GSMA Intelligence

From concept to delivery: the M2M market today

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Contents

Executive Summary

The M2M sector is an increasingly important source of connections growth for mobile operators worldwide. In many markets, operators are looking at M2M as a means to offset slowing growth (or declines) in traditional consumer mobile services. As a result, many operators are adapting their organisational structures and business models in order to serve a range of vertical industries with M2M solutions. They are also developing cross-vertical 'horizontal enablers' – for example in areas such as data analytics – to achieve economies of scale and other efficiencies in M2M service delivery.

This study combines both quantitative and qualitative market information on the state of the M2M sector today. It comprises analysis of global operator M2M connections data from 2010 to the present day, alongside separate research conducted directly with operators to understand market trends. Interviews were carried out with individuals with direct responsibility for M2M at a dozen leading global mobile operators.

The M2M connections data in this study is based on a rigid definition of M2M to ensure that only 'real' M2M connections are counted. Because this excludes consumer connections the totals can be lower than expected.

Key GSMA Intelligence data findings:

• Global M2M connections reached 195 million in 2013, growing at almost 40% per year (38% CAGR) between 2010 and 2013

• M2M connections now account for 2.8% of all global mobile connections, double the 1.4% share recorded in 2010

• 428 mobile operators offer M2M services across 187 countries; this is equivalent to 40% of the world's mobile operators

• Asia is the largest regional M2M market accounting for 42% of global M2M connections, followed by Europe (28%), North America (18%), Latin America (8%), Africa (4%) and Oceania (1%)

• M2M connections growth has seen to be generally stronger in developing markets over the last three years — this is partly due to growth in China, the world's largest mobile market, and now the single largest M2M market too

• North America had the highest proportion of M2M connections on a regional basis, where M2M accounts for almost one in ten mobile connections

• On a country basis, M2M accounted for almost a quarter of total connections in Sweden in 2013

How the operators view the M2M market:

- After a long period of market development and a degree of "hype", a number of operators commented that they are now undertaking real commercial deployments

- Progress varies across both industry verticals and across geographies. A majority of operators noted that the highest adoption rates were seen in the automotive and consumer electronics market segments

- Global M2M operator alliances are becoming important: reflecting both customer demands for a truly global footprint and a single customer touch point

- Operators see the on-going moves towards standardisation as a key enabler for the further development of the M2M market, with the development of the 'embedded SIM' solution for remote provisioning of M2M devices an important factor

- A vertical commercial market focus will continue to be important to enable operators to better understand customers' and ecosystem needs to win business. However, cross vertical (horizontal) service platforms and enablers will be key to improving service delivery, reducing support costs and scaling the market

Introduction

The Internet of Things is a broad vision of a future where everything — objects, machines and people — is connected and communicating, uniting the physical and digital worlds. This phenomenon was recently illustrated by Google's $3.2 billion acquisition of Nest Labs, a maker of smart thermostats and smoke and carbon monoxide detectors.

The GSMA's vision for the Internet of Things is the 'Connected Life'. The term 'Connected Life' refers to a world in which consumers and businesses use many different devices to experience compelling new services and ubiquitous Internet access delivered via mobile networks. These devices include the next wave of smartphones, tablets and consumer electronics, as well as machines, vehicles, monitors and sensors equipped with machine-to-machine (M2M) communications.

While operators and regulators increasingly report M2M connections, their definitions can vary considerably. The GSMA Intelligence M2M connections data used in this report refers exclusively to a SIM connection that enables mobile data transmission between machines. It does not count SIMs used in consumer devices such as smartphones, dongles, tablets, e-readers, routers and hotspots. Inclusion of these types of consumer devices can often serve to inflate M2M totals so have been deliberately excluded from the M2M totals in this study.

A large proportion of mobile operators worldwide offer M2M services across a wide range of vertical industries, from simple device connectivity solutions to more complex customised enterprise solutions.

The purpose of this study is to track the development of the M2M market from its inception to the present day and to understand how operators are looking to address this emerging sector.

The report includes:

- Growth in operator M2M connections between 2010 and 2013
- M2M connections split by regional markets
- The proportion of operators offering M2M solutions
- Contributors to M2M connections growth over the last three years
- Analysis on the new M2M business models and partnerships being deployed by operators
- Analysis of progress within the key M2M vertical segments
- The key horizontal enablers that will allow operators to develop services across verticals

The first part of this report analyses the current state of the M2M market based on the new GSMA Intelligence research. It marks the start of a series of qualitative and quantitative outputs led by GSMA Intelligence as we grow our capability to accurately measure the global M2M market opportunity. A full overview of our M2M definition and data model is included in the methodology section at the end of this report.

