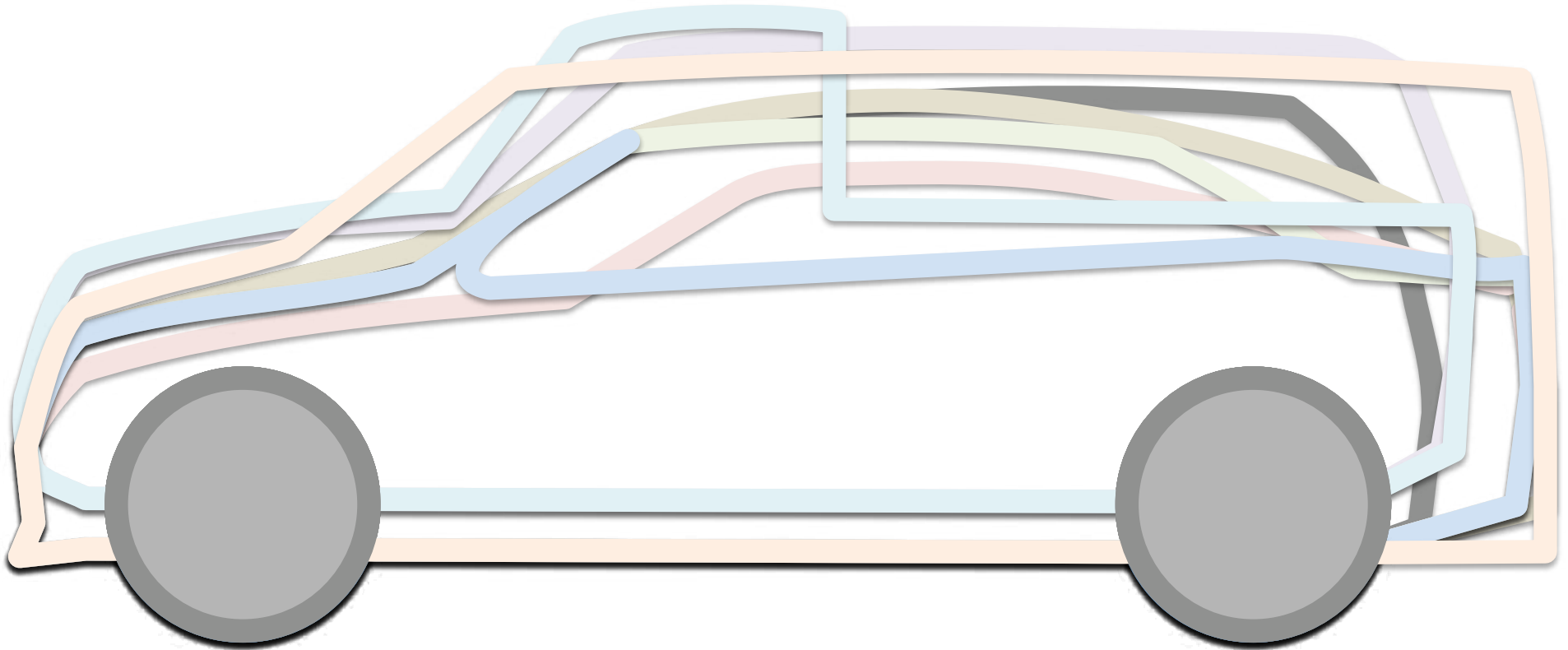
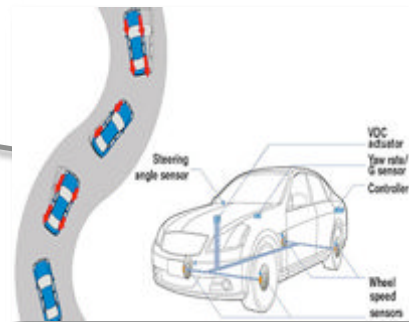
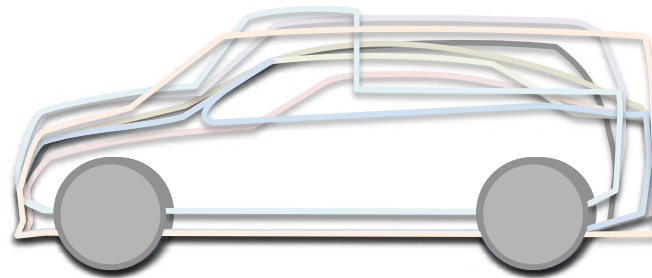
