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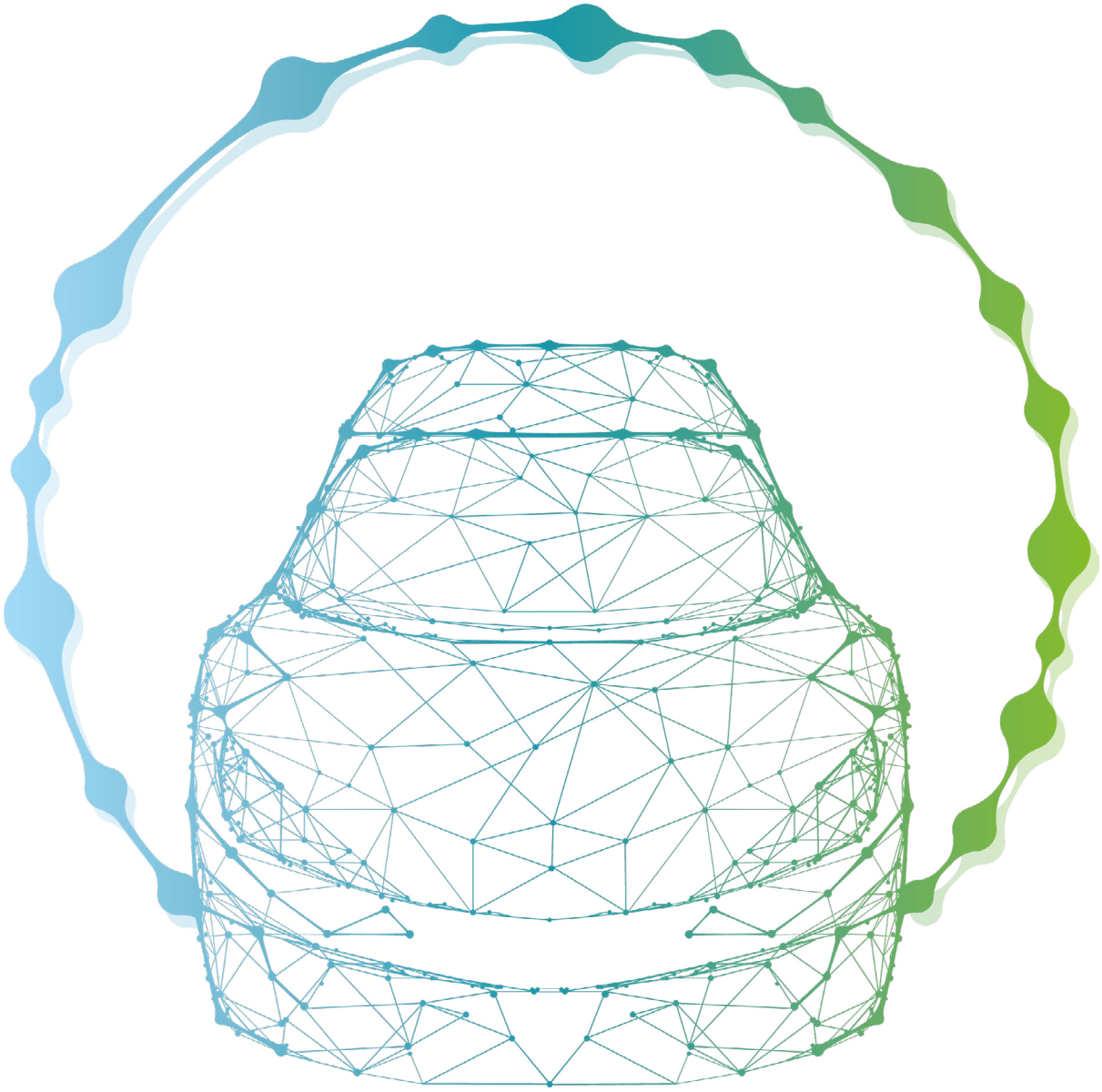


