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About the GSMA

The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with almost 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress, Mobile World Congress Shanghai and the Mobile 360 Series conferences.

For more information, please visit the GSMA corporate website at www.gsma.com

Follow the GSMA on Twitter: @GSMA

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Chairman's Message

Our industry is committed to connecting everyone and everything to a better future. Globally, there are now more than 4.7 billion¹ individual users of mobile services of which 3.4 billion are using their devices to access the internet. This represents almost two-thirds of the world's population and this figure is set to climb to 5.6 billion people in 2020. That means nearly three-quarters of the world's population will be connected to a mobile network by the end of this decade.

In the next decade, the challenge will be to connect mainly rural, low-income populations, which will require collaboration between operators, governments and other ecosystem players to overcome the significant physical, social and economic barriers to serving these communities.

In short, our challenge is to connect everyone.

^{1.} All figures quoted are as of the end of Q2 2016

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Dear Members,

In addition to providing vital communications services, mobile networks are enabling billions of people to access the internet, with mobile as the dominant platform for internet access in many parts of the world, including South Asia, Sub-Saharan Africa and Latin America. More than 3.4 billion people globally are now accessing the internet through mobile devices, and more than two-thirds of these individuals are in the developing world.

By 2020, an additional 1.3 billion people worldwide are set to gain access to the internet via mobile networks, bringing the total to 4.7 billion – 60 per cent of the global population. Three vital factors will contribute to this remarkable achievement: the availability of high-quality networks, capable handsets and attractive services, all at affordable prices. This development will have a profound socioeconomic impact across the globe.

However, we must not rest on these laurels. Four years from now, many middle-income markets that have been key engines of customer growth – notably China and Brazil – could be approaching saturation point. Further customer growth will depend on the industry improving the affordability of mobile services, extending network coverage to rural areas, delivering locally relevant content and raising digital skills and literacy.

Enabling the Internet of Things

In the 25 years since the launch of the first 2G network and the first mobile phone call, mobile has changed the way billions of people in the world communicate and interact. Now we are entering a new phase, in which mobile connectivity will transform entire industries, from automotive to healthcare to financial services to utilities and beyond. The world is going digital and this is enabled by our industry.

Employing specifications developed by the GSMA, mobile networks are now enabling a myriad of appliances, machines and vehicles to get online and exchange information with each other and their owners. A huge opportunity for mobile operators, their partners and their customers, the "Internet of Things" represents an addressable – and growing – market that could reach US\$1.1 trillion by 2020.

More and more cars, for example, are now equipped with connectivity, which enables a wide range of services from navigation to entertainment to automatic emergency calls in the event of an accident. Gartner Research has forecast that one in five vehicles will have some form of wireless network connection by 2020, equating to more than 250 million connected vehicles in service.

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Mobile broadband goes global

Many consumer and enterprise applications require the fast, responsive connectivity provided by the latest generations of mobile technology. Now a truly global phenomenon, mobile broadband is extending high-speed connectivity and services to citizens in all corners of the world; at the end of 2015, there were 462 4G networks live in 156 countries, with almost half of these in the developing world. The number of 4G (LTE) mobile connections worldwide has surpassed one billion, after doubling in 2015, largely as a result of growth in developing markets.

We forecast 4G will account for more than a third of the almost 9 billion mobile connections (excluding cellular M2M²) in 2020. In fact, the accelerating technology shift to mobile broadband networks across both developed and developing markets is fuelling digital innovation, smartphone adoption and mobile data growth.

Smartphones accounted for 45 per cent of mobile connections in 2015, up from just 8 per cent in 2010. The industry is set to add a further 2.5 billion smartphone connections over the next five years, and with this, mobile data volumes are expected to grow exponentially. In response, mobile operators and players across the ecosystem are developing 5G mobile technologies, which offer enormous potential for both consumers and industry. In addition to being considerably faster than existing technologies, 5G holds the promise of applications with high social and economic value, leading to a 'hyper-connected society'. We see 5G being used for an array of exciting new use cases, such as immersive internet services, groundbreaking augmented reality and low-latency remote activities, including highly advanced applications, such as remote surgery. The GSMA's members are working hard to make 5G a reality, with some looking to launch commercial services as early as 2018.

As new digital services continue to develop on mobile platforms, operators worldwide must ensure that they support customers in becoming 'digital natives' by delivering secure and seamless services from end to end. The GSMA Mobile Connect service provides this critical capability, enabling consumers to easily authenticate and verify their online activity. Mobile operators have already extended this service to 2.8 billion users globally and we are focused on broadening the reach of Mobile Connect in the year to come.

Investing in economic growth

The unprecedented growth in mobile broadband last year is testament to the billions of dollars that mobile operators have invested in next-generation networks, services and spectrum in recent years. In aggregate, mobile operators are set to invest a further \$900 billion in capital equipment over the next five years, as they roll out faster and denser networks.

That investment is part of a much larger economic contribution. The GSMA has calculated that the

mobile industry added \$3.1 trillion to the world economy last year, equivalent to 4.2 per cent of global GDP, and also directly and indirectly supported 32 million jobs in 2015 (forecast to rise to 36 million jobs in 2020). The industry contributed \$430 billion to public funding in the form of various types of taxation, a figure that does not include the additional spectrum fees and licensing paid by mobile operators.

2. Machine to Machine



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New opportunities and challenges

To justify the large sums being spent on network infrastructure and spectrum licenses, mobile operators need to evolve and broaden their business models and invest in new technologies, services and digital ecosystems. Operators worldwide must ensure that they capitalise on the opportunities presented by the vast and growing ecosystem that nearly universal global mobile coverage has created.

By providing access to life-enhancing as well as life-changing services to billions of people globally, mobile networks are creating immense value for individuals, businesses and communities worldwide. In developing countries, in particular, mobile operators are driving digital, financial and social inclusion, fuelling economic growth and greater cohesion, while creating new business opportunities. With the right support, the mobile industry can sustainably connect everyone and everything to a better future. We are fully committed to helping achieve the United Nations Sustainable Development Goals; mobile networks can contribute in addressing social and developmental challenges in a way no other technology can. Working across the private and public sectors, we are focused on building a healthy and vibrant mobile economy: The health and vitality of our planet increasingly depends on it.

I would like to close on a personal note. In 2015, Anne Bouverot stepped down as Director General of the GSMA. Coming from one of the GSMA's members, Mats Granryd took the helm of the GSMA from 1 January 2016. I wish him and his team the very best of luck in serving the GSMA's members and the organisation well in the years to come.

Jon Fredrik Baksaas, Chairman, GSMA

VIDEO HIGHLIGHTS Chairman's MWC16 Keynote



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Director General's Report

Mobile services and technologies are now an intrinsic part of our everyday lives. Mobile networks help us keep in touch with friends and family, stay on top of work, improve our fitness, monitor our health, manage our homes, conduct financial transactions, and so much more. This is just the very tip of the iceberg and I'm excited about what's to come next.

However, as we think about the next 25 years, it is clear that what has got us to this point will not be sufficient to drive the profound change that is to come. It will take incredible innovation and unprecedented collaboration if we are to realise a better future for all of the world's population. It is the job of the GSMA to catalyse that innovation and coordinate that collaboration for the benefit of the mobile industry's billions of customers around the world.

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In multiple ways, the GSMA is demonstrating the power of working together, developing consistent and interoperable services that would not exist if we did not have in-depth collaboration between many mobile operators. In particular, the GSMA is helping members coordinate service development in four key areas: the expansion of the Internet of Things, the protection of personal data, the development of digital commerce and the creation of compelling new forms of communication.

Protecting personal data

As we move to an increasingly digital world, we face greater challenges around security and online privacy. Consumers want a convenient way to access online services, but one that also ensures security and privacy of personal data. Mobile operators are uniquely placed to address this demand.

With the Mobile Connect solution developed by the GSMA's Personal Data programme, individuals can employ their mobile phone credentials to securely and safely access a range of digital services, such as e-commerce, banking, health and entertainment. Mobile Connect has scaled rapidly and mobile operators are now making this service broadly available to subscribers across the globe. About 2.8 billion enabled users globally spread across 34 mobile operators now have access to Mobile Connect

and we will continue to develop this ecosystem and make sure more and more services are supported by Mobile Connect.

As Mobile Connect is rolled out globally, mobile operators are fulfilling an important role in the digital identity space, giving users control over their own data and enabling consumers, businesses and governments alike to interact and access online services in a convenient, private, and trusted environment.

Beyond Mobile Connect, the GSMA Digital Identity programme is working with mobile operators, governments and the development community to use mobile capabilities to provide a trusted and robust digital identity for the underserved, leading to greater social, political and economic inclusion.

Hyper-connected living through the Internet of Things

In the coming years, we see mobile connectivity being embedded into nearly every type of device. Put simply, there isn't a device out there that can't be improved by mobile connectivity. Nearly every sector of the economy is now harnessing wireless connectivity to enable remote monitoring and control of key assets, from heavy industrial machinery to irrigation systems to energy meters. In the consumer market, cars, bikes, pets and household appliances are getting connected, enabling people to monitor many elements of their daily lives. To accelerate this exciting trend, the GSMA's Connected Living programme is helping mobile operators understand and address the requirements of a vast range of new consumer and enterprise applications. For example, we have coordinated the development of a single common specification to remotely connect a wide range of devices. These new devices will retain all the benefits of having a SIM, but without the need for a physical smart card. We expect to see launches of new devices based on this specification in the coming year.

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The future of mobile communications

Although conventional voice and SMS services have been enormously successful, now is the time for mobile operators to complement these services with rich communications services that enable text, voice, images and video to be combined to create a compelling experience. The GSMA's Network 2020 programme is supporting the deployment of these advanced services, which offer attractive features, such as the ability to use text and images to flag the reason for the call.

