



CONNECTED CAR

Ipsos Business Consulting

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There will be **69 million** connected cars on the road by 2020, equivalent to **75%** of all cars shipped globally



KEY POINTS



The technology is forging partnerships and collaborative open-source associations between **carmakers, original equipment manufacturers, tech firms and other businesses** outside the realm of the traditional automotive industry



New, lucrative opportunities will arise as this ecosystem expands to meet the needs of the contemporary connected consumer. **Connected cars will evolve beyond the pure motoring experience** to deliver new levels of convenience and in-vehicle entertainment



A NEW ECOSYSTEM

Connected cars have created a new ecosystem within the automotive industry, one which is forging a host of innovative partnerships with technology companies, original equipment manufacturers (OEMs) and other businesses which operate outside the scope of traditional motoring.

These collaborations are now becoming increasingly focused on creating new products and services to meet the diverse lifestyle needs of contemporary consumers. While these newer technologies and services are expanding their horizons well beyond the confines of traditional motoring, the original connected car systems were focused on more classical functions, such as telematics — a combination of wireless and “black box” technologies that transmit data back to a carmaker.

OnStar, a subsidiary of GM formed in 1995, was a pioneer in this area, developing a subscription-based service that combined GPS locational systems to support navigation, safety and anti-theft (eg remote ignition lock and vehicle tracking) services. More recent versions include advanced diagnostics, wifi and a host of in-car connected services.

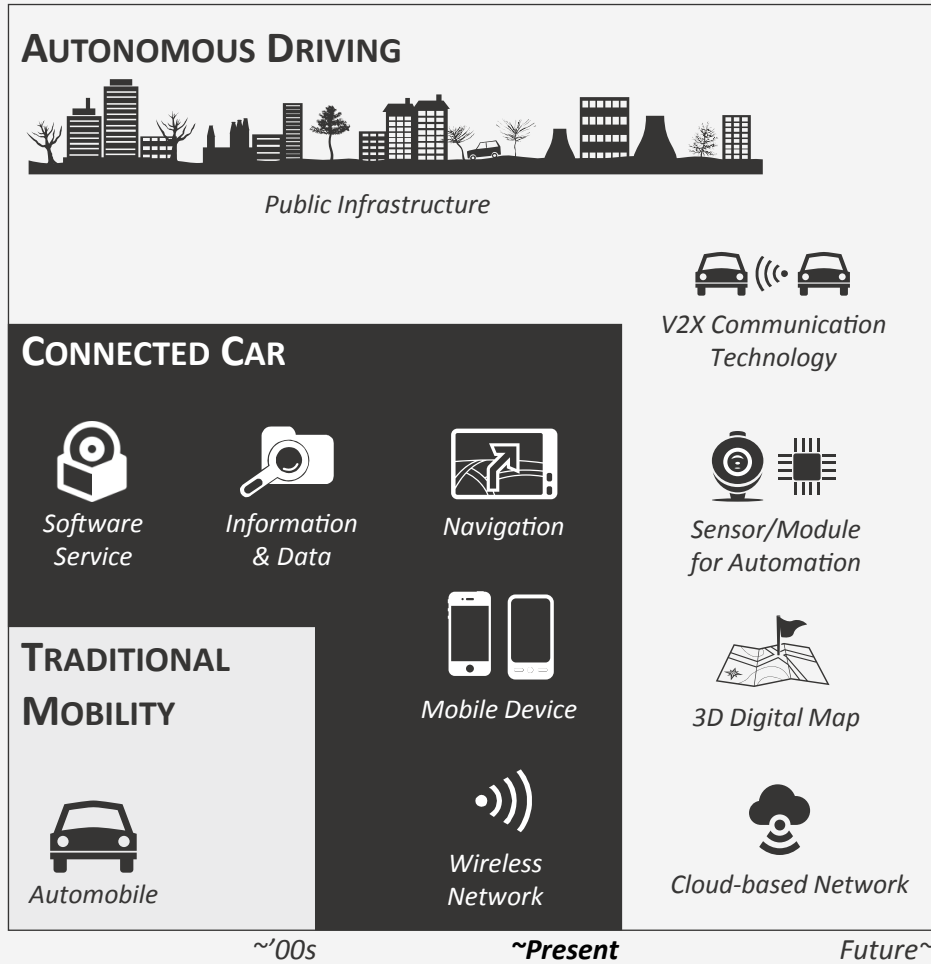
The first contemporary connected cars started entering the market at the beginning of the current decade. By 2015 there were about 15million such vehicles on the road with the number forecast to rise to 69million, or about three-quarters of cars shipped globally, by 2020, according to Business Insider Intelligence.

