

# INNOVATION IN AUTOMOTIVE ELECTRIFICATION

NOVEMBER 2021

 dimensional research

*creating connections for life*

**molex**

# INTRODUCTION

Most auto OEMs believe electrification goes well beyond electric vehicles – and they couldn't be more on the mark. The industry is on the cusp of an electric revolution, with many non-traditional tech and EV-only companies entering the market and prepared to fill consumer demands for more personalization, functionality, safety and other applications. At the same time, accelerating growth is rife with challenges, from supply shortages to design and innovation struggles.

Molex surveyed 204 stakeholders employed by automobile companies working on vehicle electrification to learn the specific perspectives at play and the best ways to tap into new opportunities.

We found that while 100% of companies have an electrification initiative in place, nearly that many (92%) experience design challenges. About 35% believe that collaboration is the best way to drive innovation and 85% believe that legacy thinking may be holding them back. As cars become more like “computers on wheels,” supplier relationships and electrification expertise will be critical to success.

Read more to get the full details behind this once-in-a-lifetime industry paradigm shift in vehicle architecture.

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This report is part of a series of Molex industry survey reports conducted in collaboration with independent research firm, Dimensional Research. They are published to provide valuable original research to support customer success.

# GOALS AND METHODOLOGY

The primary research goal was to capture hard data on trends in automobile electrification among the practitioners responsible for delivering solutions.

Independent automotive manufacturing stakeholders responsible for a wide range of vehicle electrification needs were invited to participate in an online survey. A variety of questions were asked on topics related to EVs, electronic systems in any type of vehicle and charging stations. Responses were captured between October 6 and October 15, 2021.

A total of **204 qualified individuals** completed the survey. Participants worked for automotive companies, Tier 1 or 2 suppliers, as well as charging station providers in various roles, spanning R&D, engineering, product, innovation, strategy, manufacturing and supply chain.

# DIRECTION GIVEN TO SURVEY PARTICIPANTS

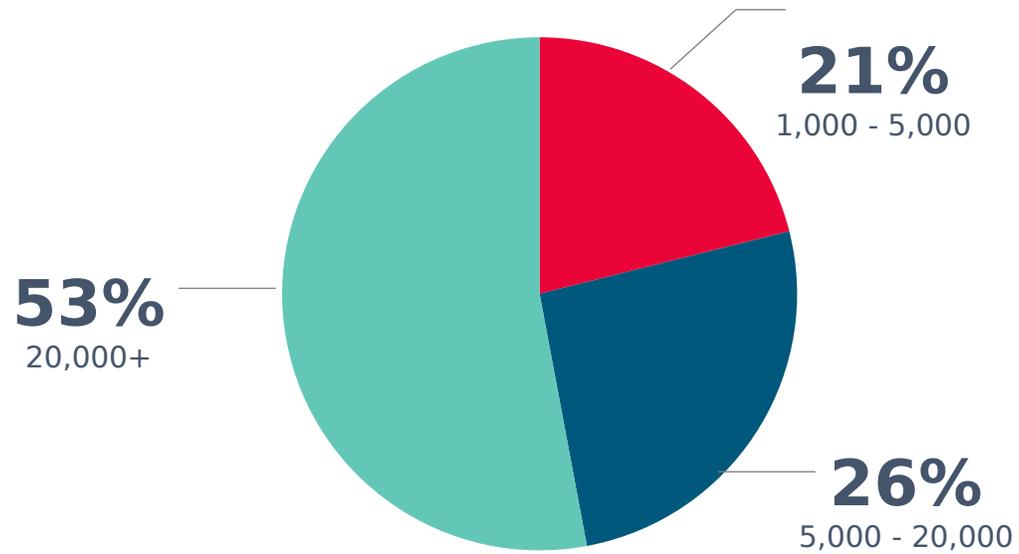
## DIRECTION

When answering questions about electrification in this survey, please think of all the following:

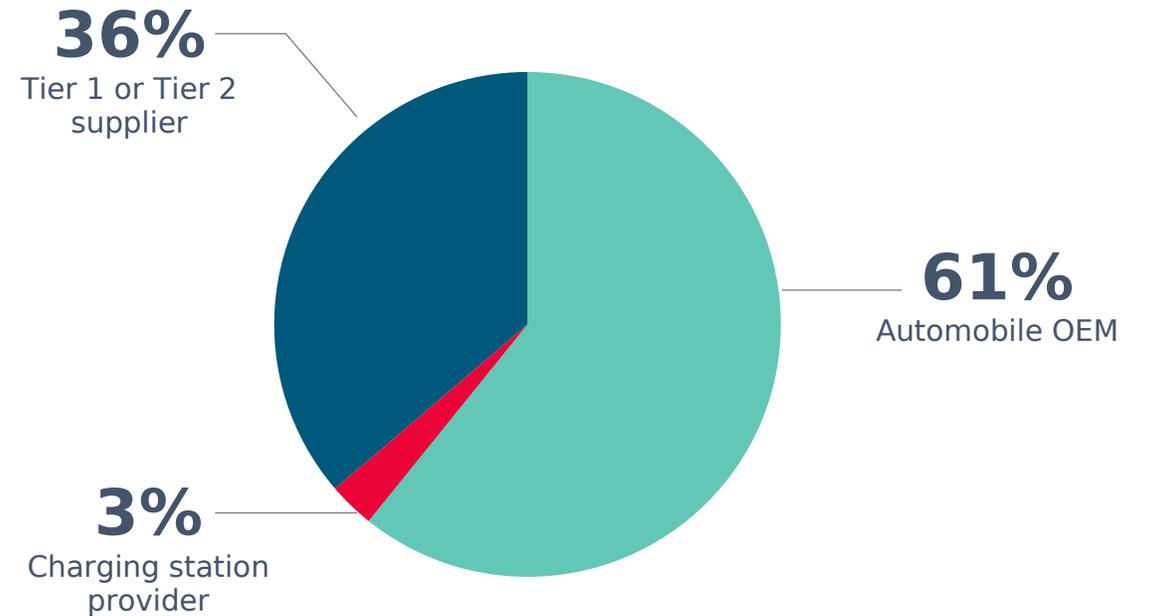
- EVs or electric vehicles (e.g., electric powertrain)
- Electric systems inside any type of vehicle (wiring, sensors, audio systems, lights, etc.)
- Outside-the-vehicle electrification (e.g., charging stations)

# COMPANIES REPRESENTED

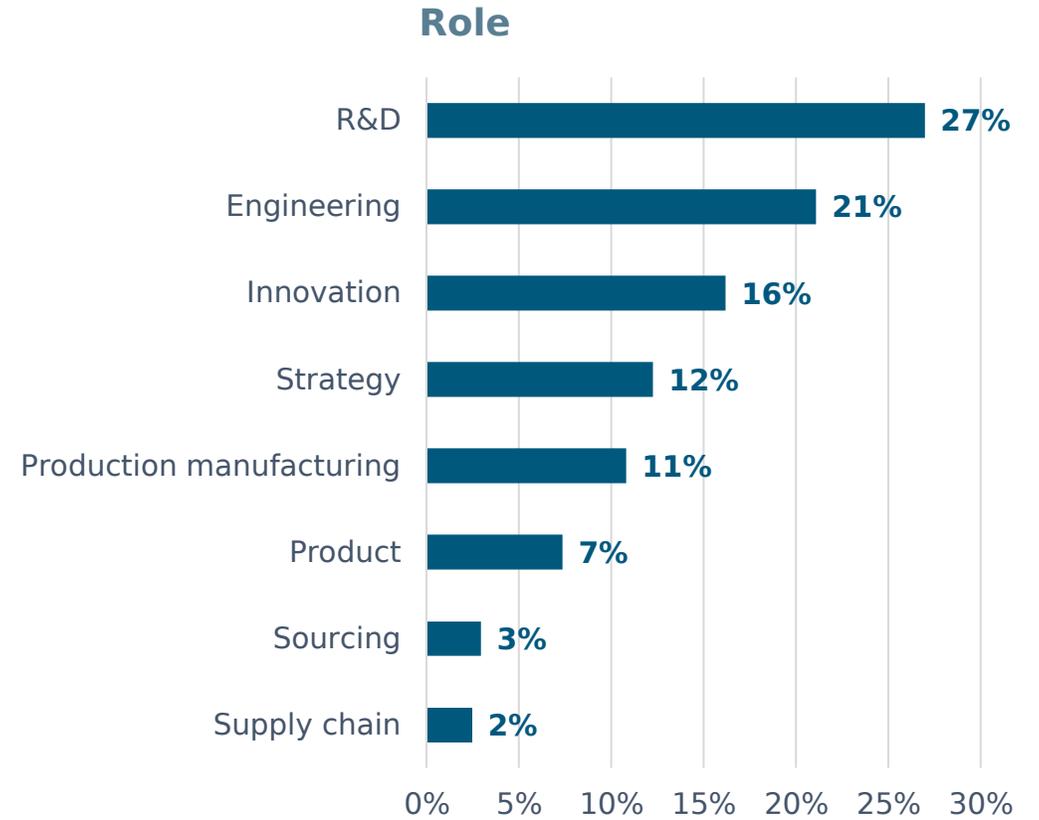
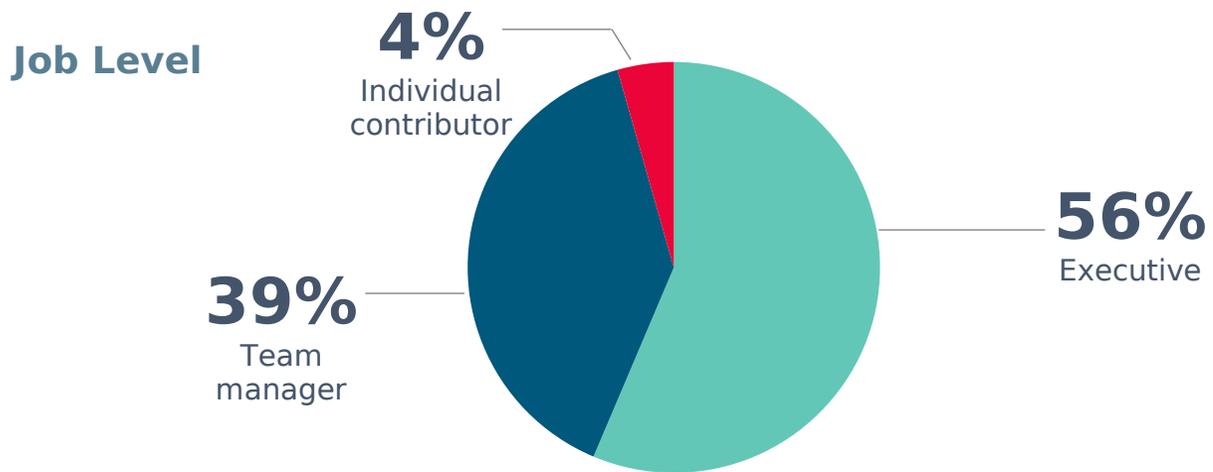
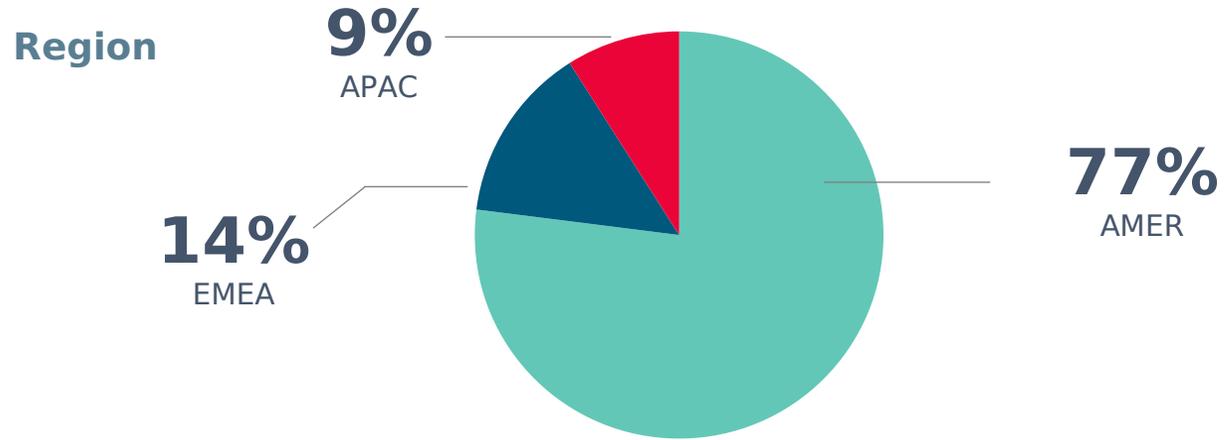
## Size of Company (# of employees)