Of course, such services need to be supported by mobile devices as well as mobile networks. To that end, the GSMA is facilitating cooperation between mobile operators and industry partners, such as Google, to accelerate the availability of Rich Communications Services (RCS). For example, operators have agreed to transition toward a common, universal profile based on the GSMA's RCS specifications and an Android RCS client provided by Google (in collaboration with operators and device makers). This ground-breaking partnership between mobile operators and a major internet platform will enable our members worldwide to provide an open, consistent, and globally interoperable messaging service across Android devices.

Driving digital commerce

At the same time, mobile money services, which enable individuals to send money simply by pressing a few buttons on their handsets, are driving far greater financial inclusion than is possible with conventional banking. With more than 270 services in 93 countries, mobile money is available in 64 per cent of the developing world. More than half of the live mobile money services are in Sub-Saharan Africa, but we are also seeing strong growth in other markets, such as South Asia, Latin America and the Caribbean. The GSMA is supporting mobile operators' efforts to further the uptake and impact of mobile money, which can contribute to financial inclusion and economic growth far beyond what the industry has achieved today. Recent data shows that digitising payments through mobile money helps to encourage saving, strengthen the formal economy and improve the economic circumstances of the poor. By empowering women, for example, mobile money has the potential to profoundly and positively strengthen social cohesion and reduce inequality.

Creating a supportive environment

The life-enriching new services I have outlined above could deliver enormous benefits to individuals, organisations and society as a whole, but only if we have the full support of policymakers and regulators. In particular, mobile operators will need to have access to more internationally harmonised licensed spectrum – an absolutely fundamental component of reliable wireless connectivity. Moreover, the fast pace of change means regulation can quickly become obsolete, irrelevant or, in some cases, harmful – distorting competition, slowing innovation and ultimately depriving consumers and businesses of the benefits of technological progress. Recognising these challenges, the GSMA, through its industry

advocacy programmes, is calling on policymakers worldwide to adapt out-dated market regulations to reflect the new digital ecosystem.

At a national level and an international level, the GSMA engages with policymakers both through bilateral meetings and industry events, such as our growing portfolio of regional Mobile 360 Series conferences. Moreover, the GSMA's convening events, Mobile World Congress and Mobile World Congress Shanghai have become key forums for discussions between industry leaders and policymakers, as well as convening the broader mobile ecosystem and adjacent industry sectors to shape new technologies and services.

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In pursuit of the greater good

As we engage with governments, NGOs and individual end users, we need to remember that mobile is about much more than technology – it's about people and society, connecting individuals to essential services, such as communications, news, weather, money transfers, healthcare and online commerce. Mobile is also about tackling previously intractable problems, such as extreme poverty, epidemics and environmental degradation.

I know that mobile networks can be a revolutionary force in overturning the status quo. Working with other stakeholders, our industry is committed to leveraging the mobile networks we have built and services we are delivering to help achieve the United Nations Sustainable Development Goals (SDGs). In fact, we see mobile technologies and services as essential in the delivery of the UN's 17 SDGs, whether it's ensuring healthy lives and promoting well-being for all; achieving gender equality and empowering women and girls; making cities and settlements inclusive, safe, resilient and sustainable; or helping to combat climate change and its impacts.

Working together as an industry, and in partnership with other industries, governments and key stakeholders, I believe we can make a huge difference to people's lives. Here at the GSMA, we are helping the mobile industry to build a strong and sustainable proposition that supports the greater good.

I hope you will join us on this exciting journey.

Mats Granryd, Director General, GSMA

VIDEO HIGHLIGHTS Director General's MWC16 Keynote





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Governance

The Board

The Board ensures that the GSMA provides highly effective support to the telecommunications industry's efforts to extend the transformative power of mobile technologies and services, benefiting an even greater proportion of the world's population. The Board is comprised of Group CEOs, CEOs and C-level representatives from the world's leading mobile operators.

By guiding the GSMA's strategic, financial, public policy and technical initiatives, the Board sets the GSMA's strategic direction and oversees its work, ensuring it is fully aligned with the needs of mobile operators and their customers across the world.

Elected in December 2014, the GSMA's current Board is serving a two-year term from January 2015 through to December 2016. Each of the 13 largest operator groups within the GSMA's membership is entitled to nominate one Board member. The Board also has 12 members from smaller, independent operators, ensuring broad geographical coverage. The GSMA's Director General is a member of the Board, which meets three times a year in different locations around the world.

The Board ensures the GSMA's resources are focused on activities where collective action can deliver significant benefits to the mobile industry's customers, beyond those that individual operators could achieve through their own pursuits. Reporting to the Board, the Director General is responsible for the day-to-day management of the GSMA. The Director General is supported by a leadership team, each with responsibility for specific aspects of the GSMA's work.

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Governance Structure

Board members also serve on five sub-committees, which report into the Board. These are:

- The Governance Committee, which oversees and manages the process of nominating, appointing and electing members of the Board.
- The Public Policy Committee, which proposes to the Board major regulatory and public policy initiatives for the benefit of the membership, the mobile industry and consumers.
- The Finance Committee, which oversees the annual budget and business planning process, while supervising the financial performance and position of the GSMA.
- The Strategy Committee, which recommends to the Board major strategic initiatives that will impact the direction and the activities of the GSMA.
- The Compensation Committee, which is responsible for providing oversight of executive compensation within the GSMA.

The Chairman of the GSMA and the Chairs of Board sub-committees come together regularly as an Executive Committee to oversee the activities of the GSMA.

The GSMA Ltd. Board, which oversees the GSMA's events and managed services, reports into the Finance Committee.

The Foundation Board, which overseas the GSMA's donor funded programmes, reports into the Finance Committee.

The Products and Services Management Committee oversees the GSMA's Working group activities and provides guidance to the Board and Executive Committee on its strategy and vision.

Each GSMA programme has a Programme Leadership Group (PLG) that guides the GSMA's initiatives.

Compliance

As a trade association the GSMA holds itself to the highest possible ethical and compliance standards. GSMA is committed to implementing effective systems and controls to ensure modern slavery does not occur in any of the GSMA's operations globally or in any of its supply chains. More detail on GSMA's compliance environment, including an annual Anti-Slavery and Human Trafficking Statement, can be found at **www.gsma.com/aboutus/legal**

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The Board as at 31 March 2016



Jon Fredrik Baksaas Chairman GSMA



Mats Granryd Director General GSMA



Alejandro A. Magaña Pérez CEO of Transfer America Movil



Bill Hague Executive Vice President - Global Connection Management AT&T Mobility



Gopal Vittal Managing Director & Chief Executive Officer, Airtel India & South Asia Bharti Airtel Limited



Sha Yuejia Executive Director and Vice President China Mobile



Lu Yi Min President and Vice Chairman China United Network Communications Group Company Limited



Mr. Sun Kangmin Executive Director and Executive Vice President China Telecom



Wolfgang Kopf Senior Vice President for Public & Regulatory Affairs Deutsche Telekom



Ahmad Julfar, CEO, Etisalat Anne Bouverot, Director General, GSMA Sifiso Dabengwa, CEO, MTN Group Junichi Miyakawa, Executive Vice President, SoftBank Marco Patuano, CEO, Telecom Italia David Thodey, CEO, Telstra liker Kuruöz, Executive Vice President - Technology, Turkcell Jo Lunder, CEO, VimpelCom



Himanshu Kapania Managing Director Idea Cellular Limited



Chang-Gyu Hwang Chief Executive Officer KT Corporation



Kaoru Kato President and CEO NTT DOCOMO, inc

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Dr. Nasser Marafih Member of the Ooredoo Group Board and Advisor to the Chairman Ooredo



Julio Linares López Vice President Telefónica, S.A.



Mari-Noëlle Jégo-Laveissière Executive Vice President of Innovation, Marketing and Technologies **Orange Group**



Dong-Hyun Jang President and CEO **SK Telecom**



Ken Miyauchi President and CEO SoftBank Corp.



Andrew Penn Chief Executive Officer Telstra



Kaan Terzioğlu Chief Executive Officer TURKCELL



Roy Chestnutt Executive Vice President and Chief Strategy Officer Verizon



Johan Dennelind

President and CEO

TeliaSonera

Yogesh Malik Group Chief Technology Officer VimpelCom



Paolo Bertoluzzo Chief Commercial and Operations Officer **Vodafone Group**



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The Leadership Team



Mats Granryd Director General



Louise Easterbrook Chief Financial Officer



John Giusti Chief Regulatory Officer



John Hoffman CEO and Director, GSMA Ltd.



