

How a “customer-sensing capability”
can do a better job of connecting
people to the cars — and other
purchases — of their dreams.

Building a Better Matchmaker

by Maarten Jager and Steven Wheeler

“The big gap in our information system was at the retail level,” complained the CEO of a prominent automobile manufacturer. “We were not in touch with the actual retail market. This method — or lack of it — limited our sensitivity to changing market trends and required the staff at headquarters to base its sales forecasts on figures that were not only weak but also several weeks old.”

How little has changed over the past 50 years. That passage was written by former General Motors CEO Alfred P. Sloan Jr. It appeared in his 1964 autobiography, *My Years with General Motors*. But it could have been voiced by any major auto company chief executive today. Car dealers still display habits that date back to their heritage in horse-trading. They offer steep discounts on cars in their lots to ensure that customers

don’t “walk.” Those few dealers who routinely collect customer data tend to guard it jealously, thus preventing manufacturers from getting a jump on the styling, performance, and pricing trends that could prompt the next generation of successful products. Without reliable data on customer demand, automakers depend on their intuition, which in turn leads them to misinterpret their markets.

In short, at the dawn of the motor vehicle’s second century, the customer experience for most automobile purchases remains mired in the marketing methods of a past age. Or, to put it more harshly, it’s an age that should finally pass. And it could — but not without a transformation of the quality of interaction among manufacturers, dealers, and customers.

An emerging set of organizational practices could

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make such a transformation possible during the next decade. These problems don't have a generally accepted name just yet, but they could be thought of as a "customer-sensing capability" (CSC) — the organizational capacity to differentiate customers, detect their needs, tailor information and offers for them, and ultimately develop products and services in real time. Dealers would no longer be horse traders. They would be matchmakers, connecting each customer with the cars, customer experiences, and option packages that fit best.

The CSC is made possible in part by computer systems based on the "inference engine" principles of heuristic programming. Software rules ("If the customer requires extra passenger space, suggest the wagon model, third-row seating, and a rooftop carrier for excess luggage") combine to provide sophisticated analyses of complex data, without requiring a human expert to draw inferences or conclusions. Referred to as "matching tools" by the *Wall Street Journal* in July 2005, these online services are also called "expert systems," because they can be programmed to capture and play back the decision-making strategies of the most successful experts in an organization.

But a customer-sensing capability is not primarily a computer-based tool. It is itself a hybrid of operations, information technology, and marketing management, integrating expert systems with new sales practices to develop incisive intelligence about the trade-offs that people are (and are not) willing to make among such factors as price, availability, and vehicle attributes. The relevant tools and practices for this kind of match-making fall under diverse functional realms, such as customer relationship management (CRM), information technology, and sales force management. A true cus-

tomersensing capability brings them all together. CSC has potentially far-reaching implications for the automotive industry — and for other industries, such as appliances, travel, and construction, as well — because it changes the market ecosystem of the automobile purchasing process, shifting the incentives and interrelationships that shape behavior and making it much harder to treat all customers the same way.

Imagine that a customer, when buying a car, starts by tapping into a computer system that calls up specifications and options to meet any concern or whim. As the system goes through its paces, it systematically gathers and analyzes information about customer needs and desires. What is more important to this customer — safety or style? Comfort or performance? Does the customer have children? Does he or she take frequent long trips or commute primarily in the city? Given those factors, what kinds of options and accessories (like cupholders and media systems) would make a difference? What kinds would be ignored? What type of warranty or finance plan would fit this customer's stage of life and profile? The answers set up the trade-offs that allow the CSC to best match an entire offer bundle to this specific customer's preferences.

