CAR CONNECTIVITY IN GERMAN NEW CAR MARKET

Q1 2014 - Q2 2016

Analysis completed: September 2016

JATO

OUR KNOWLEDGE IS YOUR POWER

DEFINITIONS

The figures in this paper are drawn from the various data solutions of JATO Dynamics Ltd. For the purposes of this paper, the below definitions are used:

BLUETOOTH
JATO's analysis tools record whether a vehicle is fitted with wireless technology for exchanging data over short distances, from both fixed and mobile devices. The connection can be between any Bluetooth enabled device such as a mobile phone, MP3 player or keyboard.

TELEMATICS
JATO's data registers whether a vehicle is fitted with a telematics system which allows the driver to be in contact with an operation centre that can provide details of nearby services, traffic information and directions. Some of these operation centres also have the ability to pin-point a vehicle in the event of an accident or breakdown.

These systems often combine GPS satellite tracking and wireless communication for automatic roadside assistance and remote diagnostics. The term telematics includes in-vehicle applications such as traffic information systems, collision avoidance features and mobile communications.

APPS CONTROL
JATO's data registers whether apps on a phone or other device can be operated via the vehicle's controls, this is referred to as 'apps control'.

BUILT-IN APPS
JATO's data registers whether the vehicle comes with apps that are built into its entertainment system, including both apps that need to be activated via a mobile phone and apps that require an internet connection via a tethered mobile phone.

INTERNET CONNECTION
JATO records whether a vehicle is fitted with a system that allows it to connect to the internet to enable the driver and passengers to browse the web via an in-built system. To be classed as having internet access, a vehicle must include the in-built ability to access the internet without an external device such as a mobile phone or tablet. For this category, JATO records the ability of the vehicle to connect to the internet – not whether the vehicle includes this service when it's sold.

WI-FI NETWORK
JATO registers whether a vehicle is fitted with a system that has the ability to connect a Wi-Fi enabled device such as a laptop, games console, mobile phone, MP3 player or PDA to the internet via the vehicle's built in wireless network.

MOBILE INTEGRATION
JATO records vehicle systems that display a smartphone's interface on the vehicle's infotainment screen.

JATO REGIONAL SEGMENTS

JATO regional segments allow the differences in the characteristics of the local markets to be analysed. Listed below are segment definitions for this report:

EU A - UTILITY/CITY CARS
Micro cars designed for city use, normally under 3.5m, e.g. Volkswagen Up, Opel Adam.

EU D2 – UPPER MEDIUM +
These vehicles are made by prestige manufacturers and include many features associated with the luxury market. They are aimed at the family and fleet market and are larger, more expensive and provide increased comfort through superior interiors. Engine capacity is over 3 litres for some models, e.g. Audi A4, Mercedes C-class

EU B - SMALL
Super mini vehicles designed for family use and budget motoring. Usually hatchback models, e.g. Volkswagen Polo, Opel Corsa.

EU E1 – LARGE & EXECUTIVE
These luxury vehicles provide enhanced comfort and are aimed at the senior management level in the fleet market, e.g. Mercedes E-Class, Audi A6, BMW 5-Series.

EU C1 – LOWER MEDIUM -
Lower medium class vehicles for family use and the fleet market. Engine capacity is usually below 2 litres, e.g. Volkswagen Golf, Opel Astra.

EU SMALLSUV
Small sport utility vehicles are now marketed for their lifestyle features as well as their superior driving experience. Generally these vehicles are under 4 metres in length and 2.5 metres in wheelbase, e.g. Opel Mokka, Mazda CX-3.

EU C2 – LOWER MEDIUM +
Medium class vehicles for family use and aimed at the fleet market. Usually a sedan or a prestige small hatchback, e.g. Skoda Octavia, Audi A3.

EU MEDIUM SUV
Sport utility vehicles, now marketed for lifestyle use as well as off-road driving. Generally, between 4 metres and 4.8 metres in length and 2.5 metres to 2.9 metres in wheelbase, e.g. Volkswagen Tiguan, Ford Kuga

EU D1 – UPPER MEDIUM -
Upper medium class family vehicles. This is the most common vehicle group in the fleet sector. These are larger vehicles that provide increased comfort and interior space. Engine capacity is up to 3 litres for some models, e.g. Volkswagen Passat, Skoda Superb.

EU LARGE SUV
Sport utility vehicles are similarly now marketed for lifestyle use as well as off-road use . Generally, these vehicles are over 4.8 metres in length, e.g. Volvo XC90, Volkswagen Touareg.

