DELPHI IX

Forecast and Analysis of the North American Automotive Industry

VOLUME 1: MARKETING

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FOREWORD

Delphi IX is a detailed analysis of forecasts by three separate panels of automotive industry executives, directors, managers and engineers who are expert in automotive technology, materials or marketing. These individuals were selected because they occupy positions of responsibility within the automotive industry and have strategic insight into important industry trends. In many cases they are in a position to influence these trends. This report, published in three volumes, is ninth in a series of in-depth studies of long-range automotive trends, which began with Delphi I in 1979 and continued with Delphi II in 1981, Delphi III in 1984, Delphi IV in 1987, Delphi V in 1989, Delphi VI in 1992, Delphi VII in 1994 and Delphi VIII in 1996.

The Office for the Study of Automotive Transportation (OSAT) collects the data and analyzes, interprets and presents the results. Since the forecasts are those of the panelists, Delphi IX is essentially the industry's own consensus forecast. These forecasts are not "crystal ball" predictions but, rather, well-informed estimates, perspectives and opinions. Such forecasts present an important basis for business decisions and provide valuable strategic planning information for those involved in all areas of the North American automotive industry: manufacturers; service, component and materials suppliers; government; labor; public utilities; and financial institutions. We believe these to be the most authoritative and dependable North American automotive forecasts available.

A key point to keep in mind is that the Delphi forecast presents a vision of the future. It obviously is not a precise statement of the future but rather what the industry thinks the future will likely be.

As an industry-wide survey, the project also allows individual companies to benchmark their vision and strategy against consensus industry opinions.

The Delphi method: general background

The study is based on the Delphi forecasting process. This process requires that experts consider the issues under investigation and make predictions about future developments. Developed by the Rand Corporation for the U.S. Air Force in the late 1960s, Delphi is a systematic, interactive method of forecasting based on independent inputs regarding future events.

The Delphi method is dependent upon the judgment of knowledgeable experts. This is a particular strength because, in addition to quantitative factors, predictions that require policy decision are influenced by personal preferences and expectations. Delphi forecasts reflect these personal factors. The respondents whose opinions are represented in this report are often in a position to influence events and, thus, make their forecasts come true. Even if subsequent events result in a change of direction of a particular forecast, this does not negate the utility of the Delphi. This report's primary objective is to present the direction of technological, materials, and marketing developments within the industry and to analyze potential strategic importance.

Process

The Delphi method utilizes repeated rounds of questioning, including feedback of earlier-round responses, to take advantage of group input while avoiding the biasing effects possible in face-to-face panel deliberations. Some of those biasing effects are discussed in this excerpt from a 1969 Rand memorandum:

> The traditional way of pooling individual opinions is by face-to-face decisions. Numerous studies by psychologists in the past two decades have demonstrated some serious difficulties with face-to-face interaction. Among the most serious are: (1) Influence, for example, by the person who talks the most. There is very little

correlation between pressure of speech and knowledge. (2) Noise. By noise is not meant auditory level (although in some face-to-face situations this may be serious enough) but semantic noise. Much of the "communication" in a discussion group has to do with individual and group interest, not with problem solving. This kind of communication, although it may appear problem-oriented, is often irrelevant or biasing. (3) Group pressure for conformity. In experiments at Rand and elsewhere, it has turned out that, after face-to-face discussions, more often than not the group response is less accurate than a simple median of individual estimates without discussion (see N. C. Dalkey, The Delphi Opinion. Memo RM 5888 PR, p. 14, Rand Corp., 1969).

In the Delphi method, panelists respond anonymously, preventing the identification of a specific opinion with any individual or company. This anonymity also provides the comfort of confidentiality, allowing panelists to freely express their opinions. Among other advantages, this process enables respondents to revise a previous opinion after reviewing new information submitted by other panelists. All participants are encouraged to comment on their own forecasts and on the combined panel results. The information is then furnished to the panel participants in successive iterations. This procedure reduces the effects of personal agendas or biases and assists the panelists in remaining focused on the questions, issues and comments at hand.

Panel characteristics and composition

The very essence of a Delphi survey is the careful selection of expert respondents. The selection of such experts for this Delphi survey is made possible by the long-standing association between The University of Michigan's Office for the Study of Automotive Transportation and representatives of the automotive industry. Lists of prospective experts were assembled for Technology, Marketing and Materials panels. Members were selected on the basis of the position they occupy within the automotive industry and their knowledge of the topic being surveyed. They are deeply knowledgeable and broadly experienced in the subject matter.

The names of the panel members and their replies are known only to our office and are maintained in the strictest confidence. Replies are coded to ensure anonymity. The identity of panel members is not revealed. Upon publication of the final Delphi report, all questionnaires and lists of panelists are destroyed.

The characteristics of the 266 panel members are as follows: 21 percent of the Technology Panel was composed of CEOs, presidents, or vice presidents; 18 percent were directors; 37 percent were executives, managers or supervisors; 16 percent were engineers (chief, assistant chief and staff); and 8 percent of the panel was made up of academic specialists and consulting technical-engineering specialists. The Marketing Panel was composed of 33 percent CEOs, presidents, or vice-presidents; 30 percent directors; 29 percent managers; and 8 percent academic and consulting marketing specialists. Among Materials panelists, 6 percent were CEOs, presidents and vice presidents; 26 percent were directors; 41 percent managers and supervisors;16 percent engineering specialists; and 11 percent academic and consulting materials specialists. Approximately 29 percent of the Delphi IX panelists were employed by vehicle manufactures; 63 percent by components and parts suppliers; and 3 percent were others (i.e. specialists, consultants, academics, and representatives of associations and publications).

Presentation of Delphi forecasts and analyses

Data tables. When a question calls for a response in the form of a number, responses are reported as the median value and the interquartile range (IQR). The median is a measure of central tendency that mathematically summarizes an array of judgmental opinions while discounting extremely high or low estimates; it is simply the middle response. The IQR is the range bounded at the low end by the 25th-percentile value and at the high end by the 75th-percentile value. For

example, in a question calling for a percentage forecast, the median answer might be 40 percent and the IQR 35-45 percent. This means that one-quarter of the respondents answered 35 percent or less, another one-quarter chose 45 percent or more, and the middle half of all responses ranged between 36 percent and 44 percent, with 40 percent as the middle response. That narrow interquartile range would indicate a fairly close consensus among the respondents.

In contrast, the percentage forecast for a different question might show a similar median forecast of 40 percent, but with an interquartile range of 20-70 percent, indicating less consensus and a considerable degree of uncertainty about the issue in question.

Uncovering differences of opinion is one of the major strengths of the Delphi method. Unlike other survey methods, where differences of opinion among experts are often obscured by statistical averages, the Delphi highlights such differences through the presentation of the interquartile range.

Discussion. Narrative discussions are presented to highlight and explain a particular set of data.

Selected edited comments. Selected, edited comments from the Delphi panelists are shown following each data table in order to provide some insight into the deliberative process by which panelists arrived at their forecast.

In a Delphi survey, respondents are encouraged to contribute comments to explain their forecast and to perhaps persuade other respondents to change their positions. Many of these edited comments are included. These replies may provide important information which is not evident in the numerical data. An individual panelist may have unique knowledge that planners should carefully consider. However, readers should be careful not to overemphasize a particular comment. It is possible for a well-stated contrary opinion to mislead the reader into ignoring an important majority opinion which is accurately reflected in numerical data.

Manufacturer/supplier comparison. Delphi IX panelists include respondents from the North American automotive manufacturers; the major suppliers of components, parts, and materials for the industry; as well as consultants and academics. A concerted effort is made to obtain a relatively equal distribution of manufacturer and supplier panelists. Within the context of this survey, categorizations will refer simply to either Manufacturers (or for brevity in tables, OEMs—Original Equipment Manufacturers) and Suppliers.

For obvious competitive reasons, the automotive manufacturers seek to maintain a degree of secrecy regarding their design, engineering, and marketing plans. While the relationship between the manufacturer and supplier is moving toward an increasingly closer degree of cooperation and integration, a considerable element of proprietary concern remains. Additionally, the very size and complexity of the automotive industry works against optimum information transfer. Therefore, where it is considered relevant to a better understanding of or perspective on the forecast, our analyses include a comparison of the forecast from manufacturer and supplier panelists in an attempt to illustrate where significant agreements or differences exist.

Comparison of panels. The three groups of Delphi panelists (Technology, Marketing and Materials) are asked questions that specifically focus on their respective areas of expertise. However, a few questions are considered common to two or more panels. For example, the fuel-price question (see MAR-1) is considered so basic that it was submitted to all three panels.

At times, the panels will give differing responses to these questions. This may reflect the makeup of a particular panel and the panelists' subjective perception of the issue in question. Where differences do exist between the panels, serious consideration should be given to whether the difference reflects the composition and proprietary interest of that particular panel or whether there exists a substantial degree of uncertainty regarding the issue in question. We try to highlight both the differences and similarities.

Trend from previous Delphi surveys. A single Delphi survey is a snapshot which collects and presents the opinions and attitudes of a group of experts at a particular point in time. Some questions, in various forms, were asked in previous Delphi surveys, and thus provide trend data. The fact that forecasts for a particular question may exhibit considerable variation over the years does not diminish their relevance and importance to strategic planning. The forecasts reflect the consensus of expert opinion at the time. These opinions and forecasts are predicated on the best information available at the time. However, market, economic, and political factors do change. Trend data can reveal the stability or volatility of a particular market, material, or technology issue. A careful analysis of trend data is an important consideration in strategic business planning decisions.

Strategic considerations. Based on the replies to a particular question, other relevant Delphi IX forecasts, other research and studies, and OSAT's extensive interaction with the automotive industry, this report makes inferences and interpretations as to the core issues in questions and their potential impact on the industry. By no means are they exhaustive statements of critical issues. Rather, they are points that the reader might consider useful.

MARKETING CONTENTS

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EXECUTIVE SUMMARY

The 1998 Delphi IX Forecast and Analysis of the North American Automotive Industry Volume 1: Marketing combines the predictions of nearly a hundred automotive industry participants to describe a model of the future of the industry. These participants, who participate as panelists in a series of questionnaires about the industry's future, come from both manufacturers and suppliers, and occupy positions from lower management to chief executive officer, with a focus primarily on sales and marketing. Consequently, these panelists are knowledgeable about future marketing trends and changes and may even be in a position to influence events in the industry. More than just a forecast, however, this survey attempts to build a consensus opinion among industry thought leaders of where the auto industry is headed. Using 2002 and 2007 as base years, this forecast examines strategic planning factors, purchase and ownership, design and engineering, sales and production, and vehicle attributes.

I. STRATEGIC PLANNING FACTORS

In both the short and long terms, panelists predict that, among other things, energy prices, GNP, and industry research and development expenditures are expected to increase. Manufacturers believe the trade deficit will decrease while suppliers think it will increase (MKT-1). Of the factors that affect new vehicle demand, quality, age of vehicles in use, pricing, and styling are among the ones considered likely to increase the most. The largest increase in these factors between 2002 and 2007 is seen in technology advances (MKT-2). The price of gasoline is predicted to increase by about 17% in the short term and 12% in the long term, with 40% of the amount of the increase accounted for by taxes in 2007 (MKT-3). Panelists also predict that the number of passenger car models selling fewer than 50,000 units will increase (MKT-7). Government regulation of emissions is forecast to increase significantly and there will be a slight increase in alternative fuel regulation (MKT-6).

II. VEHICLE PURCHASE AND OWNERSHIP

Consumer purchasing decisions vary by vehicle segment. Entry level vehicle buyers, for example, are expected to look for low purchase price and good fuel economy in the coming decade. Intermediate buyers will look for interior space and comfort/convenience, while luxury buyers will look for exterior styling as well as comfort and convenience (MKT-8). In general among cars, panelists think interior and exterior styling, and pricing offer the greatest opportunities for product differentiation (MKT-26a). Panelists see truck buyers tending to look for similar attributes even in different segments: interior space, purchase price, exterior styling, and comfort/convenience (though sport utility vehicles (SUVs) have a high degree of status appeal) (MKT-9). The future growth of the light truck market has its supporters who see the versatility, utility, and status appeal, but detractors see Baby Boomers moving to more comfort, possibly in the form of hybrid (car/truck-like) vehicles. They also see potential safety, emissions, or fuel price challenges (MKT-10).

Panelists foresee prices for both cars and trucks increasing in the future, but the predictions show a smaller percentage increase compared to our previous Delphi forecast. A particular challenge for manufacturers is expected to be the competition between entry level vehicles and nearly new off-lease vehicles (MKT-11). Buyers are predicted to increase, by 10 percent, the amount they finance for their new vehicles by 2002, and by another 10 percent by 2007. Twice as many people are expected to finance their vehicles through loans than through leases in 2002. Panelists see 30 percent of buyers leasing by 2002 and 35 percent by 2007 (MKT-13). Panelists agreed that in terms of affordability, consumers were less concerned with the retail price of a

vehicle and more concerned with the monthly payment, and that leasing permits a consumer to drive a more expensive vehicle than they could with conventional financing (MKT-14). Loyalty (previous experience with the current make and model) continues to be the most important factor influencing the consumer buying decision (MKT-15). In terms of sales and marketing strategies, incentives such as rebates are predicted to continue to be used as they are today, but panelists see more use of longer warranties and no-cost maintenance packages (MKT-36).

At the retailer, there are expected to be a number of changes. For one, panelists predict greater use of "one-price, no negotiating" selling (MKT-17). To some buyers, that will be an improvement in the buying process. Other improvements at the dealer include extended sales and service hours, greater efforts to retain existing customers, and shorter delivery times (MKT-18). Panelists see the Internet being used extensively in all phases of relationship marketing, though to a lesser extent in conducting the sales transaction (MKT-19). By 2007, panelists see the dealer landscape to be composed of more mega-dealers, motor malls, and multi-franchise dealers, but with fewer sales people, new car dealerships, and lower domestic and foreign inventory levels (MKT-20). As product quality played a lesser role in vehicle differentiation, the same experts think that customers will not pay for higher quality because it is a given. No manufacturer will survive with poor quality scores (MKT-24).

III. VEHICLE DESIGN AND ENGINEERING

Although it differs by segment, design cycle times are shortening. By 2007, most vehicles are expected to require a facelift every two years and a complete redesign every four to five, according to panelists (MKT-28). A redesign is thought to be most important for luxury models and SUVs, slightly less important for intermediate vehicles and minivans, and the least important for entry level vehicles and pickups (MKT-28). Panelists see increases in the number of models that share platforms with vehicles from another market and the number of models within a company that share a platform or major components. They also see a reduction in the number of platforms within a company (MKT-29). Exterior styling of the future is anticipated to continue to emphasize aerodynamic themes, cab-forward design, new materials, and hybrid cars that have car and truck-like features. Interior design is forecast to offer improved ergonomics, especially improved seating, greater use of electronic devices for improved safety and re-designed instrument panels. Interior design is expected to allow people to do more of what they usually do at home including complete communications. (MKT-48).

IV. LIGHT VEHICLE SALES AND SEGMENTATION

Panelists predict modest growth of about 5% for the North American market over the next decade. The U.S. car market is expected to grow at a lower rate (3% for 2002 and 5% for 2007) than the truck market (6% for 2002 and 8% for 2007). The Big 3 passenger car growth is anticipated to be less than light truck growth, while the Japanese manufacturers are forecast to make gains in light trucks and the Europeans in passenger cars (MKT-31). Panelists also believe that new vehicle buyers will keep their vehicles only slightly longer than in the past, but the average age of the vehicles on the road will increase by almost a full year by 2007 compared to today (MKT-35).

V. WORLDWIDE PRODUCTION AND EXPORTS

North American production is predicted to be stable over the next ten years, though Delphi IX panelists are less optimistic about production levels than Delphi VIII panelists were. The Big 3 is expected to increase their North American production of trucks and decrease their production of cars for both 2002 and 2007. Both Japanese and European manufacturers are predicted to increase their North American production of both cars and trucks (MKT-37). In the U.S. and Canada, panelists think the Big 3 will build 77% of the vehicles assembled in 2007, down slightly

from 81% in 1996. Many of these manufacturers are expected to export vehicles to the U.S. from other countries. Of the five million vehicles expected to be imported into the U.S. in 2007, 43 percent are forecast to come from Canada, 28 percent from Japan, and 15 percent from Mexico. The balance is forecast to come from Korea and several European countries (MKT-38). Slightly over half the exports from the U.S. are expected to go to Canada, 12 percent to Japan, 10 percent to Latin/South America and about 9 percent each to Europe and other Asian countries (MKT-39). To promote sales in potential export markets, panelists recommend designing vehicles for local preferences, improving distribution systems and developing smaller displacement engines that will be untaxed (MKT-40).

VI. VEHICLE ATTRIBUTES AND FEATURES

Many vehicle features or equipment are expected to become more common in the future. Multivalve engines, already common today, are forecast to reach 50 percent usage by 2007, and anti-lock brakes are predicted to reach 70 percent usage for both cars and trucks by 2007. Traction control is also anticipated to double its current application rate, reaching 21 percent (MKT-41, 42). Keyless entry systems, anti-theft devices, CD players, and automatic climate control systems are all forecast to significantly increase their penetration as factory-installed options (MKT-46). Tire technology is expected to improve over the next ten years so that there will be more tires that are self-repairing, have longer life, and have better water-shedding designs (MKT-47). Intelligent Transportation System (ITS) features, such as in-vehicle message systems, navigation and collision warning systems, and adaptive cruise control, are forecast to reach 10 to 15 percent application rates by 2007, though panelists' predictions varied by significant amounts (MKT-43). This uncertainty of the panelists also occurs in what they believe buyers are willing to pay for ITS features and "Green" marketing issues. They predict buyers would be willing to pay $250 for collision-avoidance and navigation systems, $200 for near zero emission vehicles, and $50 for near 100% recyclable vehicles, but the range of responses for these questions runs from $0 to $500 (MKT-45).

Understanding the automotive consumer will continue to be a challenge for the manufacturers as they focus on building vehicles for the next century. Trying to anticipate the wants and needs of consumers four or five years from the present demands that automotive marketing and product development managers apply as much art as science to their potential designs. This 1998 Delphi IX Forecast and Analysis of the North American Automotive Industry Volume 1: Marketing shows some of the results of what managers are thinking about as they look to the future.

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MKT-1. **Many factors affect strategic planning. The following table presents a partial list of political and economic factors affecting the business environment. Please indicate your trend forecast for each factor considering the periods 1998-2002 and 2003 - 2007. Unless otherwise indicated all factors refer to the United States.**

Scale: 1 = sharply increase 3 = no change 5 = sharply decrease

Trend Affecting Strategic Planning	Mean Response	
Political and Economic Trends	**Short term: 1998 - 2002**	**Long term: 2003 - 2007**
Energy prices	2.2	1.9
Annual producer price index	2.3	2.2
Manufacturing competitiveness	2.1	2.2
Annual GNP	2.4	2.4
Industry R & D expenditures	2.6	2.4
Corporate cost of capital	2.6	2.6
Unemployment rate	2.6	2.6
Personal savings rate	2.7	2.7
Personal taxation rate	3.1	2.7
Business taxation rate	2.8	2.8
Government investment incentives	2.7	2.8
Trade deficit	2.7	2.8
Federal budget deficit	3.0	2.9
Political stability	3.0	3.0
Value of U.S. dollar relative to other currencies	2.9	3.1

Other responses

Education and training of 21st century workforce: short term: rated 2; long term: rated 1

Personal debt: rated 3

Trade volume – short term: rated 4; long term: rated 4

Unemployment: rated 2

Selected edited comments

- Due to utility deregulation, energy costs will go down, and petroleum/gas prices will continue to increase.
- Education and training of 21st century workforce will be very important in the future.
- I would expect the trade deficit to widen based on both the expected strength of the dollar slowing export activity as well as the importation of oil.

- Monetary union in the EC will be a factor. Opening markets in Eastern Europe and Asia will fuel global growth. Political volatility in the Middle East will threaten oil supplies to the west and reinvigorate increases in CAFE.

Discussion

Short term

Panelists forecast that some trends will change significantly in the next five years, while others will not. The biggest changes will occur in annual GNP and producer price index, thought to increase significantly. Energy prices too are forecast to increase significantly as will manufacturing competitiveness (perhaps for some companies more than others). Only modest increases are forecast for some of the traditional economic measures, such as tax rates, cost of capital and unemployment. Not likely to change are the federal budget deficit and political stability. The personal tax rate is forecast to decrease very slightly.

Long term

In the long term, panelists predict largely the same outcomes as they predict in the short term. The exceptions are that they expect industry R & D expenditures to increase slightly more in the long term, as well as the personal taxation rate. They predict that the value of the U.S. dollar will decrease very slightly in the long term compared to the slight decrease they forecast for the short term.

Manufacturer/supplier comparison

Short term

Manufacturers and suppliers are in general agreement about most planning factors. However, in some cases manufacturers are more optimistic than suppliers. Statistically significant differences exist for the corporate cost of capital, for which manufacturers forecast no change and suppliers forecast a moderate increase; energy prices, for which suppliers predict a greater increase than manufacturers; personal savings rate, where manufacturers believe the rate will increase more than suppliers do; and the trade deficit, which manufacturers forecast will decrease slightly and suppliers predict will increase slightly.

Long term

The only trend about which manufacturers and suppliers disagree is the trade deficit, which manufacturers predict will decrease and suppliers predict will increase.

Trend from previous Delphi surveys

Short term

The current forecast is very similar to the previous one. However, panelists in the 1994 Delphi VIII forecast, whose short term was 1996-2000, predicted that the federal budget deficit would decrease slightly.

Long term

The current forecast is very similar to the previous one. Differences occur in three areas: the federal budget deficit, the trade deficit, and the value of the dollar. Panelists in the current survey predict that the budget deficit will stay about the same as today, while Delphi VIII panelists

predicted it would decrease significantly. Today's panelists also predict that the trade deficit will stay about the same as today, whereas the previous panelists predicted a significant decrease. Finally, Delphi IX panelists predict the value of the dollar to remain about the same as today. Delphi VIII panelists predicted the dollar would increase slightly in value.

Strategic considerations

For the most part, panelists foresee no huge shifts in political and economic trends that could adversely affect the industry. The biggest changes are forecast to occur in both the short term and the long term. These changes include increases in the annual GNP, a good thing, but also an increase the producer price index, not so good. Energy prices, too, are predicted to go up, which has both good and bad affects on the industry: bad if high operating costs foster use of alternate forms of transportation, or fewer vehicle miles; good if consumers trade in their vehicles for more fuel-efficient ones.

Like energy prices, the unemployment rate can have an effect on vehicle purchases. If more consumers become unemployed, there are fewer available vehicle buyers. In fact, even if the unemployment rate increases only slightly, some buyer confidence in general may waver, with employed persons postponing purchases until economic stability returns.

In the longer term, panelists predict that industry R & D expenditures are likely to increase significantly. This could be due to the cost of developing increasingly high tech vehicle systems and components.

MKT-2. **Many factors influence the level of new vehicle demand. The following table presents a partial list of economic, social and consumption factors affecting new vehicle sales volumes. Please indicate your trend forecast for each factor (as in MKT-1) considering the periods 1998-2002 and 2003-2007.**

1=sharply increase 3=no change 5=sharply decrease

	Mean Response	
Trends Affecting Vehicle Demand	**Short term 1998 - 2002**	**Long term 2003 - 2007**
Price of gas	2.2	1.9
Technology/technological advances	2.3	1.9
Vehicle quality/reliability/durability	2.0	1.9
Age of vehicles in use	2.3	2.1
Real transaction price of new autos	2.3	2.2
Styling	2.3	2.2
Real transaction price of new light trucks	2.3	2.3
Vehicle insurance premiums	2.3	2.3
Personal loan/lease interest rates	2.4	2.5
Used car prices	2.6	2.5
Used light truck prices	2.5	2.5
Maintenance/operating costs	2.8	2.7
Use of mass transportation	2.9	2.7
Average annual miles traveled per vehicle	2.6	2.8
Consumer economic confidence	3.2	2.9
Real disposable personal income	2.9	2.9

Other responses

Domestic market share: rated 4

Recyclability: Short term: rated 2; Long term: rated 1

Selected edited comments

- I think that shortening design time has the potential to change the auto industry in a major way.
- Styling will be influenced by hybrid and electric power plants.

Discussion

Panelists predict that a number of trends affecting vehicle demand will change at least slightly in the future. Nearly all factors are predicted to increase at least slightly, although consumer economic confidence is predicted to decrease very modestly.

Manufacturer/supplier comparison

Short term

Manufacturers and suppliers agree on most vehicle demand trends. The exceptions are used car prices, which manufacturers predict will stay the same while suppliers predict a moderate increase and vehicle insurance premiums, which manufacturers predict will increase less than suppliers do.

Long term

Manufacturers predict increased consumer economic confidence while suppliers predict it will not change; manufacturers predict only a slight increase in personal interest rates while suppliers believe interest rates will increase significantly; suppliers forecast that personal income is unlikely to change but manufacturers predict an increase; and manufacturers do not predict as great an increase in insurance premiums as do suppliers.

Trend from previous Delphi surveys

In both the short and long term, the current forecast is very similar to the previous one.

Strategic considerations

Somewhat amazingly, panelists are forecasting a significant increase in the level of quality of vehicles in the future. Considering how troublefree so many vehicles are today, it almost seems hard to imagine what more carmakers can reasonably do to enhance quality, reliability and durability. Moreover, incremental improvements might be more expensive to achieve than the previous one. At some point, customers will probably prove unwilling to pay for higher quality levels.

Panelists are predicting that the costs of buying and owning vehicles are likely to increase also. The price of gas, insurance, even interest rates are thought to increase at least somewhat. These rising costs would presumably have a dampening effect on sales. On the plus side, with the number of vehicle miles traveled increasing and the forecast changes in styling and technology, there are forces conspiring to increase vehicle sales. Fortunately, the collective opinion is that cars and trucks will remain a primary transportation choice for most people: the use of mass transportation is unlikely to change much.

The forecasts for the short term and the long term are fairly similar. Two exceptions stand out. First, panelists predict that the cost of gasoline is likely to increase more in the long term than in the short term. Please see MKT-3 for additional information about future gasoline prices. Second, it is predicted that near term technology advances will be surpassed by long-term advances.

Based on these responses, industry marketing executives expect a reasonably stable future. It would be impossible to summarize the net effect on vehicle demand of all these factors. Readers should consider their own research and position in the industry to determine how they will be affected.

MKT-3a. Please estimate U.S. retail fuel prices, per gallon, for 2002 and 2007, including fuel tax. (Please use constant 1997 dollars without adjusting for inflation.)

