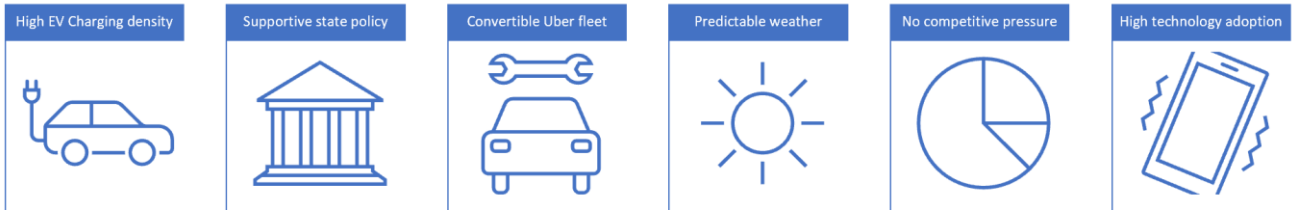
Pilot city for Uber's driverless cars

Prompt

Recommend a pilot city in the U.S. for Uber's driverless car pilot for ridesharing (with the focus on a successful pilot rather than monetization). Uber will be partially converting its fleet to driverless.

Recommendation

Sacramento, CA



Assumptions

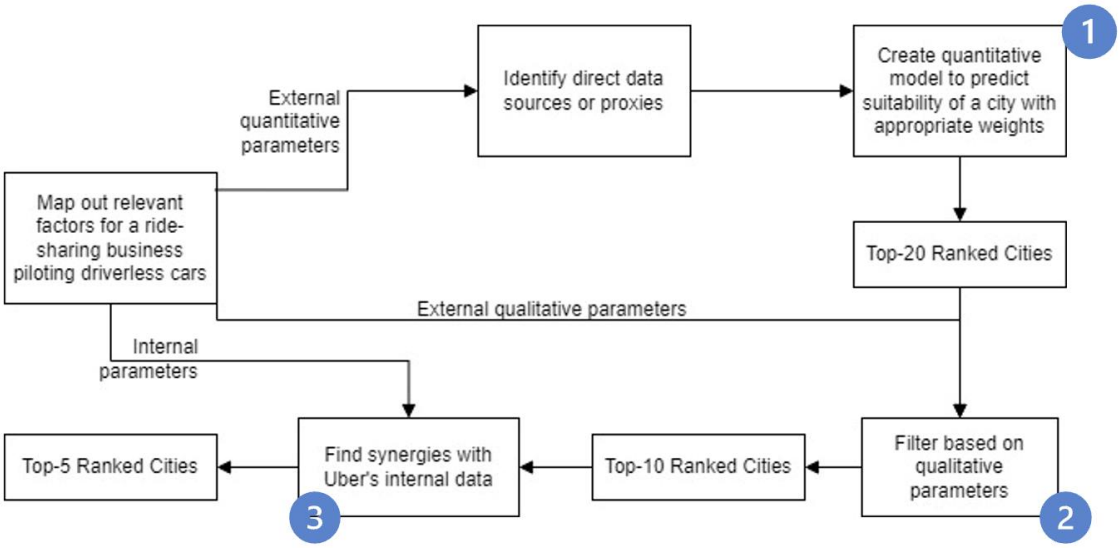
- Since the case is set in the future, data from 2023 is used for modeling.
- Autonomous vehicle (AV) industry and policy today indicate AVs in 2040 to be electric.
- Uber's operations and the city to be identified are in the US.

