TABLE OF CONTENTS

RELATED SBD REPORTS

526 – Connected Services Guide

Although the opportunities to benefit from connectivity are rising, so are the risks associated with implementing the wrong strategy or falling behind competitors.

It's therefore important to ensure that you always have the latest, most comprehensive, and most accurate information at hand. These reports are the reference guide to OEM connected car services offerings.

CON

Connected Car

#536

Connected Car Forecast

Since the advent of the first in-vehicle telematics systems, the connected car market has seen exponential year-on-year growth. This growth has been fueled by the increasing accessibility of these systems alongside the growing number of new solutions offered by start-ups and suppliers offering new solutions - some of which have partnered with or received investments from legacy OEMs. At the same time, newer automakers are developing vehicles built around connectivity systems and features - marketing them as USPs.

As legacy OEMs continue to explore new connectivity opportunities while new players emerge and innovate, the connected car market will only grow in complexity. Today, it relies on the correlation between technology readiness, legal activity, OEM investment policies, and vehicle lifecycle management as well as the expectations and acceptance of the consumer. For premium and mass-market OEMs wishing to grow their footprint in this evolving market, maintaining this cohesion is crucial.

In the Connected Car Forecast report, a ten-year outlook is provided on the penetration of vehicle connectivity and key connected features as well as the fitment rate of connected systems. Covering more than 90% of the global connectivity market, it compares how these factors are expected to vary between different regions and different types of connectivity and services.

COVERAGE	FREQUENCY	PUBLICATION FORMAT	PAGES
GLOBAL, NA, CHINA, EUROPE	ANNUALLY, QUARTERLY, ONE-OFF	PDF, POWERPOINT, EXCEL, ONLINE	100*

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Key questions answered

- How will major OEM groups deploy connectivity in the next 10 years?
- How will connectivity trends vary per region?
- What is the expected evolution of specific connected services?
- What connectivity services are offered in each region?

This research supports

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50k+
Slides of insights, forecasts & data

4,000+
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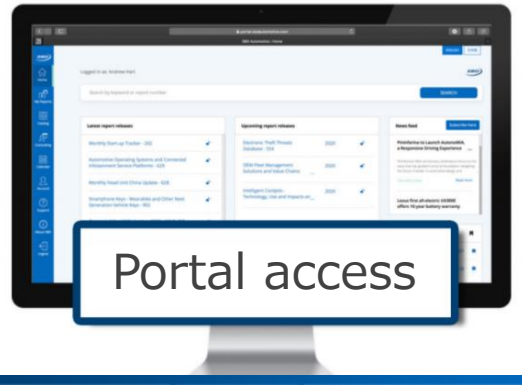

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Connected Car Forecast
Annual Report

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SBD

2023

GLOBAL CONNECTED CAR FORECAST

Global

Contents

Introduction

Chapter Introduction

SBD Automotive's Connected Car Forecast report provides an outlook of the penetration of vehicle connectivity type and key connected features by market up to 2033. This forecast delivers guidance for industry stakeholders to help understand the level of influence that barriers and enablers to connectivity are having.

The market for connected car features relies on the correlation between technology readiness, government mandates and regulations, OEMs' investment policies, vehicle lifecycle management and customers' expectations and acceptance.

SBD Automotive commits to deliver a realistic forecast up to 2033. The assumptions made in this forecast are based on influencers such as current and likely vehicle fitment strategies adopted by OEMs, technology maturity and consumer acceptance of a price point. The likeliness that consumers will expect or accept certain connected services as part of a basic or optional fitment is also considered.

Technology and regulatory factors can lead to a change in feature penetration. This can be positive (mandates) or negative (superseding technology).

Markets covered

- China
- USA
- Europe

European countries considered:

- Austria
- Belgium
- Bulgaria
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
- Sweden
- Switzerland
- United Kingdom

Section	Content
Executive Summary	Introduction to the forecast. Key highlights and conclusions from the report.
Connectivity Trends	Overview and analysis of connectivity types and the penetration rate trends across the forecasting window.
Feature Trends	Analysis of feature trends identified in the forecast, including expected trends, consumer expectations, and feature evolutions.
OEM Trends	Overview of each OEM's connected service offering over the forecasting window.
Regional Trends	Analysis of how key connectivity types and features will penetrate the car parcs in key regions.
Next Steps	Can SBD help you with any unanswered questions?

Example slides from the report

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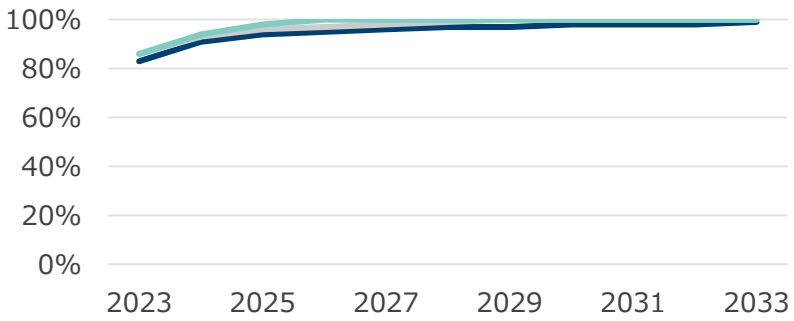
Connectivity Takeaways

Overview

Below are the four main types of connectivity analyzed in the forecast, and their penetration rate by region.

