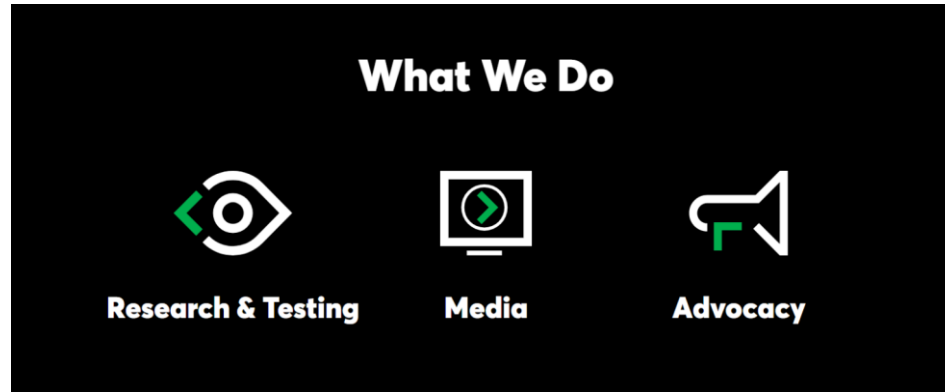




Consumer Reports - Who we are

- 501(c)(3) non-profit founded in 1936
- 6 million members
- ~2,800 products and services each year, spanning 142 categories
- 9,000+ ratings and reviews of products on CR.org



Consumer Reports - Auto Testing

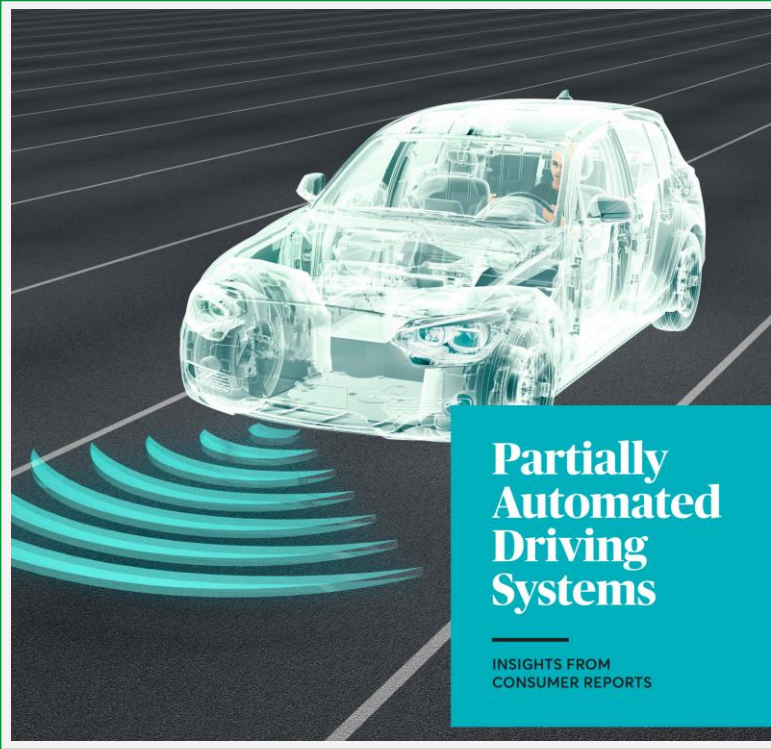
- 327-acre auto test track facility in Colchester, CT
- Cars, child seats, tires
- Over 2 miles of paved roadway
- Secret shoppers purchase consumer vehicles
- ~80 test cars per year, ~80 tests per car



How we score vehicles



Advanced Vehicle Technology



- **Advanced Vehicle Technology**
 - Connected (V2X)
 - Automated (ADAS)
 - In-vehicle electronics Usability (HMI)
- **Marketing and Advertising**
- **Public Perception, Surveys**

Current Technology on Consumer Vehicles

Warnings

- Forward Collision Warning (FCW)
- Rear Cross Traffic Warning (RCTW)
- Lane Departure Warning (LDW)
- Blind Spot Warning (BSW)

Assistance

- Automatic Emergency Braking (AEB)
- Rear AEB
- Lane Keeping Assist (LKA)
- Adaptive Cruise Control (ACC)

Who Has What?

