

# Bringing a New Car to Market 2

Product Planning-Market Analysis & Identification of Opportunities

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# Steps in Bringing a New Car to Market

## Introduction

A little history

Automobile industry

## Product Planning-Market Analysis & Identification of Opportunities

Understand market trends, consumer preferences, emerging technologies and government regulations

Analyze competitors - identify gaps in the market for new car

## Concept and Design

Translate market insights into conceptual ideas for a new car

Collaborate with design teams and engineers to develop innovative and appealing vehicle concepts

## Engineering and Development

Design the vehicle - safety, performance, and efficiency

Extensive testing - prototype testing, crash testing, emissions testing and performance testing

Address any design or engineering challenges that arise during the development phase

## Regulatory Compliance

Demonstrate safety, emissions, mileage compliance

Certify models' configurations

BEV mandates

## Manufacturing Planning:

Manufacturing plan - consider production volume, assembly processes, and quality control

Identify component suppliers establish partnerships

Set up manufacturing facilities and production lines

## Production and Quality Control:

Begin production - ensure adherence to quality standards and specifications

Implement quality control measures - identify and address manufacturing defects

Conduct pre-launch inspections and testing - guarantee the reliability and safety of the vehicles

## Launch and Distribution

Marketing campaigns to generate excitement and drive sale

Coordinate with dealerships and distributors to ensure a smooth rollout

Monitor customer feedback - address post-launch issues

# Product Planning

- A comprehensive approach to defining, **designing**, and **producing** vehicles
- That meet the needs and desires of consumers
- While aligning with market trends , regulatory requirements and company goals
- An **iterative process**
- Requires cross-functional **collaboration**
  - Styling, engineering, manufacturing, marketing, etc
  - Thorough research
    - Customers, competitors , trends, regulations, etc
  - Understanding of markets
    - Sizes, types of vehicles, etc



- Careful analysis
  - Costs, facilities, profits , etc
- Effective execution
  - Tradeoffs, meet budgets, deadlines, etc

## Bringing a New Car to Market

## Evolution of Cars



1886



1900s-1920s



1930s-1940s



1950s-1960s



1980s-1990s



2010s-2020s

## Bringing a New Car to Market

- First “Mass Production” Vehicle (1908)
- Electric Starters (1911)
- Car Radio (1930)
- Coil Spring Suspension (1934)
- Power Steering (1951)
- Air Conditioning (1953)
- Cruise Control (1958)
- Seatbelts (1959)
- Crumple Zones (1959)
- Power Windows (1960s)
- Intermittent Windshield Wipers (1969)
- Cassette Stereos (1970s)
- Anti- lock Brakes (1971)
- Catalytic Converter (1973)

## Evolution of Cars’ Features

- Digital Dashboard Displays (1974)
- CD Players (1984)
- Rear wheel steering (1985)
- Airbags (1988)
- On-board Diagnostics (1994)
- Connected Cars and GPS Sat Nav (1996)
- Hybrid Cars (2000)
- Bluetooth (2001)
- Reverse Camera (2002)
- Automatic Parking (2003)
- Driver Assistance Feature (2010s)
- Autopilot (2014)
- Data Hotspots (2014)
- Self Driving Cars (2020)

# Product Planning

# Vehicle Features

## Basic Features

- **“Must –Have”** features that a vehicle needs to compete even at a very basic level
- They are non-negotiable and cannot be ignored
- Rolling out a new vehicle without them could spell disaster

## Performance features

- Features that give the company an increase in customer satisfaction
- They need to be prioritized carefully as they have a dollar cost attached to them

## Excitement Features

- Features that yield a disproportionate increase in “Customer Delight”
- They may not be noticed if not in place
- Adding them yields improved “Customer Delight”

- Adjustable seats
- Heater
- Air conditioning
- Automatic transmission
  
- Blind spot alert
- Automatic emergency braking system
- Forward collision warning
- Automatic door locking system
  