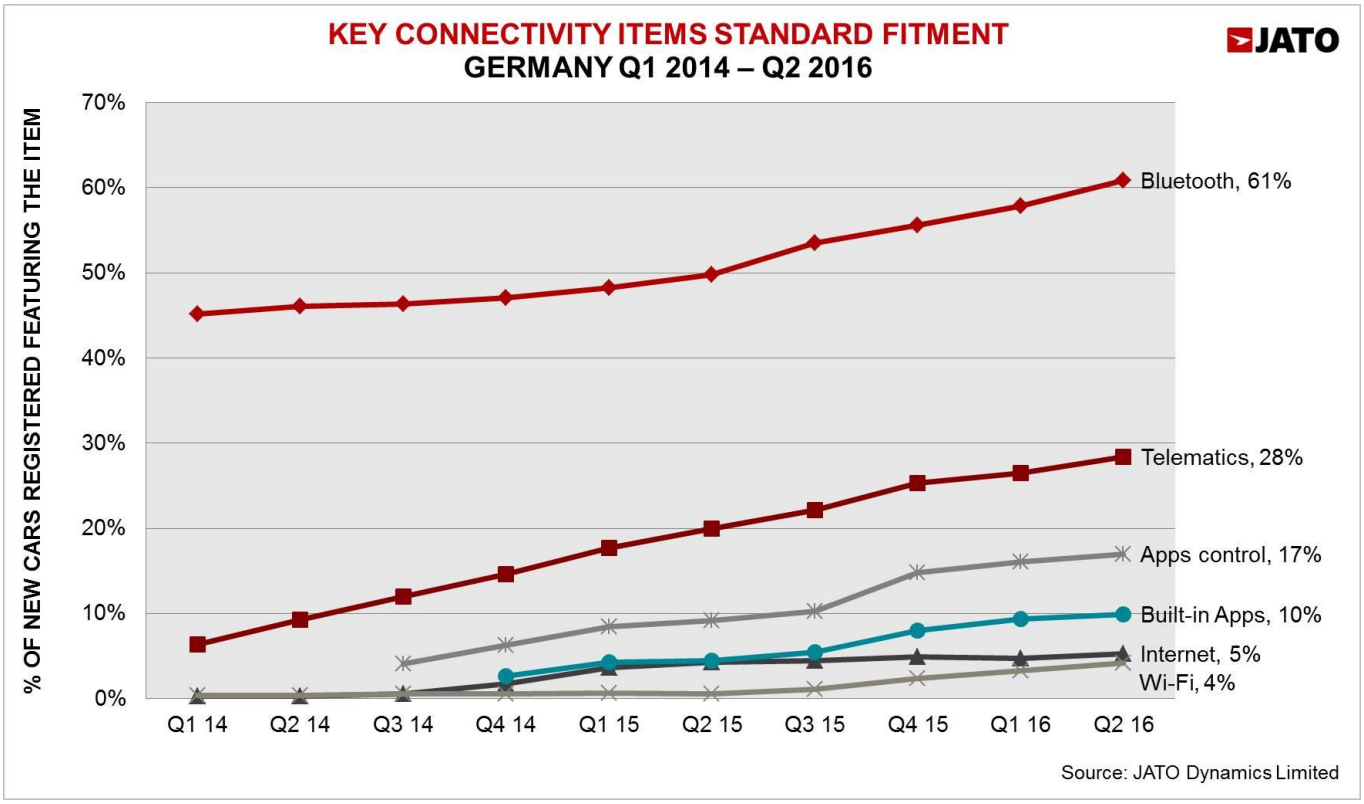
EU SPORTS
These vehicles have a high level of performance and handling, which makes them suitable for high-speed motoring, e.g. BMW 2-Series, Audi A5.

