



**Hogan
Lovells**

**Future of Mobility:
Autonomous, Connected, Electric, Shared**

Are you (still) in the driver's seat?

The Automotive Industry: Past, Present, and Future

The global automotive industry is a colossus under disruption.

Established companies are working to succeed in the current market while also preparing for a future that is very different from the business that characterized past decades. The challenges are profound in maintaining excellence in an existing business while also transforming the very industry where one is successful.

New entrants have more freedom to use new technologies and business models to define the future. But they must also learn how to manufacture or obtain products on a global scale that are reliable and safe and comply with decades of accrued regulatory structure.

While companies develop and harness new technologies, they also need to find a business model that works, and either build or transform a brand.

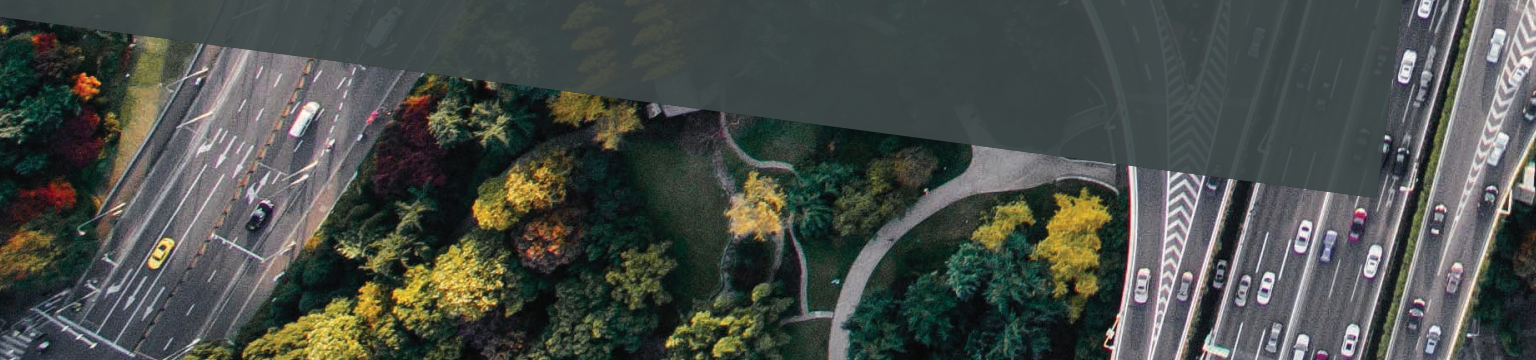
Consumers are fickle. Their desires are changing. Sometimes those desires change so rapidly they seem to be trying to pull along the market. Other times consumers are reticent or are waiting to be shown the new product or service they never realized they could not live without.

Governments are similarly torn. While all seem to want to capture the benefits of the future, transformation will pose challenges, too. When technology changes and business models transform, settled economic positions can crumble. Governments would prefer all “wins” with no painful changes for settled interests. Regulators are also struggling to keep up and stay current as technology and business models transition faster than regulatory structures.

**Disruption generates uncertainty.
But uncertainty is also a source of incredible opportunity.**

To succeed in a disruptive environment, one has to embrace that uncertainty and find it invigorating; otherwise one cannot create the clarity to realize opportunity.

We enjoy combining our experience with how the industry and the law are currently structured with our inherent curiosity in the amazing changes coming forward to help our clients realize the bountiful opportunity of the future.

