



Giesecke+Devrient

# Digital Payment Solutions

Connecting customers,  
transforming transactions



# G+D Digital Payment Solutions: connecting customers, transforming transactions

Corporations compete and collaborate. International traders make contacts and sign contracts. And consumers enjoy innovative products and services. Commerce makes the world go round. But the true enabler happens in the background: getting paid. Going beyond the card...

Money, credit, or points balance, the apparently simple business of debiting one party and crediting another is a complex web of legislation, standards, and technology. Giesecke+Devrient aims to make that complex web simple.

How? With a set of solutions for digital payments that's truly end-to-end, able to answer any use case for those who serve today's consumers. This White Paper explores the issues and their solutions... with an ecosystem of innovation

Part 1 lists the trends affecting how payments are made worldwide. Part 2 looks at the customer journeys made by today's consumer, and how they differ from a few years ago. Then in Part 3, you'll see G+D's Convego® family and beyond: the solutions that offer you an integrated, interconnected set of choices for satisfying customers in our digital world.

## G+D: the original fintech.

Whatever your digital payments challenge, G+D can help you solve it. Because our experience in payments technology spans over 160 and dozens of countries. Decade after decade, G+D has delivered solutions to bank, non-bank, and financial institutions of all kinds, all over the world. In a sense, G+D is the original fintech. In this White Paper you'll see why.

<sup>1</sup> McKinsey Global Payments Report, 2020

<sup>2</sup> "McKinsey on Payments", Issue 31 March 2021

<sup>3</sup> <https://www.juniperresearch.com/press/digital-commerce-spend-to-exceed-11-6-trillion>

<sup>4</sup> Source: McKinsey Global Payments Map

58%

Customers using two or more digital payments methods, a jump of 13 points over 2019<sup>1</sup>

2x

Contactless card awareness and adoption doubled between 2019 and 2020<sup>2</sup>

\$11.6tn

Projected digital commerce spending by end 2021<sup>3</sup>

3tn

Total cash, card, and electronic payment transactions by 2024<sup>4</sup>

»The proliferation of device types has created more choice: while forgetting a card is never fun, consumers can now make a payment with their phone instead.«

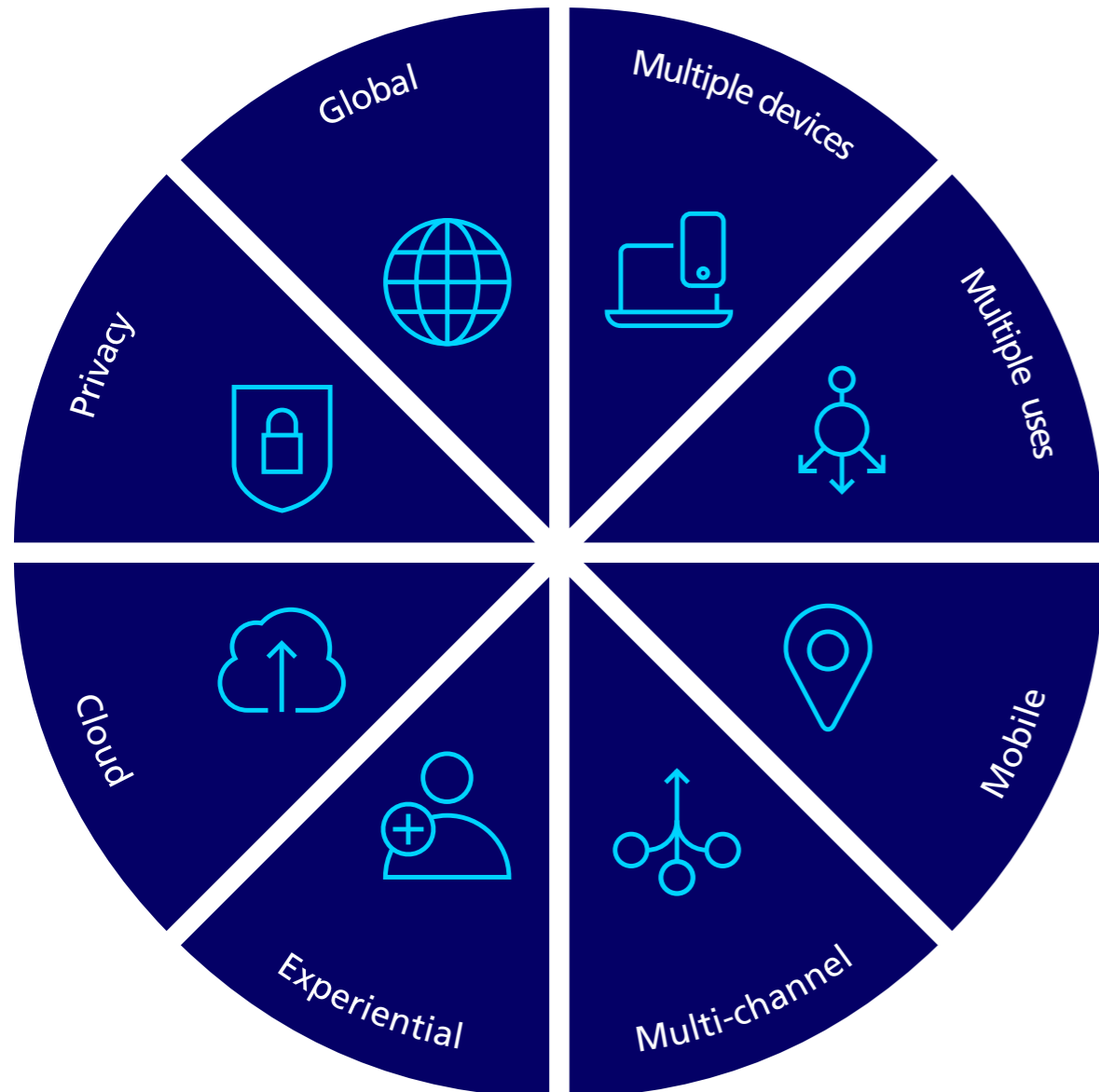
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## Part 1:

# How digital payments are evolving

## Eight factors affecting digital payments



»G+D has all the tools in hand to enable the building of compelling digital payment mechanisms. We found that these capabilities will be critical as the impact of digital payments throughout the financial ecosystem accelerates and as less traditional vendors try to build new payment solutions for consumers.«

Nick Maynard, Lead Analyst at Juniper Research

### Turning complexity into competitive advantage

Many factors are transforming the payments industry today. But eight stand out. What unites these eight: they all require the payments provider to balance complexity with simplicity.