This means by then, the vast majority of cars on the road will enable drivers and passengers to shop online, stream music and videos, access detailed traffic information, make use of advanced assisted driving technologies, such as automated parking, and more.

As the numbers of connected cars on the road increases, so will the range of services available. It is entirely plausible in a short time that what we think of as the core functions of a connected car will have evolved beyond the current conception.



► Ipsos will write about autonomous driving, another major development for the sector with far reaching implications, in a future paper. As such the technology will not be discussed here.



CONNECTED CAR FUNCTIONS

Currently, connected car products and services can be grouped into five functional clusters, namely:



Interaction



Driving Management



Infotainment



Convergence



Safety & Security

NEW CONSUMERS, NEW HORIZONS

More consumers are interested in advanced driver support and safety functions, such as collision prevention and blindspot detection, than infotainment, according to research by JD Power. However, it is undeniable that the industry has barely started to leverage or explore the potential of the various telecommunications, operating systems, real-time analytics and content platforms that have been hardwired into the driving experience.

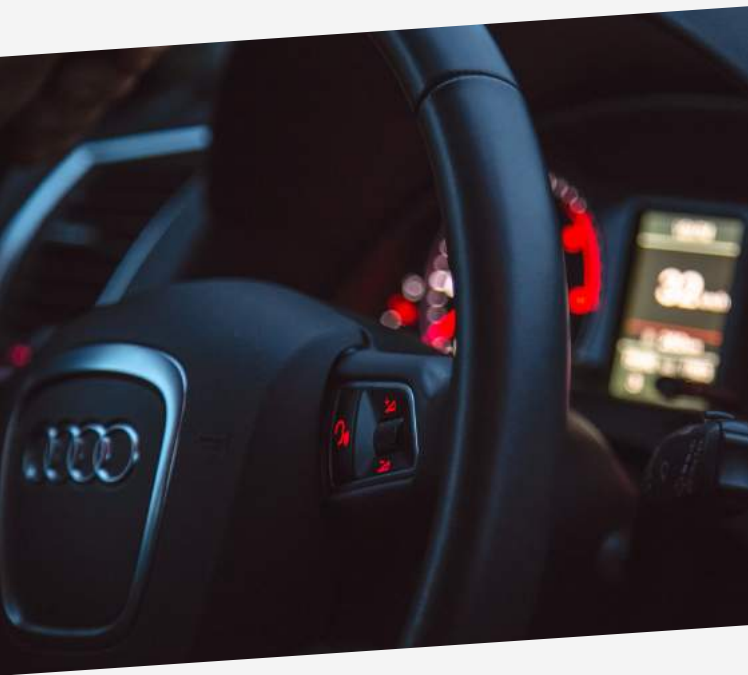
This new ecosystem is itself fast evolving to meet the changing and increasingly complex needs of the contemporary consumer. The way in which people use and rely on technology changes how they interact with the wider world, a dynamic which will become even more sophisticated as the Internet of Things becomes reality. Just as smart devices have made it possible for consumers to manage virtually any aspect of their life on the fly, carmakers, and their non-traditional partners, are now exploring how connected cars can facilitate and fulfil the same needs and demands. The successful connected car of the near future will be both a vehicle and an enabler of broader lifestyle activities.



	SERVICE CATEGORY	DESCRIPTION
INTERACTION	NEARING CAR	<ul style="list-style-type: none"> Check location of car Activate horn Activate headlights
	DRIVING PREPARATION	<ul style="list-style-type: none"> Remote air-conditioning Start engine Open and close roof
	LOCK & UNLOCK	<ul style="list-style-type: none"> Remotely open and close door
DRIVING MANAGEMENT	SETTING DESTINATION	<ul style="list-style-type: none"> Search destination Real-time traffic info & notification on speed limit Find optimal route
	FUELING	<ul style="list-style-type: none"> Check remaining fuel Search for nearby gas stations Search prices for each gas station
	PARKING	<ul style="list-style-type: none"> Search for nearby parking lots and space Book parking Parking rates
	INSURANCE	<ul style="list-style-type: none"> Connection to connected car service insurance and discounts on insurance rates

