



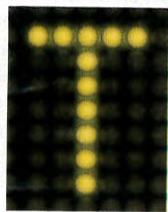
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TRAFFIC DEATHS
THIS YEAR

AUTOMOTIVE NEWS ILLUSTRATION

Automotive safety experts say the safety and connectivity technology arriving in today's cars creates a revolutionary possibility — the elimination of traffic deaths

AIMING FOR ZERO

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Toyota's James Kuffner is among a global band of safety experts proposing a radical goal for the auto industry: zero traffic deaths.

The target may be unattainable, safety advocates concede. But they say it is possible to virtually eliminate the 30,000-plus annual highway fatalities in the U.S.

Kuffner, chief technology officer at the Toyota Research Institute in Palo Alto, Calif., says that if the industry moves decisively, within a decade "the probability of being killed in a traffic accident would be smaller than being killed by lightning."

But automakers must speed the usual decadeslong pace of adoption of new technology, safety experts say, and get advanced data-crunching, crash-avoidance and communications capability into vehicles as quickly as possible.

"The longer it isn't deployed," Kuffner says, "the more people die."

The war on traffic deaths would require profound changes to vehicles, the way they operate and the way they're regulated (see related story, Page 53).

And it would upend many industry norms. Can automakers sell safety instead of perfor-

Kuffner: Could traffic deaths become less likely than lightning fatalities?



Traffic accidents claim the lives of 30,000-plus people in the U.S. each year.

mance? Will their customers love robotic cars that don't crash — but travel cautiously, carefully obeying traffic laws?

On the cusp

Since 2000, automakers have introduced an array of safety technology: forward-collision warning, rear cameras, lane-departure warning, traffic-jam assist, adaptive cruise control and the like. (See graphic, Page 53.)

Put it all together, says Mark Rosekind, administrator of the National Highway Traffic Safety Administration, and "We're right on the technological cusp. We have this totally new, really exciting chance to make a difference."

The challenge is to get the technology into vehicles quickly but safely, he says. But the goal is sufficiently compelling

to ensure that change will happen.

"Everyone's got their own view of what the future is going to be," Rosekind says. "We're watching the future get created right in front of us."

Much of the impetus comes from Vision Zero, a policy written into Swedish law in 1997. Its core tenet is that there is no acceptable level of traffic fatalities; the goal is zero deaths (see related story, Page 54).

The policy fits the safety consciousness of Sweden's only major automaker, Volvo, which has pledged that no one will die in an accident in a new Volvo car by 2020.

While other automakers are cautious about getting to zero — one executive marveled that Volvo's lawyers would let the company make such a claim —

Volvo r&d chief Peter Mertens isn't backing off.

"By 2020, I think we have a good chance to be damn close to it," he says.

With continual refinement of safety systems and adoption of vehicle-to-vehicle communications, Mertens says, it is possible to eliminate traffic deaths: "Once all vehicles are connected, then I think we can achieve zero fatalities in traffic."

Chauffeurs or angels?

Volvo epitomizes one of two industry approaches to reducing fatalities — although they mostly differ in how quickly they propose to get to self-driving, connected vehicles.

Toyota's Kuffner terms the two schools "chauffeur" and "guardian angel":

■ The chauffeur mode, championed by Google, uses self-driving vehicles. As Kuffner puts it, "the human doesn't really have to participate. The car can drive itself."

■ The "guardian angel" approach uses vehicles driven by humans, but with computerized safety systems ready to intervene. Volvo and other automakers following this path say it probably will lead to fully au-

Mertens: Connected vehicles are key to Volvo's goal.



onomous vehicles, but improving crash avoidance and protection is more realistic in the near term.

Chauffeur-mode backers question whether that is enough.

Ron Medford, director of safety for Google's self-driving car program, says that "taking the driver out of the loop" is necessary. Medford says that human error causes more than 90 percent of accidents, with impaired driving responsible for 25 percent.

"The idea of preventing a crash, not building a structure around you, should be the vision someday," he says.

In the short term, Medford adds, "it's going to take both. You can't really design crash protection sufficiently so that you won't have any deaths."