The answers are then validated in real time, by detailed statistical analysis of responses from elsewhere in the database. For existing customers, this includes past purchases or inquiries. ("You commute to and from work every day. Are you interested in seeing our highly fuel-efficient models with hybrid engines?") For all customers, it draws on comparable searches by other purchasers. ("Other safety-focused people like you were interested in supplemental rear-seat airbags. Would you like to consider these?") At the same time, the system

generates analytically informed offers that the dealer and manufacturer can present to the customer — not just specifying the kind of car and its options, but how the customer might want to buy it (options for customizing and financing the vehicle) and how he or she might want to own it (the various follow-up warranty, service, and customer-support packages available). Some of these options may be triggered by inferences generated through the software. (“Your address is four blocks from the ocean. Would you like an extra coating to protect the undercarriage from sea spray?”)

Customers engage with this system in a variety of ways. Some start directly with the car manufacturer, through its Web site or call center. Others seek information at the Web sites of local dealers before showing up in person. Still others use kiosks on the showroom floor to learn about the vehicles, and then confirm their preferences by test-driving the cars. Some customers walk around the lot with a sales associate who holds a PDA; others are interviewed by a salesperson who types the information into a desktop computer. These salespeople are now contact points between customers and the wide knowledge base that is held jointly by the dealers and the manufacturer.

The result is a stronger value proposition for everyone concerned. Dealers close more sales and improve the profitability of every transaction. Salespeople on the showroom floor can market a wider range of products and services by choosing those more likely to be of value to each particular customer. They price more flexibly, factoring in the franchise’s overstock data or the customer’s lifetime future potential. And they obtain market intelligence on purchasing behavior that will help direct future sales. Dealers thus need fewer discounts and rebates.

Manufacturers, meanwhile, gain a wealth of information about customer preferences for colors, options, and accessories. This makes them better equipped, with tailored reports on sales and inventory performance, to anticipate which products are more likely to sell, and to tailor their wares to customers’ actual needs and desires. The effects may include a more efficient and responsive supply chain, lower dealer inventories, a vehicle mix tailored to local dealer geographies, a higher level of customer interest in higher-margin options, and a general reduction in costs as time and money spent on unsold models are reduced.

And the customer? He or she gets an engaging, inviting experience, designed with a recognition of the most common traits of car customers these days: the desire for a good deal, diverse transportation needs, the ability to gather a lot of information as an individual with a Web browser, and limited time to choose. A highly refined CSC tends to make customers feel they’ve made the right decision, because they can make choices aligned with their own needs and temperament. That feeling continues long past the purchase date, because the ultimate package — the car, the options, the accessories, the wraparound services, and the price — is well suited to each customer’s specific needs, whether or not that customer knew what he or she wanted before entering the real or virtual showroom.

Unrealized Potential

At first glance, this “matchmaker” concept appears to contradict the current conventional wisdom about information technology in the workplace. In his book *Does IT Matter? Information Technology and the Corrosion of Competitive Advantage* (Harvard Business

School Press, 2004), *strategy+business* columnist Nicholas G. Carr argues that intensive information technology has become commoditized. Computer-based systems represent a cost of doing business, not a strategic advantage. With so many expensive and unproductive IT experiences business owners can draw upon, this point of view has become persuasive.

But early experience in building customer-sensing capability is leading to a more nuanced view of IT. Less is more. Details of implementation matter. Relevance can't be taken for granted, but it is achievable. "Using smaller, more flexible IT solutions to incrementally tackle focused problems would lower risk and enable companies to define their business processes for the good of the business, not their software," write Harvard Business School professor Marco Iansiti and venture capitalist Gregg Rotenberg in their 2004 white paper *Beyond the IT Monolith* (Harvard Business School). "Technology should match the business problem, not the other way around." Creating a well-designed CSC initiative, in short, is not a technology problem but an organizational change issue. Those who get it right first will benefit, not because they've put a particular software package in place, but because the process has forced them to redesign the information flow of their entire system, from the customer back through their supply chain.

