



AUTOMOTIVE

Overview of the Chinese Infotainment Market

19 October 2016 | Tokyo

Michael Liu, Senior Analyst,
+86 21 2422 9078, Michael.Liu@ihsmarkit.com

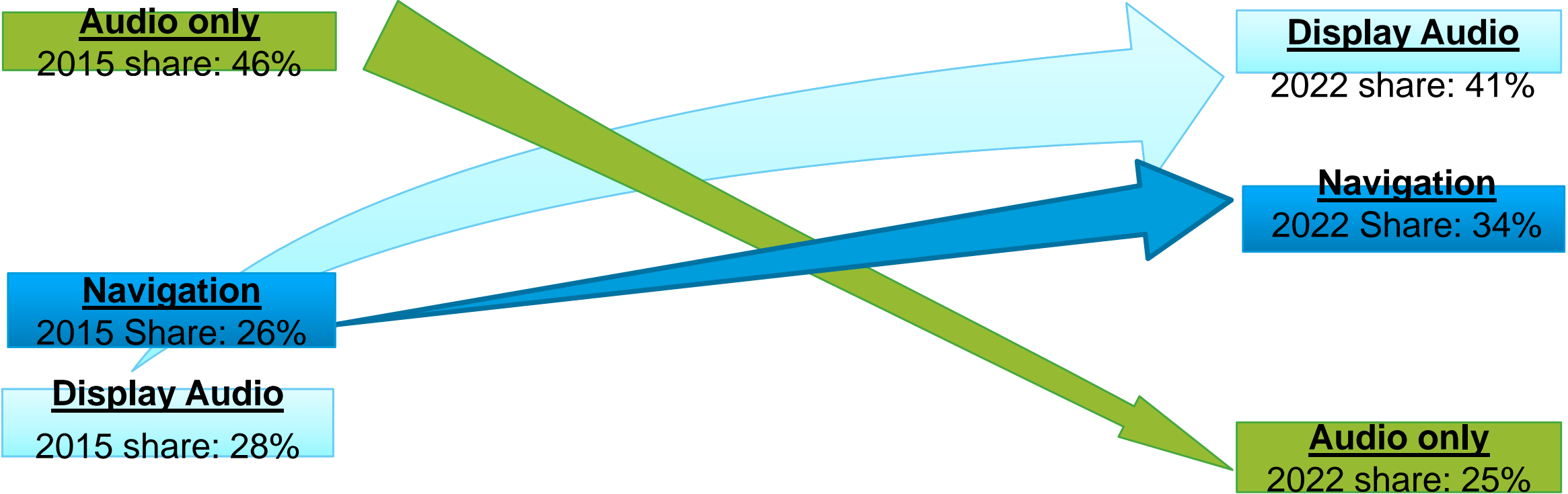
Agenda

- Infotainment Systems Forecast
- Telematics Market Overview
- Smart Phone Connection
- Branded Audio – Consumer Survey
- Other Big Things

Infotainment Systems Forecast

Global Infotainment System Trends

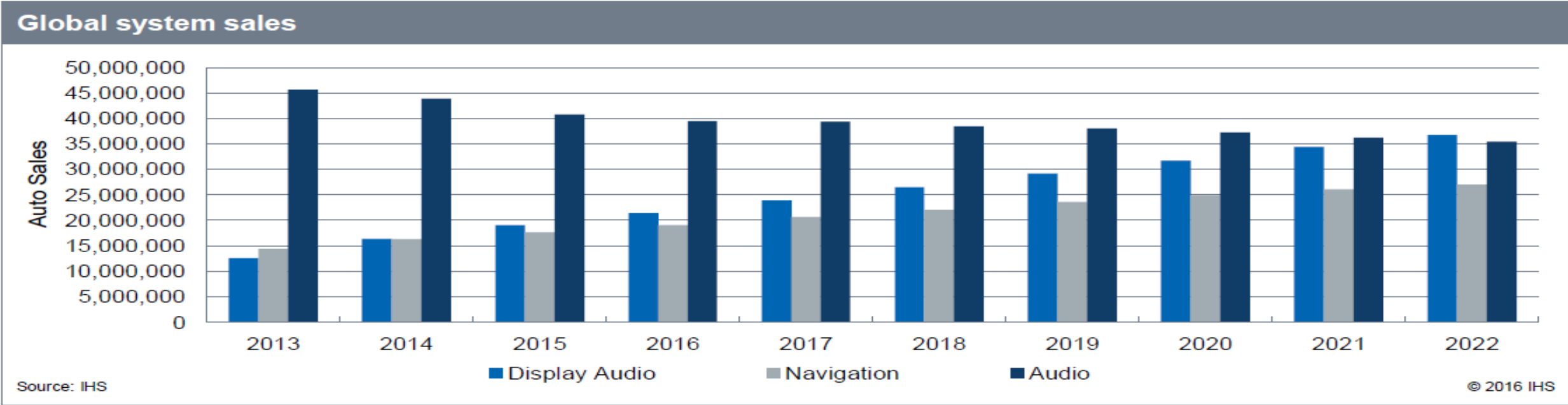
Head-unit system trends; growth of Display Audio



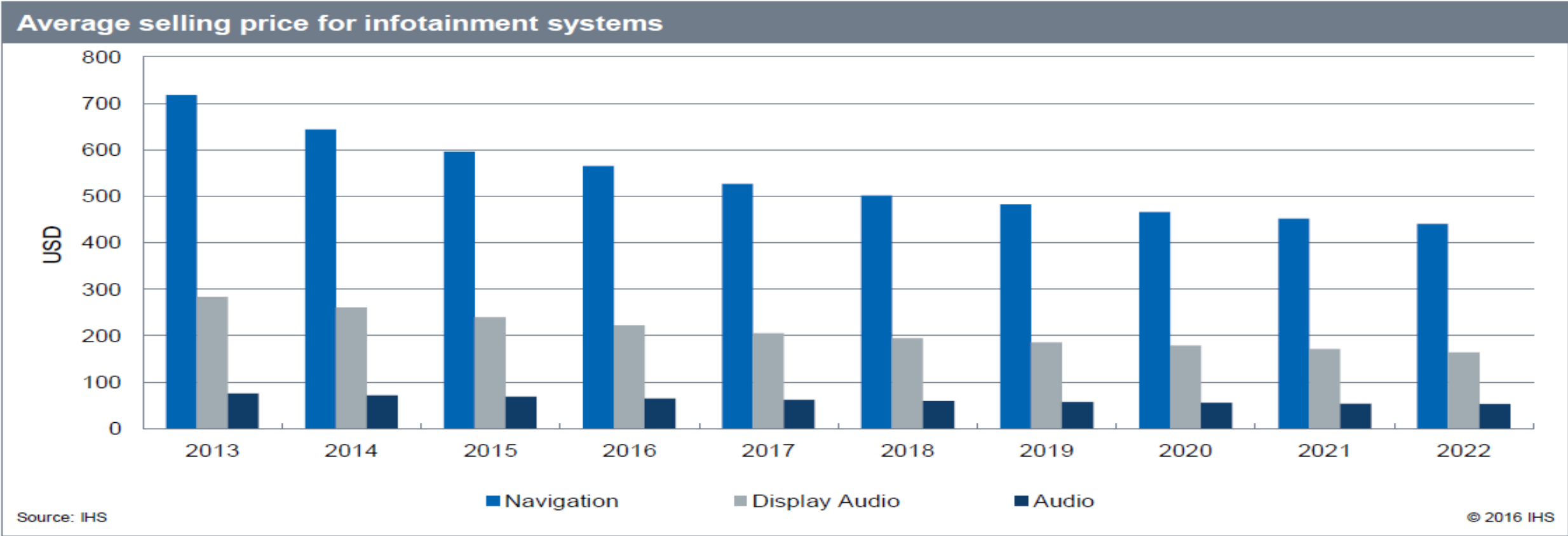
Source: IHS

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Global Infotainment System Trends

