2012 U.S. Automotive Industry Survey and Confidence Index

“A Return to Optimism”
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A Return to Fundamentals

The global economic crisis, the collapse of automotive sales in 2008–09, and the rise of emerging markets such as China and India have combined to force the U.S. auto industry to revolutionize. The industry is rallying around a novel view of what a new-car sale should be: less frequent and more profitable.

According to Booz & Company’s 2012 U.S. Automotive Industry Survey and Confidence Index, the mood among auto executives is buoyant—with more than 90 percent of respondents describing the current state of the industry as either somewhat better or much better than last year. The survey was completed in early March, and the industry’s consensus at that time was that U.S. auto sales will reach 13.7 million in 2012—a nearly double-digit improvement over last year’s sales, but also lower than recently revised industry forecasts.

There’s a telling paradox here. Auto execs are expressing optimism even though projected sales are way off from the roughly 17 million vehicles automakers were selling per year during the last decade. So what’s driving this return to optimism?

We believe the survey results illustrate the potential this industry has to be a profit engine when it is able to more closely align supply with demand—i.e., when it returns to the fundamentals. Many major auto manufacturers and suppliers have undertaken significant efforts in the past few years to clean balance sheets, remove excess capacity, and restructure costs—effectively hitting the “reset” button to make more efficient use of production capacity and make a profit at far lower volumes. Now as volume rebounds, driven in large part by pent-up...
demand, easier credit, and greater consumer confidence, executives are beginning to see their efforts pay off, with many companies reporting record profitability over the past few quarters.

*It remains to be seen whether the industry has made a historic adjustment to a “new normal.”*  
*Nevertheless, early signs are promising.*

The industry clearly has expressed a very sober collective understanding that it needs to grow smartly—namely, not let capacity grow faster than natural market demand. Gone, for now, is the reflexive pursuit of greater market share, with OEMs focused on serving and delighting motivated consumers rather than trying to find buyers for an overabundance of vehicles—i.e., making more profit on fewer sales. Of the OEM executives who responded to our survey, 92 percent say they are either producing just enough or too few vehicles to satisfy demand. And 77 percent say their companies are reducing or at least holding the line on price incentives.

The U.S. auto recovery demonstrates that with stronger balance sheets, legacy liabilities shed, debt reduction, and product/capital investment, this industry can return to consistent levels of profitability at lower annual sales volumes.

**Detroit Versus the World**

Last year was a good one for the Detroit 3 as they saw their share of the overall U.S. automobile market grow at the same time that the market grew. And the vast majority of respondents—86 percent of suppliers and 72 percent of OEMs—believe that the Detroit brands will either boost their market share further or hold on to the share they already have in 2012. Longer term, however, with the exception of Ford—which an impressive 90 percent of respondents believe will maintain or grow market share—respondents are less bullish on the future growth prospects of the Detroit 3.

Executives were much more bullish on long-term market-share prospects for Hyundai/Kia and Volkswagen/Audi, with 88 percent and 72 percent of respondents respectively citing these two OEMs as likely to grow share over the next five years. Similarly, respondents were also relatively bullish on prospects for Chinese OEMs. Chinese automakers hardly have a toehold in the U.S. now—their market share is less than 1 percent, and that stems from Geely’s acquisition of Volvo. However, 53 percent of our survey respondents expect Chinese automakers to reach or exceed a 4 percent share of the market by 2020, with Geely,
Booz & Company’s China team thinks the emergence of Chinese manufacturers is real, but not likely to occur as fast as the survey results suggest. The actual performance and capabilities of the leading Chinese vehicle manufacturers—as well as their readiness to compete in developed markets such as the U.S.—is overestimated for several reasons. First, the size and scale of these companies are fairly small, especially if the sales volumes of their Western joint-venture partners are not included. In most cases, the joint venture itself far overshadows the relatively young Chinese brand. In addition, the domestic market in China is geared to first-time buyers in hypercompetitive entry-level segments, where margins are difficult to sustain, so their overall profitability is typically quite low. That reduces the resources these companies have to expand overseas. Furthermore, none of the leading Chinese manufacturers has yet achieved a major product or process breakthrough that could give it a significant competitive advantage. This is in sharp contrast to companies like Toyota, which built its initial position in the U.S. through its famed Toyota Production System, a new and superior operating model.

To crack global markets, Chinese automakers will need to develop world-class global supply chains and supplier partnerships, offer competitive financing products, and deploy the talents of a global human resources pool.

That won’t happen overnight. It will also take some time for Chinese carmakers to learn to compete in markets where they don’t have the benefit of a low-paid labor force, management team, and supplier
base or the favorable subsidy policies of the central and local Chinese government. Finally, they need to build a retail network and brand in the U.S., which is a substantial investment. Nevertheless, many Chinese automotive executives aspire to capture a meaningful share of the U.S. market. Eventually, the U.S. market will see more new competitors emerging from China who will likely offer well-equipped models at very low prices, putting significant pressure on incumbent players.