In that light, it's worth looking closely at the match-making systems already in use. Dell Inc. and Amazon.com Inc. employ highly responsive Web sites, in which customers enter information about themselves, their purchasing behavior is subsequently tracked, and they receive individual recommendations. Private banking firms use focused financial-planning-and-advice software programs to develop individual investment strategies for high-net-worth customers. In the auto industry, as the *Wall Street Journal* reported, Ford has rolled out a series of interactive Web sites for guiding customers, first in selecting sport utility vehicles (SUVs), then sedans, and recently trucks. By July 2005, about 52,000 customers were using these sites each month. Toyota Motor Corporation and General Motors are also developing sites, and so are a few large dealerships. Automotive retailers, such as Carmax and Autos.com, are themselves examples of customer-sensing capability: presenting tailored information to customers, learning their needs as they compare features and prices across brands. Other retailers, such as home improvement stores, are experimenting with similar systems.

But the full potential of these early efforts is still

unrealized. The Dell Web site, for instance, seems designed for customers who come to it already knowing what they want. There are plenty of opportunities to identify processor speeds and disk capacity. But are you buying a computer for the kids to use as a platform for video games, as the home base of a new small-business venture, or as the central control of a home-entertainment network? Is the prospective buyer a tech-savvy user who'll customize the equipment based on 15 years of experience, or a novice making a first investment in a home PC who is likely to need a regular dose of customer support? Dell never asks.

Similarly, Amazon's science of selection could be better developed. The premier online retailer has fine-tuned its lists of recommendations to reflect all the categories in which each shopper has a purchase history. But the Amazon databank reflects only the record of buys, not the changing interests of the buyer. A traveler who peruses and purchases guidebooks for Miami will find Florida on his list of "Amazon favorites" long after the vacation season is over.

Carmax's computer-enhanced selling tools explore consumer interests, but they too neglect a crucial feature. After an online user has narrowed down a set of preferences and chosen a model, the "online auto superstore" delivers the prospect to a Web page titled "Interested in This Car?" The page instructs the prospect to e-mail or phone the dealer. Carmax thus walks away from much of the value of its own system.

And those are three of the most sophisticated uses of expert systems in marketing to date. A company that wants to realize profitability, productivity, and customer satisfaction needs to build a better matchmaker than those that exist today. This in turn requires a design and implementation process that starts not with the technology, but with a better understanding of the customer.

Meeting Customers Halfway

Analyses by Booz Allen Hamilton, J.D. Power, and other researchers over the years have shown that customer satisfaction — not simply with the offer for the car, but with the experience of buying it, owning it, and replacing it — varies dramatically by brand, by dealership, and even by the individual salespeople that customers encountered within a specific dealership. Satisfied customers remain loyal to both their brands and their dealer, reducing the need for expensive acquisition marketing and sales training programs.

But there are several reasons that customers have

Even for Dell, Amazon, and Carmax — sophisticated users of expert systems in marketing — the customer-sensing potential is largely unrealized.

become less loyal in recent years. First, as competition has increased, the complexity of consumer choice has intensified. In every major automotive category, there are five or 10 competing brands. The few exceptions, like the Chrysler PT Cruiser and the Volkswagen Beetle, are niche products — and even they offer the same basic functionality of a commonplace station wagon or sedan. Car buyers also face hundreds of amenities and options to choose from, including technologically complex features like navigation systems and computer-controlled seat positioners. There is also a dizzying array of financial and after-purchase options for owning the car: leases, warranties, service contracts, and safety-oriented service agreements like the General Motors OnStar system, which dispatches help to car owners in difficulty. Not coincidentally, research shows a strong inverse correlation between sales satisfaction and time spent making decisions at the dealer — the less time spent, the happier the customer.

Even when it's relatively straightforward, the car-buying process is still discomfiting for many purchasers. The days of the “blitz” (an assault on a customer by high-pressure sales teams) and the “highball” (backtracking on an agreed-upon trade-in price after the sales contract is signed) may be largely over, but recent volume demands made by many manufacturers have shifted dealers' focus back to “selling metal” rather than creating a positive purchase experience for customers. Customers don't know how much to believe of what salespeople tell them — about the price of the new car, the trade-in price for their old car, or the value of competing options, such as dealer financing versus outside financing.