### Broadening choices with deeper integration

The proliferation of device types has created more choice. A card accidentally left at home can now live in a virtual wallet too, and consumers make payments with their phone. And while the rise of neobanks and non-banks has made the marketplace more crowded, it's also led to the rise of simplified standards like Open Banking. While as the number of use cases increases, so have the possibilities for customer engagement and profitable up-sell and cross-sell. Let's take a brief look at each factor in this eight-wedge wheel.

# Technological trends answering customer needs

1

## Multiple devices

Today's digital payments ecosystem contains a multitude of device types, from banking apps and mobile wallets in smartphones, fingerprint readers for payment authentication, to fashionable wearables like rings and watches, to preloaded wristbands – all as companions to the devices in the customer's pocket. Among these form factors, which ones should be enabled for payments, and in what way? The correct answer: whichever ones your customers want.

**10+** Average number of devices owned by a US citizen<sup>5</sup>

2

## Multiple use cases

What's more, these devices are often multipurpose, fulfilling a number of use cases. A card may make contactless payments – but also collect points for a loyalty program. A wearable may authenticate a transaction – but also track your health. And countless other situations. But however complex the use case, the customer experience should be as easy as possible.

**50%** Of total retail payment volume in Europe is by card<sup>6</sup>

3

## All going mobile

Of course, all these are mobile too, transactions taking place across many wireless networks from WiFi to 5G – usually public. Meaning it isn't enough for payment technologies to work in the idealized environment of a lab; this new mobile world needs to complete transactions reliably, securely, and repeatedly, billions of times a day.

**67%** Of the world's population owns a mobile device<sup>7</sup>

4

## Multi-channel

But consumers no longer limit themselves to a single method of communication, either: conversations are multichannel, with chat windows, email, and others joining the spoken word as options for communicating with their bank. Keeping those conversations consistent and relevant across channels is another challenge.

**80%** Increase in customer visits with a multi-channel strategy<sup>8</sup>

# 5.2bn

People participating actively  
in the global economy<sup>14</sup>



<sup>5</sup> <https://www.statista.com/statistics/1107307/average-number-connected-devices-households-worldwide/>

<sup>6</sup> "Inside" industry magazine issue 18

<sup>7</sup> <https://www.bankmycell.com/blog/how-many-phones-are-in-the-world>

<sup>8</sup> <https://www.thinkwithgoogle.com/consumer-insights/consumer-trends/meeting-shoppers-needs-omnichannel-drives-instore/>

5

## Brand experience

Yet despite this explosion of options, consumers also want a consistent customer experience (CX). Payment choices where every step in every process feels part of the same whole, from the same trusted partner. With many banking services now commodified, the relationship with the brand matters more than ever.

**64%** Of people value CX over price<sup>9</sup>

7

## Combining security with privacy

Of course, with Europe's GDPR and the USA's patchwork of privacy legislation, staying compliant and secure is another complex task. The world of mobile payments carries its own set of complexities, from PSD2 security standards to differences in API implementation. Again, G+D has it covered, with safe and compliant portfolio based on secure open standards.

**75%** Share of card-not-present transactions of accounting for fraud worldwide<sup>12</sup>

6

## Native to the cloud

To address these challenges, financial institutions are simplifying their internal IT infrastructures by moving into the cloud, and outsourcing key competencies to SaaS providers connected by APIs. It's a huge move – not just in scale, but in scope, incorporating new ways of working and thinking about financial applications. With G+D at the leading edge.

**\$332bn** Global spending on cloud services 2021<sup>10</sup>

8

## On a worldwide scale

Finally, all this is happening everywhere – with a street vendor in rural China as likely to accept digital wallet payments as a retailer in Manhattan. And that's another G+D strength: present in 32 countries, with decades of expertise covering even more, it's a trusted partner for any venture seeking to maximize their opportunities for success in this exciting new world.

**710bn** Number of global digital payment transactions 2020<sup>13</sup>

**\$500bn** **779bn** **13%**

Expected financial services spending on cloud services for 2021<sup>11</sup>

Number of digital transactions worldwide in 2020<sup>15</sup>

Expected growth rate in digital transactions<sup>16</sup>



<sup>9</sup> <https://www.business2community.com/customer-experience/16-statistics-on-why-omnichannel-is-the-future-of-your-contact-center-and-the-foundation-for-a-top-notch-competitive-customer-experience-02326116>

<sup>10</sup> <https://www.gartner.com/en/newsroom/press-releases/2021-04-21-gartner-forecasts-worldwide-public-cloud-end-user-spending-to-grow-23-percent-in-2021>

<sup>11</sup> Statista quoted by Bloomberg at <https://sponsored.bloomberg.com/article/nutanix/this-technology-helps-bring-financial-services-to-the-world>

<sup>12</sup> Federal Reserve Report figures

<sup>13</sup> Source: CapGemini World Payments Report 2020

<sup>14</sup> <https://www.credit-suisse.com/about-us/en/reports-research/global-wealth-report.html>

<sup>15</sup> <https://www.capitalontap.com/en/blog/posts/the-rise-of-digital-wallets/>

<sup>16</sup> <https://www.capitalontap.com/en/blog/posts/the-rise-of-digital-wallets/>

# How G+D lets you take advantage

## The risks of one-size-fits-all...

Amid this infinity of choices, there's a temptation to settle on a single source for all payments infrastructure. But choosing a monolithic provider with a proprietary solution carries its own risks of being locked in to long-term contracts. Of discovering their product mesh has gaps. And of their coverage not matching where your customers are.