**Alternative Powertrains**

Though a tiny fraction of the market, vehicles that run on alternative powertrains are here to stay, say our survey respondents. The case for full-hybrid cars seems strongest; 70 percent of respondents say they are more confident in that category than they were a year ago. Auto execs are more skeptical of fuel-cell or battery electric cars—with 75 and 71 percent of respondents respectively saying they are less confident in these two powertrains compared to last year.

**But most car execs say the future of alternative powertrains is highly dependent on continued government support.**

If government support continues, 58 percent believe, non-gas cars could achieve a market share of 10 percent or more. In the absence of government support, however, this figure drops to 30 percent, a stark contrast indeed. Moreover, greater adoption of this automobile segment will depend not just on continued support but on the right kind of support. Truly disruptive technologies such as plug-in vehicles will require a more balanced approach to government assistance, such as infrastructure support for a national grid of rapid-cycle charging stations.

**Consumer Digitization**

Over the coming years the digitization of the vehicle will continue to accelerate, and do so across all facets of the vehicle, including vehicle systems, safety, and in-vehicle connectivity and entertainment. Presently OEMs are considering a wide range of alternatives for integrating consumer digitization into the vehicle. Thirty-eight percent of OEM respondents say they intend to create their own digitization and consumer connectivity platform. This may run counter to consumer preferences. While OEMs should maintain relatively closed systems around vehicle systems, customers want the “plug and play” flexibility offered via their smartphones, not automaker-controlled internet

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connectivity, social media, entertainment, telephone, and navigation. This disconnect, coupled with new “distracted driver” regulations, means OEMs will likely need to rethink their approach to in-vehicle connectivity and entertainment.

“Black Swan” Preparedness

The 2011 Tohoku earthquake was a major source of disruption for automakers last year. Of OEM respondents, 55 percent say their companies faced “some” or “significant” impact from the event. A significant number of suppliers, 42 percent, were also hurt. And these numbers would likely have been substantially higher if OEMs and suppliers had not had safety stock and redundancies in place to mitigate the impact of this momentous event. The upheaval has forced the auto industry to confront a fundamental weakness in lean manufacturing. Though the idea of “just-in-time” delivery has helped boost the industry’s fortunes over the past three decades, it proved to be a major impediment for automakers, particularly those in Japan that were trying to recover quickly from the disaster.

How automakers should best prepare for the next major disruption in their production remains unclear. Auto executives are seeking ways to better prepare—92 percent of OEM executive respondents and 85 percent of supplier executive respondents say so. For now, nobody is considering simply boosting inventories. The steps respondents say they’ve taken include “identifying risks,” sorting out “contingency plans” with suppliers, “localizing their supply base,” and, in the case of nearly a third of respondents, increasing the use of “dual sourcing.”

This move to build new organizational capabilities clearly signals that the industry was not prepared for a major disaster of this magnitude.
Four Forces to Shape the Industry

In summary, the results of this year’s survey tell an important story of four forces likely to shape the new automotive industry.

Reemergence of Fundamentals: The U.S. auto recovery demonstrates that with stronger balance sheets, legacy liabilities shed, debt reduction, and better product, this industry can return to consistent levels of profitability at lower annual sales volumes. The industry clearly has expressed a very sober collective understanding that it needs to grow smartly—specifically, to not let capacity grow faster than natural market demand. This has been a product-led renaissance and there is strong confidence in the attractiveness of current vehicle offerings and product portfolio. Similarly, suppliers are unwilling to cede leverage in their relationship with OEMs and are working to stretch existing production capacity further, postponing new capacity.

A new normal is emerging with an emphasis on building brand equity with consumers, improving the experience, continuing to improve the cost position, and competing globally.

Shifting Demand Centers: The U.S. remains the most profitable automotive market in the world, and the place where all global manufacturers need to succeed. Over the long term, though, emerging markets have much stronger growth prospects. This shift requires automakers to preserve their competitive position in developed, mature markets while also funding the investment necessary for longer-term growth elsewhere. To that end automakers must gain a greater understanding of the requirements, dynamics, and needs of emerging markets, and they must assess how best to compete in markets with fundamentally different economics, consumers, and competitors.

Powertrain and Technology Uncertainty: There remains a strong view that improvements in internal combustion engines are still possible and can generate meaningful increases in fuel efficiency. Confidence is stronger in full and mild hybrids, while skepticism remains about the potential of full-electric and fuel-cell vehicles. The adoption rate of alternative powertrains is highly dependent upon government support, fuel prices and availability, and OEM/supplier willingness to make investments.