20-30 year rollout

Even the most zealous advocates of safety technology acknowledge a difficult reality. With nearly 260 million light vehicles on U.S. roads and the average vehicle age at 11.5 years, a total makeover of the U.S. fleet won't happen soon.

If the crash-prevention systems follow the usual timetable, Rosekind says, "It takes 20 to 30 years for new technology to penetrate the fleet."

But inertia shouldn't be an excuse, advocates say. Lawrence Burns, an industry consultant and former General Motors head of r&d, says tolerance for traffic deaths is an outdated attitude.

"The acceptance of roadway fatalities for over a century is really amazing, if you think about it," Burns says. "It's not that the industry hasn't improved safety. It has, but the improvement has been incremental."

GM studies in 2003-04 raised the possibility of using vehicle-to-vehicle communication and vehicle-to-infrastructure communication to greatly improve safety, he says. The rise of computerized controls and onboard information technology — better sensors, processors, data storage, mapping — make it all the more possible.

Xavier Mosquet, senior partner for Boston Consulting Group, says a 2015 study by the company showed that full use of technologies now on vehicles

could cut U.S. traffic deaths by 9,900 per year.

"I'm not talking about autonomous cars. I'm talking about today's advanced driver-assistance systems, what we call active safety," Mosquet says. "This is not futuristic. This is today. So we could already save 10,000 lives on our roads with available technologies."

Government and insurance incentives might be needed to increase their use, he says. But Mosquet says cutting traffic deaths should be a goal on a par with corporate average fuel economy: "There's a CAFE standard, but there's no equivalent for safety."



Medford: Focus on prevention.



Leroy: No crash, no fatality

'The first priority'

Automakers say they are working to add safety systems to real-world driving. Didier Leroy, executive vice president of Toyota Motor Corp., says that "We are focusing much more on this point than on pure autonomous driving.

"Our first target is not to make sure people can take a seat in the rear seat and read the newspaper," Leroy says. "It is just to make sure that they will have no fatality, no crash, no accident and improve safety. This is absolutely the first priority for us."

One reason for traditional automakers' urgency is pressure from new competitors such as Google, with its self-driving cars, and Apple, rumored to be working on a car. Volvo's Mertens says new players may speed the industry's adoption of technology.

"We are pretty slow. The auto industry isn't known for high speed of innovations," Mertens says. "Others — the Silicon Valley guys that think they can do cars — I think they will help us."

Burns puts it more bluntly, saying automakers must shift their r&d budgets toward safety: "I think we're going to be in a dramatically different world in 2025 than we are today.

"Either the incumbents are going to redirect how they spend their money, or they're going to have their lunch eaten."