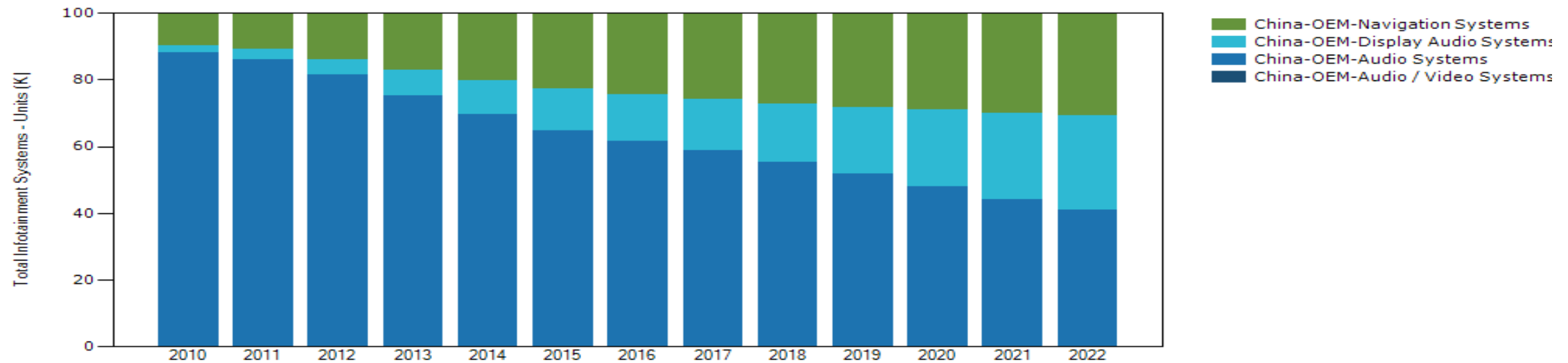


Average Selling Price for Infotainment Systems



Trends for the Chinese OEM Infotainment Market

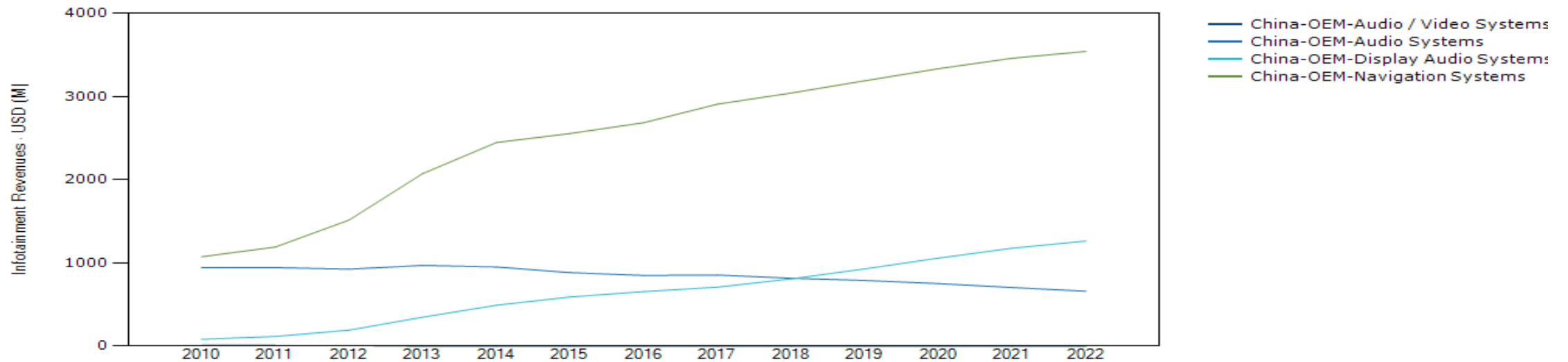
Total Infotainment Systems - Units (K) by Country, Segment, System or Feature



- Fitment rate of pure audio systems will go down steadily.
- Fitment rate of navigation is still increasing, although not quickly.
- Display Audio will be the future star in the infotainment area.

Trends for the Chinese OEM Infotainment Market

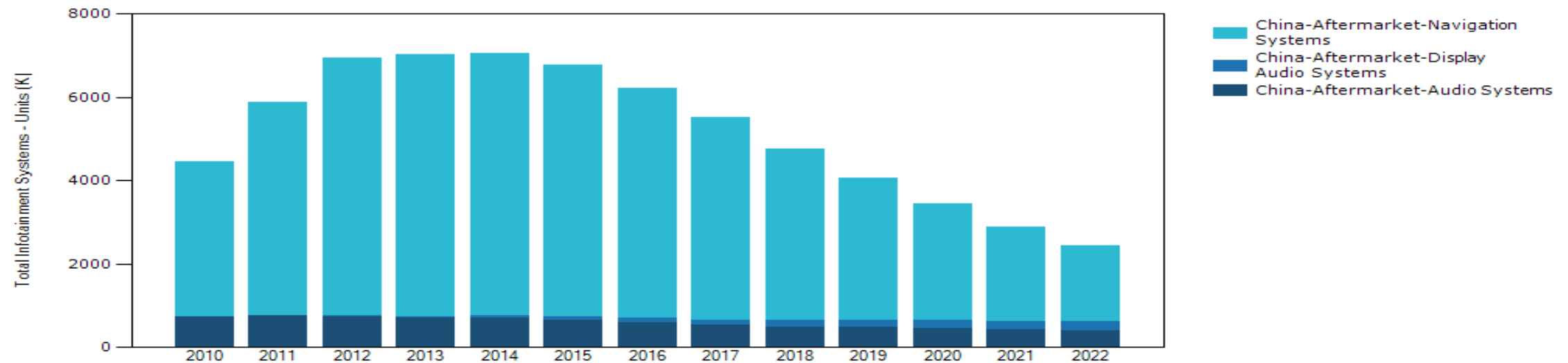
Infotainment Revenues – USD (M) by Country, Segment, System or Feature



- Pure Audio: \$0.6 billion in 2022.
- Navigation: \$3.5 billion.
- Display Audio: \$1.3 billion.

Trends for the Chinese Aftermarket Infotainment

Total Infotainment Systems - Units (K) by Country, Segment, System or Feature

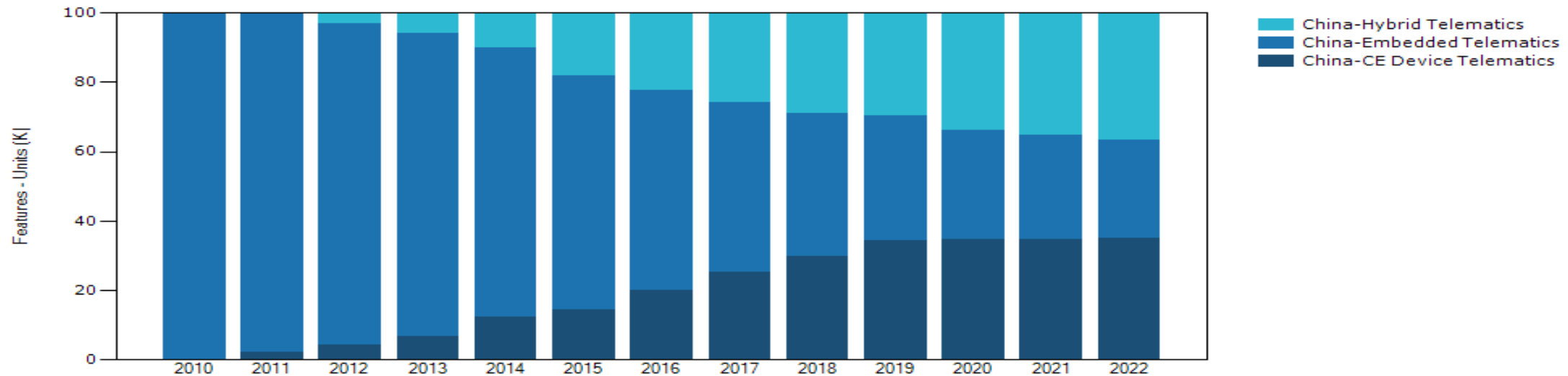


- A market to shrink.
- Aftermarket navi will shrink sharply, caused by the rising trends of OEM navi, smartphone based navi (through smartphone itself or display audio).

