Today’s trend often winds up being tomorrow’s bad idea. Some recent automotive design and technology trends that have passed in and out of favor include plastic body panels, four-wheel steering and fuel-cell vehicles.

Market adoption of other ideas—like hybrid power trains—started small and continues to grow. Time will tell if the majority of our cars become rolling wi-fi hotspots, responsive to voice commands, or completely driverless, as industry observers predict.

But just because a new idea doesn’t take off doesn’t mean that automakers will or should stop trying to outmaneuver and out-innovate their competitors. Indeed, innovation is essential for OEMs to hold onto market share and grow in a globally competitive industry where Korean OEMs are making dramatic inroads and the Chinese are eyeing export opportunities.

The United States, the world’s second largest vehicle market after China, experienced double-digit, year-over-year sales growth in 2012. Historically high fuel prices continue to push consumers toward more fuel-efficient vehicles. Rising confidence, pent-up demand, and a restructured and reinvigorated Detroit should contribute to another year of strong growth in 2013. With a slew of new models coming to market, flashy new technology and financially healthy automakers, it promises to be an interesting year.

U.S. sales momentum could be tempered by slow GDP growth, a long-term leveling of total vehicle miles driven and a mixed employment picture. Such economic factors loom much larger in Europe, which remains under a cloud of financial uncertainty in the wake of unresolved debt issues and a lingering recession.

Against this backdrop of opportunities and challenges—and the innovations required to address them—here are nine major trends that promise to transform the automotive industry in 2013 and beyond.


The automotive industry prospects? have a direct impact on the overall health of the economy. In the United States alone, the sector directly employs 1.7 million people and accounts for 3.5% of the country’s gross domestic product (GDP), according to the Center for Automotive Research.
Buoyed by slowly rising home prices, a revitalized stock market, readily available credit and replacement sales from Hurricane Sandy, light vehicle sales in the U.S. climbed over 14% last year. This year got off to a strong start in January, which recorded the highest sales rate in five years, according to J.D. Power and Associates.

Multiple forecasts estimate that total retail and fleet light vehicle sales will exceed 15 million this year. That’s not quite back to pre-recession levels when annual sales exceeded 16 million units, but it’s a far cry from the 10 million vehicles sold in 2009.

2. Global Automotive Prospects: Near-Term Uncertainty, Long-Term Opportunity
Despite widespread economic uncertainty, worldwide vehicle sales increased 6.8% to 83.1 million units in 2012, according to WardsAuto. The market research firm predicts that total sales will climb 4.7% to 87 million in 2013, and increase 23% over the next six years.

Europe will not be leading the way. The recent round of stimulus may stabilize the regional economy, but automotive sales are still falling despite low interest rates, low prices and manufacturer incentives. Other European auto sector weaknesses include persistent overcapacity, growing inventories and mounting financial losses. German auto sales, for example, fell 2.9% in 2012. Across the region, deliveries fell 4.2% to 19.4 million. Projections call for minimal growth or additional retraction in 2013.

The near- and long-term outlook is much better in other regions of the world. WardsAuto estimates that vehicle sales in the Asia-Pacific region (led by China) will hit 26 million units by 2016, up from 19.5 million in 2012. Brazil's National Association of Automotive Manufacturers (Anfavea) reports that 2012 vehicle sales climbed 4.6% to 3.8 million units. Russian vehicle sales reached 3.2 million units last year (more than Germany); that's an increase of 14% over the previous year, and they are expected to rise 7% in 2013.

3. A New Business Model: Restructuring Triggered by the Recession Turns Losses into Profits
It’s easy to forget how much the North American automotive industry was transformed by the 2008-2009 recession and subsequent government bailouts and restructuring. Total capacity for GM, Ford and Chrysler declined by 29% (or 3.9 million units) from 2004 to 2012, according to the Center for Auto Research (CAR). The companies had been managing overcapacity for years by offering thousands of dollars in buyer incentives to keep selling all of the vehicles they were making.

Total employment by the three U.S. automakers (not including dealers or suppliers) fell from more than 182,000 in 2005 to around 110,000 in 2009, according to industry research firm IBISWorld. With new labor contracts and sales volume steadily climbing upward, the turnaround represents an unprecedented swing in efficiency, as well as profits.

On average, GM was losing $1,567 per vehicle in 2006. In 2012, it earned more than $2,000 per vehicle sold, according to CAR. Ford was losing $5,125 per vehicle; it's now earning more than $3,000 per vehicle (an 11% margin). U.S. auto companies will need to hold onto such margins if they’re going to keep investors happy and make the R&D investments necessary to successfully compete globally.

4. Lean 2.0: Production Must Become Even More Responsive to Demand
From engineering to the factory to the dealer to the consumer, there’s a big difference between a company that’s trying to find buyers for an overabundance of vehicles and one that’s focused on meeting every customer’s unique desires and making a profit on every sale.

Now that U.S. automakers and their suppliers have demonstrated that they can generate respectable profits at lower sales volumes, they can build capacity in step with demand and not be compelled to sacrifice margins to gain market
share at any cost. Nine out of 10 OEM executives responding to a recent survey by Booz & Company said their companies are producing just enough or less than enough vehicles to satisfy market demand. Three out of four said they are holding the line on price incentives.

When it comes to production processes, lean manufacturing is only the beginning. With the coming influx of new models and infotainment technology, new powertrain choices and advanced safety options, staying aligned with demand will require even more responsive and agile production systems. Automated and flexible production lines will not only need to accommodate multiple models but changeover quickly from one model year to the next. To efficiently manage increasing vehicle complexity in real time will require even more robust material management and IT systems.