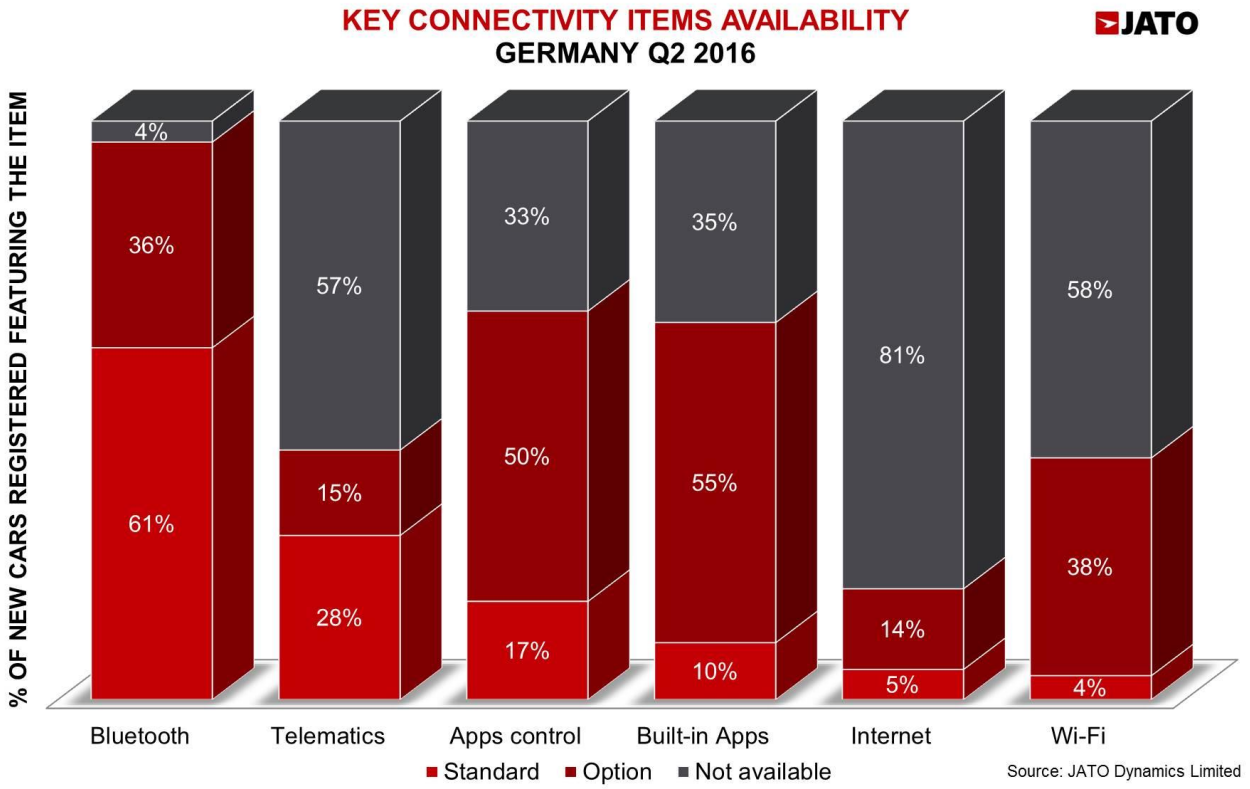
THE CURRENT SITUATION AND TRENDS IN THE GERMAN NEW CAR MARKET, 2014 TO 2016

CAR CONNECTIVITY IS A FAST GROWING AREA, BOTH FOR CONVENIENCE AND SAFETY REASONS

Most people use IT technology in their daily lives and it is increasingly present in new cars. New hardware and software is being introduced to enable communication both to and from the vehicle, in addition satellite navigation can now provide instant information to drivers. The standard technology of the past – CDs, DVDs and SDs, are rapidly being replaced with more direct communication tools that allow constant communication by the user such as WhatsApp, Twitter and Facebook as connectivity is becoming an increasingly important feature in new vehicles.

Simultaneously, apps are being developed to make it easier to connect to the internet when in a vehicle, this is largely being driven by consumer demand for 'always on' internet access. JATO has been researching certain connectivity-related products for some time, many have recently been introduced to JATO systems, as they are becoming so important to client businesses. This report looks at the availability of selected car connectivity features in the German new car market between early 2014 and June 2016.





Bluetooth can act as a guage for automotive connectivity. It is currently standard in over 60% of all cars sold in Germany, with a further 36% including the feature as an option and only 4% of cars not including it at all. This is a dramatic increase compared to the same period last year when it was present in only 50% of vehicles. It is the large and luxury car segments which lead the way, with Bluetooth currently included as standard in practically all cars sold. The lowest standard share of Bluetooth availability is for small cars, at only 41%. Although on the rise, one notable exception is Volkswagen which still only offers the technology as standard in 13% of vehicles, for all others it is available as an option. How Germany's biggest car manufacturer integrates the technology into its offer will be a good indicator of the future of Bluetooth.

