



## WHITEPAPER

# Smart finance services for future-oriented mobility concepts

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The mobility market is on fire

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Smart city is getting in shape – including a new way of mobility. Get a first insight into the dynamic changes of tomorrow's mobility market and why pioneering ideas and innovative technologies play an important role.

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Being flexible and scalable is the pillar of a successful digitization strategy. An idea that just as well applies to offering future-proof mobility solutions. Learn how a cloud-based monetization platform can help solving key challenges.

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Short time-to-market, fast sales-cycles and flexible adaptability to dynamic market conditions are business must-haves. Find out how to get your new-mobility-solution going by using the Nitrobox-platform.

# SMART FINANCE SERVICES FOR FUTURE-ORIENTED- MOBILITY CONCEPTS

**This whitepaper provides an overview of trends and developments concerning the ever-exciting topic „new mobility“ – including answers to the question of why smart monetization technologies will become a necessary success factor for future-oriented business ideas in terms of tomorrow’s mobility.**

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## Smart transport systems shape the „Smart City“

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The mobility market is on fire - not just in Europe, but around the world: New players and innovative models are coming up with impressive dynamism in terms of locomotion as well as transport. In particular those living in urban areas are keen on getting from A to B and doing so independently and purposefully. Big cities and smaller municipalities are both investing a lot of hard work to improve concepts such as car, bike and taxi sharing or even self-driving shuttle services. All of these approaches comply with the sought-after principles of sustainability, flexibility and independence. The timing for realizing „smart city“-ideas couldn’t really be much better – especially since a great number of developments are going beyond thanks to digital technologies.

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## Customizable service for better individual transport

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Research and Development departments are working hard in both public transport as well as the automotive industry. In 2019 alone, German automotive manufacturers and suppliers have been responsible for 51.68 billions of euros of investment. An impressive sum that, according to current estimates, will even increase by a further two billion euros in 2020. And - no doubt - the joy of innovation comes with great effect. Connected services and smart additional offers are now part of modern innovative cars.

Customers’ desire for individual design and functionality is shaping the way we think of future modern driving more and more. Automotive manufacturers also keep developing new concepts that are meant to outgrow the philosophy of „functions on demand“. Similar things can currently be seen regarding the question of „ownership“. Big players such as Volvo are working to achieve nothing less but a reinvention of the wheel and work on offering an alternative to traditional leasing by car subscriptions. This way, subscribers can change models within a relatively short period of time while the subscription itself includes all and any costs – fuel excluded.

Thanks to these mobility models, providers are able to achieve individuality that meets the customers’ high demands for tailor-made, needs-based and flexible service. Location, time, travel mode and even the vehicle model as well as engine will soon be nothing more than a question of configuration.

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## Key investments with „Smart City“ infrastructure

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If you want to rethink mobility itself, you will also have to keep in mind the developments concerning e-mobility. In this day and time, we are experiencing a clear paradigm shift in both public transport as well as individual mobility. In many cities, buses and municipal commercial vehicles for example have already



### FOR MORE SUSTAINABLE MOBILITY INFRASTRUCTURES AND NETWORKS

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**„Investments have to be redistributed into sustainable mobility infrastructures and networks. Both manufacturers as well as vendors are looking for reliable political framework conditions and smart regulations in order to be able to bring climate-friendly innovations to market.“**

*Mobility Atlas, Heinrich Böll Foundation 2019*

been transformed into electric drives and the number of private e-bikes, e-scooters as well as e-cars is increasing day by day too. Following this trend, the need for smart e-charging devices comes as no surprise. Both public as well as private vehicles manufacturers will need to invest in modern infrastructure today in order to meet tomorrow’s need for charging equipment.



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## Sustainable mobility has to be financially flexible

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Smart cities, smart vehicles, flexibly configurable car-services, innovative e-charging networks - our vision of modern mobility is a complex one. And on top, it comes with great challenges. However, one thing is clear: the better a mobility offer is able to adapt to the ever-shifting expectations and needs of its customers and the better it can integrate into existing structures, the higher its chances of being successful will be in the long term. This idea is true for both young start-ups as well as already well-established companies that are willing to expand their core business with innovative mobility products.