Unleaded Gasoline	Est. 1996*	Median Response		Interquartile Range	
		2002	2007	2002	2007
Regular	$1.23	$1.45	$1.65	$1.32/1.50	$1.50/1.99
Premium	1.41	1.65	1.90	1.50/1.75	1.65/2.20

*Source: U.S. Energy Admin., National Average Jan.-Oct. '96

Selected edited comments

- Alternative fuels/energy sources will affect demand. Gas prices will increase to be competitive with alternative fuel costs and reach a "mature product" life stage status
- Developing countries such as China and India will push demand for fuel resulting in higher prices.
- Gas prices will increase mainly because of higher taxes to pay for road repair and because of EPA mandated alterations to the fuel. There will be no fundamental changes in underlying energy supply and demand in the planning period
- I fully expect alternative fuel technology to be available in the 2005 – 2007 timeframe to exert downward pressure on petroleum prices. Oil will be remarketed to other uses.
- Increases in gas prices will be tax-driven
- No political will exists in Congress to raise gas taxes to European levels. Green concerns may or may not become a factor again. The biggest influence will be the reliability of supply from the Middle East.
- There is potential for shortages further out in the planning period. One big oil shock is likely. We will likely see some government action to raise prices for environmental and consumption reasons, tempered by political reality. (e.g., 5-10 cents/gallon).
- Tax increases will drive this movement largely to pay for overdue road maintenance.
- U.S. fuel prices are currently artificially low and will rise over time

Discussion

Panelists predict that the price of gasoline, excluding inflation, is likely to increase about 17 to 18% between 1996 and 2002, and 14 to 15% between 2002 and 2007, depending on the grade of fuel. The cause of such increases is thought to be due to political forces, such as tax increases, rather than market forces. Such tax increases could be the result of government attempts to raise revenue for transportation improvements and maintenance, to curb the use of fossil-based fuels for environmental reasons, or to just to raise money.

Manufacturer/supplier comparison

There is no statistical difference in responses between manufacturers and suppliers.

Comparison of forecast: TECH-1a and MAT-1

There is no statistically significant difference in responses between the technology, marketing and materials panelists.

Trend from previous Delphi surveys

Retail Fuel Price Expectations: Previous and Current Delphi Forecasts						
	Unleaded Regular Median Response			Unleaded Premium Median Response		
Year	Delphi VII	Delphi VIII	Delphi IX	Delphi VII	Delphi VIII	Delphi IX
1998	1.45			1.60		
2000		1.30			1.54	
2002			1.45			1.65
2003	1.70			1.90		
2005		1.50			1.75	
2007			1.65			1.90

Delphi IX respondents predict a rise in prices for both regular and premium gas for both 2002 and 2007. Their predictions are very similar to the price Delphi VII respondents predicted for 1998 and 2003. Though their predictions vary about 10 percent, they do not represent dramatic changes in the future.

Strategic considerations

Gasoline prices, for both low and premium grades, are forecast to increase over the next ten years. However, the increases will probably not be so great as to cause a change in driving habits or buying behavior. In fact, given the recent shift in purchases from passenger cars to light trucks, consumers have demonstrated a certain lack of concern about fuel prices.

A portion of the increase in fuel prices can be attributable to increased taxes (see Mkt-3b). There are several factors that could affect the level of gas taxation and therefore the price of gasoline. First, the condition of roads in many places is unsatisfactory. Tax increases may be permissible if the funds generated by those increases are earmarked for infrastructure improvements. Secondly, government-prodded fuel economy "stretch" programs, such as PNGV, may promote the development of technologies that improve fuel economy. If so, more fuel-efficient vehicles could offset the increased operating costs resulting from higher taxes.

All things considered, panelists forecast only modest increases in fuel prices suggesting reasonable stability in fuel prices as a driver of product design, vehicle use, and other factors. Of course, policy actions could still change things significantly in the interest of preserving energy supplies, reducing climate, or whatever else policy makers might feel is important. We must remember that voters are consumers which will undoubtedly keep our elected officials from too much policy indiscretion.

MKT-3b. What percentage of the change from the previous period forecast in MKT-3a will be attributed to state and federal taxes?

Percent Change Attributed to Taxes			
Median Response		Interquartile Range	
2002 — 25%	**2007** — 40%	**2002** — 10/55%	**2007** — 15/64%

Selected edited comments

- I see greater emphasis on nonauto infrastructure development. I think that as they age, baby boomers will demand ways to get around when they can no longer drive a car.
- I would expect large increases in tax rates to fund the development of needed infrastructure to keep pace with technology.
- States will raise taxes before the federal government does because of the need to restore infrastructure
- The extremely high bill of reconstruction of the infrastructure has to be paid.

Discussion

Panelists forecast that a quarter of the increase in gas prices predicted in Mkt-3a for the period 1996 to 2002 will be due to increased taxes. From 2002 to 2007, it is predicted that taxes will account for 40%, on average, of the increase.

Manufacturer/supplier comparison

There is no statistical difference in responses between manufacturers and suppliers.

Comparison of forecast: MAT-2 and TECH-1b

Responses from materials panelists are not statistically significantly different from technology panelists. There is a statistically significant difference in responses between technology and marketing panelists. Mean responses for the two panels are summarized in the following table.

Percent Change Attributed to Taxes		
	Technology	Marketing
2002	**47%**	**36%**
2007	**53**	**42**

Trend from previous Delphi surveys

This question was not asked in prior Delphi surveys.

Strategic considerations

Panelists predict that significant portions of increased gasoline costs will be due to higher taxes. They believe that the revenues collected from higher taxes will be used for two major purposes. First, government will spend to restore a deteriorating transportation infrastructure. Second,

government will spend to develop a nonautomotive public transportation system, possibly to alleviate environmental concerns but also to provide transportation to an aging and often disabled population.

Note the broad interquartile range. There is not a strong consensus here on the magnitude of tax increases in the future. This is not surprising, considering the strongly political nature of taxation in general, and fuel taxes in particular. Motorists are usually very sensitive to changes in fuel prices (possibly more on principle than because of how it affects their pocketbooks). Combined with a general perception that government revenues are sometimes squandered, taxpayers who drive have little appetite for higher gas taxes. They may make an exception if fuel taxes are used to improve transportation infrastructure.

In addition, several years of economic prosperity and modest government downsizing have resulted in dramatic drops in the national government's budget deficit. Consequently, there is less pressure to use gasoline taxes as a source of revenue.

MKT-4. The U.S. market continually evolves as new manufacturers enter or exit, new divisions appear or disappear, and new models are introduced or canceled. Please indicate the trend of these three processes through 2007.

Scale: 1 = sharply increase 3 = no change 5 = sharply decrease

Industry Structure, 1998 - 2007	Mean Response
Number of model/nameplate offerings_ (e.g., Expedition, Malibu)	2.6
Number of manufacturers marketing_vehicles (e.g., Kia)	2.7
Number of marketing divisions_ (e.g., Saturn, Lexus)	3.0

Selected edited comments

- Acquisition among the world automakers will become reality, thus reducing the number of manufacturers and marketing divisions
- European manufacturers may re-enter the U.S. market (e.g., Fiat, PSA, Renault). New Asian manufacturers, some of which are currently unknown, may enter. The number of manufacturers' marketing divisions should decrease, but would be offset by new retail brands (e.g., AutoNation).
- Every nation considers the automotive industry a pillar of its economy. Developing nations will encourage automakers with protection and incentives which skew the open market. This creates many, perhaps inefficient, manufacturers to enter the market, thereby increasing model nameplates. Consolidation and rationalization in the global market will occur later in developing countries. It has already happened in the U.S. Europe (excluding Central and Eastern Europe) is undergoing further consolidation, and it is starting to happen in Japan. Next will be Taiwan, then..?.
- Most OEMs are seeking to reduce platforms. Most marketing divisions are trying to consolidate
- The expectation is that manufacturers will attempt to further segment the market with various niche strategies in order to preserve profitability
- There are too many models and too many manufacturers. Some are in trouble today, even in a healthy market; when the downturn occurs, some will perish.
- There are too many brands today—it's confusing customers.
- There will be only modest increases in the number of manufacturers and divisions, but large increases in the number of models, as all manufacturers seek to meet competitive pressures by offering new models to compete in new segments.
- With an anticipated 20 million units of global overcapacity, the industry cannot continue to expand as it has for the last 30 years.

Discussion

Panelists predict that the number of models (nameplates) and the number of manufacturers marketing vehicles in the U.S. will increase slightly during the next ten years. However, they predict that the number of manufacturer marketing divisions will stay about the same.

Manufacturer/supplier comparison

There is no statistical difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

In the prior Delphi survey, this question was asked in slightly different form, making comparisons difficult. However, the stem relating to the number of nameplates remained essentially the same. For that response, panelists forecast that the number of models would remain nearly unchanged, compared to the slight increase forecasted in this survey.

Strategic considerations

Panelists predict that there will likely be a slight increase in the number of manufacturers marketing vehicles in the U.S. over the next ten years. The source of such growth is probably from European or Asian-based manufacturers. Several European manufacturers, such as Fiat or Renault, used to participate in the U.S. market, but withdrew due to dwindling sales. Finding the huge U.S. market hard to ignore, and with revitalized products selling well in Europe, these manufacturers could attempt a comeback during the next ten years. In addition, newly emerging Asian manufacturers, often encouraged by government support, may make significant efforts to penetrate the U.S. market, particularly with entry-level vehicles.

Panelists predict that there will be no change in the number of marketing divisions. It is unclear, whether this is the net result of additions and subtractions or no actual change. In either case, panelists seem to be saying, using the additional insight of their accompanying comments, that the market is accommodating all the makes it can. Opportunities for luxury divisions, a la Japanese within the past decade, or other dedicated divisions, may be slim.

Panelists predict a slight to possibly moderate increase in the number of nameplates. This is an interesting finding, given that the last few years have seen a pruning from the market of some venerable nameplates (Thunderbird, for instance). The source of new nameplates could be a result of additional competitors in a hot segment. The sport utility segment provides a good example of this, as Dodge, Lincoln and Mercedes added such models to their lineups. These compete with models from other manufacturers already there, with Cadillac due to enter the fray in the '98 model year.

When considering the possibility of new entrants to the U.S. market, changing distribution systems could not only facilitate entry but, if the promise of lower costs comes true, could also be a catalyst to encourage entry. New entrants could choose an untraditional distribution method, as Daewoo has in the U.K., and achieve a significant advantage over entrenched marketing organizations. Could new distribution methods, with their potential for substantially reduced cost, be the competitive advantage for newcomers to the market that high quality and fuel economy were for Japanese manufacturers 20 years ago?

MKT-5. **Many countries have the potential of achieving enough importance in vehicle and component manufacturing that they offer significant market opportunities. Please indicate your opinion of the manufacturing and marketing environment in these countries by 2007.**

Scale: 1 = strongly agree 3 = neither agree nor disagree 5 = strongly disagree

Mean Response			
	Will Approach 2007 World Cost and Quality Standards		Will Be a Profitable 2007 Market
Country	Vehicle Production	Component Production	Vehicle Sales
Mexico	2.0	1.9	2.1
Korea	1.9	2.0	2.4
Thailand	2.5	2.4	2.6
Hungary	3.0	2.7	2.8
India	3.0	2.7	2.9
China, Peoples Republic of	3.4	3.0	3.1
Confederation of Independent States (CIS)	3.5	3.2	3.3

Other responses

Central Europe: rated 1, 1, 2

Brazil: rated 2, 2, 3

Brazil or Mercosur/Argentina: rated 1, 1, 1

Mercosur (Argentina): rated 2, 3, 3

Selected edited comments

- Globalization of the industry and improved market access under the free trade policies of the World Trade Organization will ensure a highly competitive market.

Discussion

Panelists believe that Mexico and Korea show the greatest promise in the opportunity for world class standards in both manufacturing and marketing by 2007. Manufacturing and marketing opportunities show equal promise in Mexico, while Korea is forecast to be a bit stronger in its bid to approach world-class standards for manufacturing than for the potential of its market. Thailand is considered somewhat less promising. For the most part, panelists neither agree nor disagree that the remaining countries, Hungary, China, India and the CIS, will approach world class standards for manufacturing and marketing. If there is any deviation from this it is in panelists' mild disagreement that China and the CIS could approach world class standards for vehicle production by 2007.

Manufacturer/supplier comparison

Manufacturers and suppliers differ in the forecasts for component production in Hungary and Mexico. Manufacturers believe more strongly that those two nations will approach world-class standards in 2007.

Trend from previous Delphi surveys

Not much has changed from the previous Delphi forecast. Of these countries, only the Confederation for Independent States shows a change, with panelists believing more strongly that that country would approach world-class standards for component production or for being a world-class market.

We did not include Korea in the previous Delphi forecast.

Strategic considerations

In an industry already considered glutted with capacity, it is important to track both manufacturing and marketing developments in emerging countries. There are implications for all manufacturers if even more capacity comes on stream. Developing countries, of which the ones in this question represent a small sample, continue to fascinate companies based in developed countries. This is primarily because of huge numbers of unserved consumers.

We have continued to ask this question of panelists for several reasons. First, many persons in the auto industry are interested in emerging economies, whether for marketing or manufacturing. With a great many potential customers in these countries, it is hard to ignore the potential sales. Second, the responses here demonstrate that, from survey period to survey period, some of these countries have not made great progress in moving to world-class levels. Many of these countries, notably China, have been on the verge of industrial and consumer "greatness" for a number of years. Finally, many readers of this forecast want to gauge the relative merits of going global and where to do so. Survey panelists believe that some countries offer greater potential than others during the next ten years.

Panelists fairly mild agreement about Korea's potential for world-class status is interesting in that, despite current economic woes, at least three vehicle manufacturers are producing and selling vehicles at home and abroad. Although not considered on par with the world's best, these manufacturers, especially Hyundai, have made considerable quality and performance improvements in recent years. Hyundai may not require another ten years before it is considered a world-class manufacturer.

If these countries are typical, it is probably good news that productive and market capabilities seem to be fairly commensurately matched. It seems reasonable to believe, then, that newly developed production capacity, and capability, will largely be absorbed by growing consumer needs. While established manufacturers may fear the competition of increased world capacity, and be attracted to the appeal of huge populations on the verge of rampant consumerism, the end result might be a case of home-grown capacity feeding home-grown wants and needs.

MKT-6. Please indicate your view of the trend in U.S. federal regulation and legislation over the short term (1998 - 2002) and long term (2003 - 2007). Also, please list any likely new areas of legislative and/or regulatory activity.

Scale: 1 = much more restrictive 3 = no change from 1996
5 = much less restrictive

LEGISLATION/REGULATORY ACTIVITY	Mean Response	
	Short Term 1998 - 2002	Long Term 2003 - 2007
Alternate fuel/power source		
Passenger car	2.8	2.3
Light truck	2.8	2.2
Anti-theft		
Passenger car	2.8	2.6
Light truck	2.8	2.6
Fuel economy (CAFE)		
Passenger car	2.4	1.8
Light truck	2.2	1.6
Occupant restraint safety		
Passenger car	2.3	2.0
Light truck	2.2	1.9
Product liability		
Passenger car	2.6	2.4
Light truck	2.6	2.5
Regionalization of nat'l standards		
Passenger car	2.7	2.6
Light truck	2.8	2.6
Vehicle integrity/crashworthiness		
Passenger car	2.2	1.9
Light truck	2.1	1.8
Vehicle emissions		
Passenger car	2.2	1.8
Light truck	2.1	1.8

Other responses (new areas)

Antilocking braking (passenger car and light truck) – Short term: rated 3; Long term: rated 2

Light truck—other safety—Short term: rated1

Light truck: space/passenger seating size (Suburban Fighter, etc, *so* big!)

Passenger car and light truck—recyclability— Short term/Long term: rated 2 (2 responses)

Passenger—post-usage recyclability—Short term: rated 2. Passenger car and light truck – post-usage requirements—Long term: rated 1

Usage regulations for passenger cars and light trucks: both rated 2 in both short term and long term.

Selected edited comments

- As the line between passenger cars and light trucks continues to blur with SUVs, etc., there will eventually be requirements for light trucks and SUVs to perform more closely to passenger cars with respect to CAFE, engine emissions, five mph bumpers (on minivans) and other safety issues. Congress may eventually reclassify minivans as passenger cars. Maybe all 4-door vehicles will be classified as passenger vehicles, leaving only two-door truck, vans and SUVs classified as trucks
- I see a "crackdown" on light trucks across the board, including the danger they represent to cars. I hope for some steps controlling usage (e.g., miles driven) versus product design only (e.g., CAFE).

Discussion

Panelists predict that government regulation is likely to become more restrictive in both the short and long terms. While there are varying degrees of predicted restrictiveness, no legislative area listed is projected to become less restrictive. Government legislation is predicted to become even more restrictive in the long term than in the short term.

Short term

In the short term, panelists predict that fuel and safety related legislation is likely to be measurably more restrictive in the future. Fuel economy standards and emissions standards are predicted to be tougher, as well as occupant restraint and vehicle crashworthiness. Interestingly, alternate fuel legislation is not forecasted to be much more restrictive than today, while fuel economy and emissions are. Anti-theft legislation may become only very modestly more restrictive. The same holds true for regionalization of national standards.

Long term

In the long term, overall, panelists predict that all vehicle legislation is going to get tougher. Among the toughest are the same four predicted in the short term. The remaining legislative areas will be more restrictive, but not to the extent of the above "Big 4."

Manufacturer/supplier comparison

Panelists differ statistically by group only in their predictions for short-term regionalization of standards pertaining to light trucks: manufacturers forecast more restrictive standards than do suppliers, who predict only a slight increase in standards.

Comparison of forecast: TECH-16

Responses from technology and marketing panels were statistically significantly different from the activities shown in the following table:

Scale: 1 = much more restrictive 3 = no change 5 = much less restrictive

Legislation/Regulatory Activity	Mean Response			
	Short Term 1998 - 2002		Long Term 2003 - 2007	
	Technology	Marketing	Technology	Marketing
Vehicle emission standards				
Passenger car	2.6	2.2		
Light truck	2.4	2.1	2.0	1.8
Anti-theft equipment				
Passenger car	3.0	2.8	2.9	2.6
Light truck	3.1	2.8	3.0	2.6
Regionalization of national standards				
Passenger car	--	--	2.9	2.6
Light truck	--	--	2.9	2.6
Product liability				
Light truck	--	--	2.7	2.5

In all cases where there is a difference, Technology panelists forecast less restrictive legislation/regulation than marketing panelists. The differences in responses were small in all cases, however.

Trend from previous Delphi surveys

Short term

Forecasts for Delphi IX and Delphi VIII are nearly the same in the short-term periods for each forecast.

Long term

This forecast differs from the prior one in that current panelists predict that anti-theft legislation for cars will not be as restrictive as was forecast in Delphi VIII. In addition, the current panel predicts that light truck fuel economy standards will be more restrictive than was previously forecast.

Strategic considerations

Monitoring legislative trends remains an important activity for the industry. In prior Delphi forecasts, we have been concerned with the costs associated with meeting government regulations, both to corporations and individuals. While that remains a concern, it is heartening that much joint, precompetitive research is being performed by and for the industry, lessening the burdens of research for any one company. Government mandates have a significant impact on the use of industry resources, since meeting legislated standards consumes considerable amounts of time and money. Joint research, could, in part, provide better and possibly lower cost solutions. In

addition, with so many technical advances made in areas like emissions, additional gains are likely to be harder to come by.

Interestingly, alternate fuel legislation is not forecast to be much more restrictive than today. Instead, it is forecast that vehicle emissions regulations will be tougher. Panelists may believe that the government prefers to legislate an outcome, instead of the means to an outcome.

For areas that are not likely to get more restrictive, it is uncertain whether the government is unconcerned or whether the industry has addressed the issue on its own, without legislation. The auto industry has made substantial efforts to reduce theft in vehicles, such as widespread availability of car alarms from the factory and ignition keys with resister pellets imbedded in them. Such efforts may have obviated the need for government interaction although that notion is purely speculative.

Panelists do not predict great differences between cars and light trucks in that for each activity, the anticipated degree of increased restrictiveness is almost equal. That may mean that today's differences, however slight, may remain, even as light trucks continue to erode passenger car market share.

Overall, there seems to be no letting up in the role the government has assumed in regulating the design and performance of light vehicles. The role is often controversial and usually costly. Cost/benefit analysis when applied to public welfare remains an inexact science, largely due to the difficulty of placing values on human life and environmental integrity, as well as determining the appropriate degree of personal responsibility the individual must bear if he or she chooses to operate a motor vehicle.

MKT-7. In 1996, more than 100 passenger car models (i.e., Firebird, Tracer) sold fewer than 50,000 units in the United States and Canada. Please forecast how the number of models selling fewer than 50,000 units annually will change by 2002 and by 2007.

1 = increase: 5 or more models over 1996,
2 = increase: 2 to 4 models over 1996
3 = no change: 1 more model to 1 fewer model
4 = decrease: 2 to 4 fewer models
5 = decrease: 5 or more fewer models

Year	Mean Response
2002	2.2
2007	1.9

Selected edited comments

- Electric vehicles are likely to sell in smaller numbers.
- I predict a few more new entrants offset by rationalization of existing lines.
- I would expect to see more entries into the niche markets in an attempt to fully utilize flexible and agile manufacturing concepts, while maintaining profitability by further segmenting (if only in appearance) the marketplace
- Manufacturers are likely to find ways to build lower-volume cars profitably. More platform-sharing may be the key.
- Manufacturers will become better at commonizing part sets and differentiating bodies to appeal to niches and offer more selection.
- Model variations will proliferate as OEMs adapt lean manufacturing techniques allowing them to profitably exploit smaller market segments.
- More models will be available from a reduced number of vehicle platforms because of increased assembly flexibility due to the involvement of suppliers who have modular system assembly capability. Product differentiation will become tougher.

Discussion

Panelists predict increases in the number of models in the future, more so in the distant future than in the near future.

Manufacturer/supplier comparison

There are no statistically significant differences in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

The responses in this year's survey closely correspond to those from Delphi Forecast VIII.

Strategic considerations

Panelists forecast that there will be more low-selling nameplates, sometimes called "niche" models, available for sale in the U.S. and Canada. From their comments, it appears that the basis for this belief is the participation of new or returning companies in the marketplace, but also because improved manufacturing flexibility permits assemblers to build distinct (or at least differentiated) models off of the same platform. Panelists seem to be saying that more models will be developed or introduced but only because it is possible to do so with no great price penalty to consumers.

Model proliferation can also be the result of manufacturers expanding the trim level range of some of their models. For example, Pontiac has enjoyed great success with its Montana variant of the TranSport minivan. Subaru developed the Legacy Outback initially as a variation of its Legacy station wagon. That model, with its full-time all-wheel drive and raised suspension, is often described as a hybrid of a passenger car and a sport utility, and its success in the marketplace has earned it a place as a separate model in Subaru's product line.

At the extreme, manufacturers could strive to build cars that are unique. The common wisdom is that consumers are unique and therefore have unique needs and wants. Evidence for such a claim is seen in the lack of high volume (i.e., 500,000 or more annually) models compared to many years ago and the increasing number of nameplates. Such a hypothesis deserves scrutiny though and the fact that there are successful, high-volume (albeit on a reduced scale) models belies the necessity for highly-customized models.

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MKT-8. Please select from the following list the five most important considerations that will influence passenger-car-buying decisions in each segment. Please do not attempt to rank these attributes. Simply check the five characteristics you believe will be the most important considerations to the customer in 2002 and 2007. (The shaded boxes indicate the five highest ranked items)

		Frequency Selected					
	Passenger Car Attributes	2002			2007		
		Entry Level	Intermediate Family	Luxury	Entry Level	Intermediate Family	Luxury
1.	Cargo space	2%	8%	1%	2%	9%	1%
2.	Comfort/convenience	5	11	14	6	10	14
3.	Company's country of origin	0	0	1	0	0	1
4.	Corporate reputation	2	3	4	1	3	4
5.	Country where vehicle is assembled	0	0	0	0	0	0
6.	Dealership experience/relationship	2	6	6	2	5	5
7.	Division reputation	8	2	2	1	2	3
8.	Exterior styling	9	9	16	8	7	14
9.	Fuel economy	14	5	1	16	6	2
10.	Incentives/rebates	10	3	0	8	2	0
11.	Interior styling	2	4	10	2	4	10
12.	Nameplate (model) reputation	4	2	4	3	3	6
13.	Operating cost	11	3	0	12	4	0
14.	Passenger space	6	14	3	7	13	3
15.	Performance	2	2	11	3	4	10
16.	Previous experience with make or model	1	3	2	7	2	1
17.	Product quality	7	7	8	7	8	7
18.	Product technology	0	0	5	0	1	6
19.	Purchase price	16	8	1	15	9	1
20.	Resale value	2	1	0	2	1	0
21.	Safety	2	8	2	4	7	3
22.	Status appeal	2	0	9	0	0	0
23.	Other	0	0	0	0	0	0
		100%	100%	100%	100%	100%	100%

Other responses

Many entry level buyers want to stand apart from their bosses and parents.

Uniqueness—Entry level: 2002 and 2007

Selected edited comments

- I think many of today's entry-level buyers will migrate to used cars. Manufacturers may stop producing the smallest entry-level cars (at least for North America). The profile of new car buyers, in general, will shift slightly upscale.
- Quality is diminishing as a buying factor because every maker is approaching sub-100/100 vehicle quality levels—it is important, but not a distinguishing factor. Safety is expected, not a distinguishing factor...possibly some backlash. Rebates/incentives are subsumed within purchase price.

Discussion

Panelists predict that consumers will value criteria differently when selecting vehicles from different segments.

For entry-level vehicles, in the near term, fuel economy and purchase price are the two most important criteria. Operating costs, incentives or rebates, and exterior styling are also considered important, but less so. In the long term, these attributes remain the same, although initial financial considerations, such as purchase price and incentives or rebates, may become relatively less important compared to fuel economy and operating costs.

For intermediate/family vehicles, in the near term, the most important criterion for purchase is passenger space, followed by comfort and convenience. Exterior styling and cargo space are also important, and purchase price and safety tie for fifth place in importance. In the long term, panelists forecast a slight shift away from exterior styling, replaced by product quality.

For luxury vehicles, exterior styling and comfort/convenience take precedence, with interior styling, performance and status appeal also considered important, in the short term. Longer term, those same attributes remain most important.

Manufacturer/supplier comparison

Entry-Level Vehicles			
Five most important purchasing decision attributes by type of panelist			
Ranked in descending order by number of mentions			
2002		2007	
Manufacturers	**Suppliers**	**Manufacturers**	**Suppliers**
Fuel economy	Purchase price	Fuel economy	Purchase price
Operating costs	Fuel economy	Operating costs	Fuel economy
Incentives/Rebates	Exterior styling	Incentives/Rebates (3)	Operating costs
Purchase price	Operating costs	Passenger space (3)	Exterior styling
Product quality	Incentives/Rebates	Product quality	Incentives/Rebates

*Parenthesis indicates a tie.

Entry level vehicle: For both 2002 and 2007 suppliers reported purchase price as one of the five most important purchasing decision attributes more often than did the manufacturers. Suppliers also see the exterior styling as more important than the manufacturers; whereas manufacturers see the product quality as more important than the suppliers do.

Intermediate/Family Vehicles			
Five most important purchasing decision attributes by type of panelist			
Ranked in descending order by number of mentions			
2002		2007	
Manufacturers	**Suppliers**	**Manufacturers**	**Suppliers**
Passenger space	Passenger space	Passenger space	Passenger space
Comfort/Convenience (2)	Comfort/Convenience	Comfort/Convenience	Cargo space
Exterior styling (2)	Exterior styling	Exterior styling	Comfort/Convenience
Product quality	Purchase price (4)	Product quality	Purchase price
Interior styling (5)	Cargo space (4)	Interior styling	Product quality
Cargo space (5)			

*Parenthesis indicates a tie.

Intermediate/family vehicles: For 2002, manufacturers and suppliers agree that passenger space, comfort/convenience, and exterior styling are the three most important purchasing decision attributes. For 2007, manufacturers chose the same three attributes, but suppliers replaced exterior styling with cargo space.