On-Demand Car Features

Readiness for a new era of customer value creation

MAKING AN IMPACT THAT MATTERS since 1845

Chapter 1: Introduction

Data-driven business models built around on-demand car features (ODCF) are opening up a new era of growth for the automotive industry. In a time where customer expectations are constantly changing and disruption is putting businesses under relentless pressure, it is crucial for OEMs to break new ground and make the most of this opportunity. With this in mind, the business case for on-demand features is extremely attractive for OEMs, but also for tier 1 suppliers and hyperscalers. However, OEMs will have to develop and launch a wide range of processes along the value chain to succeed, while at the same time mastering the associated challenges. The complexity begins already with prerequisites for ODCF including fully featured vehicle production, considering regulatory requirements for new features, establishing cyber security and software update management systems, as well as forming new cooperation models with tier 1 suppliers and hyperscalers. In this white paper, we as Deloitte discuss the major challenges as well as opportunities and risks of on-demand features from a holistic perspective focusing on the business enterprise, product architecture, end-to-end operations and technology. Furthermore, we introduce our readiness gap analysis, which was designed to assess the preparedness of OEMs, tier 1 suppliers, and hyperscalers for the effective implementation of ODCF based on key success factors.

Today everything is on-demand

On-demand services are already an integral part of our day-to-day business and are applied in various areas of our lives. Many of us may have already experienced, for example, how Amazon Prime Video or Spotify offer great added value to their customers. Amazon Prime Video is a video-on-demand service, where users can access videos via streaming. The monthly cancellation option ensures customer autonomy and flexibility. Spotify also offers customer-centric services through a hybrid business model of free music streaming (freemium model) and a premium membership without ad interruptions while streaming. Similar to contemporary audio and video streaming providers, the automotive industry has also started to offer on-demand services. Specifically, OEMs today already offer customers a range of infotainment features via software updates including enhanced navigation features, parking assistance, point of interest suggestions as well as productivity features such as Microsoft Teams. Some manufacturers are already designing advanced vehicle architecture to offer further functions through hardware components. In this case, customers can unlock specific features as desired and on demand because the necessary components are already built into the vehicle. This is how Tesla was able to offer its customers a battery range increase via over-the-air updates.

Most on-demand services by OEMs are currently software-based; however, these services have great potential to further transform the customer journey to the next level.

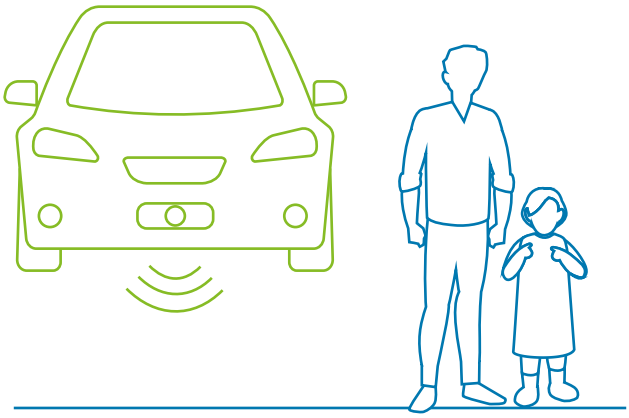
Looking into the future: An ODCF Customer Journey

The growing pressure of the mobility revolution and increasing environmental awareness are leading society away from traditional vehicle ownership to shared mobility, with the desire for maximum flexibility and personalization, especially in urban areas.

Tomorrow, customers will be able to lease vehicles and and easily customize them in advance to meet their individual needs. This will happen via customer profiles instead of vehicle configuration by production. Imagine a customer booking a “city package” to drive from the office to dinner in the city and having access to useful features including parking aids and a parking space finder close to his or her destination. The same customer can, on the way back to visit their family 400 kilometers away, book the “long-distance package”. Through this package, the customer receives an extended battery range, and enhanced autonomous driving and safety features. For the perfect in-car experience, the customer can sync their personal apps with their vehicle and even book additional comfort features.

Offering features on-demand not only changes the way customers interact with their vehicles, but also leads to elevated vehicle performance as well.

Fig. 1 – Maik's ODCF Journey

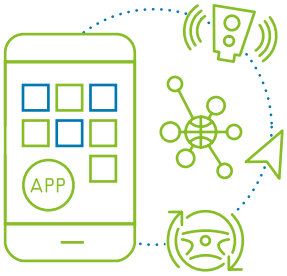


The spontaneous generation „Z“

Maik has 4-year-old daughter but lives 5 hours away from her in Berlin. He just bought a new vehicle and is very enthusiastic about his purchase!

Most of the time, Maik drives around the city in Berlin, which is why he purchased the "City Package" via his user profile. It is practical for him because of the various parking and navigation functions.

When driving to his daughter, Maik also books more range, additional driving assistance and safety features, as well as autonomous driving functions. This way, he can enjoy the long drive and his customized In-Car-Experience.



1.