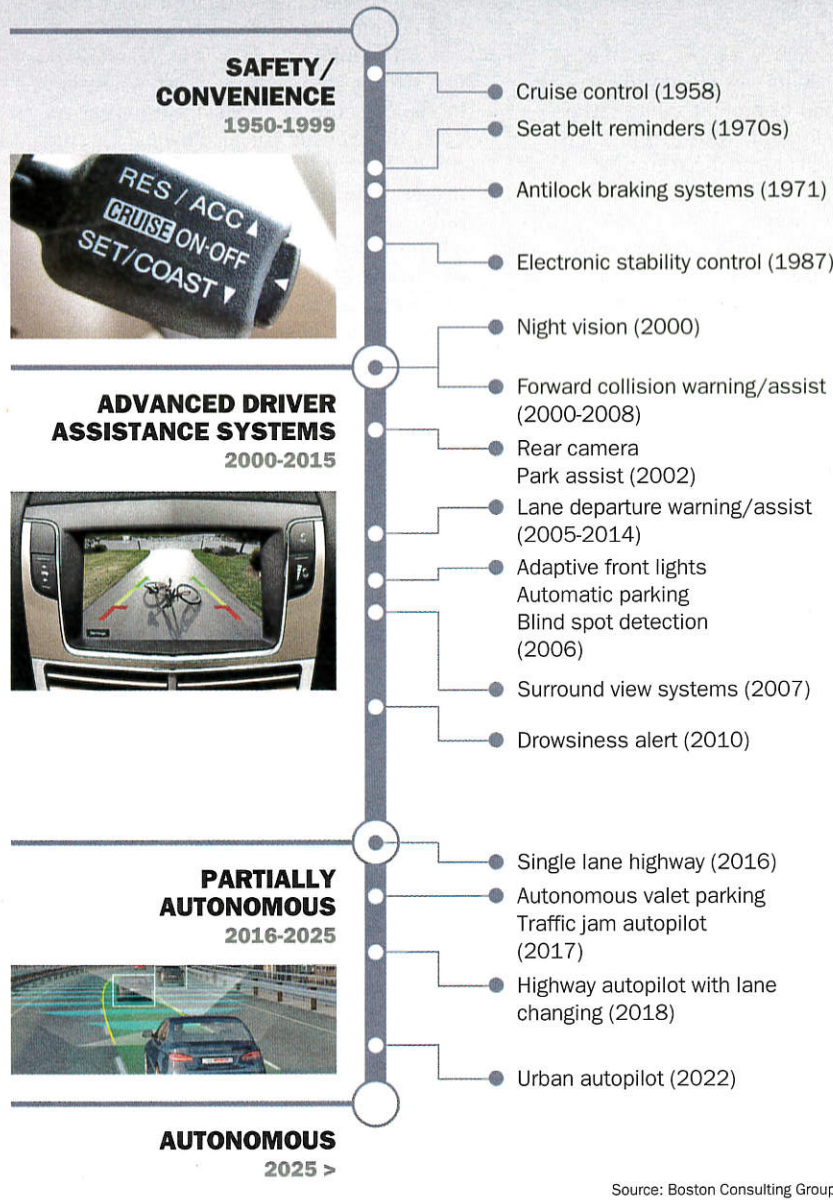
'Schizophrenic' marketing

But automakers also must mind the bottom line. The result: Today the

"Our first target is not to make sure people can take a seat in the rear seat and read the newspaper."

Didier Leroy
Toyota Motor Corp.

Eras of safety technology



same companies that promote safety often promote maximum horsepower, too.

Adrian Lund, president of the Insurance Institute for Highway Safety, says that this gives the industry a "schizophrenic" approach to safety.

"They're still selling performance. A lot of people value performance, and they're trying to market to those folks," Lund says. "But automakers and their suppliers are also the ones developing this [safety] technology."

Experts say that the split personality of automakers — and the U.S. vehicle fleet — will persist for decades. James Sayer, director of the University of

Michigan Transportation Research Institute, says that there will be a "mixed fleet" of self-driving and human-driven vehicles.

"No one's going to wave a magic wand and all of a sudden all the vehicles on the road are going to be fully automated," Sayer says. "We're going to deal with decades where we've got what's referred to as a mixed fleet of manually controlled, partially automated and autonomous vehicles all having to get along."

This will be tricky, he says. Drivers will have to coexist with self-driving vehicles that transport occupants safely and deliberately — like the slow-lane car that most freeway drivers blow past.

Reactions to today's safety technology show the difference in driving styles, Sayer says. For instance, adaptive cruise control systems are programmed to leave a safe gap between a vehicle and the one in front of it — the "time headway."

"We found that if you left a time headway of one second or more, cars would cut in," Sayer says. "And yet the rules are you should be leaving multiple seconds of headway."

"But people see that as an opportunity. They don't hesitate to drive that close to a vehicle."



Lund: Push for performance

Rosekind wants NHTSA rules to foster innovation

Regulators may adopt new tactics to speed safety technology into vehicles, a top U.S. safety official says.

Mark Rosekind, administrator of the National Highway Traffic Safety Administration, says the agency wants to use guidelines rather than mandates to accelerate progress.

"That's part of the excitement, to try to keep the innovation pathway as wide open as possible," Rosekind says.

That would mean, for instance, that a technology might be deemed safe to use, but not required. A technical paper issued this spring by SAE International urged federal lawmakers to adopt a new approach, setting "baseline standards" that give automakers



Rosekind: Guidelines, not mandates

discretion to use equipment, rather than mandating use.

That sort of "fast, flexible rulemaking" would be best-suited to a period of fast-moving technological change, authors Daniel Malone and John Creamer wrote.