Luxury Vehicles			
Five most important purchasing decision attributes by type of panelist			
Ranked in descending order by number of mentions			
2002		2007	
Manufacturers	**Suppliers**	**Manufacturers**	**Suppliers**
Exterior styling	Exterior styling	Exterior styling	Exterior styling
Comfort/Convenience	Comfort/Convenience	Comfort/Convenience (2)	Comfort/Convenience
Interior styling (3)	Performance	Interior styling (2)	Performance
Performance (3)	Status appeal	Nameplate reputation (4)	Status appeal
Product quality	Interior styling	Performance (4)	Interior styling

*Parenthesis indicates a tie.

Luxury vehicle: For 2002, manufacturers and suppliers agree that exterior styling, comfort/convenience, and performance are the three most important attributes, but manufacturers see the interior styling as more important than performance in 2007.

In general, manufacturers and suppliers agree about attributes that affect vehicle decisions, though there are a few differences. For entry-level vehicles, suppliers think exterior styling will play a greater role in both 2002 and 2007. For intermediate/family vehicles, suppliers predict that cargo space will be important both in 2002 and 2007, with safety being important in 2002 and purchase price being important in 2007. For luxury vehicles, suppliers rated status appeal as important for both 2002 and 2007, while the manufacturers did not. Manufacturers noted division reputation and nameplate reputation as important in 2007, while suppliers did not.

Trend from previous Delphi surveys

In general, panelists from both Delphi VIII and Delphi IX agree about the most important considerations for passenger car-buying decisions except for the intermediate/family segment. In this segment, Delphi VIII panelists rated price, quality, and passenger space as the most important criteria, while Delphi IX panelists think passenger space, comfort and convenience, and exterior styling will be more important. The decreased importance of product quality certainly does not reflect a decrease in consumer interest in high quality products, but rather an equalization or leveling of quality across manufacturers leading to its decreased importance as a differentiator.

Strategic considerations

It goes without saying that people who purchase in different vehicle segments have different wants and needs. Panelists have taken a variety of potential attributes and identified the ones they believe are most important. For one of the vehicle segments considered here, panelists predict that desired purchase attributes may change over the long term. A potential shift in the entry-level segment from initial purchase-related costs to operating costs could signal a change in vehicle design in the segment as manufacturers opt for possibly more expensive parts or designs that result in lower operating costs.

For years, manufacturers have bought or conducted research about customer wants and needs. All too often, such research has been ignored or compromised in the give and take between different groups within the corporation, or because of financial considerations. Brand management should help clarify the focus on customer desires, rather than on competing products. All manufacturers want to create market pull with their products. This can only be achieved with excellence in the top-rated factors in a given segment.

It is interesting to note that not only do the attributes differ by product segment, they differ in the "functionality" of the attributes by segment. For example, in the entry-level segment, the practical concerns of price, fuel economy and operating costs dominate. However, in the luxury segment, more subjective attributes are deemed important: exterior styling; comfort and convenience; even status. These differences between segments have important implications for marketers attempting to distinguish their brands and differentiate their products.

MKT-9. **Please select from the following list (as in MKT-8) the five most important considerations you believe will influence personal use light truck-buying decisions in each segment. Please do not attempt to rank these attributes. Simply check the five characteristics you believe will be the most important initial considerations to the customer in 2002 and 2007. (The shaded boxes indicate the five highest ranked items)**

		Frequency Selected					
		2002			2007		
	Light Truck Attributes	Minivan	Sport Utility	Pickup	Minivan	Sport Utility	Pickup
1.	Brand reputation	4%	6%	10%	3%	6%	9%
2.	Comfort/convenience	12	7	3	14	9	3
3.	Company's country of origin	0	0	2	0	0	1
4.	Corporate reputation	2	1	1	1	0	1
5.	Country where vehicle is assembled	0	0	1	0	0	0
6.	Dealership experience/relationship	4	3	2	3	2	2
7.	Exterior styling	7	12	9	8	12	9
8.	Fuel economy	4	2	3	7	4	5
9.	Gross vehicle weight	0	0	3	0	0	2
10.	Incentives	3	1	1	2	2	1
11.	Interior styling	8	6	3	7	6	3
12.	Nameplate (model) reputation	2	4	3	2	3	3
13.	Operating cost	1	0	3	3	2	3
14.	Passenger/cargo space	15	10	11	13	8	10
15.	Previous experience with make or model	4	2	6	5	2	6
16.	Product quality	9	9	7	8	7	7
17.	Product technology	0	3	1	2	5	3
18.	Purchase price	12	7	12	12	7	12
19.	Safety	9	2	1	7	3	2
20.	Status appeal	1	13	2	2	9	2
21.	Towing capacity	0	4	7	0	3	7
22.	Vehicle performance	3	8	9	3	9	9
23.	Other	0	0	0	0	1	0
	Total	100%	100%	100%	100%	100%	100%

Other responses

Number of cupholders

Selected edited comments

- I don't think price will have that much impact in the pickup truck/SUV market for new vehicles. The customer demographics are changing so rapidly as the price increases that *new* vehicle purchasers won't be that influenced by price.

Discussion

As with passenger cars, panelists predict differing purchase criteria for different truck segments. In the near term for minivans, panelists predict that passenger/cargo space and comfort/convenience are the two most important criteria. Following these are purchase price, quality and safety. Longer term, passenger/cargo space and comfort/convenience switch places, and exterior styling supplants safety in the top five most important attributes.

Buyers will choose sport utility vehicles because of their status appeal and exterior styling, followed by interior space, quality and performance. Longer term, they will still choose them based primarily on status appeal and exterior styling, but comfort and convenience supplant product quality as a primary buying concern.

The important purchase attributes of pickup trucks, perhaps the most purpose-specific vehicles on the list, are forecast to remain the same for both the near and long terms. Those important attributes are: purchase price, passenger/cargo space, brand reputation, exterior styling and performance. In the long term, however, brand reputation becomes less important relative to the other four.

Manufacturer/supplier comparison

Minivans			
Five most important purchasing decision attributes by type of panelist			
Ranked in descending order by number of mentions			
2002		2007	
Manufacturers	**Suppliers**	**Manufacturers**	**Suppliers**
Passenger/Cargo space	Passenger/Cargo space	Comfort/Convenience	Purchase price
Product quality	Purchase price	Passenger/Cargo space	Comfort/Convenience (2)
Comfort/Convenience	Comfort/Convenience	Product quality	Passenger/Cargo space (2)
Exterior styling (4)	Safety	Exterior styling	Interior styling (4)
Purchase price (4)	Interior styling (5)	Safety	Product quality (4)
Safety (4)	Product quality (5)		Safety (4)

*Parenthesis indicates a tie.

Minivans: For 2002, manufacturers and suppliers agree that passenger/cargo space is the most important purchasing decision attribute. But manufacturers see product quality and comfort/convenience as the second and third most important attributes while suppliers chose purchase price and comfort/convenience. For 2007, suppliers and manufacturers agree that comfort/convenience and passenger/cargo space are two of the top three attributes, but suppliers see purchase price as the most important attribute while manufacturers think comfort/convenience is the most important with product quality third.

Sport Utility Vehicles			
Five most important purchasing decision attributes by type of panelist			
Ranked in descending order by number of mentions			
2002		2007	
Manufacturers	**Suppliers**	**Manufacturers**	**Suppliers**
Status appeal	Exterior styling	Exterior styling	Exterior styling
Product quality (2)	Status appeal	Status appeal (2)	Status appeal
Exterior styling (2)	Passenger/Cargo space	Vehicle performance (2)	Comfort/Convenience (3)
Comfort/Convenience (4)	Product quality (4)	Interior styling (4)	Vehicle performance (3)
Vehicle performance (4)	Vehicle performance (4)	Product quality (4)	Passenger/Cargo space

*Parenthesis indicates a tie.

Sport utility vehicles: For 2002 and 2007, exterior styling and status appeal are the two most important purchase attributes for both manufacturers and suppliers. The rest of the top attributes include product quality, comfort/convenience, vehicle performance, passenger/cargo space, and interior styling.

Pick-Up			
Five most important purchasing decision attributes by type of panelist			
Ranked in descending order by number of mentions			
2002		2007	
Manufacturers	**Suppliers**	**Manufacturers**	**Suppliers**
Passenger/Cargo space	Purchase price	Passenger /Cargo space (1)	Purchase price
Product quality (2)	Exterior styling (2)	Product quality (1)	Exterior styling
Purchase price (2)	Passenger /Cargo space (2)	Purchase price (1)	Passenger/Cargo space
Vehicle performance (2)	Brand reputation	Vehicle performance (1)	Brand reputation
Brand reputation	Vehicle performance	Brand reputation	Towing capacity (5)
			Vehicle performance (5)

*Parenthesis indicates a tie.

Pick-ups: For both 2002 and 2007, suppliers place more importance on purchase price than manufacturers do, while manufacturers think passenger/cargo space is more important. Both agree on the other important attributes except that manufacturers see the product quality as important and suppliers see exterior styling as important.

Trend from previous Delphi surveys

In general, respondents to Delphi IX agree with the panelists in Delphi VIII across all three segments.

Strategic considerations

Differences between consumer wants and needs for light trucks may be even greater than the differences between consumer wants and needs for cars, which makes sense since trucks may be used more for specific and very different purposes. Light trucks have typically been acquired to

perform work, often hauling cargo or people, in quantities greater than cars. To some degree, that focus on the truck as a workhorse has changed. This appears most strikingly in the sport utility segment, where status appeal and styling are thought to rank high among buyers.

The reversal of status appeal and exterior styling for sport utility vehicles from 2002 and 2007 shows an important move by the manufacturers possibly to evolve this segment into a more car-like vehicle combining the styling cues of a car with the functionality and ruggedness of a sport utility vehicle.

The minivan continues to be the most functional vehicle for families. It epitomizes (along with pickups) the purchase of a vehicle to fulfill a need with its emphasis on passenger and cargo space, comfort and convenience, price, quality and safety. Conversely, SUVs and pickups with high option content are purchased more on the basis of fashion. Despite what is considered the negative connotation of the minivan as a "mommy wagon", families are not going out of style and the need for a vehicle that incorporates all the features a family needs (including better gas mileage than an SUV) should keep this a high volume segment indefinitely.

In general, as with passenger cars, there are many attributes that carry at least some importance. Consequently, there appears to be ample opportunity for manufacturers to design future products emphasizing various combinations of these product attributes. Vehicles with subtle variations in the emphasis of these attributes could satisfy quite different customers.

MKT-10. Sales figures suggest that consumers are buying more trucks and fewer passenger cars. Please rate the importance of the following attributes of cars and trucks that could influence a consumer's purchase decision.

Scale: 1 = extremely important 3 = somewhat important
5 = not at all important

Attributes	Mean Response
Styling	2.0
High resale value	2.1
Multifunctionality/Greater versatility	2.1
Greater cargo space	2.2
Higher seating/better visibility	2.2
Interior room	2.2
Status	2.3
Perception of independence and toughness	2.6
Four-wheel drive	2.8
Towing ability	3.2

Other responses

Easy ingress/egress: rated 2

Fuel economy: rated 3

Higher seating/Better visibility for women : rated 2

Performance/Handling: rated 2

Perceived safety: rated1 (2 responses)

Purchase price: rated 2 (2 responses)

Safety: rated 2 (3 responses)

Weight: rated 1

Other attribute: rated 3

Do you think this trend will continue? Why?

YES (54% Responses)

- Barring some major legislative or fuel crisis, I think it will continue.
- Everybody needs one! It's the Feeling of doing something a little on the wild side.
- Trends toward trucks will continue and reach 50 percent of the market by 2000. Greater focus will be used in development of small SUVs. Manufacturers must build brand loyalty with trucks, or SUVs off car platforms will become more prevalent
- Yes, attractiveness for all ages. Multipurpose vehicles fit future lifestyles.
- Yes, because the above reasons will remain. CAFE regulation was largely responsible for reducing the functionality of cars. Consumers naturally turned to "trucks" to fill their needs.

- Yes, because cars can improve incrementally to the personal use buyer, but trucks still can improve exponentially
- Yes, because the perception is that you get more vehicle for your money. It will continue until gas prices rise substantially. This makes the U.S. automotive market unique compared to Japan and Western Europe.
- Yes, because of versatility and status of SUV.
- Yes, but segments are likely to shift toward SUVs from minivans. Upper limit is unclear, maybe 60 percent trucks. The reason is that light trucks have greater versatility and the consumer gets more bang for their buck. We may see the return of the station wagon.
- Yes, families are smaller and have more vehicles.
- Yes, for 3 to 5 years. The overcapacity situation will assure high market penetration at lower average prices. I think the next level of market growth for this segment will combine the advantages of trucks with the comfort of a passenger car.
- Yes, increasing demand for minivans, sport utilities, and cars. The customer now has different tastes.
- Yes. Light trucks allow for more individuality and are still somewhat less subject to regulation than passenger cars. They tend to be conventional in that they are still RWD (N/A to minivans) and of body/frame construction. (Not everyone thinks FWD is the best idea!)
- Yes, people are getting larger each generation, and have more precious free time.
- Yes. People still enjoy the image of the truck. Disposable income from the baby boomers will prolong the trend.
- Yes, the customer continues to demand a more luxurious feel and ride from his light truck (from the SUV and the minivan: the pickup truck is a bit different). This shows that it's replacing the luxury car for many. It has luxury appeal and much more versatility—tows, holds more people, more cargo, people feel safer higher up, can see better. Safety is evermore an issue—kids can be belted in, they don't sit freely like they used to in the back of a station wagon. It's a family vehicle, yet "cool" looking for the parents to drive to evening events on their own
- Yes. The overall utility of light trucks is far superior to most passenger cars, particularly with trucks now offering car-like comfort/convenience, ride, and performance qualities. Multifunctionality/greater versatility a key attribute.
- Yes, the trend will continue. The vehicles are bigger, safer, and more convenient for customers. They are penetrating outside of the typical "family" market due to these factors.
- Yes. There will be hybrid vehicles emerging as a cross between a car/truck to take advantage of the critical characteristics of each and present them in a new vehicle platform.
- Yes! "Trucks" are not trucks, the segmentation is out of date. These vehicles suit people's lifestyles, not what automakers have traditionally made. Consumers know what they want without accepting what is made.

NO (36% of responses)

- First, affordability will keep many consumers out of the SUV craze. Second, SUVs are beginning to be perceived as another form of a mom van, so in 5 years the status of an SUV

will have turned against the vehicle. Instead, there may be a growing interest in station wagons again in 7-10 years, (e.g., the Subaru Forester).

- I think that the market is close to 50/50 car truck and I don't expect it to go much beyond 50/50 unless the aging population decides it must have a truck, minivan, etc.
- I think we will see a new trend develop which will be a sport utility vehicle built off a car platform. Current trends won't continue.
- No, already signs are being seen that this trend is coming to an end. Fifty-six percent of lessees of SUV's are purchasing/leasing passenger cars. Its appeal is starting to wane (ruggedness, status, trendiness, etc.).
- No. After you own a truck for awhile you find out it isn't very useful.
- No, as baby boomers get older they will change from sport utilities to luxury cars.
- No, as middle age families/parents age, they will shift back with more emphasis on comfort.
- No—due to the realization that: 1) 4WD is little used; 2) "high up" seating isn't worth so much; 3) interior room is not much better than cars in terms of used space; 4) "hybrid" cars will combine the best of both worlds.
- No. Minivans are purchased for utility for people with children. The baby boomers are getting older and past the family building age. The next generation is much smaller than the baby boomer generation. Therefore minivan sales have to drop. SUVs appeal to the affluent baby boomers. They are substitutes for luxury cars. This is a reasonably small market. It has gone through most of its growth curve, although there is some growth left. Pickups have peaked for recreational buyers. Work-related buyers are not increasing.
- No, no trend continues indefinitely, e.g., light trucks made a strong run in a share of the market in the late '70s and a fuel crisis stopped it in its tracks. No one knows what would derail the current momentum, but a change is highly likely at some point.
- No, people are more concerned about vehicle attributes than a specific vehicle type label, i.e., higher seating/visibility coupled with perception of "go anywhere" ability, coupled with inexpensive operating cost.
- No, people will grow tired of the truck ride; products will resemble the Subaru "Outback" and Audi's Quattro models (but a little taller). The new Lexus SUV and Mercedes M Class are getting close to what people will want in an SUV. It also depends on what the OEMs call/categorize these new vehicles, since they are tall station wagons on car platforms, I believe they will call them trucks to get around softer regulations, etc.
- No! The prices are getting too high and the customer demographics will change. The boomers will return to passenger cars.
- Not much longer. Distinction is blurring. It will likely be difficult to "car-truck" classify new entries in the post 2002 time frame.
- Other new segments will be created that will bring customers back to cars.
- Ride quality and comfort may start to take precedence over utility in the future.
- The trend is moving toward multipurpose passenger-type cars, such as sport wagons with all-wheel drive.

- Trucks have hit a saturation point that's about one half the market replacing luxury and near-luxury vehicles. These buyers will probably come back to these vehicles after one or two rounds of owning an SUV or pickup.

OTHER RESPONSES: Short term/Long term considerations: *(9% of responses)*

- In the short term, until specific niches are identified and met. Longer term will level off as lifestyle changes will shift some customers back into car segments or segments that haven't been identified yet.
- Only in the short term until the 98MY or 99MY, and will then level off.
- Short term—Yes;utility, luxury trucks/SUVs will be demanded by aging boomers. Long term—no; nothing lasts forever.
- Trend towards SUV sales will level out in three years. Trends towards versatility, durability, and performance will continue relative to increased demands on light vehicles with higher sticker prices.
- Until trucks are brought up to passenger car standards for safety, fuel economy and emissions—consumers will continue to purchase light trucks over cars. The trend is already showing signs of slowing due to product pricing and demographic reasons.

Discussion

Panelists have rated a number of truck attributes for importance to consumers, relative to cars. Of these, seven emerge as having the greatest influence: styling, high resale value, multifunctionality, greater cargo space, higher seating/better visibility, and interior room. Panelists offered other reasons for why light trucks have enjoyed heightened popularity lately; those reasons are listed above.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

This question was posed as an open-ended question in the previous Delphi forecast. Therefore, trend comparisons are not possible.

Strategic considerations

Trucks continue to attract buyers in droves, despite predictions that the market is ready to collapse, as buyers' tastes change. New truck models, particularly in the sport utility segment, are introduced regularly, especially in the luxury end.

The latest development is the invention of the hybrid vehicle, a term used to describe vehicles like the Subaru Forester, which combine attributes of both cars and trucks. Typically based on cars, they represent a compromise that tries to capture the ride and handling of cars with the functionality of trucks. Hybrids may turn out to be the "revenge of passenger cars," since they tend to be passenger-car-based and modified to look more like trucks. Truck purists might claim that these vehicles offer the appearance, but not the performance of a truck, but that might be enough to move some truck buyers into them.

From a regulatory perspective, success may be the undoing of the truck market. Trucks are subject to less regulatory interference (emissions, crash, fuel economy) than cars. This may change as they become the primary vehicle for so many drivers, and their use for transporting passengers becomes as common as their traditional commercial uses. In addition, there is growing concern about disparity in size and weight between trucks and cars. There is some evidence that in a typical accident situation between a truck and a car, the frailer, smaller car absorbs a disproportionate share of the impact energy. Trucks may come under more and stricter regulatory scrutiny, and this may force modifications in design that diminish their appeal.

Panelists are divided on whether the truck-buying trend will continue. Those who say it will continue cite reasons such as:

- Greater utility and flexibility
- More vehicle for the money
- SUV versatility and status

Those who say it will not continue cite reasons such as:

- Baby boomers will move to luxury/near luxury for comfort
- Hybrid vehicles that are a combination of cars and trucks will appear
- Possible changes in fuel prices, safety, or emissions regulations could stifle sales

MKT-11. Please estimate in constant 1997 dollars the manufacturers' suggested retail prices (MSRP) in 2002 and 2007 for a base model in each of the given segments.

MSRP	Estimated 1997*			Median Response 2002			Interquartile Range 2002		
	Big Three	Japanese	European	Big Three	Japanese	European	Big Three	Japanese	European
Passenger Car									
Entry level	$11,040	$11,473	---	$12,000	$12,500	$13,000	$11,800/12,500	$12,000/12,800	$13,000/14,000
Intermediate/ family	18,904	17,162	19,430	20,000	19,500	21,000	19,000/20,000	18,688/20,050	20,100/22,000
Luxury	35,650	34,859	35,003	38,000	37,500	38,850	37,000/39,054	36,225/39,000	37,000/40,125
Light Truck									
Pickup	15,526	11,919	---	16,500	14,000	17,000	16,000/17,020	13,000/15,000	16,000/18,000
Sport utility	21,222	20,979	42,475	23,000	23,000	40,000	22,000/24,000	22,000/24,000	35,000/44,000
Van	18,800	22,317	---	20,000	22,900	23,000	20,000/20,760	21,375/23,475	22,000/24,000

MSRP	Median Response 2007			Interquartile Range 2007		
	Big Three	Japanese	European	Big Three	Japanese	European
Passenger Car						
Entry level	$13,200	$13,500	$15,000	$12,270/14,000	$12,890/14,000	$13,800/16,000
Intermediate/ family	21,200	21,500	22,750	20,000/22,592	19,500/22,150	21,050/24,000
Luxury	40,000	40,000	42,000	38,775/42,375	38,000/42,250	39,150/44,500
Light Truck						
Pickup	18,000	16,000	18,100	17,000/18,875	15,000/17,775	17,000/20,500
Sport utility	25,000	25,000	42,000	23,000/26,000	23,000/26,250	35,500/45,000
Van	22,000	24,150	25,000	20,150/22,893	22,700/25,000	24,000/26,375

* Source: Edmund's, Nov. 1996 and Ward's Automotive Reports, "U.S. Light-Vehicle Sales by Type and Source," Jan. 13, 1997.

Selected edited comments

- Assume 3.0 percent inflation plus added content, both regulatory and consumer driven.
- Cost reductions will continue to force prices down as the market becomes more competitive.
- Increases driven purely by mandated content (e.g., for safety, CAFE) and by mix changes (e.g. larger Japanese pickups, lower cost European SUVs). Prices should converge as globalization continues. Europeans should re-enter entry level market and enter van market.
- Price increases are due largely to government regulation and consumer demand for increased content.
- Pricing will be driven as much by demand for technology (personal desire and legislative requirements) as by economic factors.

Discussion

Panelists forecast that vehicle prices will rise in the future, by between 3 percent and 17 percent in the near term, and an additional 5 percent to 14 percent in the long term. There is one instance where prices in a vehicle segment are thought to actually decrease: in the near term, panelists forecast that prices for European sport utility vehicles will fall percent.

Interquartile ranges for these price estimates are fairly tight, indicating a strong degree of agreement among panelists. The exception in both short and long terms is sport utility vehicles, with an unusually broad interquartile range.

In any given segment, panelists forecast that European makes will have higher list prices than makes from the United States or Japan.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

In general, the percentage increases panelists predict for Delphi IX are less than those predicted by panelists for Delphi VIII. Delphi VIII panelists were predicting prices for the years 2000 and 2005 compared to 2002 and 2007 for Delphi IX panelists, but their estimates are based on constant dollars for the 1995 Delphi VIII and 1997 Delphi IX, respectively. These decreasing percentages show a marked trend of all manufacturers to make their vehicles price competitive, in particular because the weak yen makes Japanese imports less expensive.

Strategic considerations

Though consumers are becoming more focused on the monthly payment rather than the price of the vehicle (MKT-14), the MSRP itself is still one of the factors consumers use to place a vehicle on their consideration list when shopping for a new vehicle. The forecast for this survey, which shows a marked percentage decrease for every segment compared to our previous forecast (Delphi VIII), may be the first response to price reductions announced by some manufacturers during the 1998 model year.

As manufacturers continue to reduce cost by eliminating excess costs in their supply chains, engineering, and manufacturing processes, and distribution systems, reducing prices on vehicles competes with (among other things) spending on new product development that will keep them competitive in the future. This competition or balance between price reductions and new product development plays itself out again in the balance engineering must strike between technological innovation that will truly "surprise and delight" consumers versus innovation that adds cost to the vehicle without adding commensurate value to the consumer. This challenge is best met with a cross-functional team that includes marketing personnel who can help engineering understand the target market and the price point that will make a vehicle serious competition in a segment.

Also, as the price of an entry-level vehicle increases, it begins to compete with larger, better-equipped nearly new vehicles coming off lease. Their competition is a serous threat to the entry-level segment, and it will force manufacturers to seriously re-think how to price and sell in this segment.

Clearly, with the level of competition today and expected in the future, all costs will be attached with vigor in order to reduce price increases and improve profitability. We appear to be entering a period of deflationary pricing, which suggests that competitive environment is entering the next and

far more challenging stage. This may trigger the shake-out many of us have been expecting for some time.

MKT-12. What do you expect will be the average new passenger car loan amount financed, in constant 1997 dollars, and the average maturity (in months) in 2002 and 2007?

Passenger Car Loans	Est. 1995*	Median Response		Interquartile Range	
		2002	2007	2002	2007
Average amount financed	$16,210	$18,000	$20,000	$17,000/19,000	$18,000/23,000
Average maturity	54 months	56 months	60 months	54/60 months	54/63 months

*Source: AAMA Facts & Figures, 1996 p.59

Selected edited comments

- Affordability is a major issue. The demographics of who *can* and who *is willing* to pay for new vehicles will shift over the next ten years. Auto companies need to pay close attention to who the real customers are.
- Feature content will increase, driving new vehicle prices higher, which will not be totally offset by manufacturing efficiencies
- Leasing will continue to grow especially in the price range over $20,000.
- Maturity should increase as first owner holding period and vehicle durability continues to increase.
- Regulations and safety content will increase cost and life of vehicles.
- We are nearing the limit of what consumers will pay for new vehicles without causing a significant drop in sales.

Discussion

Panelists predict a small increase in both the amount of the purchase price financed and the number of months consumers will take to pay off a loan. The amount financed is predicted to rise 11 percent for the period between 1995 and 2002, and an additional 11 percent between 2002 and 2007. The average loan term will increase to 56 months by 2002 and to 60 months by 2007.

Manufacturer/supplier comparison

Suppliers predict that the average maturity for car loans in 2002 will be a bit more than 57 months. Manufacturers predict a shorter term of 53 months.

Trend from previous Delphi surveys

In the short term, panelists have predicted a decrease in the length of the loan term, to 56 months from the prior forecast's 58 months. This represents a reversal from Delphi Forecast VII to Forecast VIII, which showed an increase in the loan term. However, the amount financed continues to increase. Delphi VIII panelists forecast a median amount of $16,000 to be financed. The latest panel forecasts that amount to grow to $18,000.

In the long term, the current forecast for loan term is identical to the previous one, at 60 months. The median loan amount has grown to $20,000 from $18,000.

Strategic considerations

Delphi forecast panelists continue to predict lengthening loan terms, as well as growing principals. Probably the latter is driving the former, since many, if not most, consumers the view monthly payment as their most important financial concern.

Despite recent observations about vehicle affordability, increases predicted here seem relatively modest. In some ways, monitoring borrowed amounts is a more realistic indicator of changing vehicle affordability since it more accurately measures the genuine impact on household budgets than MSRP or even transaction prices, which ignore the value of a trade-in.