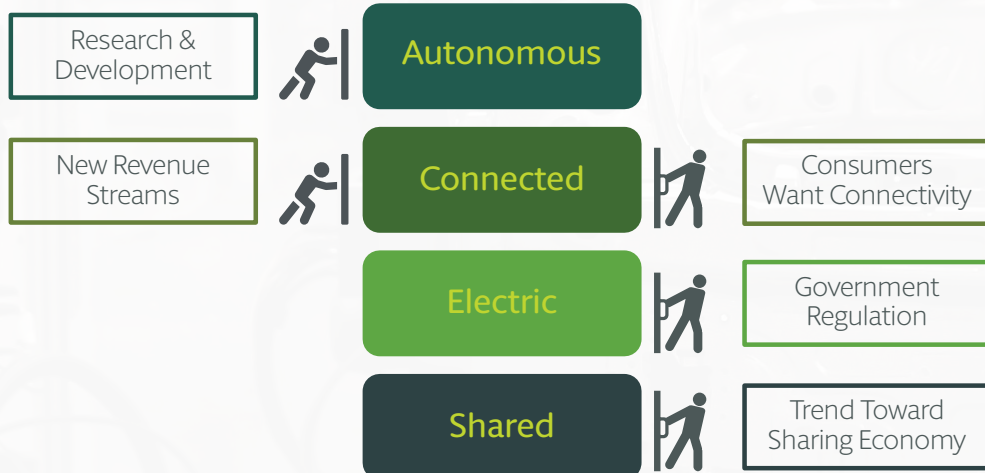






The push and pull of the path to ACES

A (short) market analysis

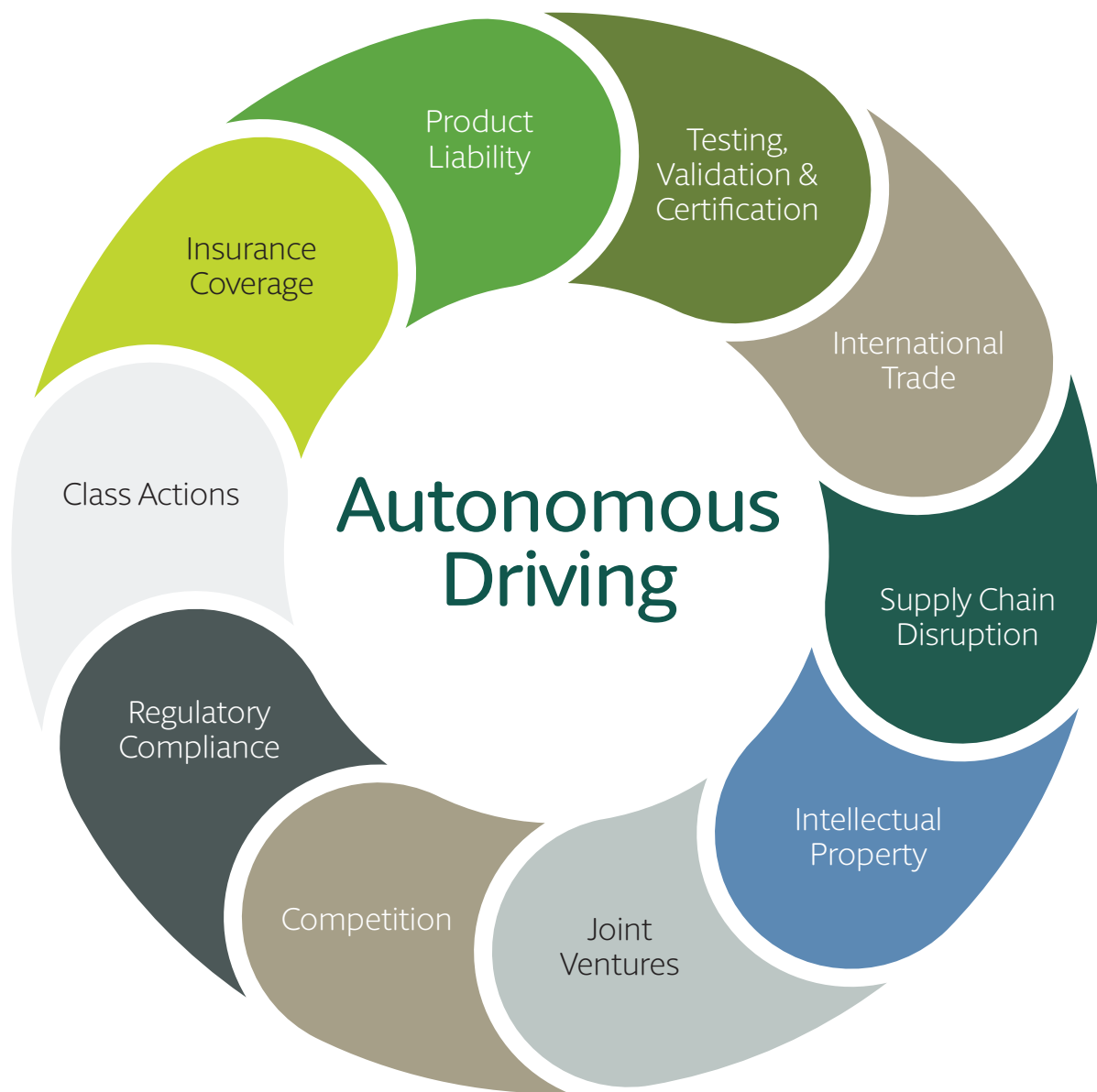
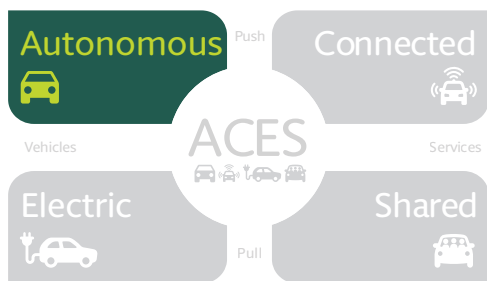




