



COMMUNICATE smart!



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eSIMs Are Here and Operators Are Prepared for the Challenge

The evolution of the SIM is seeing tremendous change. The days when a physical plastic SIM card was replaced in a mobile phone might be gone in the future. Now that we are in the Age of Connected Devices and wearables, the eSIM is going to revolutionise our devices, and yet it is going to act as the security token of our devices.

Mobile World Congress has always been a device show, ever since its early days in Cannes when it was known as 3GSM World. Even after its move to Barcelona in 2007, it has always been the device halls where the excitement has been. This year was no different, but for once it wasn't about the device itself, it was what was built within the device - the eSIM and this is definitely one of the most important developments in mobile for the past two decades.

The eSIM is familiar to those in the mobile industry who know of it as an embedded machine-to-machine (M2M) technology. For attendees, however, at this year's MWC it was clear that the eSIM is crossing over to consumer devices and it is happening rapidly

indeed. This acceleration is because of the proliferation of connected devices that humans are carrying around. According to a November 2015 report from Gartner, there will be 6.4 billion cellular-connected 'things' (not Bluetooth or WLAN) in 2016, up 30% from 2015, and will reach 21 billion by 2020. This year alone, 5.5 million new things will get connected EVERY day.

The SIM card is transforming itself from a plug-in hardware piece to a SIM that will be built into devices during production. This is a dramatic transition in the telecommunications industry and has huge ramifications for many parts of the industry's ecosystem. As with removable SIM cards, eSIM security is based on a SIM chip; a built-in security module. ... continued on page 4 >

Increasing Connected Car Security

G&D technology and innovations are at the forefront of the connected society. And with increasing millions of connected cars being shipped across the world every year, this means protecting your cars from being hacked.

The integration of cars into our connected society is now a reality, and the near future will further increase this fact. Today's intelligent vehicles provide a broad range of technical features. The technologies involved offer drivers unprecedented convenience and value-added services – perfect for carmakers eager to improve brand loyalty and customer retention. But it is clear that connectivity and convenience cannot be traded for security.

The scale and depth of the security required can be gleaned from the fact that around 72 million cars were shipped globally in 2014. By 2020, around 92 million cars will be shipped across the globe, which will include an estimated 69 million new "connected cars". Therefore, top-of-the-range and scalable security solutions are of paramount importance to the future of the industry. Up to now, cars have been more designed for safety rather than for

security. Because of increasing connectivity, cars are prone to attacks, and not just locally, but also remotely, from anywhere. London's Metropolitan police released figures in 2014 that showed almost half of all vehicle thefts in London were down to hacking. G&D works on solutions to raise the level of security on new vehicles to something comparable to the high level drivers nowadays expect of safety standards. ... continued on page 3 >

Editorial



Welcome to smart! issue 1 in 2016.

Mobile is everything – the claim of a stunning Mobile World Congress 2016 in Barcelona – and it is one of the major drivers of our industry. The digital transformation of our customers is at the core of G&D's activities, and a key feature of this smart! edition. We focus on innovations in modern car security, the ongoing changes in the way consumers do banking and the increasingly important topic of eSIM management across multiple industries – such as telecommunication, OEM and automotive, to name a few.

We examine how the digital revolution is challenging the automotive sector. A concern is the increasing number of connected cars getting hacked. As the leading company in car security, G&D provides scalable security solutions, which enables secure communication within and outside of the vehicle. We also look at how banks are facing major changes through digital payments. American industry expert Steve Mott talks about the challenges and solutions for banks in our exclusive interview.

In addition to the automotive and banking sectors, we also discuss the GSMA's new specifications for eSIM management, which aim to help MNOs unleash their full potential. Andreas Morawietz, G&D's Head of Product and Solution Marketing Telecommunication Industries, answers some important questions.

Rounding up the digital transformation, we address a range of other important topics: from the latest developments in mobile identification to successful new business cooperations, while we also explore the huge benefits to MNOs of data analytics.

Enjoy this new edition!

Stefan Auerbach,
Member of the G&D Management Board
and Group Executive Mobile Security



Gold-rated for Sustain- ability

Just as in 2014, G&D's continued focus on its corporate and social responsibilities throughout the company has again been recognised and rewarded with a top-rated EcoVadis certificate.

EcoVadis is a rigorous corporate and social responsibility (CSR) analysis system that details 21 criteria within four key themes: environment, fair labor practices, ethics/fair business practices and supply chain. For the second time in two years, G&D attained the highest possible award, a gold CSR rating.

G&D is a participant on the renowned EcoVadis online platform and it is through this medium that the company subjects itself to compliance with specific sustainability standards across a range of areas, from working conditions and labor relations to biodiversity and energy consumption.

Third-party assessment

Hannelore Jetter, Head of Global Quality Management Systems and Business Excellence, was a happy recipient of the gold rating from EcoVadis in September 2015. "For us," she explains, "the EcoVadis platform is an essential tool for collecting information on our activities in the field of Corporate Social Responsibility (CSR) and having it evaluated by a third party." Moreover, that the assessments are evidence-based and on a comprehensive scale are particularly pleasing and reflect the hard work the company has put into the CSR efforts.

"Even with so-called 'social audits', in which our customers audit, for example, the working conditions throughout the company the EcoVadis evaluation is an important component," says Jetter. With G&D customers citing the importance of the certificate, the importance of this gold-rated seal of approval is clear. ◀

smart! Online

Of course, it is not only in paper form that you can get informed about all the latest developments and stories from the world of G&D. Wherever you are and whatever your favorite platform, smart! is also available for the connected society on your computer, tablet or mobile phone.



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smart! masthead

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Phone: +49 89 4119 20 89

Editors:

Antje Hicketier, Silke Krueger,
Christine Telander-Weiss
Giesecke & Devrient GmbH
Prinzregentenstrasse 159
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81607 Munich
GERMANY