Updated: July 2019		Convenience			Safety				
		ACC	LDW	LKA	AEB	Ped	RCTW	FCW	BSW
BMW	BMW	✓	✓	✓	✓	✓	✓	✓	✓
	Mini	✓	✗	✗	✓	✓	✗	✓	✗
Daimler	Mercedes	✓	✓	✓	✓	✓	✓	✓	✓
	Alfa Romeo	✓	✓	✗	✓	✓	✓	✓	✓
FCA	Chrysler	✓	✓	✓	✓	✓	✓	✓	✓
	Dodge	✓	✓	✓	✓	✓	✓	✓	✓
	Fiat	✓	✓	✓	✓	✓	✓	✓	✓
	Jeep	✓	✓	✓	✓	✓	✓	✓	✓
Ford	Ford	✓	✓	✓	✓	✓	✓	✓	✓
	Lincoln	✓	✓	✓	✓	✓	✓	✓	✓
GM	Cadillac	✓	✓	✓	✓	✓	✓	✓	✓
	Chevrolet	✓	✓	✓	✓	✓	✓	✓	✓
	GMC	✓	✓	✓	✓	✓	✓	✓	✓
	Buick	✓	✓	✓	✓	✓	✓	✓	✓
Honda	Acura	✓	✓	✓	✓	✓	✓	✓	✓
	Honda	✓	✓	✓	✓	✓	✓	✓	✓
Hyundai	Genesis	✓	✓	✓	✓	✓	✓	✓	✓
	Hyundai	✓	✓	✓	✓	✓	✓	✓	✓
Kia	Kia	✓	✓	✓	✓	✓	✓	✓	✓
	Mazda	✓	✓	✓	✓	✓	✓	✓	✓
Mazda	Infiniti	✓	✓	✓	✓	✓	✓	✓	✓
	Nissan	✓	✓	✓	✓	✓	✓	✓	✓
RMM Alliance	Mitsubishi	✓	✓	✗	✓	✗	✓	✓	✓
	Subaru	✓	✓	✓	✓	✓	✓	✓	✓
Tata Motors	Jaguar	✓	✓	✓	✓	✓	✓	✓	✓
	Land Rover	✓	✓	✓	✓	✓	✓	✓	✓
Tesla	Tesla	✓	✓	✓	✓	✓	✗	✓	✗
	Lexus	✓	✓	✓	✓	✓	✓	✓	✓
Toyota	Toyota	✓	✓	✓	✓	✓	✓	✓	✓
	Audi	✓	✓	✓	✓	✓	✗	✓	✓
VW	Porsche	✓	✓	✓	✓	✓	✗	✓	✓
	Volkswagen	✓	✓	✓	✓	✓	✓	✓	✓
ZGH	Volvo	✓	✓	✓	✓	✓	✓	✓	✓

