

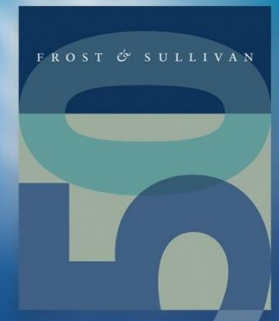
Automotive and Transportation Technology (TechVision)

Self-driving Car Technology



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Self-driving Car Technology Innovations

Upgrading Semi-Autonomous Autopilot to a Full Self-driving Ability

Tesla Motors, Palo Alto, California, USA

Unmet Needs/Trends

- The buying public and government agencies are looking for a safer transportation alternative
- Intelligent self-driving vehicles have the opportunity to reduce crash rates attributed to ubiquitous human error, and offer mobility to sectors of the population not presently well served (youths, elderly, disabled)
- The public also wants a technology that is very dependable and trustworthy

Potential Applications



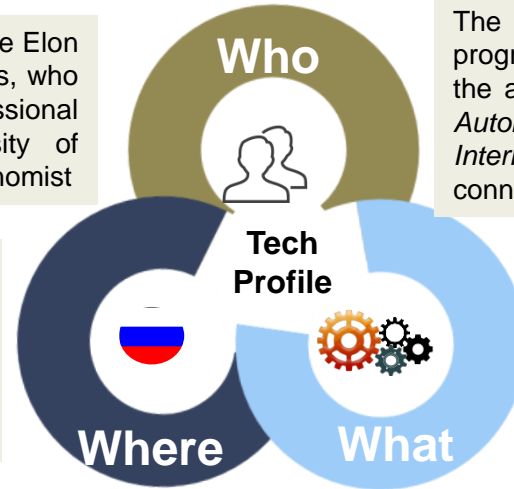
- The general motoring public is the prime application, to build unit volume
- Secondary applications will include special-needs unlicensed occupants: under-age youths, elderly, and disabled humans

Analyst Insights

TechVision, which has road-tested various Tesla EV model S sedans, encourages any technology upgrades that can reduce car crash fatalities

The Tesla team is led by the Elon Musk, CEO of Tesla Motors, who is a trained technical professional (BS in Physics, University of Pennsylvania), and an economist

The Tesla HQ is located in Palo Alto, CA (the heart of Silicon Valley). Engineering offices and assembly operations are in nearby Fremont, CA



The Tesla team's research progress is regularly tracked by the automotive literature (such as *Automotive News*, *SAE International*), as well as well-connected Silicon Valley sources

Innovation Attributes

The key innovation was development of a sophisticated self-parking autopilot system (launched October 2015) that can and will be upgraded to a full self-driving capability at the soonest. Tesla has hired many software engineers to expedite R&D progress

Future Plans

The Tesla team urgently wants to engineer and market an exemplary self-driving premium-priced electric vehicle (EV), before Google and its partners (such as Ford Motor Co.) enter the market



Tesla's self-driving technology may appear on the market by

Funding

The R&D is funded by Tesla's investors. This public company trades stock on the NYSE

Improving Autonomous Vehicle Operation on Snowy Roads

Ford Motor Company, Dearborn, Michigan, USA

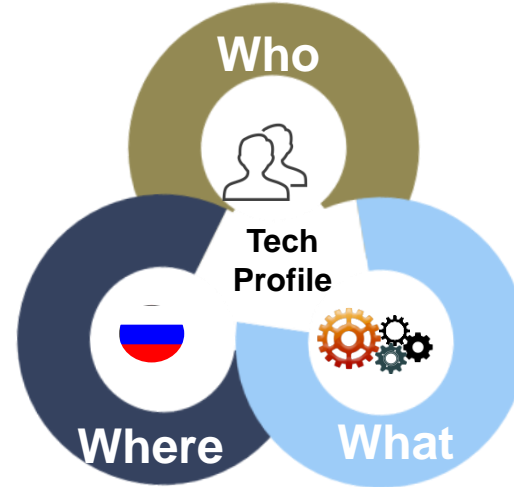
Unmet Needs/Trends

Potential Applications



Analyst Insights

TechVision is pleased that one major obstacle (handling snow) to broad geographic use of autonomous vehicles is being addressed.



Innovation Attributes

Future Plans



This technology may appear on the market for self-driving vehicles by

Funding

The research was funded by Ford Motor Company

STRATEGIC INSIGHTS

Strategic Insights

Various Research Rivals

A great many car builders and their technology vendors are actively pursuing self-driving car technology, especially at their R&D centers in Silicon Valley, CA.

Competitive Landscape

Market Potential

Market Potential is There

Market analysts are optimistic about the future potential for self-driving vehicles.

Self-Driving Car Technology Innovations

Ltd. Ability to Serve Market

R&D organizations, experimenters (such as Google) and subsystem suppliers can not readily make this market takeoff without courting major relationships with car builders, which is presently happening.

Capability to meet Market Needs

Patent Trends

Patent Activity Growing

Global patents related to self-driving technology, applied for and granted, are growing annually.

INDUSTRY CONTACTS