Services on demand

Maik opens the app to see which features he can book for the trip to his daughter. Maik sees the active city package including all of the booked features on his user profile. He decides to pause his current bookings and instead book the long-range package. With additional product suggestions outside of his booked packages, he has the opportunity to make his driving experience even more unique.

2.

Features made for every situation

Maik can choose between different payment methods. After the payment transaction, his booked options are ready for use and displayed directly in his vehicle.

3.

Full enjoyment of the In-Car-Experience

During the drive to visit his daughter, Maik can relax and enjoy the drive because of the long-distance package including autonomous driving functions, extended range and useful comfort features.

What are On-Demand Car Features

On-demand car features are a novel approach, in which the vehicle acts as a platform and offers end users software-based mobility services, thus creating value along the entire vehicle lifecycle. This means that customers have the option to unlock features for their vehicles as needed. As a result, OEMs need to shift from manufacturing based on customer configuration to manufacturing based on full functionality. Each vehicle is produced with all possible hardware components and differentiation is provided to the customer on-demand. This holistic approach includes considering both hardware- and software-based features as depicted below in Table 1.

We as Deloitte, however, differentiate features from one another based on their relevance for type approval. New trends such as cyber security and autonomous driving have led to increased focus on safety requirements for vehicle type approval. Corresponding features are subject to extensive threat and risk assessments within a technologically and bureaucratically complex processing procedure. For the purpose of this white paper, we will focus on type approval-relevant features. Chapter 2 will highight the opportunities that come with ODCF.

Tab. 1 – Hardware versus Software-based Features

Hardware-based Features	Software-based Feature
Hardware-based features require hardware components to be built into the vehicle. Examples include heated seats, extended battery range, enhanced vehicle performance or safety features involving camera or sensor functionality such as blind spot alerts.	Software-based features do not necessarily require built-in hardware components and are often infotainment based such as information on current fuel prices or real time traffic updates.

Chapter 2: New Era, New Opportunities

The business case for ODCF opens up completely new commercial options for OEMs, tier 1 suppliers and hyperscalers along the entire vehicle lifecycle. These include revenue growth potential, new payment models, a highly personalized in-vehicle customer experience, enhanced brand loyalty, extensive differentiation options, as well as new revenue streams with used vehicles.

Sales and revenue growth

ODCF will be one of the key growth areas for OEMs in the future. The car as a platform sales potential is expected to be at least 12 billion euros worldwide by 2035. Here we clearly see new revenue potential, especially for the aftersales market. Data as a service also shows strong growth potential.

Stronger brand loyalty

With new and extended features such as increased horsepower and personalized sounds in electric vehicles, customers are constantly positively interacting with "their" brand of choice. In the past, this contact used to be limited mainly to repairs. In this context, connectivity features are becoming increasingly important, as a large majority of car buyers in emerging economies such as China and India (83% and 81% respectively*) see added value in this area.

Personalized in-vehicle customer experience

ODCF extends the customer journey. The customer is not only enthusiastic about their vehicle at the time of purchase, but also about new functionalities that arise during the entire vehicle lifecycle. As such, functionalities and regular updates are becoming a new differentiator for automotive manufacturers with endless possibilities for features that can bring value to customers. The goal is a well-designed and structured ODCF portfolio to allow individual customers to customize their cars and enjoy greater freedom, without being overwhelmed by the myriad of features and booking options. Primarily, the potential for V2X functionalities is high. It is expected that the share of cars with V2X functionalities will reach 53 percent of global new vehicle sales by 2023.

Data-driven business models

OEMs can use on-board and off-board data to create further mobility services in the future. Vehicle data is the backbone of future growth and innovation in the ODCF sector from the perspective of new feature development but also analytics as a service and other data-based mobility services. Continuous testing and UX improvements help to optimize services and to launch new products, securing the long-term viability of the ODCF revenue stream for OEMs.

New differentiation options

In the future, customers will ask themselves the following question when buying a car: "Which vehicle offers which services and at what cost?" ODCF can thus become a unique selling proposition for an OEM. This can also be combined with subscription models (Polestar, Volvo Care) where ownership of the vehicle remains with the OEM, and exclusive ODCF functions act as a differentiator for specific retail channels (leasing, loan, car subscription, long-time & short-time rental). In such cases, specific functions are only made available through vehicle subscription models. For OEMs, having the best ODCF portfolio bundling and convenience at a price that does not lock out major parts of the customer base, is a distinctive strategic USP.