MKT-13. Please estimate in percent the payment method for new passenger cars and light trucks in 2002 and 2007.

		Passenger Car			
		Median Response		Interquartile Range	
Payment Method	Est. 1996*	2002	2007	2002	2007
Personal loan	70.1%	65%	60%	60/67%	55/65%
Personal lease	25.2	30	35	30/35	30/40
Cash	4.0	4	4	4/5	4/5
Other	0	0	0		
Total	100%	100%	100%		

		Light Truck			
		Median Response		Interquartile Range	
Payment Method	Est. 1996*	2002	2007	2002	2007
Personal loan	70.1%	65%	61%	61/69%	55/65%
Personal lease	25.2	30	35	26/32	28/39
Cash	4.0	5	4	4/5	4/6
Other	0	0	0		
Total	100%	100%	100%		

*Source: CNW Marketing/Research, Auto Trak, 1996

Selected edited comments

- A lease payment will be as routine as a rent or mortgage payment by 2007.
- A trend is beginning that provides the market with transportation as a utility, rather than specific cars and trucks. Leasing the transportation "service" will increase.
- Baby boomers will have more postretirement wealth than their parents and therefore will be able to purchase without financing.
- Expanding SUV sales will increase leasing payment methods due to higher sticker price.
- Truck leasing will increase disproportionate to cars, as trucks become more expensive.

Discussion

Panelists forecast that personal loans will decline in use, with an identical increase in leasing. The use of cash will remain infrequent.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

The current survey differed dramatically from the previous one. One explanation for this is that OSAT used a different source for baseline data, with significantly different baselines for the prior forecast. This makes plotting or analyzing trend information difficult and inadvisable.

Strategic considerations

Leasing continues to grow in popularity. Why is this the subject of much debate? Are cars and trucks growing in price to such an extent that they become inaccessible without a lease? Or does leasing permit consumers to indulge their longing for something more upscale but out of reach with conventional financing? The information we have here is not enough to support either hypothesis.

It is interesting to consider that many people have now been through an entire lease cycle on a vehicle and have dealt with excess mileage charges, fees for unusual wear and tear, confusing residual values and no equity. Little research seems available yet to determine the reaction of first-time lessees.

There has been much speculation on the impact of leasing on vehicle prices. Some observers predict that leasing, with its shortened ownership cycles, will result in nearly new vehicles flooding the market and depressing new car sales and prices. This is possible to some degree but widespread defection to used vehicles is impossible in the long run since new cars must continually feed the supply of used ones or supply dries up. Somebody has to acquire new cars or else no nearly-new vehicles can become available. Fashion, economic conditions, business cycles and scrappage rates probably play a more significant role in determining new car sales than financing trends.

Leasing and its emerging prevalence could open the door for even more creative financing or acquisition arrangements. Leasing breaks with the conventional finance experience, with its opportunity for equity and no more payments. Unless people who lease buy the vehicle at the end of the lease term, they likely will commence a new lease and a new set of monthly lease payments. For some people then, leasing means an unending series of car payments. One panelist observed that a market is developing for "transportation providers," who presumably offer a variety or sequence of vehicles to customers over a period of time for a single lease price.

MKT-14. Affordability concerns continue to be discussed in the automotive press. To what extent do you agree or disagree with the following statements regarding new vehicle affordability?

Scale: 1 = strongly agree 2 = neither agree nor disagree 3 = strongly disagree

Affordability	Mean Response
Consumers are less concerned with the retail price of a vehicle than with the monthly payment.	1.9
Leasing permits a consumer to drive a more expensive vehicle than he/she could with conventional financing.	1.9
Increasing vehicle prices are likely to have a significant dampening effect on new car sales in the future.	2.2
Consumers drive up the price of vehicles by desiring more and more features.	2.3
Manufacturers drive up prices by offering only fully loaded vehicles.	2.4

Selected edited comments

- Affordability is the most important issue facing the industry. It will be addressed by holding the line on retail prices. If prices increase at present rates, we will see sales drop in response, possibly by 5-10 percent below current levels.
- Financing arrangements, such as leases, will continue to permit the acquisition of expensive vehicles.
- Government regulations and market conditions do more to drive up prices.
- I believe that leasing just makes people think they have a more expensive car because they do not understand the value of money over time.
- I think the affordability issue will keep the automotive market dampened although it may still grow. Monthly payment is very important to new car buyers. Used car buyers are much more concerned about total cost (price) of the vehicle they are purchasing.
- Manufacturers offer loaded products because that's what consumers want.
- Prices rise more from consumer demand for content and features than from manufacturer inefficiencies or greed.
- Vehicle prices continue to increase while suppliers are pressured for cost reductions year after year. Who is making out here?
- Waste at all levels of supply and manufacturing causes price increases.

Discussion

Panelists agree most strongly with the assertions that consumers are more concerned about monthly payment than total vehicle price, and that leasing permits a consumer to acquire more vehicle than he might have been able to with conventional financing. Overall, though, panelists generally agree with all statements in this question.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

This question was not asked in prior Delphi forecasts.

Strategic considerations

The industry continues to wrestle with the issue of vehicle affordability. The issue is a complicated one and we have tried to clarify it somewhat by testing some general assertions with our panelists. Panelists agree with the statements listed here, which represent some commonly accepted hypotheses relating to vehicle prices and affordability.

Given a certain level of truth in these statements, how does each interact with the affordability issue?

Consumers are less concerned with the retail price of a vehicle than with the monthly payment.

The implications of this statement are that financing plays a very important part in determining the amount a consumer can spend on a vehicle. While the cash or transaction price of a vehicle is limited to a relatively narrow range, the monthly payment can vary greatly, depending on the type of financing (purchase or lease), down payment, or even unconventional arrangements, such as loans with balloon payments. Therefore, lenders who offer creative financing may have some opportunity for gaining market share.

Consumers drive up the price of vehicles by desiring more and more features.

New vehicle buyers often find it hard to resist adding on the latest features. This is fueled by the wide availability of features even on fairly low-level vehicles. For some consumers, with the price of a vehicle already so high, the charges for additional, extra-cost features are easy to justify.

Increasing vehicle prices are likely to have significant dampening effect on new car sales in the future.

This statement captures the essence of the affordability concern. Traditional, but simplistic, economic models predict that as prices go up, sales go down. Testing such a model is complicated in the auto industry with its business cycles, vulnerability to interest rates, general economic well being, and other factors. In some ways, personal transportation represents a unique consumer good since people use cars and trucks for job-related commuting (income generation), personal expression (fashion) as well as the more commonly-recognized mobility needs. Because it fulfills these personal and practical concerns, cars and trucks may have a measure of invulnerability to the traditional deleterious effect on sales of rising prices. Still, panelists agree with the statement and certainly have a basis for believing as they do. Recent efforts by manufacturers to hold the line on prices, or in some cases, even reduce them, may be recognition of an affordability problem. Alternatively, such pricing actions could merely represent jockeying for competitive advantage.

Leasing permits a consumer to drive a more expensive vehicle than he/she could with conventional financing.

Leasing may play a significant role in rising vehicle prices. With its comparatively lower monthly costs and a complicated lease agreement that often disguises the true cost of the vehicle, leasing provides a safety valve of sorts, relieving pressure on consumer pocketbooks for rising prices. However, as more consumers gain experience with leasing, and many decide the experience was not pleasant or financially advantageous, a return to conventional financing could pose problems for both new and used car values. The industry should therefore be very concerned that leasing is allowing people to select expensive vehicles they might not choose if they purchased.

Manufacturers drive up prices by offering only fully loaded vehicles.

Relative to the other statements, panelists agree with this statement less strongly. The reasoning behind this assertion is that if manufacturers don't offer or if they regularly eliminate low-priced models or trim levels, consumers don't have much choice but to buy higher-priced vehicles. Similarly, if fully optioned vehicles are all that's available, the result is the same. In addition, options packaging may compel the buyer to pay for what he doesn't want. On the other hand, some of the lowest-priced models have struggled in the marketplace, often despite generous incentives from manufacturers attempting to improve corporate CAFE calculations. Within a model line, the least expensive trim level rarely sells the most.

MKT-15. How important are the following factors in influencing consumer-buying decisions?

Scale: 1 = extremely important 3 = somewhat important 5 = not at all important

Factor	Mean Response
Experience with current make and model	1.5
Operating and insurance costs	2.6
Standings in market research organizations' surveys (i.e., J.D. Power)	2.6
Advertising campaigns	2.8
Crash test ratings	3.3
Opinions of car buff magazines	3.5

Other responses

Consumer publications: (2 responses)

Dealership experience

Image of vehicle

Media attention (negative)

Recommendation from friend/acquaintance: (6 responses)

Selected edited comments

None

Discussion

Panelists rated some commonly used criteria influencing consumer purchase decisions. Experience with current make and model was considered the most important among these. The opinions of professional automotive writers were thought to be much less important compared to experience.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

This question was not asked in prior Delphi forecasts.

Strategic considerations

Consumers use a combination of facts, opinion, analysis and emotion in choosing what kind of car or truck to buy. They consult various sources for information and opinion. They reflect on personal experiences and those of friends and relatives. They evaluate advertising promises. They

read and reflect on the writings of enthusiast magazines. All of these sources, and others, provide useful insights.

Delphi panelists think that some of these sources are more important than others. For example, nothing counts like actual experience with a current vehicle. A positive ownership experience makes the possibility of repurchase more likely. A poor experience can forever remove a brand from a buyer's consideration list.

Ad agencies should be pleased to know that people are watching their ad campaigns and processing what they are told with some degree of seriousness. The findings of market research organizations like J.D. Power, however, are considered (slightly) more important than the claims of advertising. Perhaps J.D. Power satisfaction surveys hold credence because they provide a quantitative gravity to the evaluative process that, say, buff magazines, don't. Another reason for their respect is that they presumably reflect the real-world experiences of drivers who actually own a vehicle under consideration.

Operating and insurance costs, specific and easily definable parameters, are considered as important as customer satisfaction data. Crash test information, another specific data bit, is considered only moderately important to consumers. That may be because such information is too specific to play a leading role in decision making or maybe because interpreting NHTSA's "star" system is too complicated.

MKT-16. What will be the source, in percent, of financing retail passenger car and light truck purchases in 2002 and 2007?

Source of Vehicle Financing	Est. 1995*	Passenger Car			
		Median Response		Interquartile Range	
		2002	2007	2002	2007
Commercial and savings and loans banks	42%	40%	39%	37/42%	32/42%
Manufacturer financing	31	33	35	30/35	30/40
Credit union	22	22	22	20/25	20/25
Other	5	5	5	5/5	5/5
Total	100%	100%	100%		

Source of Vehicle Financing	Est. 1995*	Light Truck			
		Median Response		Interquartile Range	
		2002	2007	2002	2007
Commercial and savings and loans banks	42%	40%	39%	37/42%	33/42%
Manufacturer financing	31	33	35	30/35	30/40
Credit union	22	22	22	20/25	20/25
Other	5	5	5	5/5	5/7
Total	100%	100%	100%		

*Source: "Automotive Finance Study", conducted by the Credit Research Center at Purdue University for Consumer Banker Assoc.

Other responses

Brokerage houses, dealer groups: 15% across Personal investment: Passenger car — 2002: 5%; 2007: 10%; Light truck — 2002: 5%; 2007: 5%

Mega Dealer Finance Co.: Passenger and light truck — 2002: 5%; 2007: 10%

Retailer financing: Passenger car and light truck — 2002: 7%; 2007: 10%

Securitized assets: Passenger car — 5% (2002, 2007); Light truck — 6% (2002, 2007)

Superstores: Passenger car and light truck — 2002: 9%; 2007: 11%

Selected edited comments

- Credit union financing will slow due to membership rule enforcement required by the government.
- I believe the ability to use home improvement loans for car purchases will drive more consumers to banks.

- Older people will dip into cash savings once they are sure they have enough cash to finish out retirement until death.
- The manufacturer will have even greater competitive advantages in the future.

Discussion

Panelists forecast that, for both cars and trucks, commercial lending institutions will supply slightly less financing in the future, while manufacturer-captive finance units will supply slightly more. Credit unions and other minor sources of funds will maintain their share of financing.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

There are very modest changes from the previous Delphi forecast. The only difference worth noting is that in both short and long terms, panelists forecast a lower share of manufacturer financing than they did in the prior forecast.

Strategic considerations

Credit Unions will remain a popular source of funds for car buying probably because of their loyal members and favorable rates. Manufacturer finance arms are forecast to grow slightly and this may be due to their ambitious financing programs. Moreover, as manufacturers further define their brand management strategies, they may find ways to incorporate financing programs into customer retention and loyalty efforts. For example, they may reward repeat customers with lower interest rates. If they do, that would likely increase their share of financing.

MKT-17. One-price, no negotiating retailing has become an important selling tool within certain segments and regions of the country. Do you believe this will become a more widespread method of passenger car and light truck retailing over the next five years?

Scale: 1 = substantially increase 3 = no change 5 = substantially decrease

One-Price Sales Trend	Mean Response 1997 - 2002
Passenger car	2.1
Light truck	2.3

Selected edited comments

- As a Saturn owner, I found their approach very refreshing.
- Everyone says this is the way they want to buy cars! Buying through brokers and the Internet will increase sharply.
- One-price retailing eliminates the buyer's biggest fear in purchasing a new vehicle. Dealerships will compete more on service than on sticker price.
- This allows consumers to "shop" while avoiding perceived conflict.
- With trade-ins, people are more concerned about total transaction amounts and feel they are negotiating by haggling on the trade-in value of an old vehicle. A fixed sticker price with no trade-in makes people feel that they are not getting "best buy" price.

Discussion

Panelists forecast that the use of one-price selling will increase moderately during the next five years. The increase for cars is forecast to be greater than the increase for trucks.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

In the previous forecast, panelists predicted that a one-price sales approach would become significantly more common. For both cars and trucks, they predicted an even greater use of this sales technique.

Strategic considerations

Manufacturers and dealers alike are experimenting with many ways to improve the buying process and experience. The automotive bartering process is often cited as one of the most unpleasant experiences consumers encounter (although many buyers tell report in surveys that

they like to negotiate). In an effort to by-pass the negotiating process, many dealers have attempted to assign immovable prices to their cars in inventory. The results have been mixed. Many buyers appreciate not having to haggle, but others worry that the one-price deal isn't the dealer's "best price." Some dealers have found that buyers get the one-price deal and shop it around to other dealers to get a better deal.

Interestingly, there is a slight difference in forecasts between the use of one-price deals for cars and for trucks. Panelists predict one-price deals will be more commonly used for car sales than for truck sales. One explanation for this might be that the current popularity of trucks allows strong profits for both dealers and manufacturers. Consequently, the dealer has little incentive to offer a "best price" deal from the outset; he would rather negotiate a little to preserve the possibility of a big profit. Possibly, the car market is more competitive, with already low margins. Under the circumstances, it is easier to offer one-price selling.

MKT-18. There are increasing attempts to improve the buying process and ownership experience, particularly at the retailer. How important are the following changes at the dealership to future customer satisfaction?

Scale: 1 = extremely important 3 = somewhat important
5 = not at all important

Dealership Changes	Mean Response
Sales procedures	
Expanded financing arrangements	2.2
Computer-interactive systems to demonstrate available models, features, colors, etc.	2.4
Maintaining databases on customer preferences and demographic information	2.6
One-price pricing	2.7
Home sales and/or delivery	3.0
Sales personnel	
Reduced confrontation	1.4
Consultative style more than "hard sell"	1.5
Better product knowledge	1.8
Dealer operations	
Extended hours for service and sales	1.5
Greater efforts to retain existing customers	1.7
Shorter delivery times	2.0
Increased services at the dealership (e.g., insurance)	2.6

Selected edited comments

- Convenience and service will be key for the next ten years.
- Dealers – better service option – less time, quick turnaround for repairs!
- I am a true believer in the "Saturn method" of selling, servicing, and repairing a vehicle.
- Manufacturers need to support shorter delivery times.
- There will be more fragmentation in selling styles. Some consumers prefer the hard sell (they like to bargain) and some dealers will thrive with this approach.

Discussion

Panelists rated various aspects of dealer service and sales. In sales procedures, they believe that expanded financing and computer-interactive systems are the two most important changes to be made in the future. Sales personnel, they predict, will engage in less confrontation-style selling, instead relying on superior product knowledge and a consultative style to sell cars. Finally, dealerships will increase hours of operations in order to provide convenience to customers.

Manufacturer/supplier comparison

Manufacturers and suppliers generally agree except for their predictions about two sales procedure changes. First, suppliers consider expanded financing arrangements to be significantly more important than manufacturers do. Second, maintaining databases is thought to be significantly more important by manufacturers than by suppliers.

Trend from previous Delphi surveys

This question was asked in Delphi Forecast VIII as an open-ended question instead of a scaled one. For that reason, trend analysis is not possible.

Strategic considerations

Although panelists don't say so specifically here, there is growing sentiment in the industry that service and the buying experience are growing more important to customers when choosing a new car or truck. For most customers, both are experienced at the dealer.

Generally, respondents forecast that future customer satisfaction rests on changes in sales personnel behaviors and dealer operations, although there is also room for improvement in sales procedures. To better customer satisfaction, it is predicted that a new kind of sales approach will need to emerge, although certainly this is underway already. Undesirable sales behaviors may have more to do with the system that sales people operate under today than with a lack of training or understanding of modern selling methods. Most dealers have a limited product line, as well as a commissioned sales staff. The pressure to meet sales goals and earn commissions selling only a few brands makes it difficult to genuinely take a customer's wants and needs into account.

One way to make the salesperson more consultative and less confrontational might be to broaden training and product lines, giving customers more choices. It would also put less pressure on the salespeople in their competition to sell whatever make the dealer sells. This would require a major change in the distribution system as it currently exists since salespeople usually are limited to only the few makes in the typical showroom. In addition, training helps salespeople learn new selling skills and negotiating techniques that seem less menacing to buyers. Fortunately the industry has a role model in Saturn: an adequate product supported by superlative customer treatment and service.

Related to the salesperson's role changing are the related services the dealership offers. Additional or improved financing arrangements are considered very important, possibly to help buyers cope with increasing vehicle costs.

MKT-19. The Internet offers new opportunities for sales and marketing efforts. From the list below, please forecast, for 2002 and 2007, how much the Internet will be used in sales and marketing endeavors. Please circle your answer where:

Scale: 1 = a great deal 3 = somewhat 5 = not at all

Internet Opportunities	Mean Response 2002	Mean Response 2007
Providing information about specific makes and models	1.4	1.1
Advertising by the manufacturer	1.8	1.5
Obtaining customer feedback about ownership experience	2.1	1.6
Communicating with customers (manufacturer or dealer)	2.4	1.7
Advertising by the dealer	2.5	1.8
Conducting a sales transaction	2.7	2.0

Other responses

(2002): Dealer (or other) communicating with manufacturer: rated 1

(2007): Different form of car sales—Fewer sales people needed: rated 1

(2002): Other opportunity: rated 1

(2007): Other opportunity: rated 1 (3 responses)

(2002): Other opportunity: rated 2

(2002): Pricing: rated 3

(2002): "Push" service incentives to vehicle owners: rated 2

(2002): Recall announcements (not official notifications)

(2007): Service Appointment: rated 2

(2007): Special order from factory: rated 2

Selected edited comments

- In the future, dealerships will provide test drives and repair and maintenance only.
- The actual transaction will stay with the dealer.
- The Internet will increasingly play a more significant role in all aspects.
- The Internet will provide a means for manufacturers and dealers to differentiate their services.

Discussion

Panelists forecast that, in the near term, the Internet will be used extensively as a make and model information source, as well as for advertising by the manufacturer. Other uses will be used

less extensively, and the actual purchase of a vehicle is forecast to be only moderately used. In the long term, advertising and information remain the most prevalent uses, but the others will be used more extensively. Even conducting a sales transaction is forecast to become a common use.

Other panelist-suggested opportunities include scheduling service at the dealership and placing special orders from the factory.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

This question was not asked in previous Delphi surveys.

Strategic considerations

The vast network of connected computers called the Internet and its most common interface, the World Wide Web have been hailed as a communication system of revolutionary proportions. Naturally the auto industry is considering how the system can be used for strategic and competitive advantage.

Panelists believe that the system is evolving in that for all opportunities, long term Internet use is greater than in the near term. A possible explanation for the increased use in the long term is more people will be connected in the distant future than in the near future. In addition, companies who seek to market on the Internet are on a learning curve just like users, just beginning to understand how best to use the system and make it supplement or supplant existing modes.

From a user standpoint, it will be interesting to see who uses the Internet and for what auto-related purposes. Presumably, the highly proficient computer user will examine what is available on the Web. But if this user is not particularly knowledgeable about cars or needs advice in choosing his next vehicle, the Internet may not provide enough information to actually buy a car. Similarly, the buyer who has already decided what he wants, but doesn't happen to own a computer or feel comfortable using computers may not find that the Internet meets his or her needs.

An important issue for manufacturers and their dealers is coordinating their efforts on the Web. There is the potential for working at cross-purposes and even confusing or alienating consumers. This kind of concern is not foreign to the two parties, as advertising has been an occasionally contentious issue: dealer ads focusing on price and great deals counteract the manufacturer's image advertising.

For some observers, the Internet solves one of some customers chief complaints: dealing with salespeople. Some people think the Internet will advance to a point where customers will be able to purchase their vehicles without the need to visit a showroom. However, franchise laws in place today make it nearly impossible for the manufacturer to develop such a system.

It is important to keep in mind that the Internet is a new phenomenon. It remains to be seen how it is best put to use. No one knows for sure the extent to which it will solve or cause problems.

MKT-20. Numerous characteristics describe the U.S. dealership network. Please indicate your 1997 - 2007 trend forecast for each of the following characteristics.

Scale: 1 = sharply increase 3 = no change 5 = sharply decrease

Dealer Trend	Mean Response 1997 - 2007
Number of "megadealers" (chain ownership)	1.5
Number of motor malls	1.9
Number of vehicles sold per dealership outlets	1.9
Number of multi franchise dealerships	2.2
Number of sales people at the dealership	3.3
Average foreign make inventory levels	3.4
Average domestic make inventory levels	3.8
Number of new car dealerships	4.0

Other responses

Percentage publicly owned: 1

Selected edited comments

- Emergence of megadealers will be the single biggest impact in retailing in North America. There could also be OEM-owned dealerships (perhaps Daewoo?).
- Fewer, bigger dealers will be the trend. There will be tremendous pressure on the profitability of dealerships forcing consolidation and lower inventories, for at least domestic levels.
- The definition of a "new car dealership" will change.
- The retail side of the business will undergo the same re-engineering revolution that the factory/supplier side has already undergone.
- The use of "virtual vehicle" hardware will reduce the necessity for "all models and colors" inventory; faster delivery turnaround from factory or central stock location rather than on the lot.

Discussion

Panelists forecast that there will continue to be changes in the vehicle distribution system. The number of megadealers is forecast to increase greatly, while the number of motor malls and vehicles sold per dealership are also forecast to increase. Conversely, panelists forecast that inventory levels will decline, as will the number of new car dealerships.

Manufacturer/supplier comparison

Manufacturers believe that the number of salespeople at the dealership are likely to decrease somewhat, while suppliers predict that their number will stay about the same or decrease, only slightly.

Trend from previous Delphi surveys

The current forecast and previous forecast are quite similar, with the exception of the responses for the number of megadealers to change. Compared to the earlier forecast, the latest forecast predicts a greater increase in the number of these kinds of dealers.

Strategic considerations

Overall, changes at the dealership level of the distribution chain reflect the perception that the automotive buying experience has become so unpleasant, inefficient, and costly that competitive advantage can be attained by improving the situation. In addition, change is being driven by the potential for reducing costs.

One panelist observed that the "emergence of megadealers will be the single greatest impact on retailing in North America." Not all panelists may share this belief, but most panelists believe that there will be a significant increase in this form of dealership organization. Motor malls, too, are forecast to increase somewhat.

The reason for growth in the number of megadealers may be different today than it has been in the past. Before, the megadealer grew from a desire by business people to build bigger, more profitable organizations, and possibly to diversify their businesses with different makes and models. That may still be true today, but there is also the possibility of achieving a degree of economies of scale for the largest of the megadealers to the point of these dealers having lower per unit costs, and hence a competitive price advantage.

Motor malls provide particular advantages to customers shopping for a vehicle. There are a variety of makes located close together, making it easier for comparison-shopping. For dealers, an auto mall location may be a mixed blessing. While an auto mall may attract a great many potential customers, these customers are drawn by the time-saving convenience of easily looking at the various makes. However, that consumer advantage could be a dealer disadvantage since a customer can so easily compare competing makes or models.

Panelists predict that the number of salespeople at the dealership will decline slightly. This may be due to increased use of technology, such as information kiosks, which provides a function or service that the salesperson used to provide. The prediction might also reflect a belief that the changing role of the salesperson, such as providing a more consultative selling approach as well as potentially providing selling and financing advice, could lead to a need for fewer people. There is also the possibility that as dealers make less money on new car and truck sales, there are fewer opportunities for salespeople to earn a viable living selling new vehicles.

Clearly there is change afoot in the retail distribution system, instigated both by members of the existing dealership system and by the manufacturers themselves.

MKT-21. The distribution system is undergoing a great number of changes. Please forecast the amount of change for the following items.

Scale: 1 = increase a great deal 3 = slight increase 5 = no increase

Changes	Mean Response
National retail outlets (i.e., CarMax, AutoNation)	1.9
Purchases over the Internet	2.2
Number of distribution consolidations within manufacturers (i.e., GMC-Pontiac)	2.6
Number of customer-ordered vehicles	2.7
Use of buying services/brokers	3.0

Selected edited comments

- I am not sure if Internet purchase provides the same after-sale security as dealing directly with a dealership and sales person.
- Regarding the number of customer-ordered vehicles, these will increase if a customer-pull system can be effectively developed. Such a system would require delivery of the new vehicle to the customer within two weeks.

Discussion

Panelists predict that there will be significant increases in the number of national retail outlets and purchases over the Internet. They predict that manufacturer-driven consolidations will also increase some, as well as the number of customer-ordered vehicles. Panelists predict only a slight increase in the use of vehicle buying services.

Manufacturer/supplier comparison

Except for purchases over the Internet, which manufacturers believe will increase a lot more than suppliers do, both groups are in general agreement.

Trend from previous Delphi surveys

This question was not asked in prior Delphi surveys.

Strategic considerations

Changes in the distribution system that have occurred in the past are likely to continue into the future. Panelists forecast that new retail outlets, like CarMax and AutoNation, will increase in number. It is not clear if these two large chains will experience all the growth or if new chains will join them (see MKT-20). These new retail chains are thought to be developing a nationwide presence and taking advantage of economies of scale as well as providing an improved sales experience considered uncommon in the current dealership.

Auto manufacturers are not sitting idly by as others work to improve the retail system. Some are trying to combine divisions at the dealer level in order to differentiate product and better serve customers. Many of the changes in the distribution system relate to providing vehicles that are more closely matched to consumer wants.

New technologies, such as the Internet, will allow customers to bypass the current dealership system and find information about, and ultimately choose, the vehicles they want to buy. While franchise laws as they stand today prohibit the delivery of a vehicle outside the dealership system, changes might be forthcoming that permit it. Even if they don't, the Internet solves at least one problem that many consumers cite as a main complaint in buying a car: haggling over prices and financing with the dealer. The Internet has the potential to eliminate the human interaction element of buying a new vehicle, and could reduce the dealership to merely a sales delivery point. Panelists predict more growth in transactions over the Internet than in the use of buying services or brokers. That may be due to the fact that services and brokers have been around for a while and may have reached a mature stage in their commercial development. The Internet, conversely, is new, with more users every day. It may be that third-party, non-Internet services will someday become endangered as more people gain access to the Internet.