Compounding the problem are the extraordinarily

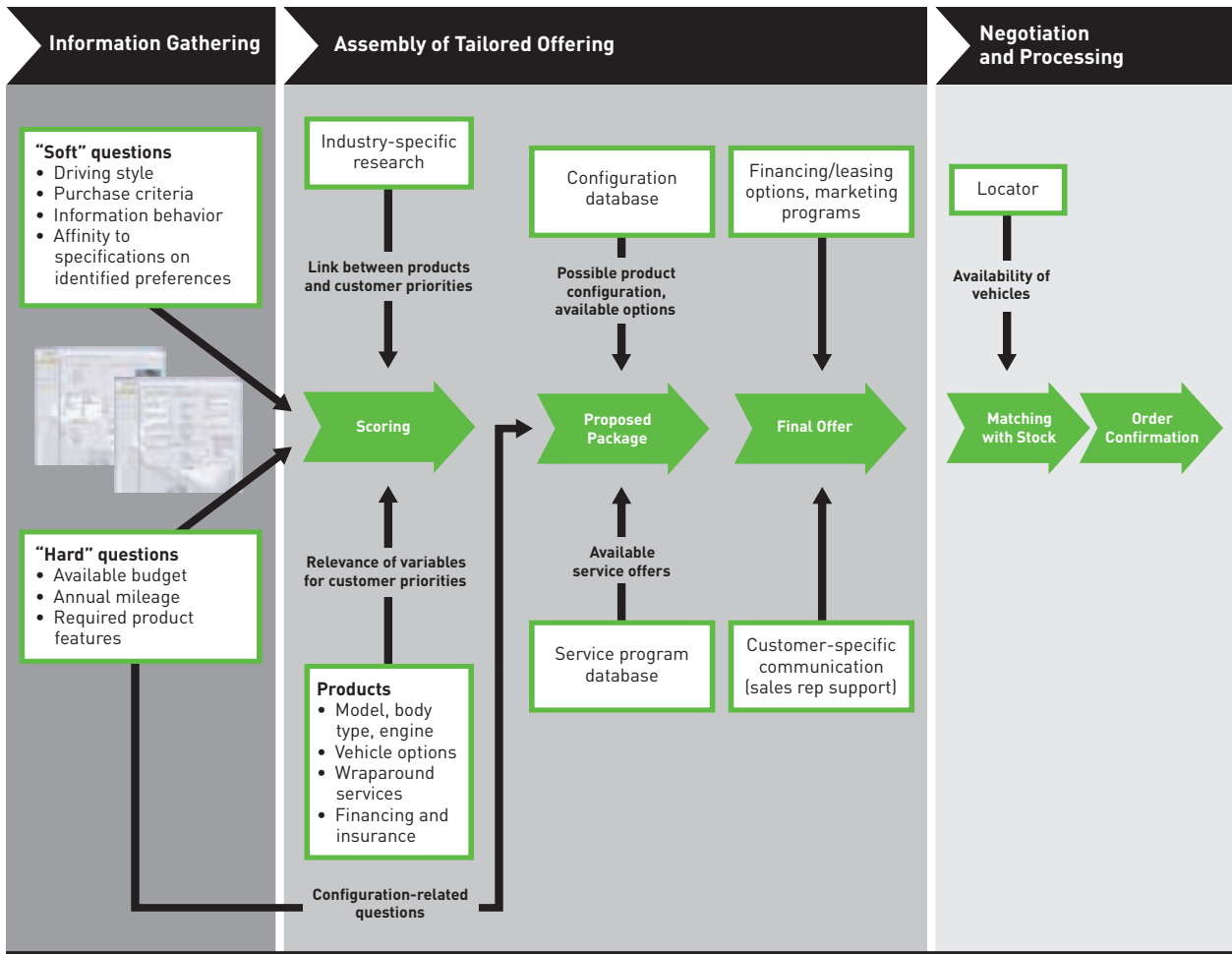
high annual turnover rates among automotive salespeople — hovering around 100 percent, according to CNW Marketing/Research in Bandon, Ore. This results in loss of knowledge, repeated investments in training, diminished interest in long-term customer relationships, and short-term financial pressure.