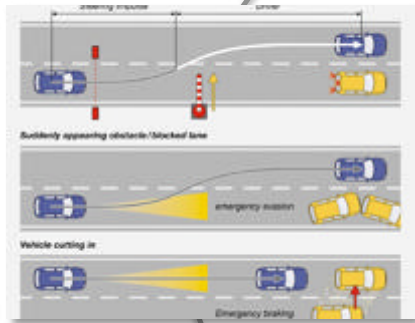
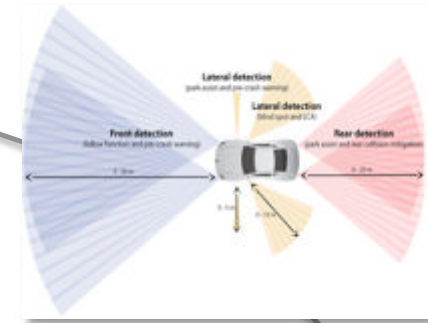
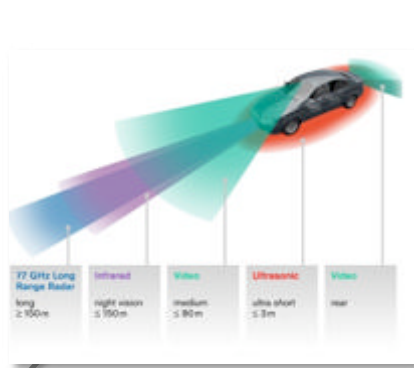


