



# In-Car Payment

Future Commerce — a digital guide on In-Car e-commerce

Mercedes-Benz





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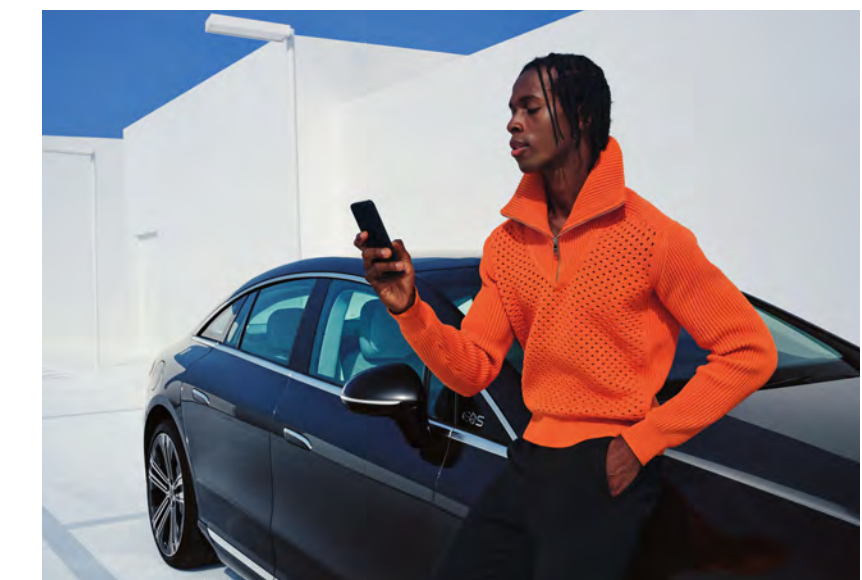
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# IN-CAR-PAYMENT

## Pay with your car

Smart home, smartphone, smartwatch - everyday life is connected; digitization makes our lives easier in numerous areas. We buy goods with a few clicks, order a cab with the touch of a finger, and see on an app where our car is parked, whether the windows are closed, and when the next maintenance is due. Services, products, and status inquiries are available 24/7, no matter where we are – at home, on the road, and increasingly also in the vehicle.

The car has long been more than just a means of transportation to get from A to B. While in the past it was just a matter of driving – comfortably, sportily, or efficiently – today, the car is a place of well-being, work, and leisure.

Thanks to connected vehicles, we can confer with colleagues on the road, bring the entire world of entertainment into the car via integrated streaming services, or book services on-demand.

The introduction of In-Car Payment is the logical next step in terms of ease of use and connectivity. After all, digital customer experiences are only made possible by state-of-the-art digital payment solutions. With In-Car Payment, the car acts as a means of payment; services and goods can be purchased quickly and securely via the infotainment system.

According to Juniper Research, in 2021, 87 million transactions were made from cars. In 2026, analysts forecast 4.7 billion In-Car Payment transactions. ((2))

87 Mio.

global In-Car Payment transactions in **2021**.

„About half of the 18 to 39-year-olds would directly order services and goods through the infotainment display of their vehicle and pay for them if this feature were available in their car.“

Study by GfK on behalf of Mastercard, 2023. ((1))

4,7 Bn.

global In-Car Payment transactions forecast in **2026**.





