

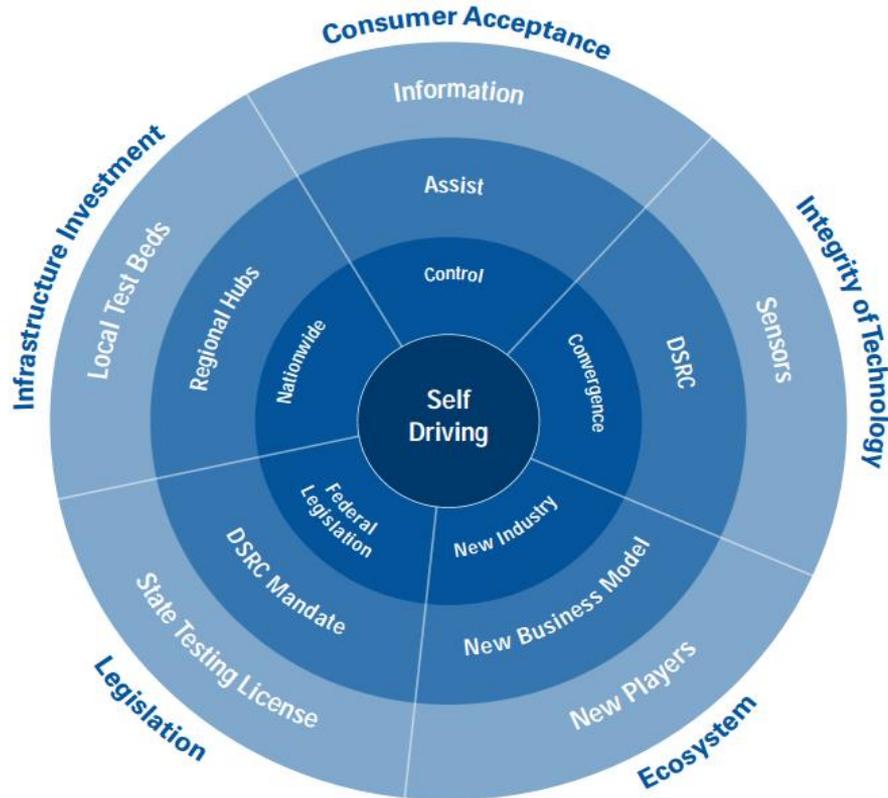
# Predicted benefits of the driverless car



Aspiration	Potential Annual Benefits (US only)
90% reduction in accidents	<ul style="list-style-type: none"><li>• 4.95 million fewer accidents</li><li>• 30,000 fewer deaths</li><li>• 2 million fewer injuries</li><li>• \$400 billion in accident-related cost savings</li></ul>
90% reduction wasted commuting	<ul style="list-style-type: none"><li>• 4.8 billion fewer commuting hours</li><li>• 1.9 billion gallons in fuel savings</li><li>• \$101 billion saved in lost productivity and fuel costs</li></ul>
90% reduction in cars	<ul style="list-style-type: none"><li>• Reduce cost per trip-mile by 80% or more</li><li>• Increase car utilization from 5-10% to 75% or more</li><li>• Better land use</li></ul>

Source: Forbes, Google, US NHTSA, AAA, Texas A&M Transportation Institute, Columbia University Earth Institute and Devil's Advocate Group's analysis.