The second section of the report highlights the key takeaways from our operator interviews. Interviews were carried out with senior managers with direct responsibility for M2M operations between November 2013 and January 2014. Individuals interviewed for this study included representatives from Telekom Austria, Telecom Italia, Vodafone, Telefónica, Deutsche Telekom, Orange, SoftBank, AT&T, NTT Docomo, China Unicom, Telstra, SingTel, Ooredoo and KDDI.

The global M2M market today

As of January 2014, 428 mobile operators offer M2M services across 187 countries, equivalent to four out of ten mobile operators worldwide. The highest proportion of operators offering M2M services is in Europe, where about two-thirds of players have an M2M offering. This compares to just under half of operators in the Americas, Asia and Oceania.

Six out of ten operators offering M2M are located in the developing countries, reflecting that developing countries operators contribute 66% of the global pool of mobile operators. GSMA Intelligence estimates that operators in developing countries overtook those in developed countries in terms of M2M connections last year; accounting for just over half (52%) of all M2M connections globally as of Q4 2013.

Between 2010 and 2013, 120 million M2M connections have been added globally (38% CAGR) reaching a total of 195 million in Q4 2013. Globally, M2M connections account for 2.8% of total mobile connections in 2013, up from 1.4% in 2010. Global M2M connections will reach a quarter of a billion (250 million) in 2014.

M2M connections growth in the developing region stood at 55% (CAGR) over this period, compared to 25% in the developed region. The fastest growing region worldwide was Asia with a 55% CAGR between 2010-13, followed by Latin America (44%) and Africa (41%).

Asia recorded 56 million M2M net additions between 2010-13, followed by Europe (28 million) and North America (16 million). China alone added almost 42 million M2M connections during the period.

According to our estimates, ten countries account for 70% of all M2M connections as of year-end 2013, comprising China, the US, Japan, Brazil, France, Italy, the UK, Russia, Germany and South Africa. China and the US combined account for a joint 44% of global M2M connections.

In 2012, China reached 34.7 million M2M connections and overtook the US (28.6 million) as the largest M2M country worldwide in terms of connections, while Japan remained the third-largest market with 7.9 million M2M connections.

In North America, almost one in every ten connections is M2M. By contrast, the ratio in Europe and Oceania is one in 20, and only one in a hundred in Africa.

Region	M2M % total connections (2013)	M2M CAGR (2010–13)	Connections CAGR (2010–13)
Africa	1.0%	41.3%	15.0%
Asia	2.1%	55.0%	10.4%
Europe	5.1%	28.6%	2.4%
Latin America	2.1%	43.7%	7.8%
Northern America	9.3%	22.5%	3.6%
Oceania	5.1%	25.8%	5.5%
Global	**2.8%**	**37.6%**	**8.8%**

Table 1: M2M as a % of total connections by region, CAGR 2010–13

Source: GSMA Intelligence

M2M as a share of total connections is an indicator of M2M market maturity. The top four markets worldwide by this measure in 2013 are Sweden (23%), Norway (15%), New Zealand (14%) and Finland (11%).

M2M uptake in some of these countries has been largely driven by regulatory initiatives, notably in the smart metering sector. In Sweden, the rollout of smart meters was prompted by legislation that each household should be able to accurate monitor monthly electricity consumption by July 2009. To date, Telenor Sweden has deployed one million GPRS smart meters, while over 500,000 Vodafone New Zealand SIMs have been used in a similar smart metering project.
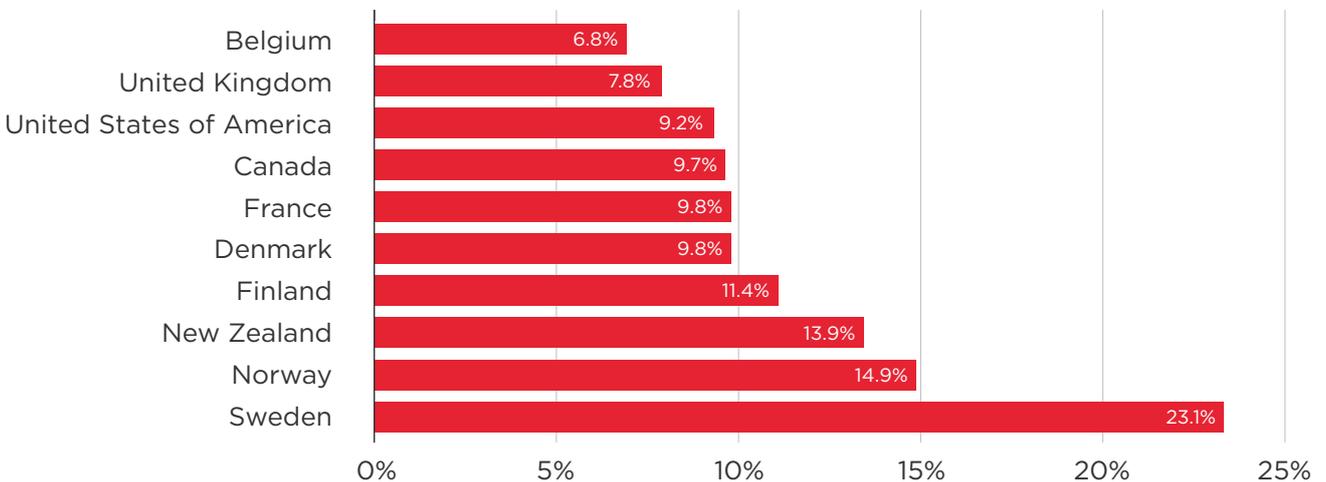
Figure 1: M2M as a % of total connections