Scalable and flexible business models, that are flexible enough to be customized until the tiniest detail are based on a number of configuration options. Furthermore, they continuously deliver extensive amounts of user, movement, subscription and payment data. A complexity that just as well is reflected when it comes to financial processes. Very often, the company's already existing

internal IT is not suitable to map such data-intensive, time-critical and individual data. The processing of relevant monetization processes - from pricing to billing - in order to create smart management is especially demanding when companies operate on an international level.

Modern mobility solutions come with thousands of transaction data. These so-called micropayments should be processed within a couple of minutes to ensure order-to-cash flows in real time. Smart finance services make sure that existing IT is not overloaded. And this is exactly, where the Nitrobox platform solution comes in. Not only does it guarantee a smooth order-to-cash flow, it can also quickly and easily be connected to the already installed IT infrastructure.

### BEST PRACTICE: "PORSCHE CONNECT"-SERVICES

Porsche is one of the leading providers of high end mobility - and adds to their customers' driving experience by offering additional services such as flexibly configurable infotainment packages or digital parking space bookings. The „digital co-pilot“ in their luxurious sports cars is made to ensure the customers can fully focus on the road and their own driving experience.

The sheer endless thousands of billing processes that come with that are well hidden behind the „Porsche Connect“ services – using the Nitrobox solution. Porsche employees rely on a web portal that is built according to their updated requirements. Regional sales providers can access invoices, account balance, various information and documents.



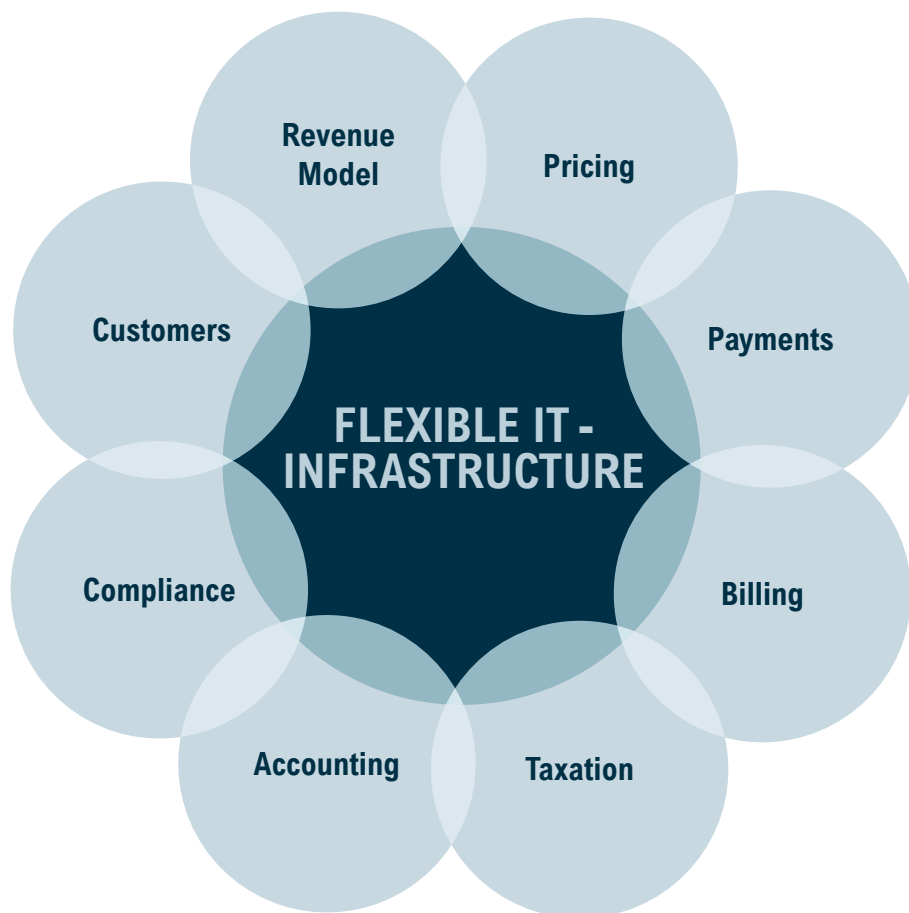
### BEST PRACTICE: ELLI – E-CHARGING

Launching Elli - short for „Electric life“ – in 2019, the Volkswagen Group has founded a subsidiary in order to organize the interface between mobility and energy supply. Providing energy and charging solution, Elli is a comprehensive and intelligent end-to-end package regarding charging services that cover any aspects from hardware to actual service as well as maintenance. The energy supply is based on renewable sources while the smart charging solutions target both end consumers as well as b2b-cooperations. Elli too relies on the Nitrobox platform concerning any monetization flows – B2B and B2C.