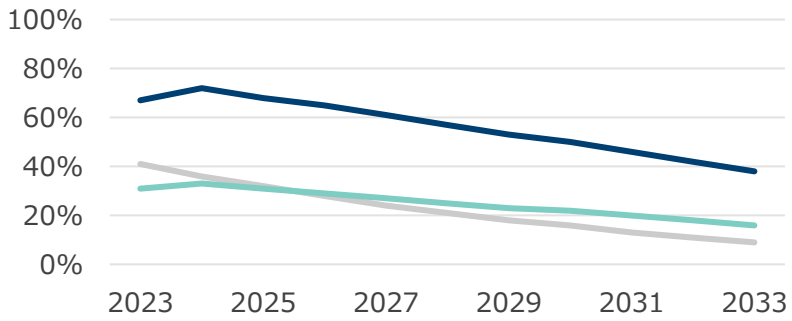
- From 42 million cars with modems in US, EU and China in 2023, are expected to double to over 64 million by 2033.



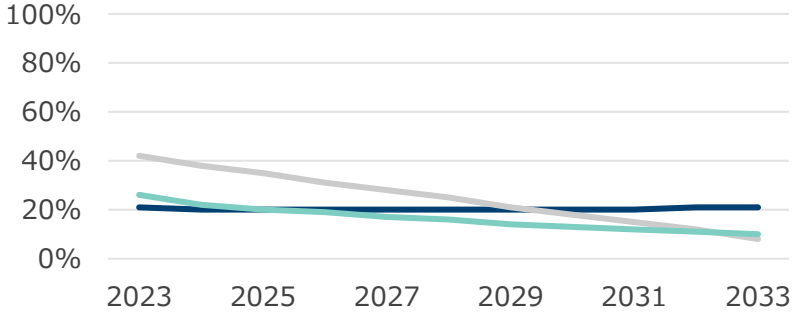
Cellular Connectivity

Local Connectivity

- As cellular connectivity moves toward 100% by 2028-29, local connectivity steadily decreases over the next 9 to 10 years.



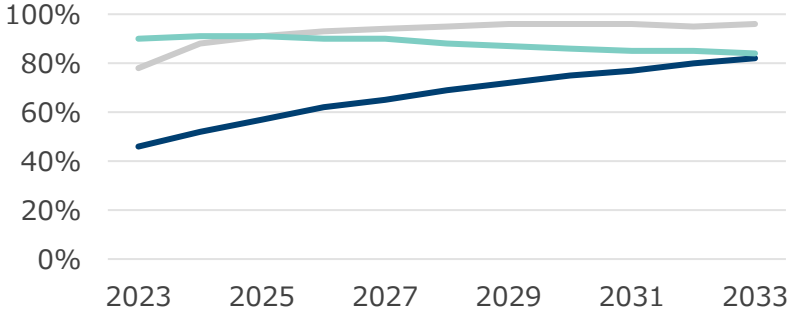
- The penetration of proprietary smartphone-based solution is declining, and it can be attributed to fall in cellular connectivity cost and screen duplication



Smartphone Connectivity

Smartphone Duplication

- 34m cars with screen duplication have shipped up to October 2023 in the US, EU and China. This figure will reach 50 million by 2033.



China EU US

How do we define connectivity?

Cellular Connectivity

System where all hardware, software and firmware is shipped in a car from factory. This means the cellular SIM is inaccessible by the user.

Local Connectivity

When the OEMs provide the software, hardware and firmware from the factory however, the connectivity is provided by the user.

Smartphone Connectivity

OEM provides a proprietary smartphone app which interfaces with the head unit to provide cloud content in-vehicle.

Screen Duplication

OEM uses in-vehicle software to duplicate the mobile device screen onto their head unit. This allows the users to control the device through the head unit.