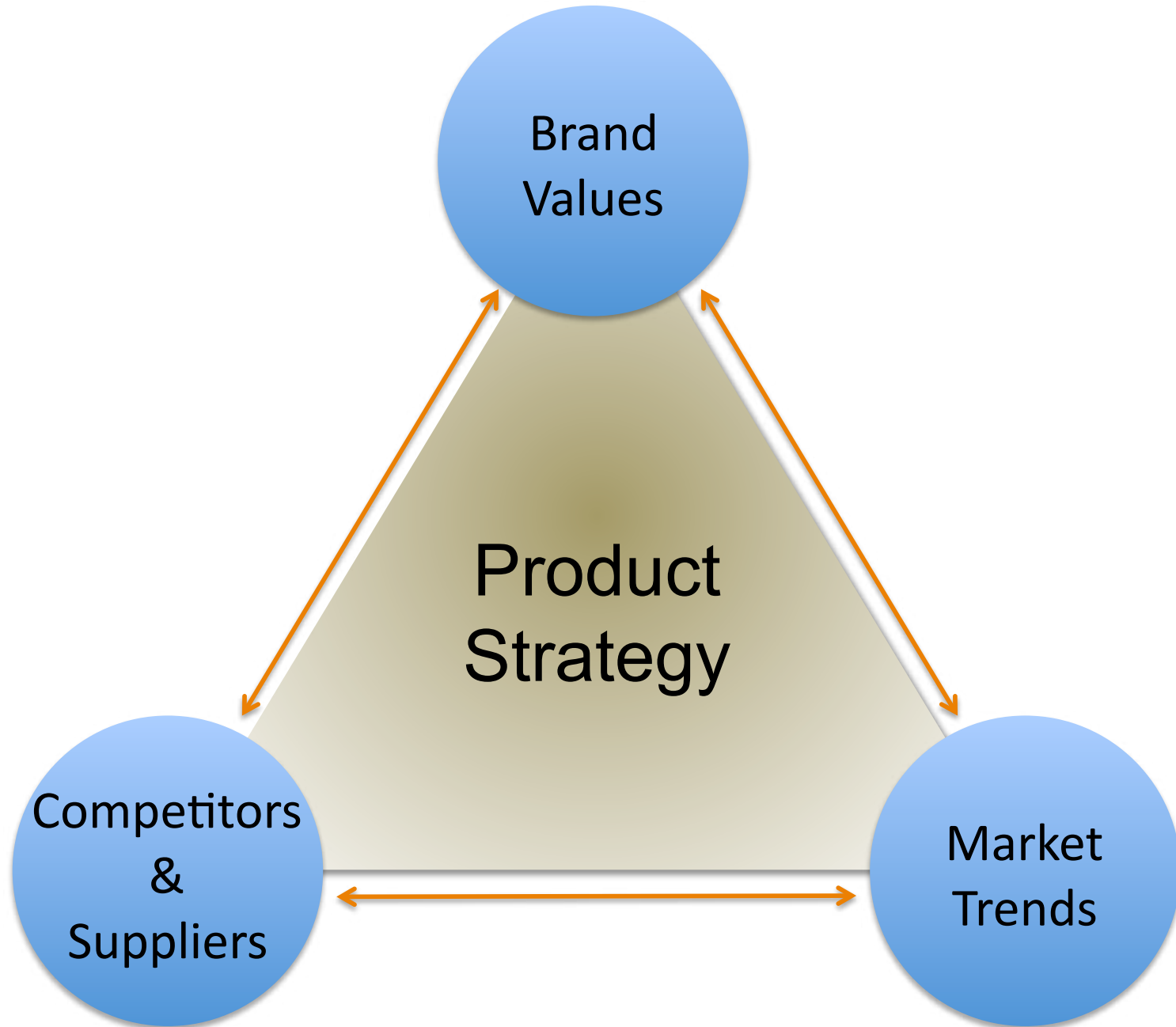
Strategy & Business Considerations For Automotive Innovation



