Making the case for smart, shared, and sustainable mobility services

Pete Slowik

Roadmap 12
June 18th, 2018
Global electric vehicle growth

- Annual global EV sales surpassed 2 million/year in 2018 (5 million cumulative)
- Mostly the sales are in China, Europe, and the U.S.
  - These markets have policy, incentives, charging infrastructure, local action

Source: www.EV-volumes.com
Major global ride-hailing companies

- Five companies together have served tens of billions of trips, have several hundred million users, complete nearly 50 million trips daily

See https://www.theicct.org/publications/ridehailing-electrification-commitment
Didi stands out as a clear leader, with over 260,000 electric vehicles.

Other companies have a few hundred to a few thousand.

Didi has 1.3% EV share, others less than 1%

See https://www.theicct.org/publications/ridehailing-electrification-commitment
# EV barriers for private cars and ride-hailing fleets

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Electric vehicle barrier for private car owners</th>
<th>Is electric vehicle adoption less difficult (+) or more difficult (–) for ride-hailing fleets?</th>
</tr>
</thead>
</table>
| Cost                    | • Higher upfront cost  
                          • Lower operating cost  
                          • Long payback period                                                   | + Bulk procurement, lower cost  
                                                                                       + High annual driving, shorter payback  
                                                                                       – Public rapid charging often expensive  
                                                                                       – Major opportunity cost from charging downtime |
| Charging convenience    | • Lack of charging options  
                          • Home → workplace → public                                                  | – Downtime and lost revenue from charging  
                                                                                       – Dependent on rapid public charging  
                                                                                       – More charging in urban settings  
                                                                                       – Fewer charging options at multi-unit dwellings |
| Consumer awareness      | • Limited awareness  
                          • Low understanding                                                           | + Companies can give guidance  
                                                                                       + Electrification by the mile  
                                                                                       + Awareness campaign for passengers |

Green = less difficult (+)  
Red = more difficult (–)

See [https://www.theicct.org/publications/policy-briefing-electrify-ridehailing](https://www.theicct.org/publications/policy-briefing-electrify-ridehailing)
Concluding thoughts

- Ride-hailing companies have an opportunity to be global leaders in the transition to electrification.

- When there are leading policies → ride-hailing fleets electrify
  - Didi in China, Uber in London

- Based on the underlying economics, electric vehicles can become most economically attractive option around 2023-2025
  - A key is charging infrastructure (urban fast + residential overnight)
More info
ICCT electric vehicle page:
http://theicct.org/electric-vehicles
Ride-hailing company EV commitments report:
https://www.theicct.org/publications/ridehailing-electrification-commitment
Electric ride-hailing cost analysis:
https://www.theicct.org/publications/shared-mobility-economic-sense
Electric ride-hailing policy briefing:
https://www.theicct.org/publications/policy-briefing-electrify-ridehailing

Acknowledgements
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Affordable charging is key to economic benefits

- Hybrids most attractive technology in 2018 without EV incentives
- BEVs reach cost parity in the 2023-2025 timeframe
- Access to overnight charging accelerates the timeline for cost-parity
  - Reliance on public fast charging increases costs by about 30%

See https://www.theicct.org/publications/policy-briefing-electrify-ridehailing
Economic opportunity for electrification

- Ride-hailing cars driven much more \(\rightarrow\) more fuel savings from electric
- Greater daily driving \(\rightarrow\) need for more public rapid charging
- Hybrids most attractive technology in 2018 without incentives

See https://www.theicct.org/publications/shared-mobility-economic-sense
Companies adopt EVs slower than broader market

- Through 2017, there were less than 3,000 EVs on Uber & Lyft platforms combined.
- EVs are about 1% of Uber & Lyft fleet, compared to over 3% California market (2012-2017).
- Uber & Lyft adopt EVs at one third the rate of the broader market.

See https://www.theicct.org/publications/ridehailing-electrification-commitment (all private cars)
Company electrification goals vary widely

- Ride-hailing companies’ EV goals vary in timeline, ambition, metric, market
- Most aggressive goal (Didi) translates to 1 in 4 vehicles being electric

See https://www.theicct.org/publications/ridehailing-electrification-commitment
Uber’s EV goals vary greatly by location

- Aggressive goals in London: 50% by 2021, 100% by 2025
  - Matches increasing congestion pricing “T Charge” & Ultra Low Emission Zone implementation
  - North America targets lag in comparison; there is no company-wide global goal

See https://www.theicct.org/publications/ridehailing-electrification-commitment
# Company actions promoting electric ride-hailing

<table>
<thead>
<tr>
<th>Market valuation and vehicle statistics</th>
<th>Didi</th>
<th>Uber</th>
<th>Grab</th>
<th>Ola</th>
<th>Lyft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market valuation (billions)</td>
<td>$56</td>
<td>$72</td>
<td>$10</td>
<td>$7</td>
<td>$15</td>
</tr>
<tr>
<td>Number of vehicles (millions)</td>
<td>21</td>
<td>3</td>
<td>2</td>
<td>0.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Share of vehicles that are electric</td>
<td>1.3%</td>
<td>&lt;0.2%</td>
<td>&lt;0.2%</td>
<td>0.6%</td>
<td>&lt;0.2%</td>
</tr>
</tbody>
</table>

### Electric vehicle action

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<th>Electric vehicle action</th>
<th>Didi</th>
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<th>Ola</th>
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</thead>
<tbody>
<tr>
<td>Public commitments</td>
<td>✔✔</td>
<td>✔</td>
<td>✔</td>
<td>✔✔</td>
<td>✔</td>
</tr>
<tr>
<td>Auto industry partnerships to supply electric vehicles</td>
<td>✔✔</td>
<td>✔</td>
<td>✔✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Electric vehicle requirements on platform</td>
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<td></td>
<td>✔✔</td>
<td>✔</td>
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<td>Financial incentives</td>
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<td>✔</td>
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<tr>
<td>Charging infrastructure investment or partnership</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Utility engagement or partnership</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Driver awareness and education</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Electric vehicle-friendly in-app features</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Electric vehicle pilots or research</td>
<td>✔✔</td>
<td>✔✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Rider outreach and education</td>
<td>✔</td>
<td>✔</td>
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</tr>
</tbody>
</table>

✓ signifies smaller local or regional program

✓✓ signifies major global or national program