# CHANGING CONSUMER BEHAVIOR

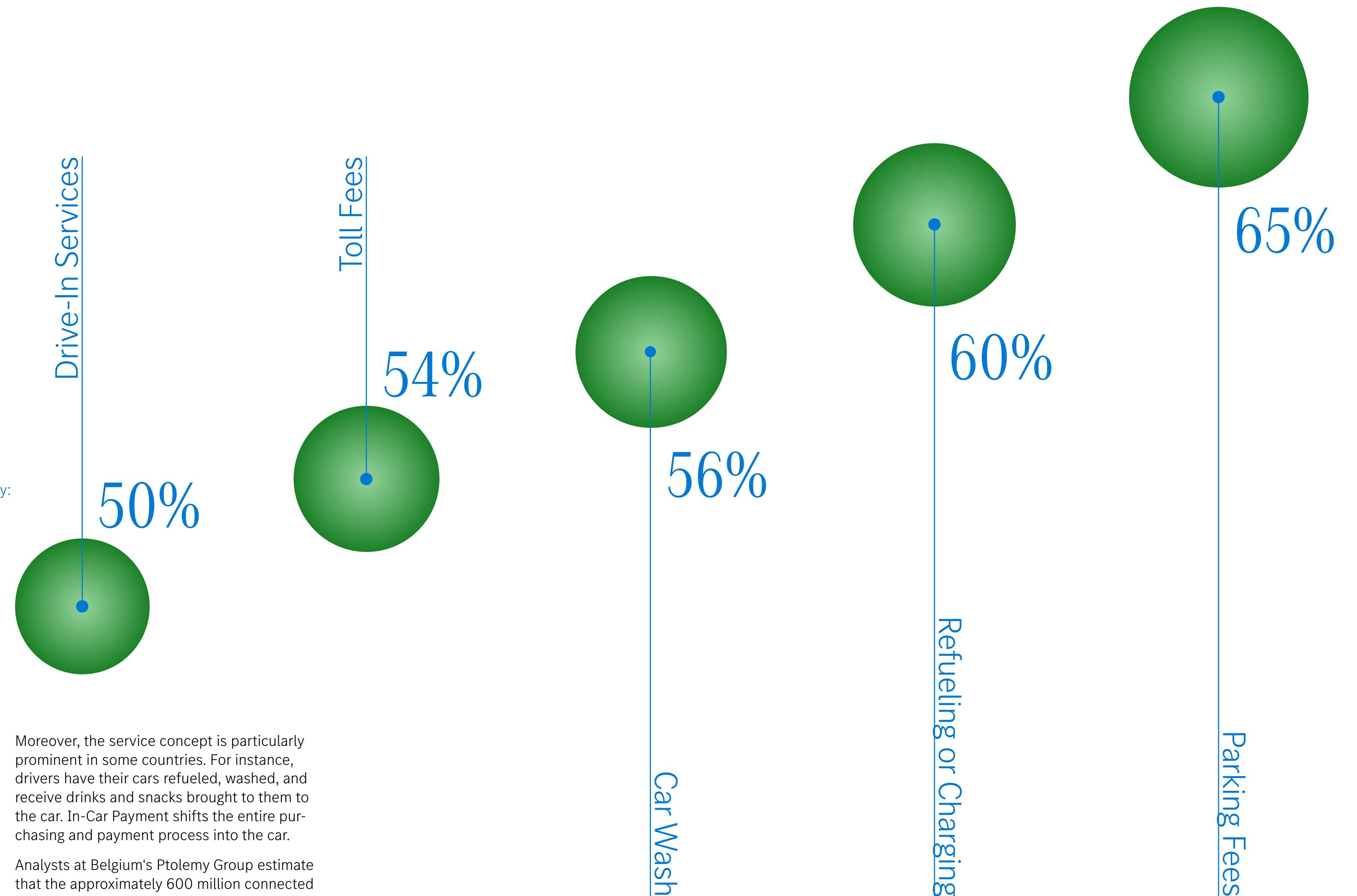
## New payment methods in future commerce

In Germany, 68 percent of employees drive to work, and 22 percent of commuters spend between 30 and 60 minutes behind the wheel ((3)). On average, German drivers spend 40 hours in traffic jams ((4)). Some listen to music, while others tune into the news; some simply hope that time will pass quickly. However, fast mobile communication has introduced smartphone-like functions into vehicles, creating a market for in-vehicle consumption.

A study by the 'Gesellschaft für Konsumforschung' (GfK), commissioned by Mastercard, reveals that around half of 18- to 39-year-olds would be inclined to order and pay for services and goods directly via the infotainment display. Among those in favor, the primary intention for using In-Car Payment is everyday car-related services. For instance, 60 percent would prefer to pay their gas bill or electric vehicle charging directly through the car ((1)).

Respondents find it particularly attractive to pay fees for parking, refueling, charging, and tolls from out of the car. Would you like to quickly order a meal at a fast-food restaurant? Half of those surveyed by Mastercard express their willingness to utilize drive-in offers and pay through the car. This choice is influenced by its convenience, speed, and the presence of children in the car, whom they prefer not to wake up or leave unattended.

With vehicle-related payment systems, the automotive industry is responding to a global trend and adjusting to diverse consumer needs worldwide. In the US, it is quite common to leave the gas station after refueling without visiting the cash register or card terminal, as payment is processed through In-Car Payment.