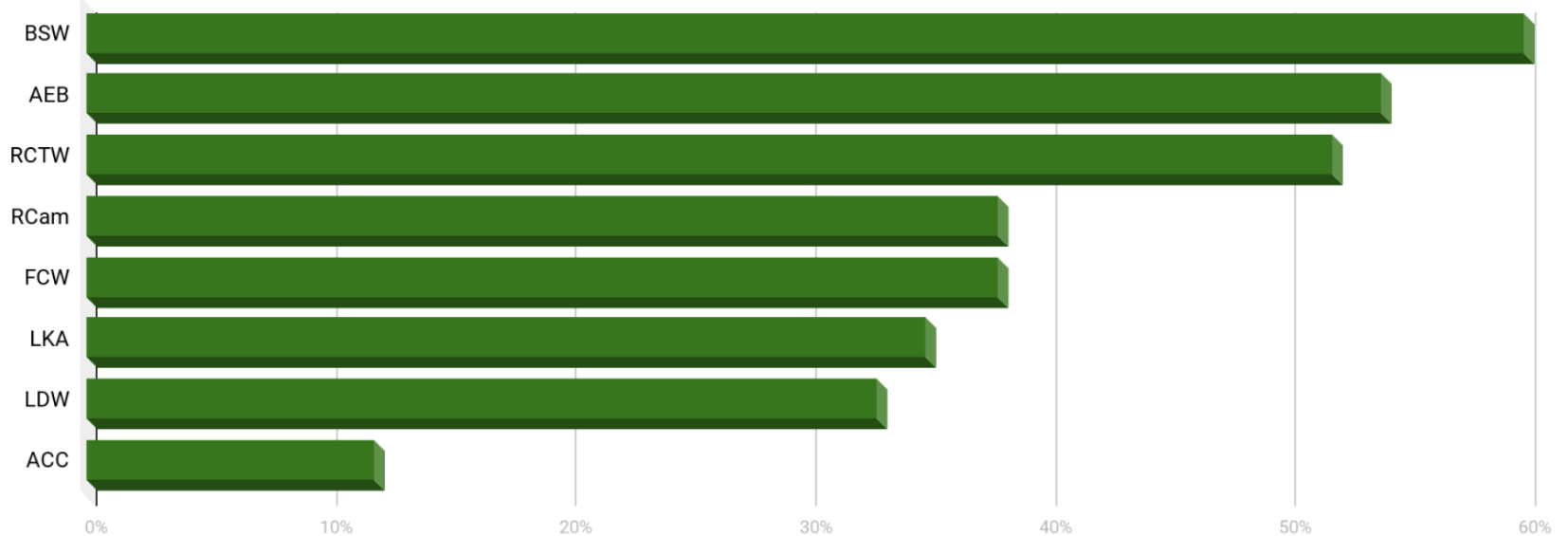
Model Year 2019							
FCW	AEB-c	AEB-h	LDW	LKA	BSW	RCTW	Ped
Total	Total	Total	Total	Total	Total	Total	Total
299	299	299	299	299	299	299	299
Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
135	145	112	95	71	60	55	115
45.15%	48.49%	37.46%	31.77%	23.75%	20.07%	18.39%	38.46%
Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
134	102	116	157	137	186	168	88
44.82%	34.11%	38.80%	52.51%	45.82%	62.21%	56.19%	29.43%
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	52	71	47	91	53	76	96
10.03%	17.39%	23.75%	15.72%	30.43%	17.73%	25.42%	32.11%

What do they do?

Insert video

Are these safety systems?

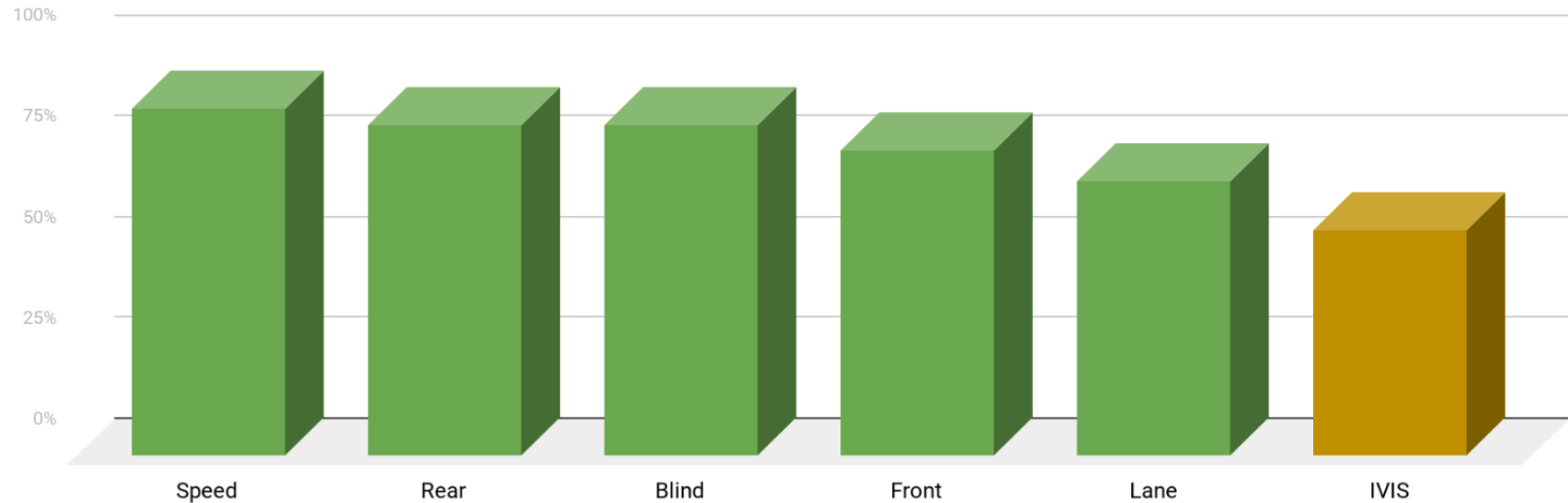
Helped avoid a crash



Do consumers like them?