Telematics Market Overview

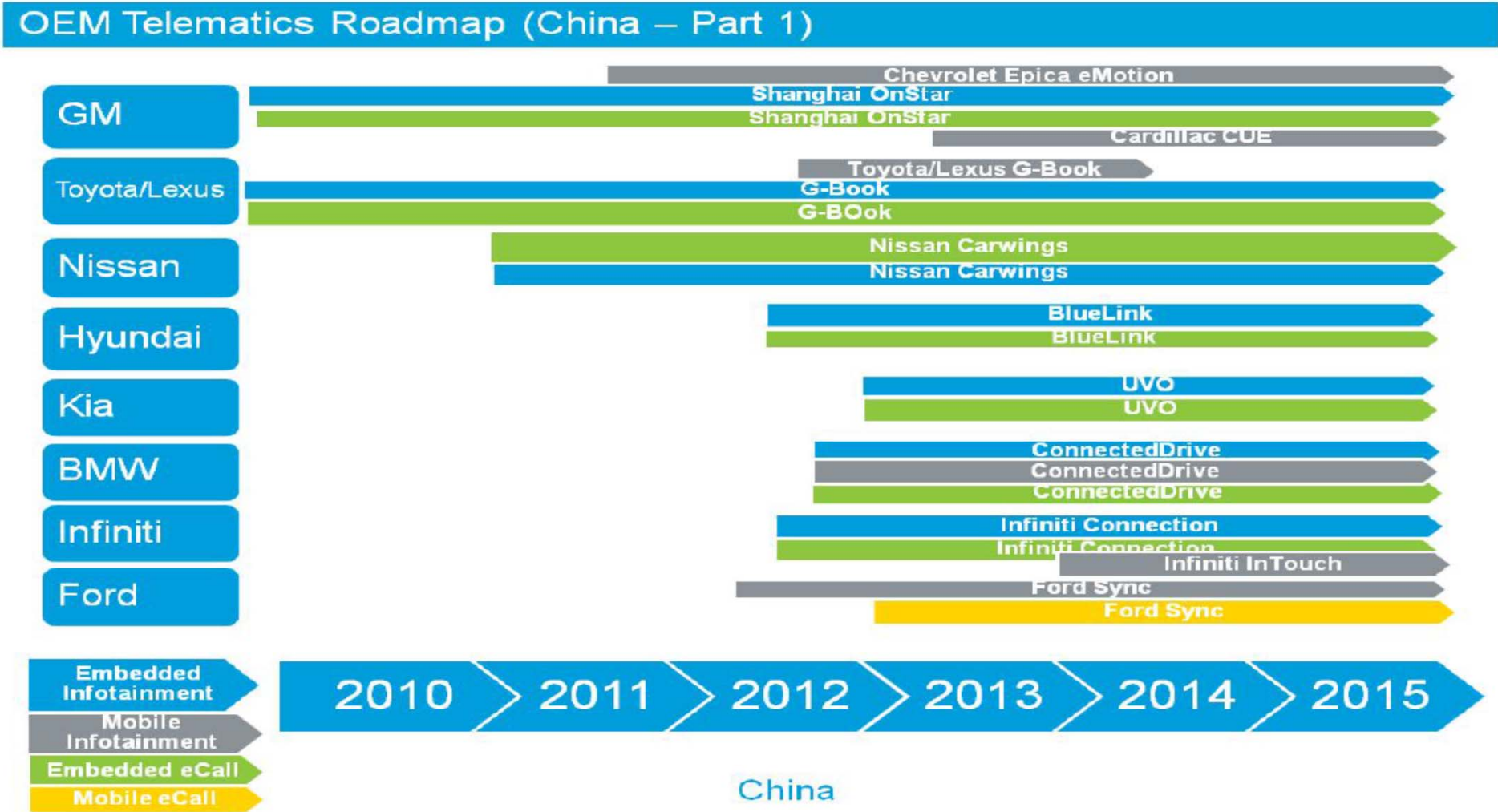
Trends for the Chinese OEM Telematics Market

Features - Units (K) by Country, Feature

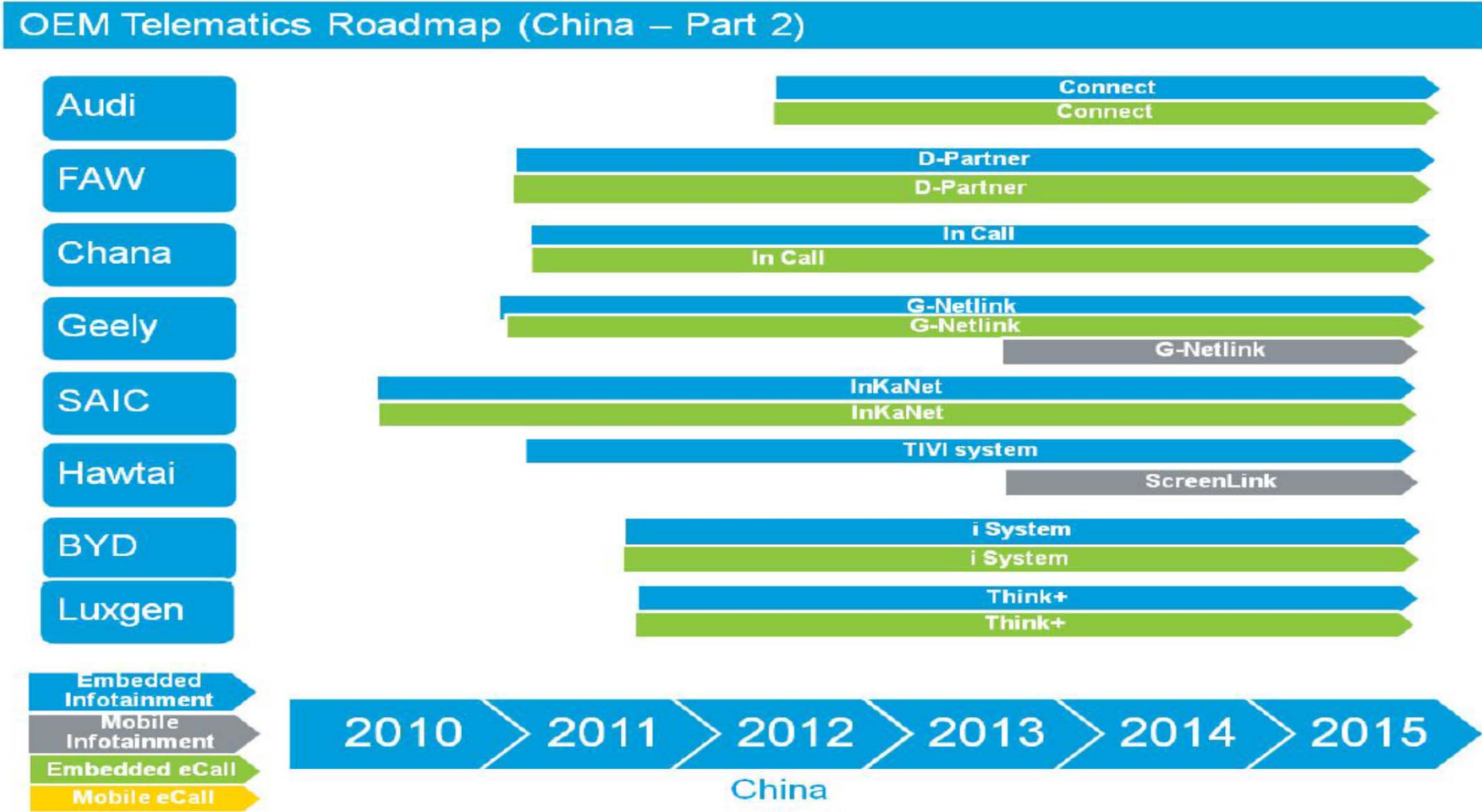


- Embedded telematics is the majority now. But other two types will increase quickly. In 2022, the fitment rates of the three types will be very close.
- Most luxury brands will use either embedded or hybrid telematics.
- Due to the relatively low cost, consumer device telematics will be mainly used in entry-level and mid-level vehicles.