Moreover, the service concept is particularly prominent in some countries. For instance, drivers have their cars refueled, washed, and receive drinks and snacks brought to them to the car. In-Car Payment shifts the entire purchasing and payment process into the car.

Analysts at Belgium's Ptolemy Group estimate that the approximately 600 million connected vehicles worldwide could generate annual sales of 537 billion euros. However, this can only be realized if online shops are accessible via the screen and payment is seamlessly integrated into the car ((5)).



# PAYING FOR SERVICES USING YOUR CAR

What can you pay for with In-Car Payment?



Drivers can already intuitively book and pay for various vehicle-related services and products directly from their cars. These services include parking, charging, and digital payment during refueling.

## Parking

We are all familiar with the daily struggle of finding suitable parking spots. First, it's hard to locate a free space in the city center, and then you might encounter issues with parking machines that only accept small change while you have only bills and credit cards in your wallet. Smartphone apps have eased this process for us. They guide us to available parking spots both on the roadside and in parking garages. The operators of these parking spaces settle accounts directly with the app providers. Thanks to smartphones, we can pay for parking on the go. However, what if your battery is empty or your mobile phone is at home?

A smarter approach is to discover available parking spaces through your car's navigation system and make parking payments directly from the car. This is possible when the manufacturer integrates the appropriate app into the vehicle system.

For **On-Street Parking**, which refers to public roadside parking, streets with cooperating operators are highlighted on the navigation system. Details like prices and parking times are stored in the system. Once selected, the navigation guides you directly to the parking areas. When you reach the parking spot, the vehicle independently recognizes this through satellite-controlled positioning. The parking start button then automatically appears on the screen. Moreover, the system reminds you to end the parking session before leaving, preventing fees from accumulating unnoticed. Payments are processed automatically, and customers receive a collective invoice at the end of each month.

Parking in parking garages, known as **Off-Street Parking**, is also facilitated through apps. The navigation system helps you locate and reserve available parking spaces in parking garages. The system lets drivers choose check-in and check-out times, view the total cost, and confirm the booking. If the app is integrated into the vehicle's infotainment system, users can conveniently pay for their parking tickets directly from the car. Upon arrival at the car park barrier, drivers receive a QR code that they can scan for entry if automatic license plate recognition isn't available.



## Charging Electric Cars

In Germany alone, there are hundreds of charging station providers. They all have different access cards or their own charging apps, as well as varying tariffs and prices for the kilowatt-hour of electricity. Nowadays, many charging station providers are joining networks so that their respective charging cards work not only at their own stations but also across different networks. However, price differences still exist, so every time you charge, you're faced with the question of which card offers the best price at that particular charging station. Making it easier are charging networks that consolidate hundreds of charging station providers into a large partner network. With just one charging card or through the charging app, electric vehicle drivers can charge at over 500,000 charging stations across Europe. This is all done at a uniform tariff, regardless of which charging station is used.

Car manufacturers also offer their own charging networks. The advantage of the manufacturer's charging networks is the seamless integration of the charging stations into the vehicle's infotainment system. When planning any trip, charging stations are automatically included as waypoints. Once at the charging station, you can leave your charging card safely in your pocket; authentication at the charging station is easily done through the touchscreen in the vehicle. The charged kilowatt-hour is automatically billed in the background. If the manufacturer even offers a Plug & Charge function, simply plugging in the charging cable into the vehicle is sufficient: the charging station and the electric vehicle communicate directly with each other.



# PAYING FOR SERVICES USING YOUR CAR

What can you pay for with In-Car Payment?



## Refueling

Even at gas stations, fuel bills can be paid digitally directly from the car. The driver selects the appropriate gas pump and fuel type through the vehicle's infotainment system. Once the refueling is done, the driver is shown the actual amount of fuel used and the billing total on the infotainment display. Payment is done automatically, and there is no need to go to the cash register.