Beyond alternative powertrains, the industry is on the cusp of significant technological changes that could result in breakthrough,
paradigm-shifting innovation, especially in vehicle connectivity that could result in creating real innovation in personal mobility. Whether a company is a leader or a follower, playing in these new markets will require a significant investment in both financial and human capital. As such, companies should be very selective with where they place their bets and do so only after they have confidence that they have the difference making capabilities necessary to win and that such bets are coherent with their broader strategy.

**Interconnected Supply Chain:** The unfortunate events of the Japanese tsunami and floods in Thailand brought home the limitations of a lean global supply chain to “Black Swan” events. Actions taken in response seem highly appropriate given what happened: assess the damage, weigh future events and probabilities, work with suppliers to be better prepared, and build new organizational capabilities. Overall, though, we wonder though whether the industry is sufficiently prepared for the next “Black Swan” event, or whether these actions were a one-time response to a discrete occurrence. These measures are expensive and, in a brutally competitive sector, they eat into margins. Accordingly, companies in the industry must determine an appropriate level of investment in risk mitigation—low enough to be cost-effective, and high enough to ease the risk of being surprised by the next supply-chain disruption.

**Conclusion**

The executives of the auto industry’s leading companies have many reasons to feel proud this year. They haven’t coasted on bailouts; they have learned some hard lessons and built a stable platform for profitable growth. They now face several external risks, ranging from changes in government regulation to potential fuel disruptions from the Middle East and continued economic woes in Europe. Yet if history is any guide, the greater risk could be from becoming overoptimistic about the market and expanding to meet demand that does not incrementally grow as quickly.

Here’s another scenario, though: If the U.S. industry can stay disciplined and preserve the efficiencies it fought so hard to implement, it will remain cost competitive with the most efficient car markets in the world. It will be smaller than in the artificially inflated boom years of the past, but with a far greater focus on fundamentals. And it will sell higher-quality cars at greater profits. Which path the industry takes lies within its own control, provided it can avoid repeating the mistakes of the past.

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Key Data Highlights

• Relative to last year, industry executives are significantly more bullish on the state of the automotive industry, with 94 percent of OEMs and 92 percent of suppliers describing it as either “somewhat” or “much better” than last year

• Approximately 52 percent of OEM respondents are forecasting revenue growth in excess of 11 percent for 2012, compared to just 32 percent of supplier respondents

• 34 percent of suppliers and 55 percent of OEMs say cuts in capacity have left them constrained

• 77 percent of OEM respondents claim to be either holding the line on incentives or significantly reducing them

• Automotive executives cite Hyundai/Kia (88 percent) and Volkswagen/Audi (72 percent) as the OEMs most likely to grow market share over the next five years

• 53 percent of respondents project a U.S. market share of 4 percent or more for Chinese OEMs by 2020

• With continued government support, 58 percent of respondents believe, alternative powertrains will command more than 10 percent of the market by 2020. However, without continued government support, this figure drops to 30 percent

• Relative to 2011, respondents are significantly more confident in the long term prospects of full-hybrid (70 percent of respondents described themselves as more confident than last year) and mild-hybrid powertrains (65 percent), but less confident in the long-term prospects for battery electric and fuel-cell electric powertrains (~70 percent of respondents described themselves as less confident)

• 55 percent of OEMs and 42 percent of suppliers say they were impacted by the 2011 Japanese earthquake and tsunami (a figure which would have been higher if not for risk mitigation steps that had already been taken), demonstrating how global the U.S. auto supply chain is today

• 92 percent of OEM executive respondents and 85 percent of supplier executive respondents say they are seeking ways to better prepare for future “Black Swan” events
A Return to Optimism

Perceived State of the Industry Compared to January 2011

- Much Worse: 0% OEM, 0% Supplier
- Somewhat Worse: 0% OEM, 1% Supplier
- About the Same: 6% OEM, 7% Supplier
- Somewhat Better: 63% OEM, 66% Supplier
- Much Better: 31% OEM, 26% Supplier


- Much Worse: 0% OEM, 1% Supplier
- Somewhat Worse: 3% OEM, 2% Supplier
- About the Same: 50% OEM, 34% Supplier
- Somewhat Better: 63% OEM, 47% Supplier
- Much Better: 0% OEM, 0% Supplier

- Relative to last year, industry executives are significantly more bullish on the current state of the automotive industry, with 94 percent of OEM respondents and 92 percent of supplier respondents describing the industry as somewhat or much better than last year.

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This is a stark contrast from last year’s study, where 53 percent of OEMs and 37 percent of suppliers said the industry was about the same as or worse than January 2009.

Vehicle manufacturers and suppliers are increasingly profitable, and many industry executives are now far more bullish about their own prospects, and those of the industry at large, than they have been in recent years. It’s a success story that would have seemed implausible back in 2009. Yet the industry’s current strength stems from a combination of internal and external factors that has resulted in a far better alignment between supply and demand.
More Closely Aligned Supply and Demand

The improvement in the industry’s performance was driven in large part by the industry restructuring and pent-up demand.

