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Urban Mobility as Climate Tech

**Laura Fox, Citi Bike
Moderator Paul Krake**

Urban Mobility as Climate Tech

Laura Fox's focus over the last 15 years has been improving the quality of life in cities, starting from how cultural institutions and creative economy developments local communities and cities. She has worked extensively on urban development in Qatar, Bangladesh, Mexico City, Boston and Toronto. She was the General Manager of Citi Bike for 4 years and is currently in the process of launching Streetlife Ventures.



Summary

Laura Fox is Lyft's outgoing General Manager for Citi Bike, and she joins Paul for a wide-ranging conversation around urban mobility. We dive into Urban mobility as climate tech – the landscape, frameworks, what's needed, and what's next. This is so much more than encouraging commuters to bike. It is the center of a broader strategy to reduce congestion and make urban environments self-sustaining. **Watch the full discussion [here](#).**

Key takeaways

- Laura Fox has been focusing on improving the quality of life in cities by developing cultural institutions, creative economy, and urban mobility for the last 15 years. She has extensive experience in urban development in various cities worldwide, including Qatar, Bangladesh, Mexico City, Boston, and Toronto. She was the General Manager of Citibike for 4 years and is in the process of launching Streetlife Ventures, which uses venture capital to accelerate sustainable urban space changes.
- Streetlife Ventures is structured in two ways, as a traditional venture capital firm and a catalytic capital side that invests in first-of-its-kind place-based projects to implement early-stage deployments. The fund considers non-dilutive grants, venture capital, and city partnerships to bring about sustainable urban space changes.
- Urban mobility is one of the biggest climate problems not being solved, and transport-related emissions are increasing at an alarming rate of 12 times the speed of building-related GHG emissions. Laura proposes a new approach called M.O.R.E (Mobility as Climate Tech, Offer, Rebuild, Enable) to address the issue of urban mobility, which includes making more space, slowing speeds, enabling low-emission zones, and investing in options that people will take up.
- Policymakers' initiatives lead to downstream private innovation, and there are opportunities across the "urban mobility as climate tech" stack. Changes are essential to tackling climate change, as many American cities already see the impact of flooding and other extreme weather.
- Streetlife Ventures' ultimate goal is to impact urban environments significantly, working with entrepreneurs to get their capital stack in place so that it works well for investors and cities, following a whole smart cities approach.

About Streetlife Ventures

Streetlife Ventures uses Venture Capital to accelerate the changes required to bring about sustainable urban space, looking closely at the impact the entrepreneurs can have on the clean economy transition. To this end, Streetlife considers non-dilutive grants, venture capital, and city partnerships.

The fund is structured in two ways: as a traditional venture capital firm and a catalytic capital side that takes venture philanthropy to invest in first-of-its-kind place-based projects to implement early-stage deployments. In addition, city policymakers are deeply embedded in some of that work, which effectively brings in expertise and can ease some budget constraints.

City authorities can be seen as enabling partners, including specific funding to promote entrepreneurship, for example in New York support for female-led entrepreneurship to address a societal gender gap. In addition, support models at the state and federal levels can be scaled to drive innovation and encourage local reinvestment and employment opportunities.

Presentation: Urban Mobility as Climate Tech

A “better car” is not the answer. Mobility is one of the biggest climate problems not being solved or adequately discussed. The first COP transportation-dedicated day was in Madrid in 2019. COP27 was the third COP, with some time dedicated to addressing transport.

Twenty-one percent of the global emissions in 2020 were transport-related, and transport sector emissions are increasing incredibly fast, at 12 times the speed of building-related GHG emissions, with total growth of 80% since 1990. However, there is an excellent potential for a positive impact on the transport sector. For example, 50% of trips within the US cities are less than 3 miles, likely increasing with hybrid work becoming more common.

The transport-related topic is dominated by electric vehicles, with 50% of investment going into “better car” tech, which does not solve the broader problems. For example, EVs do not reduce congestion or make more efficient labor markets. EVs do not reduce GHG emissions sufficiently to solve the problem either, primarily as their associated emissions depend on grid energy sources.

