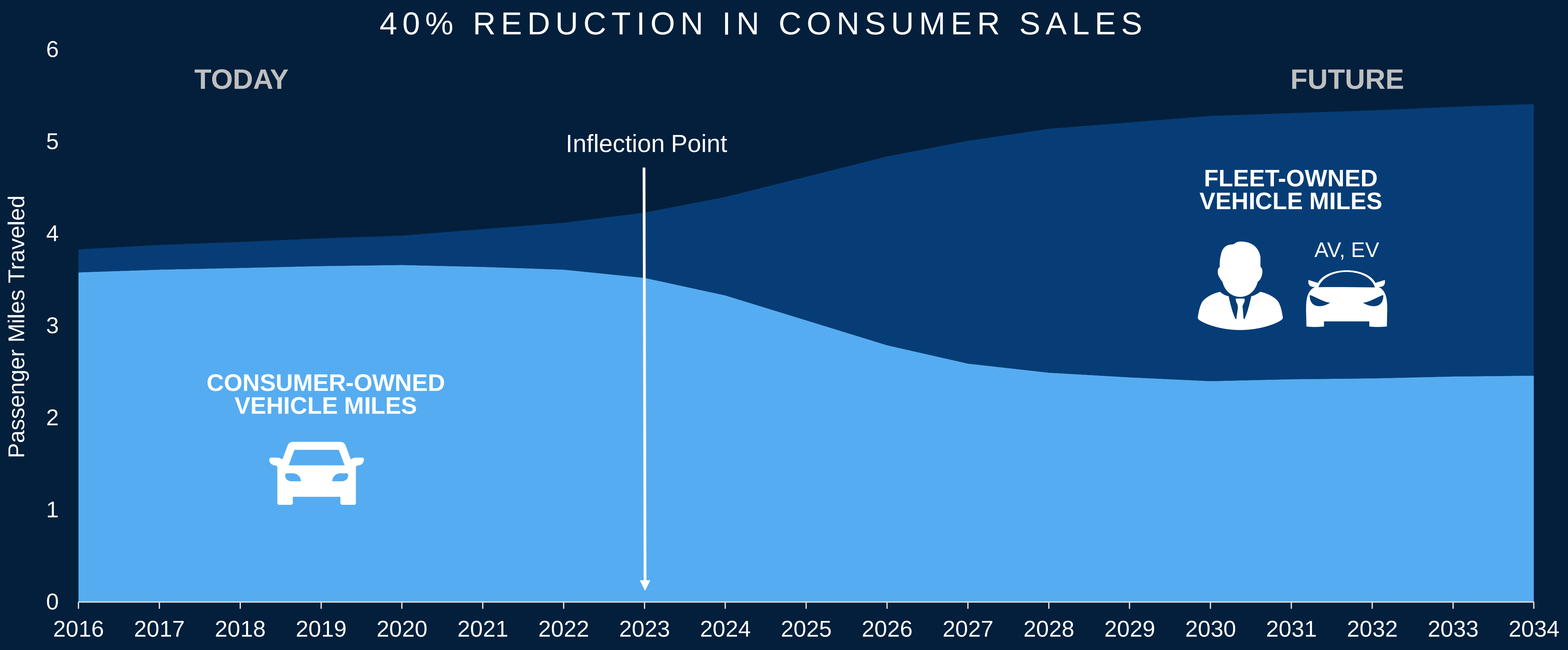
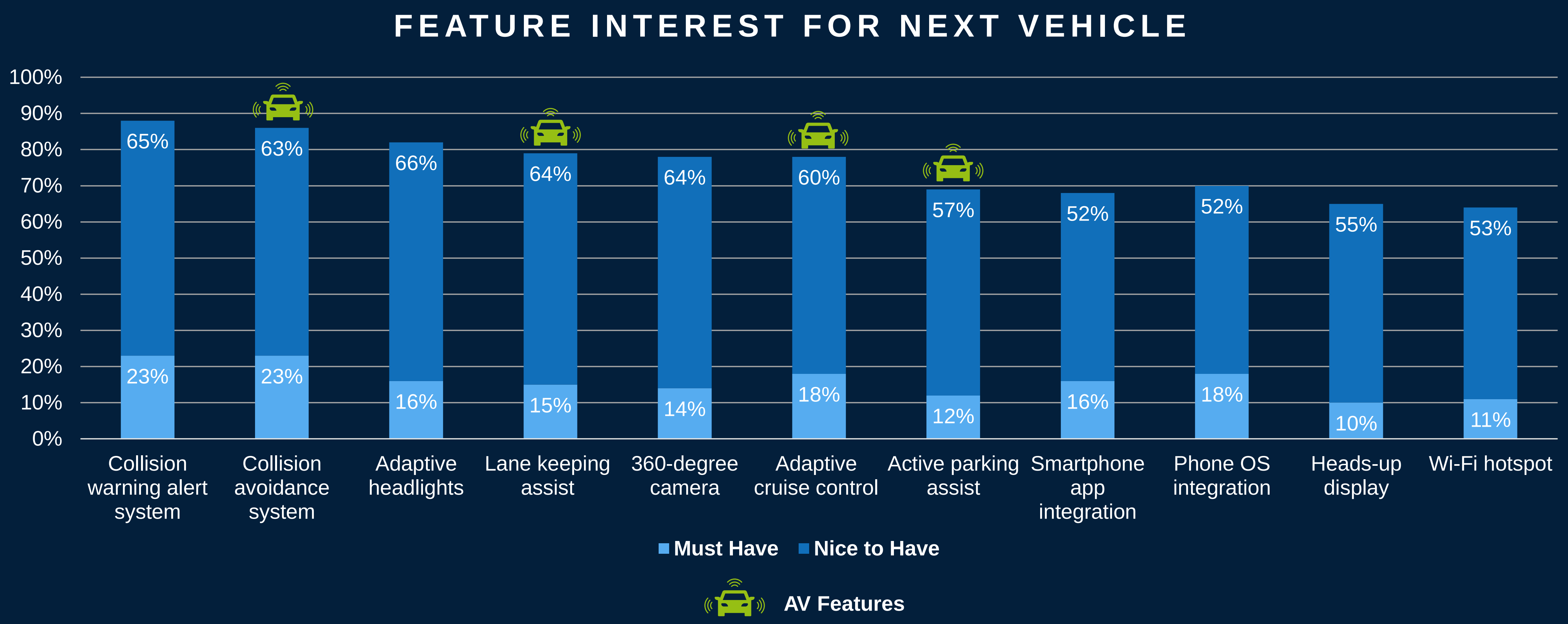
EVOLUTION OF MOBILITY:
AUTONOMOUS VEHICLES