Key Drivers of Strong 2011 Industry Performance

Percentage of respondents that ranked a driver in their top 3

OEMs

Availability of Credit: 22%
Pricing Discipline: 30%
Better Product: 34%
Improved Customer Confidence: 46%
Production Discipline/Tight Inventory: 48%
Pent-Up Demand: 58%
Industry Restructuring: 62%

Suppliers

Pricing Discipline: 16%
Availability of Credit: 22%
Production Discipline/Tight Inventory: 30%
Better Product: 34%
Improved Customer Confidence: 58%
Pent-Up Demand: 68%
Industry Restructuring: 72%

- This return to optimism is driven in large part by a much better alignment between supply and demand.

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• To the supply side, over 70 percent of respondents cited industry restructuring as being one of top three drivers of strong 2011 industry performance—reflecting the great (and rewarding) lengths taken to clean balance sheets, remove excess capacity, and restructure costs, in essence significantly lowering the break-even costs for many companies

• This restructuring, combined with the strong rebound in sales, driven in large part by pent-up demand, is driving record profitability for many companies
Specific to their own companies, both OEMs and Suppliers are confident of profitable revenue growth in 2012, with OEMs slightly more so than Suppliers.

Confidence in Profitable Revenue Growth over Next 12 Months

<table>
<thead>
<tr>
<th>Not Confident</th>
<th>Less Confident</th>
<th>Neutral</th>
<th>Confident</th>
<th>Very Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>2%</td>
<td>5%</td>
<td>4%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Planned Growth in 2012 U.S. Revenue

<table>
<thead>
<tr>
<th>Negative Growth</th>
<th>No Growth</th>
<th>1%-5%</th>
<th>6%-10%</th>
<th>11%-15%</th>
<th>Greater than 15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>2%</td>
<td>0%</td>
<td>2%</td>
<td>21%</td>
<td>24%</td>
</tr>
</tbody>
</table>

- Specific to their own companies, both OEMs and suppliers alike are “very confident” of profitable revenue growth in 2012, with OEMs slightly more so than suppliers.
- 52 percent of OEMs and 32 percent of suppliers forecast growth in excess of 11 percent.

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Behind the Growth Predictions

OEMs credit their current product portfolio and pipeline as the reason for their positive outlook in 2012

Important Internal Factors Contributing to Positive 2012 Future Outlook – OEMs
Percentage of respondents that ranked a factor in their top 3

"Other" includes internal process execution, leadership, and strategic vision

For Suppliers, though product is important, customer mix, and to a lesser extent cost position, play a key role in shaping outlook

Important Internal Factors Contributing to Positive 2012 Outlook – Suppliers
Percentage of suppliers that ranked a factor in their top 3

"Other" includes internal process execution, leadership, and strategic vision

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• OEMs credit their current product portfolio (69 percent) and pipeline (60 percent) as the reason for their optimism in 2012. This has created a wealth of attractive new vehicle choices for customers—whether it be more stylish exteriors, comfortable interiors, performance, fuel efficiency, or consumer-friendly technology, customers have some of the best choices in years.

• Suppliers are more nuanced in their response. While they view product as important, customer mix (i.e., will they reward innovation, will they pay for value created) and, to a lesser extent, cost are viewed as key drivers of a positive 2012 outlook.

• This response from suppliers illustrates two key insights:
  ▶ First, not all customers are attractive partners, as some are more likely to reward innovation and pay for value created than others.
  ▶ Secondly, unless a supplier is in a position to create end-user pull, drive demonstrable reductions in OE costs, improve fuel efficiency, or be a trusted solutions provider for an OEM’s problems, it is hard not to have the competition resorting to meeting basic requirements at the lowest cost—and in such situations, having the low-cost position on the supply curve is paramount.
Bullish Forecasting

Respondents forecast U.S. sales in 2012 to approach 14M

Average U.S. Light Vehicle Sales Forecasts

2012-2016

Over the next five years executives expect the U.S. automotive industry market to see steady growth - at levels consistent with annual GDP growth

Five Year Outlook for the U.S. Auto Industry

- Auto executives forecast sales of passenger vehicles will approach 14 million in 2012—a number slightly below SAAR figures from Q1 2012 but nevertheless a strong improvement over 2011

Continued on page 19
• Mid-term, respondents forecast that U.S. sales will settle into a level more consistent with historical growth, in line with the GDP, and reach 15.4 million in 2016

Externally, several factors are turning in the industry’s favor. Consumer confidence is rising, and credit is more widely available. Rising fuel prices are making new, more fuel-efficient models more attractive. Pent-up demand is also spurring sales. The average U.S. car is currently more than 10 years old and has logged more than 100,000 miles; both numbers are far above historical averages. Many consumers who put off purchasing a new car during the dark years of the recession have fewer reasons to do so much longer, and rising gas prices are also prompting some buyers to upgrade to more fuel-efficient models.
Detroit Three Expected to Remain Strong in 2012