## ... versus do-it-yourself

Faced with this, another choice is to self-build. But that means upfront investment and long implementation timetables. And even if you go cloud-only, APIs between different applications take time to connect and test. That's a hard problem in today's fast-moving financial services markets.

## G+D offers a third way

Fortunately, there's a solution that takes the best of both worlds – and combines them into one. G+D's product portfolio offers depth and breadth from a single partner, yet keeps your solution fully under your control, with Open Banking and other standards that make integrating applications and APIs simpler and customization easier. Here's what you can expect from adopting G+D as your digital payments partner.

# 2020

Year in which digital payments became the most common payment method – worldwide<sup>1)</sup>





## ① True global reach

Customers are everywhere, and payments need to work both in domestic markets and across borders. But every payments customer has different needs. A small retailer needs a QR code payment solution for inclusivity regionally; a global bank needs tokenized rails to schemes and payments worldwide. There are different ways to address these needs – and G+D, active in 32 countries, can offer solutions that make most sense for every geography.

**400+** Banking clients serving millions of consumers

## ② End-to-end product range

Increasingly, payments and the way we pay are moving into mobile devices that aren't Phones: wristbands, rings, even sporting goods. Few payment service providers need to offer all of them – but many will need more than one. With G+D, the right mix of solutions is there for you when you need it, waiting to be integrated into existing systems and processes.

**60+** Integrated payment solutions

## ③ Integrated customer journeys

From the consumer's perspective, the best solutions are seamless, letting them move between services as simply as possible as they execute their goals in their payment customer journey. That may mean speeding up card activation by making use of their mobile phone; it may mean collecting loyalty points with a simple terminal tap as they pay. Rather than just functionality and features, G+D thinks in terms of complete customer journeys, and how to improve them.

**32** Countries with a G+D presence—and active in 100+

## ④ Longterm experience

There are many players in the digital payments space, with many roles. But few have 160 continuous years of experience, touching every distant corner of the global payments ecosystem. In those decades, G+D has built an unparalleled depth of insight into what the challenges are, how customers behave... and what works.

**160+** Years in the payments business

In digital payments, the customer journey is everything. A look at those journeys – and how they're changing – is the subject of Part 2, next.

<sup>17</sup> <https://www.capitalontap.com/en/blog/posts/the-rise-of-digital-wallets/>



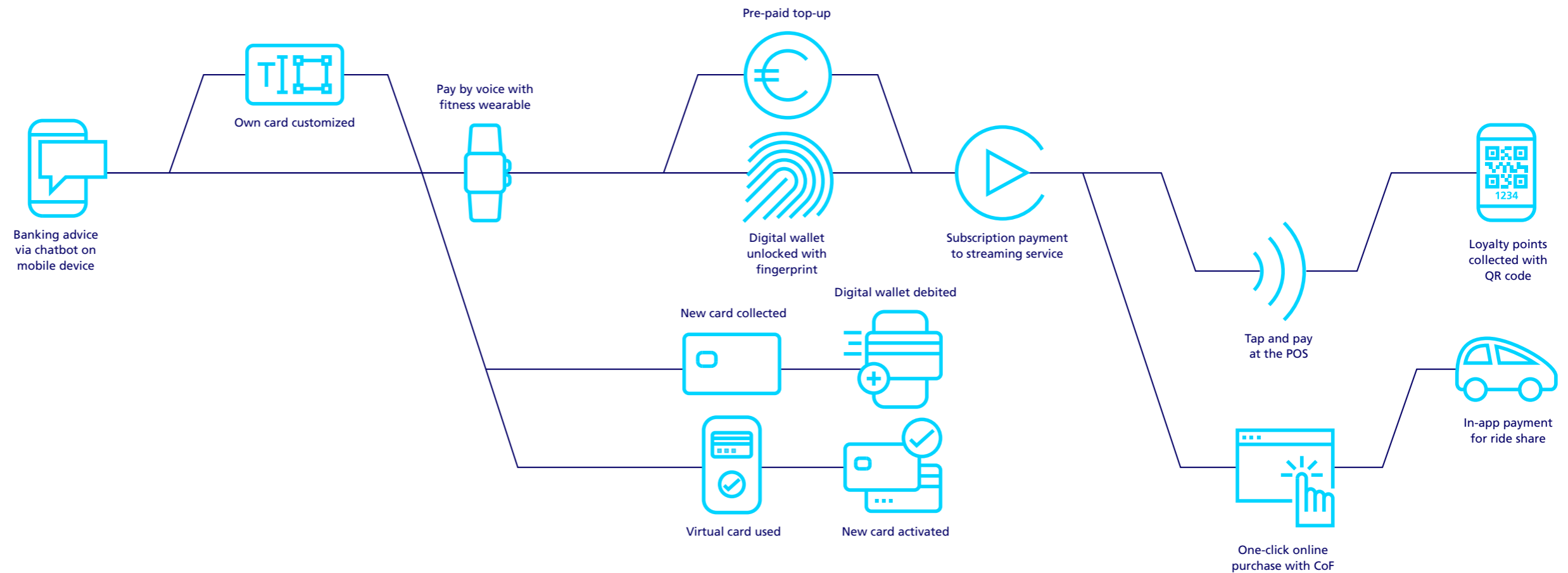
## Part 2:

# Changing customer journeys in digital payments

When it first went digital, the customer journey for consumer payments didn't change much: a "checkout experience" with a shopping cart keeping track. A very manual process – and a very bad fit for many digital payment use cases. G+D took on the challenge to improve the use cases for the way we pay, and is today embedding payments into many more customer journeys, with a mesh of interconnected products and services that combine to answer each one – all integrating regulatory compliance, data privacy, and transaction security.

## From single journey to web of touchpoints

While a payment is a distinct action in itself; it's best seen in context, as a consequence of other actions like obtaining food or services. That's why prepaid cards, mobile banking apps, and digital wallets have become so popular with consumers: they're easy to use with the payment simply happening in the background. While mobile apps from non-bank players, like ride-sharing schemes and food delivery, take payments naturally and transparently on completion of service. Use cases are many and varied.



