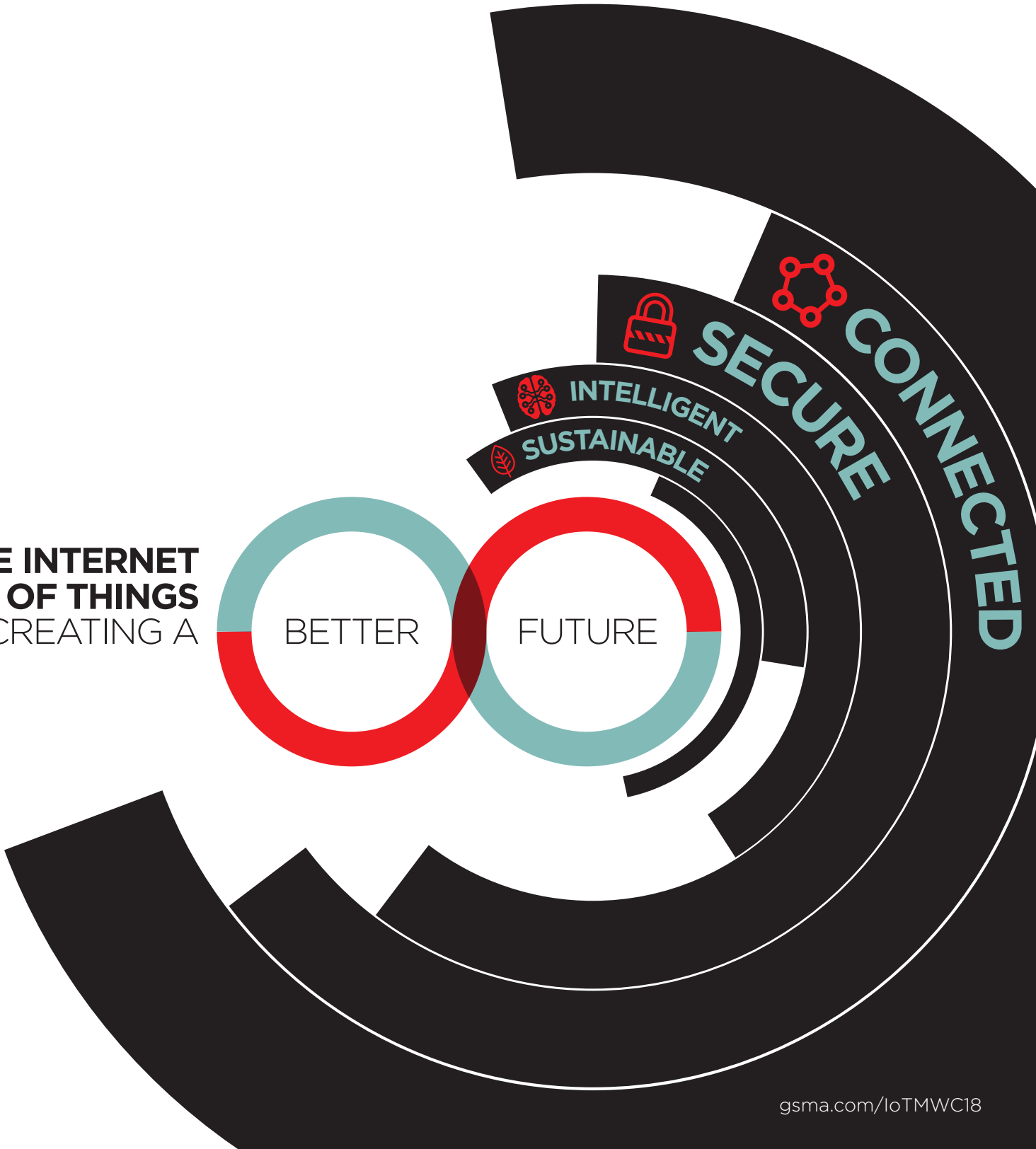
The IoT Guide

MOBILE WORLD CONGRESS 2018



THE INTERNET OF THINGS
CREATING A BETTER FUTURE

gsma.com/IoTMWC18

THE INTERNET OF THINGS BY 2026*

$1.8 Trillion Total IoT Application Service Revenue Opportunity

* Source: Machina Research, 2017

North America:
$419bn

Europe:
$453bn

Middle East/Africa:
$86bn

Latin America:
$115bn

Asia-Pacific:
$707bn

OPPORTUNITY IN SELECTED VERTICAL SECTORS

- Smart Cities: **$78bn**
- Connected Industry: **$164bn**
- Connected Vehicles: **$273bn**
- Consumer Electronics: **$376bn**
- Smart Home: **$441bn**

THE INTERNET OF THINGS – CREATING A BETTER FUTURE

Mobile technology has a significant impact on the lives of more than 5 billion people around the world, and the GSMA is dedicated to connecting everyone and everything to a better future.