Increased sales and revenue with used vehicles (OEMs & Captives)

ODCF can lead to higher residual value of used cars in automotive retail via online sales or via OEM bound dealers, thus significantly decreasing the residual risk for asset heavy captives in leasing and vehicle subscription. For customers, it is more attractive to buy used cars with ODCF, because the original configuration and additional features of the first owner become less relevant. Flashing Electrical Control Units (ECUs) and updated platform-wide Operating Systems (OS) for used cars facilitate the new era of customer configuration. Customers can now, using ODCF, configure their second hand car the way they want and enjoy the flexibility to try new features for years to come.

Chapter 3: Challenges & Risks for OEMs, Tier 1 Suppliers and Hyperscalers

In our last white paper (The car as a digital platform), we identified four dimensions in our unique operating model outlining our approach to ODCF. In this chapter we will discuss the challenges and risks that need to be tackled in order to achieve readiness along the same business, product, operations and technology dimensions. Building upon this, we will later dive deeper into selected threats and opportunities.

Fig. 2 – ODCF Opportunities & Risks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Business dimension

Here, we focus on overarching business models and profound challenges surrounding the implementation of ODCF within organizations, as well as the ability to develop features that appeal to different customers across different market segments.

Attractiveness of portfolio features

Automotive manufacturers are in direct competition with smartphone manufacturers. When booking services in a vehicle, the user experience is more crucial than what's under the hood. Today, this is much easier to do on a mobile phone. To persuade customers to use features e.g. Navigation in the vehicle instead of on their mobile devices, OEMs have to offer tangible and more advanced benefits – from favorable pricing to interesting additional features and easter eggs while using the "vehicle platform". To implement the most attractive functions, OEMs need to closely cooperate with tier 1 suppliers who are already developing many features either partially or entirely.

Competitive pricing

The right prices and optimal subscription models are a decisive factor in determining the attractiveness of on-demand services for customers. From the perspective of automotive OEMs, this involves finding a compromise between desired customer flexibility and a profitable minimum feature cost per booking period. In this context, the relevant questions we consider are: "What does an ODCF revenue stream look like from an OEM's perspective?", "How long is the perceived ODCF vehicle lifecycle?". We as Deloitte can support you in addressing these questions with our profound experience in pricing models as well as user scenarios considering booking frequency, duration and average purchase prices.

ISO standards and regulatory compliance

A major risk for the calculation and conceptual design of ODCF are the ISO standards and the broader regulatory landscape that needs to be taken into consideration. Depending on the desired feature catalog, different international laws and requirements must be complied with. These include but are not limited to ECE-homologation and type approval, functional safety, automotive SPICE, and back-end defense mechanisms against cyber-attacks. We will dive deeper into specific regulations and their implications for ODCF in chapter 4. The key challenge in the conception of a valid ODCF business case is completely capturing all required compliance questions along the entire feature and vehicle lifecycles "from the cradle to the grave". Simple on demand features such as increased torque and horsepower of a BEV powertrain can have an impact on the insurance company in case of an accident and variable performance output of the powertrain. Taking account of all relevant regulations and mitigating the associated risks is a task that requires strategic alliances and partners in the automotive ecosystem. Deloitte can help to efficiently map the relevant legal requirements to ensure full compliance and type approval in the execution of ODCF.

New revenue streams

While the new vehicle sales markets in Europe and North America are saturated, ODCF opens new revenue streams along the entire product lifecycle from brand new vehicles to used cars. By 2050, it is estimated that 50 percent of all automotive revenue worldwide will stem from Mobility as a Service, functions on demand and other digital services. Despite its marginal revenue in today's world, ODCF has the potential for significant CAGR over the next decades, leading to an increase in revenue streams for OEMs, tier 1 suppliers and third-party enablers such as hyperscalers. Furthermore, car subscriptions in combination with ODCF are beneficial to OEMs in two ways: firstly, a lower psychological barrier for customers who want to try out new features, and secondly, smaller but recurring payments are perceived by customers as less expensive than single larger transactions.

Development of data-driven business models

On-demand car features as a business model brings new customer added value with the new "over-the-air" sales channel. The data derived from the vehicle or customer purchasing behavior has great relevance for the ODCF business model. The data becomes meaningful once it allows direct conclusions to be drawn about future features and customers' consumption behavior. The challenge in this context is how OEMs can use data for and in the sale of ODCF. In this regard, we find the following questions to be extremely relevant: "What data is available to whom from a regulatory point of view?", "Which insights are possible to derive and what data evaluation techniques make sense?". Similarly, a data compliance analysis of potentially available data to generate and adapt ODCF business models from the perspective of OEMs, tier 1 suppliers, and hyperscalers could also provide interesting insights.