Michael O'Hara Chief Marketing Officer



Alex Sinclair Chief Technology Officer



David Walsh General Counsel



Hyunmi Yang Chief Strategy Officer

GSMA Leadership Team as of June 2016



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Personal Data Mobile Connect		
OBJECTIVE	ACTUAL	TARGET
Cumulative Commercial Market implementations	10	10
Number of individual operator implementations	38	21
SPECIAL IMPACT 2.5bn enabled users / Target 1bn		

Markets: Bangladesh, China, Finland, Indonesia, Mexico, Pakistan, Spain, Sri Lanka, Switzerland, Thailand

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Digital Commerce Mobile Money		
OBJECTIVE	ACTUAL	TARGET
Cumulative Commercial Market implementations	9	8

Markets: Indonesia, Jordan, Madagascar, Pakistan, Philippines, Rwanda, Sri Lanka, Tanzania, Thailand

睮	

Connected Living		
OBJECTIVE	ACTUAL	TARGET
Cumulative operators launched (M2M) remote provisioning solution	22	19
Industry agreement of Consumer Remote Provisioning solution	YES	YES

SPECIAL IMPACT Speed of agreement

	Network 2020
	OBJECTIVE
\mathbf{O}	Cumulative markets with full IP interconnect
	Mix of smartphones with RCS / VoLTE capability
0.0	SPECIAL IMPACT Google Jibe framework
	Markets: RCS - Spain, Germany, South Korea (launched 2012/13), France

VoLTE - USA, South Korea (launched 2015/16)

Spectrum / Advocacy		
OBJECTIVE	ACTUAL	TARGET
Additional spectrum at World Radio Conference	33%	30%

Spectrum is compromised of: Europe: 700MHz, L-Band (1427-1518MHz), C-Band (3.4-3.8GHz); Sub Saharan Africa: 700MHz, L-Band (1427-1518MHz), C-Band (3.4-3.6GHz); MENA: 700MHz, L-band (1452-1518MHz), C-band (3.4-3.6GHz); Americas: L-band (1427-1518MHz), C-Band (3.4-3.6GHz)

ACTUAL

5

45%

TARGET

10

26%

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The GSMA's mission is to act as a guiding beacon for the mobile industry, focusing on activities where collective action can deliver significant benefit. Supported by the GSMA, mobile operators across the world can connect everyone and everything to a better future. Connectivity is one of the most important enablers of social development and economic growth. And its prevalence in everyday life has transformed the way people live, work, access essential services and communicate with each other.

The GSMA is striving to enable the world's entire population, and the planet itself, to fully benefit from the opportunities that mobile technologies and services deliver. To that end, the GSMA is supporting the Sustainable Development Goals introduced by the United Nations in September 2015. The mobile industry is committed to ensuring connectivity plays a key role in helping achieve the UN's 17 targets by 2030.

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The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with nearly 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors.

The GSMA's unique and privileged position within the industry enables its members to participate fully in the discussions, decisions and initiatives that shape the future of mobile communications and foster new opportunities for growth. In this way, the GSMA helps members to be forward-thinking, innovative and competitive.

By enabling members to work on a set of common goals, the GSMA can increase efficiency in multiple aspects of their business. Through quality discussions, and informed and impactful decision making, the GSMA enables multiple benefits to flow throughout our industry towards the consumer.

The GSMA delivers value to its members through:

Participation and networking: Opportunities to network with fellow executives from across the mobile ecosystem at GSMA forums and meetings.

Programme initiatives and advocacy: Participate, shape, drive and expand opportunities across the industry through technical working groups, and specialist programmes.

Access to key tools: An online community of 27,000+ industry executives and experts, knowledge bases, best-practice guidelines, industry intelligence, and insight.

Events and marketing opportunities: The GSMA platforms promote members' business activities and they receive exclusive invitations and discounts to world-class industry events.

Participation in GSMA Working Groups: The GSMA Working Groups exist to oversee and develop the practical aspects of running mobile services today and into the future.

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Working Groups

Overseen by the Products and Services Management Committee the GSMA Working Groups exist to overee and develop the practical aspects of running mobile services today and into the future. Overseen by the GSMA Products and Services Management Committee, the working groups cover a wide range of topics ranging from agreements for roaming and interconnect, industry alignment on intellectual property all the way to deep technical workshops required to agree on the interoperability of IPbased communications. Supported by subject matter experts, the working groups provide a forum for consensus building among members around setting of frameworks and standards with respect to operational and technical matters.



"We were among the first to commercialise the Embedded eUICC for M2M devices based on the GSMA Embedded SIM specification"

As a fully participating member of GSMA, NTT DOCOMO has been proactively contributing toward sharing and discussion of future strategy for the industry and other pertinent topics. For instance, we have endorsed the strategic initiatives driven by the GSMA, and in that we were among the first to commercialise the Embedded eUICC for M2M devices based on the GSMA Embedded SIM specification. We are also actively pressing the discussion on future roaming with VoLTE, as well as promoting trial activities.

Kaoru Kato, Advisor and former President and CEO, NTT DOCOMO, INC.

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Operational overview

To pursue its objectives and serve its members, the GSMA is engaged in operational work spanning three major areas of activity:

Industry programmes

Industry advocacy initiatives

Convening and maintaining the ecosystem

To act as a guiding beacon for the mobile industry, focusing on activities where collective action can deliver significant benefit



Industry programmes



Industry advocacy initiatives



Convening and maintaining the ecosystem

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Industry programmes

The GSMA works with its members to drive initiatives in four areas where the mobile industry can add enormous value to the evolving digital economy:



Personal Data Enabling trust through digital identity

Connected Living Bringing the Internet of Things to life



O Network 2020 The future of mobile communications



Digital Commerce

Streamlining interactions and transactions

Working closely with leading operators, each of these GSMA industry programmes has developed a robust action plan, underpinned by jointly developed objectives, measures and targets. To implement these plans, each programme has:

- Established its own senior steering group, including operators committed to implementing the delivered initiatives of the programme;
- Focused on key markets with committed operators to accelerate delivery and interoperability;

- Agreed the model for involvement of interested operators and formalised commitment to participation and implementation;
- Committed the GSMA's internal and operator partner resources; and
- Improved collaboration and engagement with mobile operators to account for differences in regional market implementations, while delivering interoperable and global specifications.

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Industry advocacy initiatives

To support the implementation of these programmes and the mobile industry more broadly, the GSMA runs a sophisticated global advocacy programme focused on two primary constituencies:

Governments and Regulators

The GSMA engages with governments and regulators to shape regional and in-country policy positions.

Non-Government Organisations and Foundations

The GSMA engages with NGOs and foundations directly, as well as in partnership with external institutions, such as the United Nations, the World Bank, the OECD and the World Economic Forum, to achieve policy alignment and catalyse broad social and economic growth.

The GSMA's advocacy work is delivered primarily through four key programmes:



Spectrum

Ensuring mobile operators have timely and affordable access to appropriate spectrum



Regulatory Modernisation

Defining new regulatory frameworks for the digital age

ooo Industry Purpose

Connecting everyone and everything to a better future

Mobile for Development

Supporting mobile services for underserved people in emerging markets



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Convening and maintaining the ecosystem

Through an expanding portfolio of events and conferences, the GSMA also plays a pivotal role in convening the mobile industry, making it straightforward for senior executives to gather, collaborate and do business.

The GSMA continues to run and develop world-class global events.









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Industry programmes

During financial year 2016, the Board oversaw the continued implementation of the GSMA's strategic framework, which focuses the organisation's industry initiatives in four key programmes, each addressing a major opportunity. These programmes are:



Personal Data Enabling trust through digital identity

Connected Living

Bringing the Internet of Things to life



Network 2020 The future of mobile communications

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Digital Commerce

Streamlining interactions and transactions

The industry's success in all four of these programmes depends on close collaboration between mobile operators, ecosystem players, regulators and policymakers. In each case, the GSMA is playing a vital role in enabling that collaboration. In particular, the programmes are designed to focus on global industry enablers that will drive scale and interoperability. The following sections of this report describe these programmes in more detail.



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Personal data Enabling trust through digital identity



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Across the economy, both individuals and businesses are increasingly using digital and mobile services to interact and transact online. These services can be highly convenient, but end-users also want them to be secure, shielded by robust privacy safeguards and strong data protection.

The GSMA Personal Data programme has developed Mobile Connect, a digital identity solution that offers a safe, seamless and convenient consumer experience, a consistent user interface and low barriers to entry across the digital identity ecosystem – thereby enabling global scale.

Introduced at Mobile World Congress 2014, Mobile Connect is a secure login system that enables individuals to access their online accounts with just a single click or, where appropriate, automatically. Mobile Connect can provide different levels of security, ranging from low-level website access to highly secure bank-grade authentication. Mobile Connect promises to make passwords a thing of the past: individuals subscribing to a participating operator simply need to click on a website's Mobile Connect button.

As a new standard in digital authentication, Mobile Connect will help mobile operators to manage consumers' digital identities across multiple online services, ranging from access to content and services on the web through to more secure e-government and banking services.

PLG members for financial year 2016



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Review of financial year 2016

Mobile Connect has won widespread support from mobile operators. In February 2016, the GSMA announced that the solution was available to more than two billion consumers globally. Some 34 mobile operators have launched the service in 21 countries, with plans for additional launches and trials to follow in 2016 and beyond. Operators offering services based on Mobile Connect include América Móvil, Axiata Group (Bangladesh, Indonesia. Sri Lanka), China Mobile, China Mobile Pakistan (Zong), China Telecom, China Unicom, DNA, Elisa, Globe Telecom, Indosat Ooredoo, Mobilink, Mobitel, Orange (Egypt, France, Morocco, Spain), Sunrise, Swisscom (Switzerland), Telefónica Group (Argentina, Mexico, Peru, Spain), Telenor Group (Bangladesh, Malaysia, Myanmar, Pakistan, Thailand), Telia (Finland), Telkomsel, Telstra, TIM and Turkcell (Turkey).

Mobile Connect is supporting commerce, finance and banking, government services, health services, and media and entertainment.

Multiple technology suppliers are also supporting Mobile Connect, offering solutions that enable easy integration with operators' mobile networks so that users of any mobile network offering Mobile Connect can log-in and be authorised for any application. All operators and online service providers using Mobile Connect have signed up to the GSMA Mobile Connect privacy principles. In this respect, Mobile Connect can help policy makers achieve their objectives of ensuring that citizens have reliable and robust tools they can use to authenticate themselves and protect their privacy online.

In 2015, the European Commission, adopted key implementing acts of the Electronic-identification and trust service (eIDAS) Regulation. The European Union is the first region in the world to have a workable and balanced legal framework for crossborder use of electronic identification (eID) and trust services, enabling consumers and businesses to safely access services and undertake transactions online.