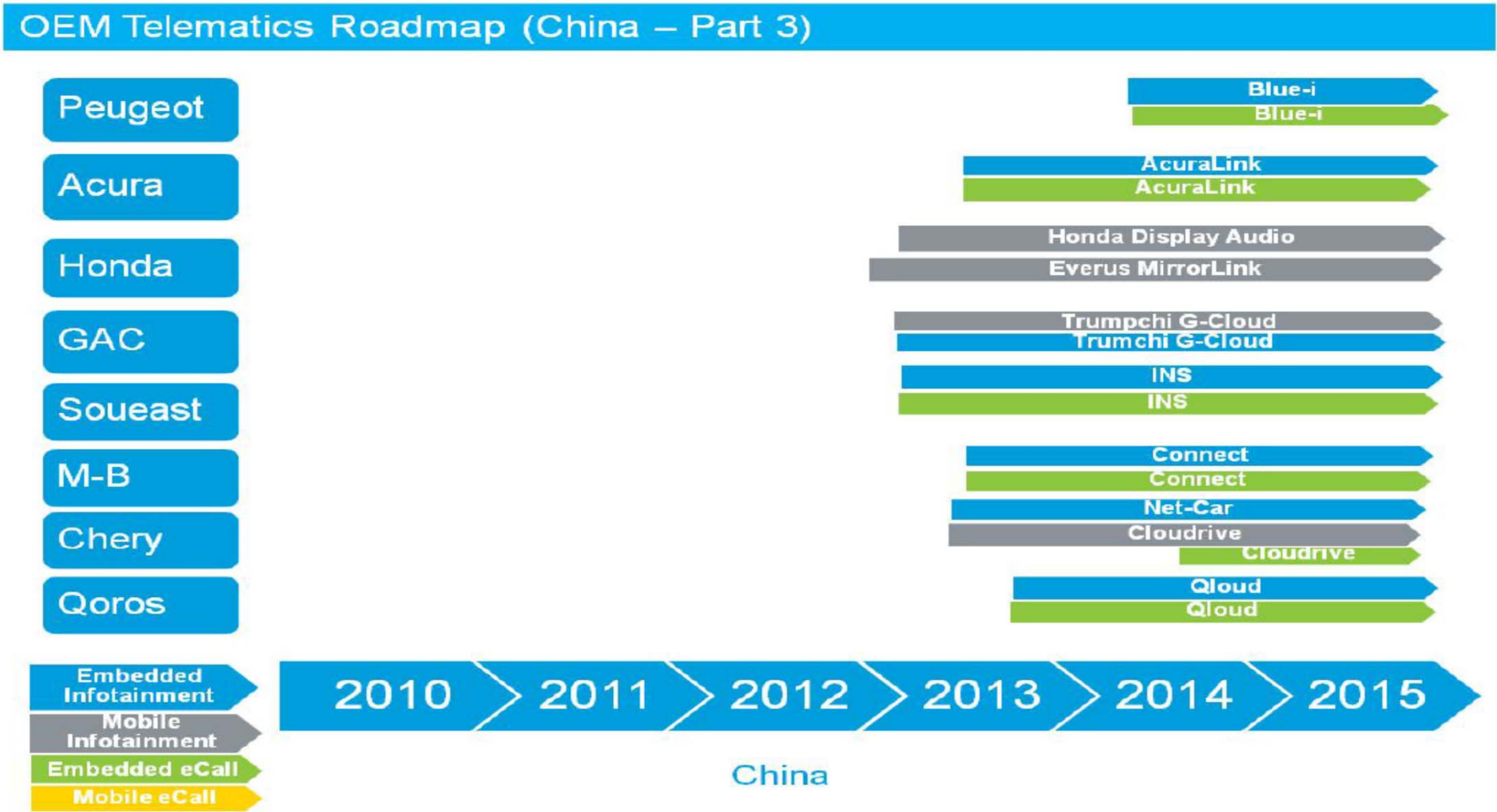
Telematics Products for Major OEMs



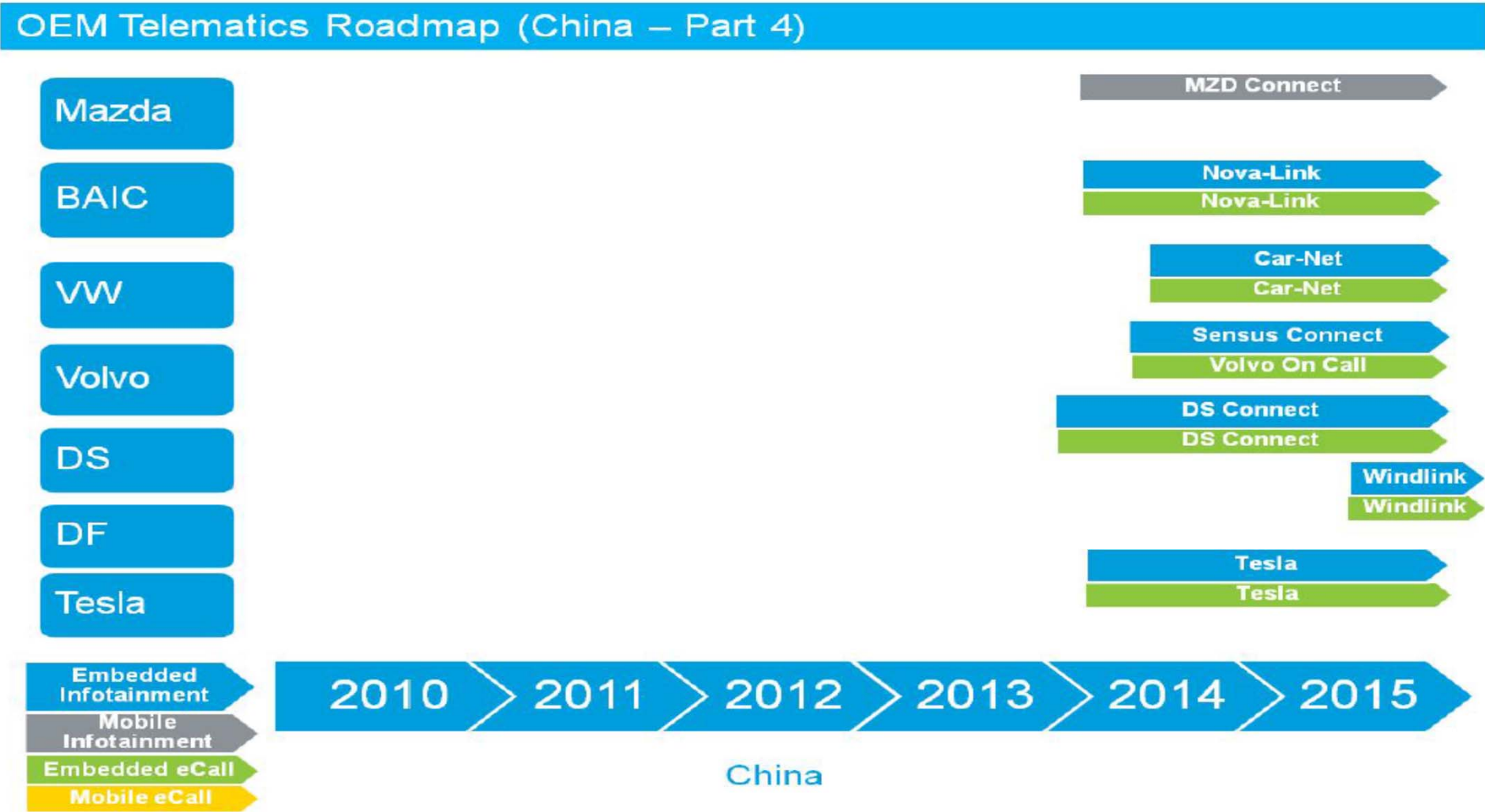
Telematics Products for Major OEMs



Telematics Products for Major OEMs



Telematics Products for Major OEMs



Telematics Services Offerings

OEM telematics services offerings (China -1)