Regarding macroeconomic fluidity, congestion costs cities such as New York 30 billion dollars in lost wages per year. Moreover, research shows a steep decline in happiness when workers live an hour from their job, a typical commute in many cities.

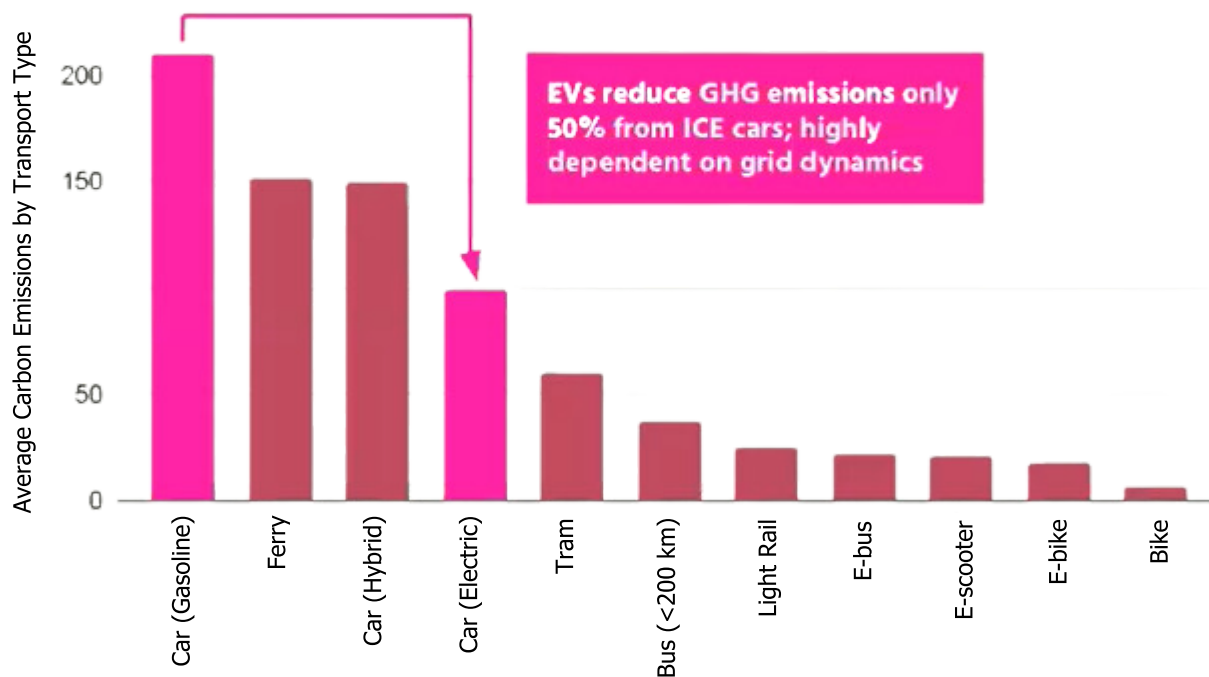
In addition, 75% of new vehicle purchases in the US are SUVs, as people tend to look for bigger cars, which use more energy because they are larger and heavier, and contain more embodied carbon. Furthermore, if everyone in the US were to convert to EVs, a national investment of \$125 billion would be required in infrastructure to support them.

Governments regulating GHG reductions, including mobility, create new markets

Several countries are now implementing laws around climate reduction, creating clear incentives for companies to transition. However, a difference in climate progress can be seen in countries that have just made pledges and have taken policy steps. A positive example is London's Ultra Low Emissions Zone, which was expanded in 2021 to 140 square miles, leading to nearly 75% of Londoners changing their mode of transport. In addition, Transport for London (TfL) recently revealed that cycling is now the most

numerous vehicle modes of transport in London, covering 40% of trips. The Netherlands has also introduced legislation for zero emissions on delivery and urban logistics in 2021, increasing collaboration across sectors that are bringing forward cargo bikes and other systems and vehicles that the private sector previously saw as too expensive or too far removed from existing supply chains. Policymakers' initiatives lead to downstream private innovation.