The GSMA strongly supports the eIDAS regulation, which will help boost economic growth in Europe and the promotion and deployment of eID schemes across Member States.

Mobile Connect has been trialled in two EU Member States, Finland and Spain, to establish proof-of-concept for cross-border authentication of e-government services and online interactions between businesses, citizens and public authorities.

"Mobile Connect represents an important breakthrough for the digital economy by providing a simple and secure method for everyone to own and control their own personal data and online identity. Mobile Connect uses your mobile number as your secure digital identity, a number that everyone remembers well! It will help propogate a secure digital experience to all and also increase value in services provided by online providers and merchants."

Harmeen Mehta, Global CIO & Director, Engineering, Bharti Airtel

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Objectives for financial year 2017

The GSMA will continue to work closely with operators globally to further extend the adoption of Mobile Connect; operators committed to deliver the service in 2016 include Aircel, AIS Thailand, Bharti Airtel (India), Etisalat (Pakistan, United Arab Emirates), Idea Cellular Ltd, MTN, Ooredoo (Algeria, Myanmar), Orange (Jordan, Poland), SMART Axiata - Cambodia, Smart Communications, Inc., Tata Teleservices, Telefónica Group (Brazil, Colombia, Ecuador, Uruguay), Telenor (India), T-Mobile Poland and Vodafone (India, Spain). The most important indicator of success is growth in active users, which will demonstrate regular usage of the product. The GSMA will work with the operators to drive towards this, with the aim of engaging 700m users to use Mobile Connect at least once by 31st March 2017.

While initially focused on secure and convenient log-in to digital services, by mid 2016 the GSMA will further drive the evolution of Mobile Connect at scale by deepening the specification of identity and attributes to ensure interoperability and allow opportunities for monetisation, as well as adding new authentication mechanisms such as a smartphone app and biometrics enabling operators to remain competitive and offer a great user experience. In this way, Mobile Connect will help to deliver secure authorisation of digital transactions and to add context and attributes about the user and the transaction to increase convenience, trust and security for users and digital service providers, while respecting users' privacy.

VIDEO HIGHLIGHTS Mobile Connect





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Connected Living Bringing the Internet of Things to life



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Expanding wireless coverage, together with advances in module and sensor technology, are enabling organisations and consumers to add connectivity to an array of new devices, appliances, machines and vehicles. The GSMA Connected Living programme is working with mobile operators to accelerate the delivery of compelling Internet of Things (IoT) solutions that harness connectivity in new and innovative ways.

The programme develops key enablers, facilitates industry collaboration and supports network optimisation to drive the growth of machine-tomachine (M2M) connections in the immediate future and the IoT in the longer term. The IoT will enable consumers and businesses to harness a host of rich new services, connected by intelligent and secure mobile networks. The GSMA is also working with policymakers to develop enabling regulation that will encourage innovation and investment in the broader use of connectivity.

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Review of the financial year 2016

In August 2015, the GSMA established the Mobile IoT Initiaitve, a new project backed by a group of 26 of the world's leading mobile operators, equipment makers, chipset, module and infrastructure companies, to address the use of Low Power Wide Area (LPWA) solutions in licensed spectrum. LPWA networks are designed for machine-to-machine (M2M) applications that require cost effective connections, have low data rates, extended battery lives and that can operate unattended for long periods of time.

To accelerate the commercial availability of Mobile IoT technology, this group has facilitated demonstrations, proofs of concept and pilots of the three complementary LPWA licensed spectrum technologies agreed in the standards body 3GPP. It has also provided analysis and feedback to assist 3GPP in technology standardisation. The development of initial specifications for LPWA solutions began in 2015, paving the way for 3GPP standards to be published in 2016 and with full commercial solutions anticipated in late 2016/early 2017

The Connected Living programme is also steering the development of new SIM technology. In February 2016, the GSMA released a specification that allows consumers to remotely activate the SIM embedded in a device such as a smart watch, fitness band or tablet. This new specification, will enable consumers to add a new generation of devices to a mobile subscription and connect them securely to a mobile network. Mobile operators, device manufacturers and SIM vendors worked together through the GSMA initiative to deliver the specification, which has been developed together with leading brands including Apple, Huawei, LG, Microsoft, Samsung and Sony.

Meanwhile, in the M2M market, 22 mobile operators have commercially launched solutions based on the GSMA Embedded SIM Specification for M2M devices. Manufacturers are now adopting the specification, which enables the remote provisioning of connectivity over the air after a machine or vehicle rolls off the production line, regardless of where it was manufactured. For example, in the automotive and transportation sector, the interoperable specification has been developed together with General Motors, Jaguar Land Rover, Renault Nissan, Scania and Volvo Cars. Embedded SIMs will help to deliver a range of in-vehicle services such as infotainment, real-time navigation, insurance and breakdown services, as well as telematics and remote diagnostics.

In February 2016, the Connected Living programme also published new guidelines designed to promote the secure development and deployment of services in the growing IoT market. The GSMA IoT Security Guidelines, which were developed in consultation with the mobile industry, offer IoT service providers and the wider IoT ecosystem practical advice on tackling common cybersecurity threats, as well as data privacy issues associated with IoT services.

"The GSMA Embedded SIM Specification allows Jaguar Land Rover to reduce manufacturing complexity, adapt to changing regulatory frameworks and work with the best mobile operators, on a country-specific or regional basis, improving the customer offering to deliver the next generation of connected services over the lifetime of our vehicles,"

Mike Bell, Global Connected Car Director, Jaguar Land Rover.

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Objectives for financial year 2017

The Connected Living programme continues to work on positioning GSMA members as key players in the IoT and to develop new enablers that harness the capabilities of mobile networks to present new business opportunities and revenue streams for operators. In the financial year 2017, the programme's goals are:

- Mobile IoT: Raise market awareness and support for licensed spectrum LPWA solutions through the agreement of industry standards and the delivery of demonstrations and pilots.
- Consumer Remote SIM Provisioning: Complete the technical specification phase 2, test, certify and accredit specifications.
- **IoT Big Data:** Position operators as key partners within the IoT Big Data market through the delivery of harmonised data sets and APIs.
- **Smart Cities:** Support operators in the provision of services that enable smart cities.

THE CONNECTED LIVING PROGRAMME KEY INITIATIVES

Mobile IoT = TRUSTED IoT – Licensed Low Power Wide Area Networks:

The GSMA is working with mobile operators and ecosystem partners to develop licensed low power, wide area (LPWA) networks solutions that will enable the IoT to scale.

IoT Big Data:

The GSMA is working with operators to establish an IoT big data ecosystem, through the delivery of harmonised data sets and APIs.

Remote SIM Provisioning for M2M:

The GSMA has encouraged the industry to implement a single, robust and interoperable global remote SIM specification for M2M devices with an evolution path to connect all devices.

Industry Engagement

The GSMA is working with operators to demonstrate how they are providers of key services which enable smart cities and to engage with automotive & health markets.



Consumer Remote SIM Provisioning:

The GSMA is enabling the natural evolution of the SIM from physical to digital, simplifying the connection of a wider range of consumer devices that are connected by secure mobile networks.

IoT Security:



The GSMA has developed IoT security guidelines to ensure best practice for the secure connection and management of IoT devices on any mobile network.





The GSMA is working to create a sustainable M2M policy and regulatory environment that enables operators to unlock the consumer and business benefits of the IoT.



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Operators are modernising their networks to provide a better experience for their customers. They are rolling out advanced communications services that combine voice, messaging, video, images and location sharing to deliver exciting, new and consistent propositions on a global scale.

The GSMA's Network 2020 programme is working with the mobile industry to speed up the development and deployment of all-IP communication networks, and to support the evolution of 4G networks towards 5G. The programme is driving interoperability globally to create a consistent consumer experience that combines the reach and reliability of conventional voice services with rich new capabilities, such as group chat and video calls.

Consumer demand for richer communications is fuelling intense competition between service providers. By deploying interoperable all-IP networks, mobile operators will have greater flexibility to meet this demand and provide a compelling, and highly competitive, experience. The range of services that can be cost-effectively provided on an all-IP network goes far beyond traditional communications services. By incorporating instant messaging, group chat, live video and file sharing into one service proposition, Rich Communications Services (RCS) is enriching the way people communicate. Hosted infrastructure providers can enable automatic interconnection, bringing the necessary scale and consistency to RCS, while enabling operators to charge third parties for using their messaging services to acquire and fulfill customers.

VoLTE and Voice over Wi-Fi technology, which enable calls to be seamlessly handed over between LTE and Wi-Fi and vice versa (without the need for a cellular phone signal), complement RCS. These services extend the reach of traditional telecommunications services to new heterogeneous networks. Furthermore, new Video over LTE services provide an enhanced user experience by enabling high definition video and person-to-person video calls, enriched with high-definition voice.



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Review of financial year 2016

The GSMA has created an implementation task force to support VoLTE interworking globally. By the end of May 2016, 70 operators in 38 countries had launched VoLTE, while operators have completed successful interconnections in South Korea, France, Germany, Spain and the USA. Interconnected VoLTE delivers a real step change in call quality for consumers, enabling a seamless switch between voice and video, as well as faster connection speeds. End-users can now choose from more than 228 devices with built-in (native) support for VoLTE.

By the end of May 2016, 48 operators had launched RCS in 35 countries, supported by 156 native devices.

