



Environment Leads SAE Survey Results

Environmental Challenges are Top Concerns for the Automotive Industry: Optimism for Collaboration Continues, according to DuPont Automotive/SAE Survey

Abstract: What are the top challenges facing the automotive industry? How will the auto industry meet the upcoming strict emissions regulations in Europe and the U.S.? Is there trust and collaboration in the value chain? And what is the outlook for the industry?

In its 14th year, the DuPont Automotive/SAE Survey provides answers to these questions from the automotive designers and engineers who plan to attend the SAE World Congress in Detroit.

This paper explores the automotive industry's issues, challenges and the future based on the findings of the annual survey and provides detail on what the engineers and designers building the future of the industry see as challenges and priorities.

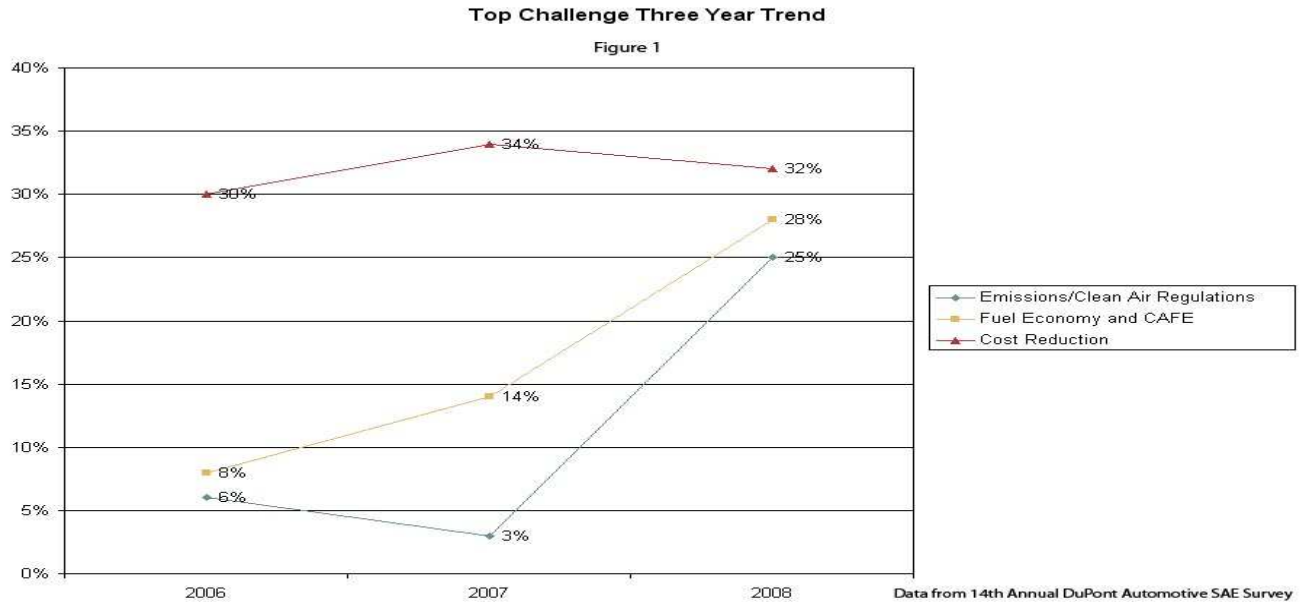
The results of this year's survey show a marked change in the challenges reported in the past: For the first time, the environment, represented by "Emissions/Clean Air Regulations" and "Fuel Economy and CAFÉ," surpassed cost reduction as the top concern and challenge for the future in the industry.

The industry is faced with ongoing challenges, trust and collaboration are at a low, and survey respondents see the industry as weak and subject to fluctuations in the market. Focusing on emissions and fuel economy, the industry needs to work together to achieve a common, desired result.