## Type of Company



# INDIVIDUALS REPRESENTED



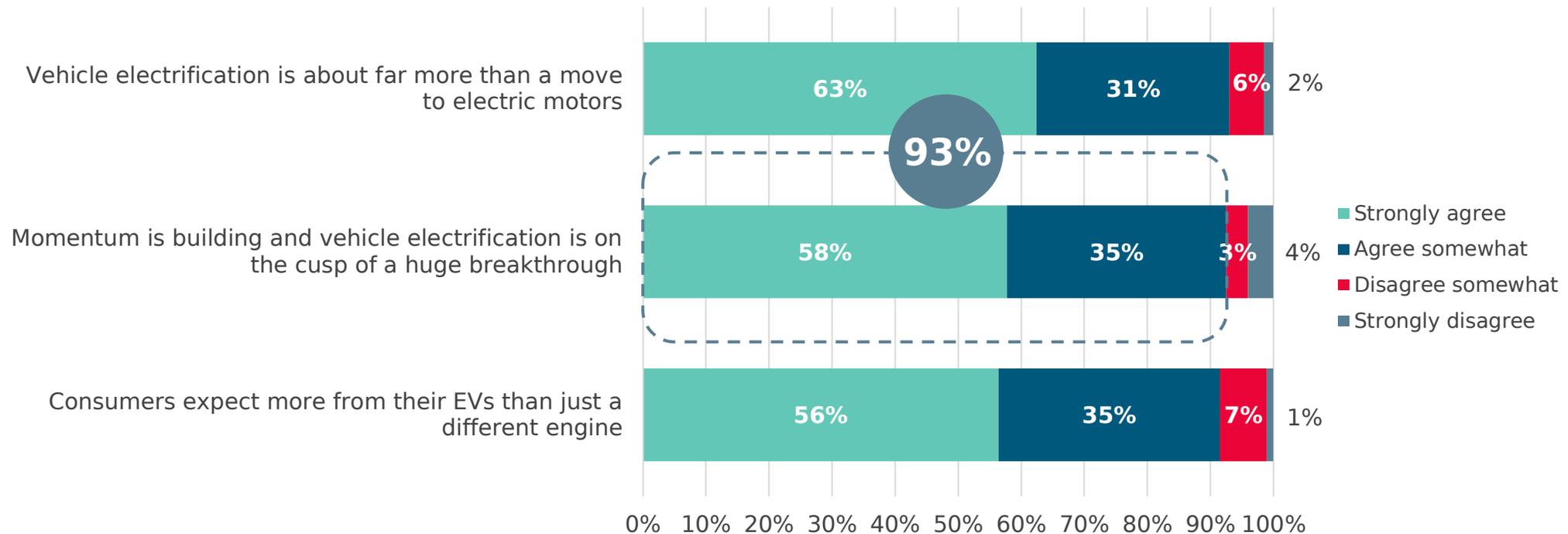
Detailed findings

# **ELECTRIFICATION IS DRAMATICALLY CHANGING THE ENTIRE VEHICLE**

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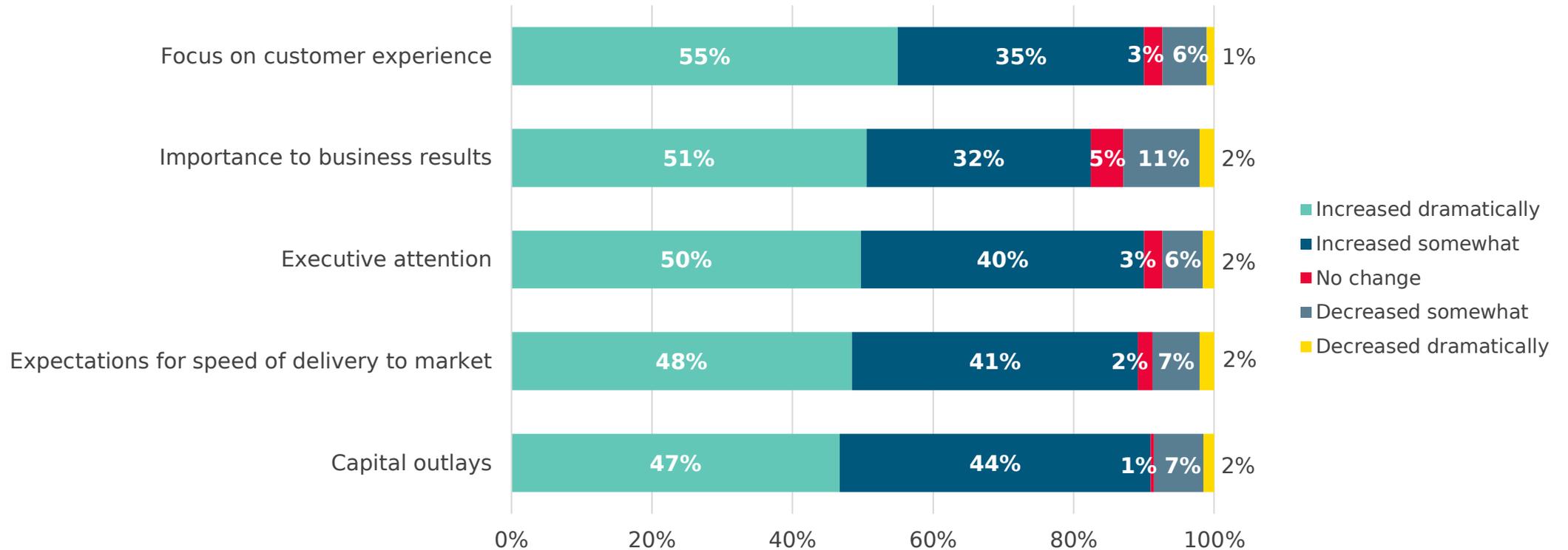
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# 93% AGREE THAT ELECTRIFICATION IS ON THE CUSP OF A HUGE BREAKTHROUGH



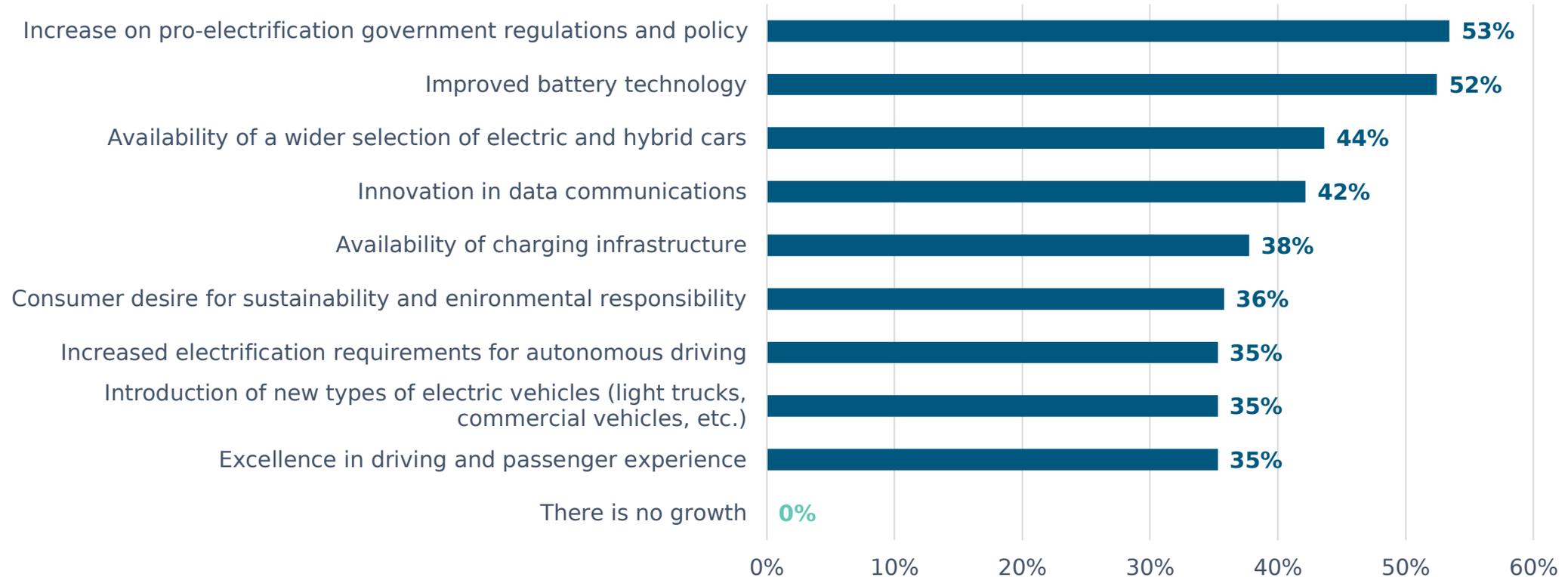
*Please rate your agreement with each of the following statements.*

# FOCUS IN MANY AREAS OF ELECTRIFICATION HAS INCREASED IN PAST TWO YEARS



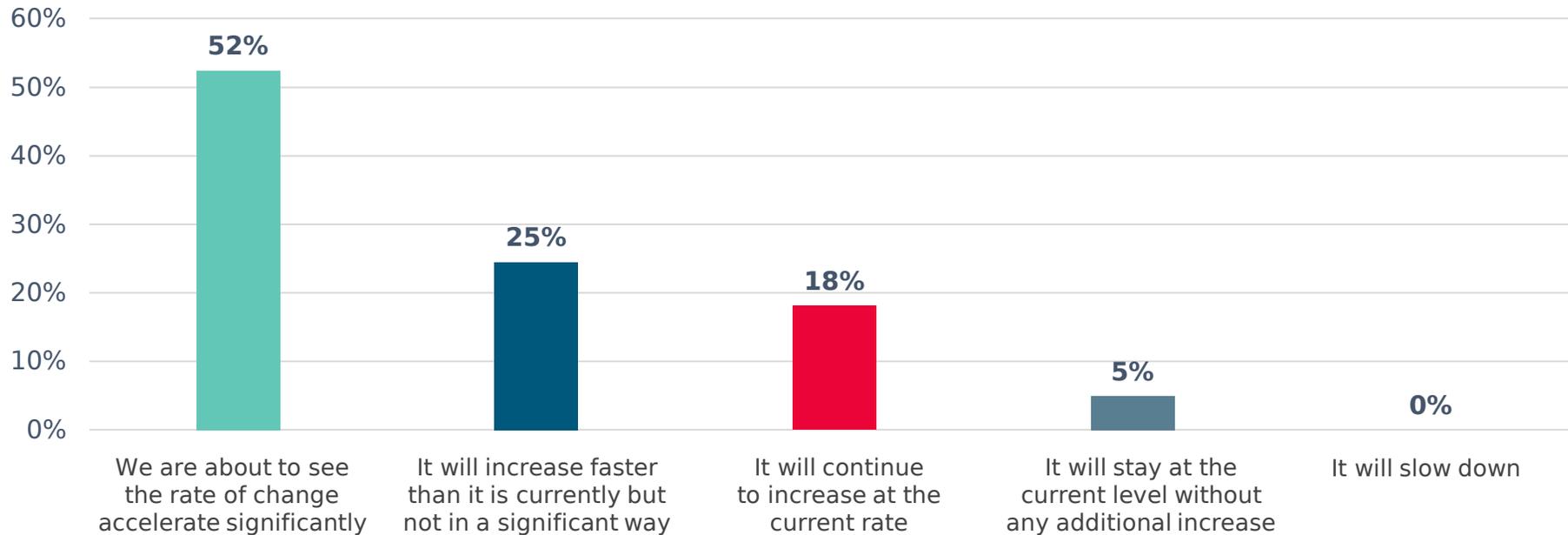
**Consider all electrification initiatives across your company.  
How has each of the following changed in the past two years?**