Panelists predict a more than slight increase in the number of customer-ordered vehicles. This may be because of the belief that improvements are in development to reduce the time it takes to order, build, ship, and deliver a new vehicle. One panelist comment seems to say that if the time is short enough, more people would order a vehicle with exactly the equipment they want, rather than settle for what is available off the lot.

MKT-22. Please forecast the change in share of repair/maintenance activity for each of the following outlets over the next 10 years (1998-2007).

Scale: 1 = sharply increase 3 = no change 5 = sharply decrease

Service Trends by Type of Outlet	Mean Response
Franchised auto specialists (e.g., Goodyear, Precision Tune)	2.2
Quick oil change outlets	2.4
Fleet operator-owned repair shops	2.8
Mass merchandisers (e.g., Sears)	3.0
New car/truck dealers	3.0
Service stations	3.6
Independent repair shops	3.7

Selected edited comments

- Dealers seem eternally reluctant to meet price levels of independents.
- If the auto dealership developed loyalty many independent and franchised auto specialists would be hurt. I don't see any danger of the dealerships having the understanding of how to accomplish this task between now and 2007.

Discussion

Panelists forecast that franchised auto specialists will increase their share of repair and maintenance work significantly, along with quick oil change outlets. Service stations and independent repair shops are predicted to lose some of their share of the business.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

The current forecast agrees closely with the prior one. However, the current set of panelists forecasts that the change in share of repair and maintenance activity for service stations will not decrease as much as had been previously predicted. The forecast for Delphi VIII was 3.9 while the current forecast is 3.6.

Strategic considerations

As in prior Delphi forecasts, panelists predict that two kinds of service outlets, the franchised auto specialists and the quick oil change outlets will increase their share of the repair and maintenance activity. This may be due largely to their convenience (location and swift service) and ability to handle the frequent and usually minor concerns that affect today's highly reliable vehicles. As service intervals grow longer and more routine, these specialized shops are forecasted to gain more business. Curiously, mass merchandisers like Sears, even with a solid national reputation,

are predicted to neither gain nor lose. It is hard to understand why this might be, although their mall location might be a negative for some potential customers who do not care to go out of their way to obtain auto service.

Like mass merchandisers, service and repair market share is predicted to remain static. Dealers are typically the high-cost service location and this drives some consumers away. The dealer may lack the convenience of a Precision Tune or tire franchise, too. Still, dealers will remain the choice for having warranty or recall work done. They also can make a convincing case to their customers that they alone are capable of competently addressing more complicated vehicle repairs. In addition, compared to smaller shops, dealers have enough model-specific business to be able to afford expensive dedicated repair equipment.

The corner gas station as well as the independent repair shop is expected to see less business in the future. Despite the name, many motorists (most of whom are pumping their own gas) no longer view the service station as providing much service. Many newer gas stations no longer service vehicles, spurning service bays in favor of shelf space for food, beverages, personal and convenience items, for which they charge a premium. The greatest difficulty facing independent repair shops may be the high cost of specialized equipment required of some repairs. Usually, being generalized repair shops capable of working on many makes and models, they cannot afford investing in equipment used only on a limited number of vehicles.

All service and repair outlets must cope with a common set of changing vehicle-servicing needs. These include less frequent servicing, vehicles of higher quality, and even on-board diagnostics that simplify the identification of problems. New technologies or processes may be just around the corner, like the gas stations of yesterday, to open up new opportunities for repair and service providers.

MKT-23. What are the five most essential product, sales and service attributes that a vehicle manufacturer must deliver to a customer in order to enhance brand loyalty by 2007?

Summary of individual responses

PRODUCT (Product is 36% of total responses- Product/Sales/Service)	
Durability, reliability, dependability, quality	25%
Prices/affordability/value	13%
Vehicle appearance	10%
Brand and product image/differentiation	9%
Safety	8%
Comfort, refinement, convenience	7%
Superior vehicle performance and functionality	7%
Technology-electronics capability	6%
Fuel economy	2%
Warranty	1%
Other	12%
Total	100%

SALES (Sales is 32% of total responses- Product/Sales/Service)	
More sales services (financing, dealer hours, etc.)	28%
Consultative selling methods / more pleasant selling process	23%
Improved inventory management (delivery, selection, ordering, etc.)	12%
More professional, better-trained sales people	10%
More customer follow-up, relationship building	5%
Other	24%
Total	100%

SERVICE (Service is 32% of total responses- Product/Sales/Service)	
More competent repairs	19%
More "courtesy services"	15%
Reduced costs / better value	12%
More convenient hours	11%
Speedier services (less repair time)	11%
More positive behaviors/attitudes	9%
Loaner cars	6%
Easier scheduling of appointments	4%
Other	13%
Total	100%

Selected edited comments

- Dealership quality, training and followup are key elements in bringing the customer back.
- I believe that *brand* loyalty will gradually decrease because all brands will be moving to delivering more customer-specific, highly reliable vehicles with customer-friendly processes in a more timely way than today.
- Sales and service provision to customers is essentially a market skewed by the consumer's lack of knowledge of actual costs or ability to understand repair work requirements. All of this combined weakens the customer's bargaining position with sales and service providers. Dealers who acknowledge this and strive to allay consumers' feelings of powerlessness will succeed.
- Service becomes less critical as leasing increases and quality increases. This becomes a used car factor.
- The bottom line is value.
- The perception is that dealers perform too many unneeded repairs to vehicles and do not perform service on time. This keeps customers away from the dealer even though they would rather have all their vehicle servicing needs performed by the dealer.

Discussion

The product, sales and service attributes specified here represent what panelists believe are the most important qualities to enhance brand loyalty. For product, quality is considered most important, followed by price/affordability. For sales, more services and a more pleasant selling experience are the two main areas for encouraging brand loyalty. For service, more competent repairs and more "courtesy" services are what is needed.

Manufacturer/supplier comparison

This comparison is not made for open-ended questions.

Trend from previous Delphi surveys

This analysis is not done for open-ended questions.

Strategic considerations

More than ever, manufacturers are trying to increase the awareness of their brands in the marketplace. While there will always be efforts to persuade new buyers away from their current brands, marketing wisdom says that retaining existing customers is significantly cheaper than recruiting new ones. Executing some of the suggestions listed here will likely result in happier customers who return to buy again.

Product

Quality issues are thought to be the most important component of enhanced brand. Panelists forecast that reliability, durability and dependability are the mainstay of product brand enhancement. Some industry experts believe that quality is largely equal among various manufacturers or the slight differences that still exist are essentially meaningless. Still, some manufacturers continue to be perceived by the public as having superior quality. It will be difficult

for vehicle manufacturers with strong quality reputations to maintain their advantage as other manufacturers achieve quality parity. Safety is another listed attribute for which differences between makes are often slight: nearly everyone has dual front airbags, availability of ABS, etc. Again, some makes may have a reputation for safety that may diminish with time as all manufacturers meet federally imposed crash and equipment standards. Maybe styling offers the greatest potential among the attributes for product differentiation. Consumers seem to be rebelling against look-alike vehicles and the quest for aerodynamic shapes has sometimes limited designers to common (and overused) design themes.

Sales

Panelists recommend that the dealer provide more services related to the sale of vehicles, such as more financing options or longer hours. This is followed closely by engaging in a more consultative selling approach.

What is most interesting is that most of the work to be done in managing the brand with regard to sales and service comes at the dealer level. Encouraging brand loyalty should be a valuable pursuit for both manufacturer and dealer, although there is the possibility for a divergence of goals or methods since dealers usually have a more immediate desire to reach a certain level of sales, a goal that sometimes requires methods that hurt brand image rather than improve it. Behavior of salespeople is often cited as a major gripe from customers. Panelists have identified the need for a more professional, better-trained group of men and women selling cars. Bringing this about may require a change in compensation plans at dealerships. It may also require a working environment geared more for professionals. For example, dealership working hours often include evening hours and weekend hours. Many sales professionals will prefer to sell other products where the working hours are more conventional.

Service

Panelists noted a need for improvement in fixing repairs right the first time, a reflection, perhaps on the increasing complexity of new vehicles and the difficulty in identifying complicated ailments. Given the high levels of quality these days, customers may have little patience for a vehicle that they have come to believe should be flawless. The next two items provide an example of the kind of "more for less" conundrum that faces the auto industry on several fronts these days. Panelists recommend providing more "courtesy" services for customers whose cars or trucks require service. However, panelists also forecast a need for lower costs or at least a better value proposition from the service department.

MKT-24. For the given segments, please identify the average incremental cost a customer is willing to incur to achieve the following quality or maintenance improvements.

	Median Response				
Improvement	**Entry Level**	**Intermediate/ Family**	**Luxury**	**Minivan**	**Sport Utility**
From 2 initial quality defects to 1 defect	$0	$0	$0	$0	$0
Reduce frequency of maintenance from every 7,500 miles to 15,000 miles	50	88	100	88	100
Reduce by 50% the number of scheduled service operations	50	50	100	75	100

	Interquartile Range				
Improvement	**Entry Level**	**Intermediate/ Family**	**Luxury**	**Minivan**	**Sport Utility**
From 2 initial quality defects to 1 defect	$0/13	$0/100	$0/300	$0/200	$0/200
Reduce frequency of maintenance from every 7,500 miles to 15,000 miles	0/100	0/150	0/300	0/200	0/200
Reduce by 50% the number of scheduled service operations	0/100	0/181	0/500	0/200	0/263

Other responses

50% reduction in annual cost of maintenance: Entry level - $250; Intermediate - $300; Minivan - $250; Luxury - all expected; Sport Utility - don't seem to care.

3/36-5/60 longer bumper to bumper warranty: Entry level - $100; Intermediate - $500; Minivan - $500; Luxury, Sport Utility - $0

Expected

Guaranteed 50,000 mile maintenance: Entry level - $250; Intermediate - $500; Luxury - $1,500; Minivan - $1,000; Sport Utility - $1,000

Japan sets standards ($0)

Selected edited comments

- Answers here are highly subjective.
- Customer is demanding all of these as part of the purchase package.

- Customers should expect zero defects at delivery.
- I don't think customers think about quality in this fashion. Quality is a given today; if you do not have it, you are not a player in selling vehicles.
- Impossible question to answer in the absolute. It depends on what everyone else is doing.
- Improvement of two to one initial quality defects is expected, built into price base. How do you guarantee these benefits? No one will pay anything for a promise.
- I'm not sure people believe extended maintenance intervals are a good thing in all cases. Leasing, on the other hand, may make this less important.
- Increment from two to one is too small. Reputation and J.D. Power ranking are more meaningful. Is this a significant selling feature? Number or frequency?
- Initial quality is now assumed by consumers, they will not pay for it.
- It's going to happen and is expected! Competition will drive!!
- Quality is a given.
- Retail customers are still largely unappreciative of life-cycle costs.
- The customer expects these improvements with no cost increase.
- There will be antes to consumer acceptance.
- Why should a customer be willing to pay extra for something that is a given?
- Zero defects is expected.

Discussion

Although there is broad range of opinion, generally panelists believe that consumers would place a low value on the kinds of quality and maintenance improvements we asked them to consider. While the range of values within a given cell were sometimes great, the difference between values for a particular improvement between vehicle segments was quite narrow.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

The 1996 Delphi VIII Forecast showed very similar median responses.

Strategic considerations

Panelists continue to predict limited incremental value to consumers for improved quality, or reduced or less frequent service. Comments from panelists support the notion that these suggested improvements are not without value, but the consumer is not willing to pay much extra for them. This seems to be true particularly for the quality improvement.

One reason panelists predict indifference from consumers regarding service frequency or intervals is that, more and more, they will rely on quick and convenient local franchise shops for service (see MKT-21). Another reason is that many consumers ignore manufacturer-recommended servicing, either the operation or the frequency, and so changes in either are unnoticed or unappreciated.

Analyzing the "quality defects" improvement is difficult in light of several panelists' comments stating that buyers expect trouble-free quality from the beginning. The reason that they place no value ($0) on the initial quality improvement is that consumers no longer are willing to permit a couple of defects upon vehicle delivery (or for practical purposes, within the first several months of ownership). Many vehicles today average fewer than one defect per vehicle in initial quality surveys. Interestingly, quality levels may be more associated with manufacturer than with segment: lower price cars built by some manufacturers have fewer quality problems than more expensive vehicles from other manufacturers. Increasingly, world class performance is just the price of entry—you cannot get anything extra for it.

MKT-25. Do you believe a customer will exclude a vehicle from consideration if it does not provide the following benefits, or will be willing to pay a reasonable premium (for example, $200 on a $20,000 vehicle) to obtain each of the following benefits? Please circle your response.

Scale: 1 = very likely 3 = moderately likely 5 = not at all likely

Attributes	Mean Rating
Enhanced crash protection	2.3
Ding-resistance	2.6
100,000 mile corrosion protection	2.9

Other responses

3 more mpg: rated 1

Airbags: rated 1

Antilock brakes: rated 3

Increased acoustics quietness: rated 1

Operating performance: rated 2

Stain-resistant carpet: rated 2

Stain-resistant cloth: rated 1

Support services (e.g., free towing): rated 2

Selected edited comments

- So much of this becomes base-level expectation.

Discussion

Panelists forecast that consumers would pay a premium for the three attributes cited. Consumers are significantly likely to pay a premium for enhanced crash protection and ding-resistance, but only moderately likely to pay extra for longer corrosion protection.

Other responses are noted above.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

This question was phrased differently in prior Delphi forecasts, making comparisons impossible.

Strategic considerations

Safety continues to be important to consumers, according to the panel's forecast. Panelists forecast that consumers would pay a premium or even exclude a vehicle from consideration if it did not possess the latest in crash protection. Some people in the industry believe that the sales of

some models have been less than they could have been had they been equipped with dual front airbags, for example.

Enhanced corrosion protection may be less important to customers who lease since they typically surrender the vehicle at the end of a period of time well before the likely onset of rust. It may still be an issue for buyers who keep their vehicles longer, as well as purchasers of used vehicles. In any event, advancements in corrosion protection, such as the extensive use of galvanized steel, have reduced the vulnerability of today's models to road salt, snow and any other corrosive elements.

MKT-26a. What attributes of a typical mid-size sedan will offer the greatest opportunity for product differentiation over the next ten years (1998 - 2007)? Please circle your answer.

Scale: 1 = most opportunity 3 = moderate opportunity
5 = least opportunity

Attributes	Mean Response
Interior design	1.7
Styling	1.7
Pricing	2.0
More features/higher content	2.1
Refinement and noise/vibration/harshness improvement	2.1
Ride	2.3
Handling	2.5
Fit and Finish	3.0

Other responses

Brand image and interior room: both rated 2.

Brand image: rated 2 (3 responses)

Cache: rated 1

Crash protection: rated 1

Distribution: rated 1

Fuel Economy: rated 1 (2 responses)

Fuel economy: rated 2 (8 responses)

Fuel efficiency: rated 3

Functionality: rated 2

Ownership experience (sales, service, FS1, etc.): rated 1

Package: rated 1

Packaging—Interior space vs. exterior size: rated 1

Performance: rated 1

Performance with economy: rated 2

Product warranty: rated 1

Quality: rated 1 (2 responses)

Quality: rated 3 (2 responses)

Reliability: rated 2

Resale value: rated 2

Resale potential: rated 2

Safety: rated 1 (3 responses)

Safety: rated 2 (8 responses)

Safety: rated 3 (2 responses)

Versatility: rated 1 (2 responses)

Versatility: rated 2

Other attribute: rated 2

Selected edited comments

None

Discussion

Panelists forecast that design, both interior and exterior, offers the most opportunity for product differentiation. Pricing, features and refinement also offer significant opportunity for differentiation, although to a lesser extent than design. Ride and handling offer approximately the same degree of potential for differentiation, while fit and finish are seen as offering only moderate opportunity.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

This question was asked in the Delphi VIII forecast, but in a slightly different way. In that forecast, the question asked about the attributes of *passenger cars* instead of *a typical mid-size sedan*. Still, responses in both forecasts are very similar.

In the previous forecast, we asked about safety, which we did not ask about in the current survey. We asked about fit and finish in this survey, something not included in Delphi VIII. For all attributes asked about in both forecasts, panelists forecast greater degrees of opportunity for differentiation in the current survey than in the prior one. The relative degree of opportunity among attributes between the two surveys remains mostly the same. The exception is interior design, which becomes equally as important as styling in the current survey, while it was tied with pricing for being the second most important in the prior survey.

Strategic considerations

Product differentiation has become an important issue for vehicle manufacturers, particularly because of a slow-growth market filled with many competent products.

Design continues to be considered the most important product differentiator, according to panelists. In this survey, that includes both interior and exterior design. Pricing, features and refinement are not far behind, however, in the list of differentiable attributes. Surely there are attributes we failed to consider which also provide opportunity to differentiate products in consumers' minds. Additionally, there are nonproduct attributes, such as service, that can help a brand stand apart from the crowd.

That there are so many potential differentiating possibilities is good news for car manufacturers. The key is to combine these attributes in a combination that provides the intended customer with an appealing (irresistible, if possible) value proposition.

MKT-26b. What attributes of a typical sport utility will offer the greatest opportunity for product differentiation over the next ten years (1998-2007)? Please circle your answer.

Scale: 1 = most opportunity 3 = moderate opportunity 5 = least opportunity

Attributes	Mean Response
Refinement and Noise/vibration/harshness improvement	1.9
Ride	1.9
Styling	1.9
Handling	2.0
Interior design	2.2
More features/higher content	2.2
Pricing	2.2
Fit and Finish	2.8

Other responses

Computer system for guidance: rated 1

Fuel economy and performance both rated 1.

Fuel economy: rated 2 (2 responses)

Packaging—Lower ride height: rated 1

Packaging—Interior space (i.e., Toyota SLV): rated 1

Product warranty: rated 1

Quality: rated 3

Safety: rated 2

Safety: rated 3

Selected edited comments

- "Make 'em act like a car, look like a Jeep."
- Market differentiation into niches is accelerating with the entry of many more models and nameplates.

Discussion

Panelists predict that all the attributes, except fit and finish, will offer significant opportunity for differentiating sport utility vehicles in the future.

Manufacturer/supplier comparison

Manufacturers and suppliers differ in their predictions for more features and higher content for sport utility vehicles. Suppliers forecast significantly more opportunity for this attribute in product

differentiation than do manufacturers. Suppliers also see more opportunity in styling as a differentiator than manufacturers do.

Trend from previous Delphi surveys

This question was not asked in prior Delphi forecasts.

Strategic considerations

The mean responses for sport utility attributes asked about in this question are grouped closely together, suggesting that all the attributes offer about equal opportunity for product differentiation. Fit and finish, however, is an exception, forecast to hold only moderate opportunity for product differentiation. The attributes considered slightly more important than the others, refinement, ride, styling and handling, might suggest that panelists predict more carlike appearance and performance. One panelist comment suggests that success may go to the company which makes its sport utility vehicles look like trucks, but act like cars.

MKT-27. How will passenger cars and light trucks be used in 2002 and 2007 compared to 1997? Please circle your answer.

Scale: 1 = much more than 1997 3 = about the same as 1997
5 = much less than in 1997

	2002	2007
	Mean Response	**Mean Response**
Passenger Car Use		
Business	2.9	3.0
Commuting	2.9	3.2
Carrying passengers	3.0	3.2
Recreation	3.1	3.3
Vacation/holiday travel	3.2	3.4
Carrying cargo	3.2	3.5
Truck Use		
Recreation	2.1	2.3
Vacation/holiday travel	2.3	2.5
Carrying passengers	2.5	2.5
Carrying cargo	2.6	2.5
Business	2.5	2.6
Commuting	2.6	2.7

Selected edited comments

- As the American population ages, I see some additional need for mass transportation, rail, buses, etc., which may impact the total number of miles driven for pleasure.
- I believe the distinction between passenger cars and passenger car-oriented light trucks will blur as the two become more alike in may respects. New passenger car segments will tend to emerge focused at commuting as well.
- Since 45+ percent of light vehicles sold are now light trucks and SUVs, they will be used more for all functions compared to cars.

Discussion

It is predicted that passenger cars will be used in ways very similar to today in both the near and long term. Panelists predict that cars will be used very slightly less for cargo carrying and for vacation travel in the near future and less than that in the longer term.

Panelists forecast that the increase in use of trucks from the near term to the long term will be very slight. However, compared to today, trucks will be used a bit more for the purposes listed in the future. Most notably for recreation and holiday travel.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

This question was revised from the previous edition of the Delphi forecast and therefore trend analysis is not possible.

Strategic considerations

Panelists forecast a fairly static situation for the use of passenger cars. The use of cars in the future, both long term and near term, is forecast to be mostly what it is today. The exceptions are use for hauling cargo and use for vacation travel, for which panelists predict a slight decline in use. This may mean that panelists predict a continuing affinity for light trucks.

Conversely, trucks are forecast to be increasingly used for all the tasks listed in the question. This may reflect the panelists' perception that there will be a lot more trucks on the road in the future.

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MKT-28. What is the maximum allowable time in months between minor facelifts and new platforms, for various segments, for a vehicle to remain competitive?

	Median Response (in months)				Interquartile Range (in months)			
	2002		2007		2002		2007	
Segment	Facelift	New Platform	Facelift	New Platform	Facelift	New Platform	Facelift	New Platform
Passenger Car								
Entry level	30	60	24	60	24/36	48/72	24/36	48/72
Intermediate/Family	30	60	24	54	24/36	48/72	24/36	45/60
Luxury	24	48	24	48	24/36	46/63	20/30	36/60
Light Truck								
Minivan	30	60	24	54	24/36	48/72	24/36	45/69
Sport utility	30	60	24	60	24/36	48/72	22/36	40/60
Pickup	36	72	36	60	24/48	48/84	24/36	48/72

Selected edited comments

- Design/engineering costs must decrease per unit to meet this challenge.
- Facelifts will be dictated by the company's leasing term and strategy.
- I am not sure of the absolute time periods, but I see a trend towards acceleration of changes both minor and major.
- I wonder what the unintended consequence will be of reducing vehicle design time?
- Model renovation must happen more frequently in the hottest selling segments of the market. Pickups will eventually feel the heat from the Japanese makers. No more ten year platforms for the Big three pickups. Chrysler cannot go ten years on the minivan again. They got away with it once because they invented the market.
- The cost for manufacturers to change their product line faster than every 24 months is prohibitive. The time to make these changes may be shortened, but the time between changes will remain much the same.

Discussion

Panelists believe that, by 2002, all vehicles should receive a facelift about every two and one-half years. Luxury cars should be freshened every two years, while pickup trucks can go three years. By 2007, facelifts should occur every two years in all segments, excepting pickups, which remain at three years. Five years is the norm for new platform development in the near term, except for luxury cars, which should receive a major redesign every four years, according to panelists. Pickups can last six years with the same basic mechanicals. In the long term, the cycle for a total redesign shortens to 54 months for a family car and a minivan and to 60 months for a pickup.

Manufacturer/supplier comparison

Manufacturers and suppliers differ often and greatly in their forecasts for the near and long term. The table below displays cumulative responses for each group, where differences are significantly different.

Manufacturer/ Supplier	Mean Response (in months)			
	2002		2007	
Segment	Facelift	New Platform	Facelift	New Platform
Passenger Car				
Entry level		81/60		75/55
Intermediate/Family	34/28	76/55	32/25	74/51
Luxury		73/51		69/47
Light Truck				
Minivan		82/58		74/53
Sport utility		69/56		
Pickup	45/34	87/65	42/30	84/59

Trend from previous Delphi surveys

The trend to shorter periods of time between redesigns and facelifts continues in this forecast. The chart below shows the previous Delphi forecast compared to this one. Notably, the long-term forecast for facelifts remains the same from the prior forecast. Short-term facelifts have typically shortened by six months.

Segment	Median Response (in months)							
	Facelift				New Platform			
	Delphi IX		Delphi VIII		Delphi IX		Delphi VIII	
	2002	2007	2000	2005	2002	2007	2000	2005
Passenger Cars								
Entry level	30	24	36	24	60	48	60	48
Intermediate/Family	30	24	30	24	60	48	60	48
Luxury	24	24	30	24	48	48	48	48
Light Truck								
Minivan	30	24	36	24	60	48	60	48
Sport utility	30	24	36	24	60	48	60	48
Pickup	36	36	36	36	72	60	71	60

Strategic considerations

Styling and design will continue to be of great importance in attracting customers. Over the years, panelists have predicted shorter and shorter times between product redesigns and freshenings. With this forecast, at least in the short run, panelists have seemingly reached a point at which an optimum cycle has been reached for a total redesign. The cycle time for product updates has mostly grown shorter. At some point, though, it becomes prohibitively expensive to redesign products with increasing frequency, since capital costs need to be amortized over as many units as possible to maintain a vehicle's cost competitiveness.

Recent developments in technology have made more frequent styling updates possible, particularly math-based modeling techniques. Computer modeling eliminates some steps in the development process by reducing the number of physical prototypes necessary. Presumably, this results in less time needed to develop a new design, with attendant lower costs.

MKT-29. **It is common in the auto industry for different models to share a platform or significant number of components in an effort to realize economies of scale and resultant cost savings. On the other hand, greater efforts are being made to increase product differentiation. Please forecast how the following component- or platform-sharing arrangements will change by 2002 and 2007. Please circle your answer where:**

Scale: 1 = sharply increase 3 = no change 5 = sharply decrease

Component- or Platform-Sharing Arrangements	Mean Response	Mean Response
	2002	2007
The number of models that share a platform or major components with a vehicle from another market (e.g., Cadillac Catera/Opel Omega)	2.0	1.9
The number of models within a company that share a platform or major components (e.g., Taurus/Sable)	2.1	2.1
The number of models from different companies that share a platform or major components (e.g., Mercury Villager/Nissan Quest)	2.5	2.4
The number of models that share mechanical components and a name, but are sold by different divisions (e.g., Plymouth/Dodge Neon or Chevrolet/GMC Suburban)	2.6	2.5
The number of platforms within a company	3.7	3.6

Other responses

(2002): Common powertrains (engines, transmissions, wheel ends, brakes, etc.): rated 2

(2007): Common powertrains (engines, transmissions, wheel ends, brakes, etc.): rated 1

(2002): Cross platform component consolidation/standardization: rated 2

(2007): Cross platform component consolidation/standardization: rated 2

(2002): Other arrangements: rated 2 (2 responses)

(2007): Other arrangements: rated 1

(2007): Other arrangements: rated 2

Selected edited comments

- Commonization will occur where the customer can't see it.
- Expect to see cross-company sharing in emerging markets.
- Platforms need long lives to be economically viable; therefore, there will be little difference between the near term and the long term.

Discussion

Panelists forecast that a typical auto manufacturer is likely to decrease the number of platforms from which it bases its models. However, manufacturers may increase the number of shared platforms between companies and even the models shared within a company but sold by different divisions as the same model. Panelists forecast that the number of platforms shared between company divisions, with different names, will significantly increase, as will the number of platforms shared between markets.