Product dimension
This dimension considers the "vehicle" product and the required technical requirements to implement on-demand features. These include hardware components, software, and architectural design.

Standardization vs. individualization
The paradox of greater individualization among increasing standardization is being brought to the forefront by the increase in demand for ODCF. On the one hand, OEMs aim to standardize components and processes in order to reduce production complexity, shift towards vertical integration and thus, save costs. Against this backdrop, tier 1's can shift from their current role as traditional hardware suppliers towards the role of integrators with regards to in-vehicle technology. On the other hand, customers want more individualization. They want to be able to personally design their vehicles as "second homes". The more seamless this process is for the customer, the greater the unique selling point for the respective OEMs. ODCF will be the decisive factor in maintaining customer brand loyalty in the future.

Privacy and security by design
As with every IoT business model, the protection of privacy with corresponding system configuration options for the vehicle's communication with the ecosystem is a crucial task for OEMs. Because data protection violations can result in severe penalties, secure function and update downloads are of central importance. A detailed security design for the vehicle architecture specifying exactly which security circuits apply to corresponding cloud instances and their upload/download options, is therefore decisive. There are different data protection laws which need to be considered such as the General Data Protection Regulation (GDPR) or market specific data regulations. No matter how many features are to be implemented, OEMs are obliged to establish processes that ensure compliance over data protection measures. OEMs are aware of this, but we have observed that established processes at most OEMs lack cost efficiency and will most likely be a major cost driver in the future. We as Deloitte can help OEMs implement efficient processes to both meet regulatory requirements and reduce costs.

Software defined vehicle architecture
The use of on-demand services involves technological requirements reflecting current trends in vehicle architecture development; Vehicle architecture will become more centralized, making use of IT-oriented technology and architectural patterns, from software developed for specific hardware to more centralized software separated from hardware.

Today, architecture is characterized by distributed, function-specific ECUs, embedded applications dedicated to each hardware component, and most operations running in the vehicle – with only limited support by backend system. However, future vehicle architecture will be characterized by stacks becoming horizontally integrated, by in-car and backend functionality, as well as by new layers being added to the stack for HW abstraction and application facilitation. Physical hardware and functionality will be decoupled over time. In addition, new capabilities for autonomous driving (e.g. AI) will be added to the in-vehicle technology stack along with powerful central computing units and virtual machines. Centralization of ECUs and functionality will be the cornerstone of future vehicle architecture. In a nutshell: E/E architecture is evolving from a physical electrical system with several CAN-buses towards a more centralized automotive ethernet architecture with a zone-based virtual electrical system and higher cybersecurity. Deloitte has vast experience in supporting vehicle architecture design conception and implementation in collaboration with OEMs.

Standardization of interfaces between software modules
The electrical and electronic (E/E) architecture of vehicles is currently based on numerous electronic control units (ECUs) with fully integrated functions, proprietary software and sensor/actuator connectivity. In premium vehicles, the number of ECUs is already becoming chaotic. The high number of ECUs and the physical connection via CAN-bus increases complexity and has limited scalability and connectivity with regards to computationally intensive functions. The number of ECUs can be reduced by standardizing vehicle interfaces: the more uniform the interfaces between individual software modules and levels, the lower the development complexity. This also favors the use of central high-performance computing to process all data collected from the individual ECUs to enable level 4 ADAS in the future.

Operations dimension

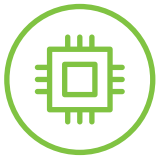
This dimension pertains to all aftermarket actions carried out to monitor and develop further products with captives, offer comprehensive customer support and effectively manage fleets.

Omni Channel Customer Support

An important opportunity for OEMs and tier 1 suppliers to set themselves apart from the competition is through offering omni-channel customer support and rethinking the role of OEM dealerships. ODCF and new agency models will lead to a shift in the automotive retail value chain. Dealers will become the new hub of physical touchpoints to help in case of errors, wrong bookings or to answer questions via phone, in person, or the internet. ODCF requires suitable training of all staff involved to introduce the customers to new features and inform them about changes in current functions. Dealers will be responsible for organizing and offering test rides, explaining the ODCF portfolio and features, and taking on the role of various consulting services regarding future vehicle purchases, ODCF product information and pricing. Even though on-demand features are digital assets, physical training and dealership support is important to achieve high customer satisfaction and to ultimately ensure the success of global rollouts.