# FINANCIAL PROCESSES ARE BECOMING HANDIER AND MORE INDIVIDUAL

Innovative mobility products can be characterized by their great flexibility – while individual subscriptions and user-dependent services make for attractive offers, the companies have to face new IT challenges. Especially thousands of small-scale transactions force their financial systems to cope with a huge number of micropayments.



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Customers expect a smooth experience - even when paying

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Dynamics in the mobility sector are unique. Public transport offers are more and more being tailored to the individual customer and featuring multimodal offers. In the meantime, individual travel and means of transport show a growing number of bookable optional services; riding a bike, e-scooter or car is becoming an urban experience that meets comfort as well as sustainability. However, integrating public transport and individual transport is becoming an equally important challenge – especially when it comes to connecting rural structures to urban transportation networks.

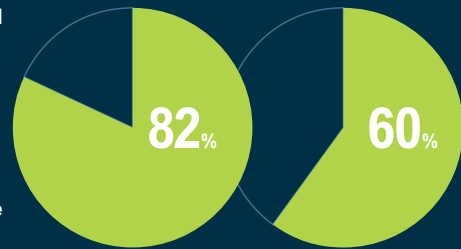
The goal? No traffic jams or annoying search for parking lots and smooth travel chains as well as a maximum of amenities instead

– customers now expect seamless mobility experiences to add to their quality of life. The automotive industry itself is turning more and more into a mobility provider instead of just a manufacturer.

One paradigm is especially crucial when it comes to the technical integration of innovative solutions: easy booking and payment processes. These may range from cashless payment at the parking lot, to electronic tickets for public transport or the convenience of charging processes in terms of e-mobility. Cash and card payments with additional gaps like Pin-entry or the need for a signature are being perceived as a flaw in customer experience. The same applies to the flexible configuration of individually booked services, modern leasing or rental concepts. Customers no longer want confusing bills but reliable, integrated and individual payment processes.

## STUDIES SHOW: THE URGE FOR COMFORTABLE PAYMENT PROCESSES IS HIGH AS EVER

According to the “Mobile Payment Report 2019”, created and published by the consulting firm PwC, roughly 60 percent of Germans believe that mobile payment services make shopping itself easier. Looking at consumer behaviour from a global perspective, German consumers even appear to be quite conservative in this matter: A current, worldwide study by credit card company MasterCard suggests that 82 percent of those surveyed consider contactless payment methods to be “the cleaner way” of payment.



### Micropayments take IT systems to their limit

Nowadays, thanks to the advanced technological framework conditions and digitalization, mobility models that would have hardly been conceivable just a few years ago are no challenge. However, at the same time, these possibilities increase the complexity of underlying structures. Micropayments – thousands of small-scale transactions - have to be processed with maximum efficiency in order to make services and offers worthwhile at all. But what does this mean for mobility service providers? Anyone who is planning

Resource Planning (ERP) solutions, Customer Relationship Management (CRM) software as well as billing and bookkeeping applications have been well-established for most companies. Nonetheless, these systems are not flexible enough to manage this sheer amount of individual processes and cannot be adjusted fast enough either.

### Traditional systems require advanced capabilities

Companies that want to establish new mobility offers on the market find themselves tricked: On one hand, they have to ensure that the margins for new services are not eaten up by the managing costs for financial processes. On the other hand, it is crucial to invest in technological expansions, as otherwise the cost-benefit balance turns around. To part with proven but less flexible systems would not be a desired financial result. After all, business-critical financial solutions and application structures that have been implemented years ago will still depend on these IT sets. Finally, companies need a much more investment-friendly and pragmatic option to solve the dilemma of a lack of flexibility.

The key lies in expanding traditional environments: this way, IT managers can create the necessary conditions for future-proof business models if they are equipped with additional capabilities. A smart platform for billing digital services is the ideal addition to existing IT systems in order to pass smooth monetization processes and a fast time-to-market for new services as well as products.