"EVs do not reduce GHG emissions sufficiently to solve the problem ... primarily as their associated emissions depend on grid energy sources." – Laura Fox



Source: Taken from Laura Fox's presentation from Urban Mobility as Climate Tech

Reframe: There are opportunities across the “urban mobility as climate tech” stack

With countries beginning to reduce emissions radically, it is clear that we need more infrastructure investment, a fundamental reimagining of the status quo, and more incentives to change behavior. A challenge is finding a common vocabulary to communicate between investors, start-ups, governments and other organizations, so Laura uses the M.O.R.E Framework.

MORE: Maintenance, Offer, Rebuild, Enable

‘**Enable**’ relates to allowing government, businesses, and individuals to assess, plan and decide on sustainability interventions such as congestion reduction and climate mitigation, addressing the need to make things happen at scale and swiftly. For example, the Rockefeller Institute says that 75% of the physical and digital infrastructure required by 2050 does not yet exist.

Under the 'Enable' heading, three sub-areas are considered within the MORE Framework: Assess & Plan, Measure (Government), and Measure (Corporates). The 'Assess & Plan' section addresses current inefficiencies, such as the typical 2-3 years of planning required to make roadway changes in the US and limited operational budgets for insights after implementation. The 2-3 years of planning include all sorts of pain points, with no single moment of truth, and frequent disagreements on baselines, leading to schemes becoming political rather than analytical processes. Climate View provides the ClimateOS platform that helps to model complex sets of plans and interventions against rigorous baselines on a per-city basis. This creates a centralized source for tracking processes and layering on added interventions to achieve climate goals. In addition, it gives clear visibility for cities to engage with citizens, to inform and support development.

'Rebuild' incorporates four sub-areas: Curb and parking management; Road safety and speed management; congestion reduction and pricing; and sustainable infrastructure. Cars are currently allocated 75% of NYC road space despite the rise of delivery, curbside dining, and more sustainable options such as trams, cycling, and walking. In addition, 24% is for sidewalks leaving just 1% for car-free cycle and bus lanes. Cities are becoming relics of old technology. For example, NYC has 3 million free parking spaces despite changing urban demands. Vade is a start-up that provides solar-powered cameras to monitor curb and nearby lanes and read license plates. This allows cities to view curb inventory, analyze demand, and understand violations to inform enforcement (manual or automated) and make infrastructure decisions to increase street safety or shift supply.

'Offer' sub-segments are Transit tech, Pedestrian tech, and Light electric vehicles (LEVs).

Four sub-areas under LEVs are Consumer LEVs; Food Delivery LEVs; Parcel Delivery LEVs; and LEV adjacent. There are 3.6 million parcel deliveries per day in NYC, which has doubled in the last 3 years. At present, these are delivered by diesel-powered trucks that come from distribution centers outside of urban areas, which are at the curb to unload in the city. Regarding consumer LEVs, there are a lot of pain points, including health, speed, and cost, with the average cost of owning a car in NYC around \$1000 per month.

Cycling can build resilient urban transportation. For example, Citibike will provide 31 million rides in 2022 for 1.5 million active riders. In addition, Citi Bikes were the 25th most ridden transit system in the US, which is particularly significant considering that bikes have less than 1% of street space.

'Maintenance' has four sub-areas: Grid management & uptime; Asset operations and repairs; Battery management and recycling; Fleet routing; and efficiency.

Electricity pricing has high variability across the day, for example, 400% variability in California, compared to roughly 20% price variance for petrol or diesel. For this reason, grid energy management will become increasingly important, especially considering a constrained energy supply.

Ampcontrol is a start-up that monitors grid pricing and constraints to automate charging schedules to ensure on-time deployment of vehicles whilst reducing the costs of running EV fleets. They also recommend alternative utility options such as vehicle-to-grid. They predict and alert fleet managers to hardware issues to maintain high charging infrastructure uptime.

Maintenance is essential to the design and implementation of successful strategies. Maintenance represents the existence of a new strategy within a real-world context.