Innovation Management – Matching Models & Gadgets



General Strategy Considerations – Driving and Being Driven

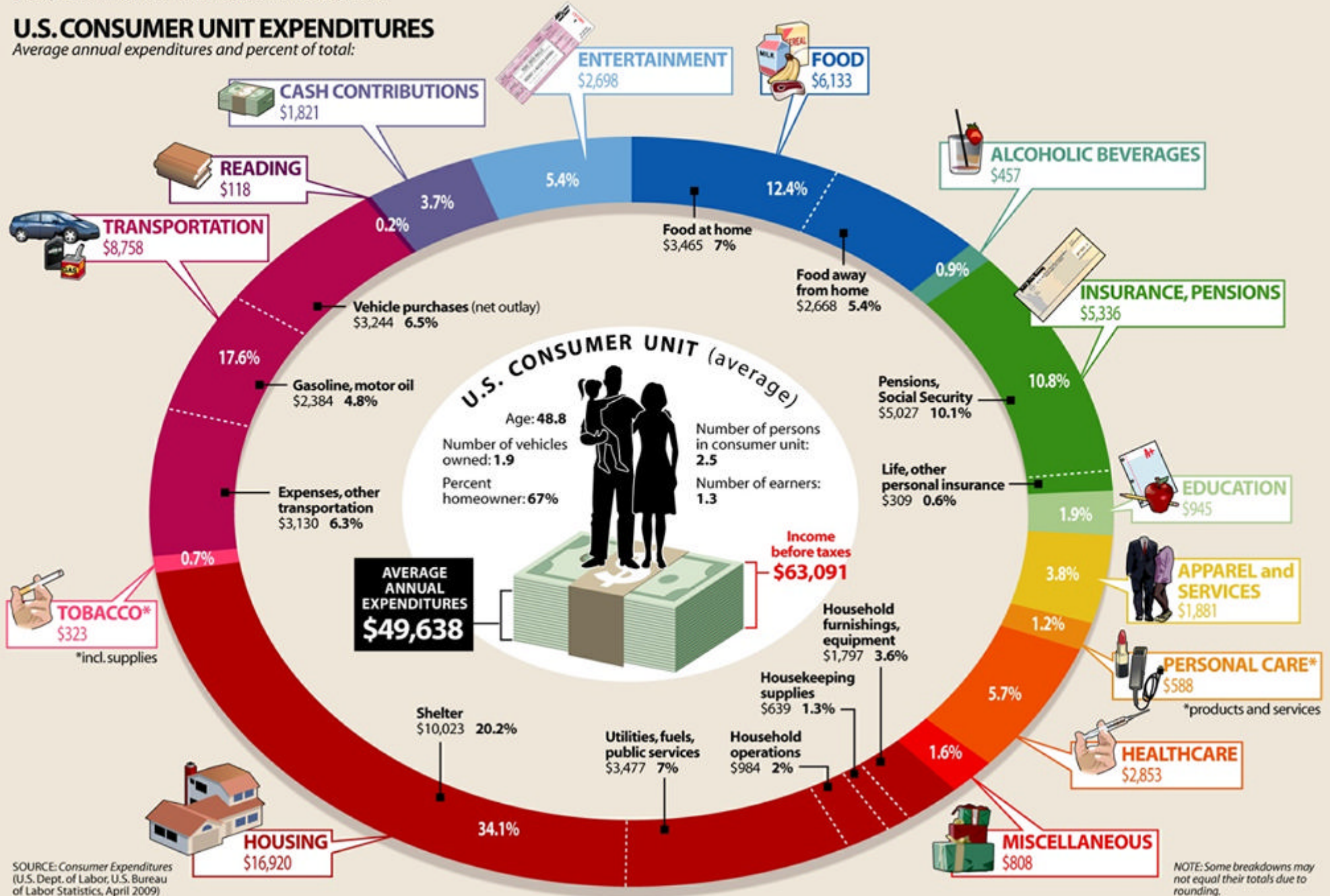


Average Consumer Spending – Where Does the Money Go?

The Department of Labor's latest survey provides a detailed look into how the average U.S. consumer unit spends their annual paycheck.

U.S. CONSUMER UNIT EXPENDITURES

Average annual expenditures and percent of total:



SOURCE: Consumer Expenditures (U.S. Dept. of Labor, U.S. Bureau of Labor Statistics, April 2009)

Product Business Case – For the Consumer

$$p = + (p_{\text{Operation}} + p_{\text{Resale}}) - (C_{\text{Purchase}} + C_{\text{Operation}} + C_{\text{other}})$$

Parameters

$C_{\text{Operation}}$	- cost of operation / ownership
C_{Purchase}	- purchase price
C_{other}	- other cost
p	- profit
$p_{\text{Operation}}$	- profit from operation / use
p_{Resale}	- profit from resale (resale value)