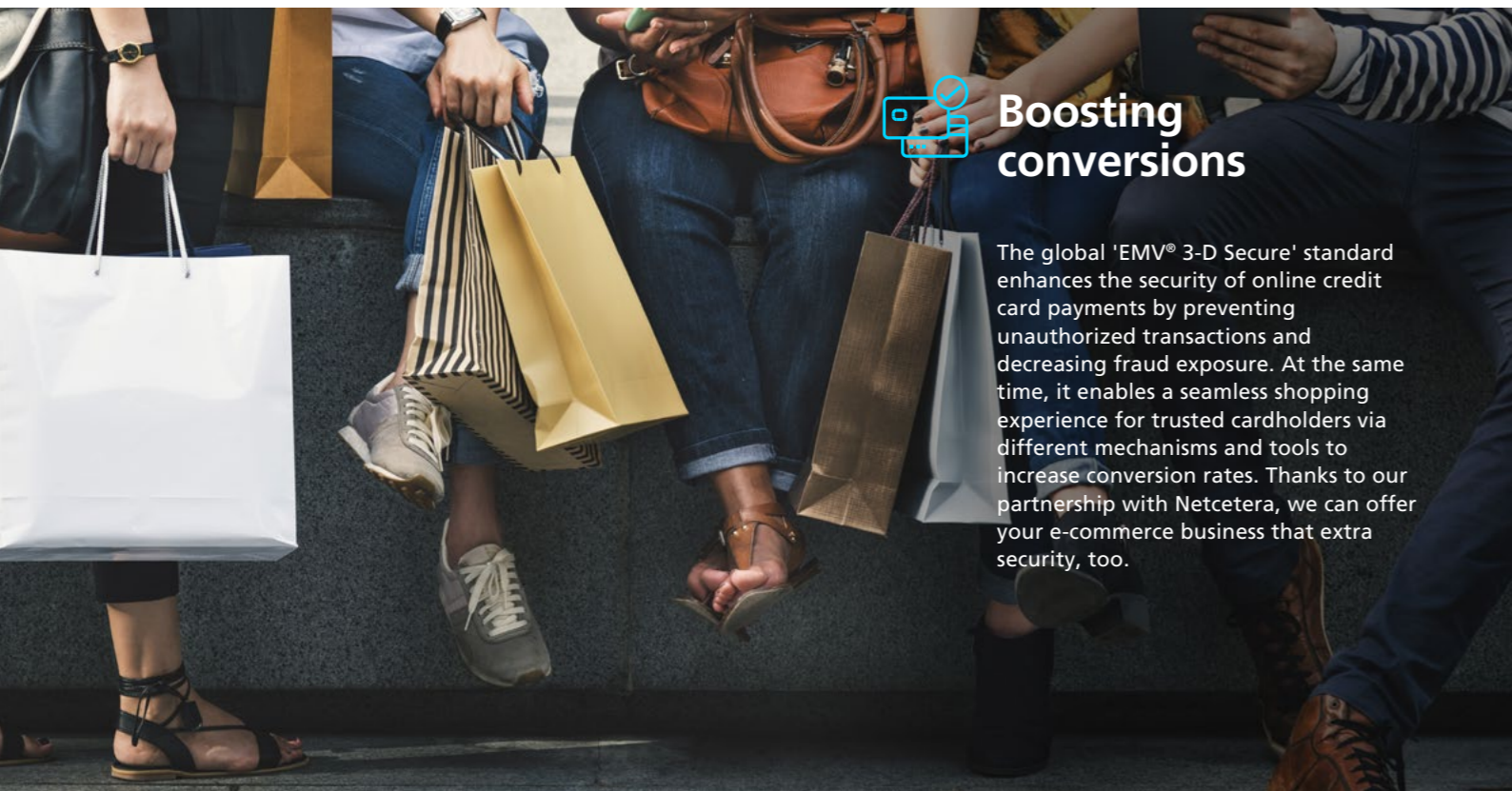
# Enable the payment, empower the customer

G+D's digital solutions portfolio enables secure and convenient payments, ensuring the consumer never needs to expend extra effort to complete a transaction. Which means more conversions, more transactions, more revenue – thanks to more customer delight. Leading to greater potential for profitable growth across all the services you offer.

That's the modern customer journey in the digital payments space: varied and diverse, yet safe, secure, and under the consumer's control. Now on to Part 3: the solutions that enable those successful outcomes..

»What used to require an archaic checkout experience is now being embedded as an instant payment feature into everything from food delivery and ride-hailing apps to entertainment, travel, wellness, gaming, and education apps to the point that consumers often don't notice the payment at all.«

Fintech Magazine, April 2021



## Boosting conversions

The global 'EMV® 3-D Secure' standard enhances the security of online credit card payments by preventing unauthorized transactions and decreasing fraud exposure. At the same time, it enables a seamless shopping experience for trusted cardholders via different mechanisms and tools to increase conversion rates. Thanks to our partnership with Netcetera, we can offer your e-commerce business that extra security, too.



## Part 3:

# G+D's digital payments ecosystem

Diverse customer needs demand a diverse set of products and services. What's more, they need to work together, sharing common rules about design principles and security standards – with the goal of keeping the user experience consistently positive, no matter what device or situation. In Part 3 you'll meet the integrated, interconnected product range spanning everything from card provisioning to Internet of Things. Let's start with a core solution: digital payments for everyday life.

## In Part 3:

**Convego® me:** Compliant onboarding to services remotely – identifying your customers digitally

**Convego® Mobile Authentication:** MFA with Biometrics – using native smartphone features for seamless user verification

**Convego® tap:** SCA utilizing payment cards – activating cards and services with existing hardware

**Convego® CloudPay HCE:** Digital and mobile wallets – putting your brand in front of the customer at payment time

**Convego® CloudPay eSE:** Wearable enabled payments – unleashing new ways to pay when mobile

**Convego® CloudPay eCOM:** Card-on-File (CoF) network tokenization – securing the checkout... and delegated Authentication with SCA

**Convego® Service Broker:** Safe provisioning of tokens – with encrypted payment credentials

**Convego® Token Cockpit:** Token lifecycle management – controlling provisioned tokens

**Convego® Pearl:** closed-loop payments – pre-paid for float, loyalty programs for stickiness... and mobile first approach with QR code payments for inclusion

**Convego® 360 offerings for Fintechs:** next generation payment made easy – globally!



# Start off your customer journey, with onboarding

**Convego® me:** Compliant onboarding to services remotely – identifying your customers digitally.

Today's connected customers expect seamless, all-online sign-up processes – whether they're joining a social platform or opening a bank account. Compliant onboarding solutions are the first step in offering payments and financial services – and with Convego® me, it can be easily integrated into current processes to offer a seamless customer experience for secure remote identification of individuals while reducing fraud risk. All compliant with regulations around KYC and AML.