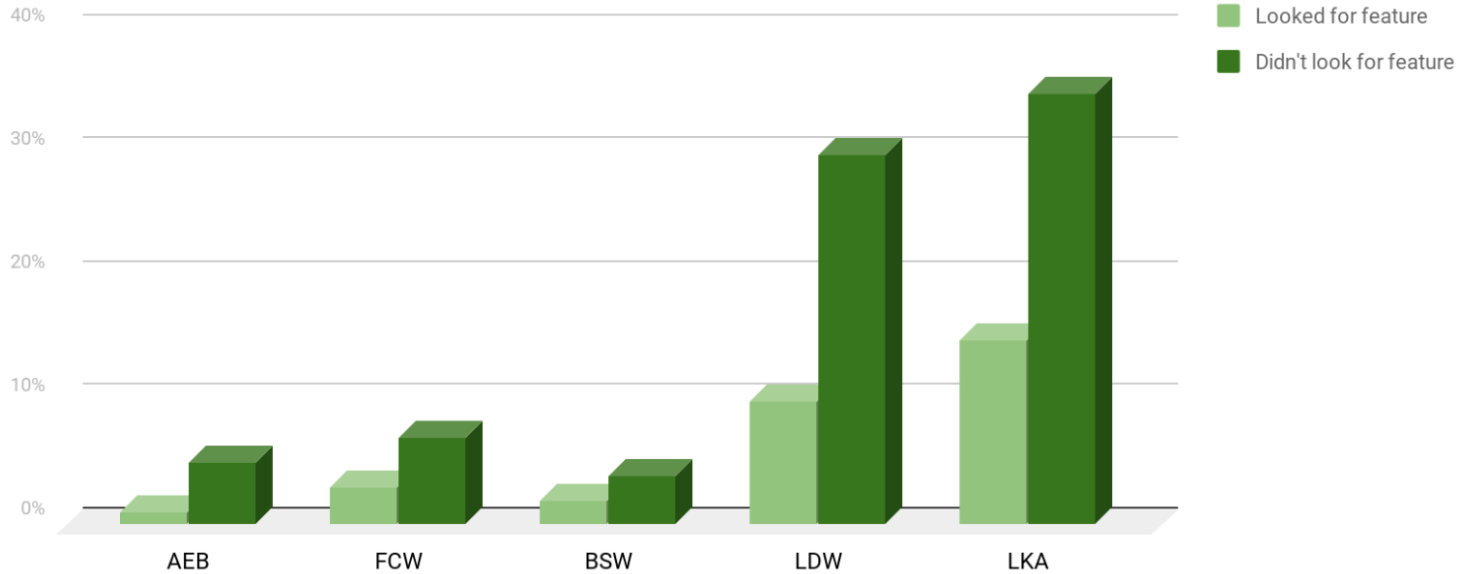
Satisfaction with each system

(includes display, warning, and automation)