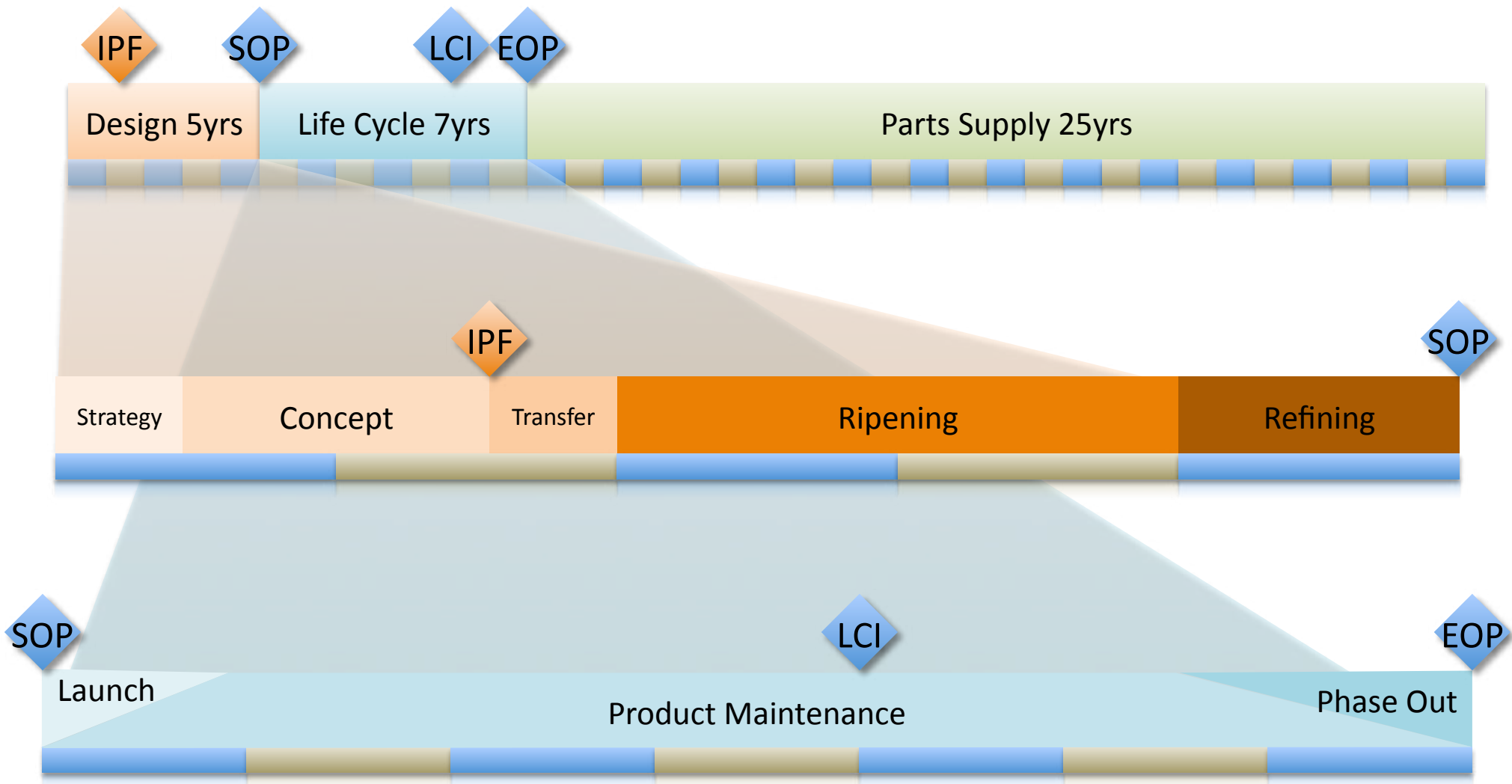
The Two Key Questions in Innovation Management

How much money are we going to make with this?