Mass Adoption of Autonomous Vehicles is the Inflection Point for a Shift in Mobility



CONSUMER TRUST IN AUTONOMOUS VEHICLES LOSES GROUND

Consumer Desire for Autonomous Features is High



Source: 2018 Cox Automotive Evolution of Mobility Study

More Than Half of Consumers Agree that New Technology Makes Better Drivers

54%

NEW TECH
FEATURES MAKE PEOPLE
BETTER DRIVERS

- Source: 2018 Cox Automotive Evolution of Mobility Study

But Consumers Feel Less Comfortable with Full Autonomy

68%

would feel **uncomfortable** riding in an AV fully driven by a computer

Compared to 39% who feel uncomfortable in a vehicle driven by a stranger

84%

think people should always have the option to drive themselves even in an AV

Compared to 16% who would feel comfortable letting an AV drive them without the option of being able to take control

Survey Definitions of Autonomy Levels

LEVEL 5	Vehicles don’t contain steering wheel or pedals, and can’t be driven by humans
LEVEL 4	Vehicle can operate all aspects of driving. Humans can still drive if they want to
LEVEL 3	Vehicle can take over driving in the city or on highways, but requires a human driver for unmarked roadways or highly congested areas
LEVEL 2	Corrects lane drifting and avoids forward/rear collisions
LEVEL 1	Cruise control, Anti-lock brakes, Lane-keeping assist
LEVEL 0	No Cruise control, Anti-lock brakes, or Lane-keeping assist

As defined by SAE (Society of Automotive Engineers) levels for automated driving systems