The GSMA and mobile operators have paved the way for an acceleration in RCS deployments by aligning on a single Universal RCS Profile and by agreeing with Google to embed an RCS client into the Android operating system used by over 80% of smartphones worldwide, similar to an agreement reached with Microsoft for the Windows platform in 2015. The agreements are part of a GSMA-led initiative to enable all operators worldwide to provide an open, consistent, and globally interoperable messaging service across all devices. Google's acquisition of Jibe Software has expanded the hosted RCS infrastructure market, enabling many more operators to launch RCS.

"The GSMA is playing an important role in driving network evolution, interconnection and the consistency required for operators to deliver advanced communication services for a better overall customer experience. With 4G evolution, we are entering into a new era where consumers will enjoy advanced communications services on any device beyond the bounds of their network,"

Bruno Jacobfeuerborn, Group CTO, Deutsche Telekom

Objectives for financial year 2017

During the financial year 2017, the GSMA will publish the RCS Universal Profile, and certify a commercial device that supports an Android OS messaging client.

The Network 2020 programme will also continue to work with its operator partners to deliver open market devices with built in support for the full suite of advanced communications. Moreover, the programme will coordinate further service interconnection within and between national markets. Building on an interim report <u>Unlocking Commercial</u> <u>Opportunities from 4G Evolution to 5G</u>, published in February 2016, the Network 2020 programme will continue to support the evolution of 4G networks to the next generation of mobile networks (5G), which will provide more bandwidth and quicker speeds. It is also exploring mobile edge computing enabled by network virtualisation and raising awareness of critical communications enabled by LTE Broadcast infrastructure.
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Source GSMA (HD Voice: GSA) updated 31 May 2016





VOICE OVER WIFI







OF POPULATION

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OPERATOR LAUNCHES

COUNTRIES

DEVICES

HOSTED SOLUTION PROVIDERS



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Digital Commerce Streamlining interactions and transactions



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Mobile technologies and services are driving the growth of digital commerce in both developed and developing countries. The GSMA is supporting this growth by helping mobile operators to provide access to a growing range of financial services. The GSMA is also engaging with mobile operators to encourage consumers to use their handsets to interact and transact with merchants both online and in-person.

Working with mobile operators, regulators, banks, retailers, transport operators and other service providers, the Digital Commerce programme is aiming to drive mass adoption of digital commerce services. It has developed a series of specifications and templates to support the deployment of mobile operator-led commerce services.

In developed markets, consumers are increasingly keen to pay with their mobile handset both in store and online, which can be more convenient and secure than alternative methods. The increasingly broad adoption of tokenisation – the use of alias card identification numbers to authorise transactions – has helped to improve security and should further accelerate adoption of mobile payments both instore and online. Whereas the GSMA Digital Commerce programme supports developed markets the GSMA's Mobile Money initiative supports developing markets.

In developing markets mobile operators continue to play a leading role in delivering mobile money and expanding financial inclusion. Almost 100 million new mobile money accounts were registered in 2015 taking the total to more than 411 million, according to the GSMA's fifth annual <u>State of the Industry</u> <u>Report on Mobile Money</u>, published in February 2016. Moreover, through the work of the GSMA, mobile money services increasingly work across networks and across international borders. By the end of 2015, there were 29 cross-border mobile money initiatives connecting 19 countries, with cross-border remittances growing 52 per cent, by volume, over 2014.

"One of the great challenges for digital retailers is how to reintroduce personal relationships to increase engagement, sales and loyalty. At Etisalat we believe that Mobile Network Operators can play a pivotal role in driving new levels of brand engagement, customer activation, as well as the introduction of new digital interaction channels,"

George Held, Vice President, Etisalat

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Review of financial year 2016

The Digital Commerce programme developed a proposition to facilitate remote payments using Mobile Connect for authentication (see Personal Data page 26), thereby reducing the probability that consumers will abandon a purchase during the online check-out process. To increase engagement, sales and loyalty, digital retailers need to increase both confidence and convenience for the consumer. <u>Mobile Connect</u>, a new standard in digital authentication, gives the consumer a secure and convenient way to use their handset to prove who they are.

In a similar vein, the Digital Commerce programme also produced implementation guidelines to support the adoption of tokenisation for mobile payments. <u>GSMA research</u> shows that there are a number of benefits offered by a SIM-based tokenisation services:

- Scalability all existing cards can be tokenised, and exist in plastic and mobile form simultaneously.
- An improved and consistent customer experience, in particular through faster card on-boarding, with instant issuance.
- A simplified service life cycle. For example, on card renewal, all the tokens attached to the old card can be re-attached to the new one via a simple database update.

Furthermore, the GSMA conducted a request for information (RFI) for tokenisation modules to include in mobile wallets, while supporting mobile operators' tokenisation projects in France and Poland. This RFI, and the technical case study resulting from the tokenisation projects, are useful tools that operators can use to shape requests for proposals (RFP) for tokenisation infrastructure.

The programme met its target of supporting the implementation of tokenisation in two markets, Poland and France, while participating operators on-boarded 371 services into their mobile wallets.

Through the GSMA's Mobile Money programme the number of markets with mobile money account to account interoperability between two or more operators increased to nine following launches in Rwanda, Thailand, Madagascar, Philippines and Jordan. Moreover, three markets (Philippines , Ghana and Uganda) launched new ecosystem services through collaborative actions by operators. The programme also worked with global standard setting bodies and regional advocacy organisations, to ensure that regulatory hurdles do not limit the potential of digital financial inclusion.

Objectives for financial year 2017

Although the work of the Digital Commerce programme is now complete, the GSMA continues to support the development of digital commerce in developed markets through its Personal Data programme (see page 26) and in developing markets. Through the Mobile Money programme the GSMA is aiming to help stimulate a significant increase in mobile money transactions in the ecosystem and to increase the number of mobile money services implementing the GSMA's Code of Conduct for mobile money providers, while running global initiatives highlighting the socio-economic value of mobile money.



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Industry Advocacy Initiatives

Tackling the world's most pressing challenges requires policymakers and businesses to work together and pursue mutually beneficial objectives. The mobile industry, governments, regulators and non-governmental organisations increasingly turn to the GSMA to facilitate constructive communications between stakeholders and coordinate public-private sector partnerships.

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Advances in mobile technologies and services are transforming the way individuals live their lives and the way businesses across the economy operate. As explained in the <u>GSMA's 2016 Mobile Economy report</u>, these changes can have profound implications for public policy and regulation, impacting the way in which a myriad of public and private sector services are delivered and consumed.

To harness the full potential of the mobile economy, governments need to ensure their policy and regulatory frameworks are fair, flexible and futureproof, and that they release harmonised spectrum for mobile services in a timely and fair manner. To that end, the GSMA is working with policymakers around the world to enable both companies and consumers to benefit from the expansion of the mobile internet, the rollout of mobile financial services and the emergence of the Internet of Things, while safeguarding privacy and security.

Representing the mobile industry to governments and international institutions, the GSMA advocates digital policies that encourage innovation and investment, which are in the long-term interest of consumers.

Policymakers and regulators: Through events and bilateral meetings, the GSMA engages with national governments and international institutions to shape regional and in-country policy and regulatory positions. The GSMA has also developed a catalogue

of training courses to build policy and regulatory capacity in a fast-changing world. Moreover, the GSMA helps to coordinate public-private partnerships that harness mobile technologies and services for the greater good. For example, in Argentina, the GSMA is helping mobile operators Claro, Telecom Personal and Telefónica Movistar to tackle mobile device theft and promote protection against child sexual exploitation, with the support of Argentina's Ministry of Communications, the National Communications Agency and the Ministry of Justice and Human Rights.

Institutions, foundations and NGOs: The GSMA works in partnership with external institutions, such as the World Bank, the OECD and the World Economic Forum and many NGOs and foundations, to support the development and deployment of life-enriching mobile technologies and services. Moreover, the GSMA is working with the United Nations to achieve the Sustainable Development Goals, introduced in September 2015.



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To support its advocacy programmes, the GSMA draws on analytical work undertaken by GSMA Intelligence and Mobile for Development. A trusted source of policy positions and industry data, the GSMA is able to supply evidence and proof points that inform the debate about how to adapt regulation and legislation for the digital era.

With offices and specialist staff around the world, the GSMA coordinates Regional Interest Groups in

which the mobile industry can discuss and address issues that are specific to particular regions or the regional angle on global issues.

The GSMA's Ministerial Programme, held in conjunction with Mobile World Congress, also provides a unique global forum for knowledgesharing between policy decision makers and senior representatives from the broader mobile industry.

The GSMA's advocacy work is implemented primarily through the following four programmes:

Spectrum

Ensuring mobile operators have timely and affordable access to appropriate spectrum



Regulatory Modernisation

Defining new regulatory frameworks for the digital age

OOO Industry Purpose

Connecting everyone and everything to a better future

Mobile for Development

Driving commercial mobile services for underserved people in emerging markets

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Spectrum Ensuring mobile operators have timely and affordable access to appropriate spectrum

Spectrum is a vital resource for the mobile industry. The cost, coverage and speed of wireless services depend heavily upon how governments and regulators manage radio spectrum. The global harmonisation of mobile spectrum bands is key to driving the economies of scale needed to deliver low-cost, ubiquitous mobile broadband services to consumers around the globe. The GSMA's Spectrum programme advocates that governments release sufficient harmonised spectrum for mobile broadband and promotes fair and predictable regulation that supports a positive mobile future for all.

Review of financial year 2016

In the run-up to the World Radiocommunication Conference (WRC-15), the Spectrum programme played a pivotal role in coordinating the global mobile industry campaign to secure the allocations of spectrum it will need to meet the surging demand for mobile services.

Held in Geneva by the United Nations' International Telecommunication Union in November 2015, WRC-15 involved four weeks of intense treaty negotiations between the world's governments. The conference ultimately identified vital additional spectrum bands for mobile services, representing a major step forward in meeting the growing demand from citizens worldwide for mobile broadband.