The Internet of Things plays a vital role in creating this better future. From extreme wildlife tracking to protect species, to air and water quality monitoring for a cleaner environment, to smart traffic and crowd management for safer and more efficient cities, use cases for IoT solutions are near endless and the industries set to benefit from the IoT almost countless.

With 30 billion connected devices by 2026, the Internet of Things will be essential in protecting the environment, building smarter and sustainable cities, and improving quality life for billions of citizens. In short, the Internet of Things will be essential in creating not only a better future, but a future that is

Mobile operators' extensive experience of building and managing licensed cellular networks coupled with a deep understanding of machine based mobile solutions make them uniquely positioned to be key strategic IoT partners for cities, governments and enterprises.

6TH MOBILE IoT SUMMIT SCALING GLOBAL DEPLOYMENT

SUNDAY, 25 FEBRUARY
13:00 – 17:30
HESPERIA TOWER HOTEL

Mobile IoT, also known as Low Power Wide Area (LPWA) in licensed spectrum, presents a huge opportunity for the mobile and IoT industries. Machina Research estimate that by 2026, there will be over 6 billion cellular and LPWA IoT connections, of which 64% will be LPWA connections.

The 6th Mobile IoT Summit will focus on the rapid growth and momentum behind both NB-IoT and LTE-M technologies. Since the beginning of 2017 there have been 28+ commercial launches of Mobile IoT worldwide, and this number is growing exponentially in 2018.

Hear from leading mobile operators and industry players about:

- The commercial availability of Mobile IoT on a worldwide scale
- Deployments of Mobile IoT networks and the growth of the wider ecosystem
- Recent implementations and customer experiences of NB-IoT and LTE-M

Registration will open at 13:00, followed by lunch and interactive Mobile IoT demonstrations. A networking drinks reception follows the summit, from 17:30 – 18:30.

This event is free to attend, but advance registration is required. To register and view the latest confirmed speaker details, visit: **gsma.com/IoTMWC18**

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6TH MOBILE IoT SUMMIT SCALING GLOBAL DEPLOYMENT

13:00 – 14:00 **Welcome Lunch, Registration and Demonstrations**

14:00 – 14:10 **Welcome and Introduction**
- GSMA: Graham Trickey, Head of Internet of Things

14:10 – 14:40 **Opening Keynote Presentations**
- Huawei: Cheng Zhu, Head of Cellular IoT Product Line
- Sequans Communications: Dr. Georges Karam, President and CEO

14:40 – 15:40 **Panel: Scaling Deployment of Mobile IoT**
- AT&T: Cameron Coursey, VP Product Development, Internet of Things Solutions; Chair of GSMA LTE-M Task Force
- China Mobile: Shen Hong Qun, Deputy General Manager, Marketing Dept.
- Deutsche Telekom: Johannes Kaumanns, Vice President IoT - Strategy & Business Development
- Telefonica: Vicente Muñoz, Chief IoT Officer
- Vodafone: Luke Ibbetson, Chief Engineer, Group R&D; Chair of GSMA NB-IoT Forum

15:40 – 16:00 **Refreshment Break and Demonstrations**

16:00 - 16:45 **Real-World Customer Deployments**
- Intellinium: Mathieu Destrian, CEO
- Yingtan City, Ying Tan Government: Zhu Yutao, Officer of China Communication Standard Association and Chief Secretary of Ying Tan Mobile IoT Alliance

16:45 – 17:30 **Panel: The Future Outlook for Mobile IoT**
- Ericsson: Marie Hogan, Head of Broadband and IoT Networks
- Nokia: Ankur Bhan, Global Head of Worldwide IoT Network Grid (WING)
- Sierra Wireless: Marc Overton, SVP and General Manager, Cloud & Connectivity Services
- u-blox: Simon Glassman, Head of Strategic Partnerships, EMEA
- Moderator: Shane Rooney, Executive Director, IoT Networks, GSMA

