

AUTONOMOUS CAR MANUFACTURING

California's Future

Background

Autonomous car manufacturing is on the verge of viability, and California leads the way. It is home to virtually all R&D operations for self-driving cars. Several car manufacturers and tech companies have established offices/labs in California, including: Tesla, General Motors, Ford, Nissan, Toyota, Hyundai, Volkswagen, Google, and Apple. Virgin Galactic has also expressed interest in pursuing autonomous car production. By taking action now, California will be positioned to achieve something remarkable: become the new center of automotive manufacturing.



Credit: Mercedes Benz

Benefits

There are a plethora of societal benefits that come with a critical mass of autonomous cars.

Improved Safety – Given that most crashes involve human error, self-driving cars would lead to a significant reduction of car accidents. DUI's and incidents of road rage would also plummet. Improved safety also means less stress on health-related infrastructure.

Reduced Traffic/Congestion – Traffic flow efficiencies, including the movement of goods, would improve, thereby reducing traffic/congestion and increasing economic output.

Environment – Less car accidents translates into less spills of toxic substances, while a reduction in traffic/congestion provides for less air pollution via gained flow efficiencies.

Better Health – By not having to focus on driving and spending less time in a car, ones mental health benefits via lack of stress, which in-turn benefits physiology. For those with disabilities, enhanced mobility via self-driving cars provides a number of health-related benefits.

Consumer Benefits – With the safety improvements, one can expect a substantial cost reduction in both auto insurance and life insurance rates.

Quality of Life – Improved safety, more leisure/relaxation, a positive impact on physical/mental health, cleaner air, reduced auto/health insurance, shorter times to reach destinations, and improved productivity translates into better quality of life for all of society.

Resource Redeployment – With a significant reduction of crashes, DUI's and road rage, government resources (e.g. Caltrans, CHP) could be reallocated towards other endeavors.

Next Steps

Several actions can be taken to ensure that California will become the new center of automotive manufacturing.

R&D Institute – Establishing an autonomous car institute within the UC/CSU system, with the goal of developing & transferring technologies to industry, would incentivize companies to establish autonomous car manufacturing operations within California. It would also increase safety and functionality of future vehicles.



Credit: Nissan

Economic Incentives – Establishing car manufacturing operations requires significant investments of capital. Offering economic incentives that can reduce the financial burden of initial start-up costs would entice businesses to locate car manufacturing operations in California.

High-Quality Workforce – Having a highly-qualified workforce for autonomous car manufacturers solves would also entice autonomous car companies to locate within California. Bolstering college-level programs in robotics & automation, CADD, electronics/sensors and geospatial systems (e.g. GPS, mapping technology) ensures workers involved in the manufacturing of autonomous vehicles have the necessary skill-sets for maximizing output.

STEM Education – Increased STEM education at the K-12 level would be advantageous for both quality & quantity of the future workforce. A few examples that would contribute to this endeavor include: the expansion of STEM-related programs (e.g. Project Lead the Way), increasing STEM graduation requirements and providing more STEM professional development opportunities.

Utility Costs – Car manufacturing operations use considerable amounts of energy & water. Establishing a rebate program for car manufacturers to improve efficiency of utilities could serve as another example of why California should be the primary location for the future of autonomous car manufacturing.



Credit: Google