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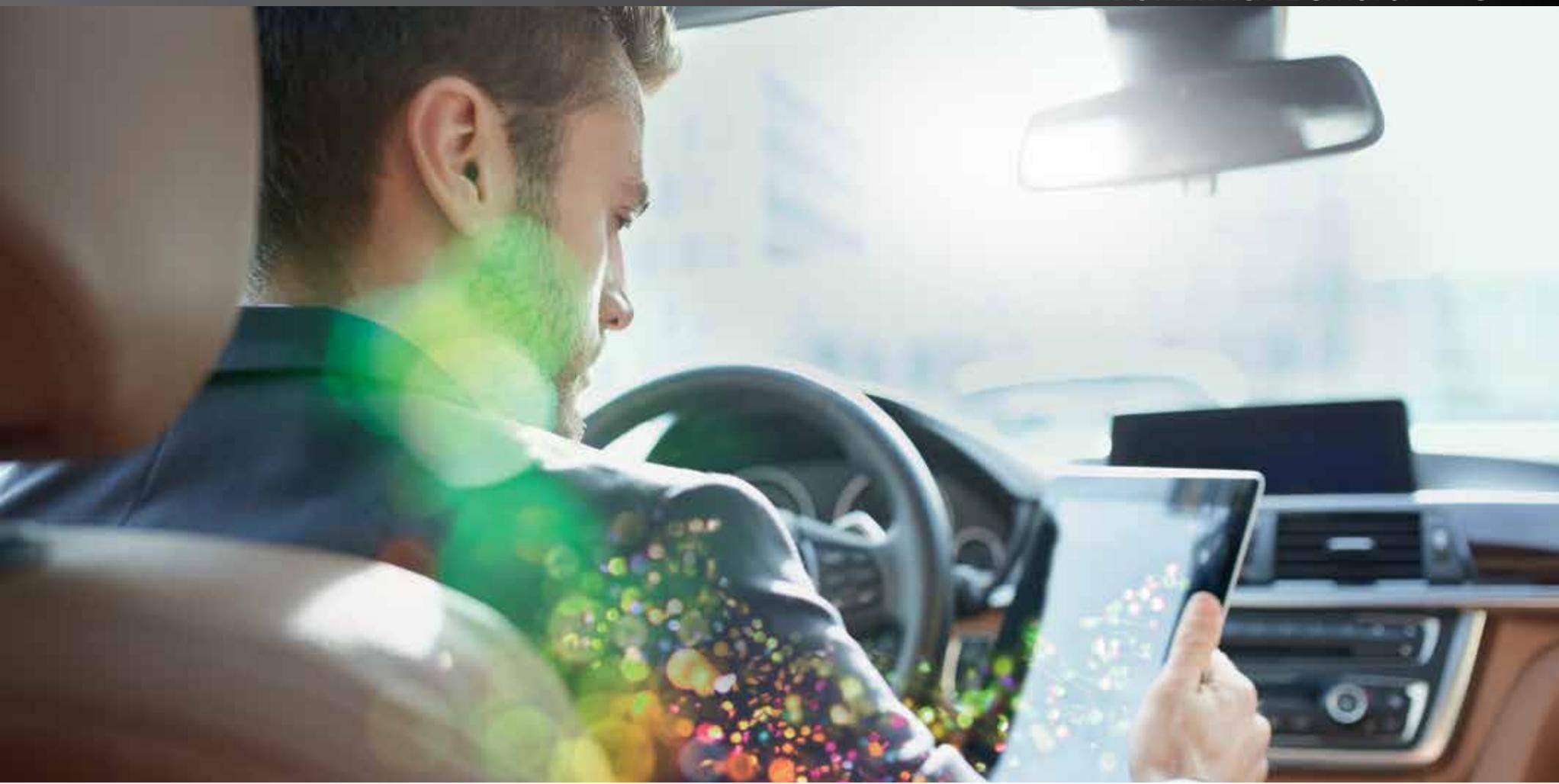
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Your contact for more information on:

Ecovadis

Ulrike Woenckhaus
Giesecke & Devrient, Germany
Tel: +49 89 4119 13 86
ulrike.woenckhaus@gi-de.com



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As the leading company in car connectivity and security, G&D secures vehicles in several, scalable ways. The first level of security is via in-car embedded SIM modules, which also give each car a unique identity. G&D's eSIM management solution offers flexibility in terms of connectivity and enables services such as telematics, car sharing and pay as you drive insurance models.

End-to-end encryption

The second level of security is G&D's secure gateway, which enables the secure communication within and outside of the vehicle. The gateway comes with a policy management ensuring authorized access to sensitive data. Privacy and integrity of the driver and his data have to be protected at all times. All this important data may be provided in a secure data cloud. It allows the end-to-end encryption of all communication from and to the gateway. For instance, if a software update is due, the gateway approves digital signatures or data before installation.

Of course, none of this would be pertinent without the requisite all-encompassing security apparatus to protect users' cars and their data, which is where G&D is also in front. Eight of the world's leading car manufacturers use G&D's embedded SIM solutions. G&D's secure gateway technology will monitor and detect intrusions from all directions and all types of net-

works. Furthermore, it provides central control access to regularly update security and software, and it protects from contamination by malicious code or unauthorized software.

The digital transformation of the automotive industry implicates a shift from the traditional focus on physical safety towards IT security. In addition, similar developments are also very much on the radar of the world's largest tech companies – Google's much-discussed driverless car is only the most currently talked-about example.

Scalable solutions

These developments in vehicle connectivity appear to be welcomed by drivers. A variety of futuristic-seeming use cases capture the public's imagination – from car-to-x communication, value added services based on the intelligent link of information, the car buying its own fuel or the car as a unique experience world on its own. But with adding more and more of these features IT security is becoming a key feature drivers demand. G&D is the leading player in the emerging automotive SIM and eSIM management market with a competitive portfolio for scalable security solutions to secure connected cars, driver identities and automotive services. Beyond that, G&D safeguards the requirement for increasing connectivity and security of the consumer's data in their cars without a trade-off in convenience. <

Connected Car Shipments

Forecast in units, global



Source: Scotiabank, BI Intelligence

Photos: iStockphoto

Your contact for more information on:

Connected Cars

Volker Gerstenberger
 Giesecke & Devrient, Germany
 Tel: +49 89 41 19 26 49
 volker.gerstenberger@gi-de.com

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The eSIM profile must be encrypted for the service to ensure end-to-end security of the entire transmission between eSIM management servers and the SIM module. Like many other transformations, this development is fully dependent on specifications that allow the global roll-out of billions of connected devices. The latest GSMA RSP (Remote SIM Provisioning) is a massive step in the right direction in this roll-out.

The mobile industry has always been held back at crucial times by fragmentation, but with such an agreement, the eSIM is likely to be adopted, not just by early risers, but across the industry and across the world. This is a huge issue for network operators. They may be the gatekeepers of mobile services, but at previous times their business offerings could have adapted more rapidly to the market.

The Apple Store and Google Play store were both vast improvements on the existing operator marketplaces and offered the consumer more choice on their devices. This was augured by operators offering flexible data plans, which created a consumer data culture that social media companies took advantage of.

With the advent of the soon-to-be ubiquitous eSIM, network operators have the opportunity of a lifetime to lead this new normal. The only way, however, to do this is to have flexible service engines that can manage billions of IoT devices.