17:30 – 18:30 **Networking Drinks and Demonstrations**

GENERATING VALUE THROUGH IoT AND BIG DATA

GSMA Seminar

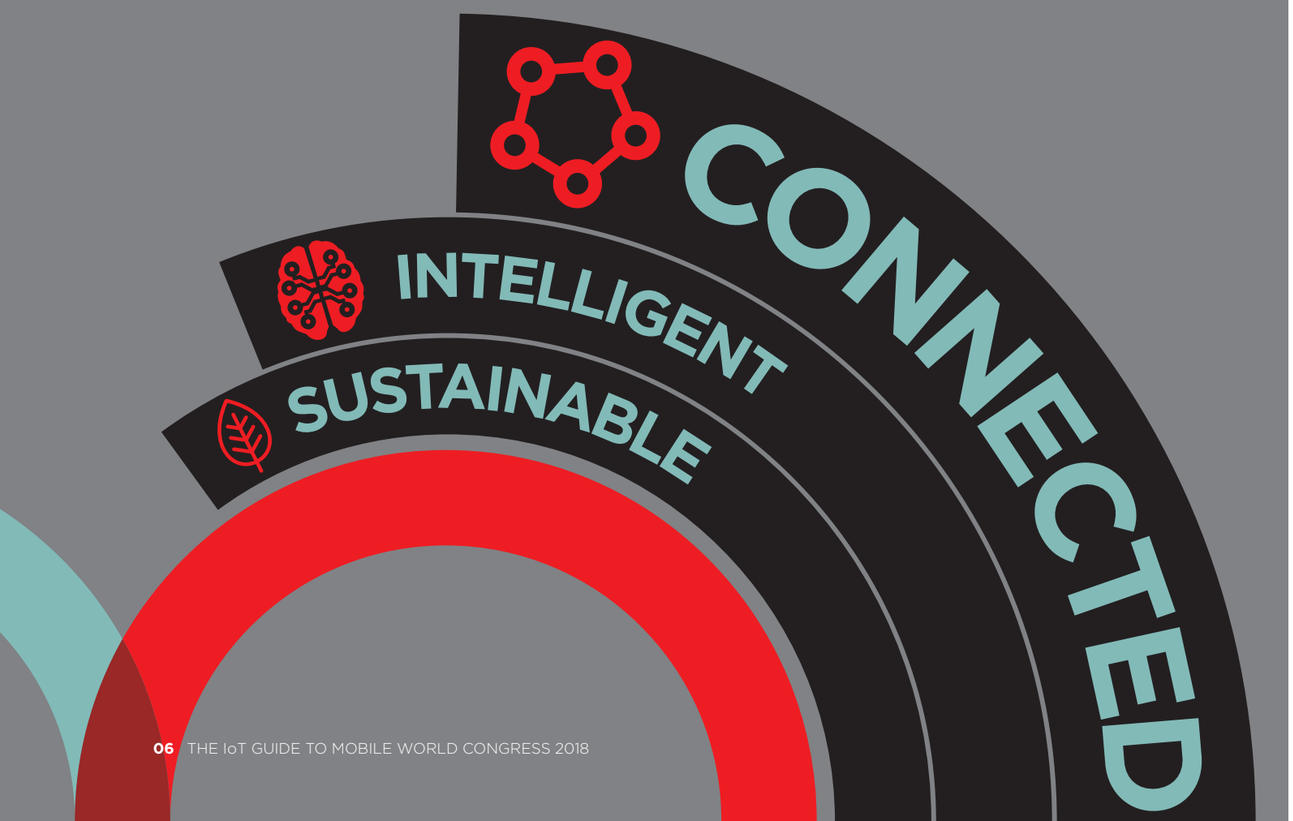
TUESDAY, 27 FEBRUARY
09:00 – 11:00
GSMA SEMINAR THEATRE 1, CC1.5

Mobile operators are becoming increasingly successful in establishing services to commercialise their anonymised data, and offering high value, scalable data-driven services. The real benefits can be seen today in the positive changes this makes to people's lives.

Join us in this GSMA seminar to hear how air quality monitoring with IoT Big Data is improving the health of citizens in major cities within Europe, the Americas and Asia, and how IoT Big Data can be used to derive value and revenue from agriculture and the industrial IoT.

GSMA seminars are free to all Mobile World Congress 2018 attendees.