Manufacturer/supplier comparison

Manufacturers and suppliers are in general agreement except for their forecasts for the number of models that will share mechanical components and a name but be sold by different divisions. Here, in both the short term and long term, manufacturers do not foresee much change from today, while suppliers predict a moderate increase in such vehicles.

Trend from previous Delphi surveys

This question was not asked in any previous Delphi forecasts.

Strategic considerations

Many manufacturers are taking a greater look at commonizing parts and components on their vehicles in an attempt to reduce costs. At a time when cost cutting is prevalent, it is hard for manufacturers to resist taking advantage of the economies of scale available from consolidated platforms. In an age where only a few vehicles sell in numbers great enough to warrant a dedicated factory, the appeal of platform and component sharing is great. So great is it in fact that manufacturers will share platforms and componentry with competitors in order to spread costs over a higher volume. In addition, this sharing of parts across two or more models spreads the risk of a program.

Such cost-reducing sharing strategies are not without risk though. This has become a time of great manufacturer consciousness regarding brand development. What exactly affects a brand or consumer perceptions of a brand are still being determined to some degree. Therefore, it is not entirely clear just how far manufacturers can go in platform and component sharing and not confuse or alienate customers.

The Honda Accord is an example of a model that is different in various markets. Here the manufacturer has determined that "one size" does not fit all and provides a slightly larger Accord for the North American market.

MKT-30. How important to continued product sales success is a major redesign, by segment?

Scale: 1 = extremely important 3 = somewhat important 5 = not at all important

Segment	Mean Response
Passenger Car	
Luxury	1.8
Intermediate/family	2.3
Entry level	2.8
Light Truck	
Sport utility	1.9
Minivan	2.5
Pickup	2.8

Selected edited comments

- Exterior styling is one of the keys to successful launches. Without it, interest in a vehicle wanes.
- Truck owners seem to value *lack* of improvement.

Discussion

Panelists believe that a new design is at least somewhat important for all vehicles for maintaining product sales success. How important a redesign is differs by segment. Luxury cars and sport utility vehicles rely more on styling, design and engineering changes than vehicles in other segments, although even family car buyers have some interest, it is predicted, in the latest look.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

The forecast from Delphi VIII is nearly identical to this forecast. The exception is for pickup trucks. In the prior survey, panelists placed less importance on a redesign for continued success than they do now for this segment.

Strategic considerations

Styling continues to be an important factor in achieving marketplace success. Since styles change, there really is no such thing as a timeless design. Consequently, nearly all vehicles require a new look from time to time to maintain a level of interest among buyers. Indeed, MKT-8 and MKT-9 show how important styling is to buyers of new vehicles. According to the responses in this question, the importance of design, or more specifically, redesign varies by vehicle segment.

Styling is thought to be most important in the luxury and sport utility vehicle segments, probably because these two segments involve the purchase of vehicles which can be considered more discretionary than those in other segments. It is interesting that redesign for sport utility vehicles is considered so important, in light of the supposed functionality of the genre. This finding supports the oft-made assertion that sport utility vehicles are really about fashion, not functionality. Though redesign is considered important to both segments, luxury cars may differ from sport utility vehicles in that the former will probably always continue to be an extension of more mundane vehicles, defined by more power, more features and conveniences, and more advanced styling. In that regard, luxury vehicles have a relatively "safe" future, since there is almost always a "high end" segment for most products. Sport utility vehicles however are not necessarily a logical next step for buyers from other segments. Because of this, the sport utility segment may be more vulnerable to shifting tastes.

Ultimately, though it varies by segment, people care about how their vehicles look, and they like the idea of "new and (presumably) improved" which new designs provide.

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MKT-31. Please forecast the percentage change in the number of passenger cars and light trucks which will be sold in the United States and Canada by traditional domestic dealer networks and import dealer networks for 2002 and 2007.

Vehicle Sales by Market/Network	Est. 1996* (000)	Median Response Percent change 2002	Median Response Percent change 2007	Interquartile Range Percent change 2002	Interquartile Range Percent change 2007
U.S. total passenger car sales	8,526	3%	5%	0/5%	2/10%
Big Three	5,328	0	1	-3/3	-5/5
Japanese	2,565	3	4	1/8	2/8
European	499	5	5	1/10	1/15
Other imports	135	2	4	0/10	0/15
U.S. total light truck sales	6,572	6	8	4/10	4/10
Big Three	5,664	5	5	2/10	0/9
Japanese	872	5	5	2/11	1/12
European	24	3	3	0/15	0/10
Other imports	12	2	2	0/10	0/10
U.S. TOTAL VEHICLE	**15,072**	**5**	**5**	**2/8**	**3/10**
Canadian total passenger car sales	664	3	4	1/9	1/10
Big Three	414	2	2	0/4	0/5
Japanese	186	2	2	1/5	1/5
European	47	5	3	1/10	1/15
Other imports	17	2	2	0/10	0/15
Canadian total light truck sales	516	5	5	3/10	4/12
Big Three	481	3	3	1/5	1/7
Japanese	32	4	5	1/10	1/11
European	2	3	3	0/10	0/13
Other imports	0	0	1	0/5	0/6
CANADIAN TOTAL VEHICLE	**1,180**	**4**	**5**	**2/10**	**4/9**

*Source: Automotive News Jan. 13 & 20, 1997 and Ward's Automotive Reports, Jan. 13, 1997

Selected edited comments

- I can't see much other than down for the Big three as the Japanese push hard, theKoreans chip away, and the Europeans come back.
- The Japanese will continue to grow in passenger car sales and begin to pressure the light truck segment. Other foreign makers will penetrate with high percentage increases, but low total volume relative to the Big three and the Japanese.

Discussion

Panelists forecast that the markets in both the United States and Canada will grow slightly in the future. In the U.S., the biggest percentage gain will occur in light truck sales. In Canada, the gains for cars and trucks is expected to be about equal. Imported passenger cars are forecast to make greater inroads into the U.S. market, presumably at the expense of the domestic brands. Growth is forecast to be equal between domestic makes and imported ones in the truck market. In Canada, European passenger cars may make the greatest gains, percentage-wise, although the increase comes off of a small base of current sales. Growth in truck sales in Canada is thought to be shared somewhat equally across domestic, European, and Japanese manufacturers. However, because the current sales base for the domestic manufacturers is so much bigger than for the imports, equal percent increases would mean much larger increases in unit sales for the domestics.

Note the wide interquartile range for some of the categories. This displays the panelists' lack of agreement on some segments. Of particular interest is the interquartile range for Big three passenger cars in the United States: some panelists believe the sales of domestic manufacturers' cars will actually decline while others predict modest growth.

Manufacturer/supplier comparison

Manufacturers predict a much bigger percent increase by 2002 for Japanese passenger car sales in the U.S.: 9.2 percent compared to suppliers' 3.9 percent. In addition, manufacturers predict that total Canadian passenger car sales will increase by more than 5.5 percent by 2007 while suppliers predict an increase of only 3percent.

Trend from previous Delphi surveys

This question was asked in a different form in prior Delphi surveys. Before, we asked respondents to forecast unit sales instead of percent change. In addition, the forecast years are different. The table below takes the units forecast in Delphi VIII and converts them to percents. The reader is warned that comparisons are not entirely appropriate due to the change in question structure.

Strategic considerations

Panelists are forecasting very little growth in the forecast period, in keeping with the designation of the North American market as a mature, saturated one. If there is any news here it is that trucks are predicted to continue to grow in market share, a pleasant prediction for the domestic manufacturers, who have so successfully profited from the growing truck boom. New truck models have arrived or are on the way from import manufacturers, though, and it is hard not to believe that the days of soaring truck profits are numbered. So, while it is predicted that all manufacturers generally will benefit from a growing truck market, there may be limits to how profitable that market remains.

In addition, import makes seem poised to gain in sales, percentage-wise, but this may not actually result in increases in market share.

MKT-32. Please estimate total passenger car market share percent. We suggest that you first consider segment shifts, making sure that the total market adds to 100%. Next, consider the sources of vehicles within each segment, making sure that these add to 100 percent for each segment.

		Median Response	Interquartile Range
Passenger Car Sales by Segment	**Est. 1996* (in percent)**	**2002 (in percent)**	**2002 (in percent)**
Lower small	2.9%	3%	3/4%
Traditional domestic	53.1%	51%	50/53%
Foreign	46.9	49	47/50
Upper/Specialty small	24.4	25	24/25
Traditional domestic	63.7	62	60/64
Foreign	36.3	38	36/40
Lower middle	16.8	17	16/18
Traditional domestic	60.0	60	58/60
Foreign	40.0	40	40/42
Upper/Specialty middle	32.6	33	31/34
Traditional domestic	60.5	60	60/61
Foreign	39.5	40	39/40
Large	9.9	9	8/10
Traditional domestic	100.0	100	95/100
Foreign	0.0	0	0/5
Lower/Middle luxury	9.7	10	9/11
Traditional domestic	46.1	46	45/50
Foreign	53.9	54	50/55
Upper luxury/Luxury specialty	3.0	3	2/4
Traditional domestic	35.9	35	35/36
Foreign	64.1	65	64/65
Luxury sport	0.8	1	1/1
Traditional domestic	31.0	30	30/35
Foreign	69.0	70	65/70
Total	100%		

		Median Response	Interquartile Range
Passenger Car Sales by Segment	**Est. 1996* (in percent)**	**2007 (in percent)**	**2007 (in percent)**
Lower small	2.9%	3%	3/5%
Traditional domestic	53.1%	50%	48/53%
Foreign	46.9	50	47/52
Upper/Specialty small	24.4	25	23/26
Traditional domestic	63.7	60	60/64
Foreign	36.3	40	36/41
Lower middle	16.8	17	15/18
Traditional domestic	60.0	60	58/60
Foreign	40.0	40	40/42
Upper/Specialty middle	32.6	33	29/34
Traditional domestic	60.5	60	60/62
Foreign	39.5	40	39/40
Large	9.9	8	7/10
Traditional domestic	100.0	100	95/100
Foreign	0.0	1	0/5
Lower/Middle luxury	9.7	10	9/12
Traditional domestic	46.1	47	45/50
Foreign	53.9	53	50/55
Upper luxury/Luxury specialty	3.0	3	3/5
Traditional domestic	35.9	35	32/37
Foreign	64.1	65	63/68
Luxury sport	0.8	1	1/2
Traditional domestic	31.0	31	30/35
Foreign	69.0	69	65/70
Total	100%		

*Source: Ward's Automotive Reports, Jan. 13 and 20, 1997

Selected edited comments

- I see polarization between low and high ends.

Discussion

Panelists do not predict large changes in the percent of total market share for each of the segments. There are no significant shifts in the near term, except possibly in the lower small segment, between domestic and import manufacturers. Longer-term, foreign-based manufacturers continue to gain share in the lower small segment, and in the upper/specialty segment. Domestic manufacturers are forecast to gain slightly in the lower/middle luxury segment.

Manufacturer/supplier comparison

Manufacturers and suppliers generally agree on sales estimates for various passenger car segments. They differ, however, in the upper/specialty small segment, where manufacturers forecast a lower segment share, 21 percent, than suppliers do, 24 percent, for the short term. In the long term, for that segment, manufacturers forecast about the same as in the near term, while suppliers increase their prediction about a percentage point. In the upper/specialty middle segment, suppliers forecast 1.5 percentage points more than manufacturers, in the short term, with a forecast of 32.7 percent. Finally, in the luxury sport segment, manufacturers see the segment growing much larger than do suppliers, in the short term, at 2.3 percent compared to 1.1percent.

Trend from previous Delphi surveys

In the short term, compared to the prior Delphi forecast, the most significant changes in forecast for segment occur in the lower small segment, which is forecast to shrink to only 3 percent of the passenger car market, from 9 percent in the prior forecast. Within segments, there is thought to be significant increases in foreign manufacturers' market shares. Most striking are the lower and upper middle segments, where foreign competitors are thought to increase in both segments to 40 percent each, from 7 percent in the lower, and 16 percent in the upper.

The same changes are forecasted for the long term. Foreign competitors are forecast to increase their market shares in the lower and upper middle segments to 40 percent each, from 8 percent and 16 percent, respectively, in the prior forecast.

Strategic considerations

In the near term, panelists see little change in shares of various passenger car segments. In the lower small segment, panelists may be anticipating additional competition in the segment from Korean and other non-Japanese Asian competitors, as they predict a slight shift in share from domestic to foreign competitors.

In the long term, foreign competitors are forecast to gain share in not only the lower small segment but also in the upper/specialty small segment. Again, this may reflect a prediction that Asian competitors, who started out competing in the lower segment, will by this time move into the higher end small car segment. The modest gains by the domestic manufacturers in the lower-middle luxury segment may be due to an increased number of models or more competitive models.

MKT-33. Please estimate total light truck market share percent. We suggest that you first consider segment shifts, making sure that the total market adds to 100 percent. Next, consider the sources of vehicles within each segment, making sure that these add to 100 percent for each segment. [Please see page 88 for market segment definitions.]

		Median Response	Interquartile Range
Light Truck Sales by Segment	**Est. 1996* (in percent)**	**2002 (in percent)**	**2002 (in percent)**
Small/Middle sport utility	11.9%	12%	12/14%
Traditional domestic	77.6%	75%	70/77%
Foreign	22.4	25	22/27
Large/Luxury sport utility	20.8	22	21/23
Traditional domestic	81.4	80	80/81
Foreign	18.6	20	19/20
Minivan	18.6	18	17/20
Traditional domestic	91.8	90	90/92
Foreign	8.2	10	8/10
Large van	5.6	5	5/5
Traditional domestic	100.0	100	100/100
Foreign	0.0	0	0/0
Small pickup	14.7	15	14/15
Traditional domestic	65.6	65	60/65
Foreign	34.4	35	35/40
Large pickup	28.4	28	26/29
Traditional domestic	98.0	97	95/98
Foreign	2.0	3	2/5
Total	100%		

Light Truck Sales by Segment	Est. 1996* (in percent)	Median Response 2007 (in percent)	Interquartile Range 2007 (in percent)
Small/Middle sport utility	11.9%	14%	12/17%
Traditional domestic	77.6%	74%	65/76%
Foreign	22.4	26	24/33
Large/Luxury sport utility	20.8	22	20/25
Traditional domestic	81.4	80	78/80
Foreign	18.6	20	19/23
Minivan	18.6	18	16/20
Traditional domestic	91.8	90	85/91
Foreign	8.2	10	8/15
Large van	5.6	5	4/5
Traditional domestic	100.0	100	99/100
Foreign	0.0	0	0/1
Small pickup	14.7	15	14/16
Traditional domestic	65.6	65	60/65
Foreign	34.4	35	35/40
Large pickup	28.4	27	25/29
Traditional domestic	98.0	96	93/98
Foreign	2.0	4	2/7
Total	100%		

*Source: Ward's Automotive Reports, Jan. 13 and 20, 1997

Selected edited comments

- SUVs will begin to "merge" with cars. Large pickups will be hit by fuel worries.

Discussion

Panelists forecast that, in the near term, share in each of the truck segments will remain about the same as today. There may be slight shifts in share between domestic manufacturers and importers in the sport utility segments and the minivan segment. Interestingly, foreign manufacturers may add to their share of the large pickup segment, although their share is forecast to remain miniscule.

In the long term, the share of small sport utility segments is expected to grow, offset by slight declines in some other segments. Within the small sport utility segment, domestic share is expected to continue to erode. The same holds true for the large pickup segment.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

In the short term, compared to the prior Delphi forecast, the small/middle sport utility segment is forecast to shrink to 12 percent of the market from 20 percent. Large/luxury sport utility vehicles are forecast to grow from 8 percent to 22 percent. Within that segment, foreign share is forecast to grow to 20 percent, from 5 percent. Foreign share of the small pickup market is thought to grow from 10% to 35%. That entire segment is forecast to shrink from 20% to 15% of the light truck market. Other segments and domestic/foreign share splits are largely the same as before.

In the long term, panelists' divergence from the prior forecast is nearly identical to the short term.

Strategic considerations

Domestic manufacturers are forecast to maintain their significant dominance in the light truck market during the next ten years. However, foreign-based manufacturers are forecast to increase, if only modestly, in most segments. This increase, while not inevitable, is probably due to the lucrative margins associated with trucks, which draw foreign manufacturers into what has traditionally been an American stronghold. These strong truck margins may not last if new models enter the segment and increase competition.

It is important to remind the reader that this question pertains to market shares, not absolute sales levels.

DEFINITIONS—MARKET SEGMENT EXAMPLES

Passenger Car Segment	Domestic	Import
Lower small	Dodge Neon Saturn	Hyundai Accent Mitsubishi Mirage
Upper/Specialty small	Mercury Tracer Pontiac Sunfire	Volkswagen Golf Honda Civic
Lower middle	Dodge Stratus Pontiac Grand AM	Hyundai Sonata Mitsubishi Galant
Upper/Specialty middle	Ford Taurus Pontiac Firebird	Nissan Maxima Toyota Celica
Large	Dodge Intrepid Chevrolet Caprice	No entries
Lower/Middle luxury	Lincoln Continental Buick Park Avenue	Lexus ES300 Millenia
Upper luxury/Specialty	Cadillac Seville Lincoln Mark VIII	Jaguar XJ6 Lexus SC400

Light Truck Segment	Domestic	Import
Small/Middle sport utility	Jeep Wrangler Chevrolet S-Blazer	Suzuki Sidekick Toyota RAV4
Large/Luxury sport utility	Ford Expedition GMC Yukon	Toyota Land Cruiser Range Rover
Minivan	Dodge Caravan Ford Aerostar	Mazda MVP Volkswagen Eurovan
Large van	Dodge Ram Van Ford Econoline	No entries
Small pickup	Ford Ranger Chevrolet S-10	Isuzu Pickup Mitsubishi Pickup
Large pickup	Ford F-Series Dodge Ram Pickup	Toyota T-100

Source: Ward's Automotive Reports, Jan. 20, 1997.

MKT-34. Please check the one outcome for total vehicle sales for each year that you believe is the most likely to occur.

United States Light Vehicle Sales	Frequency Selected		
	>15 million "Good"	14-15 million "Medium"	<14 million "Weak"
1998	35%	61%	4%
2000	41	39	20
2002	55	38	6
2005	51	41	6
2007	55	38	4

Selected edited comments

- A recession is likely in the next ten years, but probably not in next two years.
- Slight recession around turn of century, followed by continued expansion. Trend between 15-16 million from 1998 – 2007.

Discussion

Panelists forecast generally strong vehicles sales in the U.S., with the possible exception of 2000, where one-fifth of the panelists predict a weak sales year.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

In the prior Delphi VIII forecast, panelists predicted strong years for all except 1998, for which about one-fifth predicted a weak year. At the time the data was being compiled for that forecast, 1998 was about three years away, as 2000 was while work is done on the current forecast. One might draw the conclusion then that the pessimistic 20 percent of panelists, aware of the traditional cyclical nature of the automotive sales, are predicting the automotive downturn "just around the corner."

U.S. Light Vehicle Sales	>15 Million "Good"	14 - 15 Million "Medium"	<14 Million "Weak"
1996	32%	58%	10%
1998	23	54	23
2000	48	46	6
2002	57	34	9
2005	52	43	5

Strategic considerations

Predicting future sales is not easy. Many panelists may be relying on the established pattern of cyclicality that has affected auto sales for years, as well as the industry's vulnerability to economic downturns. While difficult to pinpoint to a particular year, there may be a sense that at some point, the industry will have to suffer a difficult sales year. If such a year, or years, exists, it does not seem to be one of the ones included in this forecast. Even 2000 still gets support from 80 percent of the panelists as being a good or medium year. We may be in a new economic paradigm where the cycles are very different than what history tells us.

MKT-35. Please estimate, in years, the average age of U.S. passenger cars and light trucks and the length of time new vehicle buyers will keep their vehicles by 2002 and 2007.

Vehicle Age and Ownership Trends	Est.* (years)	Median Response		Interquartile Range	
		2002	2007	2002	2007
Average age of passenger cars	8.5	9.0	9.3	8.7/9.0	8.9/10.0
Length of ownership by new car buyers	5.7	5.9	6.0	5.4/6.0	5.0/6.5
Average age of light trucks**	8.4	9.0	9.2	8.5/9.0	8.6/10.0
Length of ownership of new light truck buyers	6.0	6.0	6.0	5.8/6.5	5.6/7.0

*Source: AAMA, Motor Vehicle Facts & Figures 1996, pp. 39-40.

*Length of ownership is OSAT estimate based on data obtained by J.D. Power and Associates.

**Medium duty trucks included in current estimate.

Selected edited comments

None

Discussion

Panelists predict that the average age of cars and trucks will reach nine years by 2002 and exceed that by 2007. Car owners will keep their vehicles slightly longer in the future, panelists predict, but truck owners will not.

Manufacturer/supplier comparison

Manufacturers and suppliers differ on the length of ownership of light trucks: the former predict 5.67 years for both the short and long term. Suppliers, however, predict a period of 6.1 years in the near term and 6.4 years in the long term.

Trend from previous Delphi surveys

The prior Delphi forecast separated buyers and lessees. Data shown below from the prior forecast excludes the lessees. Compared to Delphi VIII, Delphi IX panelists think the average age of passenger cars and light trucks will increase in the future. But, they think length of ownership for both passenger cars and light trucks will remain the same for 2002 and will decrease by 2007.

Vehicle Age and Ownership Trends	Median Response					
	1992 Delphi VI		1994 Delphi VII		1996 Delphi VIII	
	1995	2000	1998	2003	2000	2005
Average age of passenger cars	8.0	8.3	8.2	8.5	8.5	9.0
Length of ownership by new car buyers	5.7	5.9	5.7	6.0	5.9	6.1
Average age of light trucks	8.0	8.4	8.5	8.5	8.8	9.0
Length of ownership by new light truck buyers	6.0	6.1	6.0	6.0	6.0	6.5

Strategic considerations

Panelists predict that the average age of cars and trucks on the road is likely to increase in the future. One major factor may be behind this prediction: build quality of vehicles is better than ever. Cars simply are more durable and reliable than in the past. Manufacturers are offering longer warranties, longer (and sometimes less frequent) service intervals, and corrosion-resistant bodies.

Longer-lasting vehicles can have an impact on new vehicle sales. If they last longer, they need to be replaced less often. Many industry observers believe one of the strongest indicators of new vehicle sales is the scrappage rate of old vehicles. It is difficult to calculate the impact on new car and truck sales of vehicles that stay on the road longer, even if it seems likely that these vehicles have an impact on sales.

MKT-36. How much will the following sales and marketing strategies be used in the next decade? Please circle your response.

Scale: 1 = used much more 3 = no change from today 5 = used much less

Strategy	Mean Response
No cost maintenance	1.8
Longer warranties	2.1
Option package discounts	2.3
Reduced finance rates	2.8
Rebates	3.1

Other responses

Low lead time ordering(means you can custom spec a vehicle and get it delivered in 14-21 days.): rated 1

More value, extra product at reduced cost beyond the regular OEM option list (i.e., dealer installed features):rated 1

On-road services of all kinds: rated 1

Subsidized leases: rated 2

Safety: rated 2

Transparent pricing:rated 1

Selected edited comments

- I think service and convenience will be used as selling tools by dealers.
- Option package discounts will be used more by the Japanese manufacturers, specifically Toyota, and by luxury makes.
- We may see longer warranties (3 to 5 years). No maintenance batteries and engines that don't require tune-up for 100K miles are indicators of a bigger trend. Today's fast pace of life places a greater value on convenience, which supports marketing strategies that simplify car ownership.

Discussion

Panelists predict that some money-saving enticements will be used significantly more in the future than today. No cost maintenance and longer warranties are predicted to increase significantly, as will option package discounts. Reduced finance rates will be used only slightly more than today, while rebates will be used about the same, according to panelists.

Manufacturer/supplier comparison

Manufacturers predict that option package discounts will be used only slightly more than they are today. Suppliers, though, predict such packages will increase significantly.

Trend from previous Delphi surveys

This question was not asked in previous Delphi surveys.

Strategic considerations

Manufacturers will always try to find ways to make the products they sell more appealing. Offering perks like no cost maintenance is appealing to customers because of the reduced operating costs. For the manufacturer, depending on servicing requirements and intervals, the cost may not be particularly great. In addition, offering free maintenance can encourage proper upkeep of leased vehicles, helping to maintain their residual value. Longer warranties, too, enhance vehicle value, especially if the vehicle changes owners before the warranty has expired.

Reduced finance rates are already fairly common today and panelists see only a very modest increase in their use in the future. Interest rates have a large impact on monthly payments, which to many consumers is the most important financial consideration they have when buying or leasing a new vehicle.

Somewhat surprisingly, panelists predict the continued use of rebates. Many observers and managers in the industry believe that the use of rebates has a negative effect on the image of a model. Rebates encourage sales in the short run, but potentially damage public perception. In addition, rebates are expensive, often running into thousands of dollars. Manufacturers would like to get rid of them because of image and cost reasons. However, rebates usually get a great deal of advertising support when manufacturers use them and their appeal to consumers is undeniable. It takes enormous will power for a manufacturer to withhold using them when his competitors are, and dealers are screaming for them.

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MKT-37. Please estimate the sources, in thousands of units, of North American (United States and Canada) passenger car and light truck production for the following years.

Sources of Production	Est. 1996* (000)	Median Response (thousands of units)		Interquartile Range (thousands of units)	
		2002	2007	2002	2007
Passenger car					
Big Three	5,244	5,200	5,196	5,000/5,500	4,963/5,675
Japanese	2,015	2,200	2,400	2,100/2,500	2,200/2,868
European	58	100	150	70/150	75/230
Other manufacturers	0	45	60	0/100	9/200
Light truck					
Big Three	6,013	6,200	6,300	6,000/6,525	6,000/7,000
Japanese	504	620	750	550/763	578/1,000
European	0	50	68	0/74	1/105
Other manufacturers	0	0	10	0/50	0/53

*Source: Ward's Automotive Reports, Jan. 20, 1997.

Selected edited comments

None

Discussion

North America will continue to be an important and leading location for the manufacture of cars and trucks. In fact, panelists believe that production will increase over a million units by 2007. That increase is roughly equal between cars and trucks. In the passenger car segment, it is predicted that production by domestic manufacturers will fall, while production by import manufacturers will increase. In trucks, production is forecast to increase about equally between domestic and import manufacturers.

Manufacturer/supplier comparison

Suppliers and manufacturers disagree on passenger car production levels for the Big Three and other manufacturers. Manufacturers forecast slightly less than 5 million units in the near and long terms, while suppliers forecast close to or at 5.5 million units in those periods. Manufacturers predict that other manufacturers will produce up to 200 thousand units while suppliers predict much lower volumes.

Trend from previous Delphi surveys

Delphi IX panelists indicate less optimism in future sales than did 1996 Delphi VIII panelists, although the two panels are predicting for different years. The following table shows production for the previous and current Delphi forecasts. The years 2000 and 2005 are from the Delphi VIII forecast.

Sources of Production	Median Responses (000's)			
	2000	2002	2005	2007
	Delphi VII	Delphi IX	Delphi VII	Delphi IX
Passenger Car				
Big Three	6,275	5,200	6,400	5,196
Japanese	1,880	2,200	2,000	2,400
European	75	100	140	150
Other manufacturers	15	45	45	60
Light Truck				
BigThree	6,000	6,200	6,200	6,300
Japanese	600	620	700	750
European	50	50	50	68
Other manufacturers	10	0	17	10
Total	**14,905**	**14,415**	**15,552**	**14,934**

Strategic considerations

The Japanese and, to a lesser extent, the Europeans, will continue to expand production in North America, presumably to match increased sales of their products here and in other markets. The Big Three will build more trucks but fewer cars, according to panelists.