The most obvious use for Bluetooth technology is music streaming and mobile phone connection. But, it has not developed solely to increase convenience for consumers. The major reason for the industry's focus on connectivity is safety - a particular issue in Germany where

mobile phone use when driving is strictly prohibited. With safety concerns in relation to smartphone use increasing in importance, we can surmise that Bluetooth sold as standard will become the norm, as more manufacturers adopt the technology.

Telematics technology is more complex than Bluetooth. It is a method for monitoring a vehicle which can be used as a tool for concierge roadside assistance as well as often including active collision avoidance and remote diagnostic systems. As with Bluetooth, telematics systems increase convenience for the driver and passengers whilst also addressing safety concerns. The technology is on the increase and is currently standard equipment in almost a third of cars sold in Germany. By comparison, for the same period in 2015 it was standard in only a fifth of cars sold.

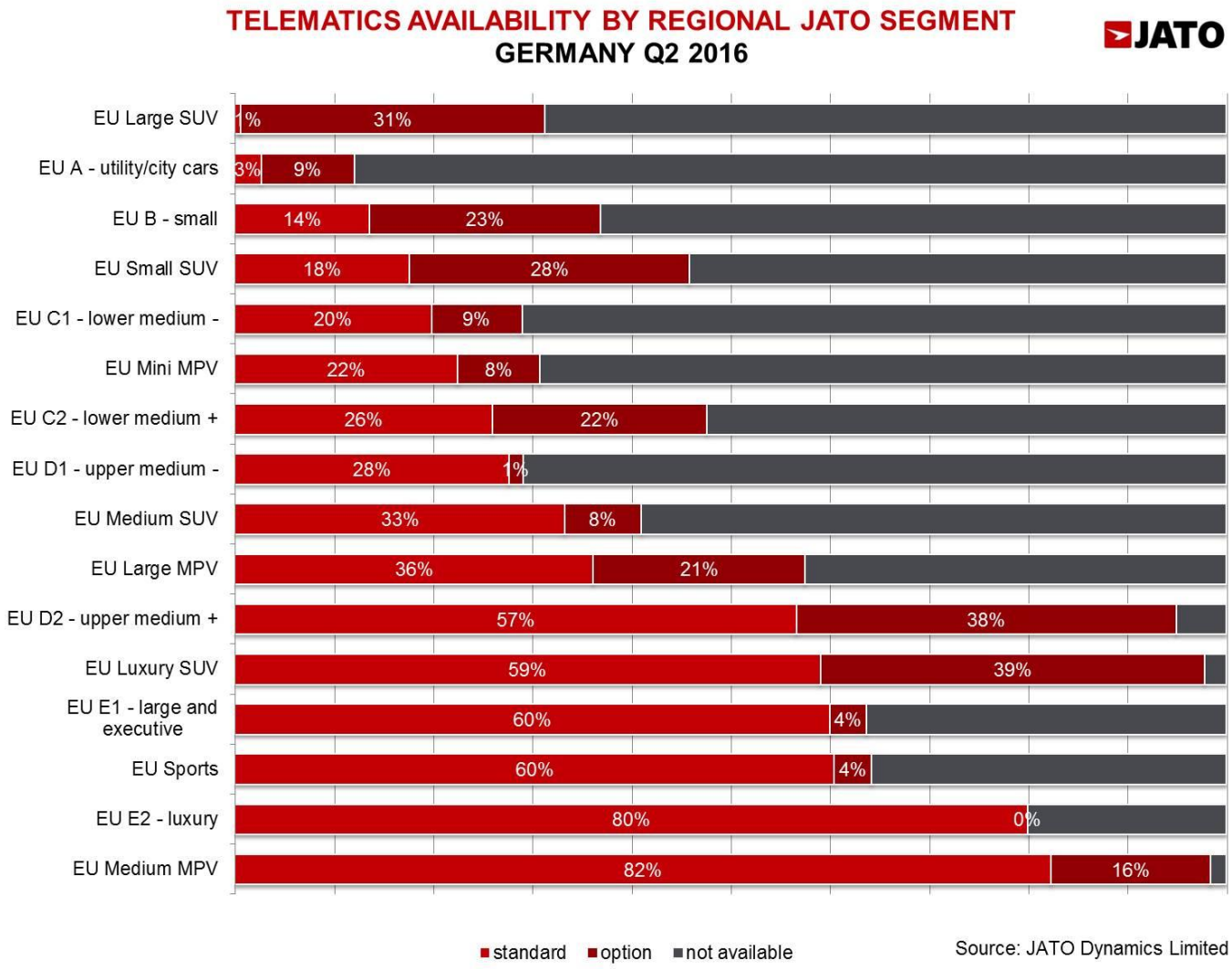
One key piece of regulation that is likely to increase the industry's adoption of telematics technology is the European

Parliament's eCall regulation which makes eCall technology – the ability for the vehicle to automatically dial 112 in case of an emergency - mandatory from April 2018. Telematics systems which enable automatic dialling are likely to become very common in the coming years as the industry adapts to this regulation.

