INCREASING PUBLIC TRANSPORT EFFICIENCY USING ARTIFICIAL INTELLIGENCE (AI)

Afnan Kamran Khawaja | DDEFTP Presentation# P21-20944 | Napa Valley College

ABSTRACT

This research proposal focuses on the need for improvement in public transportation efficiency and usage. The focus will be on current public transportation issues including limited supply to increasing populations and solutions to the problems using Artificial Intelligence (AI), increased automation, and "greener" funding policies of public transportation.

BACKGROUND

- According to the U.S. Bureau of the Census, driving alone in a private vehicle is the most common means of transportation to work in the United States and accounted for 76.4% of all commuters in 2014. The amount of those driving to work alone increased in each decade from 1980 to 2014.(Figure 1)
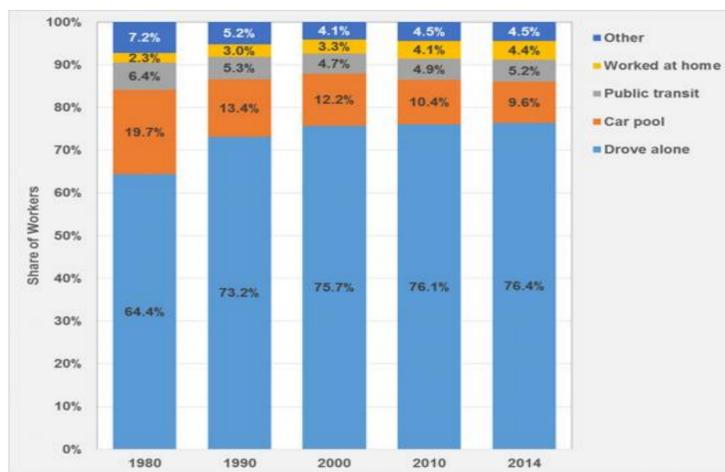

Fig. 1

INCREASING PUBLIC TRANSPORT EFFICIENCY? WHY?

- Survey of **13,000 people** by the world's leading transit app, "Moovit" found that people wait approximately **40 minutes per day** for public transit.
- Lack of **accessibility**, **information**, and **convenience** of public transport are the primary reasons for the number of vehicles and miles driven to grow at a fast rate since **1985.**
- Transportation accounted for **28%** of **Green House Gases** Emissions in **2016**, of which **83%** were a product of automobiles. (Figure 3)

ALTERNATIVES

- **Smart Paratransit:**

Smart Paratransit would help in collection of data of passengers in different localities with increased routes and frequency, making transportation faster and easier.

- **Integration of AI and Automation:**

Using AI in public transportation would help reduce driver costs, increase passenger safety, reduce congestions, pollution, and be more accessible for disabled and low-income individuals which is why its use is expected to increase in the next years (Figure 2).
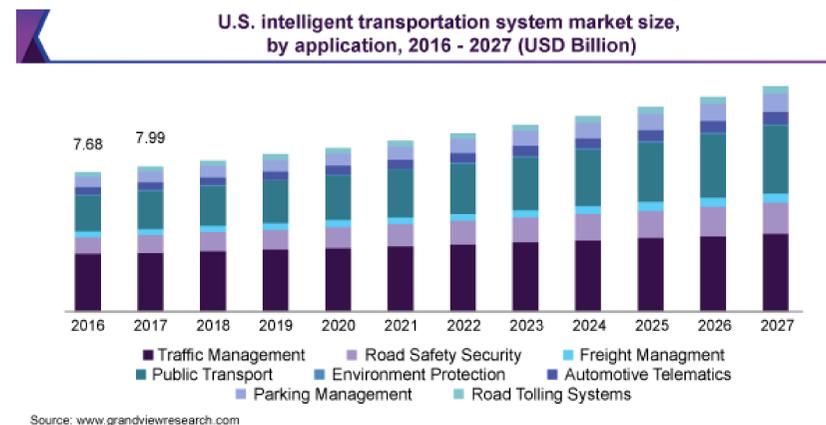

Fig.2

- **Environment friendly taxes:**

Taxes and fees on "anti-green things" could help fund the public transport system and promote "greener" ways of transportation. Additional registration or title fees could be used to aim at how much vehicles are driven and how each model contributes to pollution. (Figure 4)

Other Alternatives:

P2P Bike Sharing; P2P Vehicle Sharing; Microtransit; transit-oriented model; Discounted bus rides.

Fig.3

METHODOLOGY

- Collaboration between transportation agencies for an efficient plan;
- Feasibility studies, general projections of various projects and their related societal benefits;
- Interviews with officials from transit agencies;
- Integrating locally-driven shared mobility pilots and risk-sharing partnerships;
- Contracts with local, national, and international organizations for collective efforts incentivized by shared benefits;
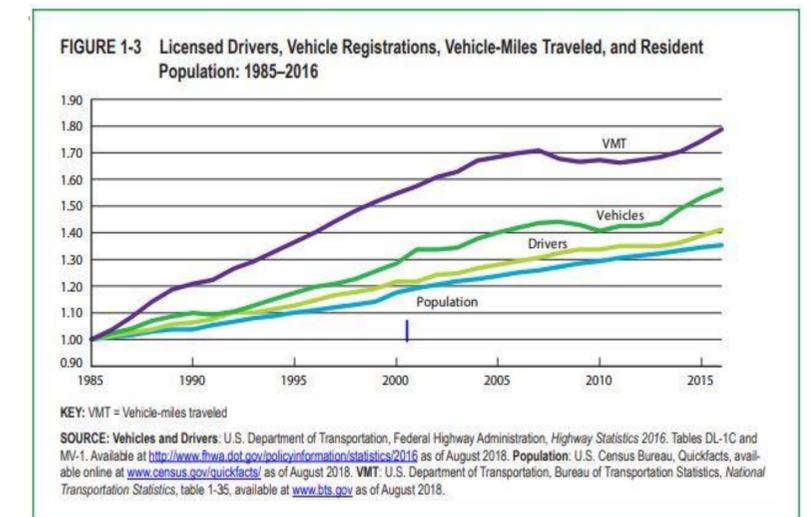

Fig.4

CONCLUSIONS

This development will drive the next step in transitioning to a more viable means for public transport with increased efficiency and availability.

REFERENCES

1. U.S. Census Bureau, American Community Survey 1980-2014 data.

2. The Inventory of U.S. Greenhouse Gas Emissions and Sinks

3. Grandviewresearch Analysis report *Intelligent Transportation System* published 2020