WRC-15 also agreed a new agenda item for WRC-19 to identify high-frequency bands above 24GHz for 5G mobile services. This is a critical first stage in the journey towards a new wave of mobile innovation, enabling the deployment of services considerably faster than existing technologies and driving a hyper-connected society in which mobile will play an ever more important role in people's lives.

One of the most important issues is the

harmonisation and the timely release of Digital Dividend spectrum (arising from the switchover from analogue to digital TV). This spectrum is critical to meeting many governments' objectives of offering mobile coverage to all citizens, especially in rural areas. The Spectrum programme has been working on securing the release of this valuable spectrum in many countries, including South Africa, Peru, Colombia, India, Tanzania and Mozambique. To actively support members in specific markets around the world, the GSMA Spectrum programme met with regulators and policymakers in more than 70 countries over the course of the year.

The Spectrum programme also advocates policies that make spectrum available on fair and reasonable terms and encourage investment. To that end, it helped to develop a common industry position for the European Commission's Telecommunications Framework review. This involved submitting a major market evidence study showcasing the socio-economic benefits of greater spectrum policy harmonisation in the EU. The Spectrum programme has also stepped up its efforts to limit escalating spectrum prices, which jeopardise mobile broadband uptake and investment.



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The UN supported rapidly growing demand for mobile services by agreeing additional mobile broadband spectrum at the World Radiocommunication

<section-header><image><image><image><image><section-header><section-header><section-header><image><text><text><text><text><text><text>



Conference in November 2015 (WRC-15).

Sub-700 MHz

Expands widespread mobile access with exceptional coverage characteristics. Now identified in countries in the Americas and Asia Pacific



Provides vital extra mobile capacity. Now identified in countries in Africa, Asia Pacific and the Americas

Objectives for financial year 2017

The Spectrum programme continues to campaign for governments to release the spectrum that has been identified for mobile services at past WRCs. For example, 130 countries have yet to license the digital dividend spectrum for use by mobile services.

The GSMA is raising awareness among policy makers and regulators of the factors that should be taken into consideration when designing spectrum awards, including setting reasonable reserve prices for spectrum auctions. The GSMA will also continue to educate governments that mobile spectrum does not have any intrinsic value per se – it is mobile operators' investment in the networks and the services that use the spectrum that creates the value for consumers and businesses.

Finally, the GSMA is working with its members to prepare for WRC-19 where it will encourage governments to secure frequency bands for 5G services.



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Regulatory Modernisation Defining new regulatory frameworks for the digital age

Telecoms markets have changed considerably over the past few years with the convergence of technologies and services and the expanding role of internet players in the digital ecosystem. Regulations designed for the 'voice era' have become antiquated and need to be reformed to reflect today's dynamic digital markets.

The GSMA's Regulatory Modernisation programme works with governments and other stakeholders to promote a fundamental review of policy and regulatory frameworks to make them fit for the digital age. Without a new wave of policy reform that recognises the changes in the landscape and dynamism of digital ecosystems, markets will become further distorted and investment and innovation will be at risk. The GSMA believes the competitiveness, dynamism and complexity of digital ecosystems requires that decision-making be shifted from regulatory agencies to the marketplace as much as possible. Policymakers and regulators should adopt a more flexible, technology-agnostic approach and pursue performance-based enforcement over prescriptive, ex ante regulation of the mobile sector.

"We are working closely with the GSMA, policymakers and regulators to ensure that regulatory environments are reformed, and in some cases transformed, to favour continued network investment and innovation. The regulatory frameworks that served a clear purpose more than a decade ago are no longer appropriate for countries that aspire to have ubiquitous broadband connectivity and want to compete in the digital economy."

Kamal Shehadi, Chief Legal and Regulatory Affairs Officer, Etisalat Group, and Chairman of the GSMA's Chief Policy and Regulatory Officers Group

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Review of financial year 2016

In February 2016, the GSMA published a landmark report making the case for the modernisation of telecommunications regulation. Titled <u>A New</u> <u>Regulatory Framework for the Digital Ecosystem</u>, the study explored how new mobile voice and messaging communication services compete directly with traditional communications services, yet are not subject to the same rules, such as those relating to the collection and usage of customer data.

In many cases, changes in technologies and markets have eliminated the need for certain regulations or at least dictate the need to change the form or application of them. The report recommended that policymakers review existing market structures, reform outdated regulation and establish a level playing field to foster dynamic competition, protect consumers and spur innovation. The GSMA called for reform based on three principles:

- Regulation should be based on functionality, rather than on legacy industry structures or technologies, and applied across the ecosystem using the same principles.
- 2. Performance-based approaches should be preferred over prescriptive, ex ante regulation to promote innovation and dynamism.
- 3. Regulatory design should apply a consistent set of criteria throughout the ecosystem in assessing market power, and focus regulatory attention on areas where such power currently exists.

In the year, the GSMA also published the <u>Competition Policy in the Digital Age</u> handbook, which provided insights into how competition policies around the world are failing to keep pace with innovation and new market forces. The challenge for policymakers and regulators is to capture the benefits of digital progress by ensuring competition policy, laws and interventions do not impede efficiency, innovation and investment, while safeguarding consumers and minimising market distortions.

The GSMA has integrated these forward-looking regulatory and competition principles into a course within its <u>Capacity Building programme</u> for policymakers and regulators. The programme, which offers high-quality training courses that highlight real-world examples of policy and regulatory best practice, has trained students in more than 100 countries.

Additionally, the GSMA engaged in the ongoing debates about net neutrality in the European Union, India, Brazil and Peru, advocating that mobile operators need the flexibility to manage traffic on their networks to ensure consumers have a good quality experience. It also responded to the European Commission consultation on the role of online platforms.

Objectives for financial year 2017

The Regulatory Modernisation programme continues to advocate the adoption of new regulatory frameworks based on the principles outlined above. It is also developing global principles to underpin a new Competition Policy Framework that will form the basis of engagement with policymakers. This work will be complemented by case studies on the impact of market consolidation on consumers in Europe and competition policy in markets elsewhere in the world. Furthermore, the GSMA will engage key stakeholders through policy dialogue events designed to identify common goals and new approaches to digital policy.

At the same time, the programme continues to develop and advocate policy priorities in key markets. In Europe, for example, the GSMA is working with stakeholders to review the regulatory framework for the telecoms sector and reduce the regulatory uncertainty for operators in the region. The GSMA is calling on the EU to quickly modernise and, wherever possible, reduce regulation in the sector, taking into full account the increasing competition from new digital players.

Following the finalisation of the EU General Data Protection Regulation (GDPR) in April 2016, the GSMA is also participating in the European Commission's review of the e-Privacy Directive. The GSMA is calling for the right balance to be struck between protecting confidentiality of communications and fostering a market where innovation and investment will flourish.

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Industry Purpose Connecting everyone and everything to a better future

As the global leaders in connectivity, we share a common purpose — to connect everyone and everything to a better future. Connectivity is one of the most important enablers of social development and economic growth in our time. And its prevalence in our everyday lives has transformed the way we live, work, access essential services and communicate with each other.

By bringing connectivity and life-changing services to billions of people, mobile operators are creating a better future for both individuals and the global community. Mobile services enhance people's quality of life, contribute to the development of society, protect the environment, support efforts to improve public health and drive the global economy.

The overriding purpose of the GSMA, and its members worldwide, is to connect everyone and everything to a better future. Widespread connectivity – and the services it enables - is driving social development and economic growth.

Since the first digital mobile phone call was made on the 1st July 1991, mobile networks have connected more people faster than any technology in history. These networks have boosted economies, transformed our communities and empowered people across the world. Mobile networks are also delivering healthcare in ways never imagined, opening doors to education, employment and income opportunities, creating smarter cities, empowering people with the tools they need to thrive, and enabling more sustainable lifestyles.

To-date we have connected over half the planet, and we won't stop here. Our purpose underlies our commitment to continue on this path, and help shape a world in which we all benefit from the opportunities that connectivity delivers.

The GSMA seeks to ensure that no-one is left behind - the world's entire population can and should benefit from full access to mobile technologies and services.



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To help deliver a better future, the GSMA's new Industry Purpose programme will support the attainment of the United Nations' Sustainable Development Goals, which were introduced in September 2015. The biggest attempt in the history of the human race to make the world a better place, the UN Goals are a 17-point plan to end poverty, combat climate change and fight injustice and inequality. As the first industry to come together and get behind the UN's new goals, the mobile industry is committed to playing a key role in helping the world to achieve the 17 targets by 2030.

Mobile networks are accelerating this journey in a way no other technology can. The services enabled

by mobile connectivity can support the 17 elements of the UN Sustainable Development Goals (SDGs), from reducing poverty to improving education to making it easier for governments and their citizens to interact. For example, the GSMA is exploring how connectivity can bridge the economic divide and create opportunities for progress, while helping the mobile industry to collaborate and innovate and reduce the environmental impact of human activities.

The SDGs provide a clear path to solving the greatest challenges of our time. The global goals are big, but so is the mobile industry's ambition.

Objectives for financial year 2017

To monitor progress, the GSMA's new Industry Purpose programme will publish an annual Mobile Industry SDG Impact Report, as well as develop a set of principles that outline how mobile operators will respect and protect their customers, supported by measurement and best practice sharing. These Mobile Responsibility Principles will be publically available on the GSMA website and operators will report progress at a market level.

Together we will continue to connect everyone and everything to a better future.

