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## Highway to Value

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General Motors built the OnStar system according to a simple value proposition--helping drivers on the road helps sell cars

Value doesn't come from bells and whistles. But if you ask Chet Huber, he'll say it comes from three little buttons.

Huber is president of OnStar, a subsidiary of General Motors that supplies emergency and roadside assistance services through wireless telecommunications and global positioning system technology installed primarily in GM vehicles. The three little buttons, on a car's rearview mirror or dashboard, provide a simple user interface to the OnStar system. Drivers use a red button to call emergency services; a blue one to call an OnStar operator for directions and other services, such as hotel locations; and a white one to use a voice-activated telephone. There are no distracting displays for drivers to master; OnStar's technical wizardry is hidden under the hood.

The simplicity of the design, Huber says, has been critical to OnStar's ability to attract nearly 4 million subscribers, who pay at least \$16.95 a month. And each month subscribers use those three buttons to initiate 23,000 calls for roadside assistance and 5,000 Good Samaritan calls for emergency services. Also every month, OnStar call center operators notify emergency responders of 950 automated air bag deployments, unlock 43,000 car doors, locate 450 stolen vehicles and respond to 380,000 requests for directions. Because of these services, OnStar helps differentiate GM cars in the marketplace. Half of GM's dealers report that OnStar helps them sell more cars.

Meanwhile, OnStar has enabled GM to pioneer the field of telematics, the integration of telecommunications and vehicle technology. Car companies usually measure their contact with customers in months, years if the customer gets his car serviced somewhere other than the dealership. Automakers and computer scientists have long believed that using IT to establish a connection between the manufacturer and the car could not only enhance the customer's driving experience but would help maintain the relationship between the customer and the carmaker. In 10 years, OnStar has grown from a research project aimed at proving this concept, to what will be a standard feature of every new GM vehicle in the United States and Canada.

The system's capabilities have grown as well. The most high-tech feature of the initial version was that it automatically notified emergency services if a car's air bag deployed. Today's system can remotely diagnose many of a car's problems, such as whether the oil needs to be changed. "They were the first in, and they remain the only major player" in the telematics field, says Paul Hansen, publisher of The Hansen Report, an automotive electronics newsletter.

For all of these reasons, OnStar is being honored with CIO's 2006 Grand Enterprise Value Award. "OnStar's value transcends even 'Enterprise Value' by creating a new standard in

customer interaction that will be seen as the reference model for years to come," says **Gregor Bailar**, CIO and executive VP with Capital One and an Enterprise Value Awards judge.

OnStar is one of the few bright spots for the struggling automotive giant, which lost almost \$5 billion in 2005. GM's stock hit a 23-year low in December amid news that it vastly overstated its fiscal year 2001 profits and that it was laying off 30,000 employees. While no one expects OnStar to solve GM's problems, company executives believe it can help.

GM does not report OnStar revenue separately; executives say the division is small but profitable. Industry insiders say that OnStar's revenue is about \$1 billion a year, a drop in the bucket for the \$194 billion company. But its value has permeated GM, sometimes in ways that are hard to measure precisely. OnStar's brand recognition is a significant weapon in an industry where one-tenth of 1 percent in market share is worth hundreds of millions of dollars. Furthermore, due to its subscriber volume, the connection between the car and the car company allows GM to understand its products with a greater level of detail than its competitors, according to Hansen. As a result, GM can identify and fix vehicle design problems before its cars hit the road, which can help the company, avoid billions in recall and warranty costs.

OnStar's journey to enterprise value did not follow a straight path from inception to success, however. "While we had big ideas for OnStar, we weren't certain what OnStar's value eventually would turn out to be," says GM CEO Rick Wagoner. The division took several wrong turns in its short history. During the Internet boom, executives fell prey to the temptation of offering any service that its cutting-edge technology could support. They didn't get OnStar back on track until the company remembered its core value to GM: enhancing the experience of driving a GM vehicle. Says Wagoner. "As the business has evolved, and our experience has grown, we've actually been able to create more value for our customers while providing significant benefits to GM."

### **The Beginning of the Road**

Chet Huber is a fit 51, with a trim, gray mustache that doesn't bode well for his considerably browner hair. He has worked at GM since he was 18, when he enrolled in a mechanical engineering program at the General Motors Institute, a cooperative college run by the automaker (now the independent Kettering University). He interned with the company's locomotive division and stayed there for the following 23 years, rising to general director for sales, marketing and product support. Huber has the energy and conviction to sell anything big, whether a train or an idea.