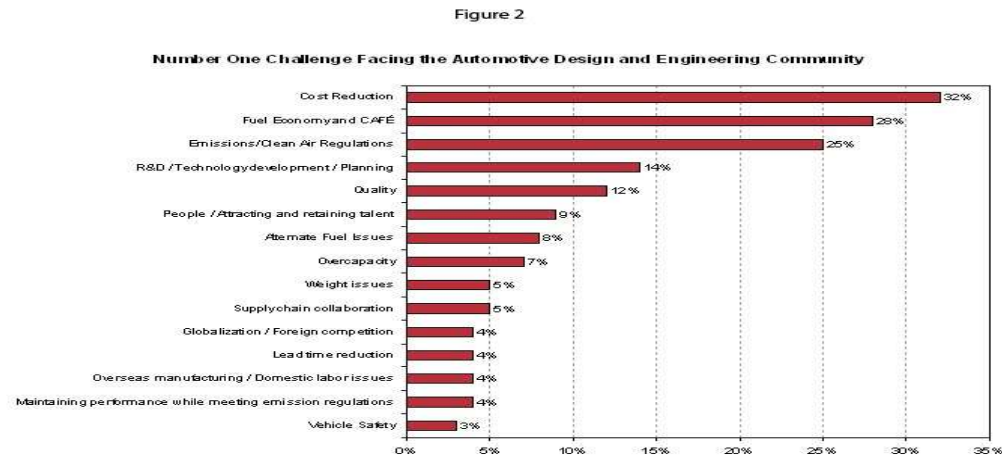
With the focus on overall environmental issues and cost reduction DuPont Automotive is helping to provide solutions for the auto industry; not only for the sake of fuel savings, but also for CO₂ reduction, better hybrid vehicle performance and a lighter overall footprint. For more information, visit automotive.dupont.com.

Environmental Challenges Topple Cost Reduction as Top Concern

While the environment has been a registered concern for the automotive supply chain, the results of the 14th annual DuPont Automotive/SAE Survey show that it has surpassed cost reduction, a perennial leader, (Fig. 1) as the top challenge identified for the industry heading into the 2008 SAE World Congress. At the same time, cost reduction is seen as a constant, pervasive challenge.



While cost reduction remained the top singular concern of 2008 (32 percent of attendees), 28 percent choose Fuel Economy and CAFE, and 25 percent chose Emissions/Clean Air Regulations (Fig. 2) highlighting the growing focus of the industry for a sustainable future and the push from consumers to increase efficiency and reduce emissions.



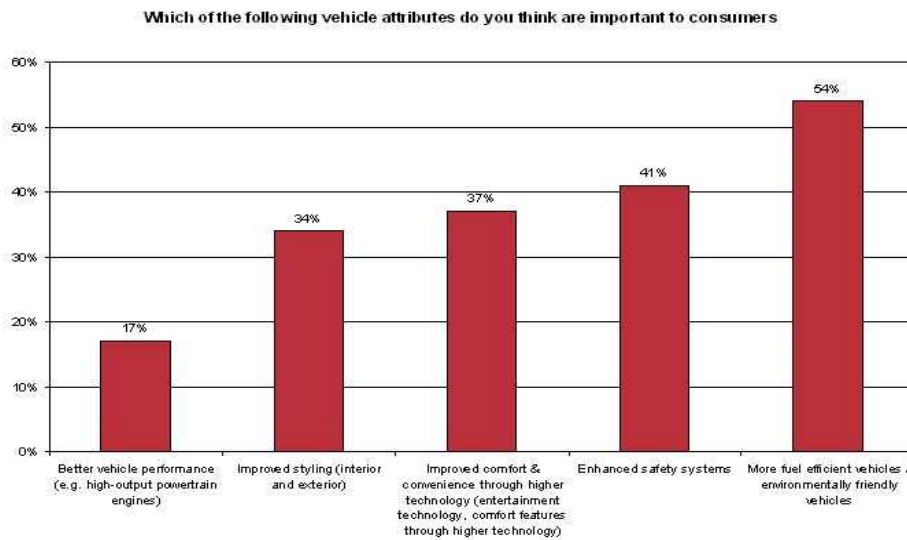
Data from 14th Annual DuPont Automotive SAE Survey

Additionally, vehicle safety, supply chain stability and alternative powertrain issues – all ranked high in prior years – have stabilized and are on par with additional challenges presented, such as supply chain collaboration and overcapacity.