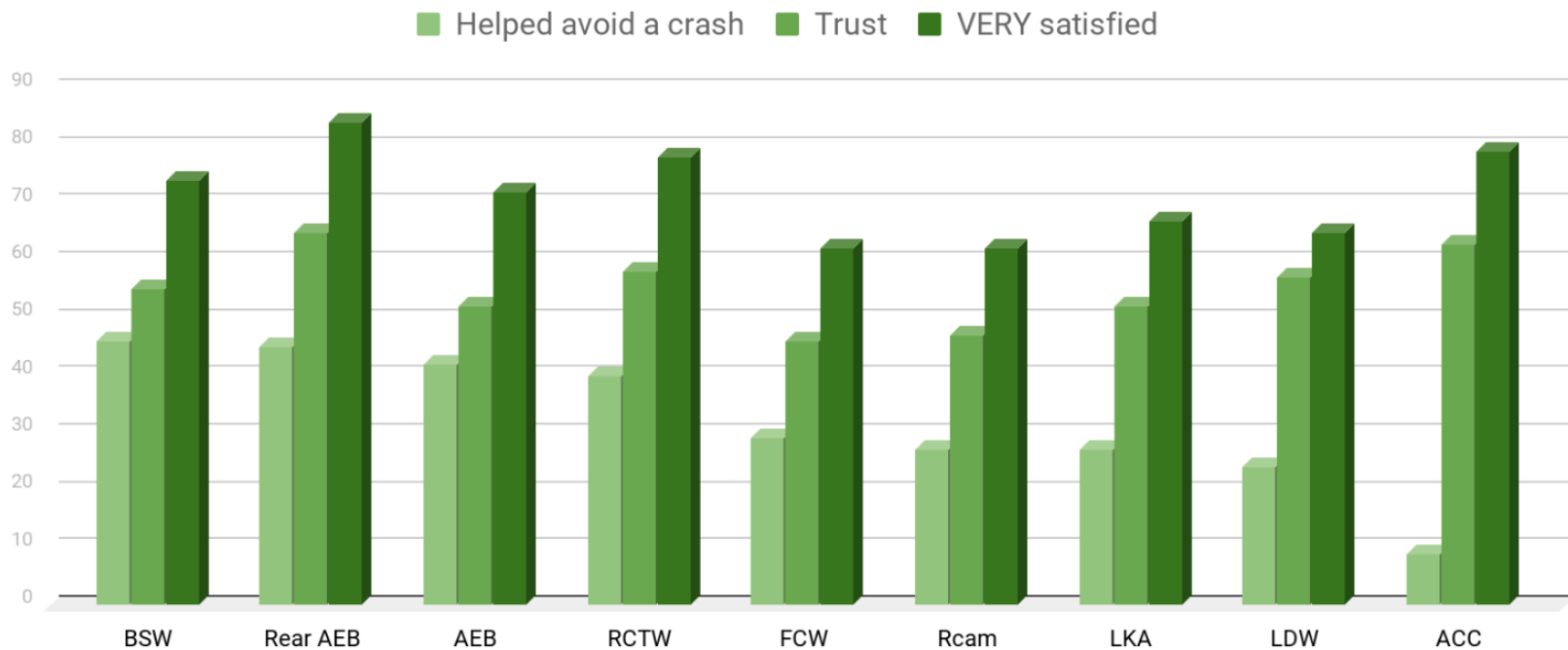


Are consumers using these systems?

People who have this system but don't use it (or disabled it)



Are consumers benefiting?



Do consumers like LDW and LKA?

This system is annoying to me. Every time that I intentionally leave my lane (to avoid bikes, pedestrians, etc) it beeps so I leave this system disabled.

- **2018 Toyota Highlander**

The system is annoying. When activated its constant beeping and tugging at the wheel are obnoxious.

- **2017 Volvo XC60**

I don't like the feel of the wheel fighting me for control. I keep the system disabled

- **2018 Jeep Cherokee**

It jerks the steering wheel, which I find scary rather than reassuring

- **2015 Audi A3**

Have disabled it because it was more of a hindrance than help

- **2016 Mazda CX-5**

I will sometimes "fight" with the system to keep the car where I want it."

- **2017 Audi Q7**

Audible warning gets annoying especially on narrow roads, and it can't be turn it off unless both LKA and LDW are turned off. I like to keep LKA on.

- **2016 Acura RDX**

Shaking wheel is annoying when I'm aware of what I'm doing

- **2017 Honda CR-V**

When the system corrects your steering, it can be scary when you are next to a truck that you are passing.

- **2017 Mercedes-Benz SL**

What are consumers' expectations?

The self steering functionality allows the car to "pin ball" from edge-to-edge of the lane. Also, the system will unexpectedly "loose" the lane markings and then it's not able to accurately steer the vehicle.

- **2018 BMW 5 Series**

Extremely annoying and does not function as expected. Does not always keep you in the lane which is annoying and dangerous.

- **2015 Lincoln MKZ**

Steering is only mildly trying to keep me firmly in my lane, but it doesn't actually do it. Can feel a slight centering at the steering wheel.

- **2017 Toyota Prius Prime**

Very unreliable. Drifts from one side to the other and gets progressively worse as it tries to correct lane centering. Often loses sight / location of lane designator stripe.

- **2018 GMC Sierra 1500**

When I enable it, I expect that the vehicle will be kept in its current lane, but it really doesn't do a good job of this.

- **2017 Subaru Forester**

The system helps to keep the vehicle in lane, but not as well as I would expect it to. I like it, but question it's overall value until the technology can be improved to truly keep the vehicle in the lane.