It seems that panelists believe that the popularity of trucks will continue into the next millenium. Japanese truck production is forecast to increase about 50 percent in the next ten years. Truck production by European-based manufacturers is forecast to increase, although with the popularity of the Mercedes-Benz sport utility, the estimate in this forecast may be very conservative. Panelists predict that a manufacturer from outside the traditional car-building nations will set up production in North America.

Panelists predict a modest collective loss of production of passenger cars for the Big three, despite a forecast of substantial gains for import manufacturers. There has been some current evidence of sales strength in the passenger car segment for Japanese and European manufacturers in the United States and the forecasted increases in production could reflect ongoing strength. The loss of units from the Big Three, while very modest, is somewhat disturbing in light of quality gains and the often innovative styling of some of the recently introduced products. In addition, some domestic manufacturers or their divisions have expressed an intention to increase exports. Cadillac, for example, has redesigned its Seville to be more appealing in markets around the globe.

MKT-38. Please forecast, in thousands of units, the number of total motor vehicle units which will be exported to the United States from the following countries in 2002 and 2007.

Country	1995* (000)	Median Response (thousands of units)		Interquartile Range (thousands of units)	
		2002	2007	2002	2007
Belgium	31	30	30	30/33	25/33
Canada	2,120	2,200	2,300	2,100/2,305	2,075/2,500
France	2	2	2	2/2	2/3
Germany	208	220	240	200/250	200/300
Italy	1	1	1	1 / 2	1 / 2
Japan	1,478	1,493	1,495	1,200/1,500	1,000/1,600
Mexico	573	700	800	600/800	654/1,000
South Korea	217	250	300	220/300	240/400
Spain	---	0	0	0/58	0/100
Sweden	84	85	87	80/100	80/100
United Kingdom	43	46	50	43/50	43/60
Other	n/a	n/a	n/a	n/a	n/a

*Source: AAMA Motor Vehicle Facts & Figures, 1996, p. 52. (Passenger cars)

Other responses

Brazil: 100 (2007)

China/SE Asia: 100 (2007)

Selected edited comments

- I see growth in European car sales.
- Japanese imports will decline as a percentage of their total sales because of their capacity increases in the U.S. Other marginal participants in the U.S. market will make inroads in the entry-level market, for example, Koreans. As the European industry becomes more globally competitive, European makers will have some renewed success in selling products in the U.S. market in the long term. In my opinion, the big question is: Can the Big three effectively compete (profitably) in the entry-level market for small cars?

Discussion

Imports are expected to rise about 5 percent from 1995 to 2002 and another 5 percent in the five years following that time period. Panelists forecast that most of the imports into the United States will come from the two other NAFTA countries, Canada and Mexico. There will be slight increases from Germany and South Korea.

Manufacturer/supplier comparison

There is general agreement on exports from other countries into the U.S. except for Spain in the short term, where manufacturers predict a much higher level, 62,000, than do suppliers who predict only about 8,000 units.

Trend from previous Delphi surveys

The results of the current forecast are very similar to those from the prior one. The most significant departure from Delphi Forecast VIII is for Canada, which was forecast to export 1.3 million and 1.4 million vehicles to the U.S. in the near and long term, respectively. The current forecast shows those export figures for near term and long term to be 2.2 million and 2.3 million, respectively. The forecast for Mexico, too, has changed from 350,000 units short term to 700,000 units. In the long term, Mexico is now forecast to ship 800,000 units to the U.S., up from 500,000 units in the previous forecast. The forecast for other countries has remained similar to the previous forecast.

Strategic considerations

While imports are forecast to continue to grow, the growth is very modest. Most of it is within the NAFTA trading zone. Canada and Mexico will continue to be desirable production locations for both the Big Three and other manufacturers for a variety of reasons, including low wages (Mexico), established and trained work force (Canada) and the NAFTA agreement in general.

In considering total sales by foreign manufacturers, imports are only part of the story. Car companies from Europe and Japan have a significant manufacturing presence in North America and of course, their sales consist of both domestically manufactured and imported vehicles. It is useful to combine the results from MKT-31, MKT-37 and this question to achieve a sense of what sales levels manufacturers from different regions of the world are going to reach in the U.S.

In fact, there has been an enormous shift to U.S. and Canadian production among the Japanese manufacturers (in particular) in response to currency fluctuations, political concerns and other issues so that they are much less reliant on production from Japan to serve North American markets. That may be freeing up Japanese factories to product models for Asian or other emerging markets.

MKT-39. Please forecast total U.S.-assembled vehicle exports, in percent, by geographic destination by 2002 and 2007.

U.S. Exports To	Est. 1995*	Median Response 2002	Median Response 2007	Interquartile Range 2002	Interquartile Range 2007
Canada	54.5%	54%	53%	51/55	50/55
Japan	11.0	12	12	11/13	11/14
Latin/South America	9.9	10	10	9/10	8/10
Europe	8.8	9	9	9/10	9/11
Asia, except Japan	6.8	7	8	7/8	6/10
Middle East	4.6	5	5	4/5	4/5
Mexico	1.8	2	2	2/3	2/5
Other	2.6	2	2	1/3	1/3
Total	100%	100%	100%		

*Source: AAMA Motor Vehicle Facts & Figures, 1996, pp. 48-51.

Selected edited comments

- Increased export sales efforts, establishment of local dealer networks and local manufacture and CKD and SKD assembly will provide entry to foreign markets. Western Europe and South America are already penetrated by the Big three with their local assembly operations. Exports to these areas will be vehicles that are not made locally. General economic development in third world countries will provide further opportunities. Consequently, the percentage of exports going to Canada, a mature market, will decline.

Discussion

Panelists predict very little change in the geographical distribution of vehicles exported from the United States in both the short term and long term.

Manufacturer/supplier comparison

Panelists from these two groups disagree only about the level of exports to Mexico. Manufacturers predict a greater percent of exports, at almost 4 percent in the near term and slightly more than 5 percent in the long term. Suppliers predict about half as much in both periods.

Trend from previous Delphi surveys

Current survey panelists are much less optimistic about U.S. exports to non-Japanese Asia, Europe and the Middle East, predicting new short and long term forecasts decreased by as much as 50 percent from the previous survey. On the other hand, optimism has increased about exports to Japan and to Latin/South America. The latest forecasts have nearly doubled for those regions—more than doubled for Japan, in the short term.

Strategic considerations

The response to this question is somewhat surprising in light of the fact that recent years have seen an increase in exports from the U.S., especially by the foreign manufacturers who build here. Moreover, the domestic manufacturers seem interested in pursuing more export opportunities.

Growing markets in Asia have been often mentioned as a potential destination for American-built vehicles. Economic turmoil in the region, however, may have blunted panelists' optimism.

This is essentially a "no change" forecast for the destination of U.S.-built vehicles to overseas markets. This forecast does not separate domestic and import manufacturers, nor does it register gains and losses between manufacturers that result in this net "no change" forecast. It is a forecast of shares and hence does not predict volumes, either.

MKT-40a. How important are the following features or issues in exporting vehicles from North America in 1997, and how important do you expect them to be in 2007? Please circle your response.

Scale: 1 = extremely important 3 = somewhat important 5 = not at all important

	Mean Response	
Features	**1997**	**2007**
Development of an effective distribution system	1.6	1.4
Design for local preferences	1.6	1.5
Availability of untaxed, smaller displacement engines	2.1	1.9
Availability of right-hand drive	2.0	2.0
Exchange rates	2.0	2.0
Political considerations	2.3	2.2
Availability of diesel engines	2.8	2.4

Other responses (1997)

Cost in local country: rated1

Cost of North American production: rated 1

Features: rated 2

Lower labor and burden costs: rated 1

World economy: rated 1

Other feature or issue: rated 2

Other responses (2007)

Cost in local country: rated 1

Features: rated 2

Flex fuels: rated 2

EMU: rated 1

Regional preferences, trade zones: rated 2

World economy: rated 1

Other feature or issue: rated 2

Selected edited comments

- Each feature in the above list will have a different priority depending upon the particular country or region targeted for export sales. The importance of these features are thus generalized for all export markets. For the Big three, most of these features should be provided in the local market by vehicles assembled in the local market. Exports from the U.S. will be vehicles specifically designed for the U.S. market but capable of being sold in some small volumes in foreign markets.
- Government policy has a profound impact on international automotive trade.

- In third world nations, a developed middle class has to occur so the buying power exists to purchase cars.
- Many U.S. vehicles are not designed around local preferences.
- Right-hand drive is crucial in right-hand drive countries; the overriding issue is distribution and service infrastructure.
- The big issue now and in the future is, "How open will foreign markets be?"

Discussion

Panelists believe that vehicles designed with local preferences in mind, as well as an effective distribution system, are the two most important components of successful importing from North America. This applies to both the near and long term. The other factors for features listed were also considered very important, except for the availability of diesel engines, which rated only somewhat important today, although its importance will increase in the next ten years.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

This question was not asked in a previous Delphi forecast.

Strategic considerations

There has been a great deal of debate about exports from the U.S. to other developed (and car- building) nations. Unlike some other vehicle-manufacturing nations, the U.S. has not been an especially active vehicle exporter. With a huge home market, that is not necessarily a disadvantage. Lately, though, domestic manufacturers have had greater success with exports. Even so, many American-designed vehicles seem well suited to North American driving conditions and tastes, but less appropriate for some foreign markets. Since gasoline is often much more expensive in other countries, buyers there prefer highly fuel-efficient cars and are accustomed to buying smaller vehicles. Smaller engines, too, dominate in other parts of the world. This is due not only to fuel efficiency concerns but also to a tax policy that penalizes large displacement engines.

Besides product issues, panelists cite the need for an "effective distribution system" to support the sale and servicing of vehicles.

MKT-40b. What impediments to exporting vehicles will the traditional U.S. manufacturers face worldwide?

Individual Responses	Responses
Design vehicles for local markets	23%
Local or political restrictions	17%
Tariffs/trade impediments	16%
Lack of or poor distribution system	12%
High cost of U.S.-produced vehicles	10%
Currency issues	5%
Other	17%
Total	100%

Individual responses

- All other OEMs wanting to do the same thing; establishment of local assembly plants; government interference; distribution problems
- An internal commitment to dedicate the people and resources to launch an effective long-term attack on export markets (and likely sustain short-term losses while doing so) may be a significant impediment. I believe this is the biggest obstacle.
- Competition in global market place; expansion of local production; expenses too high (need to cut back on frills); foreign government interference; foreign exchange rate fluctuations
- Cost pressures vs. other international low cost manufacturing bases; suitability of product for local markets; distribution
- Cultural considerations; exchange rates; cost competitiveness from manufacturers in overseas markets
- Difficulty in setting up and having continued influence over a distribution system; local content tariffs that make it impractical to export vs. locally assemble; lack of technology in both power plants and performance features in smaller engines to meet local desire; increased globalization by other manufacturers which will not have tariff and other legislative hurdles
- Foreign import duties and taxation; local content requirements; localization of Japanese and European automakers in emerging markets; inability to design a truly global product; poor distributing, especially in Asia
- High labor costs relative to local market; political desires to establish local market industry (jobs); lack of local market knowledge, product needs and distribution
- Image, especially into Europe; trade barriers (non tariff) will continue to be an issue in Japan
- Increase of local production globally; increase of import duties and tariffs to support local production
- Lack of understanding of foreign cultures; no established distribution systems

- Local content of OEM manufacturing in developing countries; duties, tariffs, taxes, etc., on imported vehicles; U.S. manufacturers lack of understanding of local needs, preferences, or market—they need basic transportation for the masses; need for infrastructure—road, gas/repair stations; need for businesses to provide income for potential purchasers; stable economics in the government/political system
- Most large American vehicles (SUVs, pickups, V-6 and V-8 autos) are not well suited to the high volume export markets. Look at the prevalence of minivehicles in Japan, Asia and Europe. American vehicle platforms will always be niche players in these foreign markets. Local assembly by the Big three in these markets will be virtually mandatory; unless gas prices go to $3/gallon or higher in the U.S. Another impediment is the establishment of distribution (dealer networks) in underdeveloped countries. The Japanese are far ahead in establishing a presence in these markets, hence Japanese vehicles are becoming the standard of the industry (such as it exists) in these markets. Homologation of industry standards (SAE, JIS, DIN, etc.) will proceed slowly. English vs. metric measure is a drawback in some vehicles. The major impediments to export are simply the factors that differentiate the U.S. market from other major global markets; gas prices being primary among them.
- Non trade barriers
- Only nationalism. Safety and other specs (environment, etc.) will become global/universal.
- Perception of poor quality; lack of designs to fit local market requirements (e.g., right-hand drive for Asia); poor distribution networks; political problems
- Protectionism; price; lack of small/unique products for specific regions
- Producer (dealer communities in Asia); political situations in various countries in EU; cost of American vehicles; decontented vehicles—no profits; localized/regional suppliers and parts distribution; worldwide competition of other luxury cars
- The days of shipping large numbers of cars all over the world is past. In the future, more and more production will occur locally.

Discussion

The table at the beginning of this question summarizes the responses for this question. There is a mix of difficulties that U.S. manufacturers face in their efforts to succeed in overseas markets. Of greatest concern to the panel was the suitability of American-designed products to other markets. Other important concerns include local content barriers, tariffs, inadequate distribution channels and vehicle costs.

Manufacturer/supplier comparison

This comparison is not done on open-ended questions.

Trend from previous Delphi surveys

Trend analysis is not done for open-ended questions.

Strategic considerations

Vehicles designed and sold primarily in North America have traditionally not been sold extensively outside of this continent. Reasons for this are varied. Panelists have identified barriers such as trade restrictions and inappropriate products as reasons for limited numbers of exports.

With a highly competitive and saturated market in North America, American manufacturers are likely to make greater efforts at distributing their products in overseas markets. General Motors and Ford, with large European subsidiaries, have distinct product lines in that region. For them, this precludes the need to promote exports from North America. Chrysler, which sold its European operations several decades ago, had more of an incentive to surmount the obstacles discussed in this question than the other two U.S. manufacturers, which is why their recent merger with Daimler-Benz is so important. It keeps them from being shut out of the European market.

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MKT-41. Please forecast the total domestic and import U.S. market application rate, in percent, of the following powertrain and chassis features in 2002 and 2007.

		Median Response		Interquartile Range	
Powertrain/Chassis Features	**1995 MY***	**2002**	**2007**	**2002**	**2007**
Passenger Car					
Multivalve engine (>2 valves/cylinder)	40.1%	45%	50%	42/50%	44/70%
V-8 engine	11.7	10	10	10/12	8/12
Supercharger	0.6	1	1	1/1	1/2
Turbocharger	0.6	1	1	1/1	0/1
Active suspension	0	1	2	0/2	1/5
Light Truck					
Four-wheel drive	37.7	40%	42%	38/41%	38/45%
Multivalve engine (>2 valves/cylinder)	4.3**	6	10	5/10	5/15
Diesel engine	4.1	5	5	4/5	4/7

*Source: Ward's Automotive Yearbook, 1996 and Automotive News Market Data Book, 1995

**Data represent MY94

Selected edited comments

- An assumption of a fuel shock drives my estimate for diesel engine (a guess).
- Another gas price shock will derail V-8 engines by 2007.
- CAFE and emissions laws will push engine choices to smaller, multivalve types that will have more "boost" type chargers to maintain performance.
- V-8 growth will be in smaller displacement V-8s.

Discussion

Panelists forecast a moderate increase in the use of multivalve engines in both the near and long terms in passenger cars. They predict no great increases in the use of V-8 engines, superchargers or turbochargers. There will be only modest use of active suspension systems.

For light trucks, four-wheel drive will increase modestly during the periods surveyed, while the use of multivalve engines will more than double between 1995 and 2007. Diesel engine use will increase to 5 percent by 2002, an installation rate that will remain the same until at least 2007, according to panelists.

Manufacturer/supplier comparison

These two groups of panelists disagree over the installation rates of multivalve engines. Suppliers see fewer installations, at 46 percent in the short term and 52 percent in the long term. Manufacturers predict higher installation rates, at 53 percent short term and 68 percent long term.

Trend from previous Delphi surveys

The current forecast is quite similar to the previous one. Notable changes from the previous forecast include a slightly less optimistic long-term forecast for passengers cars with multivalve engines (50 percent, down from 55 percent). Also, panelists are more bullish on the use of four-wheel drive in light trucks, increasing the short-term forecast from 35 percent to 40 percent, and the long-term forecast from 38 percent to 42 percent.

Strategic considerations

Multivalve engines continue to grow in use (and presumably popularity). While their use is being adopted more and more by domestic manufacturers, they have traditionally been especially popular among European and Japanese manufacturers, who used additional valves to wring out performance gains from small displacement engines. Volkswagen has moved to a higher plateau by adding a fifth valve to the 1.8-liter engine used in some of its Volkswagen and Audi models. Multivalve engines have acquired a certain marketing cache, perceived by some buyers as more modern than the more common pushrod engine. There is, however, a price penalty of as much as $1000 over a pushrod engine of similar displacement.

Supplemental aspiration components, such as superchargers and turbochargers, are forecast to be only infrequently used, as they are now. While a relatively inexpensive way to extract more power from an existing engine, they add complexity and sometimes make noise.

V-8 engines will remain in use although not at the dominating levels they once enjoyed. There will probably always be a place for the V-8 engine in high-end vehicles and sports cars. In fact, many V-8s in use today use a multivalve valvetrain system that has become common in engines with fewer cylinders.

Added complexity and cost, with only marginal performance gains, are probably what will keep the use of active suspensions to a minimum.

MKT-42. Please forecast the total domestic and import U.S. market application rate, in percent, of the following brake system technologies in 2002 and 2007.

		Median Response		Interquartile Range	
Brake Systems	**Est. 1995 MY***	**2002**	**2007**	**2002**	**2007**
Passenger Car					
Antilock brake system	55.9%	65%	75%	60/70%	70/85%
Four-wheel disc brakes	7.0	10	15	10/10	10/18
Traction (anti-spin) control	10.8	15	21	15/20	20/30
Light Truck					
Two-wheel antilock brakes	36.9%	30%	25%	30/38%	15/31%
Four-wheel antilock brakes	55.4	60	70	60/67	60/80
Four-wheel disc brakes	n/a	5	10	5/10	5/12

*Source: Cars: Ward's Automotive Yearbook, 1996, Automotive News Market Data August 1996, and OSAT estimates.

Selected edited comments

- Antilock brakes will become virtually standard as its cost drops below $100 per car.
- With speed limits increasing, there will be a need for greater anti-spin control.

Discussion

Panelists forecast that the use of antilock braking systems will increase significantly over the next ten years in both cars and trucks. Four-wheel disc brakes, uncommon in cars and almost unheard of in trucks, will be more widely used also. Traction control will double its presence in cars by 2007, according to the survey. In trucks, installation of two-wheel ABS will decrease.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Comparison of forecast: TECH-46

There is a statistically significant difference in mean responses between technology and marketing panelists for the brake technologies in passenger cars and light trucks in the years shown in the following table.

Brake Control Technology (Percent)	2002		2007	
	TECH	MKT	TECH	MKT
Passenger Car				
Antilock brake system	-	-	81	76
Four-wheel disc brakes	-	-	23	16
Light Truck				
Four-wheel anti-lock brakes	68	64	78	70

Technology panelists forecast higher use of anti-lock brakes and four-wheel disc brakes in 2007 than marketing panelists. Technology panelists also forecast higher use of four-wheel anti-lock brakes on light trucks in 2002 and 2007 than marketing panelists.

Trend from previous Delphi surveys

The current forecast continues a trend from previous forecasts for increased use of traction control and antilock braking systems on trucks. However, this forecast reverses the growing trend for antilock braking systems on passenger cars, as well as four-wheel disc brakes on light trucks. Installation rates for those categories are predicted in the near and long term to be smaller than they were in the prior forecast.

Strategic considerations

Despite recent concerns about the benefits of antilock braking and the chance for driver misuse of them, our forecast shows steadily increasing installation rates among both cars and trucks. The systems have been in use long enough that many drivers have become accustomed to its function and make its availability a priority in selecting a new vehicle. As production has increased, the price of ABS systems has dropped, making them more accessible to price-sensitive consumers. On trucks, the increase in four-wheel ABS systems nearly matches the drop in two-wheel systems. Again, dropping prices may account for the switch from two-wheel control to four-wheel control.

Four-wheel disc brake systems offer fewer braking benefits than an ABS system does but their use is still forecast to increase. Possibly offering more marketing appeal than performance gain, disc brakes at all four corners are forecast to reach an installation rate of 15 percent on cars by 2007, and 10 percent on trucks by that time.

Traction control, a recent addition to vehicle control systems, will increase significantly in the future. A relatively inexpensive system, traction control aids both front- and rear-wheel drive vehicles and often utilizes some of the ABS components, such as wheel speed sensors, which makes it easy to add to a vehicle equipped with ABS. Though not all traction control systems interact with the ABS system, many do. Consequently, look for an installation rate for traction control that is always less than that of ABS.

MKT-43. Please forecast the total domestic and import U.S. market application rate, in percent, for the following vehicle features by 2007.

Feature	Median Response	Interquartile Range
	2007	2007
In-vehicle message system	14%	5/25%
Adaptive cruise control	10	5/21
Collision warning system	10	5/20
Navigation system	10	7/25
Automatic toll collection	5	2/15

Other responses

Blind spot elimination: 100%

Inflatabands: 90%

Smart restraints: 70%

Emergency systems: 20%

Integrated communication link: 15%

"Mayday" systems: 10%

Air purification system: 8%

Intelligent lighting systems: 3%

Parking assistance

Selected edited comments

- Many high tech features will be limited to the near luxury and luxury segments of the market.
- Safety/security will be a major differentiator in the future.
- Use of adaptive cruise control depends on the resolution of liability issues.

Discussion

Panelists forecast that various "intelligent" transportation features are likely to be adopted during the next ten years. Leading the list is an in-vehicle message system. Three features are forecast to be installed at equal rates: adaptive cruise control, collision warning system and navigation system. At a smaller predicted rate is automatic toll collection, forecast to be used at a 5 percent level.

Manufacturer/supplier comparison

Manufacturers and suppliers disagree on the degree to which navigation systems will be adopted. Manufacturers are more optimistic, predicting and installation rate of about 27 percent by 2007. Suppliers predict a rate of only 15 percent.

Comparison of forecast: TECH-50.

Responses from Marketing panelists are not statistically different from those of Technology panelists.

Trend from previous Delphi surveys

The current forecast is nearly identical to the previous one.

Strategic considerations

These advanced "intelligent" features continue a trend to make vehicles safer and more informative to the driver. As with other kinds of technological innovations or features, these will likely be adopted slowly, probably on luxury vehicles whose owners appreciate advanced features and who can afford to pay for them.

The adoption of these features may depend on forces peripheral to consumer wants and needs. Some of these features may be monitored or encouraged by the government. For example, adaptive cruise control, with the possibility of reducing accidents, could be promoted or even required at some point by government authorities. Collision warning systems could likewise be encouraged. Other features, like navigation systems, will likely rely on consumer interest although this particular feature might be of interest commercially in rental fleets. A navigation system could be a boon to someone travelling in an unfamiliar city.

The interquartile range is fairly broad for these features, suggesting that panelists differ in their opinions about the adoption of these features. In an era of high vehicle prices, these features might be seen as frivolously costly. Since some of these features involve a government-supported infrastructure, municipal costs come into play, which would have an effect on adoption.

MKT-44. For the following features, please estimate the highest purchase price in 1996 dollars which will permit a 25 percent passenger car market penetration rate. For reference, recall that an average vehicle costs about $20,000 in the 1996 U.S. market.

Feature	Median Response	Interquartile Range
	Price	Price
Collision-avoidance systems	$250	$200/500
Navigation information systems	250	150/500
Traction (anti spin) control	150	100/250

Selected edited comments

- Better than 50 percent of the North American market doesn't really care about traction control in the less severe or no-winter snow places.
- Complete collision – avoidance systems may need changes in infrastructure and are long term.
- Frankly, I don't think the public wants these systems. In order to penetrate the market, you'd need to "give" them away—in packages. I also think the public would not respond well to significant pricing for these products.
- These prices would allow penetration into the higher volume (below luxury level) market segments.

Discussion

Panelists forecast that the listed features would reach significant installation levels at median prices of between $150 and $250, depending on the feature.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

For navigation information systems, the current survey continues the trend of increasing median prices from previous surveys. The Delphi IX forecast adds $50 in price to the median value forecast in Delphi VIII, which had added $50 to its predecessor forecast. However, the prices forecast for the other two items have decreased, traction control by $50 from Delphi VIII, and collision-avoidance systems by $125 from that prior forecast.

Strategic considerations

Panelists predict that vehicle buyers would value a collision-avoidance system and a navigation information system equally, while desiring a traction control system less. Collision-avoidance systems might be perceived as useful because of the costs they would help a consumer avoid: the money spent on vehicle repairs, insurance costs, and injuries. Navigation systems are already available on some luxury models, and they tend to be expensive. Initial reaction from drivers who use them seems to be favorable, but this can be due in part to the novelty of a relatively new feature. One important issue to consider for the future of navigation systems is the degree to which

drivers travel "uncharted waters." It would be interesting to determine the percent of travel that is within a familiar area or to known destinations.

MKT-45. "Green" marketing may create new opportunities. However, significant uncertainty exists regarding consumer priorities and perceived value. For each vehicle attribute, please estimate the highest passenger car price increase which customers will accept without greatly decreasing a vehicle's market share. Remember that the average vehicle costs about $20,000.

	Median Response	Interquartile Range
"Green" Marketing Attributes	**Cost**	**Cost**
Near zero emission	$200	$50/450
Almost 100% recyclability	50	0/125
Low-pollution manufacturing	0	0/50
40 mpg fuel economy	300	200/500

Comments pertaining to specific attributes

- Cost, benefit ratio will not support additional costs.
- Consumers will buy it but only if it is competitive to the costs of a combustion engine.
- Expect near zero emissions at no cost—consumers won't pay for it in the United States.
- Near zero emission
- Only 20 percent of the population feels strongly about paying extra to reduce pollution.
- It is probably equal to any tax credit.
- People say they want this but will not pay for it. They expect the manufacturer to provide the benefits at no additional cost.
- This will only come from government policy—no individual manufacturer has enough economic incentive.

Almost 100% recyclability

- Consumers expect almost 100 percent recyclability at no cost.
- The infrastructure does not and will not exist to support this attribute.
- People will not pay extra for recycling. People view the current car as already recyclable, 96 percent by weight currently.
- This applies only for niche vehicles.
- This is considered a minor issue by most consumers.
- This is somewhat important; however, the benefits of raw material savings should be passed on to the consumer.

Low-pollution manufacturing

- Consumers expect low-pollution manufacturing at no cost.
- People see this as the manufacturer's responsibility.

- Reductions (VOCs, etc.) achieved through this "consumer investment" should be stated on the vehicle sticker price (i.e., cost v. benefit must be achieved).
- This issue is too far from consumers to be considered an issue worthy of personal sacrifice.