Autonomy is Not a New Idea…

2003 ········ **2018**

2003
Parking assist technology emerges (Toyota Prius)

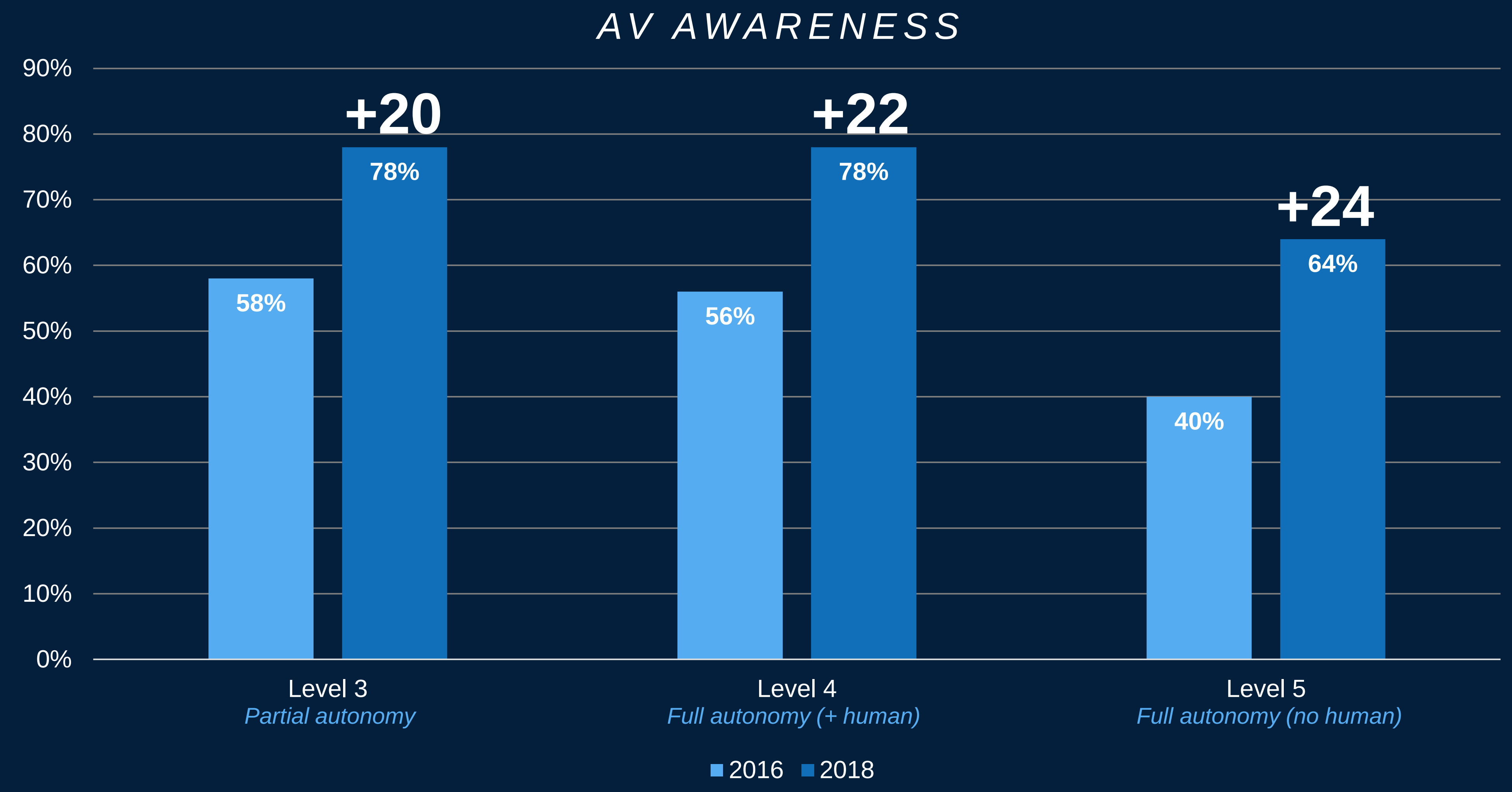
2009
Self-driving car project launches

2013
Major OEMs start working on self-driving technology

2015