Currently, telematics systems are still relatively expensive as an option and are therefore not common in the lower medium and small car segments. For these smaller segments a monthly or annual subscription is normally required to access telematics features via either a pre-installed built in mobile phone system or a separate "brought in" Bluetooth enabled mobile phone such as MB Contact.

"Brought in" phone systems don't require any additional subscription charges and there are usually no time constraints on their usage. These systems have dominated until now and are found in 80% of telematics installations. More limited subscription periods are becoming more common, with "one year free after purchase" becoming increasingly common.

In Germany, 75% of telematics connections are via an in-vehicle SIM, the remaining 25% are via a user's own mobile phone. As telematics systems become a more common feature in vehicles and spread to the medium and small car segments, connection via a phone is likely to become more widespread, largely because it is easier and more cost effective for the buyer.



Telematics is a standard feature primarily in executive, sports and luxury SUV vehicles, with around 60% of models including the technology. Telematics technology has achieved the highest penetration amongst the Medium MPV segment where it is present in 82% of vehicles. However, the Medium MPV segment accounts for only a small proportion of the total volume, with Medium SUV and Medium Car (JATO C1 and D1 sub-segments) and the Sports segments together currently accounting for almost 50% of all standard telematics installations. Amongst A and B segment cars, less than 10% have telematics installed as standard.

Overwhelmingly, premium suppliers like Mercedes and BMW are leading the market by offering telematics as standard in all models. Volvo in comparison includes it as an option across its range but as standard in its new XC90, indicating it may include it in future models. Audi models mostly do not include telematics, with the exception being the A3, A4, A5 and Q7 “Emergency & Service calls” which is available as an option for an additional €250.

Within the next year, approximately 40% of all cars sold in Germany will likely have telematics included as standard. Across the industry, offering telematics as an option is seen as the best route to increasing adoption. The Small Car and SUV segments are testament to this – less than 20% of vehicles include telematics as standard, yet the majority of manufacturers offer the technology as an option. In contrast, the technology appears to have reached maturity and stabilised in the more traditional categories, as a result of the industry’s historic focus on developing new technology in the exclusive and more premium segments. As an example, at present, standard telematics penetration in the Sedan and SUV segments is double that of the Wagon segment; 60% vs 30% respectively.

Apps control refers to whether apps on a phone or other device can be operated via the vehicle's controls. This relatively new feature has been recorded by JATO since Q3 2014 and the share of vehicles with it included as a standard feature has doubled every year since, but this is from a relatively low penetration level. Currently, 17% of all vehicles sold in Germany have this feature included as standard, with many manufacturers offering it as an option, meaning an additional 50% have the capability.

Apps control is most often standard in small SUVs where it is present in 70% of units sold. But the limited sales volumes of small SUVs mean this represents only 10% of all cars sold with the feature as standard. It is buyers in the B and C1 segments that are responsible for 40% of apps control sales.

The JATO segments that show the strongest growth are the C1 and E2 categories. In the C1 segment the Ford Focus, Opel Astra and Mazda 3 are the leaders, with standard apps control penetration exceeding 75%. In contrast, in the E2 segment, only the BMW 7-Series vehicles include it as standard.

Sales volumes for standard apps control features are low, largely because more advanced mobile integration technology is superseding it in many cases. This feature will be addressed later in this report.

Built-in-apps is a JATO term for whether a vehicle comes with apps that are already built into the vehicle's entertainment system or whether they must be activated via a user's mobile phone.

Relatively few vehicles offer built-in-apps as standard – with only 10% including it as standard and another 50% as an option.

This feature has the highest standard penetration in the Luxury car segment where 82% of cars sold include it as standard, followed by the Small and Large SUV category where it is offered as standard in 30% of cases. Nearly half of all built-in-apps systems are installed in just a handful of models; the Opel Astra/Insignia, Skoda Superb, Nissan Qashqai and the Mazda CX3/CX5.