Sustainable Powertrain and Fuel Technologies

The growing importance of fuel efficiency has not gone unnoticed, 54 percent of respondents said that fuel efficient/environmentally friendly vehicles were important/very important to consumers (Fig 3), ahead of styling, performance, comfort and convenience and even safety systems.

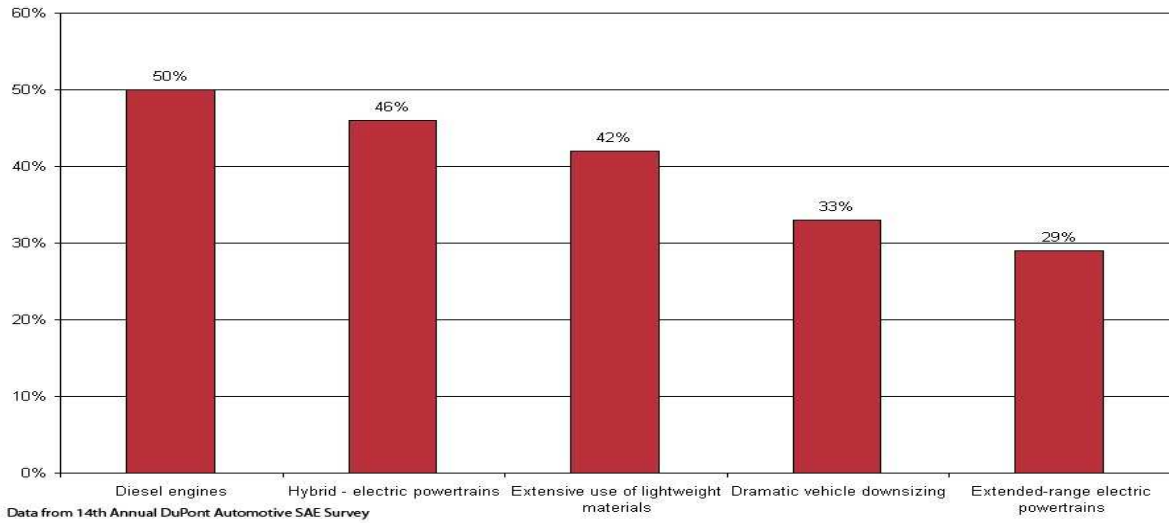
Figure 3



Data from 14th Annual DuPont Automotive SAE Survey

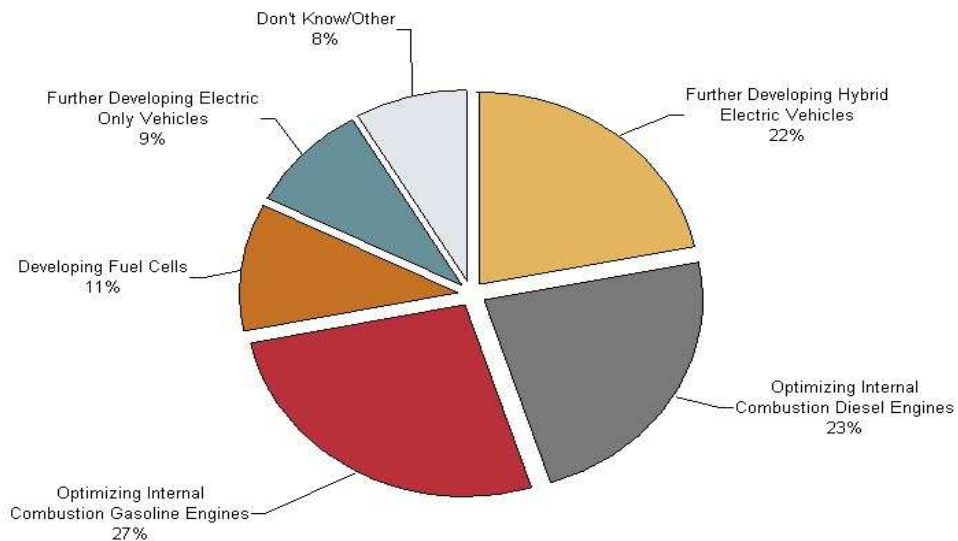
As the industry works to meet the upcoming emissions regulations (35-mpg CAFE and sub-120g/km CO₂), SAE World Congress attendees say diesel engines and hybrid-electric powertrains are the top focus areas to meet these upcoming challenges (Fig 4). The extensive use of lightweight materials also was ranked as an important means to achieve these upcoming standards.

