leadingIDEAS

strategy+business

Building Cars by Design

by Vikas Sehgal, Robert Reppa, and Kazutoshi Tominaga

01/13/2009

a strategy+business exclusive

booz&co.

Building Cars by Design

Faced with plummeting demand, automakers should make vehicles with features that match customer preferences.

by Vikas Sehgal, Robert Reppa, and Kazutoshi Tominaga

In late December 2008, the Bush administration agreed to bail out two of the Detroit Three — and not a moment too soon, by all accounts. Whereas Ford Motor managed to avoid the need for government money, General Motors and Chrysler were close to declaring bankruptcy. Too much capacity, huge legacy costs, and unattractive product line-ups are all to blame for this humbling collapse, but the immediate problem was a shockingly fast and steep drop in demand for automobiles in critical markets worldwide.

Indeed, with annual U.S. auto sales down by well over 20 percent year over year and western European sales declining by close to 10 percent in the last months of 2008, the only bright spots are developing markets such as China and India, which still enjoy sales growth rates of as much as 7 percent. That's bad news for U.S. automakers, because by and large developing nations prefer small cars, something that the Detroit Three are not particularly adept at manufacturing. In India, for instance, small cars — subcompact and smaller — accounted for 63 percent of car sales in 2007, and the small-car segment continues to grow significantly faster than any other.

Economics plays a large role, of course — the vast majority of consumers in these markets simply can't afford big, expensive cars. Furthermore, the cities in emerging markets are smaller and more densely populated than many in developed markets. New Delhi, for instance, is roughly one-fourth the size of Chicago, with five times as many people. Such overcrowding makes for heavy traffic, which is difficult to navigate in large cars. Efficiency matters, too: With gas prices volatile and anticipated to resume their sky-high ascent as world economies revive, fuel-efficient cars make sense, especially in countries like China and India, which have to import virtually all the oil they use. Finally, concerns about the environment are important, as developing nations seek to put a lid on carbon emissions even as the number of vehicles on their streets continues to rise.

That shouldn't imply, however, that consumers in developing markets are willing to put up with "cheap" cars or little cars from which critical features have simply been removed in order to sell them for less money. Rather, like many car buyers in the West, these consumers are looking for low-cost vehicles that are designed specifically for their needs, but that maintain high standards of quality, reliability, and style. In other words, these consumers are "value" shoppers.

The meaning of value, of course, varies with one's point of view. Consumers in India, for instance, need cars that maximize passenger room because they use their autos primarily as family vehicles to drive around town; by contrast, in the West, with its better roads and

Vikas Sehgal
(vikhas.sehgal@booz.com) is a partner with Booz & Company in Chicago. He specializes in product strategy, innovation, emerging markets strategy, and offshoring for automotive, transportation, and industrial companies.

Robert Reppa
(robert.reppa@booz.com) is a partner with Booz & Company in Chicago. He specializes in business unit and corporate strategy with an emphasis on growth strategies and sales and marketing efficiency for automotive, transportation, and industrial companies.

Kazutoshi Tominaga
(kazutoshi.tominaga@booz.com) is a principal with Booz & Company in Tokyo. He specializes in product development strategy, business strategy, and operational improvements for automotive, transportation, and industrial companies.

Also contributing to this article were Booz & Company Principal Richard Holman and Ganesh Panneer.

routine long-distance driving, cargo capacity matters more. And Indian drivers are willing to pay a bit more for cars that offer the latest in comfort, safety, and utility, but not for cars with power windows and locks or fancy sound systems. Automatic transmissions are desirable in India and China — nobody wants to keep pressing the clutch and shifting gears in the inevitable stop-and-go traffic — but powerful engines are not.

Succeeding in developing markets, therefore, requires rethinking from start to finish how new cars should be designed and built. It calls for a deep understanding of the unique needs of consumers in developing countries and the ability to assemble the combination of power trains, bodies, features, and options that best match those desires — at affordable prices.

