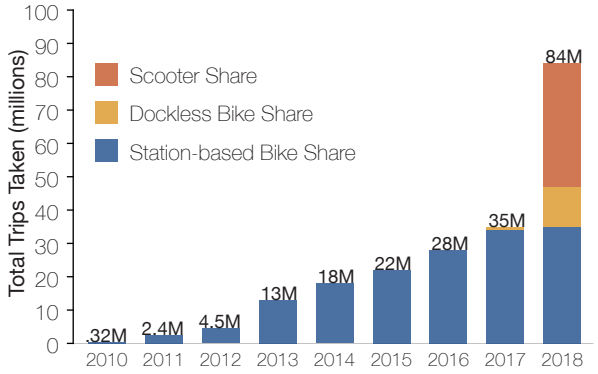
EMERGING TECHNOLOGIES

MICROMOBILITY (SHARED BICYCLES, E-BIKES, E-SCOOTERS)

DEPLOYMENT FACTS:

- In the US, bike share programs have existed at scale since 2008. **Shared e-scooters launched in the US in late 2017 and quickly grew to nearly half of total shared micromobility trips.**[1] (See Figure 1)
- In 2018, **85,000 e-scooters** were deployed nationwide, vs. **57,000 station-based bikes.**[1]
- In the US, **e-scooters accounted for 38.5M trips**, compared with **36.5M station-based bike share trips** and **9M dockless bike share trips.**[1]
- By 2019, **a dozen e-scooter companies operated in Paris with a combined fleet of 20,000 scooters.**[2]

Fig. 1: Breakdown of Micromobility Trips (2010-2018)

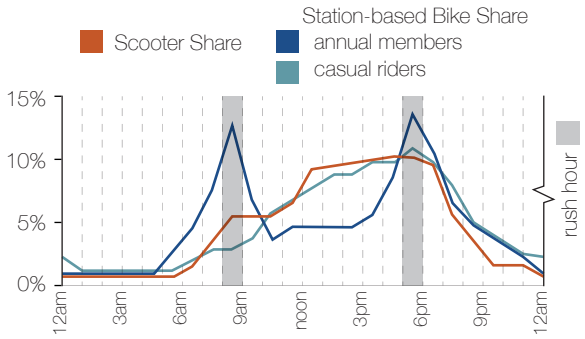


Source: Based on Shared Micromobility in the U.S. NACTO, 2019

TRIPS:

- Nationally, e-scooter use is highest from midday to early evening whereas station-based bike share peaks during rush hour.[1] (See Figure 2)
- In Santa Monica, the average e-scooter trip time is **14 minutes** and average trip length is **1.3 miles.**[5]
- The top 5 reasons in Santa Monica for using shared e-scooters/bikes were: **work-related** (29%), **recreation/fun** (26%), **eating out** (14%), **to/from home** (11%), and **shopping** (8%).[5]
- **Half of Portland e-scooter riders have used an e-scooter to access bus, light-rail or street car.**[6]

Fig. 2: US Micromobility Trips by Hour, 2018



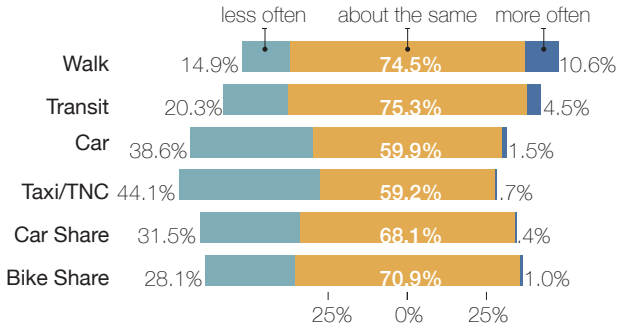
Source: Based on Shared Micromobility in the U.S. NACTO, 2019

MICROMOBILITY (SHARED BICYCLES, E-BIKES, E-SCOOTERS)

MODE SHIFT:

- In Portland, e-scooters are used for **trips that otherwise would be completed by walking (37%), driving (19%), or taxi/TNC (15%)**.[6]
- **E-scooter riders report lower usage of taxi/ TNC, driving cars, and car shares.**[6] (Figure 3)
- Nearly **6 in 10 Paris Lime riders report using e-scooters to reduce their reliance on personal motorized vehicles** (cars, taxis, rideshares, motorcycles, mopeds.)[7]

Fig. 3: Change in Modes after E-scooter Adoption (Portland 2018)