To register and view the latest confirmed speaker details, visit: **gsma.com/IoTMWC18**



IoT SECURITY AND DRONES: CREATING A CONNECTED AND SECURE FUTURE

GSMA Seminar

WEDNESDAY, 28 FEBRUARY
12:00 – 14:00
GSMA SEMINAR THEATRE 1, CC1.5

SESSION 1: SECURING A BETTER FUTURE

With 30 billion connected devices by 2026, the risk of cybersecurity breaches, leaked customer data, destroyed reputations and costly remediation is increasing exponentially. Without security, the Internet of Things will cease to exist. IoT companies must avoid short cuts to guarantee end-to-end security and allow the IoT market to scale to create a connected, secure, intelligent and sustainable future.

Join leading industry experts to discover:

- Live hack: witness how easily devices can be compromised if not secured properly
- IoT security best practices and assessment frameworks
- IoT security certification and recent regulatory developments in the EU and US

SESSION 2: CREATING A BETTER FUTURE WITH DRONES

Serving numerous industries and use cases, drones are a rapidly emerging sector within the IoT. Their versatile application range and access to real-time data will make them valued additions to modern life, helping to make cities smarter to improve the quality of life for citizens.

Join leading industry experts to discover:

- New connected commercial drone opportunities
- New challenges for the drone industry and how to address them
- Network coverage and secure communication enabled by mobile operators
- SIM card capabilities to enhance safety and security

GSMA seminars are free to all Mobile World Congress 2018 attendees

To register and view the latest confirmed speaker details, visit: gsma.com/IoTMWC18

MOBILE IoT INNOVATORS NETWORKING RECEPTION

Mobile IoT = Trusted IoT

WEDNESDAY, 28 FEBRUARY
17:00 – 18:30
GSMA SEMINAR THEATRE, CC1
NETWORKING AREA

Join the Mobile IoT Innovators Networking Reception for a relaxed afternoon and enjoy an informal chat with leading industry experts and pioneering companies in the Mobile IoT ecosystem.

Meet experts from the mobile and adjacent industries, and network with your peers to discuss the latest market developments, use cases and network deployments for LTE-M and NB-IoT around the world.

HUAWEI Networking Sponsor

This event is free to all Mobile World Congress 2018 attendees.

To register and view the latest event details, visit: **gsma.com/IoTMWC18**

GSMA Mobile IoT Innovators

Mobile IoT (licensed spectrum low power wide area) technologies, are designed for low data rate IoT applications, that require very long battery lives, are low cost, and often operate in remote and hard to reach locations. They are well suited for deployments across a number of different verticals such as utilities, smart cities, logistics, agriculture, manufacturing, and wearables.

The GSMA has created the Mobile IoT Innovators to help build a vibrant ecosystem around Mobile IoT. The community consists of developers, device makers, network vendors, operators and end customers, and provide an easy way for companies to keep up to date with the latest information and industry developments.

Join the Mobile IoT Innovators Networking Reception to learn more about the benefits of Mobile IoT technologies, developer opportunities and the GSMA Mobile IoT Innovators.

IoT JOURNEYS THROUGH MWC18

Discovering the Better Future

IoT Journeys through MWC18 give attendees the opportunity to explore innovative demonstrations throughout all halls at Mobile World Congress 2018. The self-guided journeys allow delegates to see at a glance key information about each demonstration and understand the broad range of use cases of three essential areas of the Internet of Things, all of which will play a crucial role in creating a connected, secure, intelligent and sustainable future.

Mobile IoT Journey

Designed for IoT applications that require long battery lives, are low cost, and often operate in remote and hard to reach locations, Mobile IoT (licensed spectrum low power wide area) technologies are set to securely and efficiently scale the Internet of Things. The Mobile IoT Journey highlights the numerous industries that will benefit from Mobile IoT connectivity, and how these technologies will accelerate the growth of the IoT around the world.

Drones Journey

Serving numerous industries and use cases, such as traffic management, agriculture scanning, medical drone deliveries, and support for emergency services, drones are a rapidly emerging sector within the IoT. The Drones Journey explores this versatile application range and how drones can become valued additions to modern life, helping to make cities smarter to improve the quality of life for citizens.

Connected Vehicle Journey

The latest vehicles on the world's roads already contain very advanced information and communications technologies, including on-board computers, a wide range of sensors and, in many cases, both short-range and wide area connectivity. Advances in Cellular Vehicle-to-Everything (C-V2X) technology, 5G networks, the GSMA Embedded SIM Specification, and improved security for connected solutions will further aid and accelerate the realisation of fully autonomous vehicles, which is demonstrated in the Connected Vehicle Journey.