40 mpg fuel economy

- Consumers may bear additional cost for this, as long as performance is not compromised.
- Most consumers are willing to pay half up front for future fuel savings.
- Must prove payback as part of reducing total cost of ownership.
- People are more concerned about the price they pay than about incremental operating costs.
- This is a real economic advantage that a significant number of people would value.

Selected edited comments – general :

- A cost-benefit analysis will not support near zero emissions.
- Environmentally friendly manufacturing is too far from consumers to be considered an issue worthy of personal sacrifice. It's a manufacturing issue, not a consumer one.
- For all of these areas I believe the expectation is that the car companies and the government should "just do it."
- For today's vehicles in today's market. Green concerns are not currently high in the public's perception. This will change in the next five years, I think. Threatened fuel supplies would have a huge effect on these attributes.
- High mileage capability should not compromise crashworthiness.
- My assumptions are for mass market, not niche, vehicles.
- Only economy of some sort will stimulate the consumer. On average, people won't *pay* for green.
- Only 20 percent of population feel strongly about paying extra to reduce pollution.
- The benefits of raw material savings using recycled materials should be passed on to the consumer.

Discussion

Panelists predict that consumers would pay a sizeable premium for vehicles capable of near-zero emissions levels or above average fuel economy. They will pay less or nothing for environmentally friendly manufacturing or nearly complete recyclability.

Manufacturer/supplier comparison

There is no statistically significant difference in responses between manufacturers and suppliers.

Trend from previous Delphi surveys

Recyclability and low-pollution manufacturing continue to hold little value to consumers, according to panelists. Panelists continue to predict some value to near zero emissions, with the current forecast identical to the previous two forecasts. High fuel economy gained significantly in

value, to $425, in the previous forecast, but has now returned to the same level of two forecasts ago (Delphi VII).

Strategic considerations

Panelists predict that some environmentally hospitable features are appealing to consumers, but others aren't. The most highly valued attribute, 40 mpg fuel economy, may be so because it results in the cost savings from lower operating costs (compared to less fuel efficient ratings). The desirability of near zero emissions is based more on environmental consciousness, since operating costs aren't reduced. Environmental concern does not extend to recyclability or manufacturing: panelists think consumers will not pay much, if anything, for recyclability or low- pollution manufacturing. One panelist commented that some consumers might expect as a matter of course that manufacturers would design recyclable vehicles and build them in such a fashion that the environment is left unharmed.

Several manufacturers have available for sale low emissions vehicles, meaning they pollute below a standard set by the California Air Resources Board. Honda offers an Accord that meets California's Ultra Low Emissions Vehicle standards and has advertised it on television. It is too early to say if that vehicle is popular with consumers.

MKT-46. Please forecast the total domestic and import U.S. passenger car market in percent of the following factory-installed comfort and convenience items in 2002 and 2007.

		Median Response		Interquartile Range	
Comfort Features	**Est. 1995 MY***	**2002**	**2007**	**2002**	**2007**
Anti-theft	29.5%	35%	50%	34/41%	40/70%
Keyless entry	32.7	40	50	35/50	40/70
CD players	10.6	20	30	14/25	17/50
Automatic climate control systems (Auto. a/c)	15.9	20	25	17/21	20/30
Leather interiors	19.9	21	23	20/25	20/29
Sunroof	17.3	20	20	18/20	18/27
Trip computers	9.3	10	15	10/15	10/20
Steering wheel-mounted controls	n/a	10	15	5/20	8/33
Incoming air filters	n/a	5	10	2/10	5/23
Dual climate control systems	n/a	5	9	2/10	4/20
Telescopic steering columns	1.1**	2	2	1/5	1/9

*Source: Automotive News Market Data, August 1996, Ward's Automotive Yearbook, 1996 and OSAT estimates.

**Estimate based on all U.S. sales, 1996. Sales data obtained from Automotive News, Jan. 13, 1997.

Selected edited comments

- Penetration of comfort features will continue. Once people have a new feature they cannot give it up (e.g., cruise control). People may not be willing to pay for handling features such as four-wheel steering. They will pay for performance (more horsepower) that they can feel.
- Personal cell phones will predominate.
- Trip computers will be built into navigation systems.

Discussion

Panelists are generally predicting increased installation rates for all of the features listed in the survey. Some increases are substantial, others small. There is a fair amount of dispersal in the interquartile ranges, particularly for anti-theft devices, car phones and steering wheel-mounted controls.

Manufacturer/supplier comparison

The two groups differ on their forecasts for three comfort features. For CD players, in the near term, manufacturers predict nearly 30 percent of passenger cars to be so equipped, while suppliers predict only about 20 percent. Long term, manufacturers see about 46 percent of cars equipped with CD players, while suppliers predict that only about one third will have them. Manufacturers believe that by 2002, almost 12 percent of cars will have dual climate control systems. Suppliers forecast that only half that many cars will have them. Finally, manufacturers are much more

optimistic about the installation rates of incoming air filters, to reach 18 percent by 2002 and 29 percent by 2007. Suppliers forecast only 8 percent and 15 percent for those years, respectively.

Trend from previous Delphi surveys

Panelists have grown more optimistic about some comfort features, significantly so in some cases. Forecasts for anti-theft devices and keyless entry systems have more than doubled in both the short and long terms. Installation rates for CD players have exactly doubled in this forecast, compared to last. Steering wheel-mounted controls are forecast to increase in the future more than thought in the last forecast. Trip computers are anticipated to have a less aggressive growth pattern, with the forecast for the near term off by 50 percent, and the forecast for the long term off by 25 percent.

Strategic considerations

For the most part, these features are growing in popularity, according to the forecast. Some of their popularity will be driven by consumer desire: CD players, for example, are growing in popularity because of their superior sound quality but also because they extend the utility of one's home CD collection to the vehicle. Other features may be installed as much for manufacturers to attempt to differentiate their products or provide exciting features to entice prospective customers.

Something interesting to think about in the more widespread use of these features or attributes is how they migrate from high-end luxury models to smaller, less expensive vehicles. There has been a blurring, to some extent, of the differences between market segments due to the availability of traditional luxury car features on small vehicles. In fact, it may be that one way consumers are coping with the high cost of new cars is to downsize a notch, while still being able to get the luxury car features usually reserved for high-priced cars (and trucks).

Some of these features, leather interior and sunroof, for example, have been around for awhile and may have essentially reached their full market potential. In addition, these two in particular are expensive items and in an era of growing affordability concerns, may be bumping up against price-sensitive consumer concern.

MKT-47. Consumers have become accustomed to many choices in tires and wheels on passenger cars. What trends for 2007 do you see for tires and wheels?

Scale: 1 = much more than 1996 3 = about the same as 1996 5 = much less than in 1996

2007	Mean Response
Tires	
Self-repairing	1.8
Longer life	1.9
Water-shedding designs	2.0
Lower profile	2.4
Wheels	
Aluminum	2.2
Styled-steel	2.8
Chrome-plated	3.0
Wheel covers	3.5

Other responses

- Tires: greater strength: rated 1
- Wheels: other alloy or plastic: rated 1
- Wheels: plated plastics much more than 1996: rated 1

Discussion

Panelists forecast that there will be more use of the latest tire technologies in the next ten years. Self-repairing tires, longer life designs, and water-shedding abilities will see significantly increased use, as will lower profile designs (though to a lesser extent).

Panelists forecast that chrome-plated wheels will be used about the same as in 1996. Aluminum wheels, though, will see significantly greater use, while styled-steel wheels will be used slightly more. Wheel covers will be used less.

Manufacturer/supplier comparison

Manufacturers forecast that styled-steel wheels will be used somewhat less than today, while suppliers forecast that they will be used somewhat more.

Trend from previous Delphi surveys

This forecast remains true to the prior one except for water-shedding tire designs, whose future use is more conservatively predicted than before. The same situation holds true for aluminum wheels.

Strategic considerations

Panelists predict more opportunity for change in tires than for wheels. Tire performance is predicted to improve in terms of increased life and ability to perform in wet conditions. Self-repairing

tires can help prevent a motorist from getting stranded or may even prevent an especially severe accident from occurring if these tires maintain at least some pressure (instead of blowing out completely).

Lower profile tires are sometimes as much for show as for performance. Other factors being equal, low profile tires often generate higher cornering forces than more conventional tires, perhaps at the expense of a stiffer ride.

Aluminum wheels, presumably styled ones, are thought to be significantly more common than today. Aluminum wheels are already rather common so this is an especially interesting finding. As with so many other vehicle features, this one was often used on high-line vehicles but has spread to more less expensive vehicles. These wheels can be expensive and in keeping with affordability concerns, aluminum wheels could in fact be easily replaced in production with cheaper (and often no less ornate) steel wheels or wheel covers.

In the following question about vehicle styling, consider safety, fuel economy, materials and any other issues you think might be relevant.

MKT-48a. What exterior styling changes do you anticipate by 2002 and 2007?

Individual responses - 2002:

- Better crash protection with lower repair costs
- Blind spot protection; ergonomics improvements passenger-selective for better crash protection
- Color, distinctive re-emergence character
- Deletion of exterior antenna
- End of the "egg;" more sharp lines and more complex designs; use of new materials
- Expanded cab forward approaches; more differentiation among manufacturers; subtle aero improvements; expanded small/compact sport utility offerings; better lighting system design/performance
- Greater exterior differentiation; manufacturers will find ways to make niche, targeted vehicles from more flexible platforms
- High output, lower profile forward lighting; accentuated gender styling for trucks; built-in towing features (trucks/SUV)
- I am not really involved in styling, but pressure from European designs in both weight reduction and fuel efficiency will grow.
- I expect higher vehicles, possibly more boxy to match the need for maximum interior space and minimum outside size. Very cab-forward.
- Lighting technology allowing for styling/design modification
- Lightweight materials—longer life and durability; greater emphasis on recycling of exterior material; discussion on crashworthiness of larger, heavier vehicles and smaller lighter vehicles
- Lower profiles, more use of plastics and fiberglass, less chrome and more window area; an almost homogeneous aerodynamic look with swept rear decks and front dams; increased use of halogen lamps for smoother lens fit
- Metallescent colors such as silver
- Modular assembly/design simplified
- More angles, sharper lines; fuel economy the same as today; more creature comforts on all vehicles; cars and trucks only slightly lighter in overall body weight
- More angular styling
- More cab-forward for cars; "hybrid" car/SUV or car/MPV combinations; flush surfaces
- More distinctive use of exterior chrome trim to better differentiate vehicles and reinforce certain vehicle brands
- More emphasis on visibility (outward); greater vehicle height, shorter overall
- More expressive cars
- More glass; more aerodynamic; less chrome (or chrome-plated plastic)

- More interesting paint colors (such as "flop" paint); more glass, lower profile vehicles, especially low profile tires and big wheels; more aerodynamics
- More sunroofs; more "cab forward"; greater "dragless" controls (especially trucks)
- More "vertical" greenhouses with easier ingress/egress; SUVs merge with cars
- New body materials allowing dramatic new styling lines
- Sleek designs which will further reduce air resistence and bumpers which will absorb a greater amount of the shock generated during a crash.
- Smoother lines, more windshield rake
- Some departure from rounded shapes; more use of aluminum and composites
- Styled lighting; flush surfaces; lower profile
- The aerodynamic contoured look will evolve into more distinctive styling that will set models apart from one another. A lot of '97s look alike, particularly the Japanese makes.
- Will follow European styling; more elegance (subtle); more sporty features

2007:

- Alternate body materials
- Closed wheel
- Compound curves via polymeric glazing—may be photo chromic; door hinge/opening modifications—may see a variation of gull wing
- Continuation of the "low profile" theme; more aerodynamic styling; wheels at the corners of vehicles
- Deletion of rear view mirrors
- Design to accommodate maximum fuel consumption; minimal drag coefficient
- Development of more narrow lane/urban vehicles
- Exotic colors and combinations; design combinations between car/station wagon and SUV; all-activity vehicles rather than sports utility vehicles
- Fewer seams, less attached trim and ornamentation
- Greater world strife in many regional conflicts will cause change in the industry; less reliance on oil and more on alternative fuel sources driven by regional conflicts
- I expect continued emphasis on lower profiles, but a return to individual appearance lines (due to new power sources making aerodynamics a styling feature rather than a requirement); wider and lower tires with even more glass—with SMART highways becoming a reality, looking out the windows at the passing scenery will become a family activity again.
- Increased ding and dent resistant materials
- Jet age design; aluminum body panels/no corrosion
- Larger in size
- Lower profiles; functional air flow management; more "solar" panels
- More aerodynamic, rounded

- More metal; taller cars (higher ground clearance and more interior head room)
- More glass area; integrated lighting themes; larger greenhouse
- More two and one box alternatives in passenger car design
- New assembly technology improving seamless body flow
- New paints, finishes, and chrome of various colors will be used with trucks adopting more car-like features such as five mph bumpers (if not already done by 2002).
- Performance needs coupled with environmental issues will create new niche markets. World cars will be more sensitive to weight, emissions, and fuel economy.
- Physical needs of older drivers will impact design, (i.e., ease of entry/egress); need to cut manufacturing/vehicle purchase costs
- Radar will be integrated into the side panels, front and rear decks.
- Reduced wind resistance to increase mpg; also lighter materials
- Re-emergence of radical ideas
- Sharper lines; bring back the white walls
- Small, high-roof cars
- Specifically, I don't know, but I do believe there will be dramatic changes just to suit the desire to be different.
- Vehicle aerodynamics will be important but lightweight materials will alter structures and allow for more exotic lines.

MKT-48b. What interior styling changes do you anticipate by 2002 and 2007?

Individual responses - 2002:

- Compass; better crash protection
- Constant quest to increase interior volume in shrinking exterior package; increase in the usability of the interior for varying consumer needs, (i.e., transporting cargo one day, children the next).
- Continued improvement in functionality; more seat adjustment flexibility, conversion flexibility (rear seat pass throughs, etc.); elimination of bad packaging (i.e., rear seat in Ford Contour/Mystique)
- Divergence in interiors between greater comfort and luxury for aging baby boomers, and colorful, nontraditional and eclectic for Generation X and baby boom echo.
- Easier-to-reach controls; more electronics; "trucks" more carlike
- Extensive in-cabin battery placement—due to lower profile engine compartments; more comfort and convenience systems installed—message reception, navigation systems, enhanced sound systems, enhanced vision systems—moving towards collision avoidance
- Fewer gauges and dials; heads up display and voice activated controls
- Heightened electronic gadgetry
- Improved ergonomics; better systems integration
- Increased electronics/interactive controls vs. "buttons"
- Increased usage of airbags and padding in the headliner
- Integrated dash, cockpit systems; memory functions—better stereos
- Integrated cell phone/navigation, etc.
- Interiors offering greater comfort and individual taste reflections
- Larger interiors; more plush
- Less powerful activation of air bags; instrument panel structures of composites; side airbags; modular door systems
- Maximum space utilization within a small exterior package
- More cocoon effect on seating; emphasis increasing on N.V.H., quieter vehicles, safety/occupant protection, commonization of materials, plastics, etc.
- More comfort and conveniences to do things that people do at home—TV, video, writing trays, cooling containers; navigation; complete communication (phones standard)
- More driver information technology; more comfort and convenience features
- More electronics that are affordable and standard equipment; more leather, added communication/navigation options; side airbags more widely used on up-line cars
- More imaginative colors and patterns in interior fabrics; seat belts to seats (instead of at the B-pillar); more visibility due to more Hydrocarbfd; more pod-like instrumentation
- More leather and custom features; more electronics; more interior space and comfort

- More leather; navigation system; anticollision devices
- More options available as standard
- More padding surrounding passengers
- More refined materials and continuity
- More room
- More safety equipment—airbags; electronic sound systems
- More seat height
- More streamlined dashboard; more side impact protection; softer interior trim
- More versatile interiors, maybe three across the front seat capability, higher seating position; more entertainment systems for each individual passenger; onboard computers for all passengers; simple interiors for small/fun cars for entry buyers
- More vertical, more padded; higher content as design focus shifts here from exterior
- None
- Not much in design. Suppliers will seek to provide complete interior module
- Onboard computers for guidance; more emphasis on safety-related issues and equipment especially for children and smaller adults
- Soft interiors—no hard edges or materials; orthopedic seats
- Soft surfaces; usage of overhead space; greater use of space for occupants (leg room)
- Swivel seats, lighter weight seats
- Thinner seats with same comfort to improve interior room
- Vehicle stability systems/controls; cellular as factory option; memory seats standard

2007:

- Autopilot on luxury passenger cars
- Collision avoidance, plusher seating (with no-drive technology)—sitting will be a relaxing part of travel
- Complete safety seating; occupant protection systems; more electronics/ergonomics
- Designed for an aging population; easier ingress/egress; automated driver controls
- Easier to reach controls; more electronics; "trucks" more carlike
- Fewer color options
- Fewer individual instruments, more integrated functions on instrument panel
- Fully integrated interiors
- Increased ergonomics to support the aging baby boom generation
- Increase in cockpit-type interiors, particularly for sports cars and smaller vehicles; interior styling will mimic aggressive outside aero styling
- Integrated dash, cockpit systems; memory functions—better stereos

- Integrated displays
- Larger interiors; more plush
- Light sensitive, darkening glass, even more electronic equipment becomes standard; voice actuated electronic/communication devices for ease of use, comfort and safety
- More airbags
- More cocoon effect on seating; emphasis increasing on NVH, quieter vehicles, safety/occupant protection, commonization of materials, plastics, etc.
- More modular interiors; more room due to integrated restraints in seats
- More streamlined dash board; more side impact protection; softer interior trim
- More use of brushed metals and natural fibers
- More utility
- More vertical, more padded; higher content as design focus shifts here from exterior
- Navigational systems
- None
- Onboard "guidance" GPS; cellular as standard; passenger personal entertainment options
- Physical needs of older drivers will impact design, (i.e., easy to read instruments, easy to use controls).
- Provision of space for batteries and alternative or hybrid powerplants will affect interior design; maybe a step up to minivan height for most medium passenger cars
- Reconfiguring instrument panel displays
- Remote download capability for data/messages on instrument panel readouts; continued development of synthetics that look, feel, and *smell* like leather; massaging seat backs
- Satellite communications with service source worldwide
- Soft seating—plush; contoured surfaces to match human form; higher seating profiles
- "Theatre seating" of rear seats higher than front; rear projection/entertainment either ceiling mounted or in the seat backs
- The introduction of an ITS bus will pave the way for increased electronics features which will be incorporated into interior styling

Discussion

Exterior

Panelists identify several areas for styling advancements in the future. In the near term, panelists predict that future designs will be more aerodynamic, using cab-forward designs, stylized lighting and more glass. In the long term, it is also predicted that more innovative body materials will be used. Panelists cite a number of other areas, though not frequently enough to suggest a consensus.

Interior

Panelists predict that electronics and other "high-tech" features will become more prevalent in the interiors of future cars and trucks, particularly in the near term. In addition, there will be more safety features, as well as more functional interiors, including improved seating. In the long term, panelists also foresee redesigned instrument panels as an important styling change.

Manufacturer/supplier comparison

This comparison is not done for open-ended questions.

Trend from previous Delphi surveys

Responses from panelists of Delphi IX are very similar to those of Delphi VIII respondents.

Strategic considerations

Styling remains an important aspect of a new vehicle's appeal. In recent years, some consumers have accused manufacturers of look-alike exterior styling, much of it due to the imperative of fuel economy. With a prediction of more aerodynamic designs in the offing, there is the potential of even more similar designs. Manufacturers who develop aerodynamic designs but attain a measure of uniqueness could stand to gain favor among consumers. The use of new body materials could be the key to new designs.

Many opportunities exist for interior design also. Panelists forecast that opportunities exist for developing more ergonomically correct interiors, more functional interiors, and interiors that are safer and more comfortable. In short, interiors will provide more of the things that people do at home.

DEFINITIONS

FOREIGN NAMEPLATES Refers to all non-U.S.-headquartered vehicle manufacturers or dealership networks regardless of production location (i.e., Honda's U.S. production should be combined with it's import vehicles).

LIGHT TRUCK Includes sport utilities, vans and pickup vehicles.

NORTH AMERICAN-PRODUCED PASSENGER CARS AND LIGHT TRUCKS Refers to all vehicles produced in the United States and Canada.

TRADITIONAL DOMESTIC OR BIG THREE Refers to all U.S.-headquartered (parent company) manufacturers or dealership networks regardless of production location (i.e., forecast for General Motors should include NUMMI-produced Prizms and imported Metros).

QUALITY/RELIABILITY/DURABILITY (QRD) Encompasses any customer dissatisfaction for which a vehicle is taken back to the dealership.

Note: "year" refers to Model Year unless otherwise specified.

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KEY WORD INDEX

Key Words	Question Number		
	Marketing	Materials	Technology
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Key Words	Question Number		
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Key Words	Question Number		
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Manufacturing	1,4,5,7,12,14,38,39,	6,7,9,11-14,18-21,24,	—
Market segments	7,44,46	21	—
Market share	2,6,14,22,31,32,33,45	5,14,17,24	—
Marketing divisions	4	—	—
Materials	40b,45,48a,48b	6,7,9,11,14,18,19,25,	12,42
Materials change	—	12	37
Math base	—	—	33a
Message system	43	—	50
Metal matrix composite	—	22,25,30,44	—
Metal substrate	—	—	64
Miller cycle	—	—	56
Motors, electric	—	—	77,78
Multiplexed	—	—	73,74
Nameplate offerings	4,7	—	—
Natural gas	—	1,5	13
Navigation	43,44,46,48b	—	50

Key Words	Question Number		
	Marketing	Materials	Technology
Nodular iron	—	20,44	—
Noise cancellation	—	—	79
NOx catalyst	—	5,25	63
Nylon	—	23,25,41	—
Occupant restraint	6	8,9	16
Oil pan	—	20,24,25,30	67
Outsourcing	—	21	—
Owner loyalty	—	6	—
Ownership	13,15,18,19,24,26a,35,	51	—
Paint	48a	9,13-16,20,39,46-49,52	—
Particulate controls	—	—	65
Parts	8,29,40a	7,10,12-16,18-20,23,	25,26
PC/PBT	—	23	—
Performance	5,6,25,26,41,42,45,46,	4-7,9,11,12,14-18,20,	22
Phenolic	—	23,41,44	—
Piston	—	30,31,44	67,68
Platforms	4,7,10,28,29,40b,48a	20,35,40	18,19
PNGV (Partnership for a	3a	7,8,14,17,20,21	9,10,11,12
Polycarbonate	—	23,41,43	—
Plastic/composite	—	7,12,21	37,38,39,67
Polyester elastomer	—	23	—
Polyester thermoplastic	—	23	—
Polyester thermoset	—	23	—
Polyethylene	—	23,41	—
Polymer based	—	—	37,67
Polypropylene	—	20,23,25,26,41	—
Polyurea	—	23	—
Powdered metal	—	22,25,30,32	37,55
Powertrain material	29,39,41	—	—
PPO/nylon	—	23	—
PPO/styrene	—	23	—
Prices	1,2,3a,3b,10,11,12,13,	1,7,16,24	—
Product design	3a.6	12,14,51,52	23,24
Product differentiation	7,23,26a,26b,29	—	—
Product liability	6	8,11	16
Production, volumes	—	12	—

Key Words	Question Number		
	Marketing	Materials	Technology
Production development	7,37		—
Production process	—	5	12
Propane	—	—	13
Prototypes	28	—	19,33b
Push rod	—	—	54,55
PVC	—	14,24,41	—
QRD	—	—	22
Quality	2,4,5,8,23,24,26a,26b,	3,9,10,11,12,18,21,28,	—
Recyclability	2,6,45	6,7,9-12,14,20,21,23,	42
Redesign	28,30,37,48a	6,7,14,21,27,44	57
Reformulated gasoline	—	1,3	—
Regionalization	6	—	16,17
Regulation	1,6,10,11,12,14,40b	3,4,6-12,14,17,18,20,	16,17,42
Repair	3a,18,19,22,23,40b,44,	1,2,6,12,14,16,25,37,	—
Retail prices	11,14	—	—
Retail sales	17	—	—
Ride and handling	10,26a	—	22
Roller lifters	—	—	55
Rolling/resistance	—	—	6,11
Rubber	—	22,41	—
Safety	6,23,25,	6-13,17,21,36-38,41,	22
Sales	2,5,7,8,10,13,17,18,19,	4,6,12,13,15,17	—
Sales personnel	18	—	—
Sales procedures	18	—	—
Seals	—	31	68
Selling	4,5,7,17,18,20,23,24,	19	—
Sensors	42	—	72a,b
Service	17,18,19,20,22,23,24,	11-15	—
Sequential shift	—	—	70
Sharing	7,29	6,7,	18
Skills	18	50,23,41,	—
Spark plugs	—	—	61
Springs	—	25,42	44
Stainless Steel	—	7,14,20,22,25,30,44	—
Standardization	29	12	34
Standards	5,10,23,24,40b,45	1,3,4,6,8-10,12,14,18,	16

Key Words	Question Number		
	Marketing	Materials	Technology
Start-up catalyst	—	64	—
Steel	25,47	6,7,12-16,18,20-25,29,	37,38,39
Steering	46	20,24-26,42	78
Stirling	—	—	15
Strategic planning	1	—	—
Stratified charge	—	—	56
Styling	8,9,23,28,30,48a,48b	6,11,12,14,20,25,39,	—
Sub-assemblies	—	—	25,26,27
Supercharged/	—	—	6
Suppliers	1,2,3a,3b,4,5,6,7,8,9,	7,10-14,18,19,21,22,	—
Suspension	7,41	20,25,27,41,42	44
Systems engineering	—	—	35
Taxes	3a,3b,40b	1,2,11,12,17,21,23	1a
Technology leadership	—	—	31
Thermoplastic	—	6,14,20-23,25,38-41,	—
Thermoset	—	22,23,25,38-41,50,52	—
Tires	47,48a	7,10,22,25,27,30	6,11,47
Titanium	—	6,7,9,25	—
Toll collection	43	—	50
Tooling	—	6,12,14,37,39,49	28
Torque converter	—	—	70
TPO	—	23,25,40,41,49,52,53	—
Traction control	42,44	—	46
Trade	1,5,12,17,39,40a,40b	—	—
Transaction prices	12	—	—
Transmission	—	—	6,69
Transverse	—	7,9,15,20,24-26,32,33	—
Trends	1,2,4,6,10,13,20,22,	40	—
Truck attributes	9,10,27	—	—
Turbine	—	7,12,31	15,68
Turbocharger	41	31	6,60
Two-stroke engine	—	—	56
Urethane	—	23,41,42,45,46,51	—

Key Words	Question Number		
	Marketing	Materials	Technology
Value of 1 mpg	—	8	—
Value of pound saved	—	41	—
Valve covers	—	—	67
Valves per cylinder	—	—	53
Valvetrain	—	31,32	54,68
Vehicle attributes	10,41,42,44,45,46,47,	—	—
Vehicle demand	2	—	—
Vehicle features	43,47	—	—
Vehicle integrity	6	8	16
Vehicle production	5	5	—
Vehicle servicing	23	—	—
Vehicle use	2	—	—
Virtual college	—	—	83
Voice activated	48b	—	75
Voltage, system	—	—	76
Water pump	—	—	78
Weight reduction/weight	—	6,7,9,12,14,17,18,20,	6,7,11,40,41
Wheels	47,48a	6,7,20,24,25,42,45,49	—
Wrist pins	—	31	68
Zinc	—	20,22,34,49,50,51	—