## PARTICULAR CHALLENGE: MONETIZING ON AN INTERNATIONAL LEVEL

**Companies that operate in a number of countries or even continents face an additional challenge: they have to consider different currencies, languages, legal structures and tax regulations when it comes to finance. Furthermore, they have to continuously integrate their systems according to ever-changing standards. Thanks to its individually adaptable business rules, our smart Nitrobox monetization platform offers a real-time solution that is only one push of a button away.**

to establish a new mobility offer will, in addition to a good idea, need flexible monetization structures. The more detailed and complex the individual steps for ordering and paying become, the more they are pushing existing IT systems to their very limit. The number of processes and data sources that are to be integrated with one another in a scalable, secure and compliance-compliant manner go from pricing, payment and billing to tax as well as financial analysis in terms of strategic management. Enterprise

# THE BIGGEST CHALLENGES IN MONETIZING MOBILITY OFFERS

- Dynamic booking, individual contract conditions and different forms of use have to be integrated into one single invoice.
- Discounts and vouchers for customers and collaborating companies have to be issued and taken into account.
- Thousands of small-scaled micropayments are generating a huge amount of data and have to be reliably and quickly transformed into billing data.
- A great variety of international and country-specific legal and tax framework conditions have to be taken into account and make for additional complexity.
- Features from different IT segments of a company - ERP, CRM, as well as billing, accounting and payment management - must be intertwined with one another in order to ensure flowing monetization.



## CENTRAL CHALLENGE: SCALABLE MONETARIZATION OF VEHICLE DATA

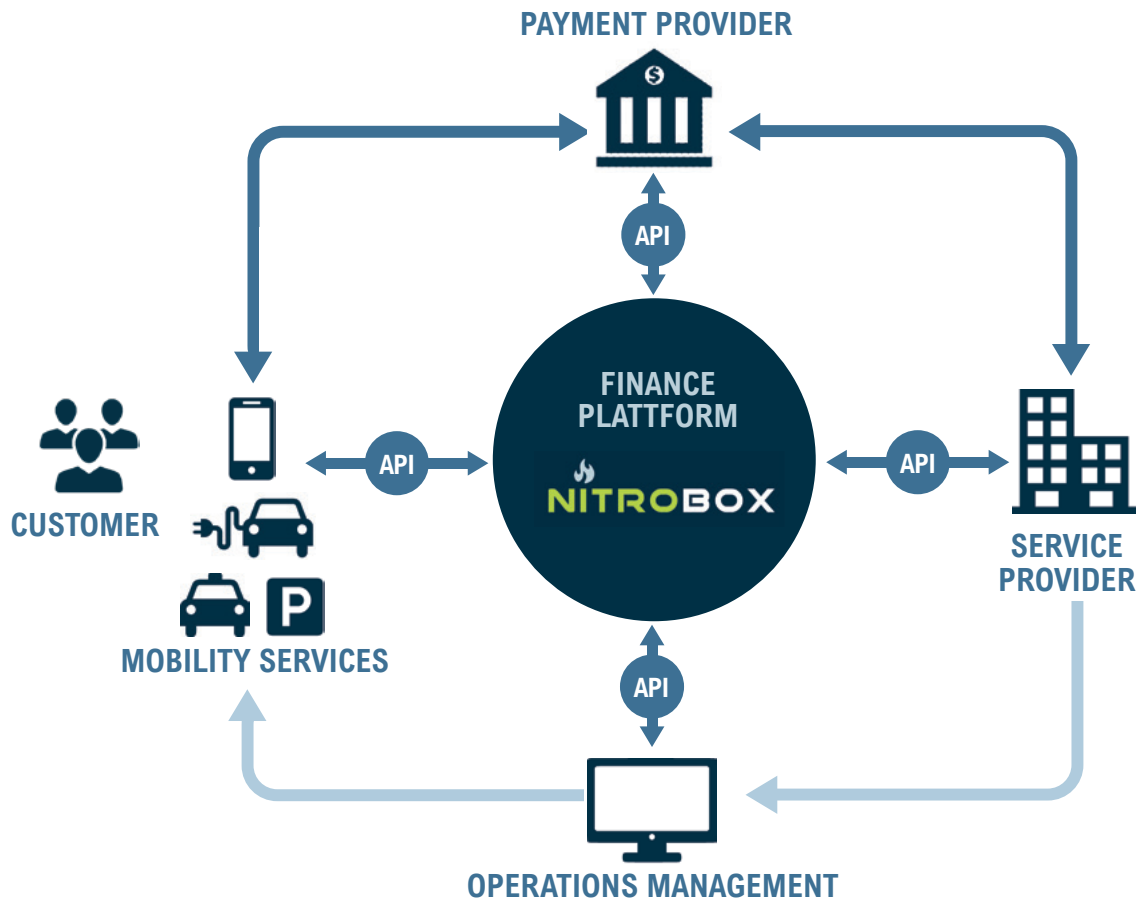
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„As a value pool, (car) connectivity may reach \$450 billion to \$750 billion worldwide by 2030. But doing so will depend on the ability of market players to use the data generated by cars, drivers, and mobility systems to develop products that create revenue, reduce costs, and enhance safety and security. While the potential is significant, monetizing this car data at scale remains a major challenge.”