Respondents are optimistic that the Detroit 3 will be able to build on 2011 success and maintain or grow market share in 2012

Expected Detroit 3 Market Share Performance in 2012

<table>
<thead>
<tr>
<th>OEM</th>
<th>Lose Market Share</th>
<th>Maintain Market Share</th>
<th>Grow Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>GM</td>
<td>28%</td>
<td>57%</td>
<td>30%</td>
</tr>
<tr>
<td>Chrysler/Dodge/Fiat</td>
<td>28%</td>
<td>46%</td>
<td>26%</td>
</tr>
<tr>
<td>BMW/Mini</td>
<td>31%</td>
<td>59%</td>
<td>10%</td>
</tr>
<tr>
<td>Ford</td>
<td>38%</td>
<td>52%</td>
<td>10%</td>
</tr>
<tr>
<td>VW/Audi</td>
<td>72%</td>
<td>24%</td>
<td>4%</td>
</tr>
<tr>
<td>Hyundai/Kia</td>
<td>100%</td>
<td>88%</td>
<td>10%</td>
</tr>
<tr>
<td>Toyota/Lexus</td>
<td>20%</td>
<td>46%</td>
<td>34%</td>
</tr>
<tr>
<td>Nissan/Infiniti</td>
<td>16%</td>
<td>53%</td>
<td>31%</td>
</tr>
<tr>
<td>Honda/Acura</td>
<td>20%</td>
<td>46%</td>
<td>34%</td>
</tr>
</tbody>
</table>

• Respondents are optimistic that the Detroit 3 will be able to build on 2011 success and maintain or grow market share in 2012

• The Detroit 3 have made great strides in improving distribution, quality of vehicles, and the overall sales experience

• Their biggest future risk likely stems from the remaining gap between their fully burdened labor rates relative to foreign transplants
Forecasted Change in Market Share Over the Next Five Years

Over the next 5 years, executives believe Hyundai/Kia and Volkswagen/Audi are the OEMs most likely to gain market share.

Expected U.S. Market Share Changes in Next 5 Years

- In terms of vehicle sales, executives collectively cite Hyundai/Kia (88 percent) and Volkswagen/Audi (72 percent) as the OEMs most likely to grow market share over the next five years.

- It is important to note, though, that in the current growth environment, relative market share may not be as significant as it was five years ago.

- In a rising market, now that all manufacturers have effectively lowered their cost base to become profitable at lower volumes, they can enjoy the benefit of annual increases in market volumes where they sell more vehicles profitably. They do not need to obsess over slivers of share to the degree that they did in the past because of the zero sum dynamics of competing in an industry operating annually at historic peak volumes year in and year out.

The battle for market share is no longer as relevant as it was five years ago. This shift will enable OEMs to maintain a better balance between supply and demand, and focus on medium- and long-term profitability.

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Chinese OEMs and the U.S. Market

Executives see a bright future for Chinese OEMs, forecasting a rate of U.S. market penetration more rapid than historical precedent

Forecasted Chinese OEM U.S. Share in 2020

Chinese OEMs with Greatest Potential to Capture U.S. Share through 2020

- More than half of all respondents project that Chinese OEMs will have a U.S. market share of 4 percent or more by 2020, just two product cycles from now
- 21 percent predict the Chinese will achieve a market share of more than 8 percent, suggesting a rate of penetration much faster than historical precedents—specifically the Japanese and Korean manufacturers' growth in the U.S.

Continued on page 23
Chinese OEMs and the U.S. Market (Continued)

• Booz & Company’s China team thinks the emergence of Chinese manufacturers is real, but not likely to occur as fast as the survey results suggest. These manufacturers currently represent less than 1 percent of the U.S. market, and even in the most optimistic case are unlikely to reach 4 percent by 2020.

• Geely (24 percent), SAIC (21 percent), and Chery (19 percent) were cited most frequently by respondents as the Chinese OEM likely to capture the greatest share of the U.S. market by 2020.

The U.S. remains the most profitable automotive market in the world, and the place where all global manufacturers need to succeed. But over the long term, emerging markets have much stronger growth prospects. This shift requires auto makers to preserve their competitive position in developed, mature markets, while also funding the investment necessary for longer-term growth elsewhere. To that end, automakers must gain a greater understanding of the requirements, dynamics, and needs of emerging markets, and they must assess how best to compete in markets with fundamentally different economics, consumers, and competitors.
Alternative Powertrains: All Bets Are Off Without Continued Government Support

Alternative powertrains will gain share – however, adoption rates are seen as being extremely sensitive to government support.