# GOVERNMENT POLICY AND IMPROVED BATTERY TECHNOLOGY ARE DRIVING GROWTH



*In your experience, what are the factors that are currently driving growth in vehicle electrification? Choose all that apply.*

# THE FOCUS ON ELECTRIFICATION WILL CONTINUE TO ACCELERATE



*Which of the statements best describes your opinion of how the focus on electrification initiatives will change in the business environment at automotive companies during the next two years?*

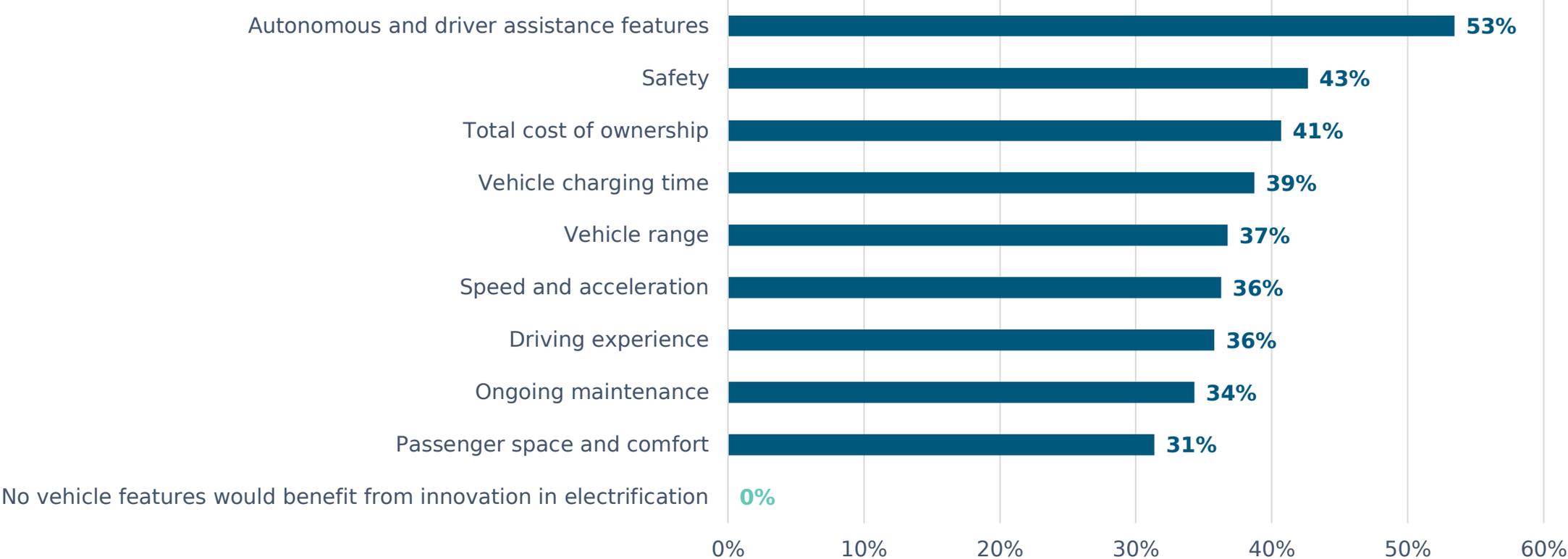
Detailed findings

**ELECTRIFICATION INNOVATION IS  
NEEDED THROUGHOUT THE VEHICLE  
(AND OUTSIDE IT TOO)**

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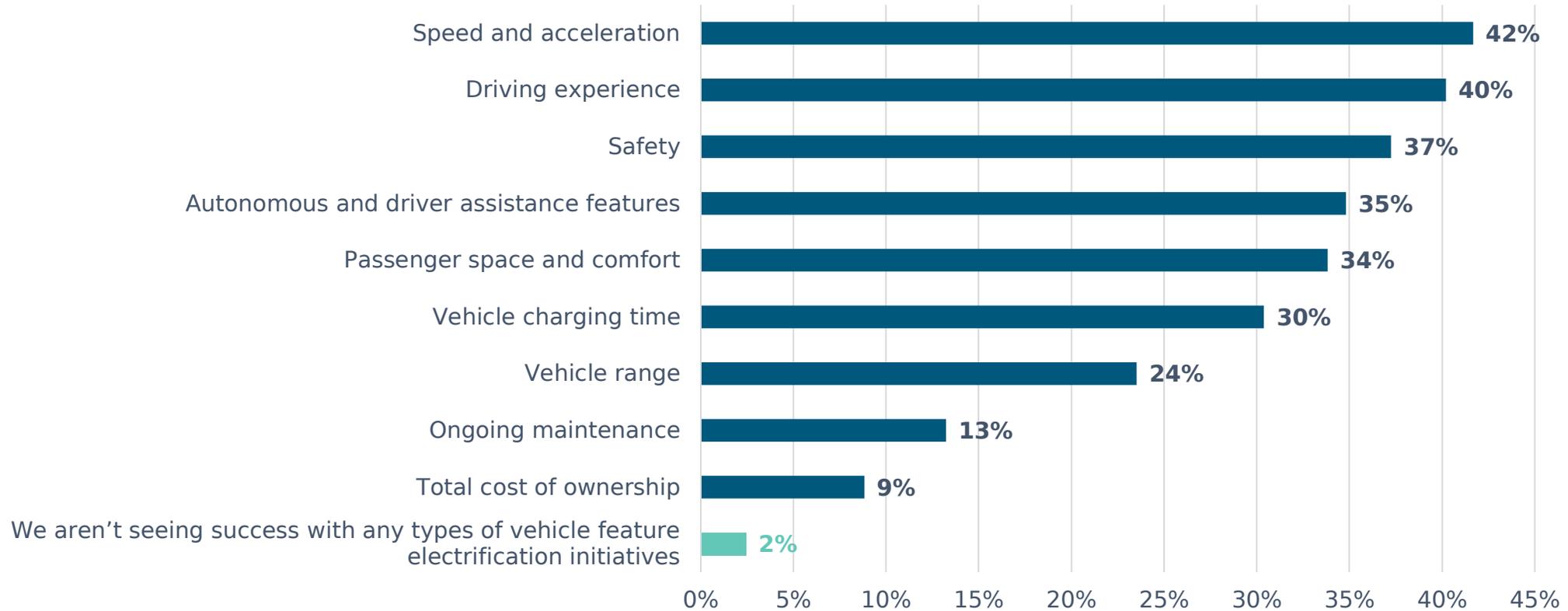
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# 100% AGREE THAT VEHICLE FEATURES WOULD BENEFIT FROM ELECTRIFICATION INNOVATION



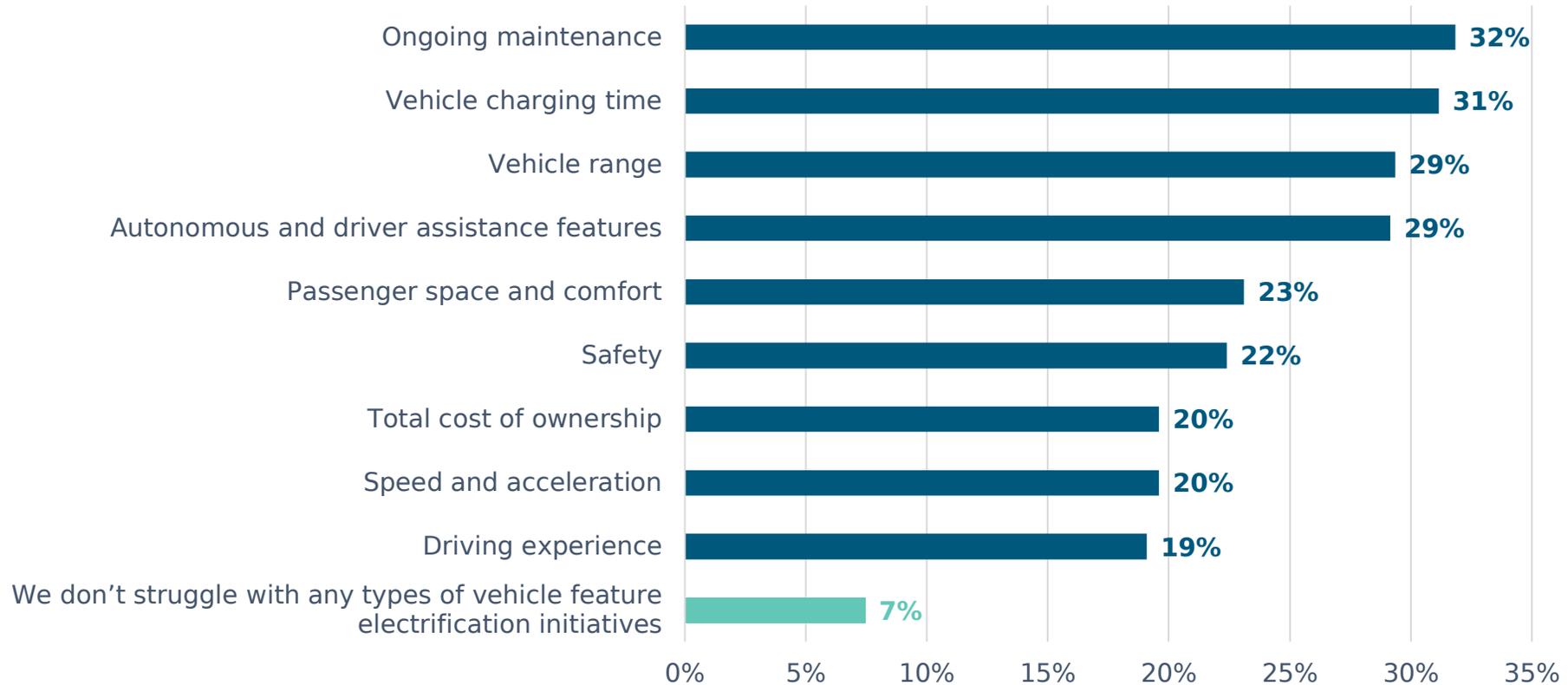
*In your opinion, what types of vehicle features would benefit from innovation in electrification? Choose all that apply.*