Local connectivity

Volume brands and regional differences

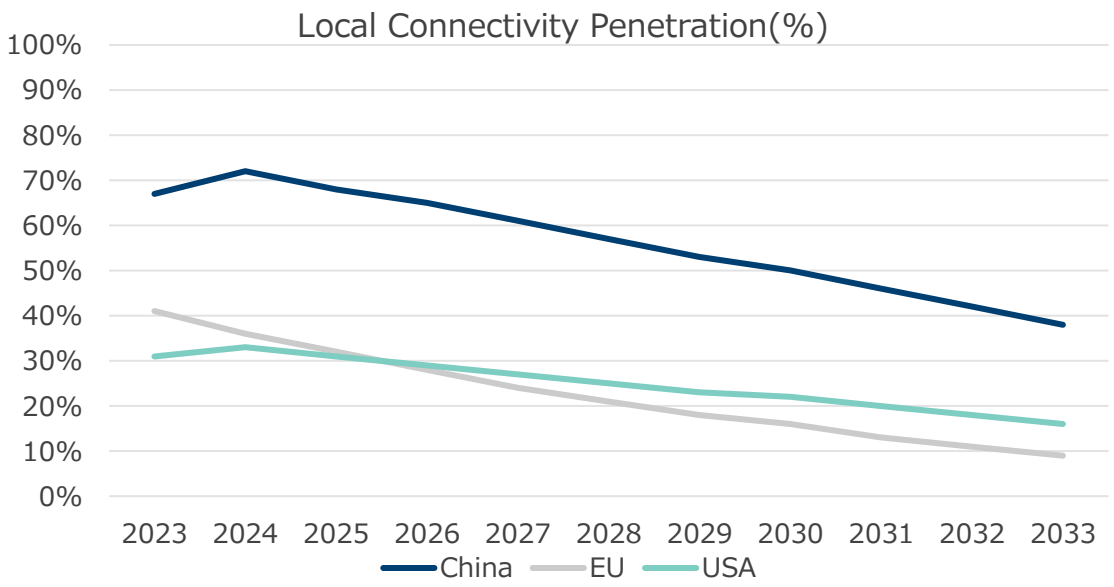
Some OEMs offer services supported by local connectivity, but overall penetration is decreasing. Regional differences play a significant role in overall penetration rate. SBD expects the penetration of local connectivity to decrease as cellular connectivity increases.

Local connectivity is a low-cost option for volume brands looking to offer high bandwidth, services and OTA updates for maps and software. Real-time updates are still supported by it.

Consumers expect frictionless digital experiences, which local connectivity cannot always offer. Local connectivity cannot be relied upon for mission-critical services or safety-related software updates.

SBD Outlook

SBD expects the trend of decreasing penetration to continue over the forecast period. The percentage of local connectivity applications will decrease in favor of cellular equivalents.



Drivers

- The key driver for local connectivity is lower cost compared to an cellular equivalent, particularly for volume brands.
- The option is cost-effective for the user. It provides lower data download costs compared with cellular solutions.
- Local connectivity is suited to infrequent use cases such as over the air updates for maps and software. Local connectivity is maintained in China by some OEMs.

Barriers

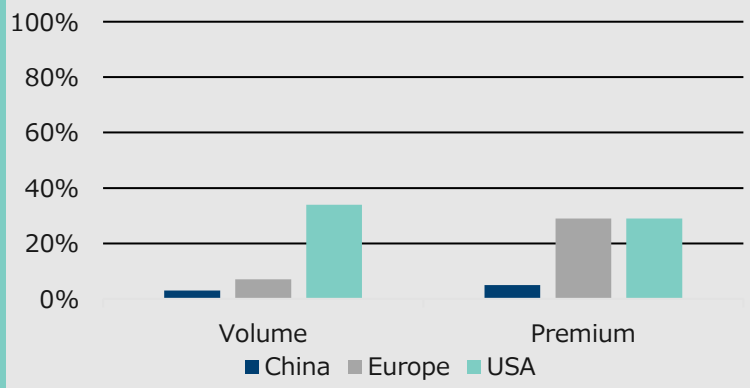
- Cannot be relied upon as a means of connectivity due to consumer setup challenges.
- Not suitable for mission-critical or safety related software updates.
- Not a reliable way to harvest status or sensor data from the vehicle.
- Falling data costs makes the cost effectiveness argument weaker when compared with the lack of connectivity certainty.

Safety & Security in 2023

Stolen Vehicle Control

Industry Signals

- Stolen vehicle control has the highest penetration in the USA, at 32%. China and Europe are at 15% and 3%.
- The major difference in feature penetration is between premium and volume segments. The biggest gap is in Europe where penetration is 7% for volume brands and 29% for premium. The US also has an unusual situation with lower penetration of premium vehicles compared to volume.



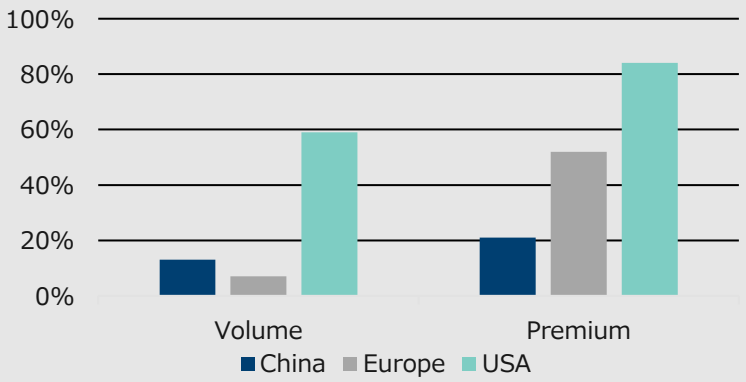
SBD Outlook

- While still a niche feature, stolen vehicle control will grow consistently, helped by overall infrastructure development. China due to significantly lower car theft events is expected to maintain a lower adoption rate.
- The difference in penetration between premium and volume segments is likely to remain consistent. The different approach's taken by many OEMs in Europe, and the additional costs support this trend.