Expected U.S. Market Share of Alternative Powertrains by 2020

Continued Government Support

<table>
<thead>
<tr>
<th>% of Responses</th>
<th>Continuation</th>
</tr>
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<tbody>
<tr>
<td>13%</td>
<td>0%-5%</td>
</tr>
<tr>
<td>29%</td>
<td>5%-10%</td>
</tr>
<tr>
<td>14%</td>
<td>10%-15%</td>
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<tr>
<td>14%</td>
<td>15%-20%</td>
</tr>
<tr>
<td>7%</td>
<td>20%-25%</td>
</tr>
<tr>
<td>5%</td>
<td>25%-30%</td>
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<tr>
<td>18%</td>
<td>30%+</td>
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No Government Support

<table>
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<th>% of Responses</th>
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<td>50%</td>
<td>0%-5%</td>
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<td>5%-10%</td>
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<tr>
<td>12%</td>
<td>10%-15%</td>
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<td>4%</td>
<td>15%-20%</td>
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<tr>
<td>1%</td>
<td>20%-25%</td>
</tr>
<tr>
<td>0%</td>
<td>25%-30%</td>
</tr>
<tr>
<td>13%</td>
<td>30%+</td>
</tr>
</tbody>
</table>

- Alternative powertrains will gain share; however, adoption rates are seen as extremely reliant on government support
- Without government assistance, half of all respondents to the survey believe this segment will remain limited to 5 percent or less of the U.S. market by 2020
- Alternatively, close to 60 percent respondents see penetration of alternative powertrains approaching 10 percent or more of the U.S. market by 2020 with continued government support

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Moreover, greater adoption of this automobile segment will depend not just on continued support but on the right kind of support. Truly disruptive technologies such as plug-in vehicles will require a more balanced approach to government assistance, such as infrastructure support for a national grid of rapid-cycle charging stations.

The future level of government subsidies for consumers who buy these cars, along with support for companies working to advance battery technology, may have an uncertain future in the current fiscal environment.

Even with government support, adoption rates of alternative-powertrain vehicles have fallen short of expectations thus far, because the inherent cost differentials have proven too expensive to be recovered in traditional duty cycles and without a sizeable and sustained increase in fuel prices.
Most Executives Are Bullish on Hybrids, Skeptical on Pure Electric

Of the various powertrain choices, respondents are most confident about the long-term prospects of full hybrid and mild hybrid.

Current Confidence in Long-Term Prospects of Alternative Powertrains vs. 2011

<table>
<thead>
<tr>
<th>Powertrain Type</th>
<th>Less Confident</th>
<th>More Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Hybrid</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>Mild Hybrid</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Plug-In Hybrid</td>
<td>55%</td>
<td>45%</td>
</tr>
<tr>
<td>Battery Electric</td>
<td>29%</td>
<td>71%</td>
</tr>
<tr>
<td>Fuel Cell Electric</td>
<td>75%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Expected Leading Alternative Powertrain in 2020

- Of the various powertrain choices, respondents are most confident in the long-term prospects of full hybrid and mild hybrid and less sure about the future prospects for plug-in, fuel-cell and battery-electric autos.

- 40 percent of OEMs and suppliers believe full hybrids will be the leading alternative to the conventional gas internal combustion engine in 2020.

- Outside of full hybrids:
  - Suppliers were significantly more bullish on mild hybrids relative to OEMs.
  - OEMs were more mixed in their response, with significant numbers continuing to see a future for plug-in and electric vehicles.

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Capacity Constraints

55% of OEMs and 34% of Supplier respondents say they are presently capacity constrained

Current Capacity Situation

Of the OEM executives who responded to our survey, 92% say they are either producing just enough or too few vehicles to satisfy demand

Current Production Situation - OEMs

• 34 percent of suppliers and 55 percent of OEMs say cuts in capacity have left them constrained

• Instead of ramping up to match the highest rate of recovery—the equivalent of recalibrating to the high-water mark—vehicle manufacturers are maintaining a highly disciplined stance thus far. Some manufacturers are operating with very low inventories; some report as little as 15 to 20 days’ sales outstanding (DSO), which is far lower than peak levels of 100 DSOs experienced a few years ago

Continued on page 28
Similarly, suppliers have managed to regain some leverage over manufacturers, and they are loath to surrender that leverage. As overall volume and orders rise, many suppliers are choosing to postpone investing in new fixed assets, opting instead to add overtime shifts and other incremental approaches to optimize existing capacity. A survey by the Original Equipment Suppliers Association found that 76 percent planned to run overtime shifts in the first quarter of 2012, and more than half of our respondents said they were constrained by capacity.

The industry clearly has expressed a very sober, collective understanding that it needs to grow smartly, by not letting capacity grow faster than natural market demand.
Maintaining tighter production discipline and lower inventories is a key aim for OEMs, and many are achieving this through simplification of build combinations.