Recognizing his potential as a business leader, GM paid for Huber's Harvard MBA in the late 1970s. In 1994 he became the first civilian to attend the Industrial War College, the school where the armed forces send soon-to-be generals and admirals. When Huber graduated in June 1995 with a master's in national resources strategy (a program that analyzes private industry's role in military preparedness), Harry Pearce, then GM's vice chairman, asked him to look at some technology the company was experimenting with and see if he could turn it into a product.

In the mid-1980s, GM acquired EDS, the IT services firm, and Hughes, an aviation electronics company. GM was looking for ways to apply EDS's expertise in IT infrastructure and Hughes's expertise in vehicle electronics. Engineers had experimented by connecting pagers to cars in order to establish a data connection and had looked into how GM might buy wireless frequencies from the government to develop its own cellular network. But these projects remained in the back rooms of R&D labs until 1994, when two technologies became commercially viable that could connect them and fulfill the vision for telematics: GPS and nationwide cellular telecommunications coverage. GM appointed a team of researchers to integrate GPS and cellular communications with an onboard computer system. The engineers

had already built the first version of such a system when Huber joined the team. Huber decided to commercialize the technology around a simple premise: If you had a serious accident, GM would send an ambulance to get you. The company would sell safety and peace of mind.

Turning Huber's idea into reality was far from simple, however. Most of the technologies involved worked better in a lab than in real life. The GPS did work; as long as a car was in range of the satellite, OnStar could tell where it was. When an OnStar operator received a call or data that an air bag had deployed, he could pass on the car's location information to police and rescue workers.

Getting notification of an accident in the first place was a bigger challenge. In 1995, no wireless carriers had a national network. There were many regional ones, but carriers were worried about getting paid by callers who didn't subscribe to their service. Most either wouldn't connect calls from unrecognized users or required credit card validation before completing a call. For OnStar, this wasn't an option, the system's selling point was its ability to automatically place a call if an air bag deployed. "We couldn't teach everyone's air bag their credit card number," quips Huber.

Ultimately, OnStar negotiated a deal with the carriers to route emergency calls to an 800 number. OnStar promised to pay for the calls if for some reason the carrier couldn't collect from the drivers. "Because we were GM, people believed us," says Huber. Other kinks in the cellular network had to be straightened out as well. For example, cellular companies didn't always keep their software up-to-date, which might prevent OnStar from accessing a network. GM ended up working with cellular carriers to identify dead spots or areas that hadn't received software upgrades.

The hardware, basically a cell phone integrated with an onboard computer, presented another problem. It was expensive. Initially, each OnStar system cost GM \$800 to manufacture and install. "We knew we could make the technology work," says GM Group VP and CIO Ralph Szygenda. "The question was if we could make a viable business case."

To find out, GM decided to provide the system as a dealer-installed option on three 1997 Cadillacs: the STS, DeVille and Eldorado. OnStar would cost \$895. Cellular service (which customers had to arrange on their own) and installation brought the price tag to \$1,395. Because the system was an add-on, it had to compete with other extras. Nonetheless, OnStar seemed to pass its first market test. By January 1998, the service had 20,000 customers. Huber announced a goal of 100,000 subscribers by 1999. But by March 1999, OnStar had only half that. GM executives concluded that the system was too expensive, and Huber's goal seemed unreachable.

Subscriber volume was important because Huber's business plan called for the OnStar division to support itself. Though he never doubted that OnStar could help GM differentiate its vehicles, he knew that it would be difficult to convince corporate leaders that any increase in sales were the result of his system rather than, say, a better vehicle design. In order to get the company to stand by OnStar, OnStar would have to stand on its own. But there was no way the division could make a profit with the dealer-installed model. "It was low volume and a tough transaction," says Huber.

The only way to gain the economies of scale OnStar needed was to install the system in the factory. But doing so posed a financial risk, because drivers who bought the cars with OnStar installed could decide not to subscribe to the service. Nevertheless, in January 1999, as subscriptions plateaued, chairman and CEO Wagoner agreed the company would begin to make OnStar a standard feature in new models and include the first year of service in the purchase price of the car. "We knew from our early experience and research that if OnStar's services were priced right and easy to use, that customers would consider them valuable," says Wagoner.