Source: GSMA Intelligence

Dashboard
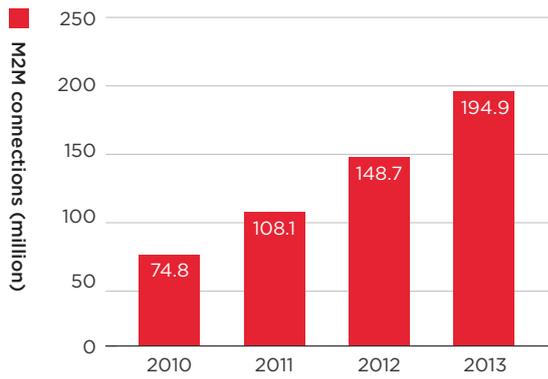
Figure 2: Total global M2M connections (million)
Source: GSMA Intelligence
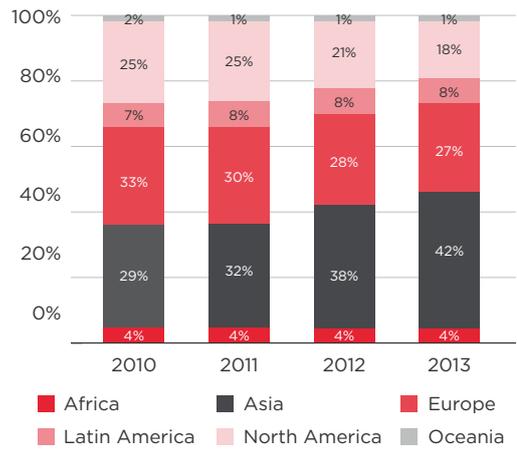
Figure 3: Regional share of M2M
Source: GSMA Intelligence
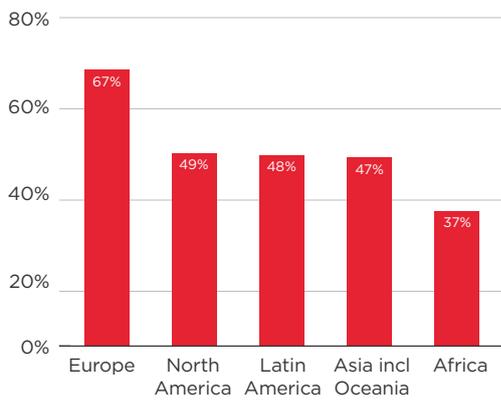
Figure 4: Mobile operators offering M2M,
% of total connections, by region
Source: GSMA Intelligence
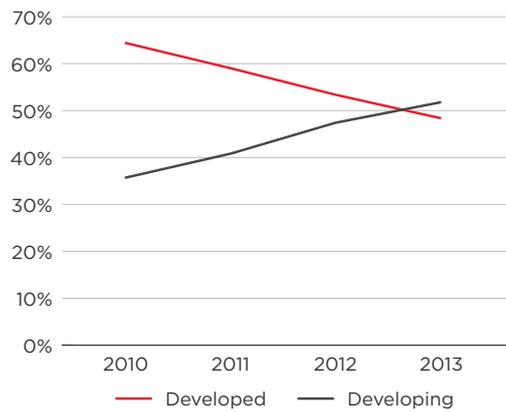
Figure 5: M2M connections share,
developed and developing regions
Source: GSMA Intelligence
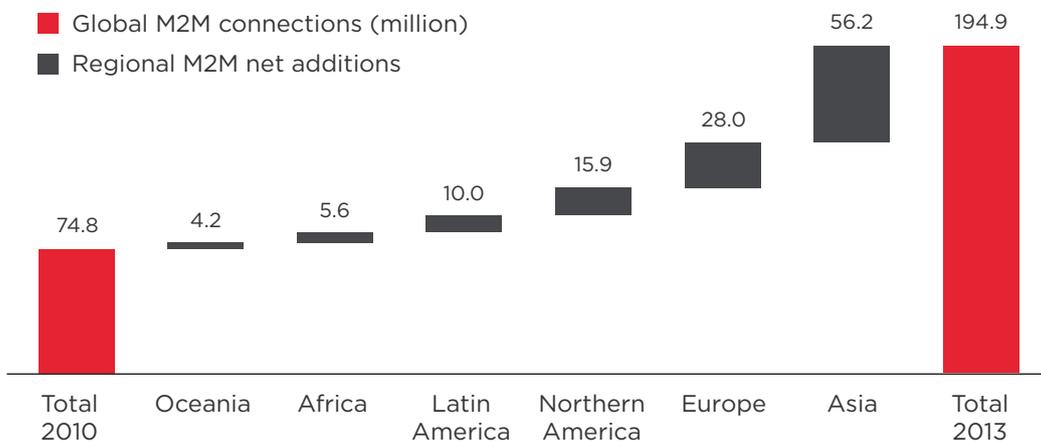
Figure 6: M2M net additions by region, 2010–13
Source: GSMA Intelligence