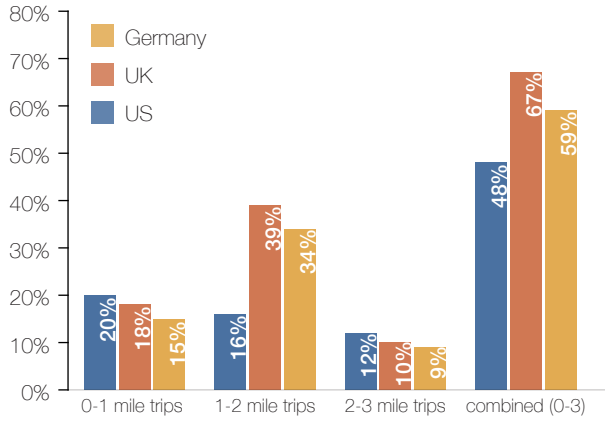


Data Source: 2018 E-SCOOTER PILOT User Survey Results. PBOT, 2019

TRAVEL POTENTIAL:

- E-scooters/E-bikes broaden the appeal of micromobility:
  - **45% of Portland e-scooter users never ride a personal bicycle, 78% never use BIKETOWN.**[6]
  - **Over 2/3 of Seattle residents would be more likely to use a bike share program with electric assist bicycles.**[8]
- About half of all trips in the US are under 3 miles, which could be completed with micromobility if it were easily available and the infrastructure supported safe travel.[9] (See Figure 4)

Fig. 4: Percentage of Short Trips, 2019



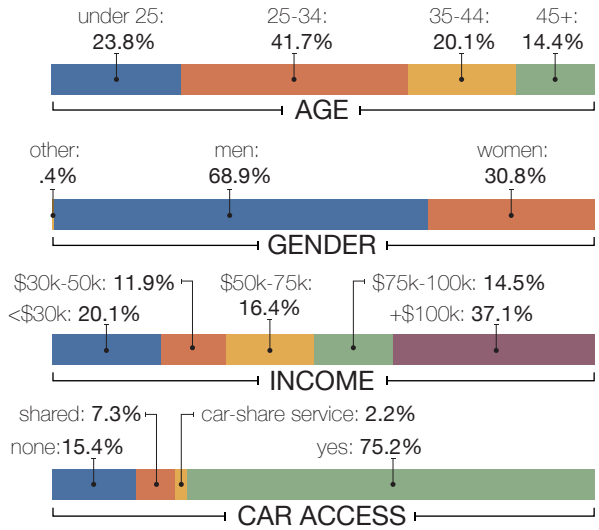
Source: Based on Micromobility Potential in the US, UK and Germany. Reed, 2019.

MICROMOBILITY (SHARED BICYCLES, E-BIKES, E-SCOOTERS)

RIDER DEMOGRAPHICS:

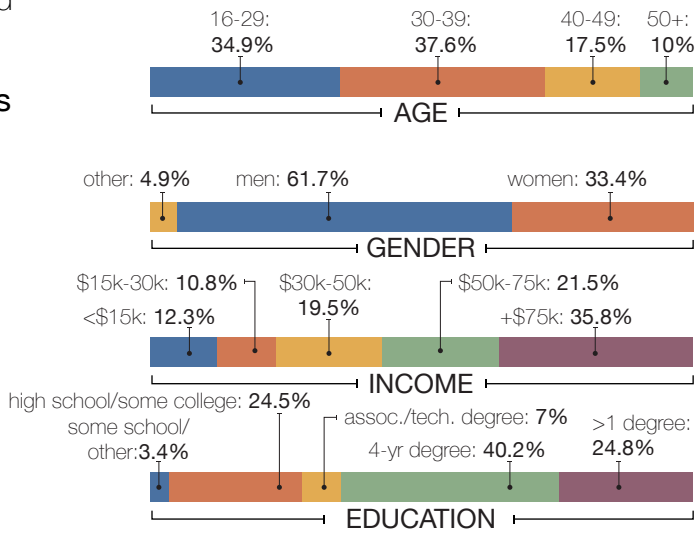
- **E-Scooter riders in Santa Monica**, the first US e-scooter market, **skew young, male and affluent** compared with users of Breeze, Santa Monica's bike share.[3] (See Figure 5)
- E-Scooter riders in Portland:[6] (See Figure 6)
  - The majority (37%) are ages 30-39.
  - More than 60% are male.
  - Over a third (35%) make more than $75,000.
  - 40% have a college degree.
- Shared micromobility gender gap:[4]
  - 75% of station-based bike share trips are made by men.
  - 12% of women vs. 21% of men have used station-based bike share services in the US.
  - 3.2% of US women have used e-scooters compared with 4.4% of men.