**Effective Strategies for Maintaining Tighter Production and Lower Inventories – OEMs**

*Percentage of OEMs that ranked a strategy in their top 3*

- Maintaining tighter production discipline and lower inventories is a key aim for OEMs
- 84 percent of OEMs cite simplifying build combinations as one of the three most effective strategies of maintaining tighter production and lower inventories
- Manufacturing flexibility is a close second at 73 percent

**As demand rebounds, suppliers are working hard to stretch current capacity further and postpone committing to major capital investment until absolutely necessary—a tightrope act indeed, for getting this wrong could mean shutting down vehicle production.**

*Continued on page 30*
Holding the Line on Incentives and Pricing

In light of more advantageous supply-demand dynamics, OEMs and Suppliers describe themselves as being disciplined about pricing

Current Pricing Approach – OEMs

- 24% significantly reducing use of incentives
- 53% holding the line on incentives
- 19% opportunistically increasing incentives
- 4% significantly increasing use of incentives

- 77 percent of OEM respondents claim to be either holding the line on incentives or significantly reducing them. According to Edmunds.com, sales incentives for March were down more than 3 percent from the prior month, and nearly 10 percent from March 2011, putting them at their lowest level for any March since 2002

Continued on page 31
Holding the Line on Incentives and Pricing (Continued)

Current Pricing Approach – Suppliers

These results suggest a dramatic departure from pre-recession behavior where filling the factory was the norm for many suppliers.

<table>
<thead>
<tr>
<th>Current Pricing Approach – Suppliers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggressively using pricing to win business</td>
</tr>
<tr>
<td>3%</td>
</tr>
<tr>
<td>Opportunistically using pricing as a lever to win program</td>
</tr>
<tr>
<td>39%</td>
</tr>
<tr>
<td>Maintaining strong pricing discipline</td>
</tr>
<tr>
<td>58%</td>
</tr>
</tbody>
</table>

- 58 percent of supplier respondents claim to be maintaining strong pricing discipline – providing evidence to suggest that the days of suppliers providing big price markdowns may be over. In interviews, suppliers who had complained for years about “taking it on the nose” now say the crisis has shifted the balance of power. There is no longer excess capacity on the supplier side; instead, suppliers have more pricing power. Those who are truly differentiated—in terms of technology, manufacturing, or branding—report that they have more leverage now over manufacturers than they can remember having before.

**Given more advantageous supply/demand dynamics, both vehicle manufacturers and suppliers say they are being more disciplined about pricing.**

Continued on page 32
Industry Consolidation

Approximately 60% of Supplier Respondents say they are actively looking at acquisitions – with expansion into new regions or segments the primary aim

**Pursuing Acquisitions or Divestitures – Suppliers**

<table>
<thead>
<tr>
<th></th>
<th>Acquisitions</th>
<th>Divestitures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisitions</td>
<td>59%</td>
<td>28%</td>
</tr>
<tr>
<td>Divestitures</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Primary Driver for Pursuing Acquisition(s)**

<table>
<thead>
<tr>
<th>Driver</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>5%</td>
</tr>
<tr>
<td>Achieve greater scale/reduce costs</td>
<td>16%</td>
</tr>
<tr>
<td>Enhance capabilities</td>
<td>22%</td>
</tr>
<tr>
<td>Facilitate expansion into new regions or segments</td>
<td>57%</td>
</tr>
</tbody>
</table>

- Over half of supplier respondents claim to be actively pursuing acquisitions
- 57 percent of supplier respondents are looking at acquisitions as a means to facilitate expansion into new regions and segments

*Continued on page 33*
Relative Competitive Positioning

Compared to competitors, OEMs view cost position, customer experience, and financial position as their most significant areas of weakness.

Perceived Performance Relative to Key Competitors – OEMs

- OEMs feel very strongly about their product position, as demonstrated by the very strong scores on engineering/R&D, product pipeline, current product portfolio, and ability to innovate.
- OEMs believe that they still need to do significant work on customer experience and improving the retail network footprint. One way several manufacturers—including GM, Audi, and VW—may be addressing this disconnect is through the appointment of very senior executives to be responsible for the customer experience and to ensure a real alignment of the brand experience with customer interactions.
Relative Competitive Positioning (Continued)

Suppliers meanwhile cite their sales / marketing capabilities and cost position as their most significant areas of weakness

*Perceived Performance Relative to Key Competitors – Suppliers*

- Historically suppliers have not successfully communicated their value proposition to customers. Not surprisingly they view their marketing, cost position, and sales capabilities as the most significant areas of weakness
- Achieving the low-cost position is key for comparable products, and about a third of OEMs and a quarter of suppliers say they fall short

Continued on page 35
Respondents have a relatively favorable opinion in terms of how they see their companies stacking up against key competitors. Whether these responses are reflective of reality or overly optimistic will likely be tested, especially as the industry reaches its new normal. If companies are too bullish about their positions, it could lead to a return of excess capacity across the industry.
New Technologies

Respondents cite In-Vehicle Connectivity and Entertainment as the technology most likely to see widespread adoption over the next 5 years.