VIDEO HIGHLIGHTS Industry Purpose





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Mobile for Development Transforming lives

Ensuring equitable access to life-enhancing services and information is one of the major challenges facing our world. The GSMA Mobile for Development brings together mobile operators, the wider mobile industry and the development community to deliver locally relevant and impactful services to individuals and communities who are underserved.

GSMA Mobile for Development works to identify and scale commercially viable mobile services that will have maximum socio-economic impact. It pinpoints opportunities to extend digital inclusion, accelerate the mobile money ecosystem, and use mobile as a source of identification. GSMA Mobile for Development has partnered with mobile operators and other stakeholders to deliver over 100 initiatives across more than 50 countries, impacting over 28 million lives. GSMA Mobile for Development programmes are overseen by a steering group of mobile operators who deploy initiatives in market (the programme leadership group). Programmes are funded by the GSMA in partnership with donors from the development community. In February 2016, GSMA extended its partnership with the UK Department for International Development (DFID) to use innovative mobile technology to provide lifeenhancing services to millions.

VIDEO HIGHLIGHTS Mobile for Development



THE IMPACT & OPPORTUNITIES IN MOBILE FOR DEVELOPMENT



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Currently GSMA Mobile for Development is running eight key initiatives:

Connected Society

To drive wider adoption of the mobile internet, the Connected Society programme works with the mobile industry and key stakeholders to improve network coverage, affordability, digital skills and locally relevant content.

In financial year 2016, the programme coordinated rural coverage projects in Tanzania and Indonesia. It also helped secure favourable announcements by the governments in Ghana and Bangladesh

PLG Members for financial year 2016



Mobile Money

Two billion people worldwide lack access to safe, secure and affordable financial services. The Mobile Money programme aims to increase the utility and sustainability of mobile money services and boost financial inclusion. It is working with mobile operators and industry stakeholders to create a robust mobile money ecosystem, with funding from GSMA members, The Bill & Melinda Gates Foundation, The MasterCard Foundation and Omidyar Network.

regarding taxation on mobile, to address the issue of

In financial year 2017, the programme is working

with operators and policymakers to further expand

rural coverage, secure favourable changes in mobile sector-specific taxation and ensure additional

toolkit. DFID is providing funding for the programme.

operators adopt the GSMA Digital Skills training

affordability of mobile internet.

For updates on the Mobile Money programme please refer to pg 41.

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Digital Identity

The Digital Identity programme aims to leverage mobile connectivity as a solution for a unique, secure and scalable form of identity. A robust method of identification can drive socio-economic development, potentially adding value to hundreds of millions of lives. The GSMA Digital Identity programme is working with mobile operators, governments and the development community to demonstrate the value of mobile as a scalable and trusted solution to providing secure identification. DFID funds the Digital Identity programme. In the financial year 2016, the programme engaged with the World Bank and the Secure Identity Alliance to produce a joint consultation report exploring digital identity, public and private sector cooperation and sustainable development.

In financial year 2017, the programme will work in two demonstration markets to showcase the value proposition of digital identity and continue its work with the World Bank on defining the digital identity principles.

PLG Members for financial year 2016

7 airtel

oonedooorande



"The impact I have seen is people wanting to register their children because they see the benefits of having a birth certificate. It used to take up to three months to register a baby, now with this service it happens in a day,"

Nakkazi Coster, village birth notifier, Uganda, gives her impression of the Mobile Vital Records System (VRS) that uses mobile technology to register births details of newborns via mobile phones through to local hospitals connected to a 3G web-based application.

Ecosystem Accelerator

The newly formed Ecosystem Accelerator programme aims to help innovative and sustainable mobile services in emerging markets to achieve scale. The programme works to bridge the gap between mobile operators and innovators, enabling strong partnerships that support the growth of commercially-sustainable mobile products and services. The programme is funded by DFID. In financial year 2017, the programme will launch the Innovation Fund to fund emerging market mobile start-ups delivering a positive socio-economic impact. The programme will also encourage operators to open and harmonise their application programming interfaces (APIs) to enable developers to create innovative new services in emerging markets.

PLG Members for financial year 2016



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Mobile for Development Utilities

In emerging markets, many people cannot access basic utility services, such as electricity, water and sanitation services. The Mobile for Development (M4D) Utilities programme helps to develop commercially sustainable business models that leverage mobile solutions to deliver affordable and improved energy, water and sanitation services. The M4D Utilities programme is funded by DFID.

The programme promotes the use of mobile networks, infrastructure and payment systems to open new pathways for affordable and reliable utility services to reach the underserved. For example, it supports the development of entrepreneurial phone charging services in remote areas, and the use of mobile connectivity to reduce water service providers' losses from water leakage or uncollected bills.

In financial year 2016, the programme demonstrated the business model viability and benefits of mobile-enabled utilities services through grant funded trials. As a result of the programme, over 1.9 million people have directly received new or improved access to energy, water or sanitation services through these grant trials.

In financial year 2017, the programme is working with its portfolio of 34 grantees to accelerate adoption of commercially-viable energy, water and sanitation services in underserved areas by leveraging mobile technology.

mNutrition

The mNutrition programme brings together the work of the GSMA's mAgri programme, which aims to advance the productivity and profitability of agriculture through scalable and commercial mobile services, and the mHealth programme, which supports the use of innovative mobile solutions to enable women and children to access essential maternal healthcare. The mNutrition programme is funded by DFID. In the financial year 2016, the mAgri programme supported service launches by Vodafone Ghana, Airtel Malawi, Grameenphone Bangladesh, Dialog Sri Lanka, Telenor Pakistan and Ooredoo Myanmar. Meanwhile, the mHealth project supported service launches by Airtel Malawi, Airtel and Etisalat Nigeria, MTN Ghana and Tigo (Millicom), Vodacom, Airtel and Zantel Tanzania.

In the financial year 2017, the programme will support the launch of mHealth services in at least four more markets in sub-Saharan Africa.

"With my phone I can get information about farming, I can gather information about any crop related diseases, or find information about the quality of seeds, or information about market prices. As an example, we've doubled production in our Bajra and sugarcane crops."

Rajendra, Dora District, India

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Connected Women

In today's increasingly connected world, many women are being left behind. A significant gender gap in mobile phone ownership and usage in lowand middle-income countries is hindering growth for the mobile industry and excluding women. The Connected Women programme aims to enable more women to access mobile internet and mobile money services, thereby unlocking significant commercial and socio-economic opportunities. When women thrive, societies, businesses and economies thrive. This programme is funded by DFID and the Bill & Melinda Gates Foundation.

The programme estimates that closing the gender gap in mobile phone ownership and usage could unlock an estimated \$170 billion market opportunity for the mobile industry in the next four years. To date the mobile operators in the Connected Women working group have reached more than 15 million women with new offerings.

In financial year 2016, the programme launched the <u>Connected Women Commitment initiative</u>, which provides a framework for mobile operators' formal commitments to increase the proportion of women in their mobile internet and/or mobile money customer base.

In financial year 2017, the programme will support the delivery of existing commitments made by mobile operators and will also further increase the number of operators who make formal commitments to reduce the gender gap and accelerate digital and financial inclusion.

Disaster Response

Mobile networks, which have shown extraordinary resilience in the event of disasters, can enable critical communication between humanitarian agencies, affected populations and the international community. The Disaster Response programme leads the mobile industry in further improving network preparedness and restoration, and providing more effective, coordinated support to humanitarian responders and people affected by a disaster. This programme is funded by DFID.

In financial year 2016, the programme launched the <u>Humanitarian Connectivity Charter</u> to help mobile operators to improve the preparedness and resilience of their networks. The Charter consists of a set of shared principles to support improved access to communication and information for those affected by crisis in order to reduce the loss of life and positively contribute to humanitarian response. Axiata, Ericsson, Etisalat, Ooredoo, Globe, Roshan, Smart, Telefonica, Tigo (Millicom) and Zain are among the companies that have signed up to the Charter.

In financial year 2017, the programme will work with existing signatories to the Humanitarian Connectivity Charter to increase their resilience and ability to coordinate with regulators to prepare response in case of disasters. The programme will also engage with operators to increase the number of signatories to the Humanitarian Connectivity Charter, while strengthening advocacy messaging around the operator role in disaster times.



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Convening and maintaining the ecosystem

One of the key roles of the GSMA is to facilitate the sharing of ideas, insights and information across the global mobile industry and adjacent sectors. GSMA ANNUAL REPORT 2016

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The GSMA produces world-class events, including Mobile World Congress, Mobile World Congress Shanghai and the Mobile 360 Series, bringing together tens of thousands of senior executives to meet and conduct business. A compelling portfolio of market intelligence, media and managed services complements these events.

2016 Mobile World Congress

A record 101,000 visitors from 204 countries attended the 2016 <u>Mobile World Congress</u> at the Fira Gran Via and Fira Montjuïc venues in Barcelona, Spain. More than 2,200 exhibiting companies showcased cutting-edge products and services, ranging from connected cars to virtual reality headsets and smart wristbands at the world's premier mobile event. Mobile World Congress also attracted more than 3,600 international media and industry analysts.

Senior executives and thought leaders from across the global mobile and Internet ecosystems, as well as other major industries, such as automotive, finance and healthcare, attended the four-day conference and exhibition. More than 55% of the attendees held C-level positions. Running alongside the main event, the GSMA's Ministerial Programme attracted delegations from 137 countries and 31 international organisations. The Congress conference programme included 12 keynote sessions featuring CEOs, leaders and experts from a wide variety of organisations, including Mark Zuckerberg of Facebook, Shang Bing of China Mobile, Vittorio Colao of Vodafone and Lewis Hamilton of the MERCEDES AMG Petronas Formula One team.