Finally, customers themselves are more diverse than they used to be. For example, the Internet has changed the way some people research automobiles; according to J.D. Power, more than 60 percent of the consumers who buy cars use the Web (visiting an average of seven sites) to research their choice. More customers than ever before walk into showrooms already knowing something about the car they want to buy, because of either their own research or the recommendations of friends and acquaintances. At the same time, a significant number of customers still haven't done any research, and they are more baffled than ever by the choices facing them. Salespeople who treat all customers the same way risk wasting the time of the first group by delivering information they already have, or driving away the second group by confusing them further.

Fine-Tuning the Technology

Marketers can be profitable in this environment by finding the sweet spot of complexity: the balance between too much choice and too little. The most salient designs for customer-sensing technology help marketers find that sweet spot by tracking customer preferences and needs. John Hauser, Kirin Professor of Marketing at MIT's Sloan School of Management and head of its Virtual Customer Initiative (VCI), argues that this kind of “virtual-customer” technology can spark profound changes in a company's operations, turning around the

Exhibit 1: The Life Span of a Customer-Sensing Transaction



Source: Booz Allen Hamilton

This diagram shows how an offer, in a well-designed automobile sales system with a customer-sensing capability, continually refines itself on the basis of information from a variety of sources. In the first phase (information gathering), customers provide information directly, and the system also analyzes their online behavior. As it assembles the offer, the system draws upon information it has stored about the product and service, and upon information about customers’ likely priorities. Once a decision is made, the system uses all that information to match the user to a vehicle and provide the package.

internal focus that many managers unconsciously adopt. “In an organization, people used to listen to the loudest vice president,” he says. Now, virtual-customer technology “gives everyone a chance to listen to the voice of the customer.”

As Professor Hauser notes, the capability of the computer system is rooted in such recent software refinements as conjoint-analysis tools, which can manage many variables at once and adjust their own responses accordingly. This allows a customer-sensing system to instantly rewrite the questions it poses, on the basis of what the customer has just typed in. Value-conscious consumers might sit down at a PC and find

themselves taken, seemingly naturally, to considerations of price and product durability. Other consumers, motivated by style and taste, might be quizzed on such matters as colors and styles, whereas consumers interested in convenience would answer a third set of questions. Underlying all of this is a scoring logic, built into the software, that analyzes the relevance of variables for each customer. Based on customer preferences (such as safety, additional space, high performance, and reliability), it creates scores for vehicles, models, options, accessories, warranties, insurance options, and other choices. Instead of bracketing customers into predefined market categories that fit predefined offers, it uses these scores to

design offers compatible with the qualities of each individual. The system also scores different forms of communication and selects the advertising copy or product information that best communicates with each customer. Exhibit 1 shows how this logic evolves with each stage of the purchase process.