5. Future Threat: Car Sharing Offers Convenience Without the Expense and Hassle of Ownership

While demand for SUVs continues to grow in emerging regions—where the large, low-mpg vehicles are a clear status symbol—in other markets not owning an automobile can command its own status. Car-sharing alternatives to owning a car are expanding in every major metropolitan area.

In January, rental car company Avis bought U.S.-based Zipcar for almost $500 million. Through the third quarter of 2012, Zipcar membership had grown to more than 767,000 people, up 18% from the previous year. There are countless other for-profit and non-profit car-sharing programs. Globally, car-sharing membership has increased 5X to 1.8 million people since 2006, according to the Transportation Sustainability Research Center at UC Berkeley.

Although the estimated number of vehicles currently being shared (44,000) is not yet significant, the long-term threat to demand is obvious. Forty percent of Zipcar members, for example, reported that they had sold their car or decided not to buy one because of the service. It’s no wonder that Daimler, BMW, Peugeot, Volkswagen, Honda, Toyota and other car makers, along with traditional car rental companies, have started their own car-sharing operations or partnered with such services.


Featuring an optional 85 kWh battery that promises a 265-mile driving range and a maximum speed of 130 mph, the all-electric Tesla Model S won Motor Trend magazine's Car of the Year award for 2013. With production ramping up slowly over the course 2012, the company says it will ship 20,000 cars this year.

While other makes and models such as the Chevrolet Volt and Nissan Leaf offer consumers more affordable options, total sales of battery-electric vehicles are invisible on global market share reports. Looking forward to 2020, most OEM executives believe that hybrid powertrains will be the leading alternative to gas-fueled internal combustion engines, claiming an additional 10% market share (up from less than 3% now). But without government support, according a Booz & Company survey, industry leaders don’t think the sales of hybrids will grow anywhere near as quickly.

The biggest threat to alternative powertrains is re-imagined and retooled internal combustion engines. Highly efficient 4-cylinder models (some of which can turn off cylinders to boost efficiency even further) will claim 55% of the market in 2018, up from 47% in 2012, according to WardsAuto.

7. The Cost Conscious Buyer: Fuel Efficiency and Beyond

Fuel efficiency will continue to be the number one issue for consumers over the next five years, according to KPMG’s 2013 Global Auto Executive Survey. However, miles per gallon isn’t the only cost-oriented priority of today’s car buyers. The importance of vehicle longevity is rising rapidly.

The average age of light vehicles on the road grew from 9.1 to 11 years from 2000 to 2011. That number was trending upward long before the 2008-2009 recession when nervous consumers held off on new-car purchases.
Since the downturn, dealers have been doing a better job of maintaining customer relationships and loyalty. Based on actual vehicle registrations, R.L. Polk & Co. reports that 48% of auto buyers are staying with the same brand when they purchase a new car. Driven by repeat buyers of F-Series pickups, Polk recently named Ford Motor Co. the top automaker for automotive loyalty. The firm cited shorter model refresh cycles, a customer-focused lease-end process and a competitive lineup across most vehicle segments.

Going forward, maintaining long-term consumer relationships requires more sophisticated ownership tracking, maintenance programs and customized marketing, combined with great products and service.

8. Electronics: High Tech Safety and Apps for Everyone

When it comes to high tech, automakers are striving to meet consumer expectations for the touchscreen interfaces and customized apps to which they've grown accustomed on their smartphones and tablet computers. At the most recent consumer electronics show, automakers highlighted their latest technology for connecting vehicles and their occupants to the Internet. In general, the newer electronic control units make it easier for vehicle owners to seamlessly integrate their smartphones with on-board systems and use familiar apps such as Yelp, Pandora, Facebook and Google Maps.

Of course, safety remains a key driver of emerging automotive technology. Already offered on many luxury models, infrared systems can detect impending collisions and automatically start braking and seatbelt tightening. Other optional safety technology can monitor blind spots, keep a vehicle centered in its lane and monitor driver alertness. Based on a study of crash data, the Insurance Institute for Highway Safety estimates that such technology could prevent or reduce in severity about one-third of fatal crashes and one-fifth of crashes causing injury.

What's new is that these systems are becoming available on more nameplates and models, and at some point might become mandatory if proven to save lives. Electronic stability control, which debuted in the late 1990s, is now required on all new vehicles sold in the United States. The National Highway Traffic Safety Administration (NHTSA) is drafting regulations that would make backup cameras mandatory starting in 2014.

When all of these safety and guidance technology capabilities are combined, the vision of fully autonomous vehicles comes into focus. Beyond highly publicized demonstration vehicles, bringing such technology to market will require coordination between automakers, regulatory authorities and changes in how roads are constructed. That's still decades away, though.

9. Supplier Relationships: Innovation Requires a New Definition of Partnership

For electronic systems, a big part of the challenge for auto designers is that the six-to-nine-month lifecycle for consumer electronics is five or six generations faster than the two-to-three-year refresh cycle for most automotive models. To keep up with the latest batteries, lightweight materials and infotainment hardware and software, OEMs will have to rely even more on their current suppliers as well as on more nimble developers outside of the industry.

This more decentralized approach to innovation will be difficult if supply-chain relationships remain centered around price-based commercial negotiations. Over the next five years, OEMs will demand an average price cut of 4.3% per year (and realize a decrease of 2.5%), according to global consultancy Oliver Wyman. The firm surveyed suppliers and found ongoing complaints about lack of collaboration and irrational actions, especially during the financial crisis and collapse in demand, as well as the current upswing in demand.

Going forward, contract negotiations will need to incorporate agreements that share the risks and benefits of technology innovations. More trust-oriented relationships will require early supplier involvement in product development processes. Data-intensive incentive and remuneration systems will also be needed to transparently manage processes and profitability for all players in the automotive value chain.