Auto-pilot introduced

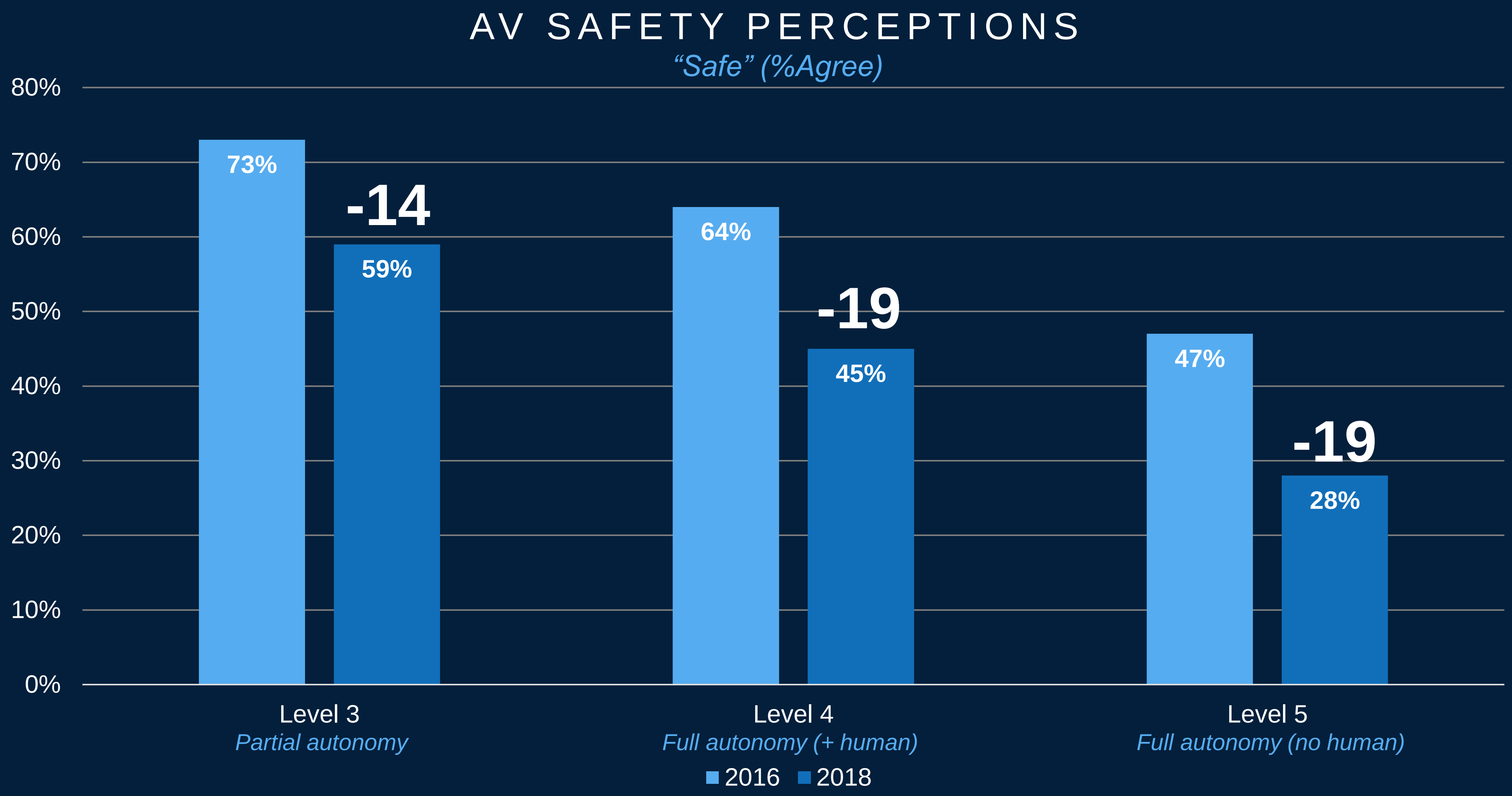
2016
Uber tests

Awareness of Autonomy has Exploded



Source: 2018 Cox Automotive Evolution of Mobility Study

Safety Perceptions of Autonomous Vehicles Have Dropped

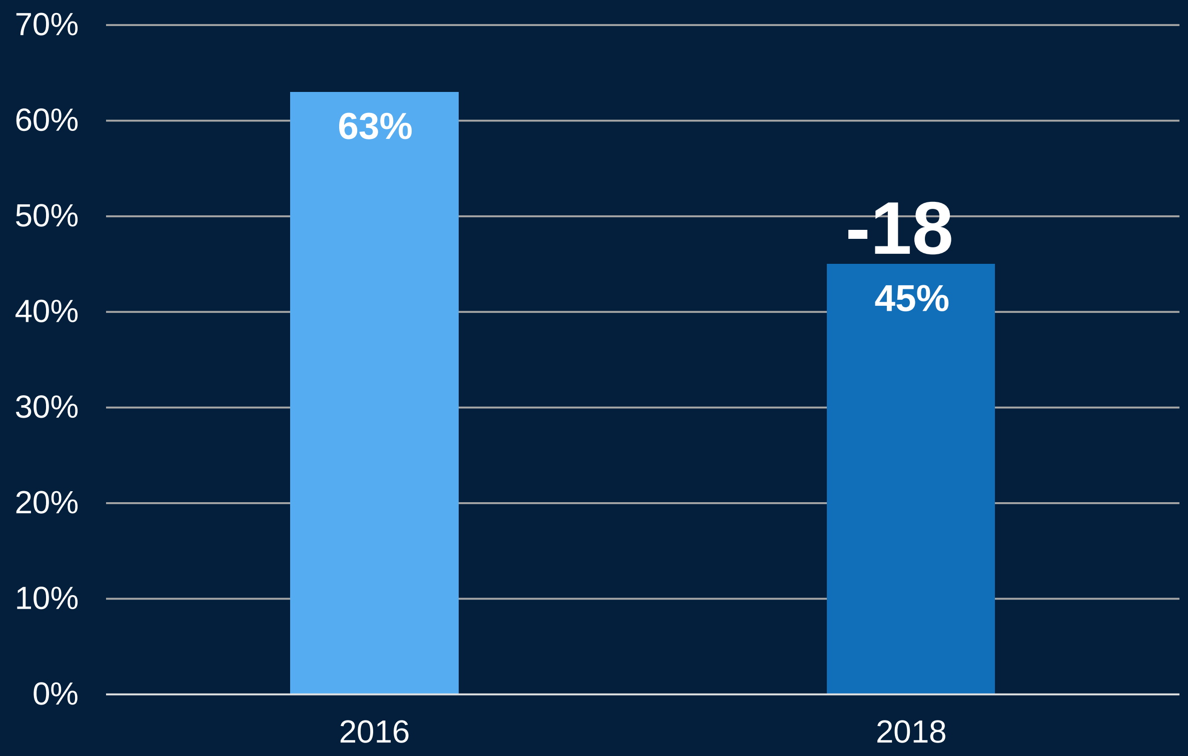