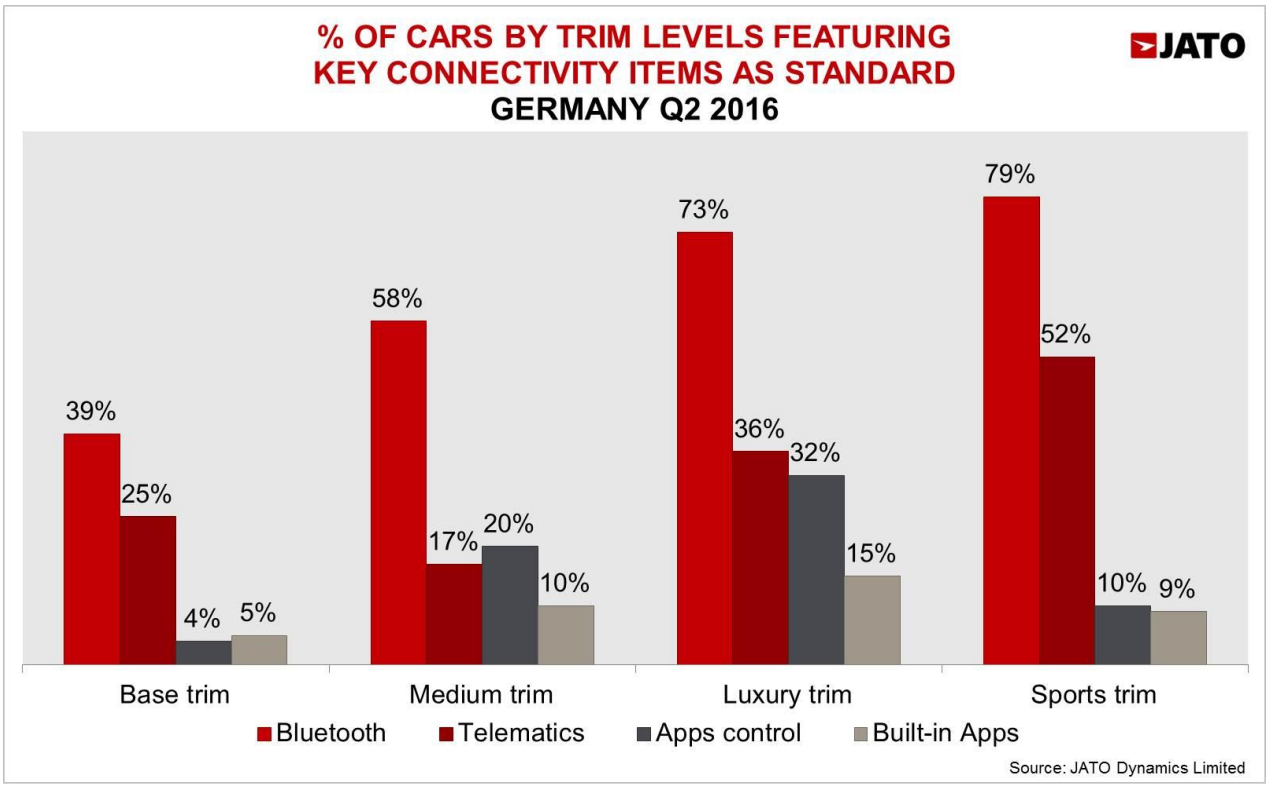
Internet connection refers to whether a vehicle is fitted with a system that allows it to be connected to the internet so passengers can browse the web. Full internet access is required for a vehicle to fall into this category; this means the ability to browse the web fully. On this point, JATO codes the ability, not if the vehicle also includes the service.

In-car internet connections are a relatively embryonic technology but there is reason to believe the industry is on the cusp of change. Car producers increasingly monitor individual car usage directly via the web. This type of analysis is particularly common in relation to electric vehicles and will become more widespread with the rise of autonomous cars. An in-built internet connection has the added benefit for manufacturers that essential software can be updated remotely, removing the potential for user-error. Currently, many vehicles are capable of internet connection but this feature is not activated, precedence suggests that as internet subscriptions become cheaper and more mainstream it will become more widespread in the industry.