*McKinsey Report, 1. März 2018*

# THE SOLUTION: A CLOUD PLATFORM FOR AGILE AND AUTOMATED BILLING PROCESSES

Nitrobox technology combines all functions within one single cloud platform and can be easily connected via latest APIs, providing a SaaS-solution that is adaptable to existing financial systems and providers. Designed for monetizing complex digital business models, accounting processes and booking rules are adaptable and changeable according to individual needs. After finishing the booking procedure, the subledger will be integrated into the general ledger.



## NITROBOX - SCALABILITY BY DESIGN

Thanks to the cloud-based monetization platform, Nitrobox offers „scalability by design“ - the scalability of processes is the core of Nitrobox solutions. This way, order-to-cash processes can be quickly and easily integrated into already existing IT infrastructure – this will ensure maximum freedom for implementing innovative business models as well as a fast time-to-market.



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## Quick and easy integration for mapping financial processes

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The Nitrobox platform is the technological base for mobility providers in order to handle financial operations of complex business models. The cloud-based solution provides all necessary components to model prices and control invoicing. Furthermore, its modules also ensure important aspects of company-wide finance, such as revenue recognition and accounts receivable or the monthly closing - all that thanks to efficient automation. The Nitrobox platform offers all functions that are required for a seamless monetization of mobility offers: It brings together all processes from a whole customer lifecycle - pricing and payment to invoicing and receivables management. The technology can be turned on by simply pushing a button and can be easily integrated into already existing system infrastructures. With the Nitrobox platform, you are able to connect to large ERP systems such as SAP, SAGE or Oracle.

The basic idea is simple yet efficient: Separating the general ledger and subledger enables split financial processes. While the central financial systems keep the general ledger, certain transaction segments - which represent complete business models such as e-commerce or digital services - can be managed separately via subledgers. This is where the Nitrobox platform helps out. At the end of the process chain, all data is consolidated again using a general ledger.

## MAXIMUM CLOUD-SECURITY

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**Experience shows that a high level of deployment flexibility based on cloud technology and maximum IT security do not contradict each other. It rather depends on the right hosting concept. The Nitrobox platform can be run in both public as well as hybrid cloud environments and can be operated in multiple regions worldwide. Nitrobox also relies on the infrastructure of reliable partners such as the cloud computing environment Microsoft Azure. This means that it meets the highest data protection standards and IT compliance requirements. For companies that have to obtain special requirements concerning their security concept, it is even possible to operate "on premise" - meaning on-site on the company's own servers.**

## PERFORMANCE PACKAGES EASY TO BOOK AND UPGRADE

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**Scalability is where it all begins and ends - using the Nitrobox platform, business models can be implemented quickly and easily and can be expanded at any time. Thanks to microservices, additional features can be integrated even during running operations - just like targeted automation of individual workflows, business cases or booking process logic.**

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## Microservices architecture creates flexible structures and high interoperability

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To process thousands or even millions of transaction data in a few minutes, the architecture of the order-to-cash platform from Nitrobox works based on microservices - a concept that is characterized by low dependencies, high scalability and a smart task-distribution. This way, processes are no longer considered monolithic, but rather detached from their silo structure and orchestrated into small parts by integrating language-independent interfaces. The core of this architecture idea is that services should be maximally decoupled from each other and therefore able to carry out small, clearly defined tasks. Therefore, it is ideal for complex monetization structures including a lot of small-scale micropayments. This way, companies are benefitting from micro-service-based architectures, while not compromising in terms of interoperability and connectivity of systems.