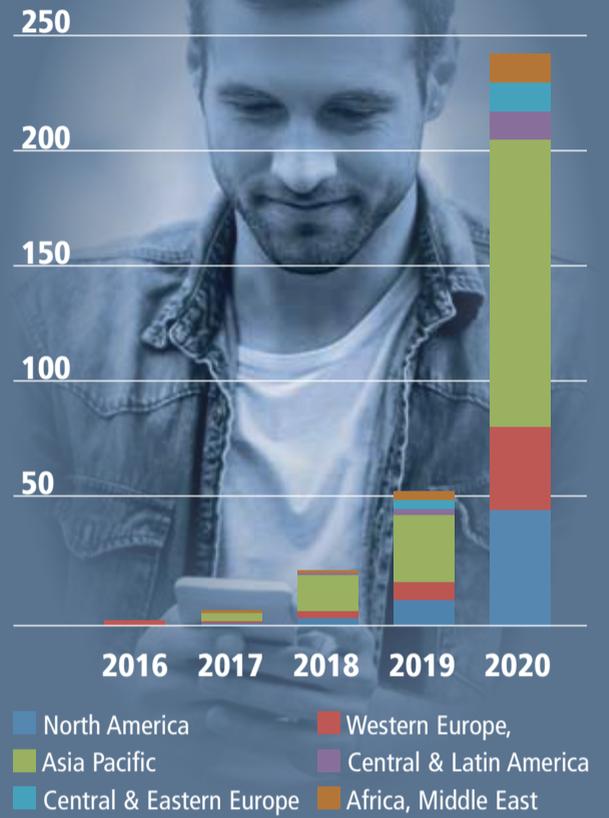
G&D has moved quickly with its AirOn eSIM management solution. It recently delivered this for Group and O2 Telefónica's first implementation of the Remote SIM Provisioning service. In industry parlance, this means G&D has launched an interoperable solution for using eSIMs in companion with consumer mobile devices.

This is especially crucial because Vodafone has already launched and o2 Telefónica will soon launch the Samsung Gear S2 classic 3G smartwatch in Germany. It is the first device in any market to contain an embedded eSIM based on the new industry-agreed specification. Perhaps this industry development will finally consign fragmentation to where it belongs - the past.

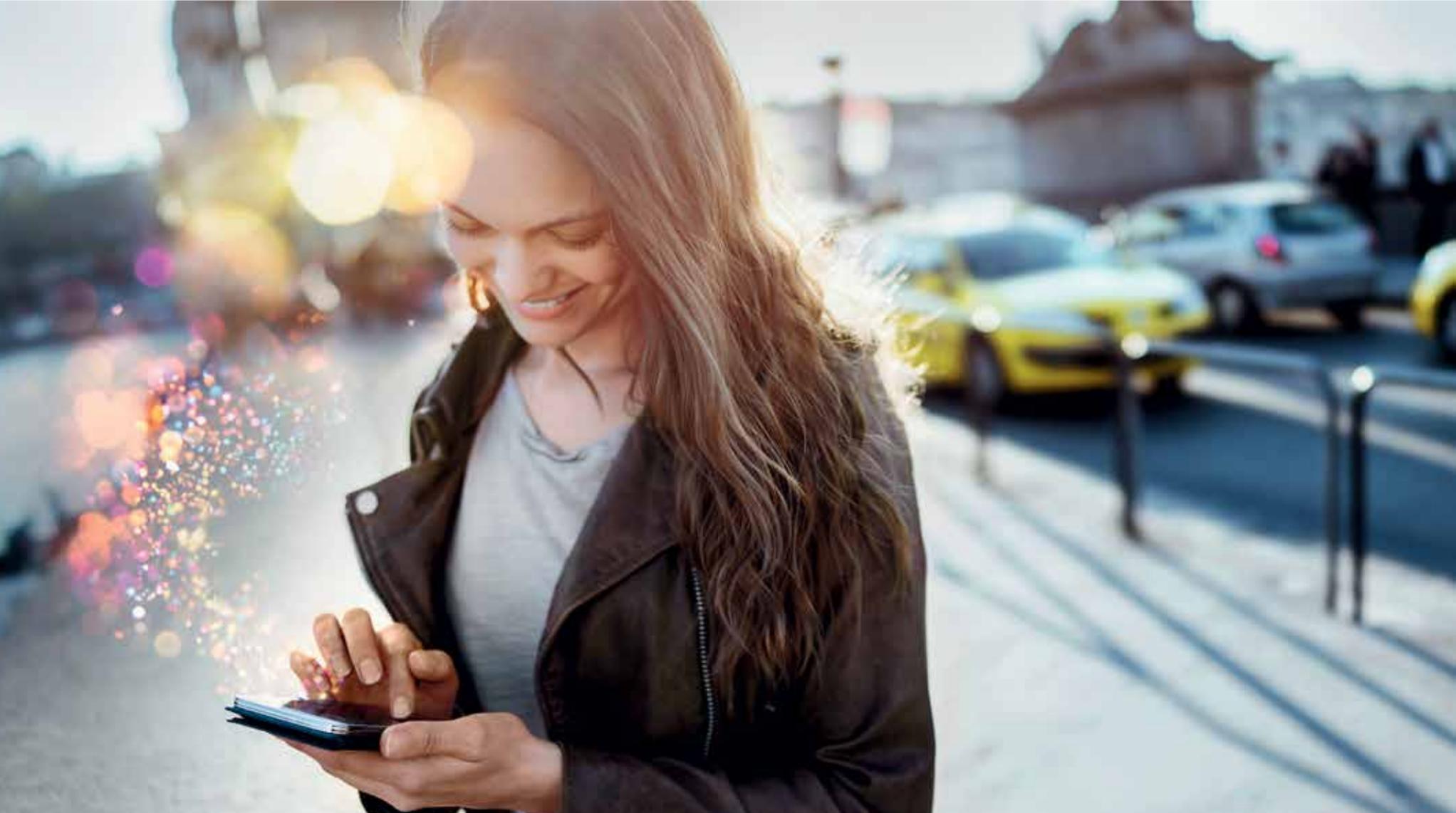
"We have been driving the eSIM development from the beginning. Thanks to the eSIM, smart devices such as smartwatches, fitness trackers, and data glasses that don't offer space for a conventional SIM card, can be connected to the mobile network very easily," said Carsten Ahrens, Head of the Telecommunication Industries division, G&D.

Sales expectations of new wearables such as the Samsung Gear S2 3G smartwatch are reasonably high, but not as high as the expectations of the eSIM. For those bold enough to embrace this technology at the start of its evolution are going to leave a huge mark on how the mobile industry will develop this decade. <

Global Handset Embedded-SIM Shipments By regions, millions of units



Source: Strategy Analytics



Your contact for more information on:

eSIM

Andreas Morawietz
Giesecke & Devrient, Germany
Tel: +49 89 4119 29 63
andreas.morawietz@gi-de.com



eSIM Management

A New Version for A New Era

G&D has led the way in developing eSIM management highlighted in many commercial rollouts over the last few years. Andreas Morawietz, G&D's Head of Solution Marketing, explains why G&D is confident on the AirOn 4 based on the latest GSMA RSP specifications.

Why are the new GSMA specifications so important for remote SIM provisioning?

Standardizations have always been essential in the telecommunication industry, otherwise we would not have seen the huge success of mobile communication in the last 25 years. It was, for example, the standardized interface from SIM to the device that allowed every device to work with every SIM card produced on the market – and, of course, this made it extremely easy and practical for any user.