What may sound straightforward for the driver is, on the other hand, a very complex technology for car manufacturers. Digital payment at a gas station is considered an online payment at the point of sale in Europe, and it requires a two-factor authentication for secure payment authorization. Therefore, only a few car manufacturers offer In-Car payment for refueling. In most cases, the driver still needs to grant payment approval through an intermediate step using a smartphone, typically through facial recognition. However, some manufacturers, like Mercedes-Benz, have succeeded in seamlessly enabling the driver's biometric authentication through the vehicle's fingerprint sensor. So, the car itself now serves as the payment method



## Over-the-Air Updates:

In the past, drivers had to visit a workshop to update vehicle software and, for example, bring the navigation system maps up to date. Today, this happens almost like magic, with all software updates, whether they improve the charging behavior of electric vehicles, engine remapping, or other vehicle functions. Such updates are transmitted over the integrated mobile network connection in the car and are therefore called Over-the-Air updates (OTA). They have become standard for many manufacturers and are included in nearly all electric vehicles.

In addition to software upgrades, hardware components in the vehicle can also be activated at a later date. The ability for two- and third-party owners of a vehicle to activate optional equipment on-demand also makes the vehicle more attractive when resold and increases value retention. Furthermore, if you're looking for a pre-owned car with specific features, you're no longer limited to vehicles that come preconfigured; you can now customize your desired equipment afterward.

The range of equipment available for online ordering and retrofitting is continuously expanding. Features like ambient lighting, suspension tuning, vehicle monitoring for theft protection, and more can be ordered directly through a digital user account via a PC or smartphone app. However, with the integration of In-Car Payment, customers can for example use the waiting time at charging stations to explore the store on the infotainment display. They can then immediately pay for and activate new optional equipment using In-Car payment.



# THE TECHNOLOGY BEHIND IN-CAR PAYMENT

How does payment with the car work?

The fundamental requirement for using In-Car Payment is a user profile linked to the vehicle at the manufacturer's end. Within this profile, customers input their personal and payment data. Depending on the service, two payment processes are in place for In-Car Payment.

## Regular Use - Contract with a Third-Party Provider

For frequently utilized services that operate under a tariff system, customers can establish a contract with a partner company directly via their manufacturer usage profile with just a few clicks. This process applies, for instance, to parking and charging. Following each parking or charging event, payments are automatically processed in the background. At the end of each month, a comprehensive invoice is issued, and the amount is conveniently collected via direct debit.

## One-Time Purchases - Payment Authorization through Two-Factor Authentication

However, a number of services are not used as part of a tariff, but are offered as a single purchase. This category encompasses supplementary equipment added later and even refueling. In Europe, all such one-time purchases need to adhere to the EU Payment Services Directive for security reasons, requiring confirmation through two-factor identification. Up until now, and still for most manufacturers, reaching for a mobile phone has been necessary for this purpose.

**“Mercedes-Benz is dedicated to providing customers with a seamless digital experience. The introduction of native In-Car Payment in our vehicles reaffirms our position as pioneers in this domain.”**

Franz Reiner, Chairman of the Board of Management of Mercedes-Benz Mobility AG

## Technology Example: Native In-Car Payment at Mercedes-Benz

Since March 2023, Mercedes-Benz has made this process even smoother with what is known as „native In-Car Payment.“ How does it differ from previous methods? Users no longer require an additional device for two-factor authentication. For Mercedes pay+ users, confirming payment through the integrated cockpit fingerprint sensor is sufficient. This way, the car itself becomes a payment device. Mercedes-Benz customers can pay for fuel at selected gas stations, for example, by simply touching the vehicle display. This eliminates the need to queue at the check-out, grab a smartphone, or recall a PIN. Additionally, Mercedes-Benz allows direct booking and activation of vehicle upgrades from the online store within the car. Accessing new software and hardware enhancements has never been easier. The brand has more products and services in the pipeline.





# DATA PROTECTION FOR NATIVE IN-CAR PAYMENT

Is In-Car Payment safe?

To safeguard against misuse, customers are required to authenticate themselves when conducting online banking or making purchases on the internet. This requirement, known as PSD2 (Payment Services Directive 2), is applicable across the EU and mandates Strong Customer Authentication (SCA). Buyers must verify their identity using at least two security factors: something they know (e.g., a password), something they possess (e.g., a connected device), or something they are (e.g., biometrics). This protocol also extends to individual purchases made through In-Car Payment.