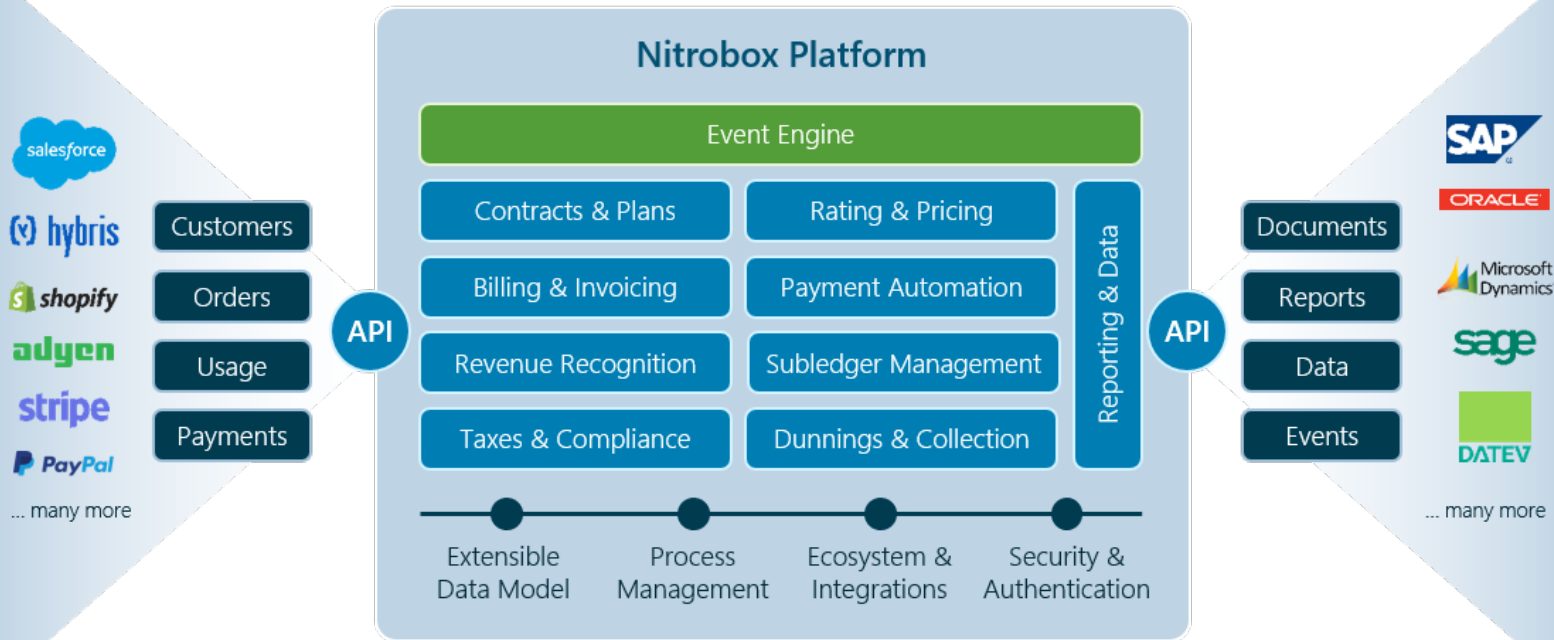
The Nitrobox platform features an easy access to programming interfaces - thanks to REST APIs. REST stands for „Representational State Transfer“, API for „Application Programming Interface“. What that means is a programming interface that is based on the principles of the World Wide Web and able to describe an approach for communication between client and server - or in the case of monetization processes between the Nitrobox platform and the corporate financial IT. The REST interfaces are easy to use, extremely flexible and can easily be scaled.

## Standard modules form a great toolbox

The Nitrobox platform enables mapping and modelling individual processes quickly and easily – thanks to standard modules. Furthermore, the standardization and automation of tasks ensures reproducible workflows. The platform allows managing and operating any financial functions from subscriber management to flexible billing and invoice, payment processing, automated accounting to integrated financial reports and archiving.

Nitrobox collaborates with dedicated cloud instances - this means that each and every company can have their very own infrastruc-

ture for hosting, storing and operating an individually configured order-to-cash application. In addition, the Nitrobox software engineering relies on latest DevOps methods - i.e. close cooperation between development and deployment (operations). Tools like Docker containers, Kubernetes clusters or Terraform are used to ensure fast and secure deployment.