Third-party risk

A typical operational threat for ODCF is third-party risk. A part of ODCF relies on cloud computing and the technical infrastructure of hyperscalers, such as AWS or Microsoft Azure. These often contain a certain outage probability in their Service Level Agreements (SLAs). In case of uptime lower than 95 percent, an AWS customer will get 100 percent of their money back. 5 percent downtime is of course unacceptable for ODCF and the functional safety of the vehicle. Therefore, it is crucial to abide by confidentiality and integrity, reduce the failure risk of third-party providers, and to increase backup plans and protocols in case a provider becomes a victim of a cyber-attack.



Technology dimension

Our technology dimension refers to the compliant use of ODCF-enabling E2E technology and management systems along the entire value chain from conception to aftersales based on our holistic view of the ODCF ecosystem.

Data compliance

Before the collected data can be analyzed and new insights are gathered, the data sources and right to collection have to be secured in accordance with current and applicable regulations. The complexity of this phenomenon is increasing due to the fact that the OEMs do not always have data sovereignty; in some cases, tier 1 suppliers have the rights to the data coming from or pertaining to specific components they have developed. Data compliance is critical when offering ODCF, and non-compliance can be sanctioned by high penalties if data is not sufficiently encrypted, the permission to collected specific data is not valid, or if personal data is transferred between different entities without permission. Data compliance is a crucial prerequisite to successful data management, which is in turn necessary to leverage the true potential of ODCF.

Tamper-proof Accounting

To offer ODCF on a large scale as an international OEM, a central tamper-proof accounting system must be set up or adjusted for the purpose of recurring revenue streams and cancellations. Captives and auto banks will have to deal with thousands of daily transactions of ODCF bookings on top of the usual leasing rates, car loans and dealer financing. While modern payment systems are capable of handling a large number of transactions, the accounting of such revenues in the balance sheet can be more complicated to set up. A robust and performant enterprise resource planning (ERP) system is crucial for ODCF operations in order tackle complex and numerous revenue streams, as well as manage individual contracts between OEMs and tier 1 suppliers. For example, providers of ODCF should ensure that contracts address potential issues pertaining to economic ownership or non-activated ODCF hardware components, which has important accounting implications. Furthermore, suffrages and definition of IFRS standards, which affect ODCF, have to be carefully assessed. This calls for a modern ERP system with a precise internal control function to achieve realistic targets and compare pilot markets. One of the important questions here is how cancellations or bookings impact the P&L of tier 1 suppliers in revenue sharing models with OEMs. Deloitte's audit specialists can help to derive a suitable concept to decrease costs and ensure compliance with IFRS and various individual national and international standards.

Chapter 4: Regulations

"As connectivity and OTA become an integral part of the modern vehicle, there is an acute need for action to ensure regulatory compliance."

With compliance, security, and software update management on the ODCF process landscape, adherence to new regulations such as those posed by the UNECE for cyber security management is a key success factor. UNECE recommendations on cyber security are legally binding regulations for all contracting parties. The implementation of an end to end cyber security management system is a prerequisite to obtaining vehicle type approval. In addition, the establishment of a software update management system (SUMS) is mandatory. CSMS processes must be applied during vehicle development, and legacy vehicle OEMs which fail to comply with the provisions of UNECE regulations are likely not to obtain type approval for new vehicles. Some of the regulations are already affecting current vehicle types and starting from 2024 the cycle will be more vicious. Therefore, we recommend when building a CSMS, to have a collaborative, holistic perspective from the development of a vehicle to monitoring the fleet. Implementation requires measures at several organizational levels: governance, collaboration, and vehicle projects. For holistic governance, it is necessary to establish suitable processes for identification of risks in on-board and off-board systems and to define the access area of the CSMS in the company. Successfully implementing this will result in sustainable, long-term benefits that enhance business models such as that of ODCF.

The cyber-attack factor will significantly increase with the number of features that can be remotely unlocked in the vehicle. This increased risk makes it more important to have a strict and secure verification system that ensures transparency over threat situations and enforces security. Features that have an influence on safety must be well isolated to prevent the danger of, for example, a heated battery resulting from the on-demand enablement of additional horsepower. The activation of features can by no means have any negative influence on safety, and this has to be ensured by design.

Regulations can therefore be seen as a catalyst or enabler for the implementation of end-to-end customer requirements for offering ODCF. Regulations remain important for production, operations and the overall alignment of the ODCF portfolio; they are best addressed through iterative compliance processes.