Source: 2018 Cox Automotive Evolution of Mobility Study

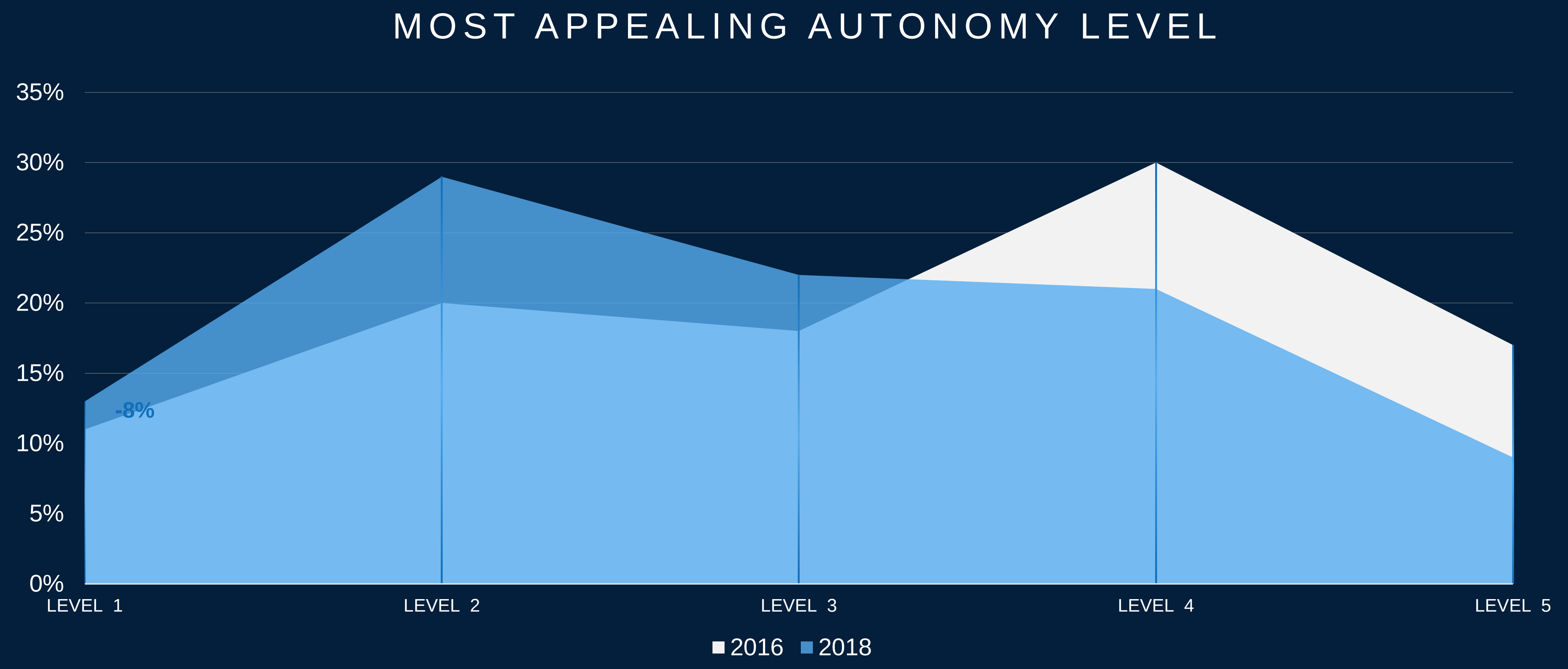
And Roads Deemed Less Safe With Fully Autonomous Vehicles

ROADWAYS WOULD BE SAFER IF ALL VEHICLES WERE FULLY AUTONOMOUS

(vs. operated by people)