# SPEED AND ACCELERATION, DRIVING EXPERIENCE AND SAFETY TOP THE LIST OF INNOVATION SUCCESSES



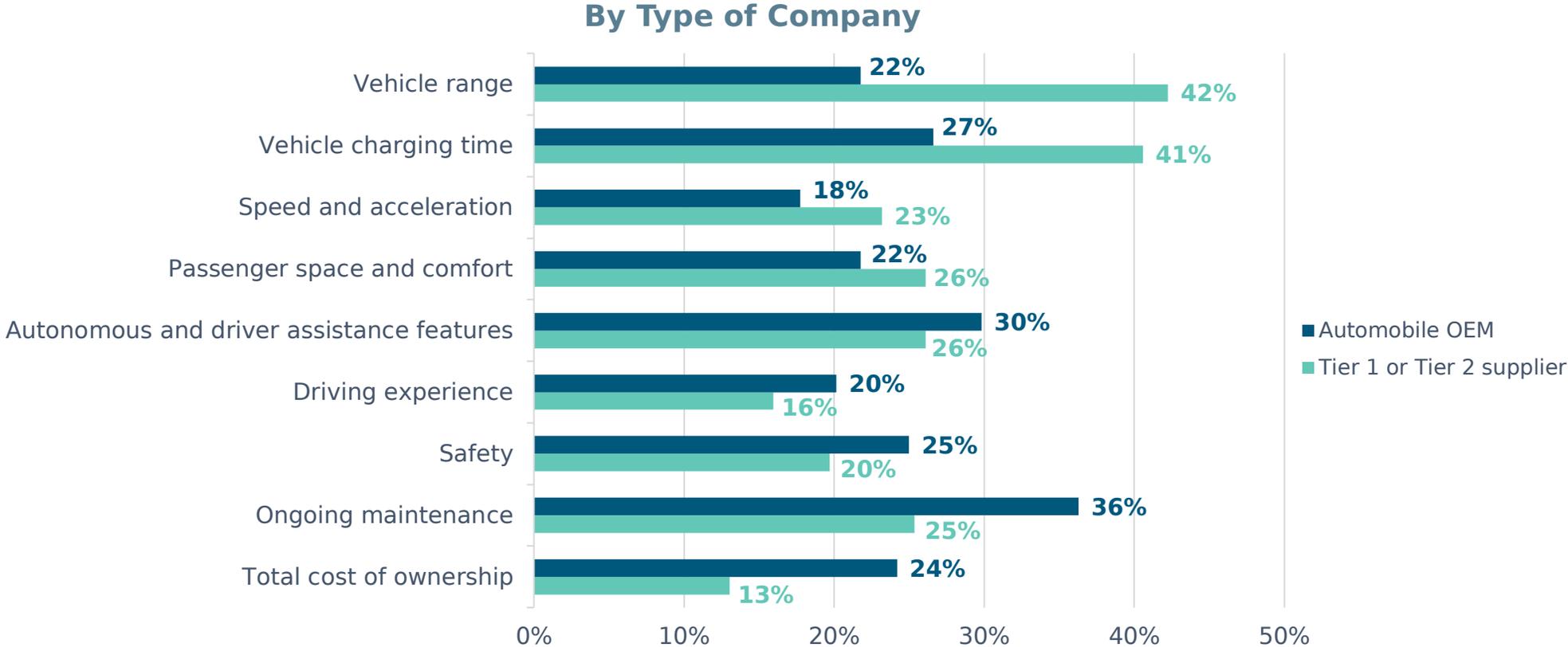
*With what types of vehicle features is your company seeing the most **SUCCESS** with innovation in electrification? Choose up to 3.*

# ONGOING MAINTENANCE AND CHARGE TIMES TOP LIST OF STRUGGLES WITH ELECTRIFICATION INNOVATION FEATURES



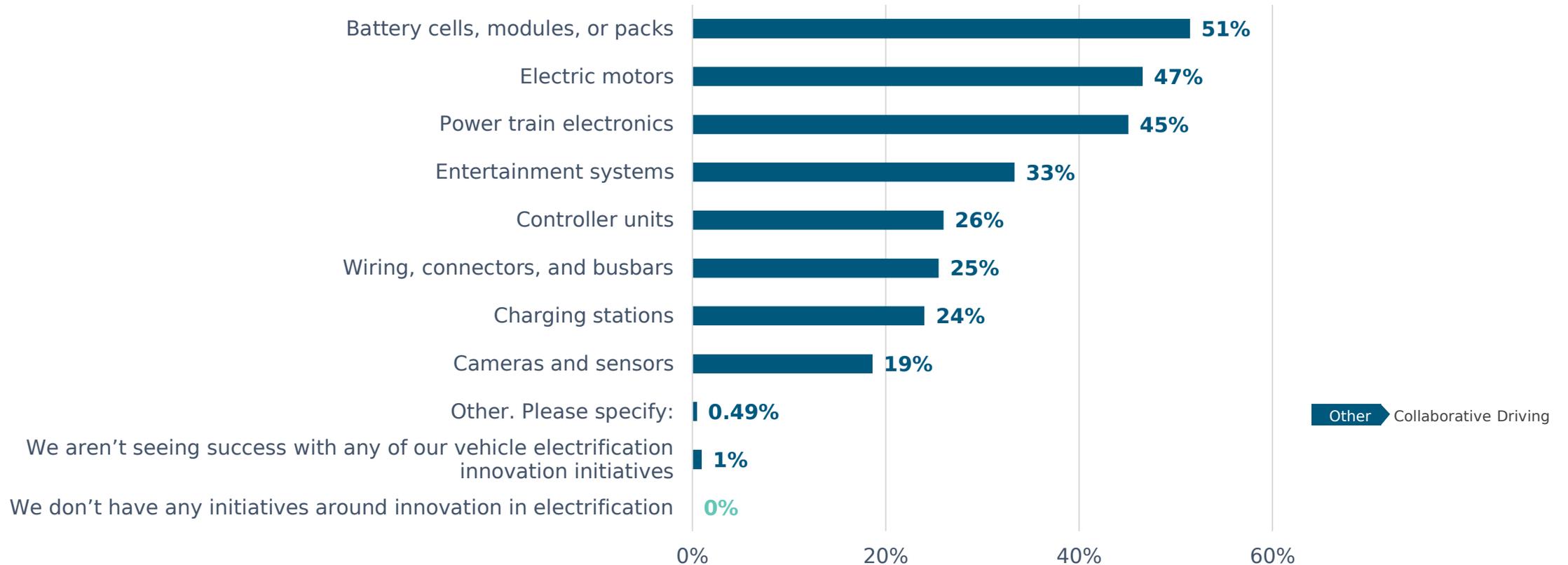
*With what types of vehicle features does your company STRUGGLE with innovation in electrification? Choose up to 3.*

# SUPPLIERS STRUGGLE WITH RANGE AND CHARGE TIME; OEMs WITH MAINTENANCE AND TOTAL COST OF OWNERSHIP



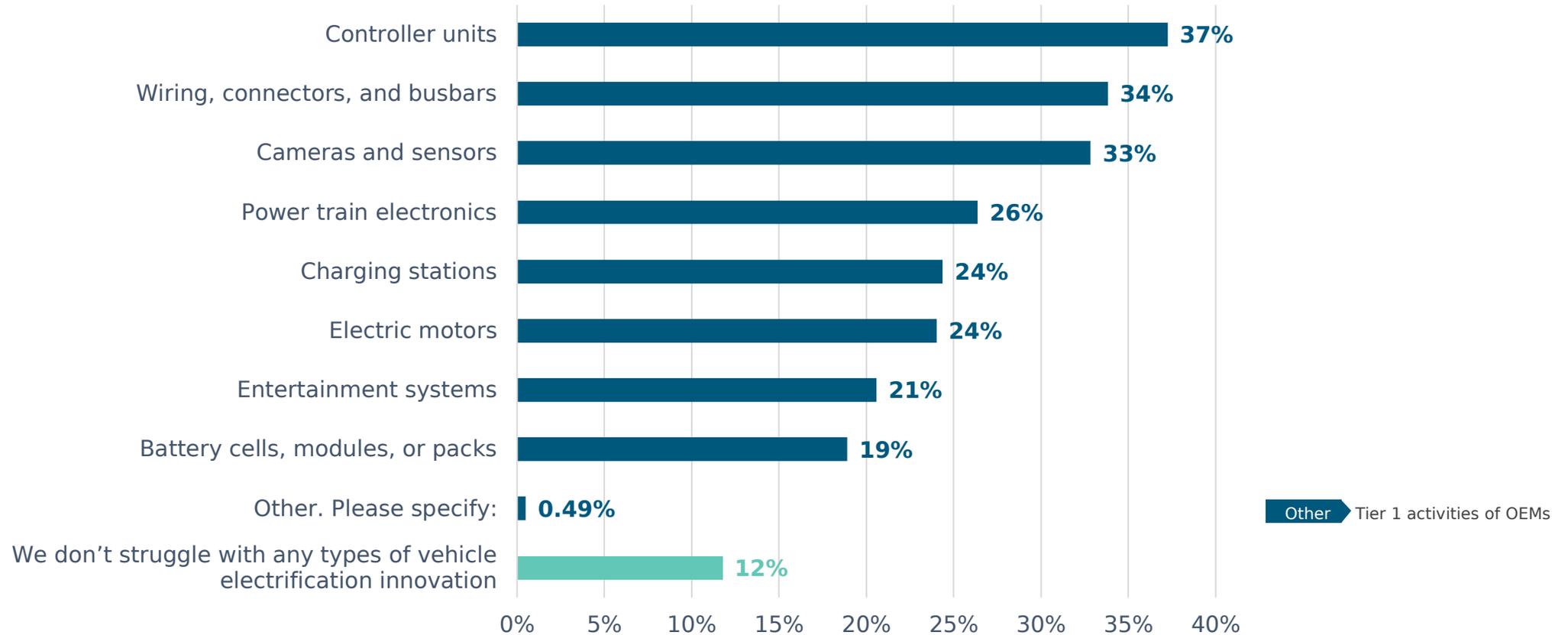
*With what types of vehicle features does your company STRUGGLE with innovation in electrification? Choose up to 3.*