- Navigation system
- Lane keeping assist
- Large diameter wheels
- Heated seats

# Product Planning Considerations

- The U.S. auto market is increasingly competitive, price-constrained and globally linked
- The *car is becoming more of a commodity*
- Many vehicle attributes taken for granted by consumers who are often unwilling to pay more for features that once commanded a premium
- These factors can severely constrain product development budgets, forcing trade-offs throughout the planning process
- Automakers must make *tough choices* when deciding which programs to pursue or drop company-wide as well as when selecting the vehicle features to prioritize within a program budget
- Challenges such as over-capacity and long product development lead times, affect some firms more than others



**CAR** study of automotive product planning practice and executive-level interviews offer insights into the challenges the industry faces when designing its products

## Product Planning      Considerations

- Every automotive program has a **business case** - ultimately controlled by **vehicle prices** and **sales volumes**
- **All aspects** of a product plan must meet the resulting **budget constraints**
- Budgeting process involves overlapping short- and long-term planning linked to *current product lifecycles* and *future product plans*
- Individual programs are primarily evaluated using **return on investment (ROI)** and similar financial performance metrics
- Profitability targets can vary by program and market segment
- Every program entails elements of **risk**
  - Particularly for achieved sales volumes
- The **Voice of the Customer (VOC)**—customer needs and wants as gauged through market research—is a key driver for all programs but, *not always the dominant driver*
- Consumers typically express their desires only in terms of what they already know ("**rear view**" **people**), other factors become important in developing competitive products
- Automakers continually **watch the competition** to determine where they need to be in the market and what features a new product must have
- **Brand values** are important in shaping a vehicle program, and **brand identity** is strongly tied to its customer base
- **Global operations** play out in several ways - firms balance the value of spreading costs and risks against the market benefits of regional and brand autonomy