To see the latest information about IoT Journeys through MWC18, and to register your interest in joining a guided tour, visit gsma.com/iot/iot-journeys-mwc18

GSMA INNOVATION CITY

Creating a Connected, Secure, Intelligent, Sustainable Future

HALL 4
MONDAY, 26 FEB – THURSDAY, 1 MAR
08:30 – 19:00

The GSMA Innovation City is open to all attendees with all pass types.

Join the GSMA and partners that are at the very forefront of mobile innovation, including: China Mobile, Far EasTone, Samsung and Telefonica, showcasing products and solutions that are changing the way the world communicates and helping to create a connected, secure, intelligent, and sustainable future with the Internet of Things.

The Internet of Things Programme Team will be available in the GSMA Innovation City throughout Mobile World Congress 2018 to answer your questions and meet face to face.

KEEPING TRACK OF THE WORLD

With 28+ network deployments, Mobile IoT (low power wide area in licensed spectrum) has become globally available and is transforming everyday life for cities, businesses, communities and citizens around the world. This demonstration on a live Mobile IoT network emphasises the commercial availability, scalability and near endless opportunities of Mobile IoT technologies to create a better future for everyone.

THE IoT PUNCH BOXER – MOBILE IoT INNOVATORS SHOWCASE

Partners: BeWhere
Hit the IoT Punch Bag to find out how strong you really are and discover the impact of Mobile IoT! An accelerometer inside the IoT Punch Bag measures the power of your stroke, and transmits the real-time results using a live Mobile IoT network, specifically an NB-IoT network. The accelerometer is used to measure impact and prevent goods from being damaged. For example, it can measure impact on defibrillators to register the threshold at which they are no longer covered by warranty and might pose a health hazard. Using NB-IoT connectivity allows companies to send small amounts of data intermittently, at low cost, over a wide geographic area, and in remote or hard to reach locations.

THE AIR WE BREATHE

Partners: China Mobile, Far EasTone
Air pollution presents a growing health risk worldwide, potentially leading to asthma attacks, heart disease, lung cancer or chronic bronchitis. The development of the Internet of Things and advances in technology have led to the availability of new sensors and techniques for measuring and reporting on air quality data. This demo highlights how mobile operators are working with cities and using IoT Big Data analytics to improve the health prospects and quality of life for citizens.

GSMA INNOVATION CITY

SECURING THE IoT WITH THE SIM

The SIM is the only standard component in all bespoke built cellular IoT devices, creating an extremely secure foundation as it uses a standards-based IoT device architecture – helping to create a secure IoT and a secure future for everyone.

Partner: Able Device
SIMbae's "Host It" solution for a smart traffic light resides within the SIM and extends the SIM's standard functionality to become the embedded IoT application processor for the traffic light. The solution leverages the mobile network's capabilities of secure SIM provisioning, communication and transmission of data.

Partner: Telefónica
Telefonica is demonstrating how cellular enabled energy meters connected to Amazon Web Services can securely receive digital certificates "over the air" using the energy meters' SIM cards. This solution enables secure authentication between the energy meter and the AWS cloud, and the use of the SIM guarantees the secure transmission, storage and update of these IoT device credentials.

SMART STADIUM

Partners: FC Barcelona, Mobile World Capital
Camp Nou "new field", the home stadium of Football Club Barcelona, is the largest stadium in Europe and the third largest association football stadium in the world. The stadium also houses the second-most visited museum in Catalonia, which receives more than 1.2 million visitors per year. With such significant numbers visiting the stadium, safety and efficiency are fundamental elements that FC Barcelona are continuously seeking to improve. Optimising transportation options and improving visitor experience are other key considerations. This demonstration explores how FC Barcelona are building new solutions using IoT Big Data and Mobile IoT technologies.