Embedded Connectivity	CE Device Connectivity	Hybrid Connectivity	ACN/ eCall /bCall	Vehicle Diagnostics	Stolen Vehicle Tracking	Features			OEM Mobile App	Third-party Apps Integration
						Navigation /LBS/ Traffic	Call Center	Concierge		
BMW ConnectedDrive	BMW ConnectedDrive	BMW ConnectedDrive	x	x	x	x	x	x	x	x
	Mini Connected									
Toyota/Lexus G-Book	Toyota/Lexus Mobile G-Book		x	x	x	x	x	x	x	
	Ford Sync		x				x			x
GM OnStar			x	x	x	x	x		x	
	Chevrolet eMotion					x				
Nissan Carwings			x	x	x	x	x	x		
Hyundai Blue Link			x	x	x	x	x		x	
Kia UVO			x	x	x	x	x		x	

Telematics Services Offerings

OEM telematics services offerings (China -2)

Embedded Connectivity	CE Device Connectivity	Hybrid Connectivity	ACN/ eCall /bCall	Features						
				Vehicle Diagnostics	Stolen Vehicle Tracking	Navigation /LBS/ Traffic	Call Center	Concierge	OEM Mobile App	Third-party Apps Integration
Audi Connect			x			x	x			
Infiniti Connection			x	x	x	x	x	x		
FAW D-Partner SAIC InkaNet			x	x	x	x	x	x		x
Geely G-Netlink			x		x	x	x			x
BYD I System			x	x	x	x	x			x
Chang'an In Call			x		x	x	x	x		
Hawtai TIVI				x		x	x	x		
Luxgen Think+			x	x	x	x	x			

Telematics Services Offerings

OEM telematics services offerings (China -3)

Embedded Connectivity	CE Device Connectivity	Hybrid Connectivity	ACN/ eCall /bCall	Features						Third-party Apps Integration
				Vehicle Diagnostics	Stolen Vehicle Tracking	Navigation /LBS/ Traffic	Call Center	Concierge	OEM Mobile App	
Peugeot Blue-i			x	x	x	x	x	x		
AcuraLink			x	x	x	x	x			
	Honda Display Audio /Everus MirroLink					x				x
GAC Trumpchi G-Cloud	GAC Trumpchi G-Cloud	GAC Trumpchi G-Cloud		x		x			x	x
Soueast INS				x	x	x	x	x		
Mercedes-Benz Connect				x	x	x	x	x	x	x

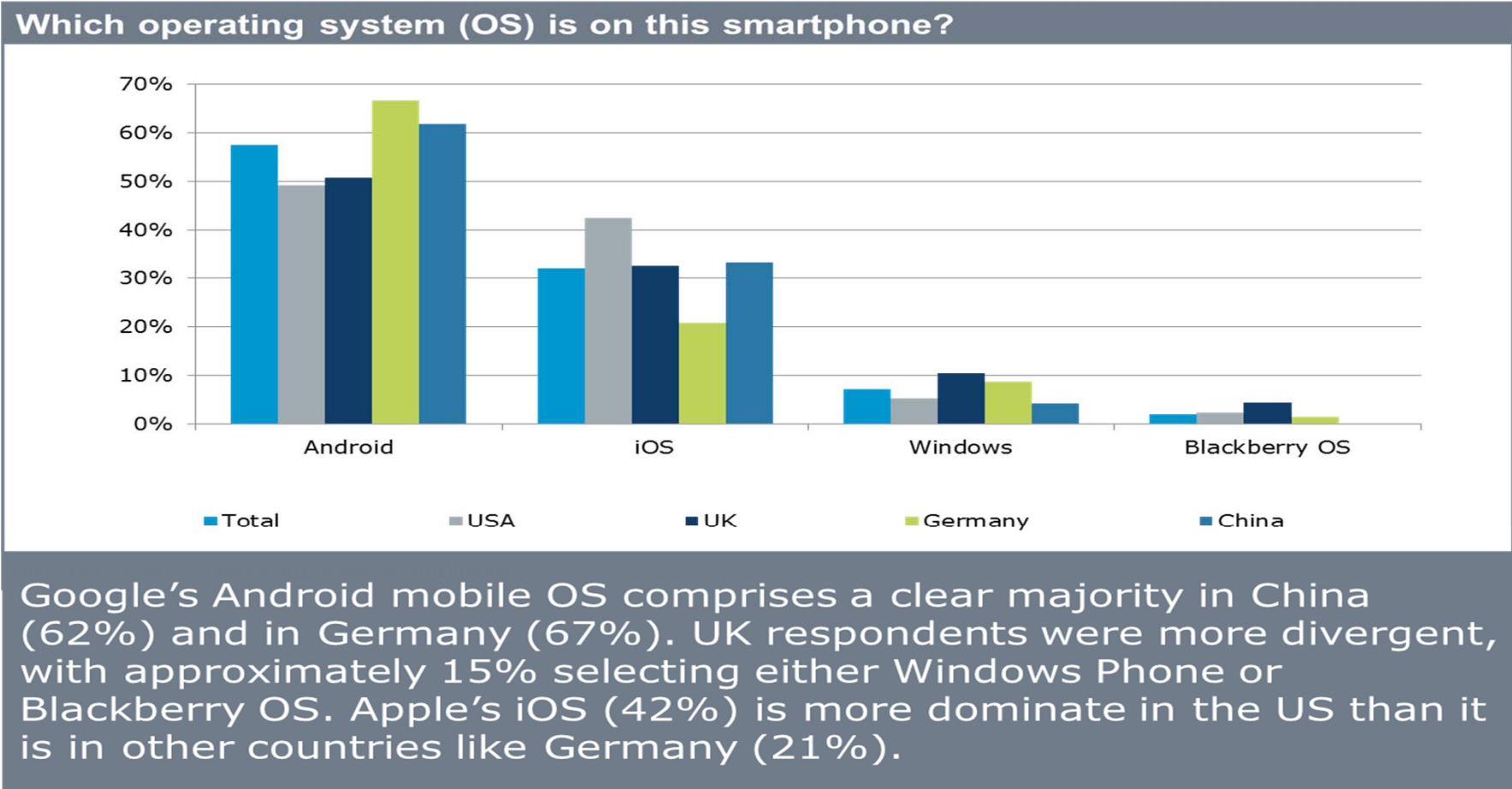
Telematics Services Offerings

OEM telematics services offerings (China -4)