With Mercedes-Benz's native In-Car Payment, the vehicle itself serves as a payment method. This innovative payment feature can be easily activated with a few clicks through MBUX within the car. Users input their credit card details into their Mercedes me account and activate Mercedes pay+. The vehicle doesn't retain any sensitive user data. Instead, this information is securely stored in the background of the payment system. Furthermore, the data isn't directly employed in the transaction. Instead, an encrypted token is assigned to the payment profile, effectively serving as a unique identifier.

For completing a purchase, the dealer or service provider, the vehicle, and the credit card company engage in direct communication. Digital placeholders come into play solely when the registered vehicle user initiates a purchase process from within the car. The user finalizes the purchase by authenticating themselves through a fingerprint scan, thereby authorizing the payment. This two-factor authentication ensures compliance with all EU security regulations.





# 7 QUESTIONS TO AN EXPERT

Nico Kersten, CEO of Mercedes pay, on In-Car Payment and How Mercedes-Benz Drivers Will Soon Be Able to Get a Latte Macchiato Faster on the Road with the Help of Artificial Intelligence.

## Do you believe that In-Car Payment will catch on quickly?

I'm convinced of that. Why shouldn't cars be able to do what smartphones have long been able to do? We download lots of apps to our cell phones to play games, shop, get information or chat. Many of them can already be used in the car. Software, voice recognition, camera, MBUX infotainment system - our vehicles are equipped with all the technical possibilities. We want to use them, but above all, so do our customers. And we want to make it as easy as possible. That also and above all applies to payment.

## What is the biggest advantage for customers?

We combine all payment processes in a single device, the car. You order something via the display in the vehicle and no longer have to confirm the purchase on your smartphone. The 2-factor authentication required for online purchases in Europe is now fulfilled by the car and the fingerprint.



Nico Kersten, CEO of Mercedes pay

## Does Mercedes-Benz open up new business fields with Payments?

In addition to app and web-based stores, In-Car Payments are turning the car into another sales channel - a very emotional one, in our opinion. Nothing is as nice and convenient than shopping and paying for that purchase with the same product. After all, I drive to the gas station in my car and type in my destination on the navigation system beforehand, so why not pay right away with just a few more clicks using the steps I've already learned on the display? We are now gradually expanding our business model with digital applications, including integrated payment options.



**Does this work comprehensively, or are there only a few partner companies that participate?**

The customer will adapt this only if they can actually use it in many places. That's why we are constantly entering into new collaborations. For example, our charging service Mercedes me Charge has one of the largest charging networks, with over 1,000 charging station operators integrated worldwide. In Germany alone, Mercedes-Benz drivers can already charge their electric car at over 34,000 locations nationwide, and the car takes care of the payment in the background. To put this in perspective, there are currently around 14,500 gas stations in Germany.

**Mercedes-Benz is already integrating ChatGPT into vehicles in a beta version in the US. Could artificial intelligence also play a role in In-Car Payment services in the future?**

Good question, you can imagine many things here. The system could remember that I order a latte macchiato from my favorite coffee house chain every morning on my way to work from my car. If I drive a completely different route, the car could nudge me: ‚Hey, in ten minutes we'll be passing a branch of xyz. Shall I order you a latte macchiato?‘ And because the car tells me the exact time of arrival, the hot coffee I've already paid for is ready on time at the fast lane of the drive-in counter.

**That sounds a bit spooky. Not everyone might be able to cope with that.**

We deal with new technologies every day. Just think of the smartphone. At the beginning, I also thought: ‚Why apps? After all, I can enter the web address in the browser‘. Today, everyone has dozens of applications on their cell phones, which basically just make things faster and easier. I think this is a generational issue. Some people are amazed by such possibilities. These are the early adopters who talk to their cars, control everything by voice and try out every technical possibility. Others are only slowly getting to grips with new technologies. Our task now is to find a good and sensible balance between what is feasible and what the customer wants.

**Mercedes-Benz is currently a pioneer in the field of vehicle-based payment systems.**

And we're extremely proud of that. However, we hope that other manufacturers will follow quickly. That will accelerate development and expand the range of products. But for now, we're looking at the entire infrastructure where we can be active. How fast and how well do the processes work? Which are the right use cases? How exactly should the payment process be?

Interested in learning more about the topic?

[CLICK HERE FOR THE COMPLETE INTERVIEW WITH NICO KERSTEN.](#)



# SOURCES

## Attachment

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