

Major auto industry disruption will lead to robotic taxis

<http://www.latimes.com/business/autos/la-fi-hy-end-of-human-driving-20150407-story.html>

The automotive industry is entering a period of deep disruption that will make it unrecognizable, according to a new analysis from Morgan Stanley. "The auto industry is a century-old ecosystem being ogled by outside players hungry for a slice of a \$10-trillion mobility market," warns Adam Jonas, the lead auto analyst at Morgan Stanley Research. "Many want in. It's just beginning. And it won't stop." Already Google is experimenting with robotic cars, and tech giant Apple is reportedly eyeing the electric car market. Upstart Tesla Motors is slowly building a business by selling only electric cars. In a report to investors, Jonas wrote that the two most important technological trends in automotive transportation are the sharing economy and autonomous driving. He said those trends will fuse into what he calls "shared autonomy" or what is essentially a world of competing robotic taxi services.

Jonas has boiled down the massive change the automotive world faces into a chart with four quadrants, or phases of disruption. The horizontal axis illustrates the transition from individual vehicle ownership to an era where cars are shared assets. The vertical axis shows the transition from human to robotic driving. The first quadrant represents the auto industry model for more than 100 years, Jonas said. High-tech is limited to gadgets for driver convenience or entertainment. In this current phase, 35 auto manufacturers globally are all trying to steal market share from each other. Software is still pretty minimal, accounting for less than 10% of the value of an automobile. Cars are used only about one hour a day and sit idle in a parking space or garage most of the time. "The car, on our estimates, is the world's most underutilized asset," Jonas said. "We believe it's the most disruptable business on earth."

The next quadrant shows how people are starting to use Uber and other services to slowly relinquish their ownership and control of the car. This is an era during which taxis (including so-called car-sharing services like Uber) could become "so cheap that only rich people own cars." This allows for hundreds of new entrants into the fleet management business, Jonas said. The biggest impact will be felt in dense mega-cities that can support these services. Quadrant three depicts how people will give up control of the automobile to a computer, using steering wheels and pedals less over time. During this phase, most cars are still owned by individuals, but the rising competition from mega-fleet managers operating human-driven vehicles with automated driving features gains momentum, Jonas said. At the same time, society will benefit from improvements in vehicle safety and efficiency.

Finally, quadrant four depicts the "shared autonomy." Jonas envisions "roving fleets of completely autonomous vehicles in operation 24 hours a day, available on your smartphone." An individual's transportation cost per mile falls to as low as 25 cents a mile, or roughly 1/10th that of a traditional taxi, Jonas said. These automated taxi systems get launched in the megacities of developed countries, spread to the close suburbs and then become connected to other cities in a hub-and-spoke network of autonomous highways, Jonas said. Human driving will face obstacles such as laws that permit it only on select areas of public roads. Finally, huge new swaths of real estate -- former parking lots and garages, at homes and businesses -- would be put back into more productive commerce. Jonas calls this predicted era "Autopia."

Graphic showing the future of the auto industry

<http://www.driverless-future.com/>

It may have taken professional auto industry analysts some time to understand the impact of autonomous vehicles. But now Morgan Stanley's Adam Jonas has come up with another ingenious 2-by-2 chart so much en vogue with international strategy consultants which highlights the core transformative forces at work. This is a major intellectual feat because it compresses the problem space and helps reason about changes, challenges and opportunities associated with self-driving cars. The chart is shown below. Because I don't have access to the original Morgan Stanley report the following explanations may not exactly reflect Morgan Stanley's reasoning.

http://www.driverless-future.com/?attachment_id=757

Quadrant (1) shows the auto industry today which is exposed to two major forces of change: The sharing economy leads to the emergence of companies which provide mobility as a service. Uber, Car2Go, DriveNow, Lyft and others are examples for this trend. In parallel, the auto industry faces the trend toward autonomous driving. Several companies, including Daimler, Nissan, and others are working on models targeted toward the consumer which can drive autonomously. The fourth quadrant shows the confluence of both trends: The shared autonomy. Autonomous pods such as the Google electric autonomous 2-seater, the Lutz Pathfinder currently being deployed in the UK and CityMobil2 autonomous buses fall into this category.

The future of the auto industry can be found in this fourth quadrant. Economic reasons clearly show that this quadrant will capture the lion's share of individual motorized mobility. Neither of the other quadrants will be able to provide individual mobility at competitive prices compared with the providers of autonomous mobility services of quadrant (4). Of course the other quadrants – particularly the 1st and third quadrant will not disappear entirely. There will still be some privately owned cars but they will represent a much smaller share of the mobility market than today.