Stolen Vehicle Tracking

Industry Signals

- The penetration of stolen vehicle tracking varies significantly depending on the region, ranging from 15% in China, to 52% and 71% for Europe and the USA.
- The difference between segments is important. Europe has the largest gap in feature penetration between premium and volume vehicles at 52% and 7% respectively. There is a similar difference in China the overall adoption level is lower.



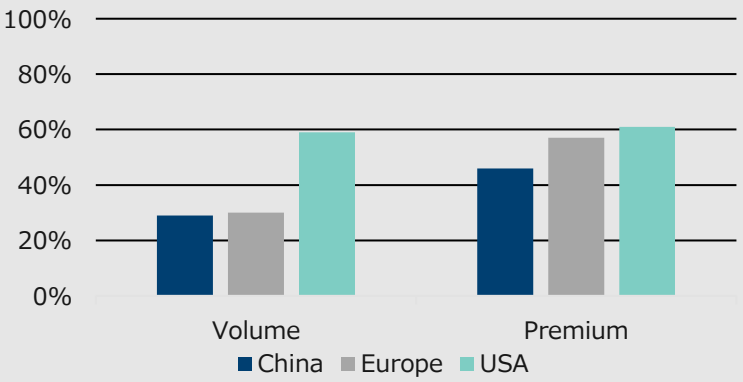
SBD Outlook

- Adoption is expected to remain low in China where car theft is rare compared to other countries due to CCTV presence and general control.
- The clear difference in penetration rate between volume and premium segments is expected to remain for longer, particularly in Europe where the gap is clearer.

Security Alert and Parental Controls

Industry Signals

- Security alert and Parental Controls, like the other security features, have a higher penetration in the USA (60%) than in Europe (40%) or China (34%).
- The largest gap between premium and volume segments with this feature penetration is in Europe (57% and 30%). In the USA, there is almost no difference with penetration at 59% in volume vehicles and 61% in premium vehicles.



SBD Outlook

- Most OEMs featuring the service will reach 100% adoption rate in the near term.
- A part of the volume brands in China and Europe will not adopt the feature over the next 10 years leaving it as a more exclusive feature for premium vehicles.

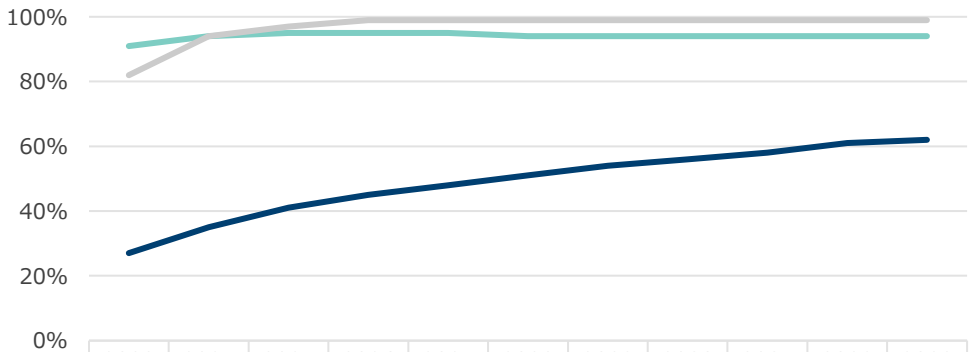
Navigation – Last Mile Guidance

Last Mile Guidance

- The feature is expected to gradually develop into a hygiene feature due to common use on digital devices and screen duplication options.
- Last mile navigation has a high penetration rate already in the US and Europe mostly due to screen duplication options, while the overall penetration is significantly lower in China where the preferred mode is cellular connectivity, as screen duplication solutions use AutoNavi, Baidu Map, Tencent Map and Sougou Map but various services provided via CarPlay and Android Auto are not available.

SBD Outlook

- Last mile guidance preferred connectivity is screen duplication, but embedded services complementing connected sharing services are expected to increase.
- OEMs developing an ecosystem will look to feature first and last mile guidance via proprietary apps to enrich their offering and FaaS potential with the addition of augmented reality, multi-modal journey planning solutions.