The availability of vehicles with a built-in internet connection is still low, with only 5% of all cars including it as standard and only 15% offering it as an option. Penetration is currently at its highest in the Executive car category at 35% and notably it is a standard feature in the Mercedes E-Class and CLS, and in the Volvo S90. BMW offers it as an option only and Audi does not offer the feature in any of its models. This feature often requires additional payment from the customer which explains the low adoption rate. In the cases of Mercedes and BMW for example, customers that choose to include an internet connection in a new vehicle also need to pay between €100 and €3,500 for the additional technology to activate the connection. Today, an internet connection is increasingly common as an option in the Upper Medium segment (D2), and amongst medium and large MPVs and SUVs. These segments are likely to be the biggest areas of growth for this feature in the future.

Wi-Fi networks differ from an in-built internet connection in that it refers to whether a vehicle is fitted with a system that has the ability to connect a Wi-Fi enabled device such as a laptop, games console, mobile phone, MP3 player or PDA to the internet via a vehicle's built in wireless network.

Currently, this is a standard feature primarily in the Executive segment, with it included as standard in all Volvo XC70/S90, Tesla S, Mercedes S and the



BMW 7-Series. With the exception of the Small Car (A and B) segments, a Wi-Fi network is available as an optional feature in half of cars sold, which evidences how quickly this technology is becoming mainstream in the industry.

Mobile integration is distinct from apps control as it refers to whether it's possible to display a smartphone's interface on a vehicle's infotainment screen. This is more sophisticated than apps control as it enables the vehicle's screen to control the user's mobile phone in its entirety. If mobile integration is standard, apps control is also standard, but not vice versa.

At present, mobile integration is only a standard feature in 6% of all cars sold, but this is on the increase. The Upper Medium and Large MPV segments are leading the way, with around 30% including mobile integration as standard. Lexus, Ford and Subaru are the major manufacturers leading the market. More generally, it is widely available as an option, most notably in SUVs and MPVs.

The most common mobile integration software used in Q2 2016 was Apple Car Play which represented 83% of all standard mobile integration installations, meaning it was present in 5% of all cars. Android Auto was used in 60% of vehicles and Mirror Link in 35%. Often, all systems are installed simultaneously - all three solutions are for example combined in 12% of all standard mobile integration installations.

CONNECTIVITY AND TRIM LEVEL

Generally, vehicles with higher trim levels are more likely to include connectivity features as standard. One major trend seen in the automotive industry is that features previously considered non-essential such as Bluetooth are becoming more mainstream with more than 60% of all new cars in Germany now including the feature, when only a decade ago it was unheard of.

In Q2 2016, Luxury and Sports trim vehicles represented 40% of the new car market in Germany. Base trim covers another 20% and Medium trim 40%, but

trim level is a relative concept and not directly related to price. For example, the average list-price for a car with base trim in the C1 segment is now €20,650 compared to a base trim car in the Sports car segment which would be €56,250.