Furthermore, executives realized that they had a chance to establish GM as the leader in telematics. In their minds this justified the risk. "If this had been a me-too service, the risk tolerance would have been a lot less," says Huber. By adding OnStar to new models in phases, GM could abandon the system if it proved unpopular. But a mitigation strategy only goes so far. "We bet that if we built it, they would come," says Szygenda. "And if they didn't come, we would be in a world of trouble."

### **Detour on the Dotcom Highway**

The division's prospects blossomed as OnStar-equipped vehicles began to roll off the assembly line. Production costs plummeted, and the customer base grew to 500,000 by November 2000. Meanwhile, the rise of the Internet not only validated the telematics vision; it also pointed to the system's potential for providing services to drivers. OnStar succumbed to dotcom fever, and the business strategy expanded into offering concierge-style services. "Our theory was the more we do, the better, because people will find something that they like," says Huber. In February 2000 OnStar launched its first integrated advertising campaign, premiering an ad during the Academy Awards telecast that featured Batman using an OnStar-equipped Batmobile.

Meanwhile, OnStar's success attracted competitors. Ford launched its own telematics service, Wingcast, and Ford's CEO at the time, Jac Nasser, talked about transforming cars into "personalized portals." Startup ATX sold a similar service to Mercedes and other luxury brands. In an attempt to fight off the competition, GM reached agreements with Acura, Audi, Isuzu, Lexus, Subaru and Volkswagen to install OnStar in their vehicles. IDC (a sister company to CIO's publisher) forecast that telematics would be a \$42 billion industry by 2010. In 2001, Ron Zarella, then-president of GM North America, predicted that OnStar would boost GM's profits by \$1 billion a year.

Huber admits that OnStar, like other organizations, got caught up in dotcom craziness. "Back then guys like [Sun CEO] Scott McNealy was saying that the guys in Detroit ought to wake up and realize that they are selling Java browsers on wheels and that no one cares about cars anymore," he says.

But at the time, OnStar was growing. The system was available in more than half of all new GM models and had 2 million customers. However, there were already signs of trouble. While the company had no problem getting customers, GM was giving OnStar away for all intents and purposes; it was struggling to hold them. According to OnStar, the retention rate was below 50 percent. Industry analysts placed it as low as 20 percent or 30 percent. "[The telematics vendors] thought that people wanted to replicate the PC in a car," says Thilo Koslowski, an automotive analyst with Gartner Research. "But being in a car is about getting from point A to point B." In August 2001 Koslowski published research showing that there was very little demand for Internet-based services. OnStar's bubble was about to burst.

### **The Right Direction**

According to the Bureau of Transportation Statistics, single-occupant vehicles account for around 40 percent of the miles driven in the United States. While there are probably an infinite number of services that would appeal to your passengers, often it's just you in the car. Hopefully you're not watching a movie.

Koslowski's research showed that what customers wanted were services that would improve safety and ease of driving. Around the same time, Huber's focus groups were starting to tell him the same thing. When he asked people why they hadn't renewed their OnStar subscriptions, they told him that they never used any of the concierge-style services. "We'd say, 'What about the part that saves your life?' And they'd say, 'Oh, it does that too?'" In its rush to create more services, OnStar had strayed from its core value proposition: safety and security.

"We had to undergo a complete revision about how to create a brand and what a brand stands for," says Huber.

In January 2002, while OnStar was re-inventing itself, Ford folded Wingcast, writing off \$100 million in the process. Wall Street, bullish about telematics just a year before, did an about-face. But GM's senior leadership stood by the division. "Our next announcement was that we were going on more vehicles, and then finally it was like, Maybe there is an approach here that works," Huber recalls.

In 2003, according to AdWeek, OnStar spent \$45 million on advertising, including a TV campaign launched in September of that year featuring real calls to OnStar service centers. The campaign returned OnStar to its focus on safety. By the start of 2004, OnStar had 2.5 million customers and claimed that its renewal rate was more than 50 percent. Tom Keery, president of Frost Motors, a Cadillac dealership in Newton, Mass., says that the advertising campaign resonated with the public. "People will now walk in because of OnStar," he says.