We see more and more devices with cellular connectivity already equipped with an eSIM when leaving the manufacturing line. This embedding of SIMs into devices, which started within the M2M area, gave the initial impetus for dynamic remote eSIM-profile management technology – and led to the first GSMA specification. However, the rapid development of today's connected society (driven by consumer devices) required new specifications for the industry – this meant covering interoperability and security solutions, otherwise the market take-off could not happen as expected. The latest GSMA specifications are important because they take this development beyond M2M into the consumer arena. They foresee roll-out scenarios for the mass consumer market. They will be completed by the next phases covering scenarios typical for unmanned M2M ser-

vices or remote-control use cases. Therefore, both consumers and machines will be included with this technology in the future.

The GSMA has specified different versions for eSIM management over the last two years. Which one is best fulfilling the present market needs?

The GSMA V2 specifications addressed the M2M market segment mainly. G&D rolled out several commercial projects based on them as they had a wide commercial and technical acceptance around the globe, especially in the important automotive sector. With around 15 commercial projects on the market based on our own AirOn solution, G&D is the market leader in implemented eSIM management solutions. However, the V2 showed some limitations, and to overcome these, the industry and GSMA kicked off V3, with some minor technical enhancements.

The specifications still concentrated on M2M. While writing V3 the industry realized (with Apple and Samsung as prominent partners) the need to also address the fast-growing consumer devices and its new ecosystem. This led to GSMA fundamentally reworking the specifications, under the title Remote SIM Provisioning (RSP). As a significant contributor to this technology and a member of the GSMA, G&D took the latest GSMA RSP specification as the basis for latest AirOn v4 eSIM management solution. This solution

allows new business opportunities for MNOs and the possibility to create, for example, smaller-sized or fully sealed consumer devices.

Where do you see the benefits of AirOn version 4?

The first benefit is a clear performance issue: consider the roll-out of a new consumer device. The launch period is highly critical, because over the first few days several million devices will be sold – this means millions of people switching on their new device and requesting a subscription. You need high-performing technology in the background that can cope with such peak demands. There are many similar roll-out scenarios – for example, at

Christmas with new e-book readers, wearables, smartphones and tablets. But the system needs to be both high performing and be highly scalable, because it is expected that the number of eSIM supporting devices will dramatically increase over the next few years. Moreover, earlier versions required a stable online connection for the eSIM profile download for a longer period, which is heavily dependent on the ecosystem used. In our latest AirOn v4, it is less than a few seconds. With such a fantastic performance, we provide scalability, because we can manage many more devices at a time. And from a robustness perspective, if you are online for just a few seconds, the risk of something going wrong is significantly reduced. ◀



Andreas Morawietz

Director, Head of Product and Solution Marketing.

Andreas lead the Product Marketing for Telecommunication Industries of G&D and is heading the global Go-To market activities of eSIM technology.

Since 2010 he has been involved in various commercial projects around eSIM management dealing with the dynamic management of mobile network profiles and the opportunities towards MNOs, OEMs and the ecosystem.



A Banking Transformation

There is no turning back for the world of banking as digitalization pushes banks to dramatically rethink the way they conduct their businesses. G&D provides a host of possibilities to make the transition easier, while maintaining customer brand awareness.

The digitalization of banking is one of the most radical alterations to hit the sector in decades. With such momentous changes, banks need to rely on trusted partners to enable them to follow a multi-channel strategy with flexible, secure technology-backed financial solutions.

Fintechs and over-the-top digital giants are disrupting the old bank-customer intimacy. Paypal is a well-established payment competitor, while Amazon is using its customer knowledge base to combine financial services with non-financial offerings.

In October 2015, a McKinsey report described the new competitive landscape, and it is littered with a range of diverse trends, such as in-app payments replacing in-store payments. The report stresses data capture in order to "provide real-time

insights into needs and preferences of retail consumers, SMEs or large corporations". Cloud-based solutions are encouraged, says the report. And banks should engage with the demands of increasingly tech-savvy customers, who want applications beyond banking, such as integrated e-commerce and payment possibilities.

Amongst the estimated 120 billion contactless transactions (see graph) in 2020, we see the major growth coming from consumers using mobiles and wearables for payments. Clearly, therefore, banks should see digitalization as an opportunity. Banks need to benefit from their competitive advantages, such as customer data knowledge and, of course, their direct access to the customer. Today's customers demand personalized, convenient 24/7 access to their bank accounts; they want

real-time fulfillments and fast-response times, always with high security.

G&D is at the forefront of digital banking, with services in digital payment, mobile application platforms and digital identity services, and always consumer-centric. Convego Hub, for example, provides high-

payments and integrates online interfaces for banks' card issuance and lifecycle management. As well as partnering with the likes of Swatch in the wearables market, G&D is also collaborating with international payment schemes to provide tokenization services for issuer wallets via Cloud Pay, which is certified by all major

Digital Banking Services by G&D

Digital Payment Services

Great user experience for convenient card provisioning in 10 seconds; fast "tap and pay" payments with highly scalable end-to-end solution.

Consumer-Centric Services

Customized solution with ID card scanners and paper printers to issue credit cards on

the spot and enroll consumers.

Mobile Application Platform

AppWorld Client + Server for dynamic management + SDK for fast development of mobile services.

Digital Identity Services

With authentication & e-signature

ly secure, fast and convenient payments on any device. As part of Convego Hub, Convego CloudPay enables cloud-based payments according to the global payment schemes. Similarly, Convego Hub provides sub-solutions for any other technology and enables all payment options and schemes securely. The system provides extremely fast virtual payment card enrollment, enables secure contactless

payment organizations. G&D's Convego Hub ensures that a bank's digital transition is an opportunity to be grabbed. Banks retain control, reduce their IT costs and can monetize data by directly offering extra services. Customers get a quick, convenient and appealing app, with their trusted bank brand a reassuring presence, all underpinned by the highest level of security. <

Contactless Payments

2016: 25 bn Contactless transactions*

2020: 120 bn Contactless transactions*



* Source: Juniper Research, Contactless Payment Report 2016

The challenges to banks come from several directions, and they are forcing more traditional banks to update their services:

Fintechs and over-the-top digital giants

Fintechs and over-the-top digital giants are disrupting the old bank-customer intimacy and are trying to reinvent payment methods.

Online and mobile payment players

With the aim of providing easy, secure and standardized payment services, PayPal and Square are enticing customers.

Banks with new value propositions

Companies such as mBank or Fidor Bank provide alternatives to traditional bank services and offer a more engaged customer experience.

Entrants from other industries

Walmart, Amazon, Facebook and others are about leveraging their current customer knowledge in order to combine financial services with non-financial offerings.

Your contact for more information on:

Digital Banking

Nils Gerhardt
Giesecke & Devrient, Germany
Tel: +49 89 4119 12 57
nils.gerhardt@gi-de.com



The Banking Challenge

For more than two decades, Steve Mott has been a renowned consultant in the electronic payments industry, focusing on everything from transaction economics to security technologies. Albeit with a focus on the U.S., he tells us about the digital challenges facing banks.

How comfortable have banks been in meeting the digitalization challenge?