# Various facets and forces that must come together to enable self-driving



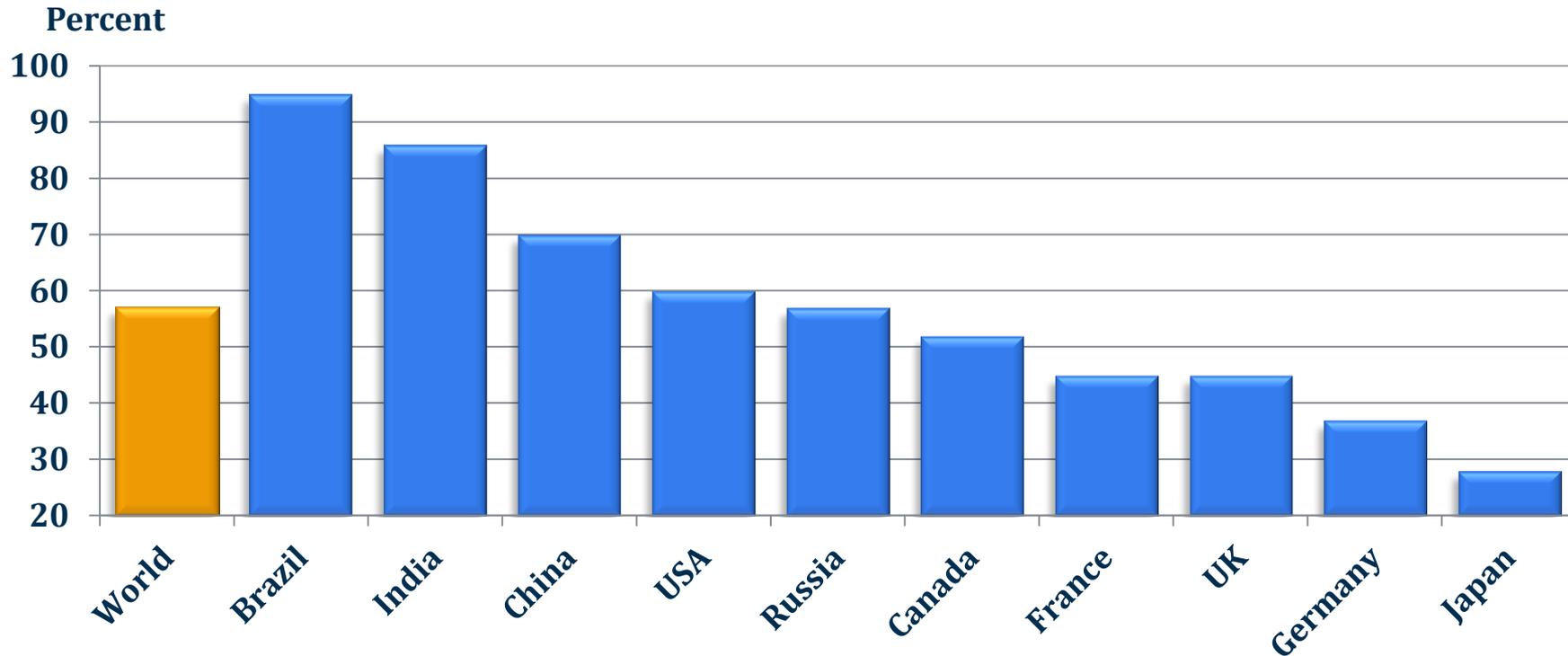
Source: KPMG, Center for Automotive Research.

Today Medium Term Long Term

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# 57% of consumers globally trust driverless cars