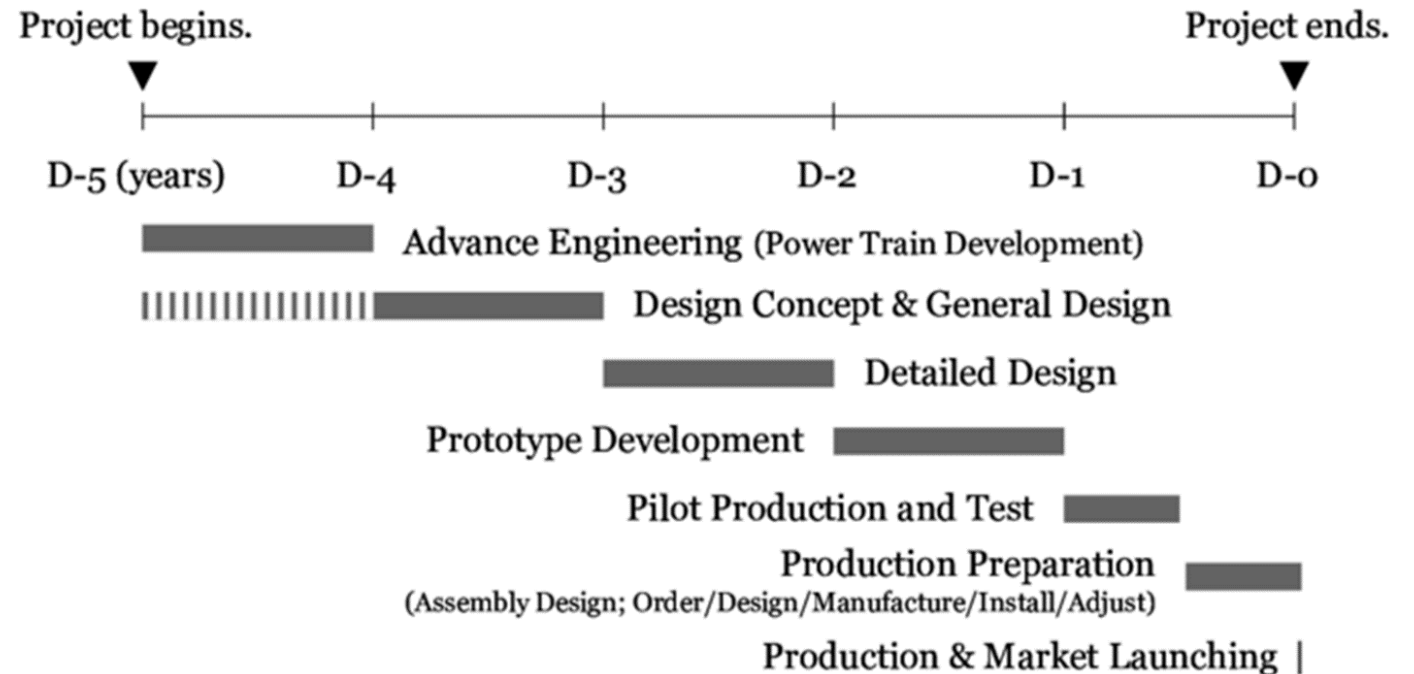


# Product Planning Considerations

- The **ideal approach** appears to be where a firm's product portfolio evolves with a corporate vision that guides the product strategy, but remains anchored in a market built around successful **brands** and the brand's relationships to its customers
- New technology may be developed for its initial application (typically **platform-wide**) which must then bear the full development costs
- In other cases, the costs are spread across programs
- In special cases a new technology may be given a discrete development budget
- To better utilize resources and control costs, programs may use a high level of sharing components and engineering
- Product changes are almost always **evolutionary**
- **Budget constraints** mean that planners must make **trade-offs** which occur at multiple levels
  - Whether major programs are pursued or deferred
  - Selection or rejection of specific features for a vehicle
- **Regulatory requirements** can force trade-offs, since they must be adhered to regardless of brand requirements, customer expectations or other market considerations
- Regarding fuel economy trade-offs must be evaluated using a systems-level approach. If done well, it enables fuel economy to be addressed without incurring additional costs.
- When a societal consideration has value, either for its affinity to a brand value or because of a market incentive, it will be given greater priority in program planning than if it is merely a requirement that incurs costs or forces trade-offs.

# Product Planning Considerations

- Automotive product planning and marketing is characterized by **intrinsic time lags**
- These time lags include *two to three year* lead time for product development
- Even longer lead times if the plan allocates resources for all of the company's products
- Inertia in the system from the evolutionary nature of product change also leads to time lags
- It is difficult for the automakers to do too much too fast
- They are constrained by money, human resource issues and tooling costs, suppliers, etc



## Product Planning

### Market Research:

- Consumer preferences, demographics, and analyzing market segments, identifying target customers, and studying competitors' offerings

### Regulatory Compliance:

- Safety, emissions, and other regulatory standards are **non-negotiable**

### Cost Considerations:

- Meet budget constraints and meet quality and performance targets
- Both production costs and the perceived value of the final product

### Technology Integration:

- Incorporate latest technologies - enhance the appeal and competitiveness of a vehicle

## Considerations

### Aesthetic Appeal:

- Visually appealing **exteriors** and **interiors** that reflect the **brand's identity**

### Functionality and Ergonomics:

- User comfort and convenience - e.g., seating comfort, visibility, ease of use of controls, and storage space

### Globalization:

- Consider **global tastes** and preferences while also adapting to local regulations and infrastructure

### Brand Identity:

- Ensure vehicles align with the **brand's image** and heritage while offering innovation

### Future Trends:

- Anticipate future trends in technology, consumer behavior, and societal norms

# 1962 Request to Proceed with “Special Falcon Program”

(PARAGRAPHS BRACKETED IN SOLID LINES WERE READ AT THE MEETING;  
THOSE BRACKETED BY DASHED LINES WERE TOUCHED UPON.)

## EXECUTIVE SUMMARY

### SPECIAL FALCON PROGRAM

The purpose of this presentation is to request Operating Policy Committee concurrence in the Special Falcon Program. The program provides for an economy personal car to be introduced in mid-1964 and is intended to improve our position in the compact sporty car market now dominated by the Corvair Monza. Our present deficiency in this market accounts for a sizable portion of our outsold condition relative to Chevrolet. This market is even more important than is indicated by its present size because it includes a heavy concentration of younger buyers whose buying habits will be an important influence on the pattern of industry sales in the years ahead.