One huge problem for banks trying to innovate is their cultural perspective that excess regulations chew up most of their capital available for new investments, and restrict their ability to compete in emerging digital business models. To a degree, that's probably true. However, a lot of that effect is because banking in the U.S. does such a poor job of ID proofing and verifying customers "up-front" in a transaction. This invites excessive fraud that occurs in the 'back-end' of transactions – where most of the regulations have mitigated the effects of the "horse already being out of the barn". Industry leadership (to a significant degree, provided by the Federal Reserve, with its faster payment initiative) on protecting accounts and their transactions at their origin is still lacking from most banks and all networks. Banks appear to resist what they can't control, but refuse to allocate capital to invest in technologies they can deploy and scale.

How will digitalization principally impact customers? But how secure is the mobile banking that exists at the moment?

Material improvements in security throughout the banking system will take a while. But make no mistake about it: migratable secure elements, biometrics, digital IDs, fortified clouds, new standards for data-in-motion, and many other technologies are all ready to go – if and when we can achieve a national consensus of actually doing what's needed to reduce fraud across the full banking spectrum of products and services.

Sweden is often cited as the future first cashless society country – how realistic do you think this is and how might this effect banks and customers?

"Cashless" is often defined now as a society where cash transactions make up less than 2.5 percent of the total. Sweden (and other Scandinavian countries) have led the world in the transition to all-electronic transacting. Business models like "pay-lat-

and programs – for example, Card Not Present liability shifts, "zero liability" for fraud, and so on – that absolve them of liability) to eschew any responsibilities for securing themselves; and 5) deployment of new digital technologies for businesses (for example, online banking) have been done in ways that streamlined access and use, but produced fundamental holes in security. So, it's no wonder that payment innovations and improved security are so hard to come by.

What advice would you give banks in order to better hold on to their customers and thrive in the new era of digitalization?

First, find technology providers that can deal with individual banks at a level of service and scale that fits the specific situations of the institution. That will reward the providers which can achieve that and encourage other providers to do the same. There are even some services that the bankcard networks provide that actually

drive real value (for example credit and debit gateways); in time, Wall Street (if no other source) will drive them to value-based business models. But

this will happen only if financial institutions (FIs) stand up for themselves as individual institutions (and customers). Second, smaller FIs should push industry groups,

regulators, and providers to sponsor SaaS/PaaS/laaS, cloud capabilities, new security and interoperability standards to tool up for the future in order to serve them. In this quest, all but the biggest FIs and all but the biggest merchants (and billers and third parties) share a common interest: a level playing field, and means to compete (and survive) in the all-encompassing digital future. So, memo to security providers and the rest of the 14,000 FIs: GET TOGETHER, NOW!

What excites you most about the tech innovations in relation to banking?

The FinTech "revolution" is very exciting. The proliferation of "unicorns" (start-ups with valuations that exceed USD1 billion) is expectedly unrealistic and many of these start-ups solve only small portions of the problem addressed; in many cases, additional parts of the problem must be added in to drive value sufficient enough to gain traction and critical-mass adoption. What's also exciting is the emerging discussion of updating and coordinating industry standards (for security and interoperability), upgrading proprietary specifications (like PCI and EMVCo outputs) to more balanced and effective industry standards, and the Fed's efforts to define a truly functional and open faster payments network option(s). The sooner the digital future of transacting gets addressed by the entire payments/banking ecosystem, the sooner the U.S. will leave its reputation as a payments "backwater" behind. ◀

"Migratable secure elements, biometrics, digital IDs, fortified clouds, new standards for data-in-motion, and many other technologies are all ready to go."

How will digitalization principally impact customers?

"Digitalization" of consumer transacting will be led by bottom-up, grass-roots innovation – tapping one customer at a time, and relying on viral, word-of-mouth adoption (as in the case of Paypal's Venmo). Business customers, particularly the 20 plus million small businesses, will likely convert in waves, as with mobile banking. For them, 2020 will reveal a very different banking experience altogether. The challenge for them will be how to take advantage of the innovations occurring with the biggest banks and corporations.

Juniper research suggests that around 37 percent of the global adult popula-

er" Klarna, credit-push payments, and fully tokenized transaction models have enjoyed sustained adoption.

Why can't that happen in the U.S.? Well, this country has been a backwater of payments/transacting for a number of reasons: 1) there is no government or industry entity that actually regulates payments – least of all cards; 2) card usage in the U.S. is far more penetrated than anywhere else in the world, and nobody regulates card use other than the network brands; 3) innovation, as we've discussed, is something banks have chronically avoided; 4) consumers have been incented (though rewards programs are unaffordable if not for the ability to pass costs onto merchants,

Steve Mott

With 25 years of experience behind him, Steve Mott describes himself as something of a "veteran" of the electronic payments industry. His specialization is in "landscape" and strategic assessments, transaction economics, innovative uses of debit networks, authentication and security technologies, and emerging alternative payments types and venues – including stored value, online and mobile commerce, cloud-based/digital marketing systems, and transacting over social networks."

BetterBuyDesign

As well as an expert advisor to the Federal Reserve, Mott is principal of payments consultancy BetterBuyDesign, working with clients in various areas, ranging from strategy development and product research to organizational effectiveness and technology evaluations.



América Móvil Pairs up With G&D Device Management

América Móvil trusts G&D to deliver the best Mobile Device Management solution that addresses the complexity of their organization and needs.

The largest mobile network operators require the best, most efficient and innovative solutions. And América Móvil, the third largest operator on the planet, with its Telcel subsidiary holding around 79 percent of the market share in Mexico, faces the following challenges.

It is reported that in 2016 alone, the company is aiming to increase its numbers of subscribers by an additional 100 million, to total more than 300 million, boosted by revenues predicted to grow annually by six to eight percent.

When América Móvil was looking for a mobile device management system to help further unlock revenue growth potentials,

In addition, integral to the MDM system is its Mobile Analytics. With this running, accurate data mining becomes possible, which means that a plethora of valuable information can be collected, collated and put to use. Data on smartphone usage is one example, as are device capabilities and roaming behavior.

Customized reports

The system will provide comprehensive reports on subscriber devices. Similarly, customized reports will become available, with information on network architecture and the potential flexibility to adapt to third-party architecture when necessary. On top of this, the MDM platform's exten-

Why América Móvil Chose G&D's MDM

Device Recognition

Its 99 percent device recognition rate is a big plus factor. It has been deployed in 60 MNOs and 1 billion devices.

Ease of Use

Its "out-of-the-box" usage with set up is as easy as the subscriber tapping "next" ... and that's it.

Subscription

MDM drives subscriber loyalty and provides feedback, plus analysis on users preferences, pushing loyalty further.

make significant savings and retain customers, they wanted to combine such demands with a high-performing technological platform.

G&D's MDM has the world's best device recognition rate, at 99 percent, which provides the basis for the system's successful operation. Such a recognition rate is vital for América Móvil and Telcel in light of plans to migrate from 2G and 3G to 4G. With G&D having the best Terminal Capabilities Repository system on the market, América Móvil knew it would have the technology and expertise with which to carry out its systems upgrade.