## It all starts with secure onboarding

G+D provides flexible, intuitive, and customer-friendly identification solutions based on a single platform – combining convenience and compliance. Convego® me is adaptable to local regulations, using official ID documents such as national IDs and passports, and therefore always compliant. It offers the ideal way to ease customers into your payments service. The Convego® me solution allows different methods for authentication. From customer service agent-based to interactive and AI supported video identification, to automated AI-driven auto identification using optical or NFC based document readout, and manual review to electronic processing of the ID Card or using existing online bank accounts for identification. All modular processes to be tailored to your specific compliance needs and for the best user experience.



## Video identification for ID verification since 2014

- Agent based interactive method for secure identification
- Approved in strongly regulated European countries including Germany
- Notified according eIDAS / EU regulation Nr. 910/2014 for LoA Substantial



## Autotent / Autotent Substantial

- Hybrid solution with automated ID verification and manual review possible
- AI based analysis of ID documents; NFC readout optional
- Notified according eIDAS / EU regulation Nr. 910/2014 for LoA Substantial



## eID based identification

- NFC based readout of new German ID card
- Easy readout and verification via mobile phone
- Notified according eIDAS / EU regulation Nr. 910/2014 for LoA Substantial



## Bankident for ID verification

- Fully automated solution for ID verification
- Automated reference bank transfer from existing bank account
- Available from H2/2021

See more of Convego® me



# Get ready to pay with a smile – authentication made easy...

## Convego® Mobile Authentication: MFA with Biometrics – using native smartphone features for seamless user verification

New customer expectations as well as new regulations have a great impact on your future business. Regardless of whether your customers engage all-digittally or with physical cards, the key to success is the authentication of sensitive data in a smooth, seamless and – most importantly – secure and compliant process.

### Secure authentication – turn regulatory musts into business opportunities

Multi-factor authentication using biometrics and a mobile device is not only an innovative and modern way to authenticate users. It also offers customers a convenient and secure state-of-the-art experience. With G+D's solution, accessing digital payment solutions has never been easier – or more secure.

The solution builds on the FIDO UAF industry specifications, providing strong customer authentication via mobile devices (Android and iOS) and using biometric options for user verification: users authenticate by presenting biometrics such as face, voice, or fingerprint. Powered by Samsung SDS Nexsign technology, it provides a balanced combination of usability, security, and reduced operating costs.

An end-to-end secured challenge response protocol based on the FIDO lightweight-PKI approach is then executed in the client-server solution, invisibly to the user. It assures a strong cryptographic proof of successful authentication, and provides additional attestation on the integrity of the client authenticator.

This combination of private key on the user device (possession) and biometrics (inherence) provides a very robust two-factor authentication with scalable security. Depending on the transaction risk, the type of authenticator (e.g. software or hardware) as well as the level of biometrics (single mode like fingerprint only, or multimodal like face and voice combined) can be freely chosen by server policy. With no passwords or PINs required by the end user. Accordingly, no cumbersome password-renewal procedures are necessary by the service provider if the user forgets a password.

Besides security, user privacy is another key challenge. Our authentication solution addresses this need by storing all biometric data securely encrypted on the user device. No biometric user data ever leaves the device. As a consequence, no biometric server database exists, removing any risk of scalable attack.

# ...and activation made even easier: tap it

## Convego® tap: SCA utilizing payment cards – activating cards and service with existing hardware

Payment cards are mostly used at POS terminals, whether inserted and combined with a PIN, or a single contactless tap. Convego® tap expands their potential, enabling the user to authenticate with a simple tap of the card on their mobile phone – across a range of use cases, including onboarding to services, new card activation, and high-value payment authentication. It's a strong authentication solution for banks and other organizations issuing smart payment cards.

### Transforming the payment card into a solid security solution

The combination of a user secret/credential (such as a passcode or biometric) alongside a hardware identifier (the card itself) enables PSD2-compliant two-factor authentication for a range of use cases. This makes payments secure for the bank – and near-effortless for the bank's customers.

Despite its ease of use, Convego® tap is secure, meeting all legal requirements for multi-factor models like PSD2 and FIDO. By using the contactless payment card itself as the hardware authentication device, it simplifies the process for users – while reducing costs and complexity for the institution.

Customers and banks alike are citing an easier experience that simplifies daily life in an ever-expanding variety of situations – turning a once-cumbersome process into a frictionless interaction. Above all, Convego® tap promotes trust and comfort between bank and customer – strengthening the relationship at every point of contact.



# Enabling digital and mobile wallets...

## Convego® CloudPay HCE: Digital and mobile wallets – putting your brand in front of the customer at payment time

Sometimes the best solution isn't a payment device at all. Customers want to be able to pay anytime, anywhere, in the way they want. We offer digital payment solutions that maximize the advantages of your HCE wallets.

Millions of consumers worldwide make regular use of a digital wallet – like those from Apple Pay, Samsung Pay, and Google Pay. G+D's wallet solution Convego® CloudPay HCE is a proven and scalable digital payments platform with millions of users, providing an end-to-end solution for lifecycle management of tokenized (virtual) payment cards and secure provisioning of full credentials within seconds.

### A payments solution for digital wallets /and IoT

CloudPay HCE integrates with global and regional token service providers (TSPs) meaning customers can enjoy fast time-to-market with minimum effort.