Two models, a 2-door hardtop and convertible model, will be offered and will be available with 6- and 8-cylinder engines. The program involves fixed expenditures of \$45.4 million. Assuming 100% substitution for existing product lines and a car line Financial Planning Volume of 75,000 units per year, Company accounted profits for the 1964-1967 model years will be reduced by about \$19 million annually.

The Ford Division proposes this program on the basis of its potential to improve our present market share. With sales of 150,000 units per year, including 50,000 incremental units, incremental profits of about \$14 million annually will be realized.

The Ford Division requests the Committee's concurrence in this proposal.

OPERATING POLICY COMMITTEE MEETING  
PRODUCT PLANNING MATTERS - 12-11-62

- Request Operating Policy Committee concurrence
- Special Falcon Program
- Economy personal car –introduce mid 1964
- Improve position in compact sporty car market dominated by Chevrolet Corvair Monza
- Two door hardtop and convertible
- 6 and 8 cylinder engines
- Fixed expenditure \$45.4 million
- Planned volume 75,000 units per year
- Incremental profits of about \$14 million annually

# Product Planning

# Product Portfolio

- Product planners work on developing a *comprehensive product portfolio* over time that aligns with the company's overall business strategy
  - Types of vehicles to produce
  - Their target markets
  - Their features
  - Brand identity
  - Program budget
  - Competition
  - Manufacturing capability
- Based on market research and competitive analysis and company's capability



# Product Planning

# Platforms

## Automotive platform

- The sum of all *non-styling* specific parts – functions, components, systems, and sub-assemblies – of a vehicle
- A group of components and systems **shared** by a range of different models
  - Powertrain
  - Chassis
  - Underbody
  - Seat structure
  - Thermal system
  - **BEV** high-voltage and low-voltage architecture



2007 model Toyota Camry and Lexus ES share a common platform

## Product Planning

## Platform Supports a Product Portfolio



- **Plymouth Voyager/Dodge Caravan** in 1984
- Built on the **Chrysler FWD “K Car”** platform



Horizon

# Product Planning

# Platforms

- Many **OEMs** have adopted a **modular system** to use the platform in more than one segment
- The **VW MQB modular platform** underpins **VW's** most popular models- the next **Passat**, the **Audi A3**, the next **Audi TT** and the **Golf VII**
- New **ICE** engine families are designed to fit in all **MQB** model engine compartments precisely the same way
- Dimensions between engine and front axle, and the firewall are standardized
- Wheelbases, interior packages, rear suspension designs and trunk packaging all vary
- Premium car features can be added as brand requirements dictate





# Product Planning

# Battery Electric Vehicles ( BEV)

## Market Shift:

- Car companies need to adapt product lines to meet **changing regulatory requirements**

## Investment in BEV Technology:

- Car companies must invest heavily in research, development, and production of electric vehicles e.g. batteries, electric drivetrains, and charging infrastructure
- This can result significant effect on profit margins

## Regulatory Compliance:

- Many countries are implementing stricter emissions regulations which often includes incentivizing or mandating the adoption of **BEVs**
- Car companies need to comply with these regulations, which may involve restructuring their manufacturing processes and product offerings

## Supply Chain Management:

- **BEVs** require adjustments to supply chains, including sourcing raw materials for batteries (such as lithium and cobalt) and establishing **partnerships** with suppliers for electric drivetrain components

## New Market Entrants and Competition:

- New **BEV** players to the automotive industry intensifies competition for traditional car companies

## Service and Maintenance:

- **BEVs** fewer moving parts generally require less maintenance than **ICEVs** which can affect revenue streams for car dealers