Hub strategy

In order to migrate to 4G, better customer data plans and networks that would not overload are of paramount importance. G&D is providing these but also decreased technical costs by implementing its "hub strategy". Automatic device detection across the networks and automatic pre-paid profile updates underpin configuration and detection requirements.

Planning and attention to detail were at the forefront when G&D experts discussed developments with technology committee counterparts, plus chief architects, engineering managers, purchase/procurement leaders and chief marketing officers.

sive set of functionalities and modules provide top performance and services – for example, with Wi-Fi offload, advanced firmware management, and LTE for device roaming in both Columbia and Peru.

Substantial cost reductions

Building on around 60 live systems, G&D continues to show why it is the leading provider of MDM platforms around the world. América Móvil selected G&D on the basis of its knowledge and expertise. By the end of March 2016, G&D was in the process of system implementation. ◀

América Móvil in Brief



• Location

Though its main business area is Latin America, it has a presence in 18 countries in the Americas, added to a further seven countries across Europe.

• Coverage

The company reports it has an impressive 289 million mobile customers and more than 21 million TV subscribers.

• Satellite

The company has eight satellites, with the latest launched in July 2015. It also has 48 transponders, which are used for television and a range of other services.

Your contact for more information on:

G&D Mobile Management

Carlos Escobar
Giesecke & Devrient Mexico
+52-55 5039 9927
carlos.escobar@gi-de.com

The Cost of Not Knowing

How MNOs Can Unlock Hidden Revenue Potential

A key element to long-term sustainability for mobile network operators is to use customer data mining in order to improve performances. G&D's Mobile Analytics is a prime driver in increasing revenues and reducing risky investments - it is based on an outstanding database, which carries out real-time analytics.

In a digital world where the number of connected objects is exploding, data and the capacity to extract valuable information for your business is a key advantage. G&D's Mobile Device Management (MDM) systems provide numerous solutions for MNOs, with Mobile Analytics one of the most important. G&D's Mobile Analytics takes MNOs to the heart of their customers' mobile habits, thereby, opening up possibilities to increase revenues and keep their subscriber bases satisfied.

On the way to success

The prerequisite for detailed insights into a range of data is the capability of a well-maintained system, and recognition of the-

learn how many and which of their subscribers use iPhones, for example, and then direct offers that might fit them best. In addition, they can find out about how many of their customers' smartphones are enabled for LTE connectivity.

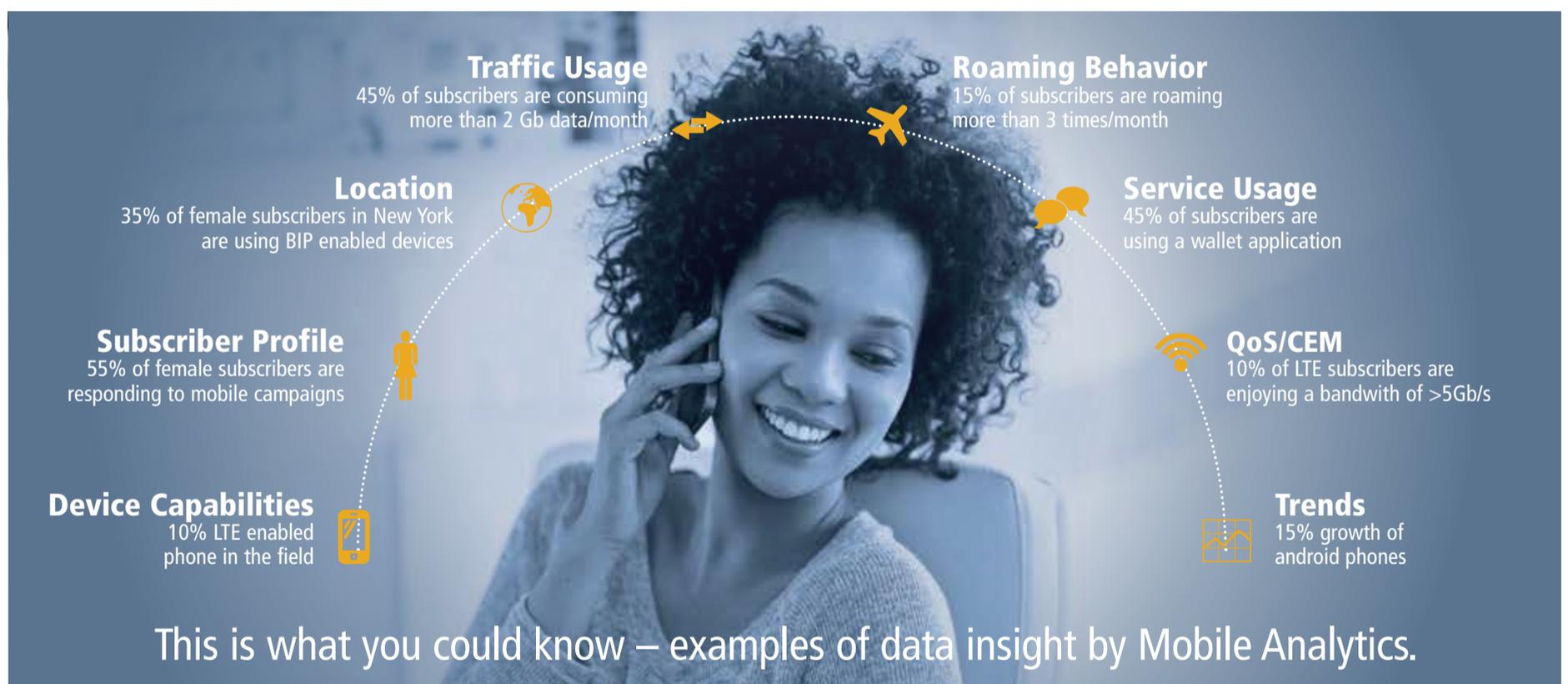
Similarly, gaining knowledge of the amount of traffic usage for each subscriber, roaming behavior, whether they use a wallet application and various other data can help an MNO optimize services and offers. Unnecessary investments can be avoided based on insights into networks (device capabilities, for example).

Of course, each MNO and each region will come up with different statistics and data, and use it in a way that best suits them.

The Best-In Class Mobile Analytics Platform

MNOs working with G&D get the best support and performance:

- 99% device recognition rate
- G&D's TCR (Terminal Capabilities Repository) identifies more than 28,000 unique devices
- Devices come from more than 1,300 unique device vendors
- Around 4,500 new models are added every year



multitude of different handsets on the market, or more technically called, the Technical Capability repository (TCR). The G&D database has more than 28,000 models, around 1,300 device vendors and holds a 99-percent recognition rate – with monthly updates.

The benefits for MNOs

Want to know more about a subscriber profile? How beneficial would it be to an MNO to know that perhaps 55 percent of their female subscribers respond to mobile campaigns. The result would be future targeted campaigns and raising revenues. MNOs can

But what is very clear is that the most successful MNOs now and in the future will be those with the deepest knowledge base of their customers' mobile usage and habits.