Where to focus priorities to meet 2020 U.S. and Europe Emissions Regulations
Figure 4



Designers and engineers surveyed felt that optimizing internal combustion diesel engines and further developing hybrid-electric vehicles ranked as top emphasis in future powertrain developments with 25 percent and 24 percent respectively (Fig. 5). The importance of hybrid-electric vehicles should not be understated, its ranking on par with diesel engines, is an acknowledgement that there are a greater number of hybrid-electric vehicles in the marketplace and the industry is shifting its focus toward the further development of additional fuel saving technologies.

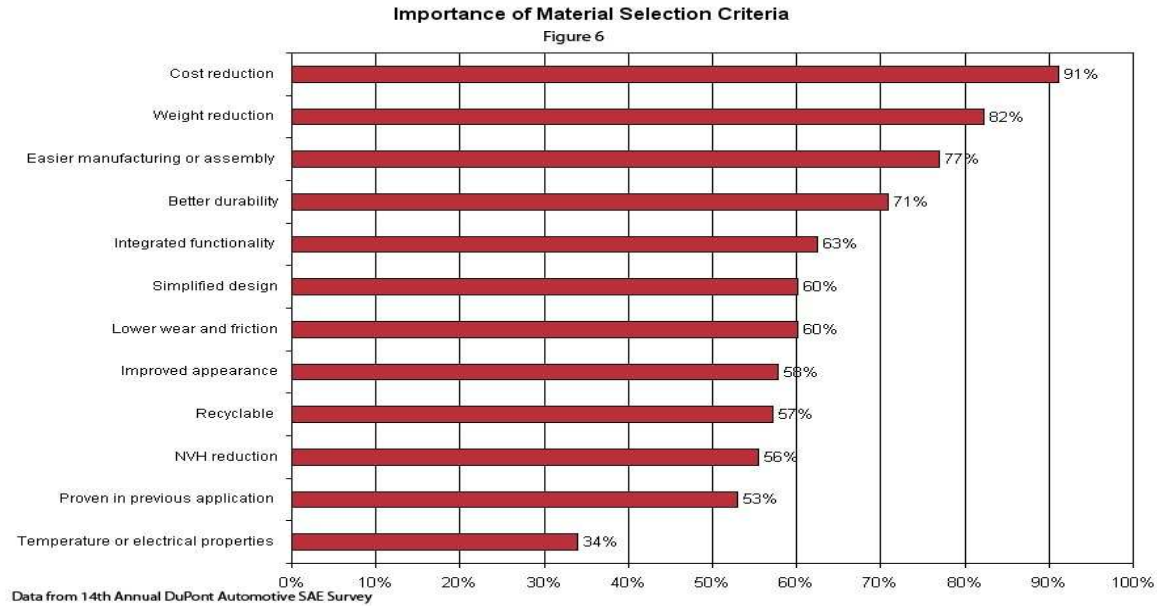
Number One Area of Emphasis for Future Powertrain Development
Figure 5