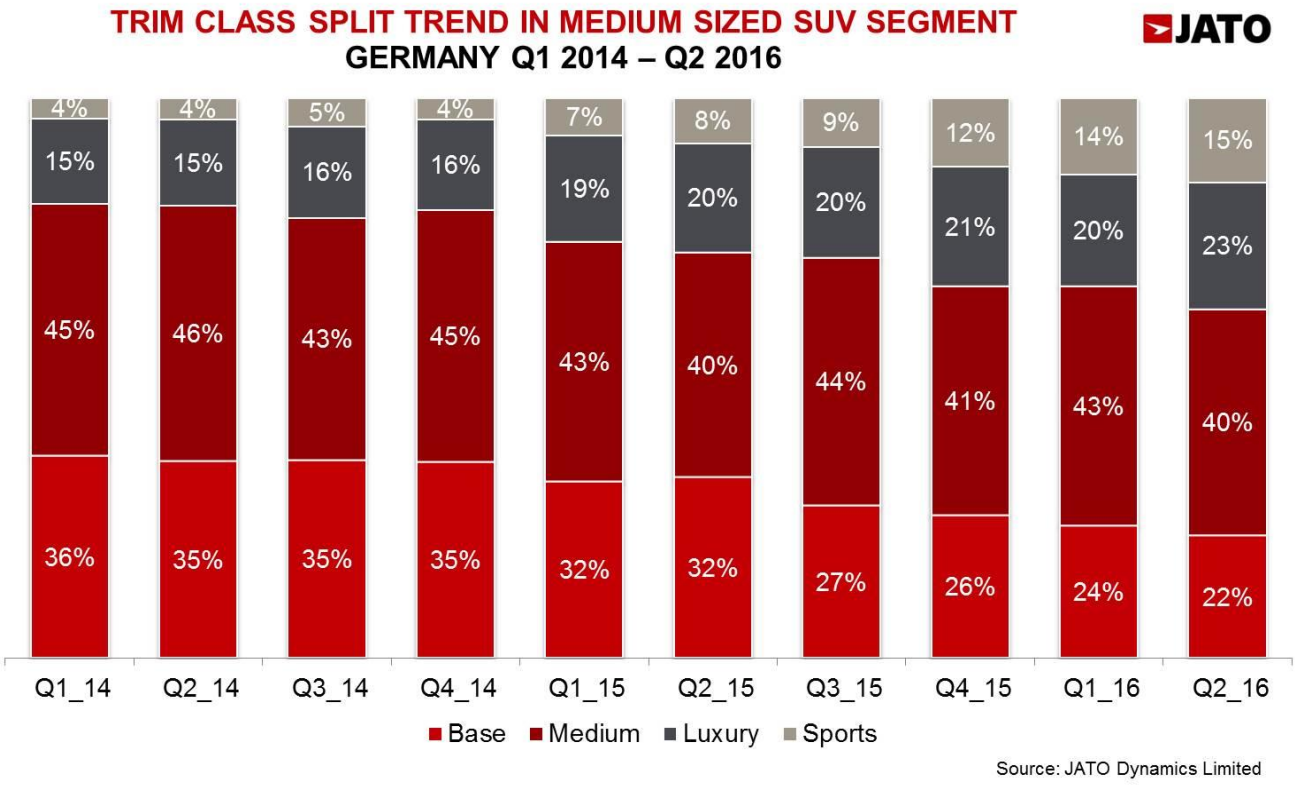
JATO's segmentation systems are more appropriate for predicting short term sales developments in connectivity technology. In terms of the JATO categorisation, the Medium Sized SUV and C segments are the most significant when looking at connectivity.

Whilst certain aspects of connectivity are likely to become mainstream in the near future, industry expectations for telematics are more moderate. Telematics technology is now available in 43% of vehicles – 15% include it as an option and 28% include it as standard. But it is regulatory factors such as the introduction of mandatory eCall technology which are likely to accelerate the adoption of telematics and result in it becoming a bigger presence in the industry.

Apps control and built-in app systems are more common, with more than 50% of all cars including the feature as an option. Industry expectations seem quite high in all segments with the exception of the A and B segments.

Internet connection has quickly become a well-known feature of new vehicles, with it included as standard in many Executive and Luxury cars. However, the major growth area for this technology over the coming years will be the Lower and Medium segments where it is currently included as an option in 50% of new vehicles.

Generally, there is an upward trend in trim levels in the German car market with increasing numbers of people opting for higher trim levels. As a result, sales of base trim level models have decreased from 35% of the total market two years ago to 20% today. Higher trim levels are taking an increasing share of the market, with the luxury and sports trim levels rapidly gaining ground.



Buyers of Medium sized SUVs are major contributors to the strong growth of sports trim models. As a result, the segment with the highest share of sport trim buyers is now the D2 segment. More than half of consumers buy a car that is a sport trim level, approximately the same share as Sports cars.

As the Small and Medium Sized SUV market is relatively new, entertainment systems are not yet as prominent as in more traditional segments so this area will be one to watch. The split amongst buyers of medium sized SUVs is shifting towards the Sport trim, away from the Base trim.

A volume forecast based on data from JATO Dynamics and LMC Automotive indicates that the Medium Sized SUV segment will be one of the fastest growing segments in the near future. In 2019 it is predicted to become the biggest volume segment in Germany. This is in contrast to the D2 segment which is expected to remain stable.

THE OUTLOOK

The market is reaching a tipping point as connectivity in cars becomes an increasingly important consumer differentiator. Clearly, EU road safety regulations will have a major impact on the availability of connectivity features in the future. “Hands-free” driving and mandatory eCall installations will boost the connectivity market going forward, with safety concerns the driving force behind this.

The connectivity features discussed in this report represent only a selection of the data JATO offers. Navigational systems for example already play a major role as an information source in vehicles and will most likely grow further. Internet and satellite radio open up new avenues for connection, but from a low level of penetration today.

JATO will continue to analyse, report and share insight on new connectivity options. The rapidly expanding market for connectivity features and capabilities and the application of emerging technologies in automotive will continue to be extremely interesting for both manufacturers and consumers.

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