As we have seen, this information – provided by Mobile Analytics and integral to G&D's mobile device management system – is a treasure trove. Whether through promoting new services or fine-tuning investments, the potential for raising revenues is clear. In the IoT world, mobile analytics could in the future help MNOs to harness a world of opportunities. In addition, it can help them to offer dedicated services to enterprises and OEMs in order to offer an enhanced customer experience. <

Better Business Decisions

G&D Mobile Device Management systems and Mobile Analytics provide real-time device management. Combined, they are powerful tools for improving business decision by data mining key information.

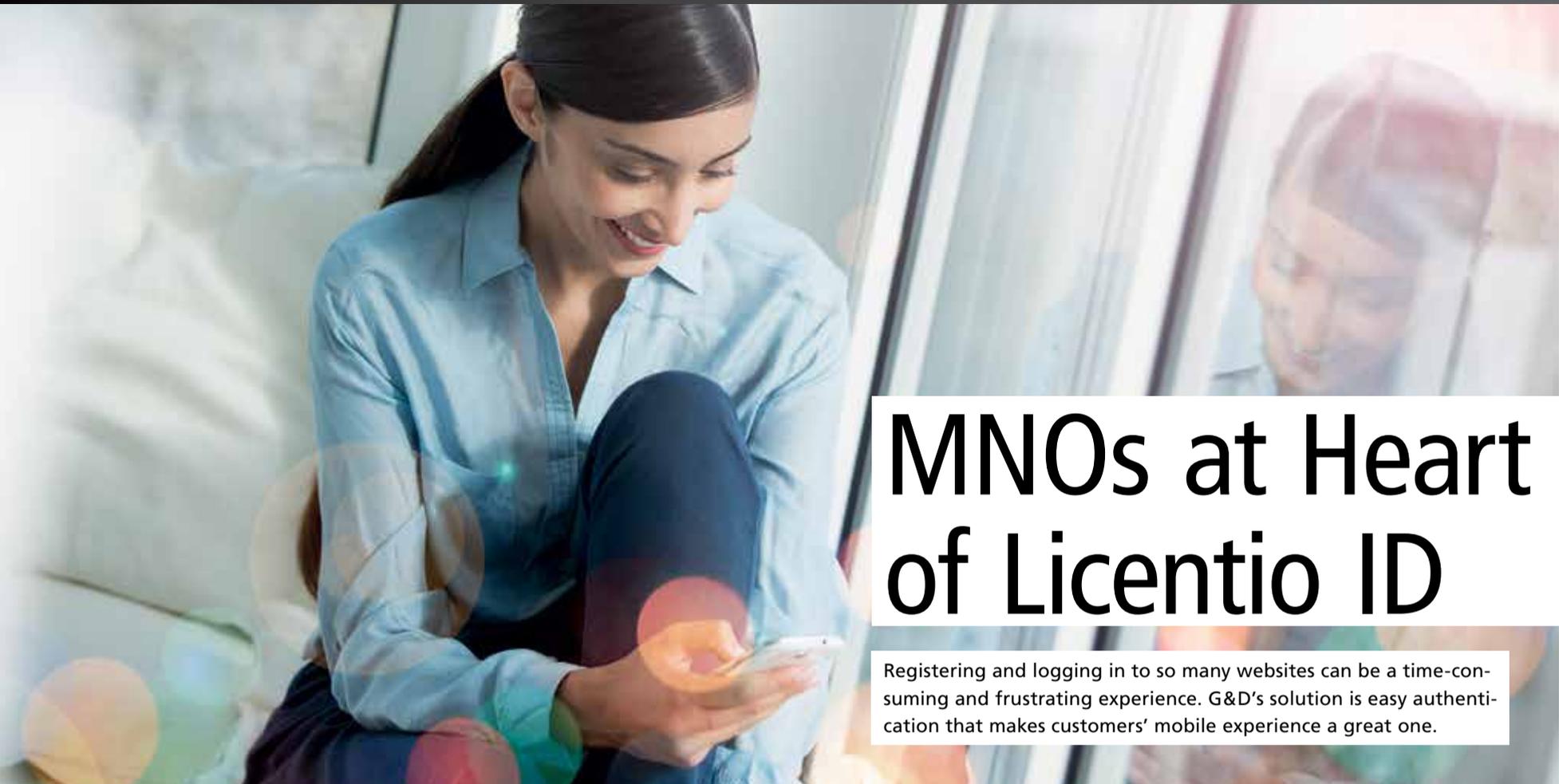
This includes:

- device capabilities
- location
- subscriber group
- data usage
- subscriber behavior

Your contact for more information on:

Mobile Analytics

Pär Thorstensson
Giesecke & Devrient, Nordic
Tel: +46 8 685 93 11
par.thorstensson@gi-de.com



MNOs at Heart of Licentio ID

Registering and logging in to so many websites can be a time-consuming and frustrating experience. G&D's solution is easy authentication that makes customers' mobile experience a great one.

Market research shows that all of us have around 25 passwords to remember, while 30 percent of consumers decline online banking because of online security concerns. Added to this, around 50 percent of cyber attacks are caused by illegitimate authentication; and 62 percent of customers are said to quit e-commerce transactions when asked to register yet another ID and password.

These statistics clearly highlight the urgent need for a more convenient and secure online and mobile authentication process. G&D has a track record of successfully implementing mobile authentication solutions – with one outstanding example the provisioning and operating of a national wireless PKI service for Norway's Telenor for more than a decade.

Licentio ID, a proven success

The solution is G&D's Licentio ID, a system based on the global GSMA's Mobile Connect specifications, which has the aim of enabling MNOs across the globe to provide SIM-based mobile authentication to the digital society. This universal login solu-

tion allows users to log on to their favorite websites and apps without the rigmarole of remembering those "25 passwords", safe in the knowledge that their personal data is secure. Therefore, when using G&D's Licentio ID, instead of online authentication underpinned by the aforementioned passwords, it is based on authenticated details as a registered customer of a mobile network operator.

OTTs (basically, third parties that offer services, such as instant messaging and video calling) can also be a threat to the unfet-

tered MNO-customer relationship, though – again – Licentio ID can assist by providing SIM-centric, mobile-based authentication, consequently transforming MNOs into consumer ID providers. The whole process of online authentication is subsequently simplified and much more convenient due to customers only having to provide their details once. All the data is then securely stored on a protected server set up by the mobile network operator. The result is that entry to the web is simple and safe.

Taken to its logical conclusion, Licentio ID's

one-step authentication process allows MNOs to provide customers with greater support, such as with age verification or data sharing requests. This means MNOs have the potential to become key enablers and facilitators, placing themselves again at the heart of their customers' digital life.