The solution – in two parts, CloudPay Server and CloudPay Software Development Kit (SDK) – acts as an on-behalf token requestor for both issuer HCE wallets and 3rd-party HCE wallets. It's compatible with most widely-used device models. Thanks to a close cooperation between G+D and Visa and Mastercard, our trusted solutions for tokenized digital payments enable your organization to fully access the tokenization services of these most trusted brands. Letting you offer consumers a way to pay anytime, anywhere, with any device – that still puts your brand first.

»By offering secure tokenized payments integrated with your digital wallet, your customers can pay securely, whether it's in-person, in-car (or anywhere else), by voice, or on the web.«



Award holders

## Juniper

Convego Wallet Platinum  
Award as best digital wallet.

# ...to form factor agnostic payments, like wearables

## Convego® CloudPay eSE: Wearable enabled payments – unleashing new ways to pay

The definition of "wearable technology" changes almost daily as new use cases for payment on the go evolves. Smartwatches, clothing, fitness trackers, jewelry: using these gadgets to pay was unheard of just a couple of years ago. Now they're commodity services, and customers expect convenient and fashionable ways to pay.

With the usage of wearable payments increasing rapidly, wearable technology has been transforming not only to enable secure payments, but also to enhance the customer journey. Enabling all this is an end-to-end solution for OEM agnostic payments – within the Internet of Things – called Convego® CloudPay eSE.

Today, perhaps your customers use wristbands and bracelets; tomorrow, they may want payment-enabled glasses, or a car. CloudPay eSE is ready to serve them.

### A tokenized infrastructure for all types of use cases

G+D's tokenized wearable solutions are designed and certified to the requirements of all major payment networks. This ensures contactless payment IoT devices are not only simple to adapt and customize, but also highly secure, with essential back-end services for token requests and lifecycle management of the embedded secure element inside each wearable.

This lets you go to market faster, stay secure easier, and add functionality and fresh form factors as your market needs – without compromise, thanks to an ecosystem of established partners, futureproof technology, and certified components. All leading to one outcome: customer satisfaction.

»Juniper Research has awarded our tokenized wearable solution with its Platinum Award. Our wearable payment solution is tested, proven, and accredited as best-in-class.«<sup>18</sup>



Award holders

## Juniper

Convego CloudPay eSE  
Platinum award as best wearable  
payment enabler two years in a row.

<sup>18</sup> <https://mobile-security.gi-de.com/payment-awards>

# Boosting conversions online

## Convego® CloudPay eCOM: Card-on-File (CoF) network tokenization secures the checkout

An increasing volume of payments happen where no physical device is present at all: on the web's millions of shopping carts and e-tailers. And whenever the consumer has to re-authenticate or re-identify – whether it's entering their card details again and again, or updating them when a physical card expires – the transaction experiences friction.

### Making the shopping experience smoother

This bottleneck of the digital payments ecosystem is answered by Convego® CloudPay eCOM. A fully tokenized solution for online shopping, it goes beyond simply retaining a consumer's card details separately from the merchant: it updates the card on file automatically, decoupling the network token from the card itself without losing security. (Known as Card-on-File network tokenization.)

### ...and delegated Authentication with SCA

Combining one good thing with another for increased conversion rates, CoF works with embedded Strong Customer Authentication.

At the checkout, the consumer faces two types of authentication: first when logging in and authenticating herself as a user of the merchant's app, and then a second time at the checkout, with authenticating herself as owner of a card. This gives friction that leads to cart abandonment.

But there are solutions merchants can leverage upon to balance compliance, costs, and UX such as a card-on-file solution (CoF) like our Convego® CloudPay eCOM solution supporting network tokenization.

In this fashion, the customer journey becomes even more frictionless. Because the customer doesn't have to separately identify themselves as a customer of the site and the owner of a card: the two are combined, making the CX seamless.



# Know where your payment data ends up

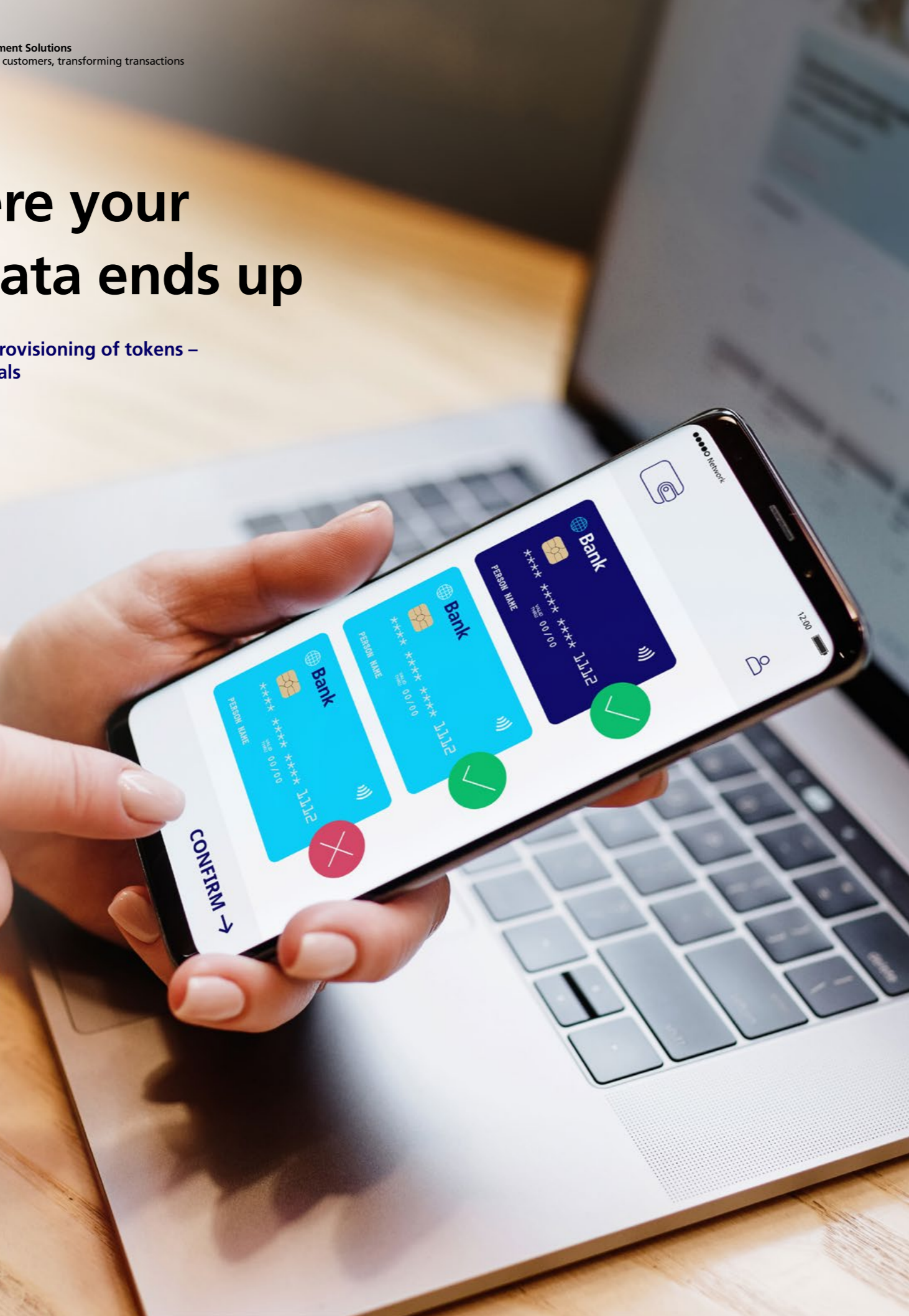
## Convego® Service Broker: Safe provisioning of tokens – by encrypting payment credentials