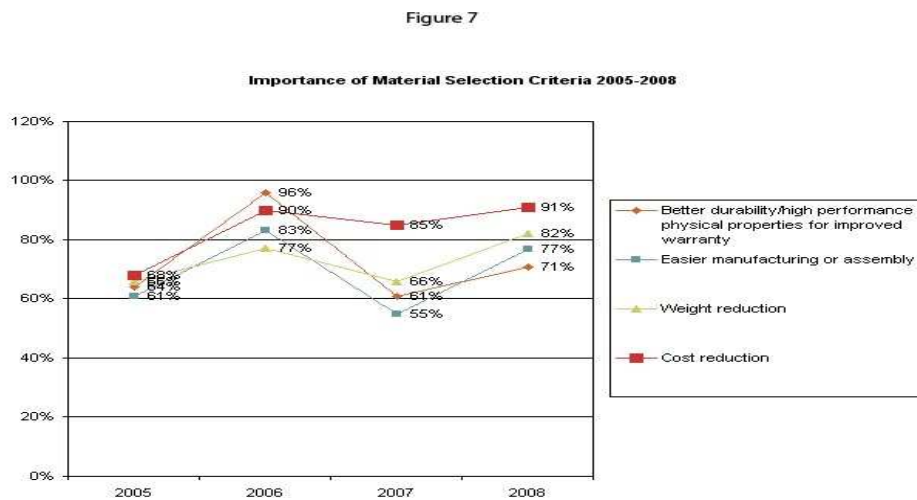
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Material Matters

Cost reduction remained the top factor in material selection with 91 percent of survey respondents ranking it as very important or important (Fig. 6). Those surveyed also indicated that the importance of weight reduction remains significant, with 82 percent citing its importance, up from 66 percent in 2007. (Fig. 7)

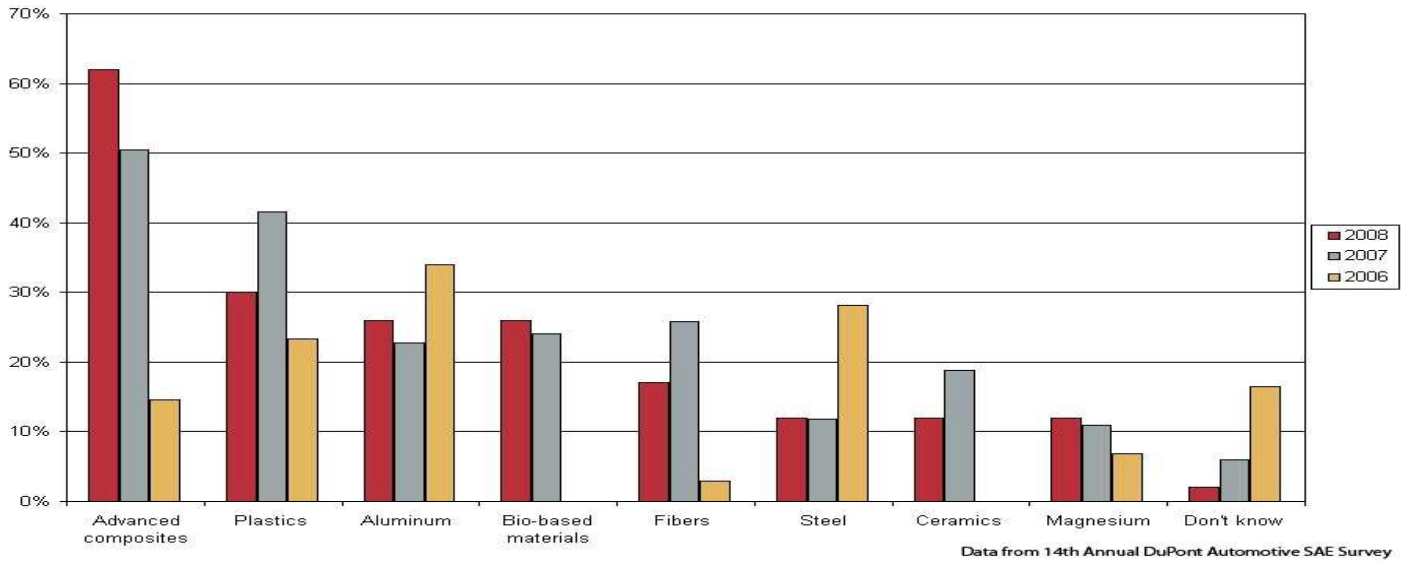


While cost reduction remains the top material selection concern, there is a rise in weight reduction, ease of manufacturing and better durability for improved warranty (Fig. 7).