Future mobility is autonomous, connected, electric, and shared.

The business press heralds the disruption of the automotive industry on a daily basis as businesses act to position themselves for the future. The direction of transformation is clear; but the route there, the pace of change, and the motivating forces that will shape the market of the future require ongoing analysis.

In the future, vehicles will be Autonomous, Connected, Electric, and Shared. These elements of the mobility future are so well accepted that often the only real variance is the acronym chosen to represent them. Even this vision is too constrained and tied to vehicles. The transportation system that results will ultimately be more about mobility provided to consumers than about the vehicles themselves. Our vision must also include Artificial Intelligence as it will be ubiquitously utilized to harness the staggering amounts of data generated by vehicles and the entire mobility system.



Autonomous

Consumers are not clamoring for autonomous vehicles (AVs). Many, maybe even most, are currently hesitant about the idea of AVs.

Yet auto and tech companies see the future and are rushing to develop and find their place in a new mobility industry they believe is inevitable. Many in the industry feel the ability to develop this new technology and use it to secure a spot in the new mobility future is an existential issue for traditional auto companies.

The quest to develop autonomous vehicles and the motivations for doing so are a classic “technology push” scenario where so many are racing to develop innovative technology and with it a new market with novel business models.

Once the technology is developed, almost all are convinced consumers will ultimately embrace autonomous vehicles once they experience their potential and become comfortable with new capacities and methods.

Policy-makers in major jurisdictions will, however, play a key role. While governments seek a spark for economic growth in technological advancement, they will also want to assure the public is kept safe. When safety is involved, perceptions are important – not just statistical realities.

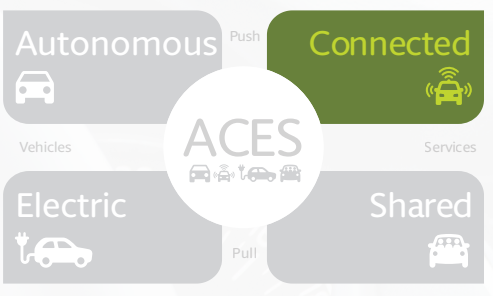
Issues Checklist:

- Analyze certification requirements in all major markets.
- Understand the testing requirements in major markets down to the local level where vehicles will be tested.
- Analyze the liability context in relevant markets or testing locations.
- Understand and implement the best practices for structuring a successful Joint Venture.
- Develop structures that will appropriately incentivize yet integrate those who bring new technology to an existing enterprise.
- Understand the limits on technology use or transfer that major markets may impose.
- Understand the limits on ownership structure that some markets impose.
- Monitor and engage on legislative and regulatory changes that will define the rules for decades to come.
- Understand the ways AI regulations are evolving in each major market.
- If using technology that is not fully AV, understand the issues with driver to machine hand-off and distracted driving.



How we have helped

- Advised a new entrant to the automotive industry on autonomous driving regulations in over 25 countries.
- Assisted an OEM in an agreement with another OEM to develop jointly AV technology.



Connected

Greater connectivity is a global trend in many industries. The connected car is often seen as a battlefield between automotive and technology companies for an “uncaptured screen.” At stake are vast sums of new revenue and perhaps even dominance in the new mobility sector.

Consumers now expect in their vehicles a robust interface similar to what they have on their mobile phones. This market pull by sophisticated consumers will not only lead them to reject the clunky auto interfaces of the past, but demand more robust and ever evolving connected capabilities in motor vehicles.