Fig. 5: Santa Monica Ridership Demographics, 2018



Data Source: Shared Mobility Device Pilot Program User Survey Results. Santa Monica, 2019

Fig. 6: Portland Ridership Demographics, 2018



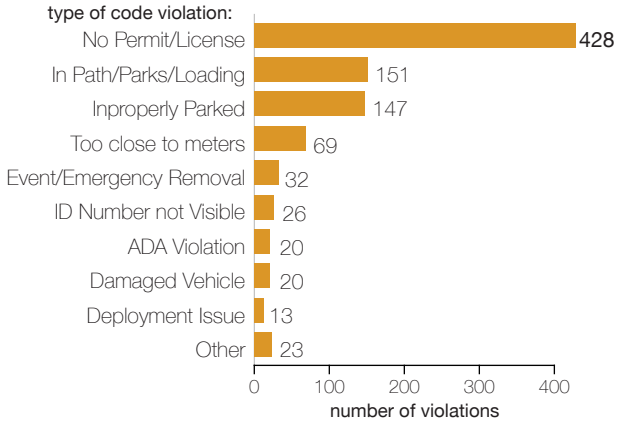
Data Source: 2018 E-SCOOTER PILOT User Survey Results. PBOT, 2019

MICROMOBILITY (SHARED BICYCLES, E-BIKES, E-SCOOTERS)

E-SCOOTER ENFORCEMENT ISSUES:

- The **majority of citations** issued to e-scooter companies were for **no permit/license to operate and parking/loading issues**.[5] (See Figure 7)
- The **most common e-scooter parking issues** were not providing sufficient clearance in public right of way (25%) and not being parked upright (17%).[5]
- The **majority of citations** issued to e-scooter riders were for **riding without a helmet (61%), followed by riding on sidewalks (13%)**.[5]

Fig. 7: Santa Monica Scooter Code Violations

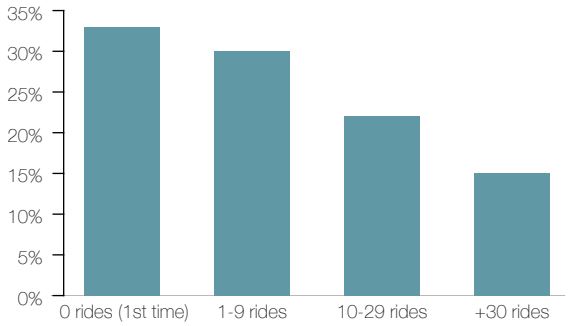


Source: Based on Shared Mobility Pilot Program Summary Report. Santa Monica, 2019

E-SCOOTER INJURIES:

- Austin Public Health & The CDC find that e-scooter use results in **20 injuries per 100,000 trips**.[10]
- **1/3 of injuries were sustained by riders on their first e-scooter ride**.[10]
- **48% of injuries were to the head**.[10]
- **50% believed surface conditions** (pot holes, crack in street) **contributed to their injuries**.[10]
- **More than 1/3 reported that excessive speed** contributed to their injury.[10]

Fig. 8: Number of Rides Before Injury (2018)



Source: Based on Dockless Electric Scooter-Related Injuries Study. Austin Public Health, 2018

SOURCES:

Graphic design by Urbanism Next, data sourced from:

1. NACTO. (2019). Shared Micromobility in the U.S.: 2018. Retrieved from: https://nacto.org/wp-content/uploads/2019/04/NACTO_Shared-Micromobility-in-2018_Web.pdf
2. Halais, Flavia. (November 2019). Paris Ends an E-Scooter Melee With New Rules of the Road. Wired. Retrieved from: https://www.wired.com/story/paris-escooters-regulation/
3. City of Santa Monica Shared Mobility Device Pilot Program User Survey Results. (January 2019). Retrieved from: https://www.smgov.net/uploadedFiles/Departments/PCD/Transportation/SharedMobility_UserSurveySummary_20190509_FINAL.PDF
4. Populus. The Micro-mobility Revolution: The Introduction and Adoption of Electric Scooters in the United States. (July 2018). Retrieved from: https://research.populus.ai/reports/Populus_MicroMobility_2018_Jul.pdf
5. City of Santa Monica. Shared Mobility Pilot Program Summary Report. (November 2019). Retrieved from: https://www.smgov.net/uploadedFiles/Departments/PCD/Transportation/SantaMonicaSharedMobilityEvaluation_Final_110419.pdf
6. PBOT. (2018). 2018 E-SCOOTER PILOT User Survey Results. Retrieved from: https://www.portlandoregon.gov/transportation/article/700916
7. Lime. Nearly 1/4 Million Parisians Are Using Dockless Electric Scooters, Study Finds. (April 2019). Retrieved from: https://www.li.me/second-street/quarter-million-parisians-using-dockless-electric-scooters-study-finds
8. EMC Research. Seattle Department of Transportation Web Panel Survey. (February 2018). Retrieved from: https://1p40p3gwj70rhpc423s8rzjaz-wpengine.netdna-ssl.com/wp-content/uploads/2018/06/18-6702-Report-22.pdf
9. Reed, Trevor. (2019) Micromobility Potential in the US, UK and Germany. Retrieved from: http://inrix.com/campaigns/micromobility-study-2019/
10. Austin Public Health. Dockless Electric Scooter-Related Injuries Study. (April 2019). Retrieved from: https://www.austintexas.gov/sites/default/files/files/Health/Epidemiology/APH_Dockless_Electric_Scooter_Study_5-2-19.pdf