Of course, there's more than one Token Service Provider (TSP). Convego® Service Broker is a cloud-based solution that acts as an aggregator – doing the work of integrating with a multitude of token service providers and token requestors, including managing ongoing adherence to certifications, legislation, and regulations.

### Cloud-native, API-integrated

As a cloud-native solution, connecting to Service Broker is via API. So the complexity of payment network and token requestor connectivity requirements is dealt with by design. Enabling card issuers to manage changes in payment ecosystems, without the need to invest continually in upgrades to their own infrastructure.

Service Broker supports multiple payment networks including Mastercard, Visa, and eftpos, with new networks being added all the time. Plus a growing list of digital device and issuer wallets: Google Pay, Apple Pay, Samsung Pay, Swatch Pay, Fitbit Pay, and Garmin Pay. Meaning issuers only need to perform one integration to enable tokenization across multiple payment networks, wallets, merchants, or any other token requestor.



# Providing control of the payment data

## Convego® Token Cockpit: Token lifecycle management – controlling provisioned tokens

What Convego® Service Broker enables, Convego® Token Cockpit makes visible, with a customer interface that fully integrates with branded software like a mobile banking app. It allows customers to see and manage their available tokens – and financial institutions to manage the lifecycles of both tokens and funding PANs.

### Minimizing misconduct with card credentials

This puts customers in control. Within a branded banking app, they have full overview of where credentials are tokenized and can enable and revoke tokenized cards, turning their mobile phone into a remote controller of payment cards for all digital channels.

The cockpit provides the same features to issuing banks as a web-accessed UI, letting the issuer manage cards directly. Letting both issuer and consumer control access to tokenized payment cards – at any time, for any reason.

# Customer loyalty - getting sticky

## Convego® Pearl: closed-loop payments – pre-paid for float, loyalty programs for stickiness

Convego® Pearl is a payment and loyalty program management solution designed to enable retailers to own and control the transaction and the customer relationship.

An all-in-one solution, Convego® Pearl connects multiple payment devices in-store with multiple payment methods, and offers a robust management module for loyalty programs for a seamless and full-featured customer payment experience. Why is it needed? Because the payment portfolio of today's consumer has never been more complex.

Credit and debit cards exist alongside loyalty cards for different brands, cash and prepaid gift and payment cards for specific retailers. Any brand that can integrate loyalty and payments into one automatic process will find a significant advantage over the competition, and offer their customers a truly differentiated multi-channel experience that paves the way for greater stickiness and boosted revenue.

### Combining points with payments

Convego® Pearl is a closed-loop, all-in-one payment management and loyalty platform enabling retailers to simplify their payment and loyalty offerings through a cohesive and integrated system. It puts the retailer in control – managing their customer's accounts and money, awarding and rewarding customers in the way that matters to them.

With rich data capture and analysis, retailers will gain an in-depth understanding of consumers and their payment habits, so they can tailor their activities to match customer need. Capable of multi-channel payment management, from cards to e-purse and mobile QR codes, Convego® Pearl allows retailers to offer a superior payment experience – no matter which method the customer chooses.

### ...and a mobile-first approach, with QR code payments for inclusion

With retail customers becoming more and more financially aware, they are opening up to pre-paid options in order to avoid overdrafts, and to loyalty schemes and couponing for best value.

As high-end devices might not be their first choice when it comes to making payments in an increasing contactless world, paying for fast-moving-consumer-goods safely and securely is crucial for all consumer groups.

With QR code-enabled contactless payments for mobile, the consumers can conveniently but securely pay by contactless – and at the same time enjoy loyalty features and avoid overspending. Convego® Pearl enables retailers to meet these challenges and deliver a full-featured, multi-channel in-store payment system at scale.



Award holders

## Juniper

Convego Pearl for Mobile  
Platinum award in the category  
"Best QR Code Payment Offering"





# Last but not least: Fintech focused innovative payment solutions

Convego® 360 offerings for fintechs: next generation payment made easy – globally!

As a leading global provider of physical and digital authentication and payment solutions, G+D is well placed to support any fintech business, whether it's early stage inception, design and launch, or scaling, growth, and customer retention.

With projects and solutions delivered for over 400 financial institutions worldwide, this experience has led us to develop our approach to working with fintech providers as partners – an approach that enables our partners to deliver results, fast.

The building blocks for customer-centric payment innovation G+D offers are solutions to meet your customers' needs – in every part of the payment ecosystem and at every stage of the customer lifecycle, throughout every stage of their growth.