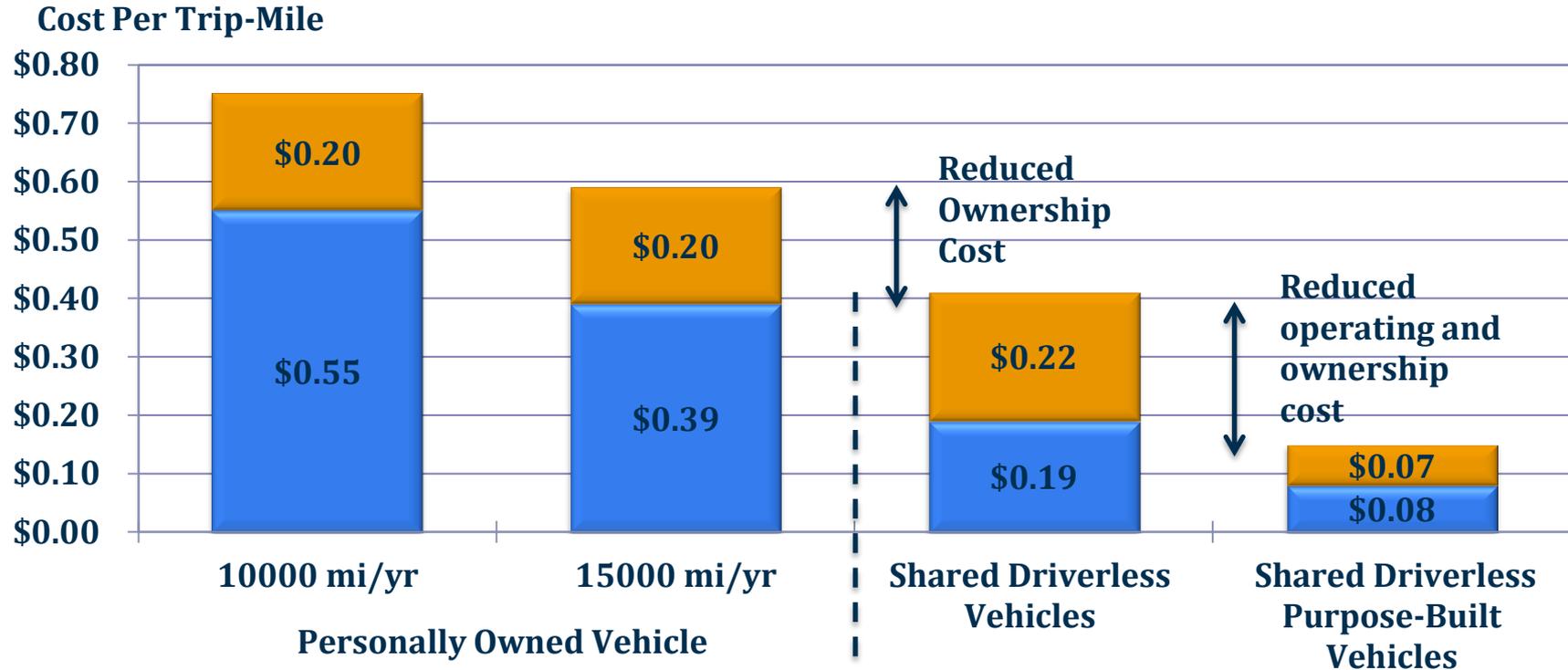
*More so in emerging markets*



Source: Cisco Customer Experience Report for Automobile Industry.

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# Personal travel costs can be dramatically reduced



Source: Forbes, Program on Sustainable Mobility, the Earth Institute, Columbia University.

# A Toyota Prius modified by Google to operate as a driverless car



Source: Wikimedia Commons.

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# Nissan autonomous prototype technology was fitted on the Nissan Leaf all electric car



Source: Wikimedia Commons.

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# Robotic Volkswagen Passat, at Stanford University

October 2009



Source: Wikimedia Commons.

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# Timeline for movements toward autonomous cars



- **Late 2014, Volvo will feature Adaptive Cruise Control with steer assist which will automatically follow the vehicle ahead in queues.**
- **By 2015, Audi plans to market vehicles that can autonomously steer, accelerate and brake at lower speeds, such as in traffic jams.**
- **By 2015, Cadillac plans vehicles with "super cruise": autonomous steering, braking and lane guidance. This technology will likely spread to other GM models in following years.**
- **By 2015, Nissan expects to sell vehicles with autonomous steering, braking, lane guidance, throttle, gear shifting, and, as permitted by law, unoccupied self-parking after passengers exit.**
- **By Mid-2010's, Toyota plans to roll out near-autonomous vehicles dubbed Automated Highway Driving Assist with Lane Trace Control and Cooperative-adaptive Cruise Control.**
- **January 1, 2017 The National Highway Traffic Safety Administration hopes to mandate the adoption of Vehicle-to-Vehicle technology on all new automobiles.**

# Timeline for future for truly autonomous cars



- **At the 2012 CA bill signing Google co-founder Sergey Brin said "you can count on one hand the number of years until ordinary people can experience this(autonomous car technology)."**
- **By 2017, Tesla plans an "autopilot" feature that handles 90% of miles driven**
- **By 2020, Volvo envisages having cars in which passengers would be immune from injuries.**
- **By 2020, GM, Mercedes-Benz, Audi, Nissan, BMW and Renault all expect to sell vehicles that can drive themselves at least part of the time.**
- **By 2025, Daimler and Ford expect autonomous vehicles on the market.**
- **In 2035, IHS Automotive report says will be the year most self-driving vehicles will be operated completely independent from a human occupant's control.**