Are we going to sell more vehicles because of this?

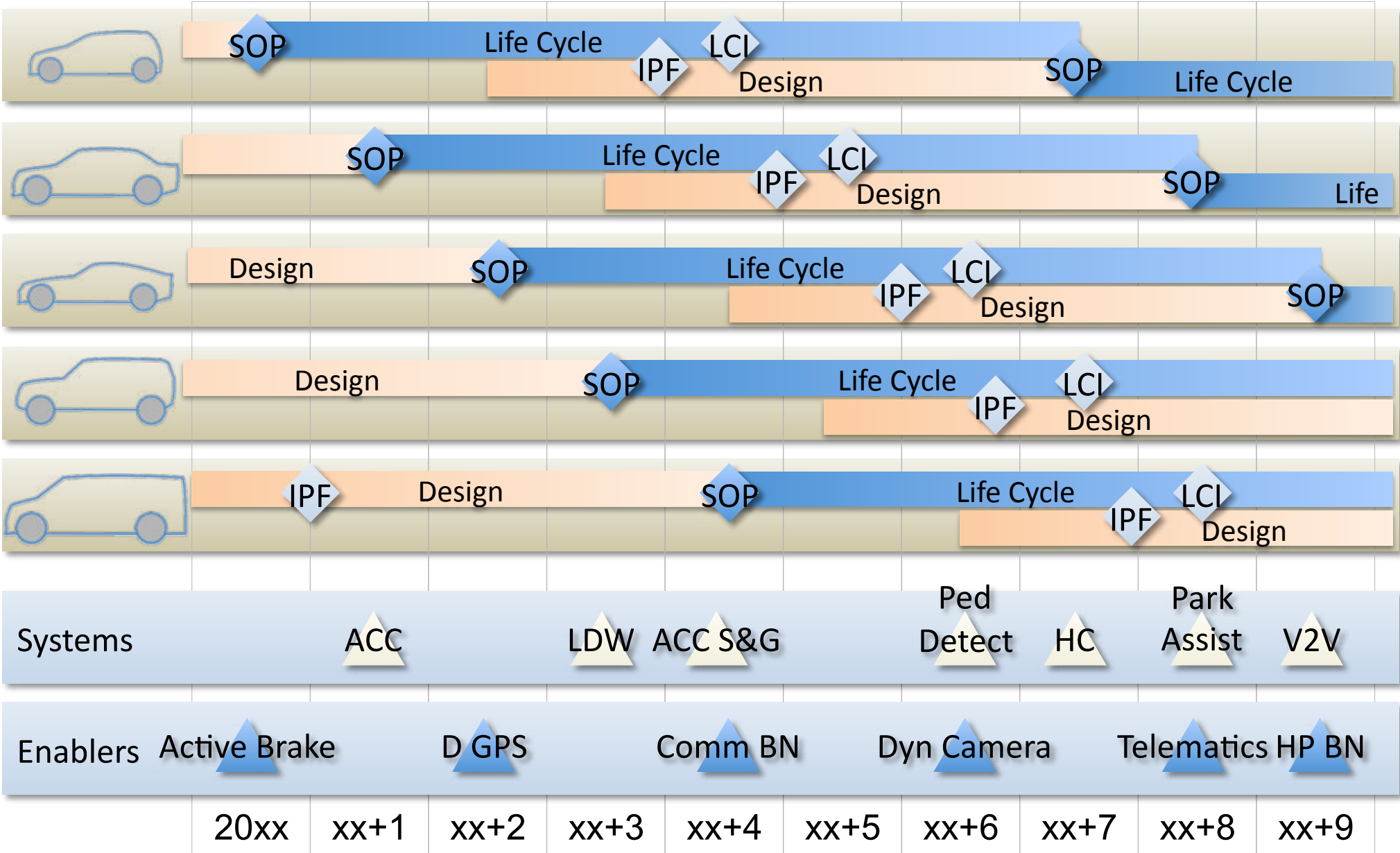
The Life of an Automobile – Project and Product Phases