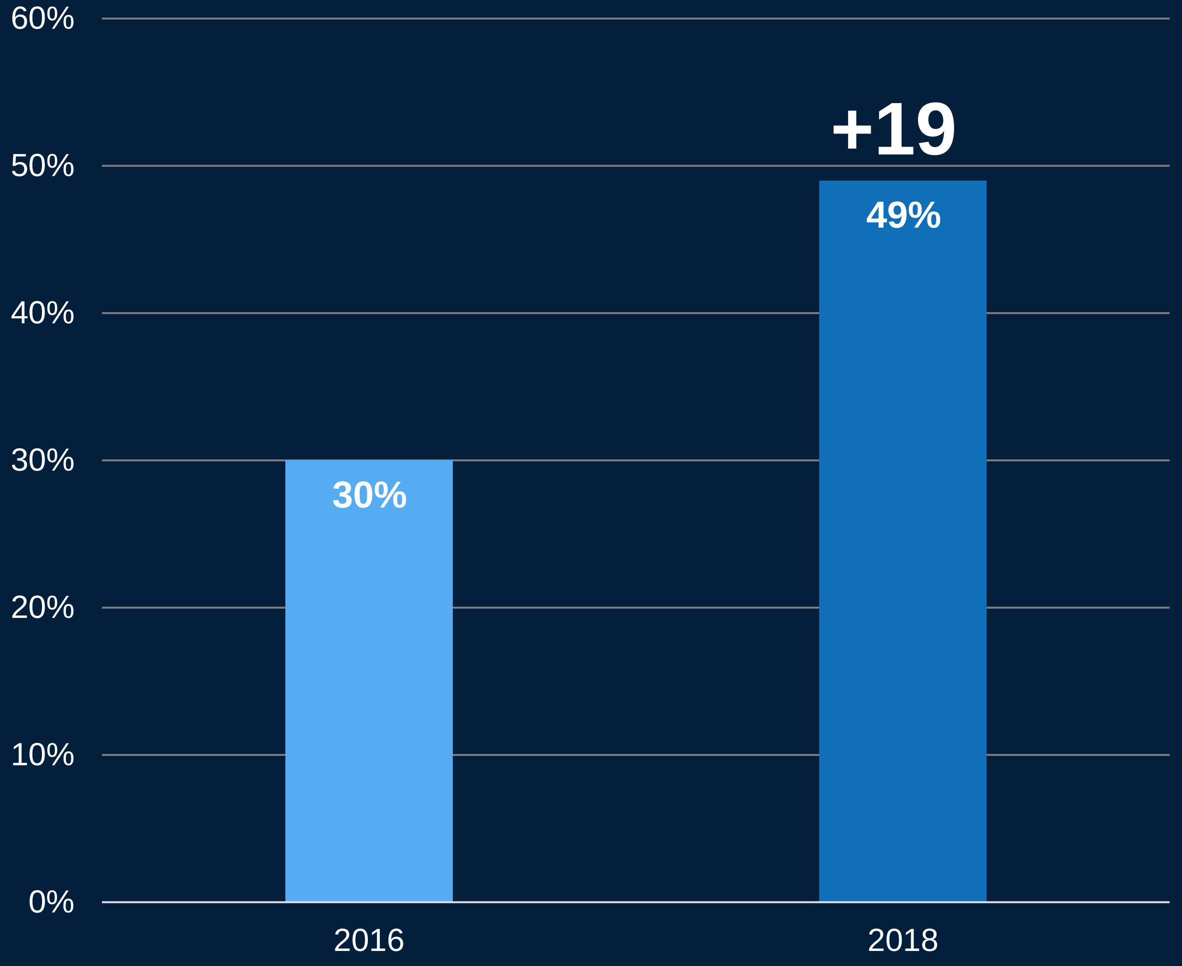


AV Preference Has Shifted From Level 4 to Level 2



Source: 2018 Cox Automotive Evolution of Mobility Study

Nearly Half Would Never Buy a Level 5 Autonomous Vehicle



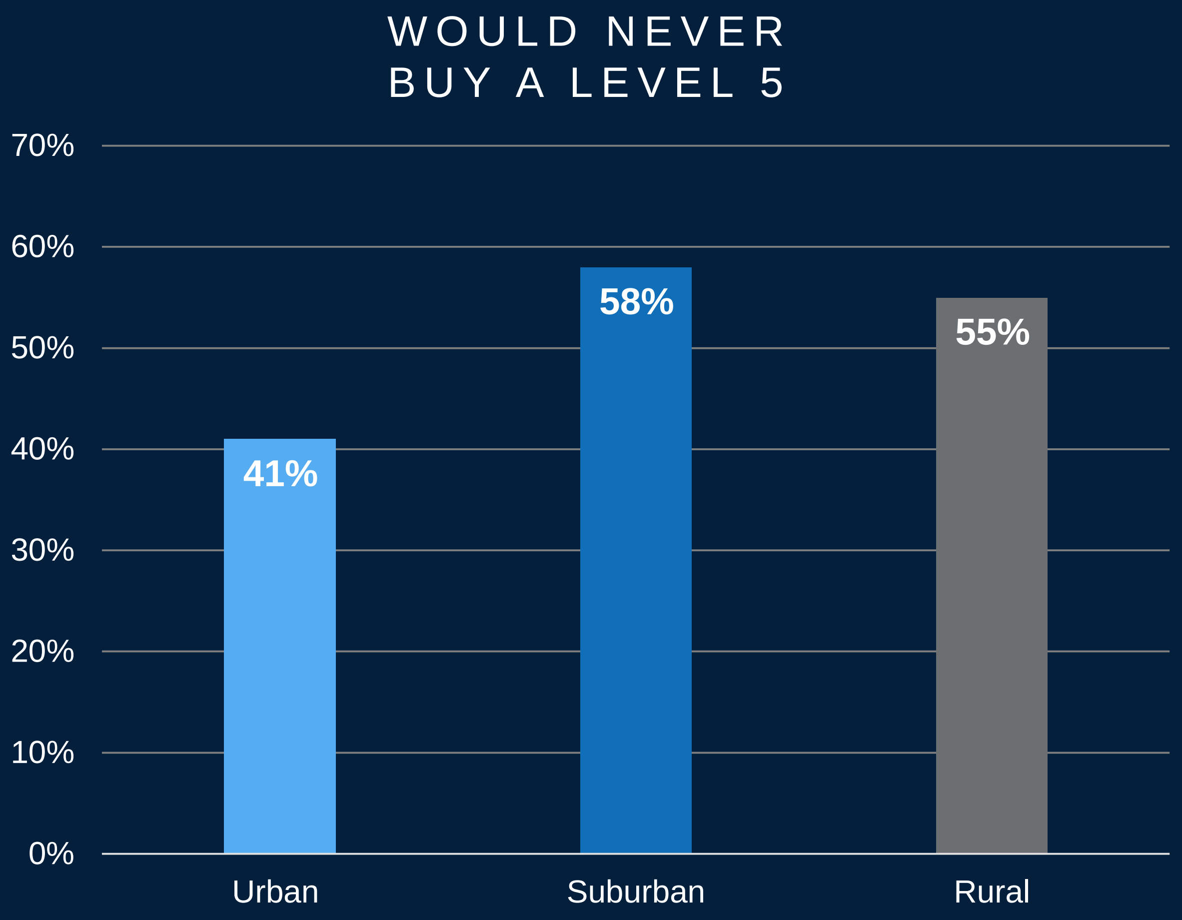
Older Generations Are More Apprehensive

WOULD NEVER BUY A LEVEL 5

GEN Z	MILLENNIALS	GEN X	BABY BOOMERS
48%	39%	56%	71%

• Source: 2018 Cox Automotive Evolution of Mobility Study

Urbanites More Open to Fully Autonomous Vehicles