We call this process "design to value." It's a far cry from "design to cost," the typical approach used to make cars, in which a final price is set and the new car is then engineered to be sold profitably at that price; the concept of how consumers perceive value does not really enter into the equation. Design to value, on the other hand, involves a series of complex, varied, carefully thought-out decisions about which types of engines to use; which equipment should be standard; what safety add-ons to include; how parts and materials are engineered; and which designs are most attractive to the target customer base. And if an automaker hopes to differentiate its products from others in the market, these decisions must be made in light of the kinds of value decisions competitors are making.

That's not to say cost isn't important; manufacturers should still begin by removing unnecessary costs from the vehicle to the greatest degree possible. This bare-bones cost structure becomes the new baseline to which they can add high-value features, while staying within the price window. Each choice must be made with reference to both the increased costs required to integrate the option and the expected gains in sales. The ideal option may trim razor-thin profit margins even further, but it should also generate more revenue from the sale of more cars, offsetting the higher expenses. And it's critical to make these decisions in the very early stages of design, when 80 percent of the cost and value of a car is already determined.

The first step in a design-to-value analysis involves determining what exactly is important to consumers. How much does the size of the engine matter? Do customers care about power steering or fancy instrument gauges? What audio system options might customers be willing to pay for? Demographics, market trends, industry experts, and focus groups all can help in gaining a clear understanding of what drives value for specific consumers.

Those value drivers must then be placed in the context of the new car's baseline cost. That cost has already been determined by how the car will be built, what materials and basic features will be used, and how additional factors such as plant location, supply chain and distribution logistics, and overhead fit into the equation. Against that baseline, the automaker can analyze which features and options truly add value for consumers and design them into the car. This analysis should also take into account the competitive landscape: What features is the competition offering? How much does it cost to add them? And how much value do they add to competitors' final product?

Armed with broad knowledge of costs, customer preferences, customer perceived value, and competitive activities, manufacturers can then begin to gather ideas from throughout the enterprise — engineers, designers, purchasing managers, manufacturing chiefs, and corporate executives — for new approaches to everything from the design of the car itself to manufacturing footprints, supplier relationships, and logistics. But all choices must add value to the final product.

India, for instance, does not yet have a well-developed automotive supplier pool, but it is the world's second-largest manufacturer of two-wheeled vehicles, producing 8 million per year. The manufacturers and suppliers in that industry should be tapped for ideas on what consumers want, how the systems and components they make might aid in the design of cars, and how the two-wheeler supply base might offer the automotive industry economies of scale. At the other end of the value chain, sales and maintenance and even financing should also be examined for new ideas: Given limited dealer networks, might roving mechanics be sent around to perform regular maintenance? Could entire extended families enter into financing deals for new cars?

No carmaker has fully embraced the concept of design-to-value yet, though some have come close. India's Tata Motors gave a great deal of thought to what first-time car buyers in India were looking for as it designed its small, US$2,500 Nano, to be launched by March 2009 (possibly with pilots before then). Meanwhile, the West, under the pressures of high gas prices and emission regulations, has been moving inexorably toward smaller cars as well. It's time that the concept of design-to-value finds its place among Western manufacturers — not just for export, but also for their home markets. +

Resources

Kevin Dehoff, Vikas Sehgal, John Loehr, Kazutoshi Tominaga, "Cars for India, Cars for the World" (PDF), Booz & Company white paper, September 2008: A closer look at the growing demand for small cars in developing markets, and how the Indian auto industry should respond. www.booz.com/global/home/what_we_think/reports_and_white_papers/ic-display/42243496

Bill Jackson, Scott Corwin, and Evan Hirsh, "End-of-Year Letter to the Automotive Industry" (PDF), Booz & Company, December 2008: An analysis of the coming restructuring of the auto industry worldwide, and what it means for both OEMs and suppliers. www.booz.com/media/file/Automotive_End-of-Year-08.pdf

Bill Jackson and Vikas Sehgal, "One Billion New Automobiles," *s+b*, Winter 2006: An early look at expanding auto sales in emerging markets, especially at the bottom of the pyramid, and their global implications. www.strategy-business.com/resiliencereport/resilience/rr00042

strategy+business magazine
is published by Booz & Company Inc.
To subscribe, visit www.strategy-business.com
or call 1-877-829-9108.

booz&co.