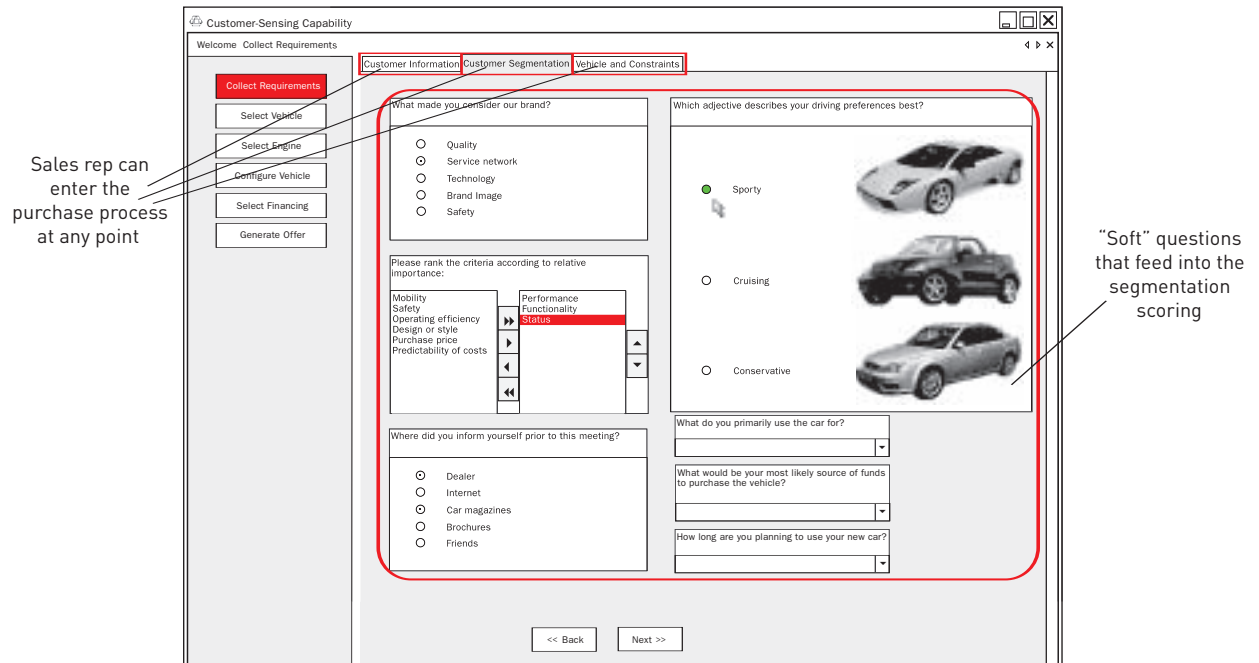
Transparency and reliability contribute to the trust that people need to have before they will make a purchase this way. Since “less is more” in most computer interfaces — too many results or options on a screen are confusing — the best CSC approaches present a highly focused array of options in a series of successive windows. They also provide a clear explanation of the products as well as independent reviews by other purchasers, highlighting the most valuable features identified by the expert system *for this individual customer*.

Exhibits 2 and 3 show what that interface looks like in a well-conceived prototype. Screens address, in succession, *what the customer wants to buy* (the car and its options), *how they want to buy it* (how much they already know and what level of suggestion they want), and *how they want to own it*. At the most relevant stages of the process, the system delivers descriptions of follow-up services such as roadside assistance packages, warranties,

and insurance. This might not occur at the end; a small-business owner considering a lease, for example, might want to know about the terms before selecting a car.

The CSC system keeps track of all the consumer purchase (and decline-to-purchase) decisions, and builds a data bank of information about them. For example, it monitors the rates of closure and rejection and the changes that customers make to the packages they are offered. This information is used in several