## Resale Value and Secondary Markets:

- Car companies need to anticipate and manage leasing programs for **BEVs**

# Market Analysis and Identification of Opportunities

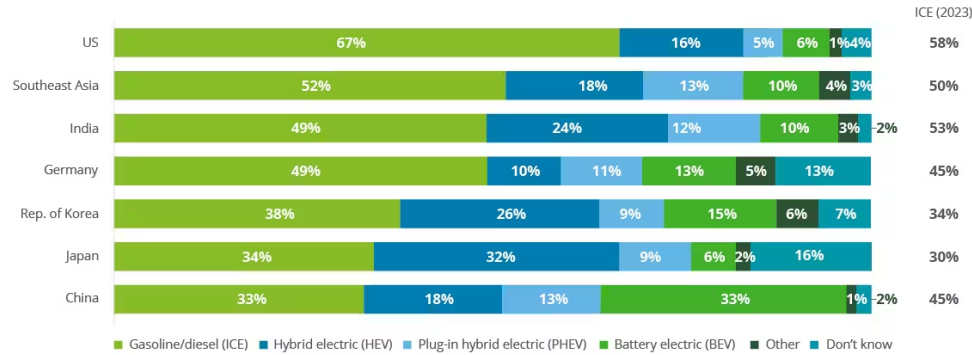
## Deloitte 2024 Global Automotive Consumer Study

- Trends impacting the global mobility ecosystem
- From September through October 2023, we surveyed more than 27,000 consumers in 26 countries to explore opinions regarding a variety of critical issues impacting the automotive sector, including consumer interest in electric vehicles (EVs), brand perceptions, and connected technology adoption
- Our 2024 Global Automotive Consumer Study provides important insights that can help companies prioritize and better position their business strategies and investments in the year to come.
- In this year's study, four key trends emerged:
- Slowing EV momentum may be putting current decarbonization timelines in jeopardy.
- A significant number of consumers may be thinking about switching vehicle brands.
- Interest in connectivity features may not fully translate into revenue and profit.
- Younger consumers are interested in vehicle subscriptions, as a growing number of them question if they need to own a vehicle going forward.

# Market Analysis and Identification of Opportunities

Consumer interest in ICE vehicles is rebounding in some markets surveyed as affordability concerns continue to weigh heavily on forward intentions.

## Preference for type of engine in next vehicle



Note: Other includes vehicles with engine types such as compressed natural gas, ethanol, and hydrogen fuel cells; percentages may not add to 100 due to rounding.  
Q32. What type of engine would you prefer in your next vehicle?  
Sample size: n= 817 [China], 1,273 [Germany], 864 [India], 667 [Japan], 912 [Republic of Korea], 4,985 [Southeast Asia], 969 [US]

Depending on the market, what matters most to consumers surveyed as they think about their next vehicle brand is either price, product quality, or performance.

## Most important factors driving the choice of brand for next vehicle

Drivers of brand choice	China	Germany	India	Japan	Rep. of Korea	Southeast Asia	US
Price	32%	55%	48%	58%	49%	54%	59%
Product quality	52%	47%	65%	48%	51%	62%	57%
Vehicle performance	53%	30%	61%	49%	55%	57%	52%
Vehicle features	37%	39%	62%	48%	31%	51%	45%
Quality of overall ownership experience	28%	31%	45%	8%	27%	37%	38%
Brand familiarity	36%	39%	43%	21%	25%	32%	34%
Previous service experience	19%	18%	22%	14%	17%	21%	21%
Previous sales experience	10%	27%	15%	10%	5%	13%	17%
Brand image	38%	15%	50%	19%	22%	33%	16%
Availability of battery electric vehicles/hybrid options	33%	13%	36%	22%	25%	24%	14%
Brand advertising	12%	6%	25%	4%	8%	14%	6%
Brand affiliations	14%	5%	21%	5%	7%	12%	5%
Other	0%	2%	0%	2%	1%	0%	1%