Approximately 28,000 people visited the GSMA Innovation City, which showcased the impact of mobile-connected products and services across industries, such as transport, health, home and retail. Highlights included a virtual reality experience on board the Innovation City airliner, a virtual ski jump and demonstrations of how mobile connectivity is helping to track pets and keep cyclists safe.

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Held at Fira Montjuïc, the 4 Years From Now (4YFN) event attracted more than 12,500 attendees and featured 500 companies in the Innovation Market. Enabling the best mobile start-ups and entrepreneurs to mix with investors, accelerators, incubators and corporations from the mobile ecosystem, 4YFN hosted inspiring conference tracks, interactive workshops, a cutting-edge exhibition and start-up competitions. On the weekend prior to Mobile World Congress, the GSMA also hosted ESL Expo Barcelona in partnership with ESL. Nearly 4,000 gaming enthusiasts per day visited the three-day tournament, in addition to more than 2 million viewers who logged on to watch the competitions online.

www.mobileworldcongress.com

Mobile World Capital

The Mobile World Congress is the cornerstone of the <u>Mobile World Capital</u>, which will be hosted in Barcelona until 2023 following an agreement, signed in July 2015, between the GSMA and the Barcelona City Partners to extend their contract for a further five years. The Barcelona City Partners comprise the Spanish Ministry of Industry, Energy and Tourism; the Generalitat of Catalonia; the Barcelona City Council; Turisme de Barcelona; Fira de Barcelona; and the Mobile World Capital Barcelona Foundation. Each year, the GSMA and Mobile World Capital join forces to produce 4YFN (see previous section). The Mobile World Capital also encompasses programmes and activities that span the entire year benefitting both the citizens of Catalonia and the global mobile industry. For example, the mSchools App Education initiative, a computer science course embedded in the Catalan High School curriculum for secondary education and vocational training, reached over 18,000 students, 500 schools, 600 teachers and 300 industry expert mentors in the 2015-2016 school year.

www.mobileworldcapital.com



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Mobile World Congress Shanghai

Almost 40,000 visitors from 100 countries and territories attended the 2015 <u>GSMA Mobile World</u> <u>Congress Shanghai</u>, held in July. The three-day conference and exhibition attracted executives from leading mobile operators, device makers, equipment providers, software companies and Internet companies, as well as technology-savvy consumers.

The conference programme drew more than 3,000 attendees, with more than 55 per cent of attendees holding C-level positions, including over 150 CEOs. They heard keynotes from leaders of BSH Home Appliances, China Mobile, G&D, the Government of Australia, Huawei, Idea Cellular, KDDI, LG Uplus, Nokia, NTT DOCOMO, Telenor Group and Telstra. Held at the Shanghai New International Exhibition Centre, alongside the first Shanghai Digital Information Festival, the 2015 edition of MWC Shanghai showcased 350 exhibitors and sponsors. Some 660 international media and industry analysts also attended the event.

More than 12,000 people visited the GSMA Innovation City, which presented a real-life city environment packed with intelligent mobileconnected products and services demonstrating how mobile technology is positively impacting the lives of citizens from across the globe. Alongside the event, e-sports specialist ESL hosted *Warcraft III* group matches, bringing together the biggest online gaming stars from China and Korea.

www.mwcshanghai.com

"Asia is the largest mobile market in the world and Mobile World Congress Shanghai showcases the innovation that is a hallmark of our region. Moreover, Mobile World Congress Shanghai provides a global platform, bringing together leading mobile industry players, enterprises, brands and tech-savvy consumers to explore the latest technologies, products and services shaping the future of mobile."

Mr Shang Bing, Chairman of China Mobile

GSMA Intelligence: Definitive data and analysis for the mobile industry

<u>GSMA Intelligence</u> is an extensive database of mobile operator statistics, forecasts and industry reports.

This best-in-class database covers every operator group, network and MVNO in every country worldwide. Leading operators, ecosystem players, regulators, financial institutions and others rely on GSMA Intelligence to support strategic decisionmaking and long-term investment planning The GSMA Intelligence team of respected industry analysts and data experts use their deep understanding of mobile markets, technologies and regulatory issues to identify trends and topics that are shaping the fast moving industry – producing regular thought-leading research.

GSMA Intelligence produces reports such as the GSMA's flagship Mobile Economy series, alongside research notes, industry rankings and infographics.

www.gsmaintelligence.com

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GSMA Mobile 360 Series

The <u>GSMA Mobile 360 Series</u> is a yearly programme of regional thought leadership conferences for executives in the mobile industry, as well as senior regulatory and government representatives. The events offer attendees focused programmes that address the specific opportunities and challenges they face in their respective regions.

In 2015, the GSMA held Mobile 360 Series events in Cape Town, Rio de Janeiro, Dubai and Atlanta.

Following the success of these events, the GSMA is expanding the Mobile 360 Series to include additional geographies and also focus on specific subject areas, such as privacy and security. For 2016, seven Mobile 360 Series events are planned: in the Netherlands, Belgium, Tanzania, Mexico, the UAE, India and the United States. The series complements the GSMA's Regional Interest Group events which coordinate initiatives to facilitate collaboration and dialogue among key stakeholders.

www.mobile360series.com







AFRICA





LATIN AMERICA MEXICO CITY • 20-22 SEPT 2016





DUBAI • 17 - 18 OCTOBER 2016



INDIA DELHI • 26 OCTOBER 2016

EUROPE

BRUSSELS = 14 JUNE 2016



NORTH AMERICA

MOBILITY

DAR ES SALAAM = 26-28 JULY 2016

Announcing Mobile World Congress Americas, in partnership with CTIA

In June 2016 the GSMA and CTIA announced a partnership through which the two organisations will create a new mobile industry event in the United States. "GSMA Mobile World Congress Americas, in partnership with CTIA" will debut September 12-14, 2017 in San Francisco. CTIA and the GSMA are equal partners in the joint event, with the GSMA leading the event's production management.

CTIA will host its Super Mobility event showcasing the U.S. wireless industry in Las Vegas on September 7-9, 2016. Beginning in 2017, the new joint Mobile World Congress Americas will continue to serve CTIA Super Mobility attendees, exhibitors and sponsors and will also attract new audiences from across the growing communications ecosystem. Mobile World Congress Americas will include a conference programme featuring C-level speakers and leading industry experts; an exhibition showing the latest mobile technologies, products and services, a regulatory and public policy programme, partner events, free seminars and many other activities. Across these elements, Mobile World Congress Americas will emphasize core mobile technologies, consumer and industrial applications in the Internet of Things and the intersection of mobile with entertainment, content and media. It is expected that the inaugural Mobile World Congress Americas will attract 30,000 attendee and 1,000 exhibitors.

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Mobile World Live

<u>Mobile World Live</u> (MWL) is the world's leading³ online B2B news service for the mobile industry. In the financial year 2016, site traffic increased by 7%, while the flagship Mobile World Live–Daily e-newsletter grew its audience to 110,000 readers world-wide and our total newsletter audience to more than 150,000. 2016 also saw the twice-weekly launch of the MWL Asian newsletter focused on local content.

The GSMA again broadcast the award-winning <u>Mobile World Live TV</u> service during the Mobile World Congress in Barcelona, enhanced with a new Sunday show, as well as extended live coverage of the show floor and conference programme. The live broadcast was visible via more than 100 screens throughout the venue and globally via the MWL website, which screened every Congress keynote live for the first time.

The MWL team also produced the official Congress newspaper, Mobile World Daily, publishing more than 60,000 print copies across the week of the event, including a show preview edition. At Mobile World Congress Shanghai, MWL published the show daily in two languages, supporting both Chinese and English-speaking attendees.

MWL is planning to expand in 2017 to deliver enhanced editorial output, white papers, surveys and ebooks.

www.mobileworldlive.com

GSMA Marketplace

Launched in March 2015, the <u>GSMA Marketplace</u> is the world's first online commerce platform dedicated to the global mobile industry. Designed to provide an efficient online procurement process for all types of mobile-related products and services, the GSMA Marketplace has more than 600 buyer companies and 2,800 seller companies from over 130 countries around the world. The GSMA Marketplace enables buyers to source new products and services from suppliers around the world. Buyers can also initiate simple RFXs to reduce their procurement costs, while sellers are able promote all their offerings and respond to opportunities. A research centre supports detailed analysis of markets, potential partners and competitors.

Since the launch of the RFX solution, buyers have initiated RFXs worth over \$250 million.

www.gsmamarketplace.com

^{3.} Source, Alexa, internet analytics

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Managed Services

The GSMA offers several trusted managed services to mobile operators, suppliers, clearing houses, approved industry providers and other stakeholders:

Pathfinder: More than 50 per cent of the world's telephone numbers are subject to number portability. The <u>GSMA Pathfinder Service</u>, supported by Neustar, provides a global, real time look-up service to facilitate call routing.

Mobile Equipment Identity Services: All legitimate mobile devices can be identified by their unique International Mobile Equipment Identifier (IMEI). The GSMA allocates IMEI ranges to GSM devices globally and is the custodian of all the IMEIs ever issued to equipment makers. Moreover, the <u>GSMA</u> <u>Device Database</u> and <u>GSMA Device Map</u> enable mobile device management, MVNO and platform solution businesses to identify a device's features, functionality and other characteristics.

Lost and Stolen Device Services: Consumers can report lost or stolen devices (via IMEI) to operators so that they can be blocked from use. The GSMA enables the exchange of lost and stolen device information between operators through a central IMEI database so that devices can be blocked across multiple networks rendering them less valuable to thieves. The GSMA offers access to the lost and stolen database via the <u>Device Check</u> service, which helps law enforcement to fight device crime, traders to screen for stolen goods and insurers to detect fraudulent claims.

VIDEO HIGHLIGHTS Mobile World Congress 2016





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