**Technologies Most Likely to See Widespread Adoption in the Next Five Years**

<table>
<thead>
<tr>
<th>Technology</th>
<th>Percentage of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>1%</td>
</tr>
<tr>
<td>&quot;Green&quot; Material Usage</td>
<td>20%</td>
</tr>
<tr>
<td>Active Safety Systems</td>
<td>42%</td>
</tr>
<tr>
<td>Composite/Light(er)-weight materials</td>
<td>48%</td>
</tr>
<tr>
<td>LED Lighting</td>
<td>52%</td>
</tr>
<tr>
<td>Passive Safety Systems</td>
<td>52%</td>
</tr>
<tr>
<td>In-Vehicle Connectivity and Entertainment</td>
<td>85%</td>
</tr>
</tbody>
</table>

38% of OEM respondents say they intend to create their own platform for integrating digitization and connectivity.

**Plans for Integrating Digitization/Connectivity – OEMs**

<table>
<thead>
<tr>
<th>Plan</th>
<th>Percentage of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outsource to consumer electronics players</td>
<td>7%</td>
</tr>
<tr>
<td>Establish a flexible platform in a consortium</td>
<td>14%</td>
</tr>
<tr>
<td>Allow consumers/external system to plug into car</td>
<td>17%</td>
</tr>
<tr>
<td>Allow suppliers to develop platform</td>
<td>24%</td>
</tr>
<tr>
<td>Create own platform</td>
<td>38%</td>
</tr>
</tbody>
</table>

- Respondents cite in-vehicle connectivity and entertainment as the technology most likely to see widespread adoption over the next five years.

- Presently, OEMs are considering a wide range of alternatives for integrating consumer digitization to the vehicle—38 percent of OEM respondents say they intend to create their own digitization and consumer connectivity platform. This may be a potentially risky strategy, given that personal technology devices have far shorter product cycles than automobiles—witness the ubiquity of GPS systems on mobile phones—and that a single family may have multiple drivers who share multiple cars.

*Continued on page 37*
Japanese Tsunami Impact

2011 will sadly be remembered for the devastating earthquake and tsunami in Japan, an event which impacted 55% of OEMs.

Production Impact of the Japanese Earthquake and Tsunami

- The unfortunate events of the Japanese tsunami and floods in Thailand brought home the limitations of a lean global supply chain when faced with “Black Swan” events.

- Of OEM respondents, 55 percent say their companies faced “some” or “significant” impact from the event. A significant number of suppliers, 42 percent, were also hurt. And these numbers would likely have been substantially higher were it not for OEMs and suppliers having safety stock and redundancies in place to mitigate the impact of this momentous event.

“Other” includes higher margins as a result of shortages and needing to retrofit vehicles after sale.

Continued on page 38
Preparing For the Next “Black Swan”

Contingency planning is viewed as the most important action for preparing for such “Black Swan” events, but to date, action has lagged.

Important Preparatory Steps for “Black Swan” Events and Steps Actually Taken by Respondents

- Respondents say they are seeking ways to better prepare for future “Black Swan” events
- Actions taken to date seem highly appropriate given what happened. Both suppliers and manufacturers took steps to assess the damage, weigh future events and probabilities, and work with suppliers to be better prepared
Overall, we wonder though whether the industry is sufficiently prepared for the next “Black Swan” event, or whether these actions were a one-time response to a discrete event. Risk prevention measures are expensive and, in brutally competitive sectors, they eat into tight margins. Accordingly, companies in the industry must determine an appropriate level of investment in risk-mitigation—low enough to be cost effective, and high enough to ease the risk of being surprised by the next supply-chain disruption.
Booz & Company conducted its U.S. Automotive Industry Survey and Confidence Index—an annual study examining the current state of the U.S. automotive industry, the key challenges facing it, the attitudes of its executives, and what companies are doing in response—over a four-week period during February and March 2012.

Two hundred and eight automotive executives from more than 75 automotive vehicle manufacturers and suppliers participated in the online survey. Thirty-two percent of the respondents were employees of OEMs, and 68 percent work for auto parts suppliers. Three-quarters of the executives were from U.S.-based firms. More than 50 percent of respondents were VP level or above.

Due to rounding, percentages used in all questions may not total 100 percent. Where cited in the charts, certain questions were only asked of OEM respondents and others just of suppliers.

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We believe passionately that essential advantage lies within and that a few differentiating capabilities drive any organization’s identity and success. We work with our clients to discover and build those strengths and capture the market opportunities where they can earn the right to win.

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