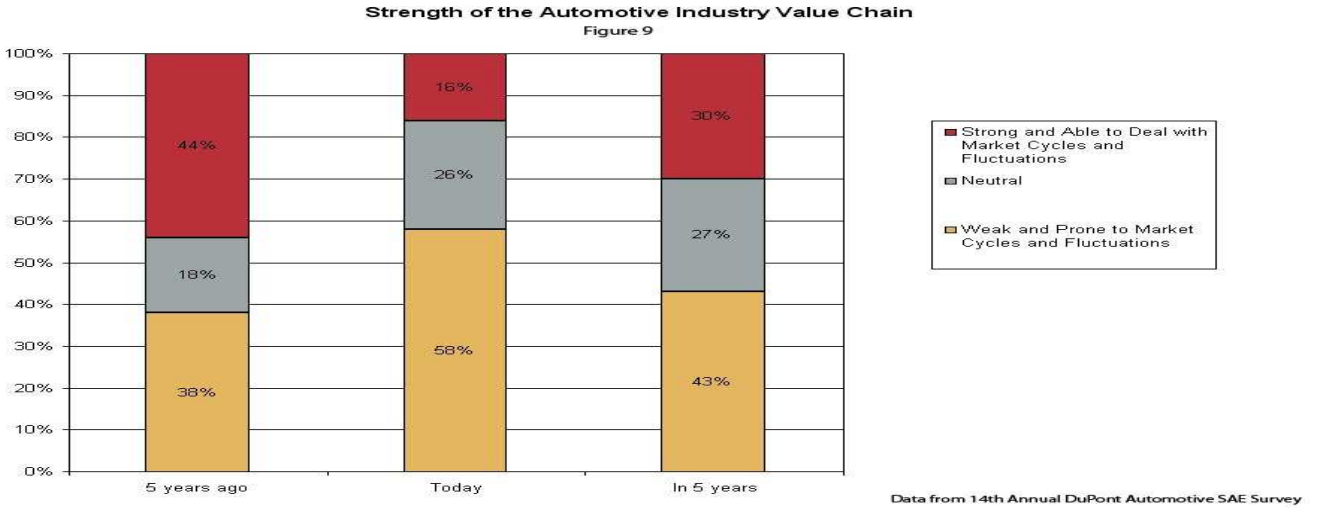
Advanced composites offer the largest growth area in materials, according to 62 percent of respondents (Fig. 8). An example of this is DuPont MetaFuse™, an innovative nano-metal over plastic technology that offers the strength and stiffness of metal combined with the design flexibility and lightweight benefits of high-performance thermoplastics for structural components.