We have developed a systematic approach for the implementation of ODCF that takes the above challenges into account from a holistic E2E perspective. Our operating model consists of four distinct dimensions: business, product, operations and technology. Building upon this operating model we have designed a readiness gap analysis to assess the preparedness of OEMs, tier 1 suppliers and hyperscalers alike for the successful implementation of ODCF. We leverage our defined key success factors to identify the major action areas for our clients. The combination of our analysis and approach can help our clients take crucial steps towards the sustainable realization of customer value creation through on-demand features.

"It is crucial for OEMs to be aware of the risks and carry out a comprehensive risk assessment, implement appropriate measures and also prepare both systematically and mentally for cyber-attacks and IT-security incidents. The introduction of transparent processes by regulators allows OEMs to work in collaboration with suppliers and provide evidence of ensuring sufficient safety mechanisms, as well as stable processes across the entire lifecycle of the vehicle. In this context, the regulatory documentation requirements serve to enable this in the best possible way. OEMs and suppliers will benefit from today's efforts towards regulatory compliance when it comes to the future of ODCF."

"The business case for ODCF shows the current trend towards which the automotive industry should orient itself. The industry has high potential for generating new revenue streams in the future and supports the quest for ensuring customer value in several vehicle lifecycles. OEMs, tier 1 suppliers and hyperscalers have recognized the market call and they are on the right track. The relevant questions to ask are: What does the business case of ODCF imply for the organization at large? What does it mean for future vehicle architecture? What do we want to focus on as OEMs, tier 1 suppliers and hyperscalers to meet customer demand and gain market share? What are we willing to invest and what does the ODCF business model and offering look like both short and long-term?"

Chapter 5: Our Readiness Gap Analysis Checklist

Readiness for ODCF implementation
Our ODCF readiness gap analysis provides a starting point for the creation of a strategic roadmap and budget planning for the successful compliant implementation and market launch of ODCF to the end customer. To ensure a successful ODCF rollout, OEMs should aim at achieving high scores of readiness across 4 dimensions.

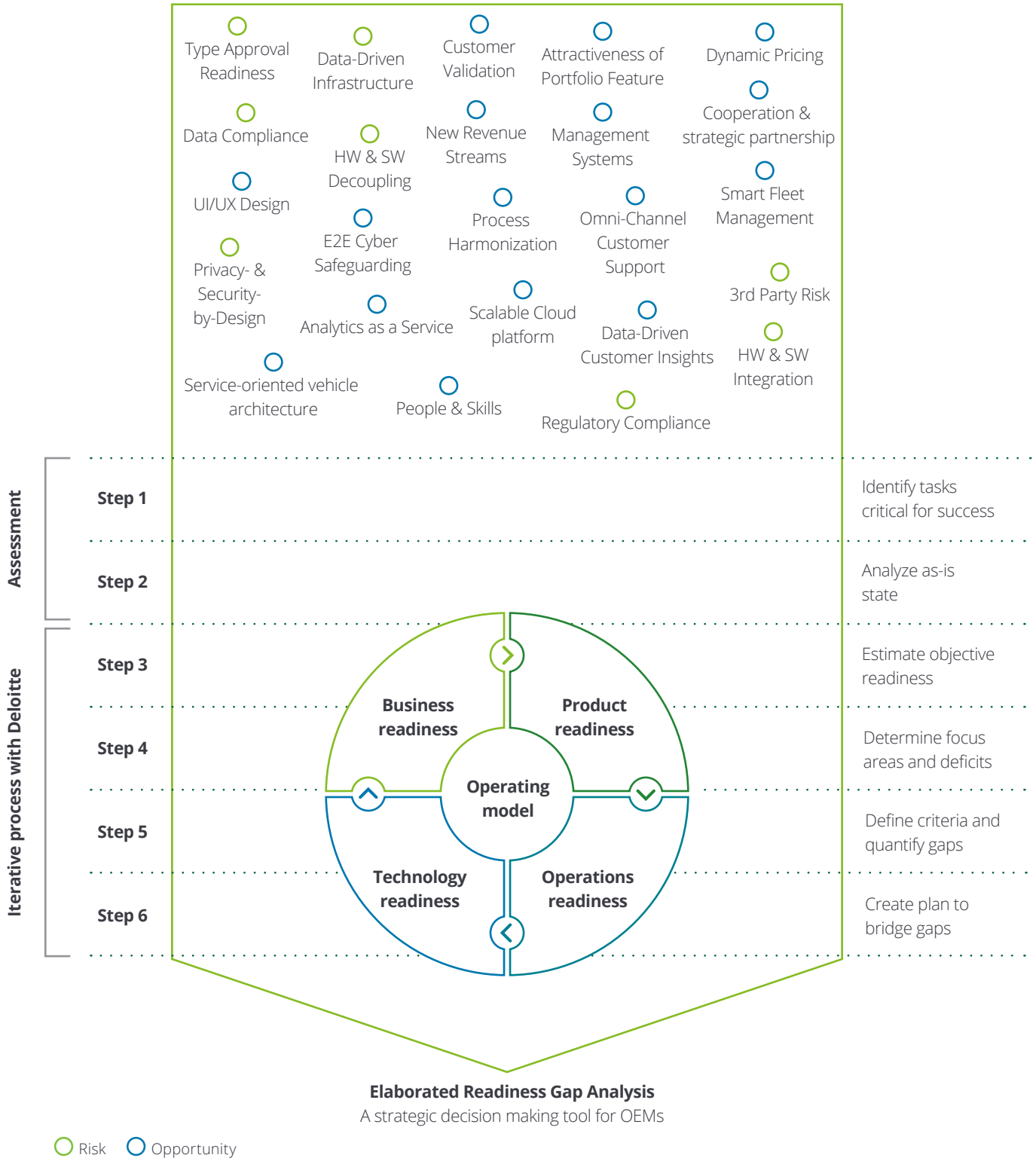
Business Readiness
OEMs and suppliers understand the value of common digital services (by ensuring mutual buy in) and are ready to make the necessary investments. Viable data-driven business models have been developed and approved through in-depth cost and revenue calculations as well as scenarios. The decision-makers in the organization have a clear strategy for the future ODCF catalogue that appeals to different customers across different market segments while generating valuable customer data. Additionally, the regulatory landscape has been assessed and the attractiveness of portfolio features and competitive pricing has been validated.