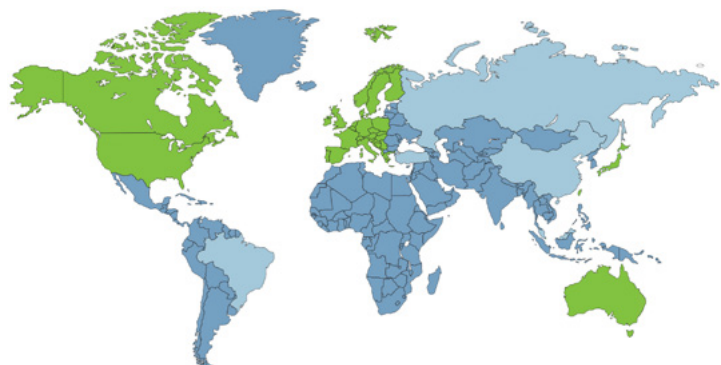
## WORLDWIDE USE OF THE NITROBOX PLATFORM

### No limits for internationally operating mobility providers

Nitrobox currently covers compliance-relevant requirements in 80 countries around the world - from regulatory requirements to tax legal information. Different VAT rates or country-specific and product-specific fiscal charges are automatically considered. Furthermore, Nitrobox relies on compliance with regional or national regulations for electronic invoice and archives as well as data storage and data protection. Many different currencies and operational languages are as well part of the Nitrobox platform service portfolio.

To ensure that the internationalization of business models and new mobility concepts do not take up too many resources and ultimately become too costly, it is crucial for the technical infrastructure to already provide appropriate routi-

nes and key figures. A global setup of an order-to-cash platform is especially relevant for companies whose business models need to be successful on an international level.



# MAXIMUM SPACE FOR NEW MOBILITY CONCEPTS

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## Easy deployment for fast business success

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Dynamic markets ask for quick action - the shorter the time-to-market of a new product, the greater its chances of long-term success are. Using the Nitrobox platform, companies can increase the speed with which they introduce new mobility solutions and billing models. At the same time, this saves time to the first turnover. The result is a quick monetization of new business models.

The Nitrobox technology brings together all the necessary functions for mapping financial processes for just any business model within a central platform anywhere in the world - in real time. The great flexibility of processes, the exact implementation of business rules and the easy usage enable worldwide processes within just a few weeks. Due to the platform's high scalability, the number of microtransactions can be increased rapidly, enabling unlimited business development. A dynamic that is crucial for future-oriented ideas that can be established.

The Nitrobox solution processes micropayments in a fully automated way and this way keeps transactional costs extremely low. Another crucial aspect concerning the value chain, since the net profits for a service will not be eaten up by unnecessary payment and billing expenses. This aspect is of particular importance whenever an

offer consists of a number of small booking units. Examples would be the onboard booking and payment for parking lots or e-charging of vehicles such as cars, scooters or pedelecs.

## FLEXIBILITY AND SPEED

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**There is more than just one advantage when it comes to a powerful monetization platform. However, two principles stand out in particular: flexibility and speed. Nitrobox can be turned on in a very short period of time and maps individual financial flows of innovative mobility concepts down to the smallest detail.**

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# ADVANTAGES OF THE NITROBOX PLATFORM AT A GLANCE

- **Easy and quick implementation: short time-to-market for new mobility solutions and quick revenue generation**
- **Automation and standardization of processes: reproducible workflows, minimized individual costs and less error-susceptibility**
- **Scalability and expandability of valuable resources: reliable processing of huge amounts of microtransactions that can be expanded at any time**
- **Quick adaptation to individual national and international regulatory and tax law requirements: maximum compliance security for globally operating mobility providers in more than 80 countries**
- **Cloud-based platform technology: great flexibility and scalability with low costs**
- **Coverage of full customer and product life cycles: simple handling from subscriber management to archiving**
- **Transparent pricing: high scaling for margins even with small-scale services and transactions**

## VISIONARY OUTLOOK

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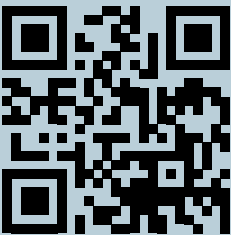
Working with Nitrobox, we are developing the necessary financial framework in order to offer various billing models for Porsche Connect and Smart Mobility services: ranging from time- or volume-based approaches to subscriptions. Besides the flexible adaptation and integration options of this platform, we are particularly impressed by the Nitrobox team and their visionary outlook.

*Stefan Zerweck, COO Porsche Digital GmbH*

## CONTACT SALES

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## ISO/IEC 27001 CERTIFIED

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