Top cities

Top 5 cities for Uber's driverless pilot

1. Sacramento
2. San Diego
3. Riverside
4. Atlanta
5. Philadelphia

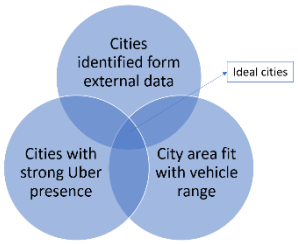
Methodology



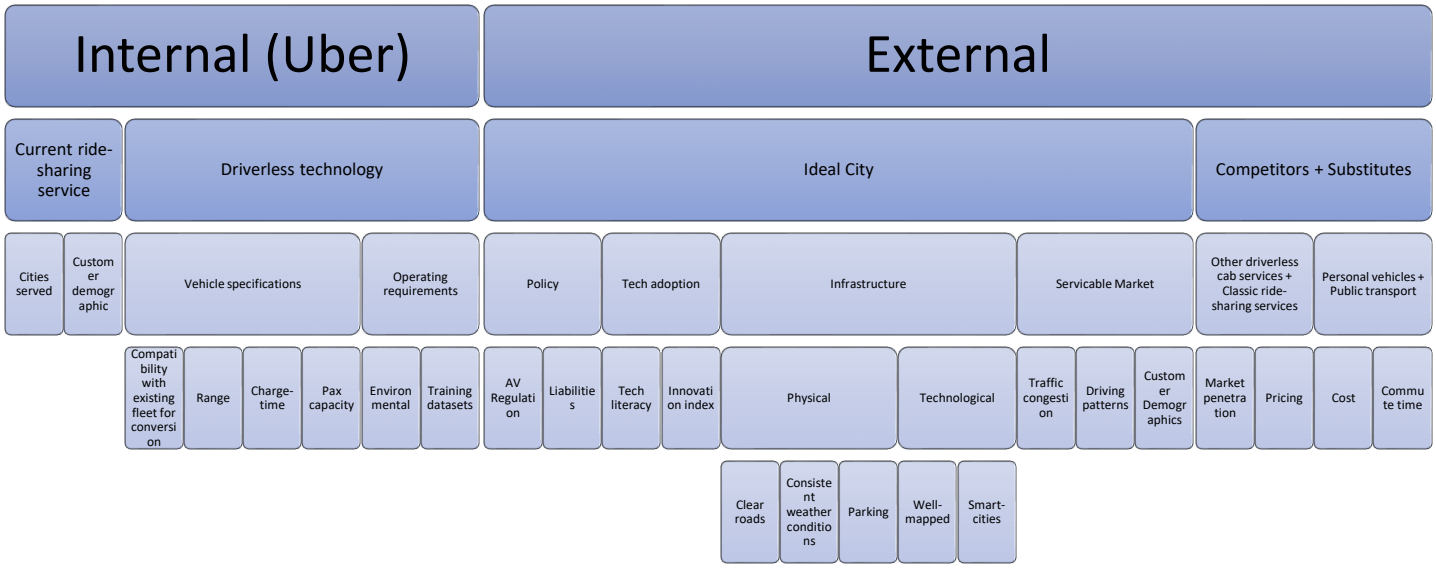
1. A weighted average is used to compare the top 20 cities in the US by population density. The weights are assigned based on relevance to success of a pilot program and the parameter scores are normalized for a 5-point scale (illustrated in appendix).

2. Removed tier 1 cities where competitive operators (Waymo, Zoox, Argo) are running similar pilots. Leaving these as the top 10 cities (mentioned in appendix).

3. These cities were filtered for those with:
   a. City area < range-based ideal area of operation.
   b. City-level Uber market share > 60% were considered to ensure sufficient availability of vehicles to convert to driverless.



Decision Parameters



Scope of refinement

- Weights for quantitative parameters using:
  - Survey to gauge consumer interest, interested demographics in a new driverless ride-sharing service.
  - Interviews of relevant stakeholders (engineering, city operations and driver relations) to include key factors, roadblocks that might not have been accounted for.
- Technology infrastructure:
  - Use Uber's data from the past 10 years of product launches to find cities that showed faster adoption to new technologies (Eg - time taken to reach 50% of existing market share in Uber Pool).
  - Cellular internet and 5G penetration (source) for vehicle connectivity.
- Uber's HQ and locations, current workforce, and availability of talent in pilot location.
- For specific cities where data was unavailable, national average has been assumed. Identify city-specific data.
- Preference % for shared transport has been collected from two data sources which can be reconciled.

Next steps

- This recommendation is meant to identify favorable cities for a pilot. It can be enhanced to maximize revenue and identify cities with the largest serviceable obtainable markets (elaborated in Appendix).
- Does this pilot place us in product development for a new customer base or diversification in the existing one. Correspondingly acquisition, marketing strategy and impact of cannibalization will need to be considered.
- Mitigate against pushback from cab driver unions due to unemployment caused by driverless technology.
- Factor risk exposure based on driverless technology accident rates, per capita historical incident rates (source).

Appendix

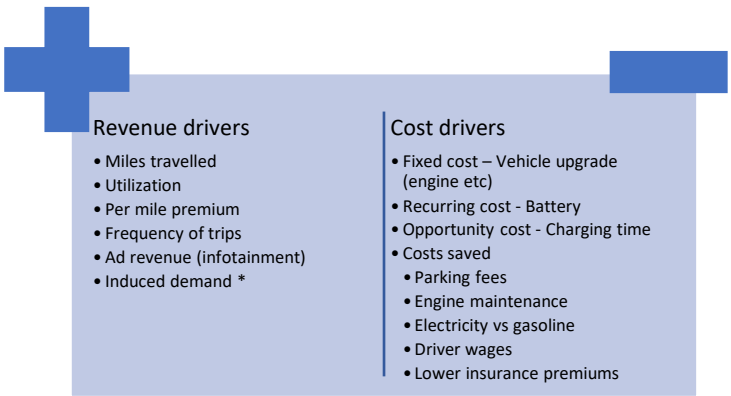
External parameter modeling

Category	Parameter	Weight	Influence	Notes	Source
Behavioral	Population density	1	↑		Wikipedia
	Preference for shared transport	3	↑	Public transport adoption rate	Wikipedia, HomeArea
	Technological adoption	2	↑	Smartphone penetration	Nielsen
	Traffic congestion	3	↓		TomTom Traffic Index
Environmental	Public policy on autonomous driving	2	↑	Ranked based on current - executive order, legislation, both, or neither	Dentons - Legal US Roundup of AVs
	EV charging station density	1	↑		National Renewable Energy Laboratory
	External environment suitability	3	↑	Based on number of 'ideal' days as defined by Dr. Brettschneider	Washington Post