IPF - Innovation Portfolio Freeze
 LCI - Life Cycle Impulse

SOP - Start of Production
 EOP - End of Production

Product Roadmap & Innovation Portfolio



IPF - Innovation Portfolio Freeze, SOP - Start of Production, LCI - Life Cycle Impulse

Product Business Case – For the Manufacturer

$$P = + (C_{\text{Sale}}) \times V$$
$$- (C_{\text{Pur / Man}} + C_{\text{Assembly}} + C_{\text{Warranty}} + C_{\text{Other}}) \times V$$
$$- (C_{\text{R\&D}} + C_{\text{Infrastr}} + C_{\text{Other}})$$

Project Parameters

- C_{Infrastr} - infrastructure cost (assembly, service, logistics...)
- C_{Other} - other cost for entire project
- $C_{\text{R\&D}}$ - development cost
- P - Profit
- V - Volume, number of units sold

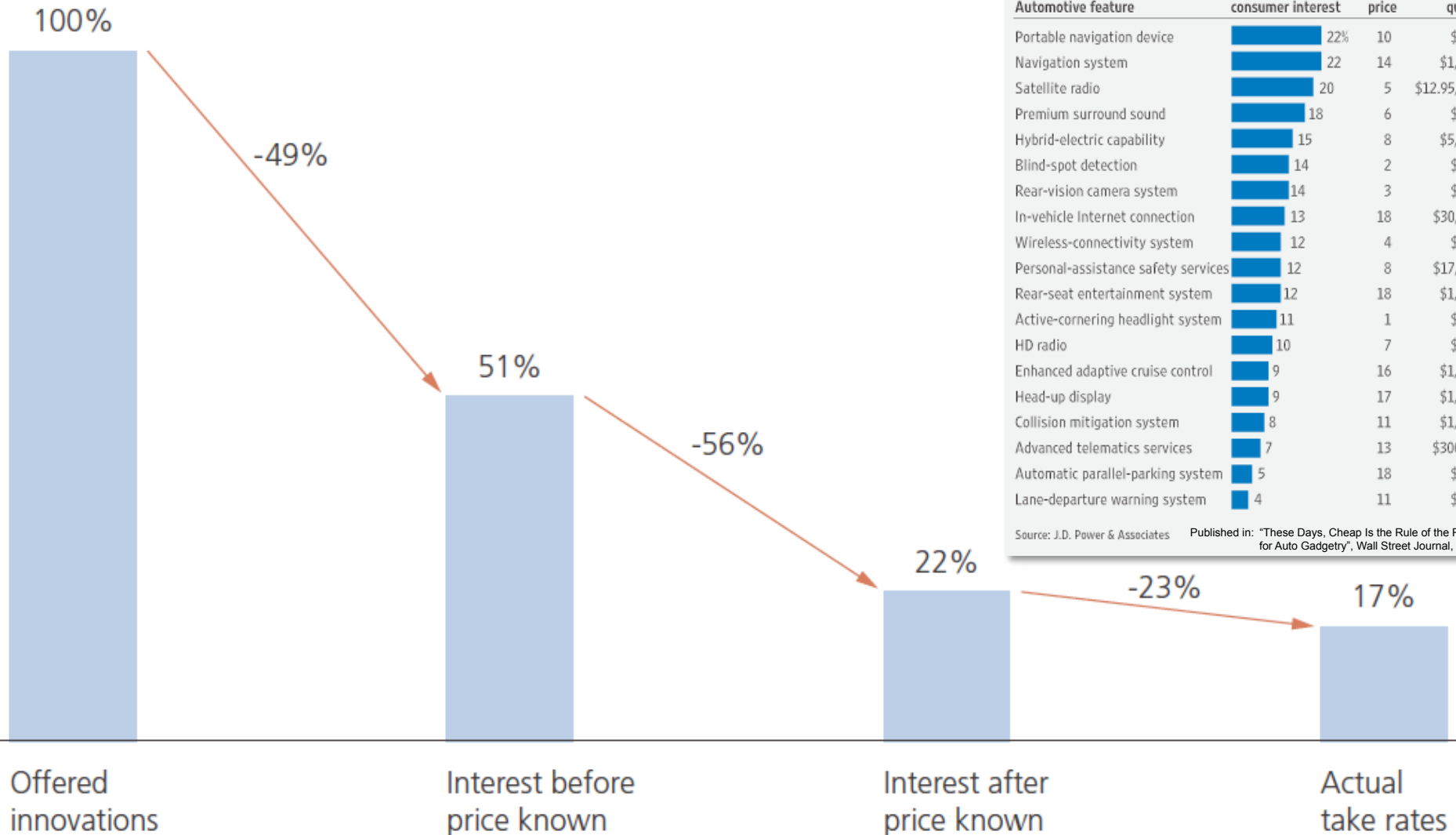
Unit Parameters

- C_{Assembly} - assembly cost
- $C_{\text{Pur / Man}}$ - purchase / manufacturing cost
- C_{Sale} - sales price
- C_{Other} - other cost associated with individual unit
- C_{Warranty} - warranty / service cost (paid by manufacturer)

Automotive Innovation – Set for Success?

Only 17 percent of innovations are bought by the customer

Sales success of innovations¹



How Much Is That GPS in the Dashboard?