MUST SEE IoT EVENTS MOBILE WORLD CONGRESS 2018

MAIN CONFERENCE

IoT SECURITY & THE BLOCKCHAIN

MONDAY, 26 FEBRUARY
11:00 – 12:10
HALL 4, AUDITORIUM 4

The scale of IoT is ever increasing, and use cases multiplying. Given the complexity and volume of devices, how does the industry agree on IoT security guidelines? Whilst industry bodies, the GSMA amongst them, have released work on this topic, the sheer scale, variety and therefore complexity, makes consensus difficult. Recent hacks have proven this point and the acute need for a wider initiative. Within this discussion we look at the role specific technologies, such as blockchain or hardware-based security, can take in the IoT. While some risk is inevitable, the industry must ensure that the balance between risk and reward is right to ensure businesses and consumers adopt the new technology and services enabled by IoT.

mobileworldcongress.com/session/from-device-to-core-how-to-secure-the-iot

MASSIVE & INDUSTRIAL IoT

TUESDAY, 27 FEBRUARY
14:00 – 15:00
HALL 4, AUDITORIUM 4

Industrial IoT is a time-tested application, having had a positive and direct impact on manufacturing plants of different sizes and output. With the industry looking for profitable and proven case studies for IoT, it is hard to look further than Industrial IoT. How can the industry adopt key lessons learnt from IoT in industrial settings and apply them to different verticals? What more can the industry do to deliver the full impact of Industrial IoT? How can Artificial Intelligence (AI) further enhance the usability of IoT and the data acquired to make better decisions? Is Industrial IoT the direction for the future?

mobileworldcongress.com/session/massive-industrial-iot

MUST SEE IoT EVENTS MOBILE WORLD CONGRESS 2018

MAIN CONFERENCE

SMART(ER) CITIES

TUESDAY, 27 FEBRUARY
15:30 – 16:30
HALL 4, AUDITORIUM 4

We are no closer than a year ago to a universal definition of what a smart city is. In fact, as technology progresses and use cases increase, the idea of a smart city becomes more difficult to define. However, many of the challenges remain the same...what are the key challenges a smart city should address? How can lessons learnt in one city apply to another? Is there a true gain for citizens in having a "smart city"? What impact does AI and open data have on the decisions cities can make for its citizens?

mobileworldcongress.com/session/smarter-cities

NEW AND OLD: MANAGING THE TRANSITION TO AUTONOMOUS DRIVING

WEDNESDAY, 28 FEBRUARY
11:30 – 12:30
HALL 4, AUDITORIUM 4

Whilst most of the discussion around autonomous vehicles falls on the technology, there is a growing concern on how autonomous driving will co-exist with traditional, man-directed vehicles in the short term. Additionally, networks will need to be flexible to manage different requirements from vehicles that might require no-latency, 100% coverage, along with some that do not require much connectivity at all. How can both old and new coexist? What impact will this have on our roads, and our networks?

mobileworldcongress.com/session/new-and-old-managing-the-transition-to-autonomous-driving

DELIVERING THE IoT ECOSYSTEM

WEDNESDAY, 28 FEBRUARY
15:00 – 16:00
HALL 4, AUDITORIUM 4

The proliferation of IoT presents an opportunity for service providers across the globe to open new revenue streams. Whilst there will be winners in IoT, it is unclear who this will be. How can mobile service providers position themselves in a way that they are delivering the service, not just the connectivity behind it? What impact does the data generated by users and devices have on IoT deployments, and how will AI be deployed to make sense of it all? What will the IoT ecosystem really look like, 5 years down the road?

mobileworldcongress.com/session/delivering-the-iot-ecosystem

MUST SEE IoT EVENTS MOBILE WORLD CONGRESS 2018

MAIN CONFERENCE

VEHICLES AS A SERVICE

WEDNESDAY, 28 FEBRUARY
16:30 – 17:30
HALL 4, AUDITORIUM 4

The sharing economy phenomenon has moved beyond car sharing and stretched to cargo, drones, aircraft, and just about any other mobility device imaginable. How can mobility services continue to be tailored to the user, creating highly customised and unique riding experiences? How much is the customer ready to share with these services to benefit from tailored services? What efforts are needed from a regulatory perspective to keep up with the innovation taking place? Who are the disruptors – vehicle OEMs or telecom providers?

mobileworldcongress.com/session/vehicles-as-a-service

IDE DRONE SUMMIT: THE BUSINESS OF COMMERCIAL DRONES

THURSDAY, 1 MARCH
09:45 – 13:30
NEXTECH HALL 8.0, THEATRE DISTRICT

The IDE Drone Summit will present panel discussions and sessions about the integration of mobile technologies into the drone business. The summit will feature key players from the mobile industry as well as leading drone manufacturers, drone users, and law firms.

