



THE CAR OF THE FUTURE

Transforming Mobility As We Know It

Citi GPS: Global Perspectives & Solutions

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For anyone who grew up watching after-school or Saturday morning television, cartoons like *The Jetsons* and the vision of George Jetson getting into his spaceship and commuting to work on a space highway is a familiar memory. That 1960s vision of how the future world would look was influenced by the race to be the first to land on the moon and the beginnings of real advancements in computer development. Although we're not all jumping into our spaceships to get to the office, there has been an amazing transformation in automobile technology over the past 40-plus years. And this is just the beginning.

In this Car of the Future report, we attempt to explain and evaluate those global automotive technologies that will shape tomorrow's cars — from assembly to safety to fuel. In identifying and evaluating these future technologies, we also put together a basic investor framework that evaluates the potential for each technology by asking some simple questions — things like “Is there a specific regulatory driver?” Or “Is it reasonably affordable to consumers?” We think this is a good starting point for sorting through the plethora of opportunity and change that's out there.

Regulation plays an important role as a driver for some of the change that's coming up. New regulation on fuel efficiency is leading manufacturers to decrease the weight of vehicles through lightweighting of materials. New operating models like car sharing are changing the way that we traditionally think of vehicle sales and affordable/low-cost green cars are increasing the global statistics for car ownership while being environmentally considerate.

After years of fits and starts, electric vehicles are finally starting to get some traction as advances in battery technology improve drive time and the prospect of a battery operator model could be the path to a low-cost vehicle. Alternative fuel sources (like compressed natural gas and fuel cell vehicles) are also helped by global regulatory requirements that are now largely enacted and are stringent on emissions reduction.

Where we may be coming closest to the Jetson spaceship is in technology — the Connected Car. Auto parts manufacturer Continental forecasts growth in telematics is of around 34% from now until 2020 versus market growth of 4%, reflecting the convergence of active safety through advanced drive assistance systems and embedded connectivity. The driver's seat will soon resemble a cockpit with heads-up displays and personalized interfaces driven both by technological advances and consumer demand.

What about a self-driving car? The foundation for autonomous driving already exists and can be seen through the new advanced driver assistance systems, but it's not likely to be a commercial reality before 2025. And who knows? We could all be driving spaceships to work by then.

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