# 100% HAVE ELECTRIFICATION INNOVATION INITIATIVES, ALTHOUGH SUCCESS VARIES WIDELY



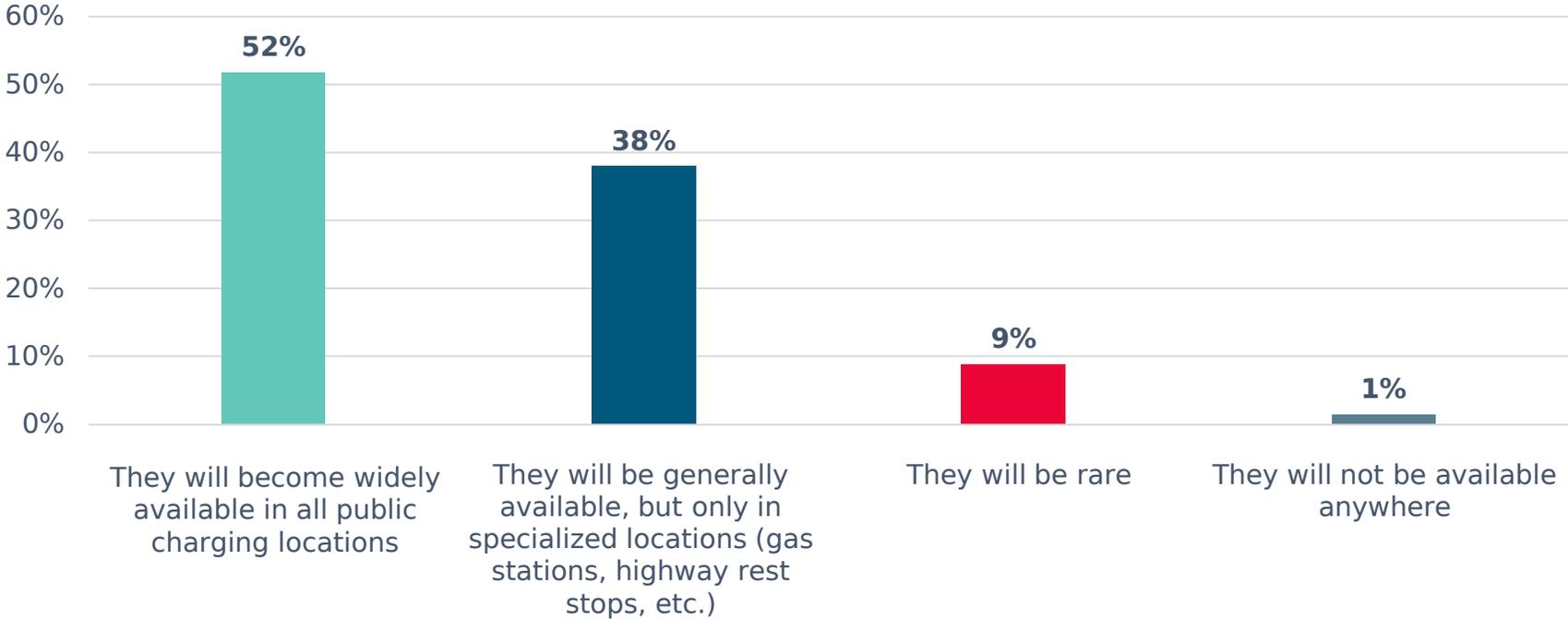
*What types of vehicle electrification innovation initiatives is your company having the most **SUCCESS** with? Choose up to 3.*

# 88% REPORT THAT THEY ARE STRUGGLING WITH ELECTRIFICATION INNOVATION



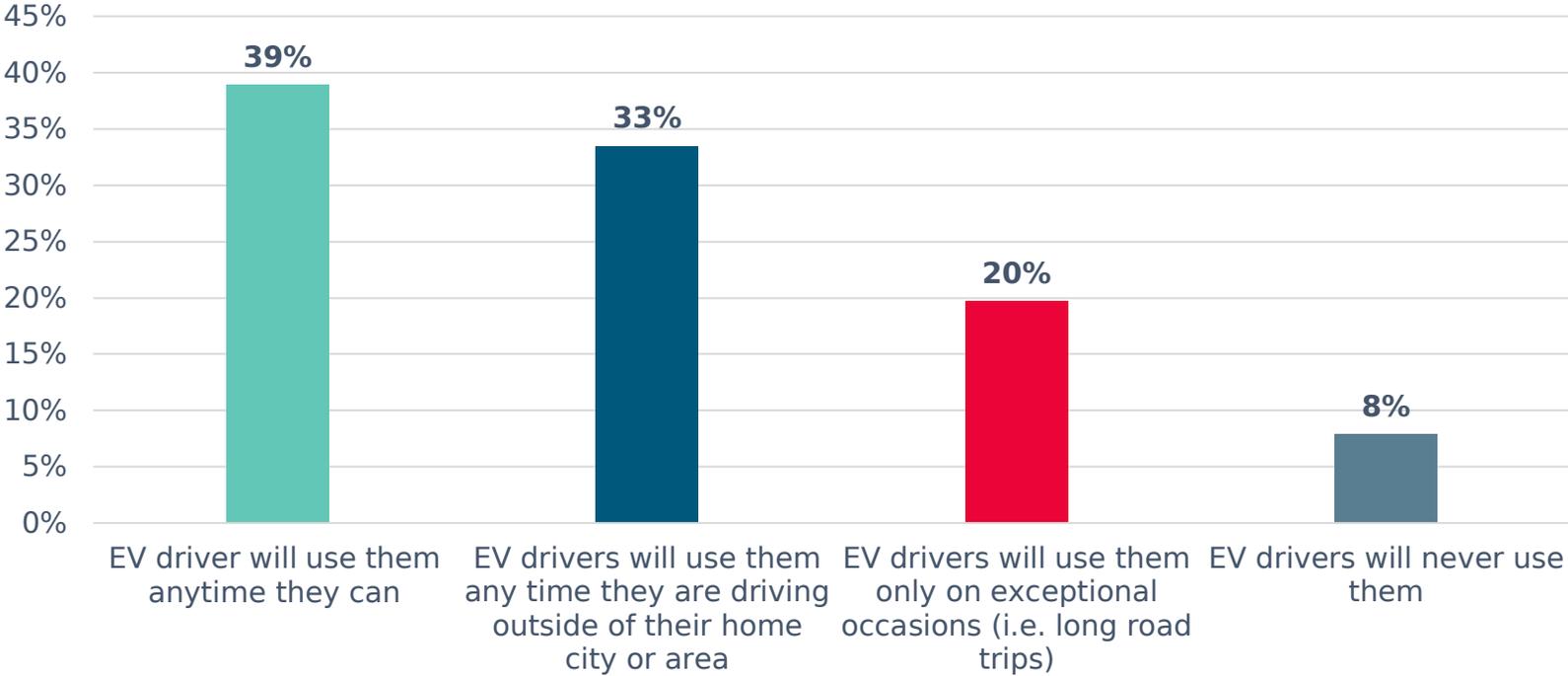
**What types of vehicle electrification innovation initiatives is your company STRUGGLING with? Choose up to 3.**

# MORE THAN HALF THINK FAST PUBLIC CHARGING STATIONS FOR EVs WILL BE WIDELY AVAILABLE IN THE FUTURE



*Which of the statements best represent your opinion about the future use of EV fast public charging stations (publicly available charging stations that can fully charge a car in 5-15 minutes)?*

# HOWEVER, ONLY 2 IN 5 (39%) BELIEVE DRIVERS WILL USE EV FAST PUBLIC CHARGING STATIONS AS THEIR DEFAULT



*Which of the statements best represent your opinion about how drivers are likely to use EV fast public charging stations?*

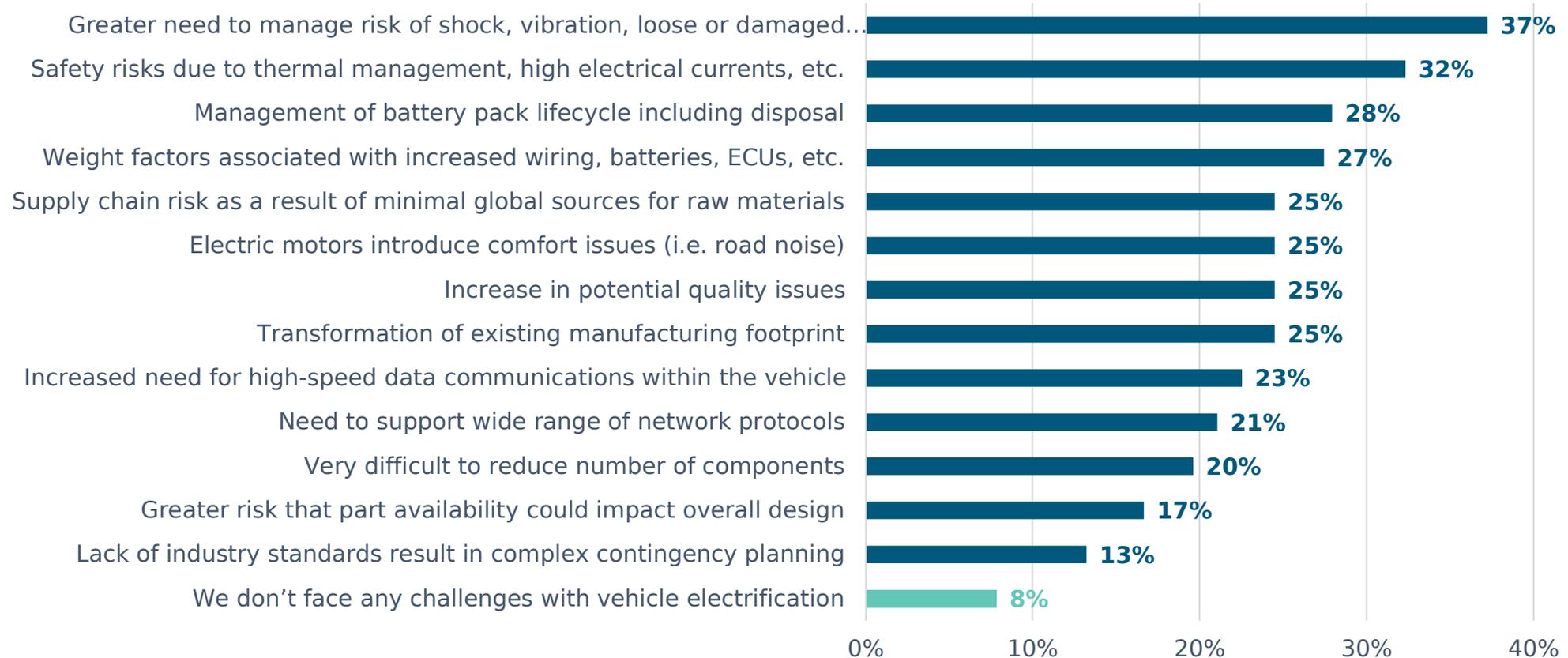


Detailed findings  
**AUTOMOBILE COMPANIES NEED HELP  
TO NAVIGATE THE NEW WORLD OF  
ELECTRIFICATION**

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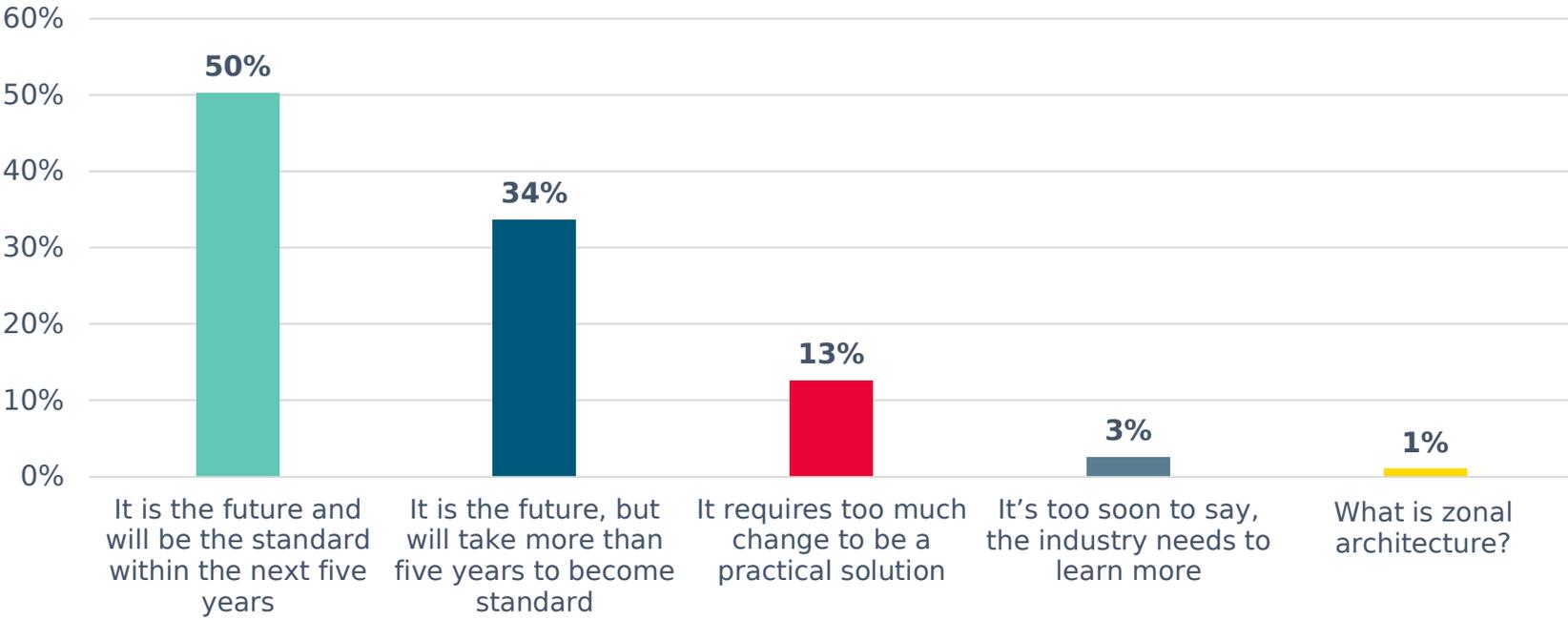
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# 92% REPORT DESIGN TEAMS FACE ADDITIONAL CHALLENGES BECAUSE OF INCREASING ELECTRIFICATION