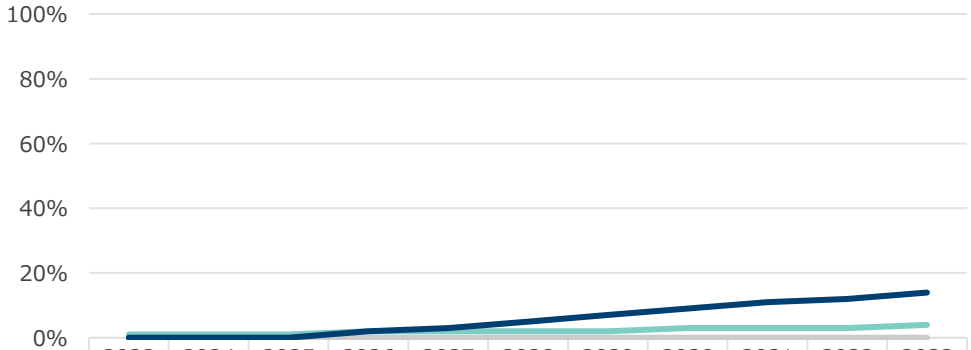
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
USA	91%	94%	95%	95%	95%	94%	94%	94%	94%	94%	94%
EU	82%	94%	97%	99%	99%	99%	99%	99%	99%	99%	99%
China	27%	35%	41%	45%	48%	51%	54%	56%	58%	61%	62%

Toll-Payment

- Toll payment has currently a very low penetration rate in all three regions. It is not a service that is expected by customers to be featured as standard as 3rd party solutions are already extremely common.
- Some OEMs are launching the feature in the US, and in China the high number of toll booths is likely to encourage the feature's diffusion. On the other hand, what might hinder its diffusion in Europe is the market fragmentation.

SBD Outlook

- Initial signals indicate that over the forecast period some degree of diffusion could appear in Europe and the US.
- Toll Payment is only supported through cellular connectivity and SBD expects it to remain so.



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
USA	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	4%
EU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
China	0%	0%	0%	2%	3%	5%	7%	9%	11%	12%	14%

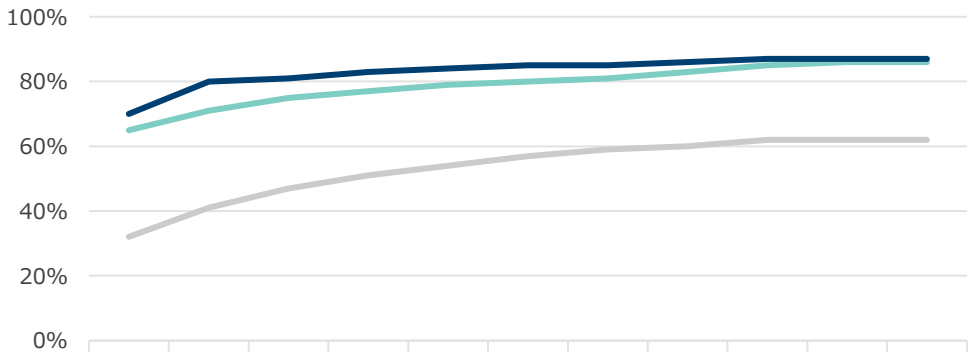
Convenience – Wi-Fi Hotspot and Vehicle Locator

Wi-Fi Hotspot

- The Wi-Fi Hotspot is not considered an essential feature as the convenience of smartphones with cheap data plans are usually favored. The feature has already a good penetration in the US and China, beyond 50% and lower in Europe.
- SBD does not expect 5G introduction to significantly impact the user experience but potentially the OEMs' marketing strategy which one of the reasons the feature penetration will likely continue growing.

SBD Outlook

- The feature is supported through cellular connectivity, and it is expected to remain so.



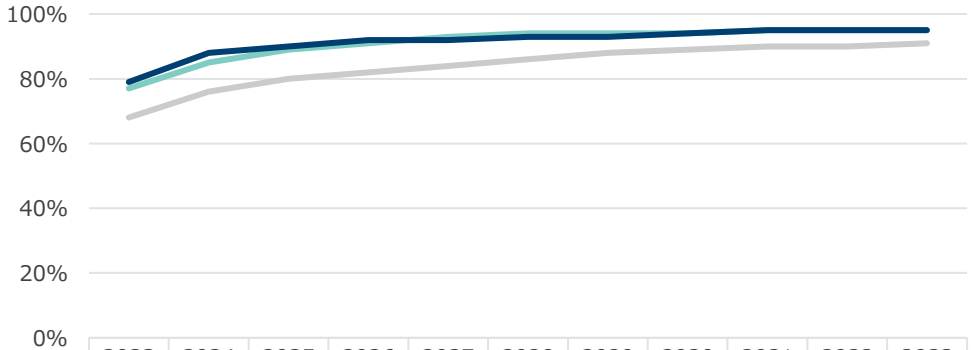
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
USA	65%	71%	75%	77%	79%	80%	81%	83%	85%	86%	86%
EU	32%	41%	47%	51%	54%	57%	59%	60%	62%	62%	62%
China	70%	80%	81%	83%	84%	85%	85%	86%	87%	87%	87%

Vehicle Locator

- A hygiene feature expected by users to be available and made initially popular by Google maps with the "my parking" function to save the car location.

SBD Outlook

- Addition to this function that are available and likely to become more popular in coming years are the ability to share location.
- The feature is supported almost exclusively by cellular connectivity and is expected to remain so.