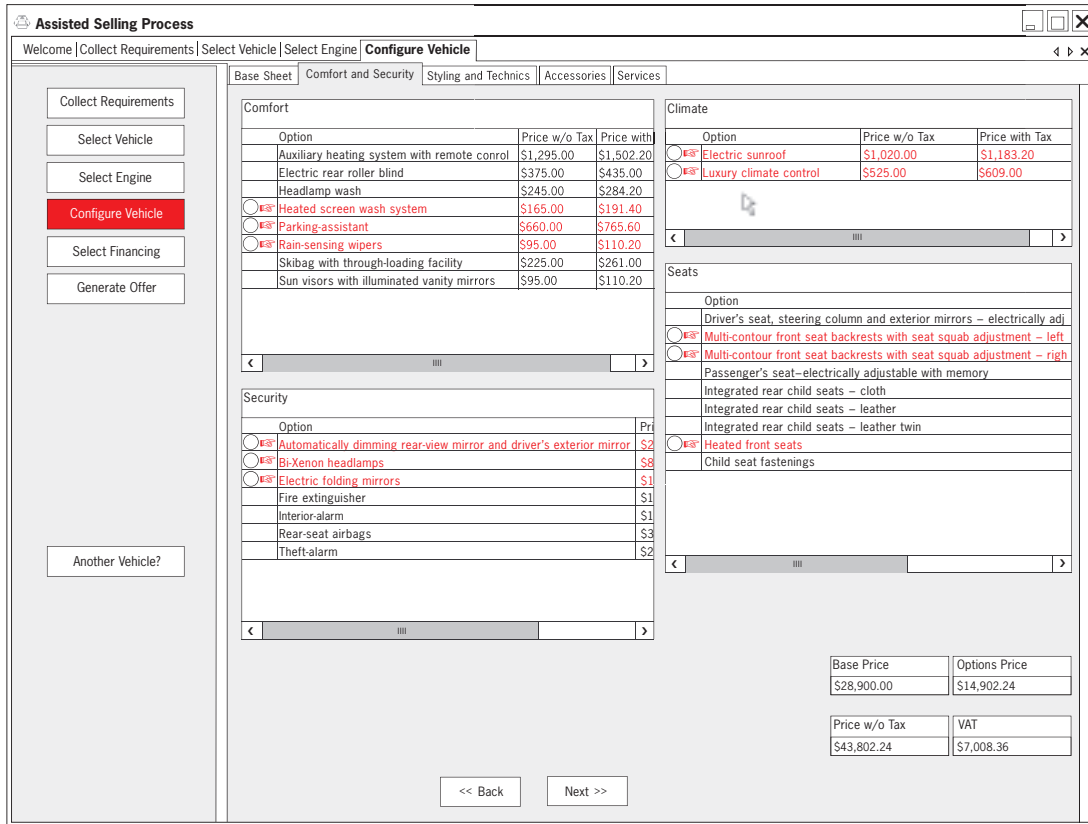
Exhibit 2: **Customer Self-Description Screen**



Source: Booz Allen Hamilton

One of the earliest screens that a customer (or a sales representative serving a customer) might see. This screen shows primarily “soft” questions (about the customer’s intended use of the car) rather than “hard” questions (about specific desired features and options). The green ball designating “sporty” indicates the system’s recommendation based on the answers given so far.

Exhibit 3: Vehicle Configuration Screen



Source: Booz Allen Hamilton

In this screen, occurring somewhat later in this hypothetical CSC process, the customer chooses options. The text in red represents the system’s suggestions, triggered by the customer’s answers to earlier questions.

ways. The “inference engine” uses it to anticipate customers’ likely needs and preferences, and modify the packages it offers accordingly. The data is also available to the dealers and manufacturers, who use it to better understand differences in consumer behavior, and to highlight emerging market trends. Component manufacturers use it to refine designs for the car’s interior; dealers use it to choose which services to promote.

The CSC boosts the productivity of individual salespeople. They no longer need to spend their own time, and customers’ time, tediously paging through spec sheets or repeating information that customers have already found on the Web. The system automatically suggests product-and-service bundles according to the customer’s preferences, and automatically configures the package, sets the appropriate price, and develops leasing or financing options targeted to this particular customer. This helps salespeople tailor their own sales relationship with each customer, highlighting the most valuable features for that individual and gaining the benefits that a

better-educated customer brings. As a senior executive at a major publicly held automotive dealer put it, “To boost our price realization and salespeople’s productivity, it really helps to ‘prebake’ the customer — to have customers who initiate the buying process, going as far as they are inclined, on the Web or through a call center, to then come to us without having to start over.”