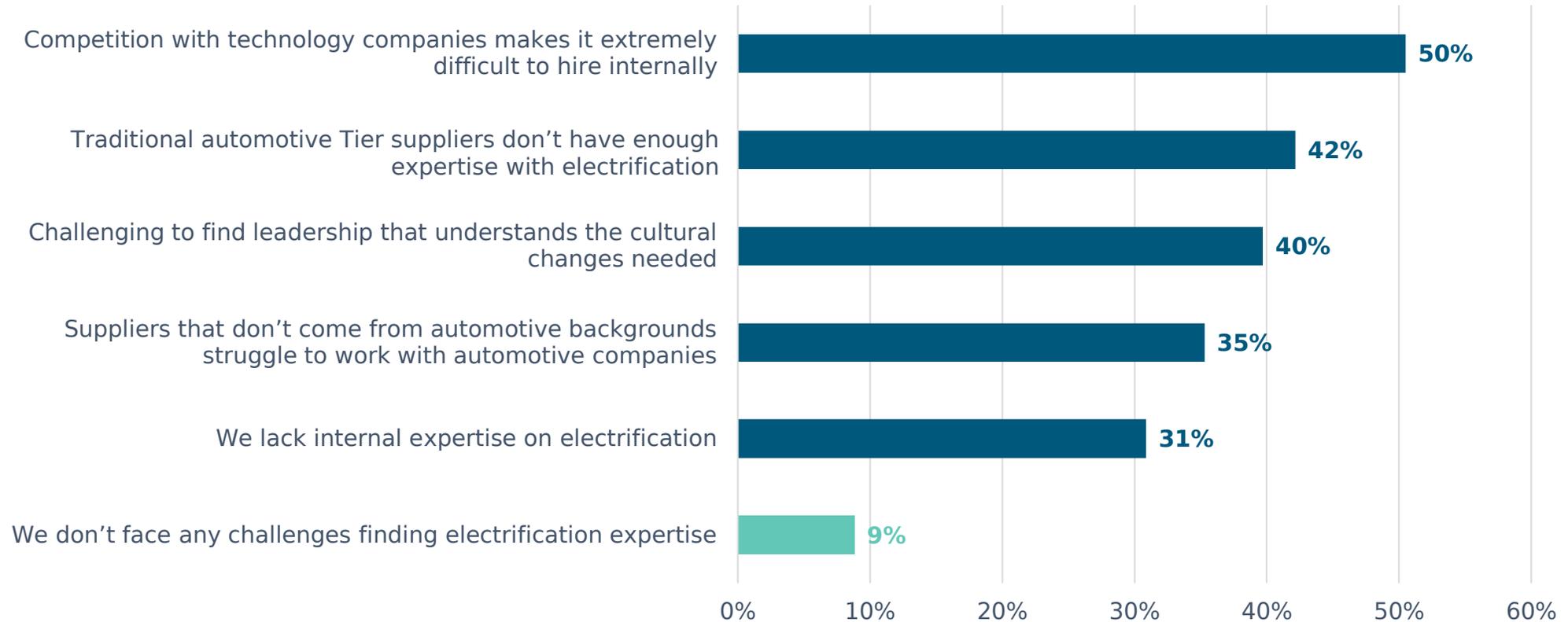
**What challenges do your design teams face due to increasing levels of vehicle electrification?**  
Choose all that apply.

# 84% AGREE ZONAL ARCHITECTURE IS THE FUTURE, BUT THEY DON'T AGREE ON THE TIMEFRAME



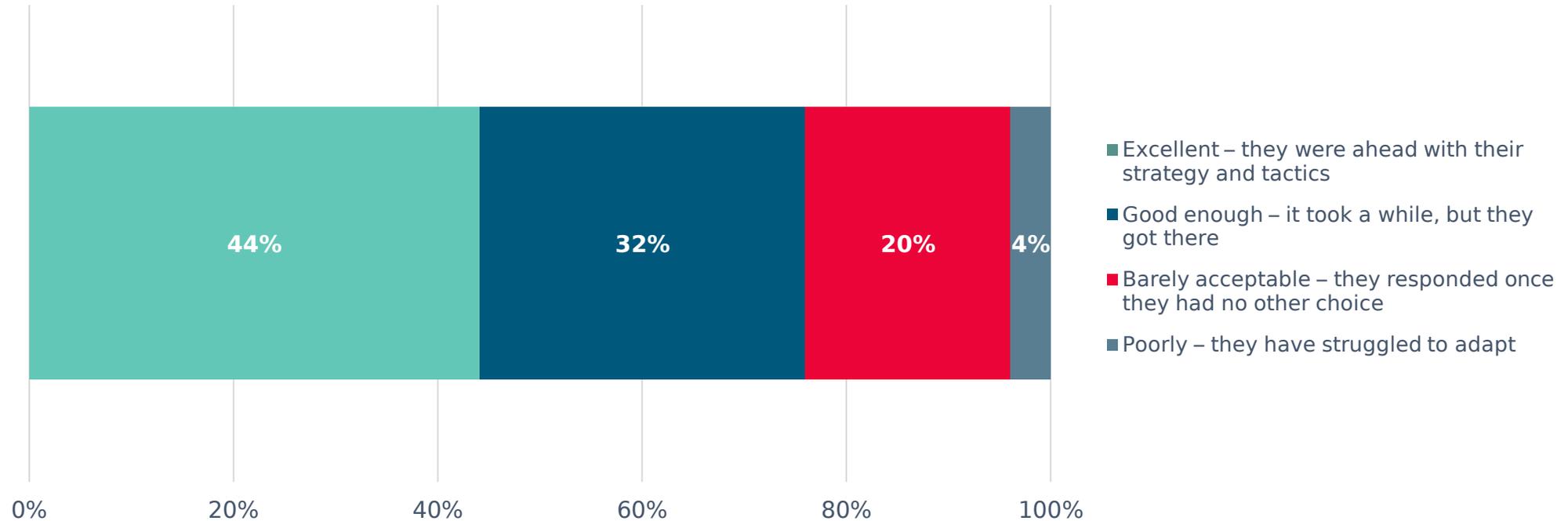
**What role will zonal architecture have in helping address challenges with vehicle electrification?**  
Choose the one answer that most closely applies.

# 91% REPORT A WIDE RANGE OF ISSUES FINDING EXPERTISE FOR VEHICLE ELECTRIFICATION INNOVATION



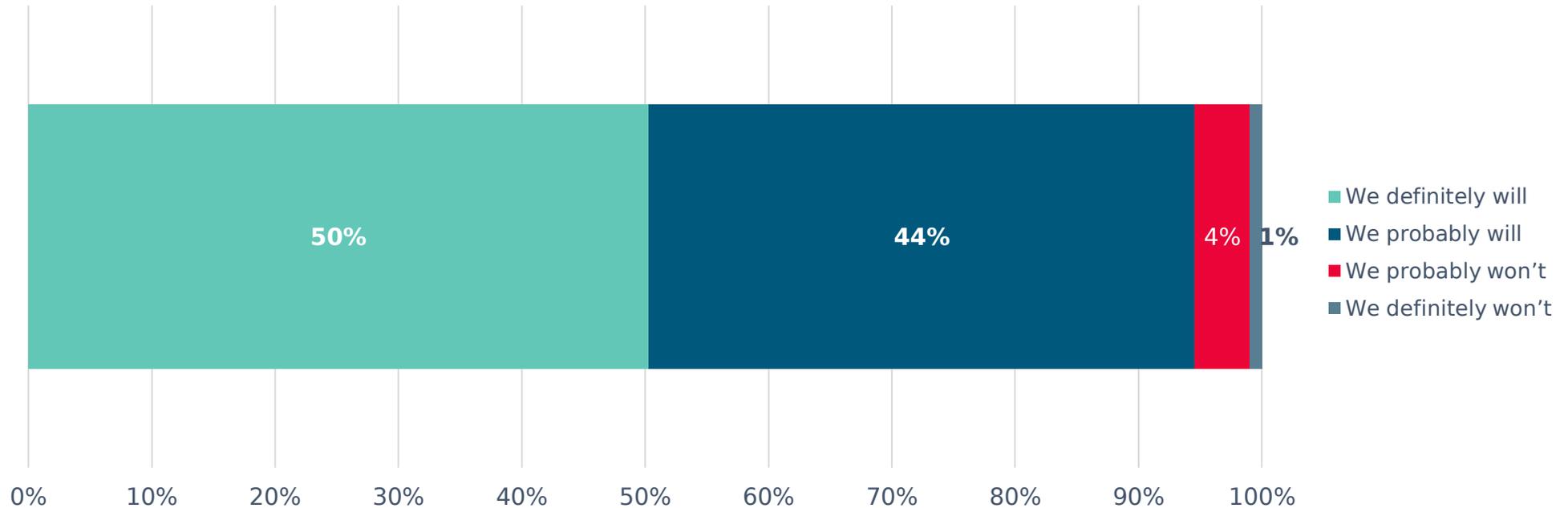
*What challenges does your company face with finding expertise to enable your vehicle electrification innovation efforts? Choose all that apply.*