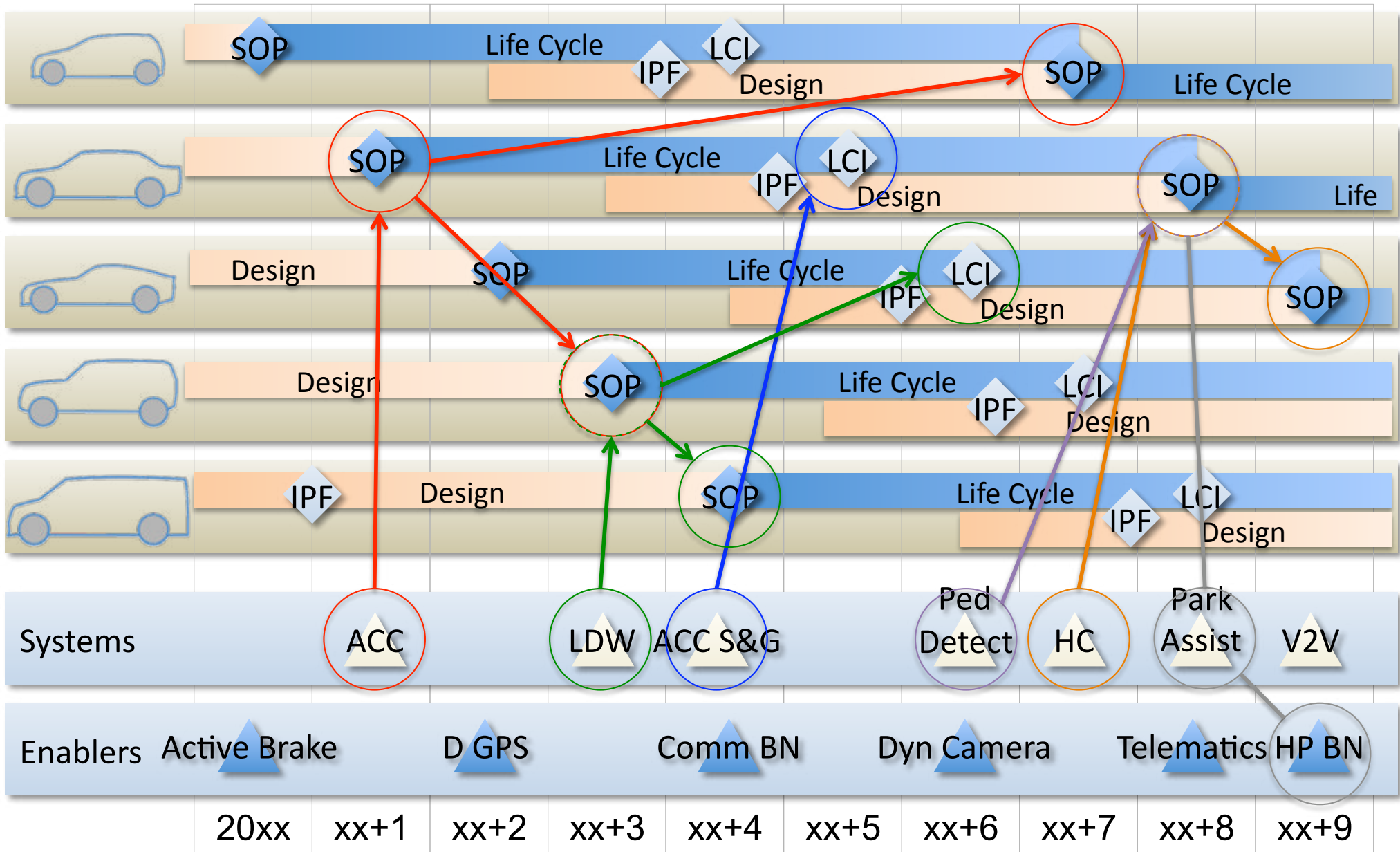
In a new J.D. Power study, consumers expressing "definite interest" in various automotive technologies tended to lose interest if the price was too high.

Automotive feature	"Definite" consumer interest	Rank after told price	Price quote
Portable navigation device	22%	10	\$400
Navigation system	22	14	\$1,600
Satellite radio	20	5	\$12.95/mo
Premium surround sound	18	6	\$500
Hybrid-electric capability	15	8	\$5,000
Blind-spot detection	14	2	\$500
Rear-vision camera system	14	3	\$450
In-vehicle Internet connection	13	18	\$30/mo
Wireless-connectivity system	12	4	\$250
Personal-assistance safety services	12	8	\$17/mo
Rear-seat entertainment system	12	18	\$1,500
Active-cornering headlight system	11	1	\$300
HD radio	10	7	\$200
Enhanced adaptive cruise control	9	16	\$1,500
Head-up display	9	17	\$1,200
Collision mitigation system	8	11	\$1,500
Advanced telematics services	7	13	\$300/yr
Automatic parallel-parking system	5	18	\$950
Lane-departure warning system	4	11	\$500

Source: J.D. Power & Associates Published in: "These Days, Cheap Is the Rule of the Road for Auto Gadgets", Wall Street Journal, 6/9/09

¹ Germany / U.S., based on 14 innovations in buying simulation

Product Roadmap & Innovation Portfolio - Examples



IPF - Innovation Portfolio Freeze, SOP - Start of Production, LCI - Life Cycle Impulse