forward-thinking leadership. We've been highly successful in Berlin, helping riders take a total of 10 million trips on our e-bikes and e-scooters.

What opportunities do you see in the mobility sector in Berlin?

We see limitless opportunities in Berlin and across Germany. We're only scratching the surface when it comes to the impact we can have on reducing car use and replacing gas-powered trips with electric mobility. Today, more than half of all car trips in Germany are less than 7km, which means they could easily be replaced by an e-bike or e-scooter. If we were able to accomplish that, we'd be making a major impact on cutting carbon emissions, reducing our reliance on fossil fuels and potentially reclaiming space currently taken up by cars for people. With less need for car parking, we could see streets transformed into oases for people to recreate, leading to safer, calmer streets for all.

What are the main trends and (future) needs you see in the mobility sector? Do you see similar needs in Europe as you see in the US?

Europe has been more forward-thinking when it comes to transportation policy. This includes disincentivizing car use, requiring the transition to more sustainable vehicles, and having greater ambition when it comes to building out bike lane networks. While these are long-term trends we see in both the US and Europe, Europe has moved faster. It ultimately comes down to government leaders—at the city, regional and national levels—prioritizing greener transportation options, and taking the sometimes unpopular but necessary approach to deprioritizing driving. At the end of the day, there is only so much space in cities, and if we turn more of it over to large, heavy, polluting and dangerous vehicles, there won't be any room left for people. We're encouraged by the steps cities like Berlin, Paris, London, Brussels and Milan are taking to build more space for cyclists and e-scooter riders, and we think US cities will follow in time.

Can you recommend what type of partners are helpful in expanding to Berlin or any other pertinent advice to US companies exploring the Berlin market?

It is important to take a collaborative approach to working with local governments when you plan to operate a public-facing service. We've learned over time

that the best results come through listening to residents and understanding local needs so that the service you provide can have a positive impact. Ultimately, we are focused on being a partner over the long-term, which means building lasting relationships and prioritizing longevity over short-term benefits.



NUMBERS & FACTS

Founded: 2017 in San Francisco, California

Employees: 700+

Areas served: More than 250 cities in nearly 30 countries

Industry: Shared electric vehicles, including dockless e-bikes and e-scooters

Lime is the world's largest shared electric vehicle company, with the mission to build a future where transportation is shared, affordable and carbon-free. They provide convenient and reliable short-term rentals of electric bikes and scooters at an affordable price. The company announced in 2022 that riders had surpassed 350 million rides using Lime services, making it the largest shared micro-mobility operator globally in terms of total trips.



We had the pleasure of asking Stephan von Wolff, COO of Swobbee, a few questions about the company and its expansion plans into the US.

How did the vision to start Swobbee develop?

Swobbee (formerly known as GreenPack) originally developed the first swappable battery for the micro mobility industry. In 2019, the company pivoted its primary business model by developing the first Swobbee station - a multimodular battery swapping station that can charge multiple different batteries in just one station. Today we are compatible with numerous different battery packs and actively work towards battery standardization across different use cases for micro mobility to power the movement of goods and people. Our vision is to power mobility anywhere in the world and make portable energy in the form of batteries affordable and accessible for everyone.

Can you explain the service Swobbee offers in a few sentences?

Swobbee is a provider of fleet-agnostic battery swapping infrastructure that is open to various light electric vehicles (LEVs). We work with micro mobility sharing operators and last-mile delivery companies to minimize vehicle downtime and lower the operational cost of charging. Batteries from electric bikes, cargo bikes, mopeds and scooters can be exchanged at the Swobbee station in just a few seconds - without the charging and waiting times of traditional charging. This helps to relieve inner cities of the traffic pressure.

Swobbee sees itself as an ideal partner when it comes to sustainable urban development and has set itself the goal of promoting the mobility transition in urban areas.

You started your business in Berlin, why did you choose Berlin as a business

location? Would you be founding Swobbee in Berlin again?

We chose Berlin because it is the European start-up capital and attracts talent from all over the world. On top of that, Berlin is very open-minded and the heart of urban mobility, which is key for our business.

The question about if I would start Swobbee again in Berlin, that's a tough one. I think from today's perspective, I would start in a market that is more two-wheeler friendly.

What are your plans when it comes to expanding in the U.S.? What opportunities do you see in the mobility sector in the USA?

We see a huge potential in the North American market, especially in the logistics space and in coastal cities. Our plan is to enter the U.S. market in 2024, but we are already exploring first pilots with customers in the U.S.

Can you tell us something about your expansion strategy? What factors influence your location decisions in the U.S.?

Our expansion strategy is two-fold: On the one hand, we follow our customers in their growth plans and target the cities prioritized by our customers. On the other hand, we target the cities with a big market potential, suitable regulatory environments and high adoption rates of light electric vehicles to build a public network of battery swapping stations, which can in the future be extended to more vehicles and end-users.

What are the main trends and (future) needs you see in the mobility sector? Do you see similar needs (for your product) in the U.S. as you see in Europe?

Yes, we definitely see similar needs in the U.S. with regards to developing a universal charging infrastructure that is open to various light electric vehicles. However, we also see some differences: The U.S. is still more car-based in both the movement of goods and people and distances tend to be longer than in European cities. At the same time, the U.S. is often a step ahead in the fast adoption of new technologies and we see a great potential in collaborating with local mobility providers, such as Lyft and Grubhub.

Can you recommend what type of partners are helpful in expanding to the U.S. or any other pertinent advice to Berlin companies exploring U.S. markets?

Partners who can support with knowledge on local laws and regulations and who

could benefit from learning how German cities tackle the mobility challenges of the 21st century.

Do you have any advice/tips for emerging businesses in Berlin? What shouldn't they miss when they are about to start their startup journey?

Make use of every opportunity to engage with and learn from entrepreneurs within the local start-up scene. Like anywhere else in the world, networking is key and can help open many doors to more established organizations in both the public and the private sector.



NUMBERS & FACTS

Founded: 2019 in Berlin

Employees: 45

Areas served: More than 25 cities in 8 countries

Industry: Electric mobility, micromobility

Swobbee is the first manufacturer-independent battery swapping station for all types of light electric vehicle - "the universally compatible gas station" for micromobility - and describes itself as an "essential building block in the emission-free urban mobility of the future".