The industry very much wants to supply connected services that will provide new revenue streams. As part of this industry push, there is competition to develop not merely the robust interfaces consumers want, but business models and the technology necessary to support them that enables services that consumers will find useful and that may even capture their imagination. Connected vehicles will generate vast, almost unimaginable, quantities of data. The industry push is on to find a way to monetize that data.

While the battle rages for the consumer, governments will act as mediators by regulating both the driver’s interaction with the vehicle and the use of data that generates revenue. Regulation concerning “distracted drivers” will remain a concern until completely autonomous vehicles eliminate the need for driver attention. Concerns about privacy and cybersecurity are now urgent issues for the industry.

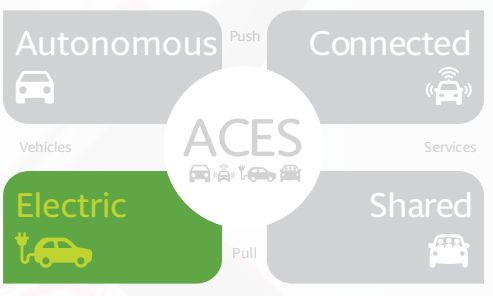
Issues Checklist:

- Understand how to avoid becoming a telecom provider and the additional rules that status entails.
- Understand and develop compliance systems for all relevant privacy rules.
- Follow published guidelines on how to prepare for a cyber hack: have a plan developed in cooperation with legal counsel, have counsel in relevant jurisdictions know the plan, have contacts in advance with relevant law enforcement agencies, regulators, and cyber information - sharing organizations.
- Limit litigation risk over standard essential patents.
- Monitor and engage on evolving regulatory structure in major markets.



How we have helped

- Advised OEMs on the implementation of connectivity services in at least 40 countries.
- Evaluated regulatory issues for a global provider of vehicle-based communications services.



Electric

The dominant force advancing electric vehicles (EVs) is a massive pull from regulators forcing the industry into EVs. Governments all over the world are responding to concerns about global climate change by aggressively increasing limits on green-house gas emissions. Some locations in major cities are even banning conventionally powered vehicles. While the US may take a slight diversion from accelerating stringency on emission regulation at the federal level, the global trend is clear and the regulatory pull in Europe and China is unambiguous. Aggressive emission limits are forcing the production of EVs on a global basis in major markets.

To meet the regulatory challenge, technological advances are needed to decrease the costs of the battery and to speed charging times. Companies are investing heavily while also developing new supply chains oriented around batteries. Governments in many locations incentivize consumers to purchase EVs. More charging infrastructure is needed, however, for widespread EV adoption. While EV sales are increasing, they are still relatively small compared to global auto sales volumes.

A widespread shift to EVs will not only alter many markets (gas or petrol stations, vehicle maintenance needs, energy generation and transmission are only a few examples) but could also significantly alter geo-political dynamics as oil production for the transportation.

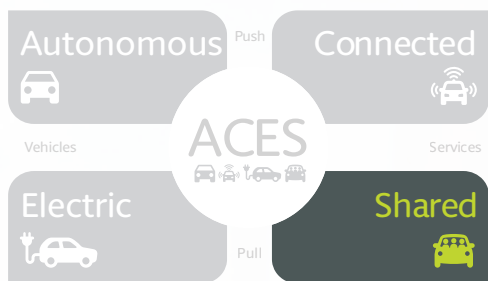
Issues Checklist:

- Understand the emission rules in each market and any requirements for EVs – sometimes issued at the local level.
- If there is a system for emissions credits, understand those rules and how one might monetize credits or purchase them.
- Know the rules to incentivize EV purchases and develop optimal systems to harness those opportunities.
- Know the rules for battery shipping and develop appropriate compliance systems.
- Explore rules on recycling and develop appropriate compliance systems.
- Develop training procedures for first responders to handle EV related issues.
- Understand the charging infrastructure and how it is evolving.
- Be aware that battery technology may become a sensitive technology that will generate limits on technology transfers.
- Monitor and engage on evolving rules for EVs, incentives for purchases, and policies that impact the charging infrastructure.



How we have helped

- Advised a major national utility on issues related to government funding for the development of a vehicle charging network.
- Assisted a global automotive manufacturer on the acquisition of a government loan to build an electric vehicle plant.
- Advised an international automotive manufacturer on issues involved in the electrification of its fleet in major markets.