	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
USA	77%	85%	89%	91%	93%	94%	94%	94%	95%	95%	95%
EU	68%	76%	80%	82%	84%	86%	88%	89%	90%	90%	91%
China	79%	88%	90%	92%	92%	93%	93%	94%	95%	95%	95%

What the Excel Version Contains

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Excel Database Includes

536 - Global Connected Car Forecast

C A S E S

536-23 Data page

Deep Dive into the Car Parc (# of units)

Region	Type	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
China	Cellular Car Parc	86,610,759	103,440,885	124,389,215	147,041,157	172,188,309	195,868,743	220,340,106	245,256,705	270,374,650	295,740,655	321,285,380
China	eCall Car Parc	60,481,988	72,030,157	87,894,000	105,683,720	125,832,798	145,472,298	166,172,488	187,637,719	209,673,961	232,297,584	255,254,050
China	bCall Car Parc	59,034,385	70,241,803	84,564,291	100,581,052	118,878,584	136,691,438	155,562,615	175,236,044	195,490,836	216,333,352	237,485,530
China	OTA Parc	65,760,003	81,704,611	101,093,227	122,551,652	146,457,139	169,398,451	193,299,070	217,828,207	242,629,616	267,688,101	292,935,586
China	Remote Dignostic Parc	57,850,802	72,147,113	89,332,693	107,947,867	128,729,576	148,620,969	169,299,986	190,425,945	211,743,366	233,321,746	255,119,195
Europe	Cellular Car Parc	61,166,999	71,211,336	84,830,512	99,164,087	114,673,273	128,675,078	142,634,587	156,518,073	170,317,306	184,009,773	197,702,241
Europe	eCall Car Parc	55,724,286	65,929,156	79,507,112	93,787,688	109,048,007	122,935,643	136,778,018	150,536,167	164,208,035	177,762,970	191,317,905
Europe	bCall Car Parc	42,345,377	50,299,008	61,383,298	73,086,479	85,633,238	98,466,223	111,214,034	123,865,109	136,433,857	148,913,211	161,392,565
Europe	OTA Parc	30,225,512	38,277,149	48,559,641	59,427,005	71,165,495	82,196,389	93,285,172	104,533,721	115,695,968	126,803,659	137,911,349
Europe	Remote Dignostic Parc	27,295,247	35,418,021	45,866,311	57,069,950	69,199,220	80,654,551	92,235,072	103,922,123	115,749,385	127,671,008	139,592,631
USA	Cellular Car Parc	94,050,947	104,726,264	120,113,406	136,395,568	153,752,835	168,967,420	184,096,483	199,223,369	214,320,714	229,335,183	244,240,441
USA	eCall Car Parc	75,456,434	90,150,761	108,796,448	128,170,253	148,720,314	167,285,237	185,714,897	204,095,770	222,417,056	240,545,992	258,674,928
USA	bCall Car Parc	61,254,626	74,220,707	90,622,075	107,823,383	126,170,546	142,998,394	159,810,473	176,702,726	193,672,984	210,610,724	227,548,464
USA	OTA Parc	47,927,394	61,958,834	78,567,321	95,975,467	115,131,844	132,918,161	150,680,881	168,501,854	186,366,118	204,097,480	221,828,843
USA	Remote Dignostic Parc	57,087,390	70,565,247	87,452,972	105,176,820	124,131,178	141,921,081	159,639,645	178,011,351	196,324,772	214,446,084	232,567,395

SALES DATA - Annual sales of new cars fitted with connectivity technologies

Technology	Region	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Cellular	China	83%	91%	94%	95%	96%	97%	97%	98%	98%	98%	99%
Local	China	67%	72%	68%	64%	60%	57%	53%	49%	45%	41%	37%
Smartphone	China	21%	20%	20%	20%	20%	20%	20%	20%	20%	21%	21%
Smartphone Duplication	China	46%	51%	56%	61%	64%	67%	70%	73%	76%	78%	81%
Cellular	USA	86%	94%	98%	100%	100%	100%	100%	100%	100%	100%	100%
Local	USA	31%	33%	31%	29%	27%	25%	23%	22%	20%	18%	16%
Smartphone	USA	26%	22%	20%	19%	17%	16%	14%	13%	12%	11%	10%
Smartphone Duplication	USA	90%	91%	91%	90%	90%	88%	87%	86%	85%	85%	84%
Cellular	Europe	86%	93%	96%	97%	98%	99%	100%	100%	100%	100%	100%
Local	Europe	41%	36%	32%	28%	24%	21%	18%	16%	13%	11%	9%
Smartphone	Europe	42%	38%	35%	31%	28%	25%	21%	18%	15%	12%	8%
Smartphone Duplication	Europe	78%	88%	91%	93%	94%	95%	96%	96%	96%	95%	96%