52%

are aware that autonomous technology is being tested on real cars on public roads and highways

75%

Agree that AVs need real world testing in order to be perfected

BUT…

54% prefer this testing take place in a *different* town or city from where they live

54% would *not* feel comfortable walking near roads these tests take place

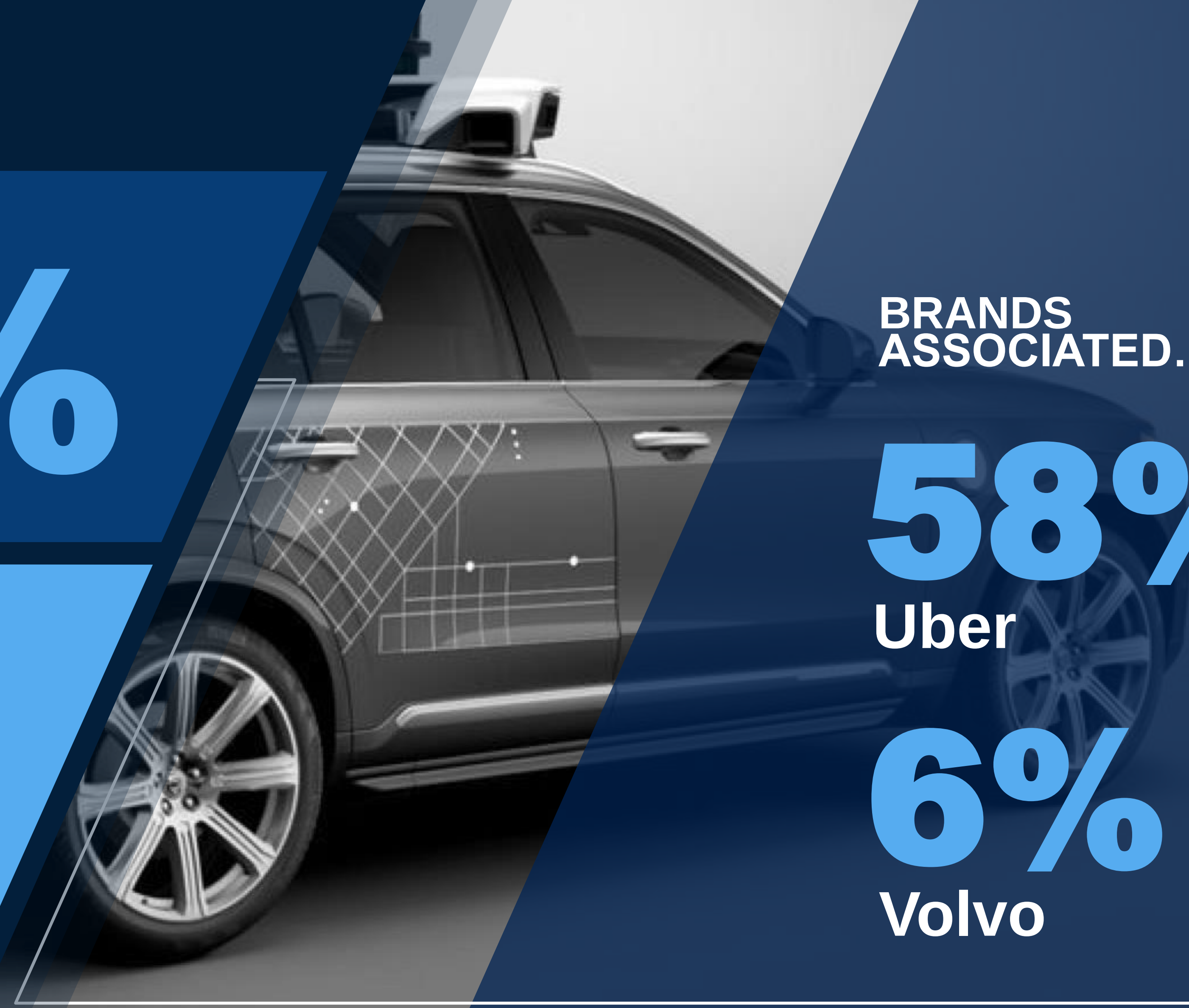
50% would *not* feel comfortable driving on the same roads these tests take place