# LESS THAN HALF (44%) GIVE THEIR LEADERSHIP TOP MARKS FOR ADAPTING TO VEHICLE ELECTRIFICATION



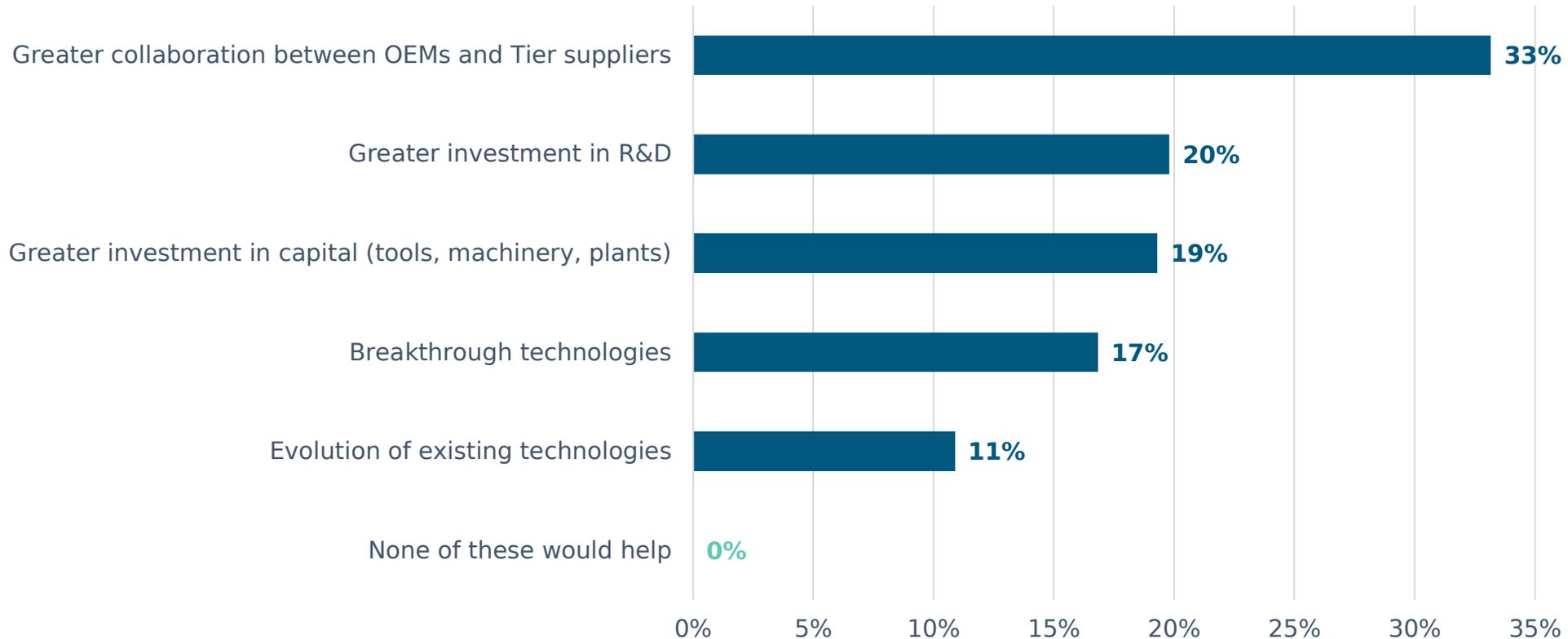
*In your opinion, how has your company's leadership adapted to changes in vehicle electrification?*

# 94% EXPECT THAT THEIR SUPPLIERS WILL EVOLVE DUE TO ELECTRIFICATION INITIATIVES



*How likely is it that your company will make major changes to your suppliers in the next five years as a result of electrification initiatives?*

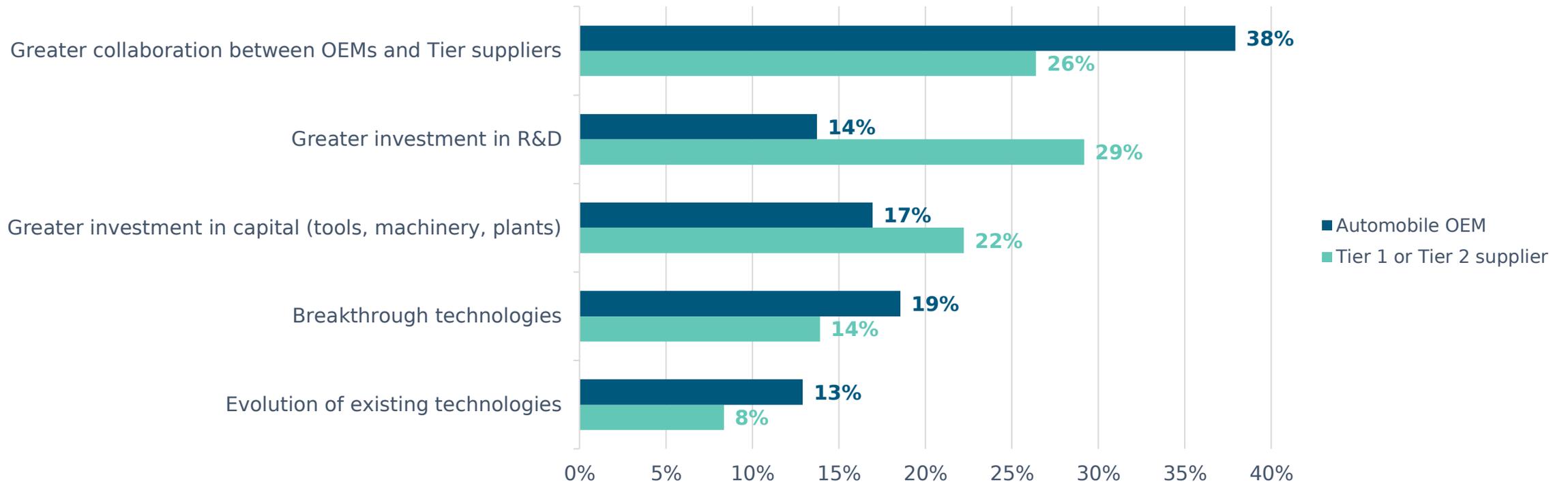
# INCREASED COLLABORATION IS MOST LIKELY TO DRIVE VEHICLE ELECTRIFICATION INNOVATION



*Which of the following would be MOST likely to drive innovation for your company's vehicle electrification initiatives? Choose the one answer that most closely applies.*

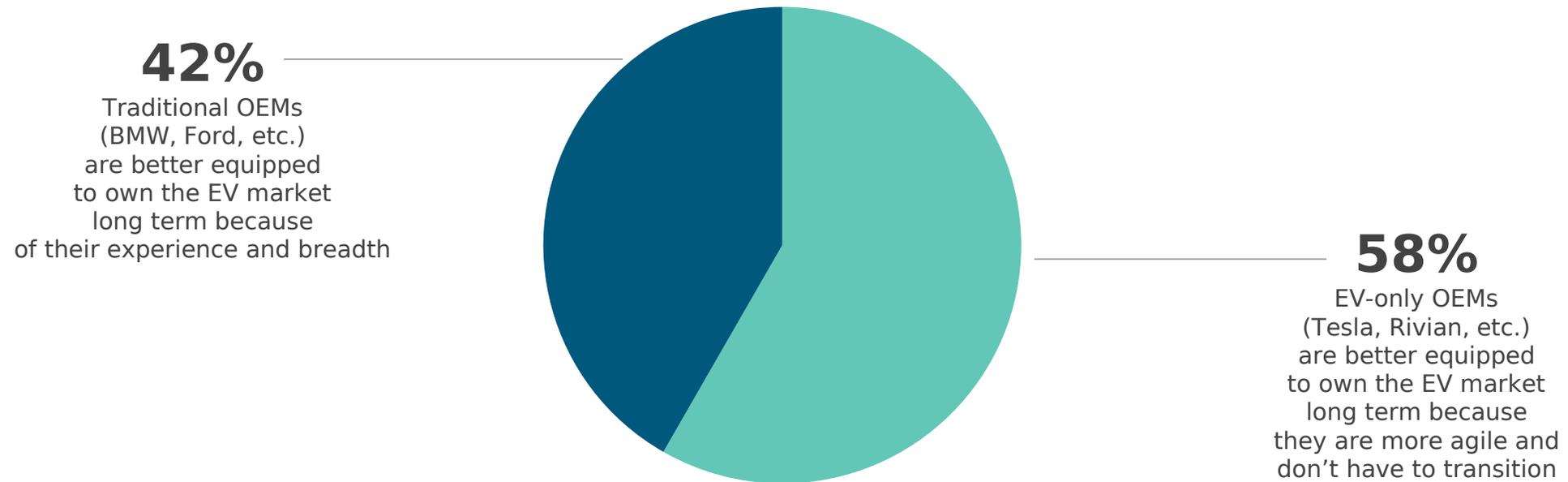
# OEMs SEE MOST INNOVATION FROM COLLABORATION; TIERS FROM R&D AND CAPITAL INVESTMENTS

By Type of Company



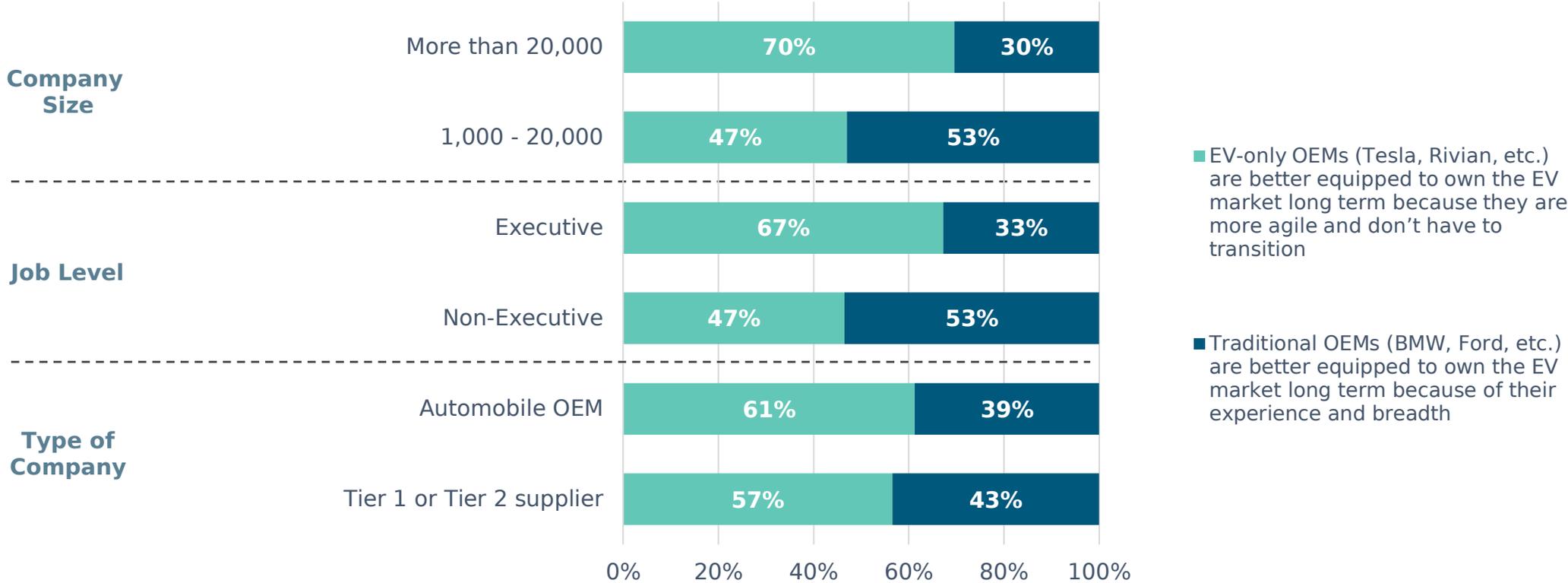
**Which would be MOST likely to drive innovation for your company's vehicle electrification initiatives?** Choose the one answer that most closely applies.