"Moreover, this approach allows for

continuous improvement and adaptation of standards in line with advances in technology and real-world experience," they wrote.

Adrian Lund, president of the Insurance Institute for Highway Safety, says that using new technology to enforce traffic laws also would help minimize traffic fatalities. Using on-road cameras to enforce red-light and speed laws is controversial, but effective, Lund says.

"The data are quite clear that when you use cameras to enforce red-light compliance, people stop at red lights," he says. "We see more people stopping at red lights and we see a reduction in crashes."

— Dave Guilford

see **ZERO**, Page 54

ZERO

continued from Page 53

If technology enforces a more rational — some would say sedate — style of travel, automakers will need to market safety rather than 0-to-60 acceleration. Mosquet predicts that consumers will fit into three groups:

1. Autonomous-drive enthusiasts who want the latest safety technology.
2. Motorists who want to drive themselves in a powerful vehicle.
3. Drivers who want a simple tech package that they can afford.

The last group will test automakers' marketing and product-development skills, as the companies try to figure out what such consumers will pay for, and what current features to leave out, he says.

"Those people are going to make new trade-offs," Mosquet says. "They're going to want a car that actually offers new things at the expense of existing things so that they can afford the product."

Automakers probably will have to educate consumers if the companies begin using

Campaign for zero fatalities started in safety-conscious Sweden

The notion that traffic fatalities can be eliminated is a Swedish import.

The initiative, known as Vision Zero, was written into Sweden's road safety law in 1997, according to visionzeroinitiative.com, the website for an advocacy group run by the Swedish government and businesses. The group has offices in Stockholm.

"The bill sets an ultimate target of no deaths or serious injuries on Sweden's roads and is not satisfied with merely reducing accidents to an economically man-

ageable level," the site says.

Volvo r&d chief Peter Mertens says the bill kick-started the effort: "That is where the journey started, and we have been growing systems and components in the car that make that happen."

Although new automotive safety technology has spurred industry interest in reducing traffic deaths, Vision Zero is broader, encompassing road design, driver education and increased traffic enforcement, according to the site.

Despite their endorsement of the Vision

Zero target, safety experts say that eliminating highway fatalities may be impossible, given the unpredictability of traffic accidents.

"Certainly Vision Zero is our goal," says Adrian Lund, president of the Insurance Institute for Highway Safety. "I think we can get a long way toward it."

"Will we ever get to absolute zero? I don't know," Lund says.

"There's a lot of strange things that happen out there."

— Dave Guilford

safety as a selling point, experts say. Many of today's vehicle owners know little about safety technology, even if they drive a vehicle equipped with it.

"I think that's a big question," NHTSA's Rosekind says. "A lot of people right now aren't aware of what they've got in their vehicle."

One sales strategy is cropping up: Safety equipment as a provider of peace of mind.

A Lincoln MKX print ad, for instance, touts its four-camera system for monitoring surrounding traffic: "Let's finally feel like we're operating our vehicles with a little more awareness and a lot more confidence. We're not talking about just one camera. We're talking about four cameras with one mind. A vehicle that now has the ability to help us see 360 degrees all around us."

That sort of appeal will be essential to maintain the automobile's allure, says Toyota's Leroy. As other forms of mobility emerge, automakers will need to reassure customers that it's safe to drive a car.

"If you want to keep the attractiveness of the mobility in the car," Leroy says, "the car should not be perceived as something that can injure you." **AN**

ANDERSSON

Successes just in time for economic collapse

continued from Page 1

me, something I would still like to understand better."

Over 120 minutes, the 60-year-old Andersson drinks five cups of Earl Grey tea; recounts the collapse of a once-booming Russian auto market; talks oil prices, sanctions and rubles. He stares you down with the same sort of determination that, critics say, was too radical for Russia's strange mix of a planned economy and free-market capitalism.

"There is a saying in Russia: Russian men have a problem to harness the horse, but harness it for him, and he will ride as long as you want," Andersson says. "Setting up in Russia is extremely difficult. But if you develop the process and establish what to do, they can work like no one else."

Few worked to make Russia run right like Bo.