Which Materials Will Have the Greatest Gain in the Next 10 Years
Figure 8



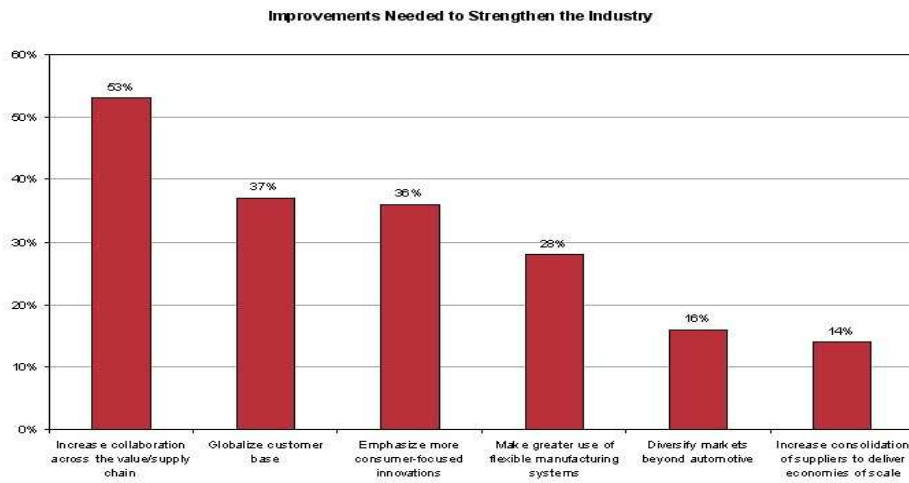
An area of strong growth for the future is renewable, bio-based materials and their growth has matched the growth of aluminum year to year (Fig. 8). To help the industry meet its need, DuPont has launched DuPont™ Renewably Sourced™ Materials – high-performance, bio-based materials and biofuels that are made, in whole or in part, from renewable agricultural feedstocks such as corn, soybeans, sugar cane and wheat, rather than petroleum. Today, nine product families have been launched, including DuPont™ Sorona® polymer, DuPont™ Sorona® EP thermoplastic polymer, DuPont™ Hytrel® RS thermoplastic elastomer and DuPont™ Zytel® long chain polyamides. These core products can be used in composites, in fabrics, in automotive fluids and in many combinations to truly expand the design engineer’s portfolio.

Value Chain



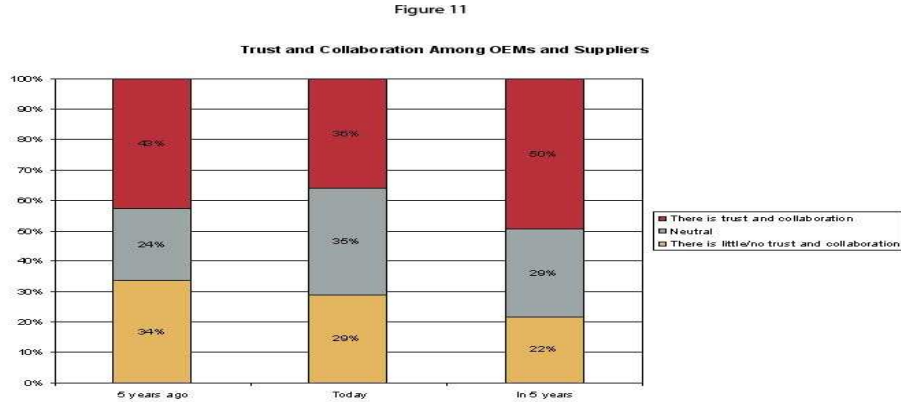
Overall, while attendees feel that the current state of the industry is not as strong as in past years, there is optimism for the coming five years (Fig. 9). The auto industry has seen sporadic improvements and improved collaboration across the value chain, however, this remains a strong concern among survey respondents as the industry tries to strengthen itself and weather current economic conditions. Each region/company has to work in tandem with each other to develop products and stay in touch with customer needs.

Figure 10



Data from 14th Annual DuPont Automotive SAE Survey

The good news for the future of the value chain and the automotive industry, according to 53 percent (Fig. 10) of the respondents, is that increasing collaboration across the value chain will strengthen the industry and similarly, the outlook for increased collaboration between OEM's and suppliers is positive (Fig. 11).



Data from 14th Annual DuPont Automotive SAE Survey

Footnote: The annual DuPont Automotive/SAE survey of OEM and supplier designers and engineers planning to attend the 2008 SAE World Congress was conducted by Consumer Insights, Inc and reports on environmental/sustainability challenges, material and powertrain trends. DuPont Automotive and the Society of Automotive Engineers updated questions and transitioned from a phone survey to an internet survey for the 2008 annual survey to provide a higher level of detail.

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