Making Customers Whole

A customer-sensing capability places new kinds of demands on its designers, its retailers, and its manufacturers. For example, there is a temptation to propagate features, options, and opportunities. “Every option has the potential to snare [customers] into endless tangles of anxiety, regret, and second-guessing,” writes Barry Schwartz, the Dorwin Cartwright Professor of Social Theory and Social Action at Swarthmore College, in his provocative bestseller, *The Paradox of Choice: Why More Is Less* (Ecco, 2004). Customers also have real concerns about their privacy — and about the trustworthiness of

Instead of bracketing customers into predefined market categories, the dealer now designs packages for each individual.

the auto industry. Therefore, both the dealers and the manufacturers have to demonstrate that they are not only responsive, but responsible with sensitive information.

Meanwhile, the new approach often feels so risky to companies that a change management strategy, including training and deliberate redesign of rewards, is needed to acclimate salespeople to the shift. Salespeople are reluctant to use the system; executives are wary of its ability to keep data safe from hackers, competitors, and identity thieves. And dealers and manufacturers often fall back on old habits — including the habit of pushing each other away. “It’s hard, because dealers compete against themselves,” a senior marketing executive at one of Detroit’s Big Three recently told us. “We can now follow people through the funnel, from coming in, to configuring the car, to doing a dealer inventory search. We know how they get in the funnel. We can’t get to that last mile — what happens in the conversations with the dealer. Dealer traffic remains a mystery.”

The time for change is ripe: The emergence of large dealer groups over the last decade has significantly altered the way vehicles are distributed. These dealer groups are sophisticated operators that have assembled portfolios of franchises in pursuit of growth and profitability. They have installed professional management, focused relentlessly on performance metrics, and identified and proliferated best practices. For the larger dealer groups in the automobile industry, in fact, the key question seems to be not whether to develop a customer-sensing capability, but whether to do it on their own or work jointly with key manufacturers in their portfolio. Prospects for the industry are so poor right now that these dealer groups have little to lose by trying.

In fact, the automobile sector may be among the

first to adopt this approach, if only out of desperation. It could even end up leading other sectors, becoming a model of high-quality service and relationship building. Automobile makers and sellers may well become known as builders of a better matchmaking process, right at the point where money changes hands. +

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Resources

- Marco Iansiti and Gregg Rosenberg, “Beyond the IT Monolith,” 2004, Harvard Business School White Paper no. 9-604-070; [www.apprenticesystems.com/Beyond the IT Monolith.pdf](http://www.apprenticesystems.com/Beyond%20the%20IT%20Monolith.pdf): Principles and practices for “less is more”-style information technologies; useful for designers of computer systems oriented around customer-sensing capability.
- Bill Jackson and Conrad Winkler, “Building the Advantaged Supply Network,” *s+b*, Fall 2004, www.strategy-business.com/press/article/04304: The back end of an effective customer-sensing capability.
- B. Joseph Pine II and James H. Gilmore, “Why Experience Marketing Pays,” *s+b*, Fall 2004, www.strategy-business.com/press/article/04312: American Girl and REI Web sites as examples for this kind of “customer-sensing” marketing.
- C.K. Prahalad and Venkatram Ramaswamy, “The Co-Creation Connection,” *s+b*, Summer 2002, www.strategy-business.com/press/article/18458: Manifesto advocating integration of marketing, information technology, and the supply chain to form a combined vehicle for customer-based product development.
- Jennifer Saranow, “It’s a Match! As Buyers Head to the Web for Research, Car Makers Are Trying to Make Sure They Find What They Want,” *Wall Street Journal*, July 25, 2005: Comprehensively and engagingly portrays the range of online services for car buyers today.
- Barry Schwartz, *The Paradox of Choice: Why More Is Less* (Ecco, 2004): A reminder of the danger of overwhelming people with too many choices.
- Steven Wheeler, “How the Auto Industry Should Embrace CRM,” *s+b enews*, 05/01/02, www.strategy-business.com/press/enewsarticle/22403: A step along the way to the thinking underlying this article, with the additional element of telematics.