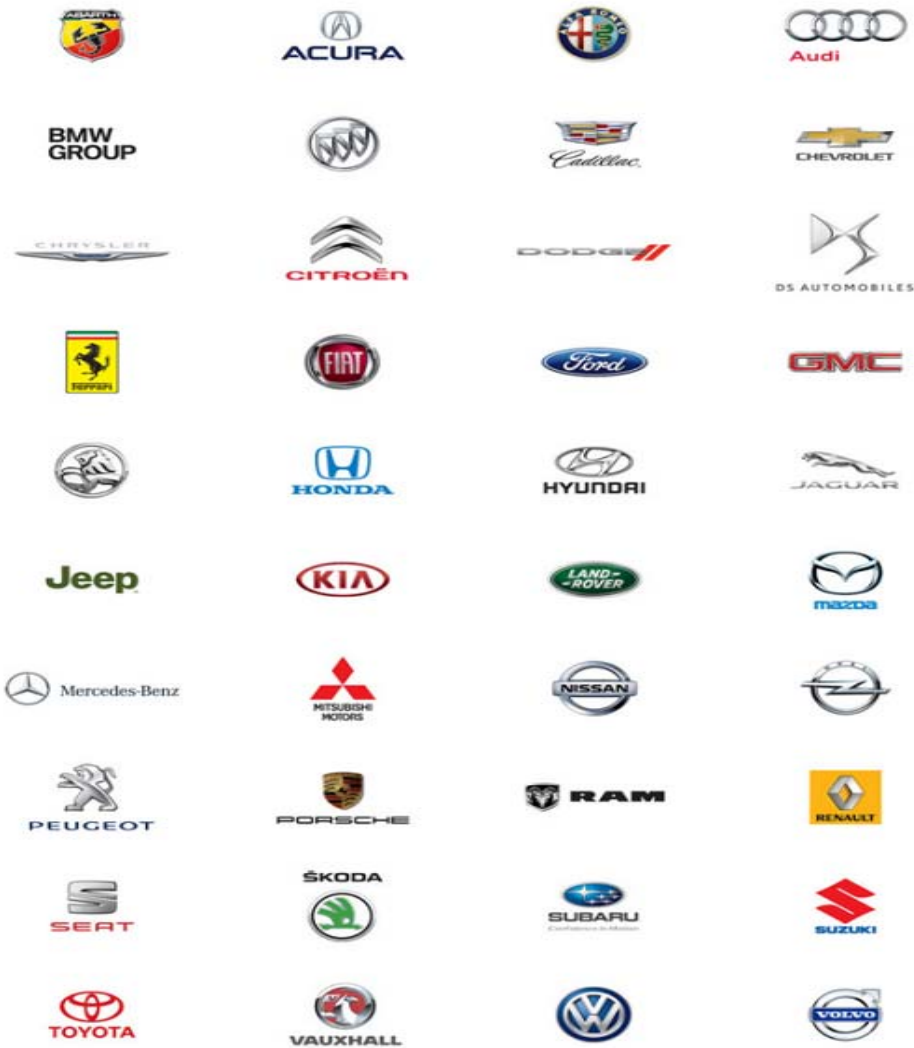
Embedded Connectivity	CE Device Connectivity	Hybrid Connectivity	ACN/ eCall /bCall	Features						
				Vehicle Diagnostics	Stolen Vehicle Tracking	Navigation /LBS/ Traffic	Call Center	Concierge	OEM Mobile App	Third-party Apps Integration
Chery Net-Car	Chery Cloudrive	Chery Cloudrive	x	x		x	x		x	x
Qoros Qcloud			x	x		x	x			x
	Mazda Connect					x				x
BAIC Novo-Link			x		x	x	x		x	
VW Car-Net			x	x	x	x	x		x	
Volvo On Call/ Sensus Connect			x	x	x	x	x		x	x
DS Connect			x	x	x	x	x	x		
Dongfeng Windlink			x	x	x	x	x		x	x
Tesla Telematics			x	x	x	x	x		x	

Smart Phone Connection

Smartphones by mobile OS - Global



Apple CarPlay



- Total 40 OEM Brands
- 0 Domestic Brand

Android Auto

 VISIT ABARTH >	 VISIT ACURA >	 VISIT ALFA ROMEO >	 VISIT AUDI >
 VISIT BENTLEY >	 VISIT BUICK >	 VISIT CADILLAC >	 VISIT CHEVROLET >
 VISIT CHRYSLER >	 VISIT CITROËN >	 VISIT DODGE >	 VISIT DS >
 VISIT FIAT >	 VISIT FORD >	 VISIT GENESIS >	 VISIT GMC >
 VISIT HOLDEN >	 VISIT HONDA >	 VISIT HYUNDAI >	 VISIT INFINITI >
 VISIT JAGUAR >	 VISIT JEEP >	 VISIT KENWOOD >	 VISIT KIA >
 VISIT LAMBORGHINI >	 VISIT LAND ROVER >	 VISIT LINCOLN >	 VISIT MAHINDRA >
 VISIT MASERATI >	 VISIT MAZDA >	 VISIT MITSUBISHI >	 VISIT NISSAN >
 VISIT OPEL >	 VISIT PEUGEOT >	 VISIT PIONEER >	 VISIT RAM >
 VISIT RENAULT >	 VISIT SEAT >	 VISIT SKODA >	 VISIT SSANGYONG >
 VISIT SUBARU >	 VISIT SUZUKI >	 VISIT VAUXHALL >	 VISIT VOLKSWAGEN >
 VISIT VOLVO >			

- Total 45 OEM Brands
- 0 Domestic Brand

MirrorLink



- Total 17 OEM Brands
- 1 Domestic Brand

Baidu CarLife



- Total 12 OEM Brands
- 4 Domestic Brand

Android Auto vs. CarPlay

Android Auto vs. Apple CarPlay Enabled Auto Forecast		
Enabled Auto Sales	Android Auto	Apple CarPlay
2015	1.06M	1.31M
2017	9.56M	8.97M
2020	40.3M	36.8M
Cumulative Enabled Auto Sales		
2015	1.15 M	1.41M
2017	14.7M	14.4M
2020	99.9M	92.8M

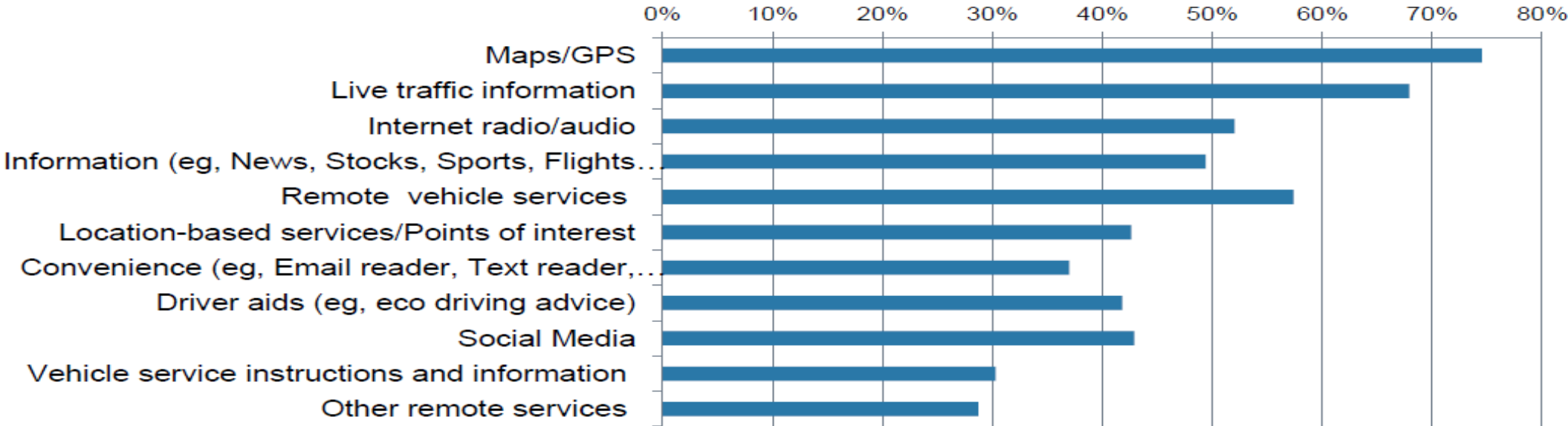
- Apple and Android Auto will be the most widely used two smart phone connection solutions.
- Overall, the race is very tight, as most OEMs will install both, because they can't afford the consequence by installing just one platform.
- Since both Apple and Google have tremendous developer community, the result will be a flood of Android Auto-compatible apps and CarPlay-compatible apps in the near future.

Android Auto vs. CarPlay

- **China** is a different market: Baidu CarLife is forecasted to be more important than Android Auto. Reasons:
 - 1, Lots of Google services are currently blocked in China.
 - 2, Baidu CarLife can support both iOS and Android smart phones.
 - 3, Lots of Baidu Apps are welcome and popular in China.

Most Popular Apps Customers Want in Car

What types of apps are you interested in directly downloading to your infotainment/multimedia system?