Planned topics are:

- Rule and regulations for drones
- Drones, air/land/sea autonomous vehicles and AI
- Search & rescue drone applications
- Drones, chips, and IoT
- The future of drone delivery
- How mobile networks are enhancing the commercial drone market
- UTM - technology and legal issues

mobileworldcongress.com/session/ide-drone-summit-the-business-of-commercial-drones

MUST SEE IoT EVENTS MOBILE WORLD CONGRESS 2018

IoT & 5G USE CASES

THURSDAY, 1 MARCH
12:00 – 13:00
HALL 4, AUDITORIUM 4

IoT and 5G...brought to life. See some of the most exciting IoT demonstrations live in areas such as automotive, manufacturing or connectivity. Leading players, disruptors and newcomers will display the latest and most exciting technology sure to make a direct impact on 5G and IoT applications. A slice of the MWC 2018 exhibition in Hall 4.

mobileworldcongress.com/session/iot-5g-use-cases

EXPLORE THE IoT WITH MWC TOURS

MWC Tours provide the opportunity for a guided tour focused on key industry topics, enabling an in-depth exploration of your area of interest and maximising your experience at Mobile World Congress 2017. Get the chance to stop by some of the largest and well-known companies and talk to the exhibitors for their thoughts and opinions on the role of mobile. Tour guides are subject matter experts with years of experience guaranteeing a detailed and up-to-date insight into the industry.

The 'IoT Tour' will dive into the connected future of the Internet of Things, exploring the latest products and innovative solutions the mobile industry has to offer.

The 'IoT Security Tour' will explore the security and privacy challenges of the Internet of Things, and which steps different companies are taking to overcome cybersecurity risks of the IoT.

To find out more, visit: mobileworldcongress.com/experiences/mwc-tours-experiences/topic-tours/

THE GSMA INTERNET OF THINGS PROGRAMME

The GSMA's Internet of Things Programme is an industry initiative designed to help mobile operators accelerate the delivery of compelling and secure IoT solutions that harness big data to deliver value to individuals and enterprises alike.

By developing key enablers, facilitating industry collaboration and supporting network optimisation, the Internet of Things Programme is enabling consumers and businesses to harness a host of rich new services, connected by intelligent and secure mobile networks. Bringing to the table decades of experience in providing trusted, secure and reliable connectivity, mobile operators are a key component of the IoT and invaluable strategic partners for cities, governments and companies.

The Internet of Things continues to grow and is a major theme of this year's Mobile World Congress with many more IoT conference sessions, live technology demonstrations and leading industry experts. The Internet of Things Programme is convening the mobile industry and focusing on securely scaling the IoT.

Our vision is enable the Internet of Things, a world in which consumers and businesses enjoy rich new services, connected by intelligent and secure mobile networks.

KEY INITIATIVES OF THE GSMA INTERNET OF THINGS PROGRAMME

Mobile IoT = Trusted IoT

The GSMA is working with mobile operators and the wider ecosystem to accelerate the commercial availability of low power wide area (LPWA) solutions in licensed spectrum. Backed by 70+ of the world's leading mobile operators, OEMs, chipset, module and infrastructure companies, Mobile IoT technologies are delivering cost effective, managed solutions that securely scale the IoT.

IoT Security

The GSMA has delivered a set of IoT Security Guidelines, backed by an IoT Security Assessment scheme, to provide a proven and robust approach to end-to-end security. To enable a secure market, companies have to take responsibility to embed security from the beginning, at every stage of the IoT value chain.

IoT Big Data

The Internet of Things is generating a huge amount of data that is retained in vertical silos. The GSMA is working with mobile operators to accelerate the development of the IoT Big Data Ecosystem through the delivery of key harmonised data sets, APIs and valuable insights generated from big data analytics.

Industry Engagement

The GSMA is working to align market perspectives, drive adoption and grow the market across key vertical sectors, including smart cities, connected vehicles and drones. Regular engagement and communication with the industry will lead to better market understanding, resulting in improved customer service, a superior user experience and greater connectivity, enabling the market to develop.

IoT Policy & Regulation

A growing Internet of Things provides significant socio-economic benefits. Governments and regulators can unlock these benefits and drive digital transformation by implementing consistent policies that promote innovation and investment, and that give confidence to consumers and the industry. The GSMA is working to create a sustainable policy and regulatory environment to support the successful scaling and socio-economic benefits of the IoT.

THE INTERNET OF THINGS – CREATING A BETTER FUTURE

Creating a Connected, Secure, Intelligent, Sustainable Future

GSMA INTERNET OF THINGS PROGRAMME KEY CONTACTS

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