Product Readiness
The OEM has developed the necessary software-defined vehicle architecture as well as all technical software and hardware components with their strategic alliances to implement on-demand features. This includes the homologation and type approval of all hardware- and software-related components necessary for the defined ODCF portfolio, including privacy and security by design measures. Sensor and customer engagement data is available and used.

Operations Readiness
The OEM has a holistic lifecycle management system in place, which considers hardware development cycles, customer engagement and type approval implications. The E2E ODCF process is compliant in terms of regulatory and processual requirements and third-party risk is minimized. Aftersales omni-channel support is in place, including business intelligence extraction to develop new product offerings and adjust current products and services. ODCF sales are monitored with captives to effectively manage fleets and refine the B2B offering.

Technology Readiness
The OEM has set up the technological framework of the ODCF ecosystem including the necessary software update and cyber security management system infrastructure. The OEM is in a position to offer not only software features but also hardware functions as a result of hardware-software decoupling. In-car/app payment mechanisms are in place, and tamper-proof accounting is set up and built. The central data management and analytics are in place and processes meet the relevant data compliance requirements.

Fig. 3 –Assessment of the OEM's readiness for On-Demand Car Features along the business, product, operations, and technology dimensions



Chapter 6: Conclusion & Next Steps

To sum up our findings, automotive vehicle development is undergoing one of the biggest transitions in history, in order to build a new generation of connected and customizable cars. Re-thinking the vehicle architecture is fundamental, and the key is simplicity and less complexity. Continuous extension of and adding black box components and modules to an existing platform is no longer a sustainable approach towards achieving customer-oriented in-car value creation. Nonetheless, we believe that starting with compliance and a structured process combining the right tools is the key enabler to bringing ODCF to the market. Additionally, creating a strategic approach that incorporates the combined strengths of OEMs, tier 1 suppliers and hyperscalers will be a game changer. On-demand car features are a complex challenge to implement, and our readiness gap analysis is a holistic approach that seeks to unveil dependencies while providing an academic basis upon which we as Deloitte can build to provide value for our customers and increase the profitability of their ODCF businesses.

In the future, we would like to perform deep dives into each of the technology readiness parameters and explore their interdependencies in order to outline how OEMs, tier 1 suppliers and hyperscalers can prepare for future data driven business models.

You can find the complete list of our publications as well as more information about our team here.

Please reach out to us with any questions or if you are interested in our ODCF solutions.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