How we have helped

- Advised an OEM on an agreement with another OEM regarding the provision of sustainable urban mobility, including multimodal services, charging, taxi ride-hailing, parking and vehicle sharing.
- Assisted a major international automotive manufacturer in connection with its acquisition of a digital mapping platform as part of a consortium with several other international automotive manufacturers.

Shared

The rise of the sharing economy is another global trend that extends beyond transportation and is a consequence of increased mobile connectivity. That connectivity is more than a route to connecting buyers and sellers, it also provides new ways of establishing trust to facilitate an exchange. Business structures and new enterprises are developing quickly to meet consumer desire. The shared component of the mobility market is largely demand driven, a consumer pull.

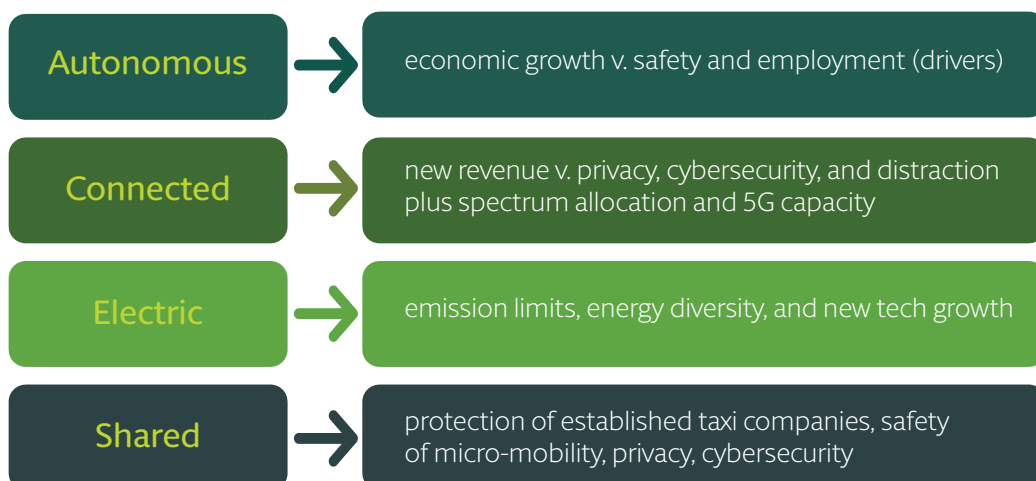
Ride hailing in some markets is already a viable alternative not only to car ownership but to taxi and parking services as well. Consumer trust in digital platforms rapidly eclipsed both local regulatory structures and decades of entrenched car purchasing habits. Further evolutions in the shared nature of the mobility market will also likely be consumer driven. Subscription models for car use are also an emerging trend that several are testing. The rapid evolution of business models will inevitably receive government regulatory attention.

Issues Checklist:

- Understand the rules applicable to shared mobility platforms in each significant local market.
- Major markets regulate vehicle sales. Know what rules apply for new business models such as vehicle subscription plans.
- Know what rules apply in each local jurisdiction for micro-mobility offerings.
- Develop a program to limit liability.
- Comply with local insurance rules.

Government regulation shapes markets

Not just technology, companies and consumers



What We Do

We are a global team that enables our clients to dynamically prepare for the future while succeeding today.

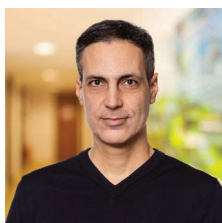
Some of us have worked decades on a particular area of significance to the industry. Others of us have worked on a broader scope of issues and markets and are more deeply focused on a client's overall business.

We have advised on a very wide variety of issues in the major automotive and mobility markets. We have also advised on the new mobility rules in approximately 40 countries.

All of us work with our clients not just to understand the issues of today, but to define and get ahead of the issues of tomorrow so our clients can realize opportunity.

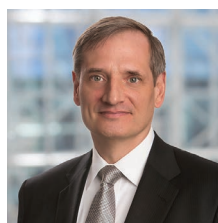
We do not just suggest answers to discrete questions. That is fine in an industry where change is limited and the rules are well established. That does not work in a dynamic industry that is under disruption and where the legal rules are changing now and will change faster in the future. We enjoy working with our clients to develop a more complete vision of the future and then design strategies to make that vision real.

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We will understand your business, your goals, and your challenges. Then we will help you find solutions and seize opportunities. We also know we will enjoy working together as we value relationships.

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