Discussion

Paul Krake:

How does the American driving mindset play out across cities in the US? Cory Connolly, who runs the climate program for the government of Michigan, said they plan to have 2 million registered EVs by 2025, which would extrapolate across the US to 40 million EVs in the next two years. So what challenges are there when considering changes to the amount or nature of car-free street space in different cities?

Laura Fox:

Cities are complicated political environments, so politicians have to carefully consider how to speak about change in a way that supports their potential reelection, avoiding major political blowouts. People often consider Copenhagen a sustainable transport utopia while distancing themselves from that possibility. Brussels, London, and Paris, where vehicular use has reduced by around 70% over the last 20 years, are all making significant progress. Those case studies are incredibly relevant to see possible ways forward. Change does not happen overnight, and the toolkit itself is not complicated, such as making more space, slowing speeds, and enabling low-emission zones.

These changes are essential to tackling climate change, and American cities already see the impact of flooding and other extreme weather. In addition, there are natural and present consequences of not taking action.

Many drivers want to continue with their pattern of moving in a personal vehicle through the city, so we also need to invest in options that those people will take up. In addition, we need to consider reliability and ease of use for alternatives, such as bus waiting times.

Many people are motivated to use bicycles to reduce journey times and save money rather than for environmental reasons.

Paul Krake:

Considering the intersection between corporations, policy and consumers, it seems erroneous to say that corporations or government are the bottlenecks. Consumers do not like making decisions that are structurally inconvenient for us. Do we require more decisive action from governments to break the consumer bottleneck?

Laura Fox:

Changes in delivery over the last 5 years show the level of desire from people to receive things on a whim. However, those consumer desires can be met more sustainably and more efficiently.

Should consumers' desires be met, or should governments be market makers? In the US, the Inflation Reduction Act is a once-in-a-lifetime policy to transform the US base economy. Unfortunately, however, much of that funding is focused on single-family homes, and it becomes much more complicated to access or implement in a multi-family or urban context.

Paul Krake:

The NYC subway system is struggling for economic viability, with only 25% of the budget covered by fares. \$100 trillion needs to be spent in the next few years to tackle the climate transition and \$125 billion to build the infrastructure for EVs to operate. What are the considerations from an economic viability standpoint?

Laura Fox:

Following conservative estimates, congestion pricing in NYC would generate \$1 billion of revenue per year. If some of the exclusions are removed, that number will increase rapidly. In addition, charging for parking in dense parts of urban cities could bring in substantial revenue, with estimates for NYC ranging from \$7-\$20 billion. Better urban management can generate revenues to invest in public transit and other sectors. Private and public sector partnerships can contribute to this transformation, such as PBSC implementing and managing infrastructure with city partners.

Paul Krake:

France is effectively banning all domestic flights under 2 hours, but in the European context, trains have a significant role to play in urban mobility.

Laura Fox:

Rail has a valuable role, as it is often the fastest way to take longer trips in larger built environments. Unfortunately, Chicago made its rail to a hub and spoke model, and now building out additional rail infrastructure is incredibly expensive. For example, NYC built a couple of extra stops, which cost many billions of dollars.

Latin American cities, such as Bogota, are seeing a lot of investment in rapid transit networks that are lower cost and function like rail in a lot of ways, if correctly set up with dedicated lanes, with the division to avoid cars encroaching. Elevated stops/stations and timing traffic lights to prioritize mass transit over regular traffic flow all help to make these systems more effective.

There are many ways to make public transit a differentiated experience, with private partnerships, such as Spotify managing the music on each bus for example. All the corporate partnerships represent good revenue opportunities for cities. Federal dollars support the development of charging infrastructure in American cities. Still, local stipulations could ensure that those investments, such as urban delivery vehicles, are more appropriately distributed to meet local needs and implement multi-modal hubs.

Paul Krake

How would you define success for Streetlife?

Laura Fox:

We want to significantly impact urban environments, working with entrepreneurs to get their capital stack in place so that it works well for investors and cities, following a whole-city approach. We want to see success for innovators in the US and then globally to see those changes we need over the next 10-20 years.



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Thank you for reading.