PENETRATION DATA - annual sales of new car by connectivity type

Technology	Region	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033

Home page | Data | Charts | Glossary | Featured inputs

Excel Data Points:	Global OEMs Covered:	Excel Tabs:
75,000+	**80+**	**4**

Excel Database Includes

536 - Global Connected Car Forec

C A S E S

OEM Group	Trends Category									News	Links
	Connectivity	Safety	Security	Navigation	Infotainment	Maintenance	OTA	Convenience	Remote		
Apple					✓					CP new interface adapting to various types of screen and featuring split-screen functions	https://www.youtube.com/watch?v=5g42dQ08W9U
Apple				✓						Improved EV chargers search and info on the map	https://www.youtube.com/watch?v=5g42dQ08W9U
Apple								✓		Improved VPA functionalities for messaging, directions and other controls	https://www.youtube.com/watch?v=5g42dQ08W9U
Google					✓			✓		More convenience with quick notifications, reminders, and streaming (music, podcasts, and more) ready for use. B	https://www.youtube.com/watch?v=ii7PGDG0G5g
Google								✓		Digital key functions like lock and unlock, start, AC control, and sharing securely with other users	https://www.youtube.com/watch?v=ii7PGDG0G5g
Google				✓						Embedded Google OS with Google services (Maps, Play, and Assistant) is becoming more popular. Maps is being int	https://www.youtube.com/watch?v=ii7PGDG0G5g
BMW								✓		iDrive – ConnectedDrive. Focus on convenience, VPA, and shortcuts through learning about preferred spots and ad	https://www.jdpower.com/cars/shopping-guides/what-is-b
BMW								✓		Microtransaction and FaaS	https://www.jdpower.com/cars/shopping-guides/what-is-b
BMW	✓									BMW strategic partnerships with AWS cloud for the Data management from connected cars.	https://www.press.bmwgroup.com/global/article/detail/T0
BMW				✓						Route planner, automatic scheduling for charging stops, display available spaces at charging station, filter for fast c	https://www.bmw.co.uk/en/topics/owners/bmw-connected
BMW					✓					Mini OS 9 video streaming, mini connected store	https://www.press.bmwgroup.com/global/article/detail/T0
BMW					✓			✓		Integrated parking payment in infotainment	https://www.greencarcongress.com/2022/12/20221208-bm
BMW								✓		Focus on touch and voice controls predicted for iDrive 9	https://www.jdpower.com/cars/shopping-guides/what-is-b
BMW	✓									iDrive 9 moving to Android Architecture from Linux-based one used up to the 8.5	https://www.jdpower.com/cars/shopping-guides/what-is-b
Mercedes-Benz	✓									Main focus: infotainment, automated driving, body and comfort, and driving and charging (with new update in 20	https://uk.motor1.com/features/654967/mercedes-mbux-
Mercedes-Benz	✓									Standard 5G connectivity	https://uk.motor1.com/features/654967/mercedes-mbux-
Mercedes-Benz				✓						Google Maps in the US, and Amap in China in 2025	https://uk.motor1.com/features/654967/mercedes-mbux-
Mercedes-Benz	✓									Vertical integration but with strategic Partnerships: i.e. Google Place details for POI and maps, Apple music integrat	https://uk.motor1.com/features/654967/mercedes-mbux-
Mercedes-Benz		✓	✓							Range of safety and security systems available via mercedes me	https://www.mercedesbenzraleigh.com/mercedes-me-con
Mercedes-Benz					✓					MB.OS includes from 2024 support for 3rd party apps. Possible by MBUX running on Linux with Android containers	https://uk.motor1.com/features/654967/mercedes-mbux-
Mercedes-Benz								✓		VPA with a wider range of tasks. Memorizing preferences that can be eventually saved.	https://uk.motor1.com/features/654967/mercedes-mbux-
Mercedes-Benz					✓					Digital Extras: subscription services for wide range of additional features, either in-car or remotely operated via mo	https://uk.motor1.com/features/654967/mercedes-mbux-
VW/Cariad					✓					In-car shop for data plans, We Connect plus, or in-car services and features.	https://cariad.technology/de/en/solutions/unified-software
VW/Cariad					✓					Software 3.2 update, improves on personalisation, and navigation (route import and online destination)	https://cariad.technology/de/en/solutions/unified-software
VW/Cariad						✓				Cariad acquires Mobility Services Platform division of Hexad to boost Cloud Services development. Predictive maints	https://cariad.technology/de/en/news/stories/cariad-and-h
VW/Cariad								✓		Launch of app-store for all brands, featuring 3rd party apps and services	https://cariad.technology/de/en/news/stories/launch-appli
VW/Cariad					✓					Cariad partners with Thundersoft for UX in China. Market specific dev of connectivity and infotainment	https://cariad.technology/de/en/news/stories/cariad-and-t
VW/Cariad					✓					Partners with Cisco to bring Webex in in-car store, for video meetings and conference call	https://cariad.technology/de/en/news/stories/cariad-bring
VW/Cariad					✓					Focus on in-car gaming and future development (and potential inclusion of AR, VR, and other visualisation via HUD	https://cariad.technology/de/en/news/stories/future-in-car
VW/Cariad								✓		VW developing the in-car payment for EV charging	https://www.volkswagen.co.uk/en/electric-and-hybrid/char
VW/Cariad					✓					Adaptation to different markets (like MB with the map services) even for the digital services and electrification in ge	https://cariad.technology/de/en/solutions/unified-software
VW/Cariad					✓					Audi first VW brand with Youtube access from proprietary app. Cariad partners with Youtube	https://cariad.technology/de/en/news/stories/cariad-bring
Stellantis	✓									Established data management subsidiary Mobilisight for Stellantis cars data gathering, and licensing	https://www.stellantis.com/q/mobilisights
Stellantis	✓									Stellantis wants to create a more flexible and customisable software experience	https://www.stellantis.com/en/technology/intelligent-vehi
Stellantis					✓					Chrysler Airflow entering production by 2025 with several new features such as video streaming	https://insideevs.com/news/679676/first-chrysler-ev-drops