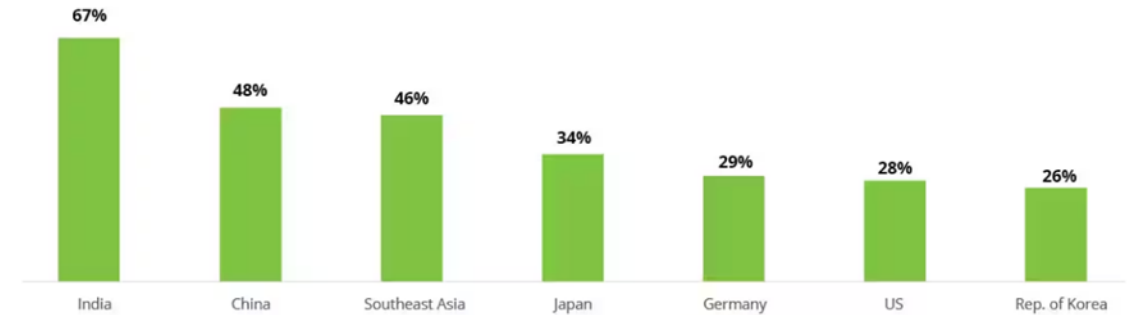
■ Most commonly cited

Consumers surveyed in developing markets such as India, China, and Southeast Asia are also more willing to pay for connected vehicle services compared to consumers surveyed in markets such as the U.S., Japan, and Germany.

## Willingness to pay extra for connectivity features



## Interest in giving up vehicle ownership in favor of vehicle subscription (% very/somewhat interested) 18- to 34-year-old respondents



Q63. To what extent are you interested in giving up vehicle ownership in favor of subscribing to the use of a vehicle going forward?  
Sample size: n= 278 [China], 348 [Germany], 430 [India], 194 [Japan], 250 [Republic of Korea], 2,096 [Southeast Asia], 272 [US]

# Market Analysis and Identification of Opportunities

## Focus groups

- The main benefits of using focus groups are:
  - The time and money saved (compared to individual interviews)
  - They are valuable for getting information on group and personal opinions
  - They offer participants the chance to seek clarification
  - They can provide a broader range of information
  - They offer helpful material such as quotes for presentations and public relations publications



# Market Analysis and Identification of Opportunities

- General characteristics of a new model
  - Type of vehicle
  - Target size
  - Target price
  - Market size
  - Position in company's offerings
    - Take sales from other vehicles?
  - Comparison to competition
  - Brand identity
- Features potential customers want
  - Powertrain
  - Performance
  - Fuel economy
  - Passenger capacity
  - Cargo capacity
  - Reliability
  - Connectivity

## Toyota Brands

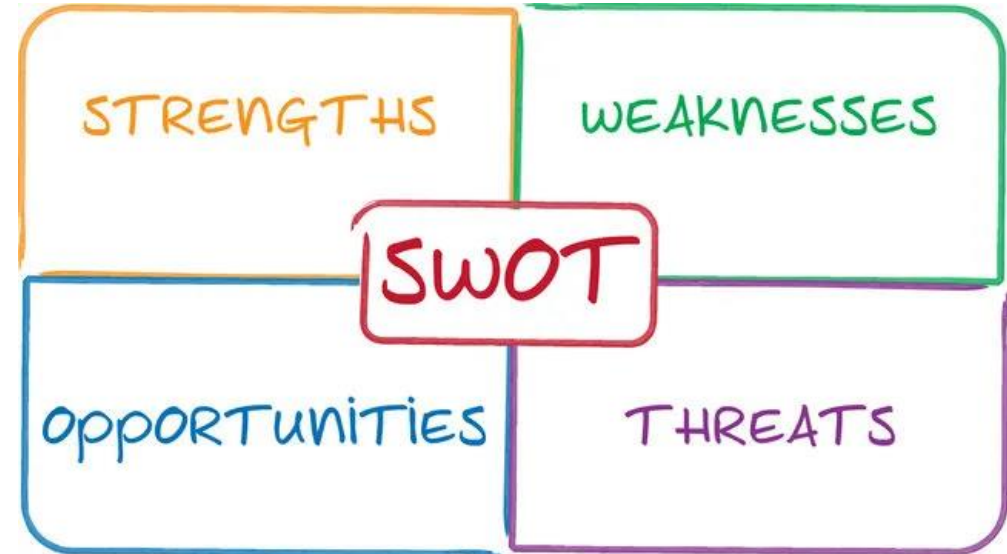


## Product Planning

## Competitor Analysis

### Competitor Analysis:

- Closely monitors the products and strategies of rival companies to identify:
- **Strengths, Weaknesses, Opportunities, and Threats (SWOT)**
- This information helps in positioning the company's vehicles effectively in the market
- It also can be used to estimate competitors' manufacturing costs and new methods
- One way is through **benchmarking**