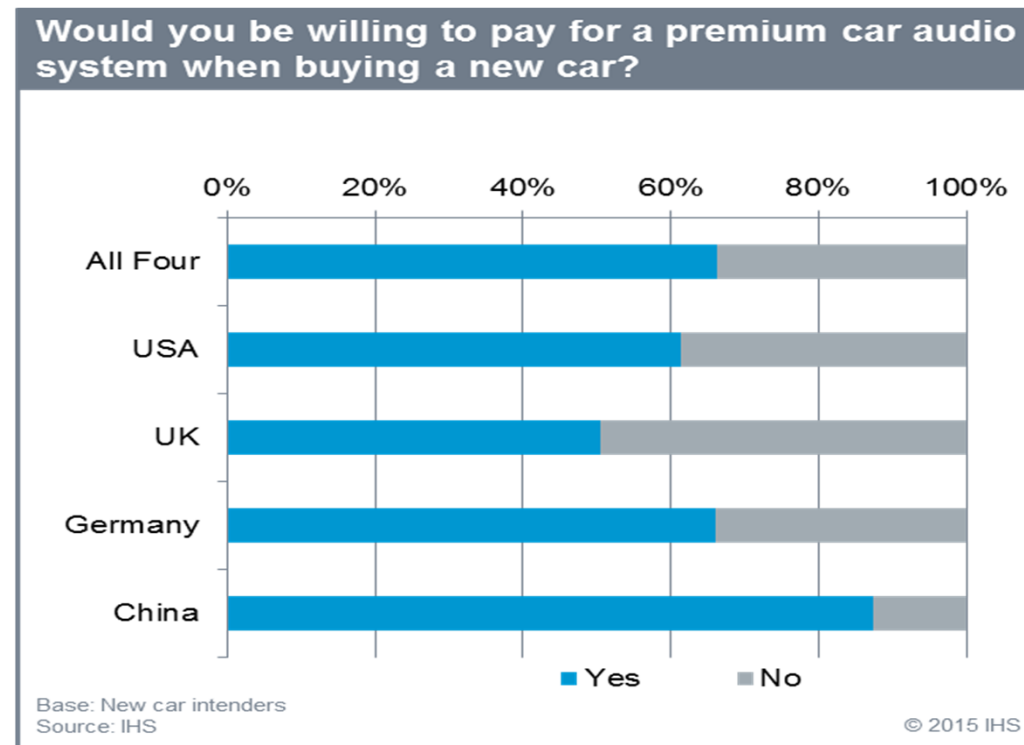
Base: 959 respondents who want built-in display system with onboard apps in China
Source: IHS

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Navigation-centric service is very valuable to many consumers in China due to new road construction, relatively new drivers, and chaotic and constantly evolving traffic situations.

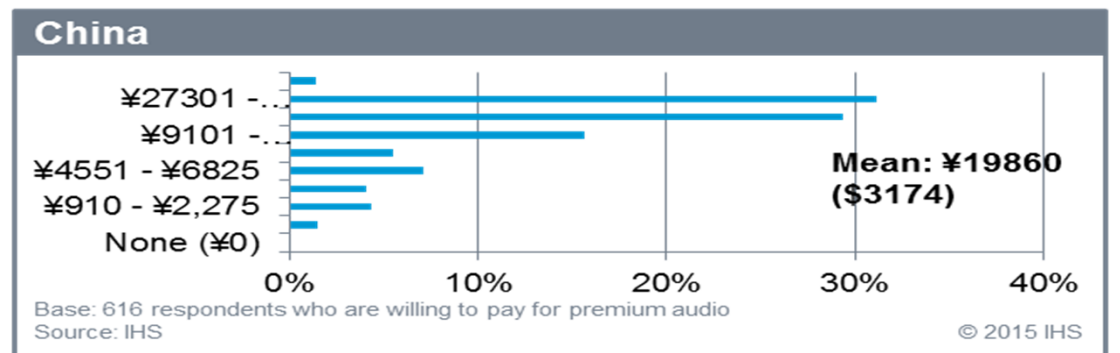
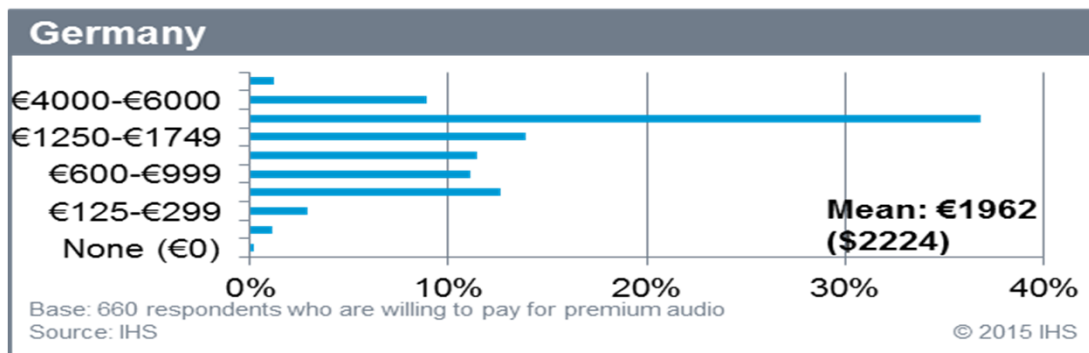
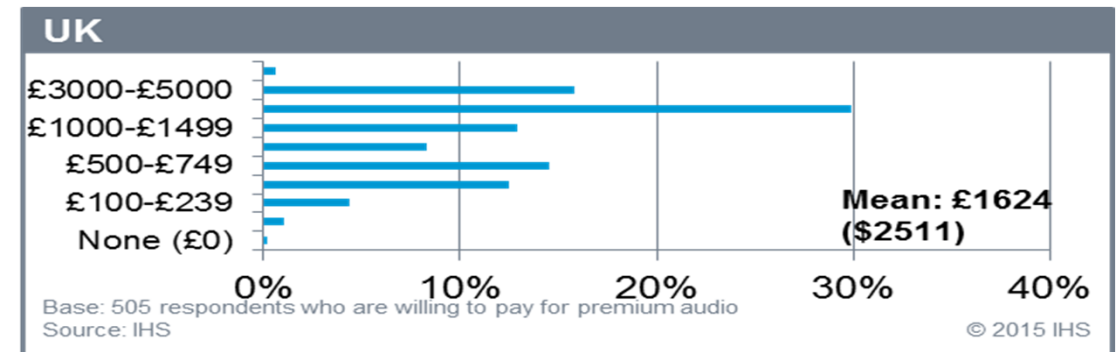
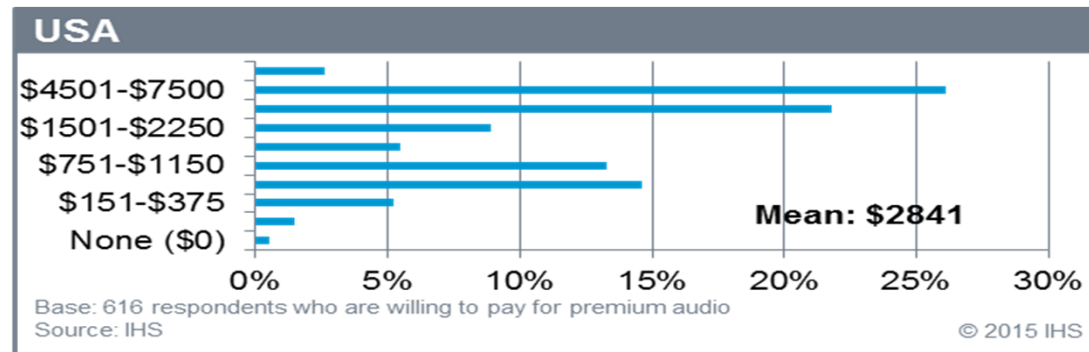
Branded Audio – Consumer Survey