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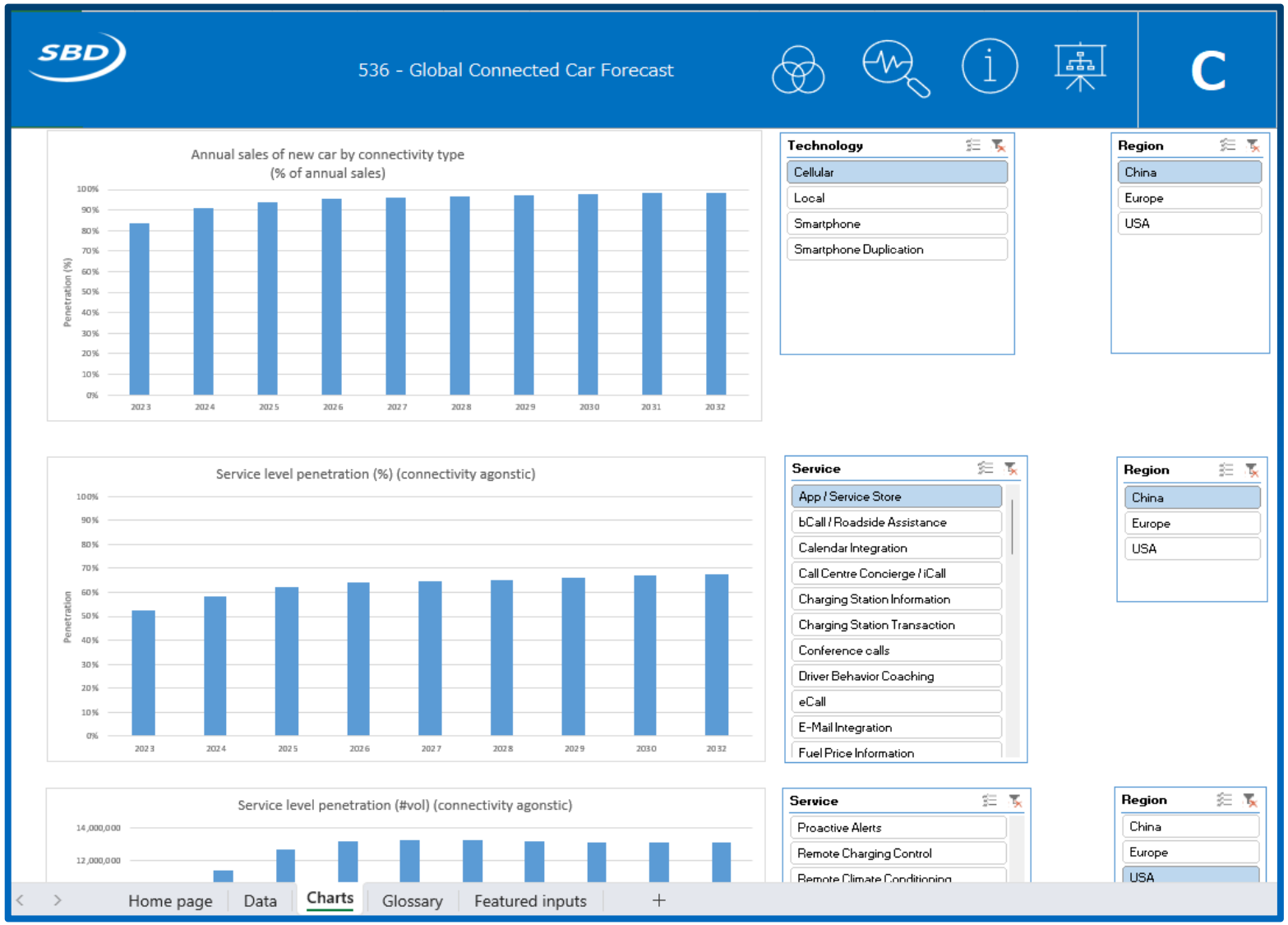
Excel Data Points:
75,000+

Global OEMs Covered:
80+

Excel Tabs:
4

Excel Database Includes



Excel Data Points:
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Do you have any questions?

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