## Product Planning

## Competitor Analysis

## Benchmarking

- **Benchmarking** is used by automakers to compare their current or future products to those of their competitors
- Comparing **published** information
  - Web site ,brochure specs etc
  - Magazine road tests, articles, etc
- Benchmarking can involve **disassembly** of a competitor's car and studying its components
- Study engineering or design features to streamline their products, decrease manufacturing time/costs, and improve their overall quality or performance
- Benchmarking helps manufacturers ensure their products have the best possible metrics
- Either for the company or its customers

### Examples

- A manufacturer, could use its competitor's 0-60 mph time of 6.0 seconds as a goal to achieve or beat
- It could study a rival car's road-holding ability, either perceived or through data
- Even styling cues can serve as benchmarks for the kind of "look" an automaker hopes to achieve through a vehicle's cabin or bodywork
  - Fins?
  - Rear wings?
- Cargo space the average subcompact SUV provides
- Driving ranges of typical **BEVs**

## Specifications Comparison

	DODGE RAM 2500	FORD F-250 Super Duty	GMC 2500 HD
Powertrain	350 hp/ 650 lb-ft 6.7-liter turbo diesel I6, 6A	390 hp/735 lb-ft 6.7-liter turbo diesel V8, 6A	397 hp/ 765 lb-ft 6.6-liter turbo diesel V8, 6A
Wheelbase (in.)	148.9	156.2	153.7
Length (in.)	237.4	246.8	240.0
Width (in.)	79.1	79.9	80.0
Track (f/r)	68.3/68.2		68.8/67.3
Axle ratio	3.73:1	3.55:1	3.73:1
Curb weight	7380	7830	7700
GVW	9600	10,000	10,000
Payload (GVW-curb)	2220	2170	2300
Towing capacity (ball hitch/fifth wheel)	NA/12,600	14,000/15,700	13,000/16,700
Tires (f/r)	LT265/70R-17	LT275/70R-18	LT265/60R-20
<b>Acceleration (sec.)</b>			
0-30 mph	3.07	3.12	3.02
0-60 mph	9.10	8.49	7.77
40-70 mph	7.17	6.19	5.91
Quarter-mile	16.65@82.93 mph	16.23@86.64 mph	15.75@87.72 mph
<b>Braking (ft.)</b>			
30-0 mph	37.59	36.57	38.99
60-0 mph	153.85	147.33	151.91
<b>Acceleration (sec. with 10,000 lb trailer)</b>			
0-30 mph	6.94	6.66	6.07
0-60 mph	23.04	19.94	18.73
40-70 mph	21.90	18.47	17.90
Quarter-mile	22.80@60.01 mph	22.28@63.64 mph	21.48@63.76 mph
<b>Sound levels (dBA)</b>			
Idle	60.1	59.7	62.3
Full throttle	73.6	67.5	73.4
55 mph	68.0	67.0	71.2
Lane change (mph)	45.82	41.07	47.09
Skidpad (g)	0.70	0.69	0.73
PM fuel economy (mpg)	15.42	16.68	17.99
PM fuel economy with 10,000 lb trailer (mpg)	7.08	7.49	6.78



## Product Planning

## Competitor Analysis

## Teardown Analysis

- Competitor vehicle is **disassembled** down to **component** level
- Components are laid out and examined by engineering, manufacturing, and other personnel
- Components' suppliers are determined
- Data collected:
- Weights, dimensions, configurations, materials, fasteners used, weld locations, material dimensions, etc
- Data is used by Product planning as well as other organizations



## Product Planning

## Competitor Analysis

## “Spying”

- Photos of prototypes
  - On test tracks
  - On public roads
- Information from suppliers
- Patent applications
- Contract shops’ “leaks”



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