## Benefits in a nutshell

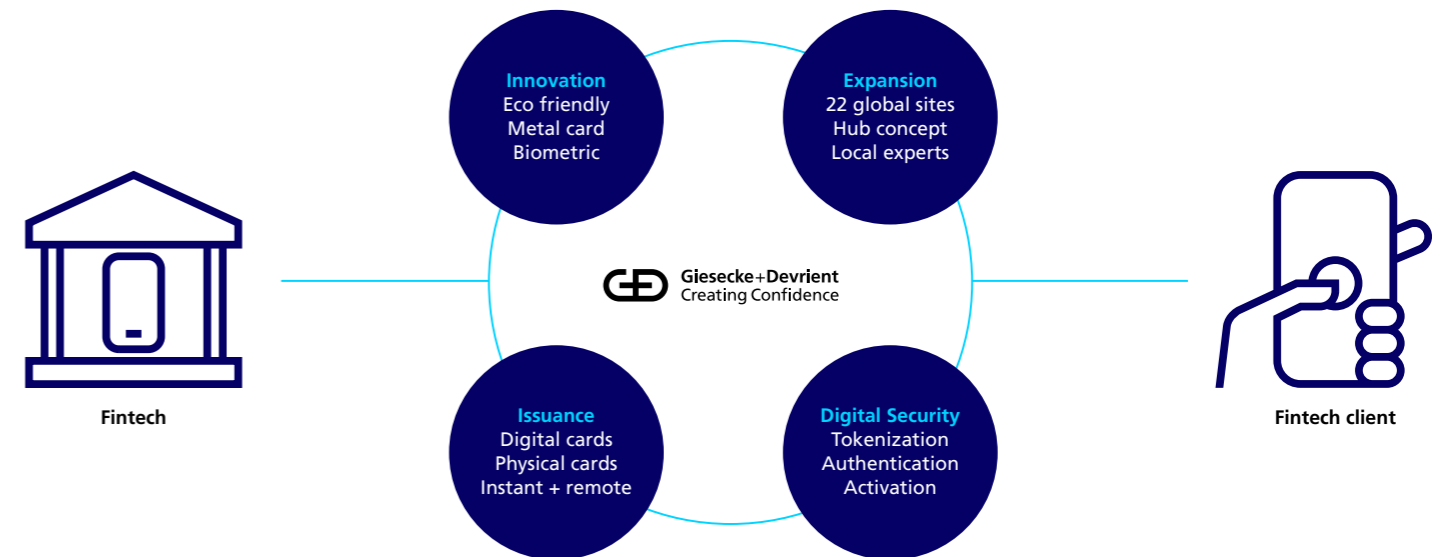
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**Fast**  
We believe that rapid deployment and quick onboarding is crucial to our partners success. That's why we focus on quick onboarding and timely project execution
- 

**Flexible**  
Innovative solutions require a flexible approach. Our technology and software services are designed to build a tailored, bespoke solution for our partners, specific to their needs both now and in the future. From fast track payment card programs, to high-end, top-of-wallet services, we can help.
- 

**Digital**  
Another facet of G+D's expertise is the delivery of solutions and services that enhance or enable the customer experience. These types of solution are important to the success of any fintech, and we can effectively and efficiently support our fintech partners in their development.
- 

**Global**  
Our position as a leading global provider means that we can offer support at any level of implementation – from regional implementation to global expansion strategies. We can support any fintech throughout every stage of their growth.



# G+D Digital Payments: your ecosystem and infrastructure

Global card payments alone now stand at \$15tn. With a constellation of new devices, channel modalities, and cloud applications answering a new range of use cases, that figure may be exceeded by card-not-present and other transaction types alone in just a few years.

That's the reason G+D Digital Payments exist. Not a set of products – but a connected ecosystem, ready for you to build your solution with. Solutions seamlessly integrated across technological standards and international borders, built for today's financial institution to create value from.



# G+D Digital Payment Partner Landscape

## netcetera

In August 2020, G+D and Netcetera, a leading provider for secure digital payments, joint into a partnership, where the two internationally operating companies aim to use synergies in their portfolio, further strengthen their innovative power and tap international growth potential.



We are working in close cooperation with Mastercard, one of the leading payment networks, to enable powerful tokenized digital payment services. Our CloudPay solutions fully support their tokenization services.

## VISA

Visa is one of the world's largest retail electronic payments network and facilitates global commerce. Thank so our close cooperation with VISA, our trusted tokenized payment solutions feature a unique readiness to fully support VISA's tokenization services via our CloudPay connector.

## fido ALLIANCE

G+D is part of the FIDO (Fast Identity Online) Alliance, which is changing the nature of authentication with standards for simpler, stronger authentication that define an open, scalable, interoperable set of mechanisms that reduce reliance on passwords. FIDO Authentication is stronger, private, and easier to use when authenticating to online services. Our authentication solutions build on the FIDO UAF industry specifications, providing strong customer authentication via mobile devices (Android, iOS) and using biometric options for user verification.

## SAMSUNG SDS

Samsung SDS's security-based platforms utilize advanced security for mobiles. Our authentication solutions are powered by Samsung SDS Nexsign technology, which verifies customer identity with biometric information using fingerprint, face, and voice.

# About Giesecke+Devrient

Giesecke+Devrient (G+D) is a global security technology group headquartered in Munich. As partner to organizations with highest demands, G+D engineers trust and secures essential values with its solutions. The company's innovative technology protects physical and digital payments, the connectivity of people and machines, the identity of people and objects, as well as digital infrastructures and confidential data.

G+D was founded in 1852. In the fiscal year 2020, the company generated a turnover of 2.31 billion euros with around 11,500 employees. G+D is represented by 74 subsidiaries and joint ventures in 32 countries. Further information: [www.gi-de.com](http://www.gi-de.com).



**Giesecke+Devrient**

Giesecke+Devrient Mobile Security GmbH  
Prinzregentenstrasse 159  
81677 Munich  
Germany

[www.gi-de.com](http://www.gi-de.com)  
[www.gi-de.com/en/contact](http://www.gi-de.com/en/contact)

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