But as he told us in 2015, his quest to stamp out corruption and undo uncompetitive state contracts ran into a wall of business practices as old as the Soviet factories he inherited. It was a world like no other — from a war with suppliers and shady contracts to high-profile car launches with Vladimir Putin in Sochi.

"We got along well," Andersson says of Putin. "He understands that the automotive industry is very important to the country's success."

But on this day, he will not, and does not, talk about his former employer.



Ex-AvtoVAZ CEO Bo Andersson was blamed for a \$1 billion loss. Of Russian President Vladimir Putin, right, he says, "We got along well."

"I am extremely thankful I had the experience," Andersson says. "Everything has its time."

'Most wanted man'

Andersson spent seven years trying to understand Russia better — ultimately returning Russian light-commercial vehicle GAZ Group to profitability, then accepting the position as CEO at AvtoVAZ, the first non-Russian to lead the company. He updated model lines; cut 20,000 jobs in a bloated work force; reversed absenteeism; renovated showers, cafeterias and toilets; increased market share from 15 to 20 percent; improved cash flow; and raised standards for supplied parts.

Then he watched the economy collapse.

Currency, oil, gas and foreign investment plunged in 2015.

The market for passenger cars and light-commercial vehicles — about the same as Germany's in 2012, with 3 million units — dropped by half within three years.

When it was time to cut more jobs,

Russia's climate turned very cold for Andersson.

Posters went up in AvtoVAZ factory elevators calling for his dismissal, says a person close to Andersson, who asked not to be identified. Protesters called for his head.

By late 2015, amid the macroeconomic pressures and ever-tightening scrutiny, AvtoVAZ was bleeding cash, and Andersson was blamed for a \$1 billion loss and a personnel policy deemed too tough.

"He was the most wanted man in Russia," says the source.

After 28 months at AvtoVAZ, he was out.

"People in Russia loved the idea of not having corruption, but at the end of the day, not everyone is in agreement," the person says. "You are never one of them; you are an outsider."

Andersson says during his time in Russia — and throughout his career — he had "zero tolerance" for corruption.

Did he discover a lot of it in Russia?

"Yes," Andersson says. "If you have clear ground rules and live within them, I don't see a problem. But there was business we did not take because we could not take it."

The framework for an auto industry in Russia is well-planned and engineered, "but when you get into how things are executed, it is a very different story," he says. "Is it working? Yes and no."

The biggest challenge is for suppliers, he says.

"I understand how suppliers work and have seen many good ones. But you take a market [where] you have 24 plants and total production capacity of less than 1 million units, then I would say it is extremely difficult for a supplier to have scale and to be profitable."

So, for the first time since he worked at Saab in 1993, Andersson moved back to Sweden, heading to his summer house in



Falkenberg, a town of 20,000. He planned to take three months off to "do nothing." But "after one week, I had cleaned my house and organized the silverware in the drawers, and I said, 'I don't think this is working,'" he says.

He started to work his Swedish contacts and reunite with military friends. Eventually, he reconnected with an old professor in the engineering and business schools at Linköping University.

This week, Andersson will start there teaching an MBA course in purchasing.

Future is 'wide open'

He will never forget the lessons of Russia. Or the stories.

"One day, as CEO, I came to a plant where we produced military trucks, and a lady yelled at me and said, 'Why are you here?'"

"I said, 'I am here because we want to implement lean manufacturing at the plant.'"

"She said, 'You should not be here. You should go back to Moscow and make sure the contract is signed so that we have an order for military trucks, so our jobs are safe.'"

Says Andersson: "That was extreme: a strong lady saying, 'You are our leader, and you are responsible for our well-being.' So I turned around and worked on the contract."

On his own future, Andersson takes a final sip of tea and stares back at you with the old Bo glare: "The global auto industry is where I belong. I had a lot of good experience in North America. I worked in Europe. And I would be interested in Asia. I am wide open."

With that, the Swede rises, shakes hands one final time and disappears into the shadows again — for now.

You may email Jason Stein at jstein@crain.com.

"If you have clear ground rules and live within them, I don't see a problem. But there was business we did not take because we could not take it."

Bo Andersson