Consumers – willing to pay for a premium car audio



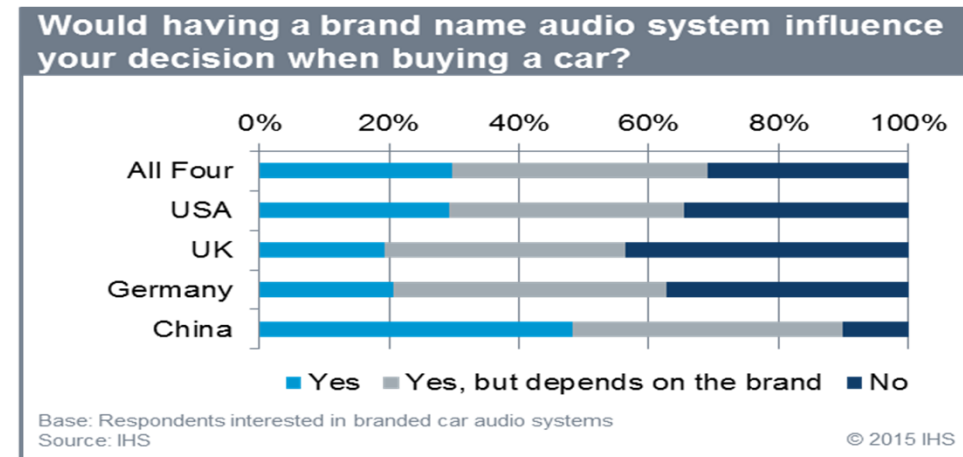
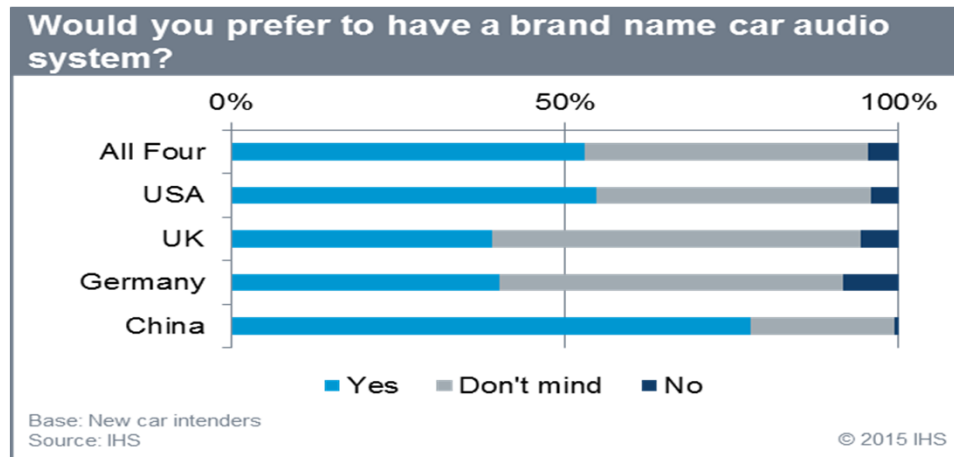
- Consumers are willing to pay for a premium car audio system.
- A decent proportion of respondents who are not willing to pay for premium car audio might in fact want such a feature, but they want it to “come with the car.”

Consumers – how much would you be willing to pay for premium car audio when buying a new car?



- Consumers find the premium car audio system highly desirable and are willing to pay a price for it.
- Mass market auto brands should think of offering premium audio as an optional feature for market differentiation as well as a means of driving margin increase. One possible strategy for these OEMs is to offer tiers of premium audio solutions to consumers.

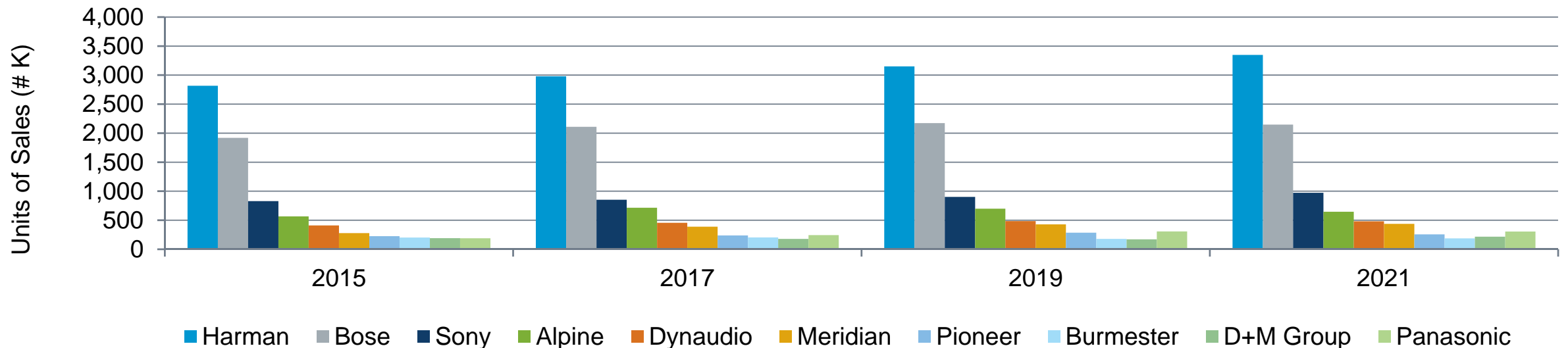
Consumers – brand name car audio systems do matter



- **Consumers prefer a brand name car audio system. 95% of respondents prefer or don't mind to have a brand name system.**
- **For respondents who are already interested in having branded car audio systems, 69% of them agreed that a brand name car audio system would influence their car purchase decision.**
- **Among the four countries, China has significantly more respondents that care about branded audio systems, while the UK has significantly more respondents who do not care about brand name systems.**

Branded audio supplier market share

Top 10 audio supplier in sales – all four regions

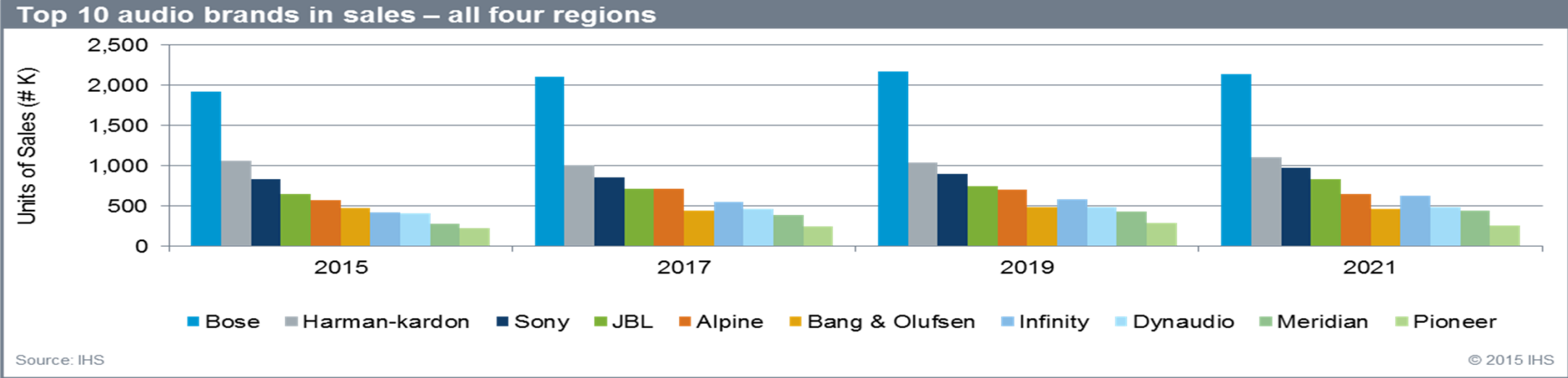


Source: IHS

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- Bose leads in a single-brand market share (24%) in 2015, as its Panaray system will not be available until 2016.
- Harman leads in collective branded market share (35%).
- Sony and Alpine take 3rd and 4th place, respectively.

Branded audio – Top 10 audio brands market share



- **The top audio brands across four forecast regions are well-known brands with multiple vehicle partnerships, such as Bose and Harman-kardon.**
- **Harman has four brands (Harman-kardon, JBL, Bang & Olufsen, and Infinity) in the top 10 list. But as individual brands, they are behind Bose.**
- **The next players in the rankings are found on brands with large sales, with Sony systems found on Ford vehicles and Alpine systems found on Chrysler vehicles. The rest are smaller brands looking to increase market share, or exclusive/premium brands found on luxury OEMs.**

Other Big Things

- Artificial Intelligence, Deep Learning
- Over the Air (OTA) Updating, making it a live thing
- Data Plan, 5G
- Cyber Security
- Wireless Charging
- Augmented Reality
- User Based Insurance (UBI)

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