Big Data for Better Cycling

Colin Hughes, @colinkhughes
Head of Bike + Scooter Policy, JUMP | Uber
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Agenda

01 How we got here and where we are headed

02 How We Use Data to Better Cycling:
  • Bikesharing
  • Safety
  • Infrastructure
  • MaaS

03 How Cyclists Can Make Data Better for Cycling:
  • Data Standards for Bike Share
  • Privacy
  • Data Standards for Policy & Infrastructure
  • Vision
How we got here.

1839
First pedal-driven bicycle

1965
First Bike Share

1996
Digital Bike Share

2007
iPhone

2010
Dockless Prototype!

2017
E-Assist Dockless

JUMP
Where we are headed

2010 - 120 million bicycles
Where we are headed

2010 - 120 million bicycles
2020 - 2 billion bicycles
Where we are headed

2010 - 120 million bicycles
2020 - 2 billion bicycles
2050 - 5 billion bicycles!
How We Use Data for Better Cycling
Using Big Data for

Better Bike Sharing

Our data comes from the sensors on our bike. It enables:

- Easy location of bikes, and convenient locking
- Reservations for reliability
- Virtual infrastructure
- Extraordinarily rich data
Using Big Data for

Better Bike Infrastructure

JUMP data informs cities on demand

Graphic of dashboard, visual

by Uber
Using Big Data for 

Safer Cycling

Uber is taking a holistic approach to bike safety by integrating bike infrastructure data into its platform to raise awareness with Uber passengers about the risk of dooring and to remind Uber drivers never to block bike lanes.

Uber is committed to making bike and scooter safety a top priority

In many cities it’s illegal to stop in a bike lane.

Be respectful of people riding bikes or scooters, and help keep them safe by following the law and dropping riders off in safe, legal locations.
Using Big Data for Multi-Modal Mobility Platforms

A super-convenient multi-modal platform may be the world’s most compelling shot to compete with the model of car ownership.

If fewer people own cars, they are less invested financially, behaviorally, and politically in supporting car-dominant policies.
How Data Must Improve for Better Cycling
Making Big Data Better

Bike Share Data Standard

The world needs a single standard by which it can share data with cities that can convey all the rich data collected for planning and research also protect the privacy of individual trips. Current standards:

- Google Bikeshare Feed Specification (GBFS)
- AD Hoc CSV
- Mobility Data Specification (MDS)
- SAE International
Mobility data is some of our most personal data.

It can be used to describe our homes, jobs, friends, family, loves, politics - our intimate identities.

We must ensure privacy is protected and data cannot be misused.
New tools like Shared Streets can offer high-level mobility data analysis while providing minimal trip threshold (aggregation) to ensure personal privacy.

Check it out at www.sharedstreets.io
Making Big Data Better

Leveraging Data For Better Bike Policy

Old rules codifying car dominance:

<table>
<thead>
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<th>Level of service</th>
<th>Traffic lights Delay (s/veh)</th>
<th>Stop signs/roundabout Delay (s/veh)</th>
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<tbody>
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<tr>
<td>E</td>
<td>56-80</td>
<td>36-50</td>
</tr>
<tr>
<td>F</td>
<td>&gt;80</td>
<td>&gt;50</td>
</tr>
</tbody>
</table>

New rules codifying improved bike infrastructure:
Making Big Data Better

Data is great, but we still need vision.

Why cities with high bicycling rates are safer for all road users

Wesley E. Marshall, Nicholas N. Ferenczak

https://doi.org/10.1016/j.jth.2019.03.004

Highlights

- Cities with high bicycling mode shares have surprisingly good road safety records.
- Via negative binomial regression, we assess 13 years of data in 12 major US cities.
- Higher bicycling rates and ‘safety in numbers’ was not significant.
- Increased prevalence of protected bicycle facilities suggest safer cities for all.
- Variables representing gentrifying neighborhoods were also significant factors.
Thank you.

@colinkhughes