Licentio ID focuses on creating universal trust for MNOs and their customers. Underpinned by GSMA's Mobile Connect specifications, it supports both MNOs and service providers, in the process strengthening relationships with subscribers. ◀

Benefits of Licentio ID include:

- For mobile network operators:**
 - New revenue streams
 - Drives customer retention
 - Capitalization of SIM cards
- For service providers:**
 - Secure access to web services
 - Easy customer enrolment



Your contact for more information on:

Mobile ID
Bernhard von Canstein
 Giesecke & Devrient, Germany
 Tel: +49 172 370 89 89
 bernhard.canstein@gi-de.com

G&D and Ericsson's One-Stop Shop for Global M2M Solutions

G&D and Ericsson announced a partnership to deliver a commercial end-to-end subscription management solution. With security underpinning the process, the system has been developed to enable mobile operator SIM profiles and policies to be remotely provisioned and managed.

Addressing cross-border challenges

The joint solution addresses the challenges associated with deploying connected devices across borders, including the provisioning and re-provisioning of SIM profiles remotely, automated billing, reporting, support, and operational management processes. The subscription management system enables MNOs and service providers who use the Ericsson Device Connection Platform (DCP) to optimize the processes involved. It allows MNOs to remotely manage the initial connectivity, on demand and on a global scale, including during the roll-out. Ericsson's DCP and G&D's AirOn™ platform secures data generation and the selection of the most suitable download channel. Easily managed through an API and with the highest level of security, it can be integrated into a range of M2M platforms. "We have partnered with G&D to offer a single, fully interoperable and powerful platform", stated Anders Olin, Vice President, Product Area Network Functions, Business Unit Cloud & IP, Ericsson. ◀



DOCOMO & Telefonica Brasil Subscribe to eSIM Technology

In October 2015, Japan's largest mobile network operator, NTT DOCOMO, INC., launched a partnership with Telefonica Brasil S.A. (Vivo) that focuses on an embedded subscription identity module. This eSIM solution enables M2M devices to work on Brazil's Vivo network.

DOCOMO also partners G&D

NTT DOCOMO is also a close partner of G&D, seen by the announcement in July 2014 that the giant Japanese firm chose the company's subscription management system for the country's first commercial eSIM service. In the new agreement with Telefonica Brasil, DOCOMO has announced that its eSIM will enable "M2M devices to use a single embedded SIM with a phone number which can be changed over-the-air to certain mobile operators." This will then allow companies to "remotely manage connectivity with mobile operators without having to replace the SIM cards in their devices."

Flexible subscription management

G&D provides DOCOMO with a secure and flexible subscription management for remote and over-the-air solutions on embedded SIMs. DOCOMO, Japan's first mobile provider to provide an eSIM solution to a mobile operator outside of Japan, uses a single embedded SIM to allow M2M devices to be accessed over the air. Underpinned by G&D technology and innovations, companies can now remotely manage their connectivity without the bother of replacing SIM cards in their devices. ◀



Swatch Becomes Smarter with G&D Embedded Chip

Swatch watches have caught the eye since launching on the market in 1983 by Swiss watchmaker Nicolas G. Hayek. The new Swatch Bellamy, recently launched with a G&D smart card chip, is China's first contactless payment watch.

Fully compliant with China UnionPay security specifications, it is compatible with worldwide contactless payments at all five million China UnionPay point of sales (POS) terminals equipped with NFC. The chip in this feature-packed Swatch also has a debit card function, which can be used for cash withdrawals and for topping up e-cash amounts. In addition, the payment functions will not consume any extra battery power.

Stefan Auerbach, Group Executive Mobile Security at G&D, noted that G&D were "proud and honored that G&D had the opportunity to contribute to the innovative Swatch Bellamy watch." Dr. Roland Savoy, Managing Director APAC at G&D, explained: "In cooperation with partners across industries, such as Swatch, we have been fostering innovation and smart security in these markets." Swatch CEO Hayek was likewise happy with the partnership and he looked "forward to developing this relationship further."

The importance of the wearable market can hardly be overstated, with worldwide sales set to reach 215 million units shipped in 2019, according to the International Data Corporation. The most in-demand wearables are, of course, smart watches and fitness/wellness trackers, and these sales should double by 2019 from 65 million to around 124 million.

And just as night follows day, consumers will soon expect all of their wearable device to support secure payments, authentication mechanisms and transit functions via contactless NFC or Bluetooth Low Energy. "With our expertise in security solutions and our Trusted Service Management, G&D is uniquely equipped to ensure that consumers' trust is justified," said Auerbach. "Our solutions work with all major payment schemes and safeguard secure payment for virtually any combination of consumer payment preferences as well as OEM specifications for wearable devices." As well as updated over-the-air, devices are likely to be loaded with more than one payment credential and potentially more than one mobile operator credential.

With its payment technology now in Chinese smart band JiePay and the Samsung Gear S2, Smart Bellamy further establishes G&D as a leading player in the wearable market. ◀

Your contact for more information on:

eSIM

Akinobu Miyazaki
Giesecke & Devrient, Japan
Tel: +81 3 3504 5923
akinobu.miyazaki@gi-de.com

Ericsson

Andreas Morawietz
Giesecke & Devrient, Germany
Tel: +49 89 4119 29 63
andreas.morawietz@gi-de.com

Smart Card Chip

Wei Jie
Giesecke & Devrient, China
Tel: +86 10 8507 3497
jie.wei@gi-de.com

Emerging & disruptive Best Platform

G&D was the delighted recipient of a special award that reflects the impact the company has had – and will continue to have – in the category of Best Emerging Disruptive Technology/Platform.

The Juniper Research Future Digital Awards in the fields of technology and innovations are eagerly awaited each year, with the movers and shakers across the industry hoping to be named best in their category. And with the Secure Industry Visibility solution, G&D was on to a winner – the hard work and innovative thinking of G&D employees paid off as Juniper Research awarded it the Best Emerging & Disruptive Consumer Product Prize for 2016.

The Secure Industry Visibility solution comprises numerous components across the industrial remote management process that sets up a tunnel between two end points without the need for specific client software. All clients need is a web browser on the host side, which then receives a secure ID and IP address not visible on the Internet.

Juniper Research is a research and analytical company that provides services (reports, commentary and consultancy) to the hi-tech communications sector across the world. With a panel of industry experts judging the merits of each entrant in a number of categories, competition was hot. Therefore, as outlined by Stefan Auerbach, Group Executive Mobile Security at G&D, the award is “an excellent acknowledgment for our ongoing efforts to pave the way to Industry 4.0 for our clients. We are proud and honored that this has been awarded with one of the prestigious Juniper Awards. Our Secure Industrial Visibility solution supports industry information technology with high-end security as well as secure machine service and maintenance management for existing and upcoming production infrastructure.” ◀



GSMA Sets MWC Shanghai for End of June 2016

Such is the ongoing popularity of GSMA Mobile World Congress Shanghai that organizers expect more than 50,000 people to attend the 2016 event between 29 June and 1 July at the Shanghai New International Expo Centre (SNIEC). A major theme of Shanghai will be to explore the latest trends and topics in the world of mobile, ranging from 5G, automotive and cyber security to digital commerce, hardware innovation and mobile identity.

Meet G&D, see our demos and talk with us about the connected society! Booth N2.D10. ◀