	SERVICE CATEGORY	DESCRIPTION
INFOTAINMENT	ENTERTAINMENT	<ul style="list-style-type: none"> Stream music Weather information SNS, Videos, Radio, etc.
	MOBILE DEVICE UTILITY	<ul style="list-style-type: none"> Smartphone mirroring Hands-free calls Concierge service
CONVENIENCE	SHOPPING	<ul style="list-style-type: none"> Online shopping delivery Take-out food & beverage
	PAYMENT	<ul style="list-style-type: none"> Car-related payment (parking, gas stations, etc.) Payment in drive-through, cafes, hotels, etc.
SAFETY & SECURITY	EMERGENCY	<ul style="list-style-type: none"> 24hrs call center Road-side assistance Detect collisions
	THEFT PROTECTION	<ul style="list-style-type: none"> Anti-theft Damage alarm Stolen vehicle assistance
	MAINTENANCE & DIAGNOSTIC	<ul style="list-style-type: none"> Predictive maintenance system Tele-diagnostic

Source: Each brand's official website, Ipsos BC analysis



	SERVICE CATEGORY	ADOPTION LEVEL	OEM BRANDS
INTERACTION	NEARING CAR	50%	Audi, BMW, Ford, GM, Hyundai, Mercedes-Benz, Nissan, VW
	DRIVING PREPARATION	50%	Audi, GM, Hyundai, Mercedes-Benz, Nissan, VW
	LOCK & UNLOCK	50%	Audi, BMW, GM, Hyundai, Mercedes-Benz, Nissan, VW
DRIVING MANAGEMENT	SETTING DESTINATION	100%	Audi, BMW, Ford, GM, Hyundai, Honda, KIA, Mercedes-Benz, Nissan, Peugeot, Toyota, VW
	FUELING	50%	Audi, BMW, Ford, Mercedes-Benz, Peugeot, Toyota, VW
	PARKING	25%	Audi, BMW, KIA, Mercedes-Benz, Peugeot
	INSURANCE	0%	Audi, GM

	SERVICE CATEGORY	ADOPTION LEVEL	OEM BRANDS
INFOTAINMENT	ENTERTAINMENT	100%	Audi, BMW, Ford, GM, Hyundai, Honda, KIA, Mercedes-Benz, Nissan, Peugeot, Toyota, VW
	MOBILE DEVICE UTILITY	50%	Audi, BMW, Ford, Honda, Hyundai, KIA, Peugeot, Toyota
CONVENIENCE	SHOPPING	0%	Audi
	PAYMENT	25%	Audi, GM, Hyundai, Mercedes-Benz
SAFETY & SECURITY	EMERGENCY	50%	Audi, BMW, Ford, GM, Hyundai, KIA, Mercedes-Benz, Nissan, Peugeot, Toyota, VW
	THEFT PROTECTION	50%	GM, Hyundai, KIA, Nissan, Mercedes-Benz, VW
	MAINTENANCE & DIAGNOSTIC	50%	Audi, BMW, Ford, GM, Hyundai, KIA, Mercedes-Benz, Nissan, Peugeot, VW

Audi Connect Easy Delivery is a prime example of how companies are collaborating to explore these new possibilities. The carmaker is partnering with DHL, an international courier service, and Amazon, to bring a new level of convenience to online shopping and delivery service. Audi owners can now make an in-vehicle purchase from Amazon and request the retailer to deliver the order directly to the boot of their car. The technology platform enables Amazon and DHL to locate the car in a car park, have the courier enter a security code for the luggage compartment, pop the boot and leave the parcel inside.