Meanwhile, OnStar was finding other ways it could add value to GM. By 2004, the system was so well integrated with the car's central computer that OnStar could detect hundreds of vehicle problems as they happened. The current version improves the system's data collection capabilities by using sensors to gather information from parts of a vehicle that aren't connected to the computer. OnStar can diagnose approximately 1,600 problems, and GM uses this information three ways.

First, OnStar helps consumers service their cars. If the engine light goes on, a customer can call an OnStar operator, who downloads the car's diagnostic data, tells the driver what the problem is and lets him know whether he should pull over immediately. In addition, OnStar recently launched a remote diagnostics program that sends customers a monthly e-mail about what's happening inside their cars: everything from whether the oil needs to be changed to how antilock brakes are performing. This idea was a result of market research. "I still remember the tapes of this woman in Phoenix," Huber says, recalling one focus group. "She said, 'I don't want diagnostics. I want triage. Take my vehicle and put it in one of three buckets,'" green, yellow or red, which will tell the driver whether a part is fine, needs attention or is an immediate risk. "We architected the whole vehicle diagnostics program around what this lady said."

The diagnostics data also allows OnStar to become, in effect, a giant CRM system. Rather than limiting its interactions with customers to the point of sale and the times the customer comes to the dealership for service, GM has an opportunity to interact with its customers every single day. Not only can this build brand loyalty in customers but the company now has a much richer understanding of how people use their cars. Wagoner says that incorporating OnStar data into the company's business processes has become a required practice for everyone at GM in the United States and Canada, from dealers to engineers.

Real-time information about the vehicles also gives GM early warning of problems that may be a result of design flaws. Industry analysts say that most automakers don't learn about such problems until at least 18 months after the car has gone to market. That's how long it takes for owners to discover a problem and take the car to the dealership, for the dealership to pass that information back to the manufacturer, and for the manufacturer to understand what that data is telling them and decide whether a recall is warranted. A large recall can cost a car manufacturer billions.

If an OnStar-equipped vehicle has enough sensors, there is virtually nothing the company can't learn about it. Huber says that GM has been "aggressively capturing all kinds of operating characteristics" from test models driven by GM engineers, and that this information has already resulted in design changes before the vehicles reached production. GM executives do not like to provide details about what they do with this information because they believe the data gives the company a competitive advantage. GM executives also worry that customers would view

this data collection as a privacy violation; even though GM says it collects it only in aggregate (see "Big Brother on Wheels?" on Page 69). However, both Huber and Szygenda acknowledge that the data has the potential to save the company billions of dollars by avoiding manufacturing defects and recalls.

### **The Road Ahead**

This year 3 million GM vehicles will come equipped with OnStar. The system will be standard in every GM car by the end of 2007. Huber says that the renewed emphasis on safety, and the accompanying advertising campaign, has helped drive customer retention rates up to around 66 percent. Also, a few years ago, the division reached a deal with Verizon to provide wireless telephone services to customers, bringing in extra revenue and making the OnStar service more appealing. The OnStar phone is one of the 3-watt clunkers that early adopters used to carry around like a briefcase, so it gets reception in areas that handheld phones, which typically have only 250 milliwatts of power, do not. Voice-activated dialing makes calling safer.

As OnStar stepped up its advertising campaign, focus group testing showed that the public's association of the brand with GM increased. In recognition of this, OnStar changed its name to OnStar by GM in 2004. The company is no longer trying to get OnStar into other automakers' vehicles. Other automakers aren't keen, either, to deploy a competitor's technology. Audi, Subaru and Volkswagen have stopped installing OnStar in their cars.

GM's new strategy for OnStar recognizes that OnStar's value is not as an independent product but as a tool for manufacturing. "We can save GM a lot of money," says Huber. With the ability to help improve vehicles during preproduction and differentiate them post-production, OnStar could improve GM's bottom line.

At this point, says Szygenda, OnStar's capabilities are limited only by its engineers' imaginations. For all its sophistication, "it is an immature application," he says. "We have been running computers to assist the business for longer than I've been around [GM]. But we are just learning what we can do in the vehicle."

Ultimately each decision about OnStar will be made according to the lesson about value that it took GM nearly 10 years to learn: Focus on your core business, and don't get seduced by what technology allows you to do. "We have an IT capability," says Szygenda, "but we are a car company."

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