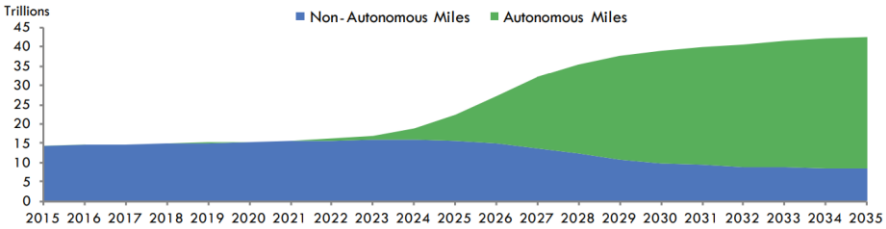
Weight	Meaning
3	Highly likely to affect successful pilot
2	Moderate importance for pilot
1	Limited importance for a pilot

<Click to view in excel>

Weights		2		1	2	3		3			1		3		71
City	State	Policy score	Density	Normalized density	Smartphone penetration	Public tranport preference	Traffic congestion level	Traffic relief level	EV Charging Station	EV Charging Density	Normalized EV charging density	Number of nice days	Normalized nice days	Tier	Weighted sum
Sacramento	California	2	2011.276	1.398085	92%	3.80%	20.00%	80.00%	402	1.540	4.247665	150	5	3	3.456508
San Jose	California	2	2155.83	1.498568	86%	5%	19%	81.00%	598	1.272	3.508876	150	5	2	3.392543
Los Angeles	California	2	3001.345	2.086306	88%	10.90%	35.00%	65.00%	1693	1.303	3.594285	150	5	1	3.159549
San Diego	California	2	1437.235	0.999056	86%	4%	20%	80.00%	860	0.891	2.45774	150	5	2	3.262216
Las Vegas	Nevada	2	1744.302	1.212505	86%	3.40%	20.00%	80.00%	310	0.842	2.323157	150	5	2	3.261432
Riverside	California	2	1492.882	1.037737	86%	3%	23%	77.00%	145	0.687	1.895179	150	5	3	3.183069
New York City	New York	2	7192.966	5	86%	56.50%	35.00%	65.00%	382	0.312	0.86069	52	1.733333	1	2.949696
Atlanta	Georgia	2	1412.79	0.982064	91%	9.80%	21.00%	79.00%	640	1.813	5	83	2.766667	2	3.054136
Chicago	Illinois	3	4524.527	3.145105	87%	27.60%	24.00%	76.00%	410	0.675	1.862773	52	1.733333	1	2.848442
Seattle	Washington	3	2002.758	1.392164	90%	20.10%	23.00%	77.00%	488	1.326	3.657099	52	1.733333	1	2.803821
Philadelphia	Pennsylvania	2	4334.586	3.013073	86%	26.20%	22.00%	78.00%	132	0.357	0.983868	52	1.733333	2	2.823494
Milwaukee	Wisconsin	3	2299.689	1.598568	86%	8.60%	11.00%	89.00%	75	0.299	0.824048	53	1.766667	3	2.884691
Fresno	California	2	1801.02	1.251931	86%	2%	20%	80.00%	259	0.860	2.373001	83	2.766667	3	2.781099
Portland	Oregon	2	1735.38	1.206304	86%	12.10%	20.00%	80.00%	268	0.713	1.965675	67	2.233333	3	2.743214
Denver	Colorado	2	1784.344	1.24034	91%	4%	18%	82.00%	352	0.878	2.420823	53	1.766667	3	2.649847
Baltimore	Maryland	0	2460.958	1.71067	86%	18.60%	15.00%	85.00%	310	1.303	3.592109	53	1.766667	3	2.446675
Detroit	Michigan	2	1727.327	1.200706	89%	2%	13%	87.00%	133	0.359	0.991322	53	1.766667	2	2.563993
Columbus	Ohio	1	1548.287	1.076251	86%	6.80%	13.00%	87.00%	334	0.571	1.574546	52	1.733333	3	2.384094
Arlington	Texas	2	1528.163	1.062262	86%	0.20%	20.00%	80.00%	43	0.167	0.459635	53	1.766667	3	2.402716



Profit drivers of converting Uber's fleet to driverless (out of scope for pilot city assessment)



* Induced demand significance - Global Vehicle Miles Traveled, Source: ARK Invest

Top 10 cities

Top 10 cities for Uber's driverless pilot

1. Sacramento
2. San Jose
3. San Diego
4. Riverside
5. Atlanta
6. Philadelphia
7. Milwaukee
8. Fresno
9. Portland
10. Denver