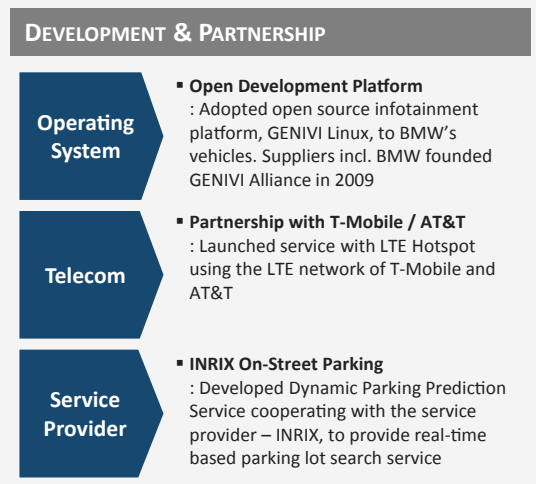
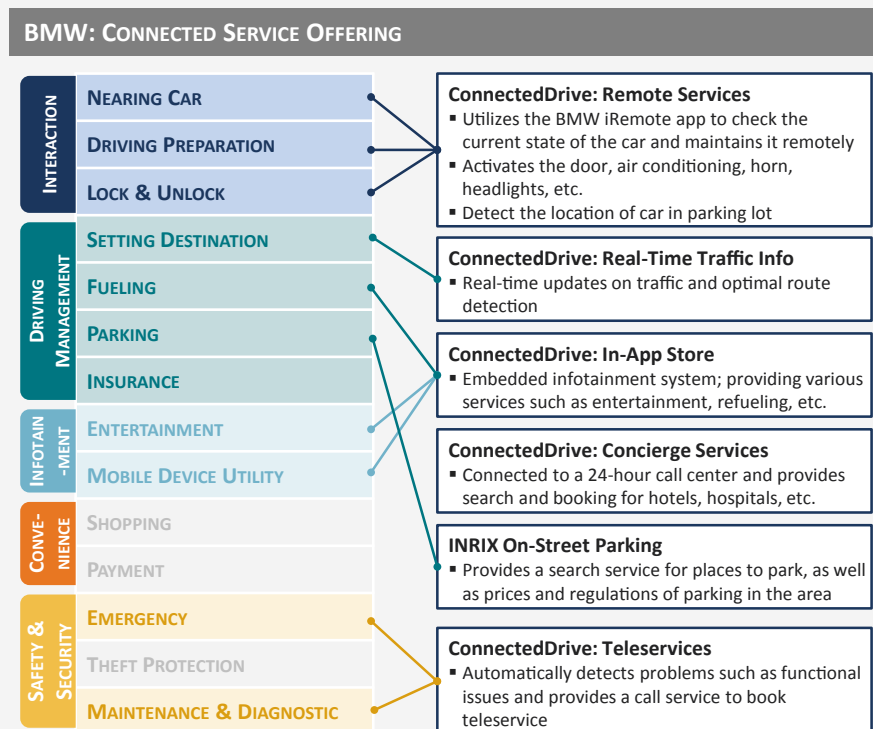
Just as Audi is demonstrating how seemingly unrelated businesses can be brought together to develop connected car services, BMW provides a quintessential example of how enlightened automakers are looking beyond the boundaries of their brand in order to expand the entire ecosystem itself. BMW understands that all players will reap greater benefits by working together collaboratively.

Source: Each brand's official website, Ipsos BC analysis

The luxury carmaker has supported this development by making BMW ConnectedDrive — its integrated combination of services including BMW Assist, BMW Online, BMW Teleservices and Advanced Driver Assistance — an open-source platform. This enables companies from app developers and OEMs to develop products and services to support the system’s expanding range of interaction, driving management, infotainment, and safety and security services.

To increase the customer-centricity of its brand, and the range of services that support needs of contemporary connected consumers, BMW has also partnered with telecommunications and technology companies, such as T-Mobile and AT&T, to provide in-car LTE hotspots. This vision resulted in 95% of BMW’s new cars sold in 2014 rolling off the production line equipped with internet connectivity. The number of countries where BMW ConnectedDrive is available rose from 36 in 2015 to 45 at the start of the following year. Adoption is only expected to increase, as is the development of new related technologies.

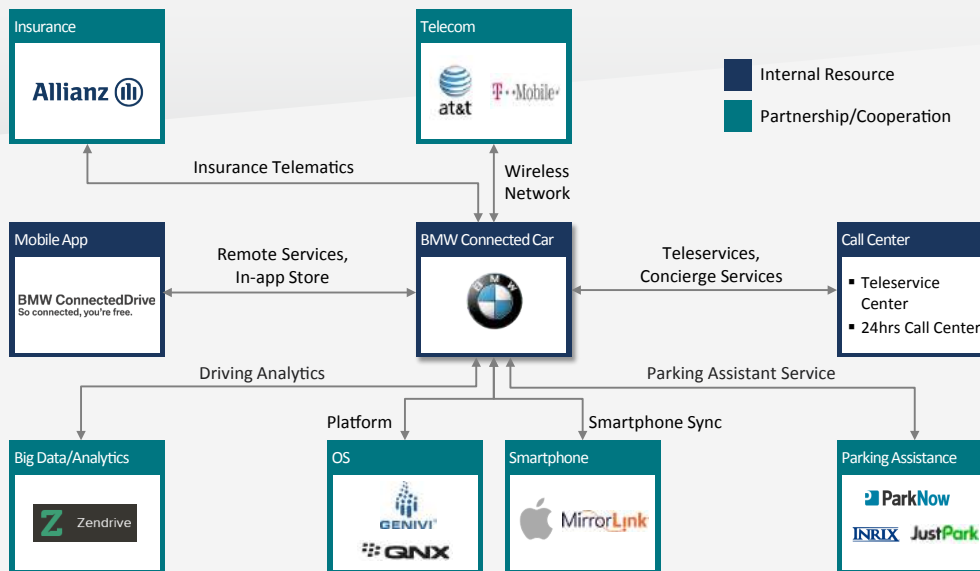
BMW is also pushing boundaries with its own proprietary developments, such as MINI Augmented Vision system, which it introduced at the 2015 Shanghai Autoshow. This system displays information on local parking lots, speed limits and other useful information on MINI Augmented Vision glasses, which are a similar technology to Google Glass.