Actual Phoenix Waymo User

"I've taken a Waymo here in Tempe, AZ, where they've been in service for a while. I think it's pretty cool. I think it's the wave of the future, and I think that more people will actually be taking these cars. ***I felt safe the entire time****."*

61%

Aware of Uber's self-driving incident



BRANDS ASSOCIATED…

58%
Uber

6%
Volvo

Who Should Shoulder Responsibility in an Accident is a Point of Disagreement

27% Software Developer

26% OEM

24% Vehicle Rider/Owner

Source: Cox Automotive Uber Self-Driving Car Incident Consumer Poll (March 2018)

CONCLUSIONS

Conclusions

1

Despite some set backs, the desire for autonomous features is strong and growing.

2

Education highlighting AV effectiveness is key to alleviate consumers’ safety concerns.

3

Consumer advocacy and real-world experience with the technology is key to adoption.

QUESTIONS?

APPENDIX

About the Study

2016

Driver of the Future: Autonomous Vehicles

2,264 Consumers

2016

Emerging In-Vehicle Car Technology

1,334 Consumers

2018

Evolution of Mobility

We interviewed 1,250 consumers

EVOLUTION OF MOBILITY STUDY

PHASE 1:

Understand consumer acceptance of emerging mobility options over last 3 years

1,250 consumers ages 12+

Release: Q3

PHASE 2:

Understand dealer awareness, perceptions and readiness of emerging mobility trends

400 automotive dealers

Release: Late 3Q18

PHASE 3:

Understand the mobility choices consumers would make assuming all mobility options were available, considering trade-offs on monthly costs, convenience, etc.

2,000 consumers ages 12+

Release: 4Q18

Phase 1 Methodology

2015 — **Ride & Car Sharing Trend Research**

2016 — **Car Driver of the Future: Autonomous Vehicles**

2016 — **Emerging In-Vehicle Car Technology**

Phase 1 Methodology

2015 → 2016 → 2016 → 2018

2015: Ride & Car Sharing Trend Research

Fielded: August 3rd - 9th, 2015

n=2,464
- n=1,916 18-64
- n=548 12-17

Generations:
- Gen Z: n=641
- Millennials: n=850
- Gen X: n=532
- Baby Boomers: n=441

Transport Density groups:
- Urban: n=344
- Suburban: n=1,264
- Rural: n=289

2016: Car Driver of the Future: Autonomous Vehicles

Fielded: May 20th - 27th, 2016

n=2,264
- 1,992 18-64
- n=272 12-17

Generations:
- Gen Z: n=376
- Millennials: n=642
- Gen X: n=680
- Baby Boomers: n=566

Transport Density groups:
- Urban: n=383
- Suburban: n=1,521
- Rural: n=348

Must have used one transportation method in the past 6 months

2016: Emerging In-Vehicle Car Technology

Fielded: September 22nd - 27th, 2016

n=1,334
- n=1,020 18+
- n=314 16-17

Generations:
- Gen Z: n=376
- Millennials: n=298
- Gen X: n=341
- Baby Boomers: n=243
- Silent Generation: n=76

Transport Density groups:
- Urban: n=200
- Suburban: n=870
- Rural: n=250

Must have a driver’s license

2018: Evolution of Mobility

Fielded: May 8th - 14th, 2018

n=1,250
- n=1,006 18+
- n=244 12-17

Generations:
- Gen Z: n=340
- Millennials: n=262
- Gen X: n=313
- Baby Boomers: n=287
- Silent Generation: n=48

Transport Density groups:
- Urban: n=143
- Suburban: n=684
- Rural: n=171

Must have used one transportation method in the past 6 months