- **2017 Honda Ridgeline**

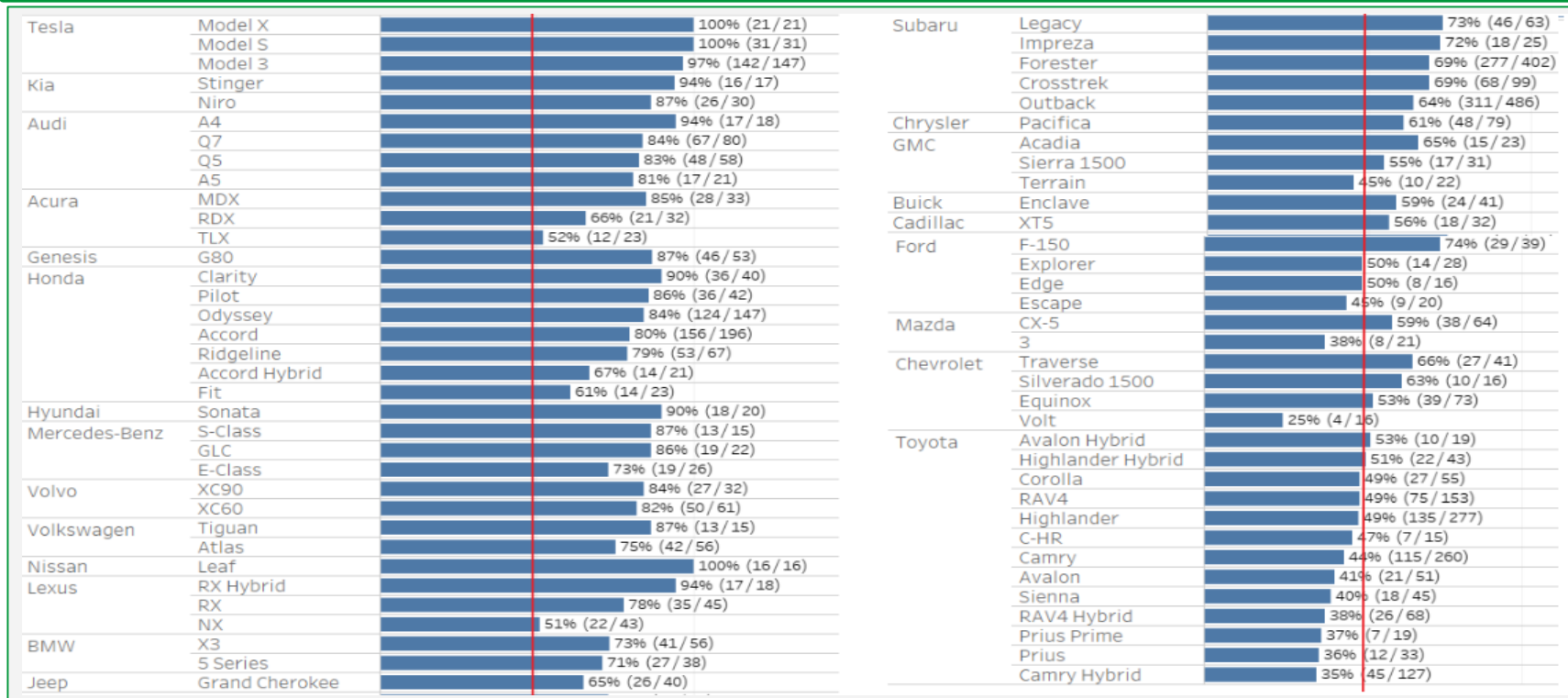
It does not have adequate self steering and you can easily cross the line. Not a satisfying system and would not prevent most out of lane accidents.

- **2018 Ford Explorer**

Not very useful, as it will just bounce the car between lane markers like a ping pong ball.

- **2018 Chrysler Pacifica**

Majority believe designed to stay in lane center
































Initial ADAS testing - Oct 2018

- **Autopilot**
 - Tesla Model X/S/3
- **SuperCruise**
 - Cadillac CT6
- **ProPILOT Assist**
 - Nissan Leaf
 - Infiniti QX50
- **Pilot Assist**
 - Volvo XC40/XC60



How CR tests ADAS

<div>      </div> <div> <div>WORSE</div> <div></div> <div>BETTER</div> </div>							
System Name	Overall Automation System Rating	Capability & Performance	Ease of Use	Clear When Safe to Use	Keeping Driver Engaged	Unresponsive Driver	Vehicles Tested
Super Cruise							Cadillac CT6
Autopilot							Tesla X/S/3
ProPilot Assist							Infiniti QX50/ Nissan Leaf
Pilot Assist							Volvo XC40/ XC60

How CR influences the market