SUMMARY

- BMW is considered to be a pioneer in developing in-vehicle information among OEMs and provide their via their own platform – ConnectedDrive.
- BMW is aiming to have its own ecosystem by having a diverse partnership with service/solution providers as well as developing exclusive connected service platform.

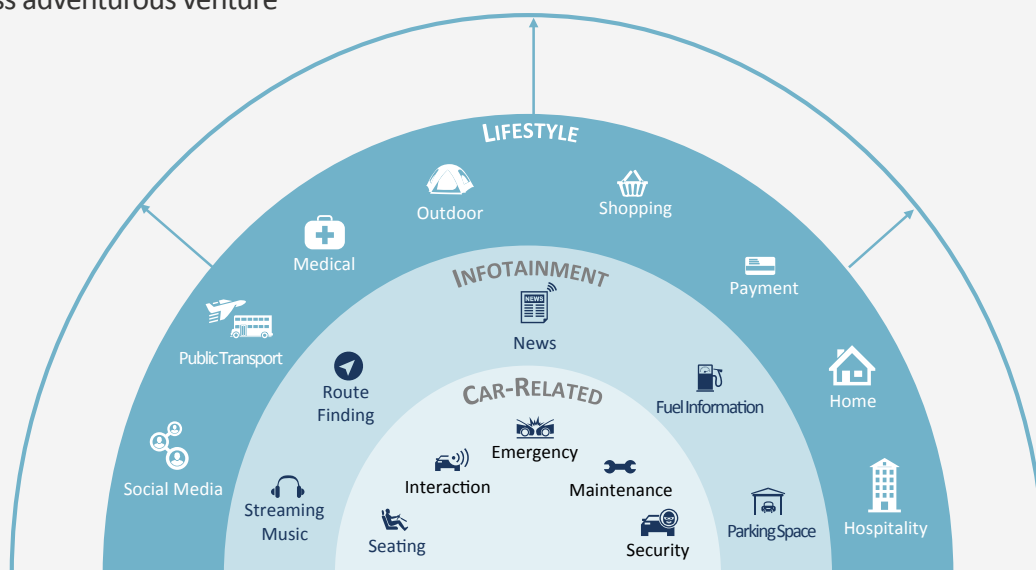
Source: BMW ConnectedDrive Website; GENIVI Alliance; Ipsos BC Analysis



Source: BMW ConnectedDrive Website; Ipsos BC Analysis

Companies outside of the auto sector, such as Google, are also driving innovation in the connected car market. In 2014, the search giant launched Open Automotive Alliance, a global alliance of technology and automotive companies — including Audi, GM, Google, Honda, Hyundai and Nvidia — who are focused on integrating the Android platform in cars. Apple launched CarPlay, which enables an in-car entertainment system or head display become a controller for an iPhone and a limited number of iOD apps; while a less adventurous venture than OAA, it is still popular.

While it is still early days for the connected car segment, the range of more advanced driving support and autonomous driving technologies is proliferating in both depth and scope. Companies within and without the traditional auto market are realising that while a car does not offer the communications convenience of a smartphone, consumers expect and demand similar levels of technologically-enabled convenience from everything they buy.



Adoption levels vary widely according to the function provided by the technology in connected cars. It comes as no surprise that the most common functions in use are those that directly focus on the driving or in-car experience, such as GPS, smartphone mirroring, maintenance diagnostics or emergency services. These more pragmatic and obvious services were developed first, however, mobile payment (especially for drive-through retailers), online shopping and other convenience services are underutilized and therefore present significant opportunities for development as a result.

Connected cars already deliver a range of safety, security, convenience, navigation, infotainment, and in-car payment services. As carmakers and other players start to leverage the potential of more lifestyle-focused products, they will create new revenue streams and opportunities that will help shape the future of the auto industry.

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