# NO AGREEMENT ON WHAT TYPE OF COMPANY WILL OWN THE LONG-TERM EV MARKET



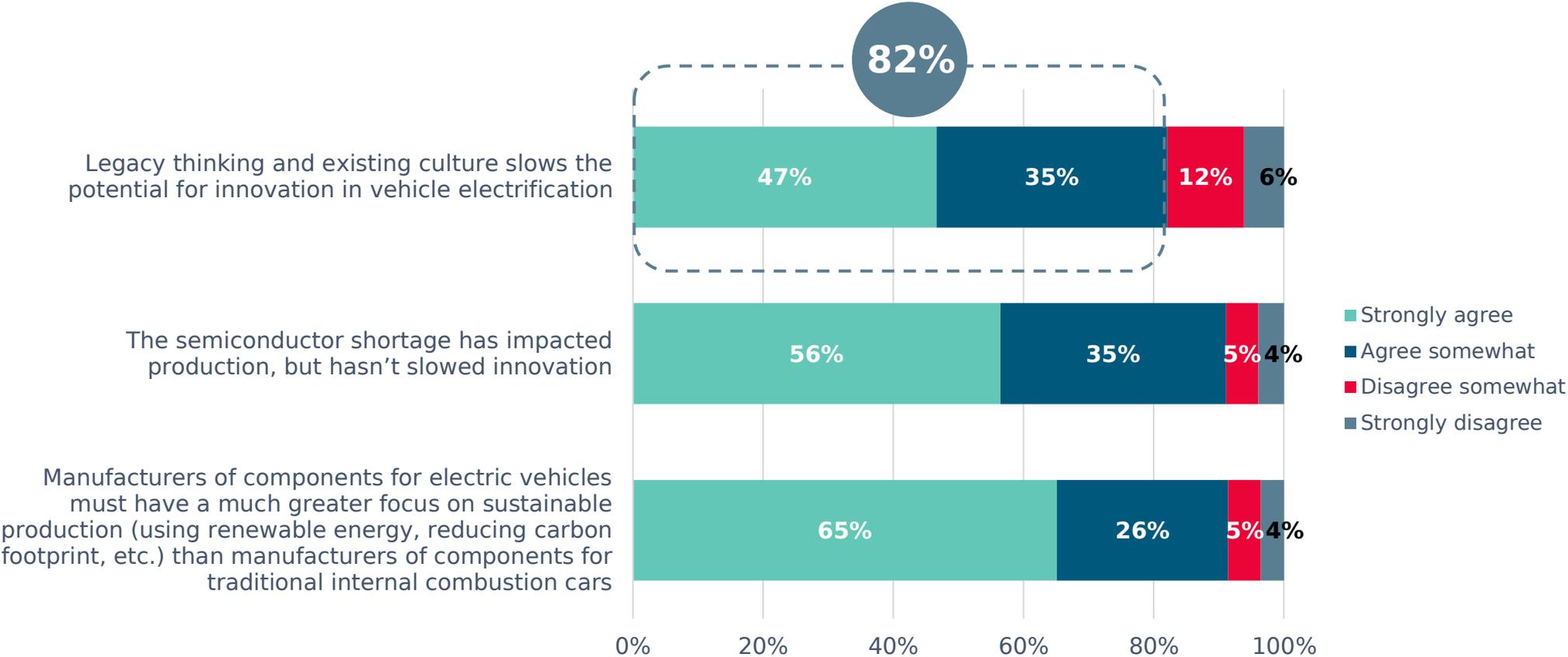
*Which statement best represents your opinion?*

# LARGEST AUTOMOTIVE COMPANIES AND EXECES MOST LIKELY TO THINK EV-ONLY OEMs HAVE THE ADVANTAGE



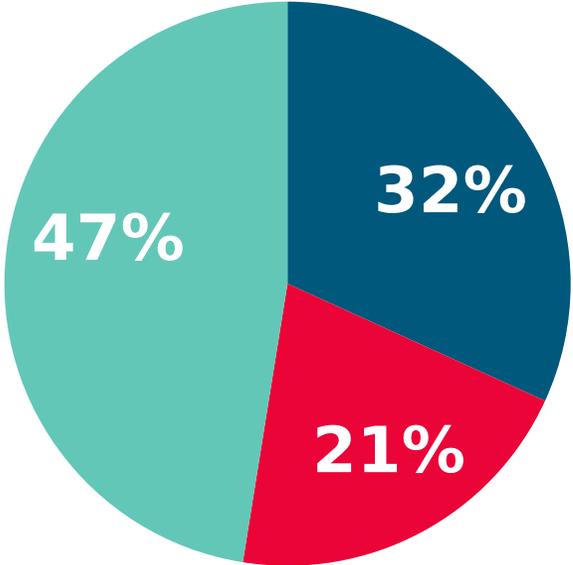
*Which statement best represents your opinion?*

# ELECTRIFICATION STAKEHOLDERS AGREE THAT LEGACY THINKING CAN SLOW INNOVATION



*Please rate your agreement with each of the statements.*

# SUPPLIERS WITH DEEP EXPERIENCE IN BOTH ELECTRIFICATION AND AUTO ARE TYPICALLY PREFERRED

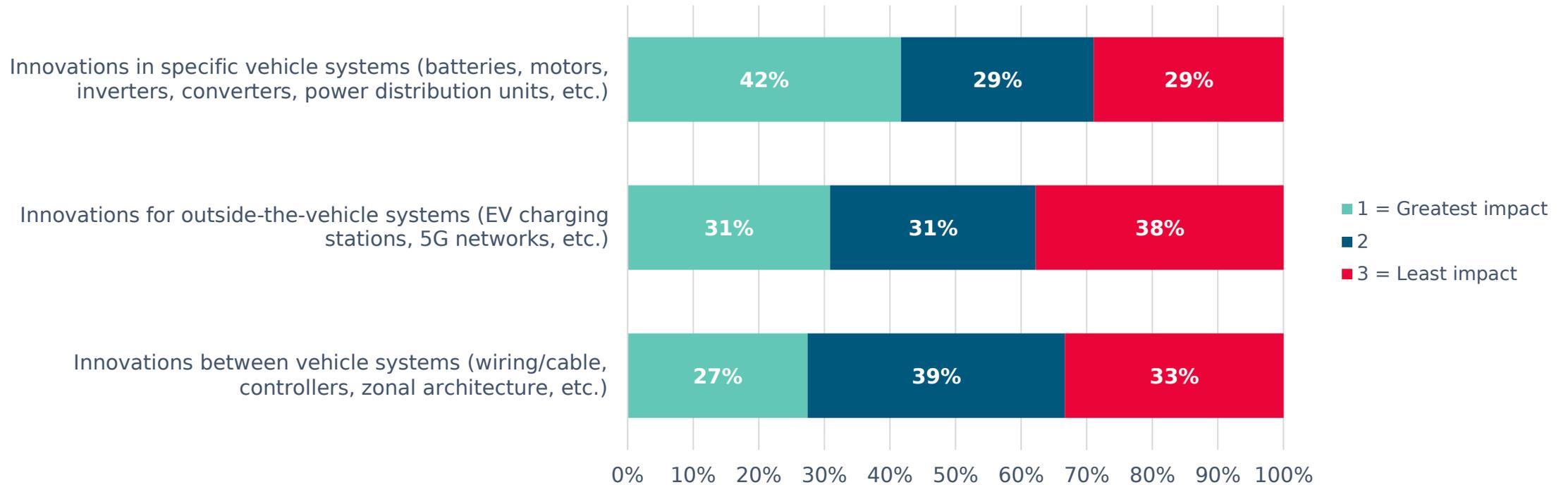


- Established automotive supplier with deep industry experience – even if they are new to electrification
- Supplier with deep expertise in electrification – even if they are new to automotive
- Supplier who has deep experience with electrification in both automotive and non-automotive industries



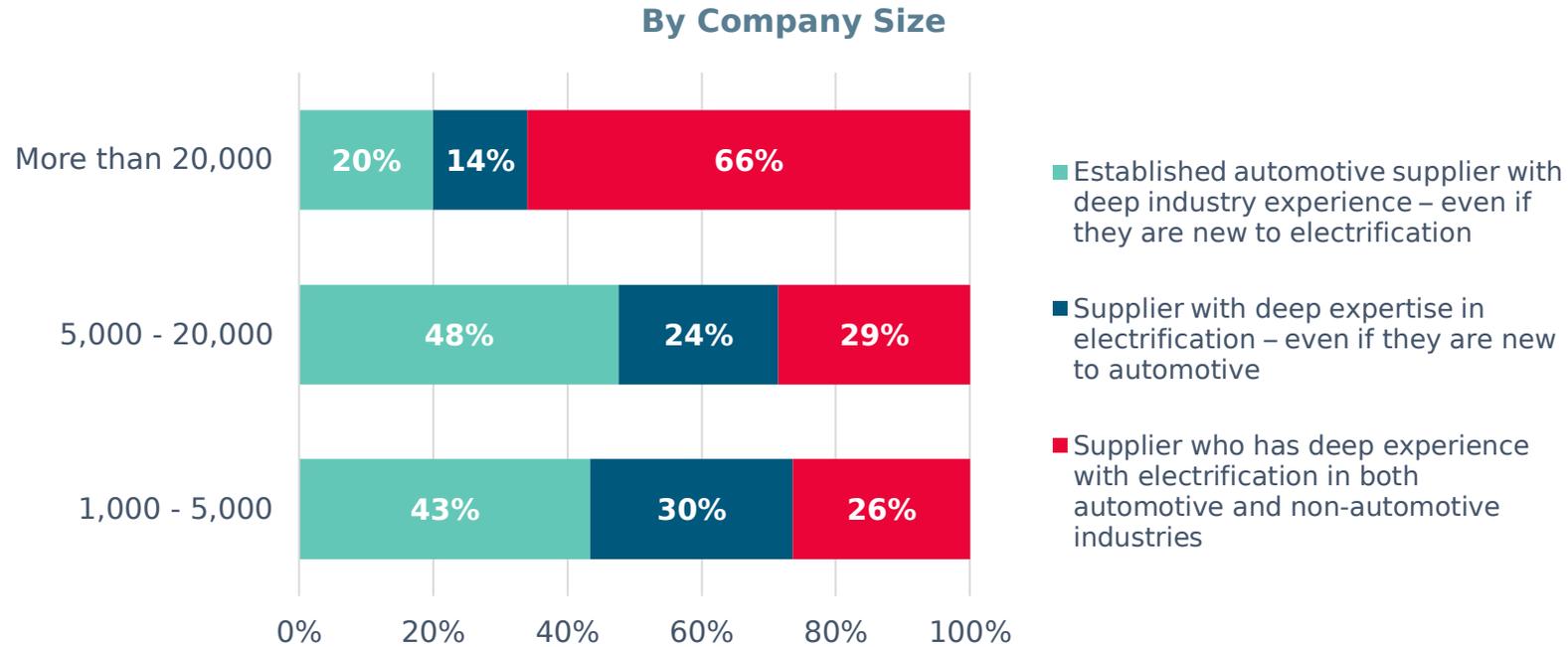
**Which of the following would be your preferred partner for your electrification initiatives?**  
*Choose the one answer that most closely applies.*

# NO CONSENSUS ON THE TYPE OF INNOVATION WITH THE MOST IMPACT ON THE FUTURE OF AUTO



***In your opinion, what type of vehicle electrification innovation breakthroughs would have the most impact on the future of the automotive industry? Rank from 1 to 3 where 1 = Innovation will have GREATEST impact and 3 = Innovation will have LEAST impact.***

# LARGE COMPANIES ARE FAR MORE LIKELY TO SEE THE VALUE IN CROSS-INDUSTRY ELECTRIFICATION EXPERIENCE



**Which size company would be your preferred partner for your electrification initiatives?**  
Choose the one answer that most closely applies.

## FOR MORE INFORMATION

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