The operators' view

"M2M is not a field test anymore"
—Deutsche Telekom

Several operators surveyed during this research highlighted the fact that the M2M market is moving from a period of market development towards a commercial deployment phase. Deutsche Telekom stated that M2M has seen "two or three years of hype" but now is "not a field test anymore". Operators have moved from defining the market and educating customers to more actively launching services. According to Telefónica, customers have moved from "hundreds of M2M lines to millions of lines", while Deutsche Telekom also noted that it was now beginning to integrate M2M units in "high volumes". It was further emphasised by several operators that the M2M industry is changing in line with market demand.

While there are positive signs of momentum in the overall market, it was also noted by many operators that the rate of adoption varies across geographies. It was pointed out that there are clear differences both across geographic regions and industry verticals in terms of where operators are seeing the greatest near-term momentum and opportunities

"We set up a dedicated machine-to-machine business unit several years ago with a significant investment in technology because M2M is different from the traditional mobile communications business"
—Vodafone

A number of operators have restructured their M2M business activities over the last year to reflect the 'strategic importance' of M2M to their organisations. A clear sign of commitment to the M2M market involves the allocation of dedicated resources and capital. Moreover, M2M is seen as a cross-functional business which requires collaboration across company functions such as sales and marketing.

Vodafone, for example, has "effectively promoted" the M2M business unit to the group level, while Ooredoo is "taking serious action toward M2M" by developing group level strategies for their regional operating companies. Meanwhile, Telecom Austria's M2M unit, which is a spin-off from its marketing and sales department, was created to speed-up the launch of M2M services and help the operator "get a grip on the market as soon as possible". SingTel, on the contrary, has not created independent M2M business units but continues to focus on M2M by differentiating it from core business activities and housing the M2M business in their emerging business activities division.

M2M is one of key projects of China's 12th Five-Year Development Plan, which identified M2M/IoT as a key area to be established and measured in its 12th National Five-year Development Plan (2011- 2015). In February 2012, China's MIIT (Ministry of Industry and Technology) released the national 12th five year plan for IoT industry", which put forward the objectives, investment and roadmap required to develop China's Internet of Things market.

China Mobile set up a unit in 2010 dedicated to IoT called 'China Mobile Internet of Things Co. Ltd.' In its 2012 Annual Results presentation the operator stated that it had "[experienced] rapid development of Internet of Things applications such as urban management, smart transportation [and] industrial control."

Based on the reported data, China Mobile's M2M connections base grew at a CAGR of 78% between Q2 2010 and Q2 2013 to reach 27.3 million, making it the largest M2M operator globally.

Go-to-market strategies

Emerging business models

"Increasingly we are focusing on solutions that create more value for our customers beyond connectivity. We are looking at different ways to deepen our offering"
—SingTel

The evolving nature of the M2M market has led to the creation of a number of new business models around different types of offerings, partnerships and pricing strategies. Operators are adopting a number of different strategies in different situations in order to capture a greater share of the overall M2M revenue opportunity.

These trends reflect two key drivers. Firstly, business models are evolving beyond the provision of simple connectivity, given both the relatively low ARPUs for connectivity (as compared to traditional voice and data services) and the strong pricing pressure in this area (a factor noted by several operators). Secondly, there is the trend toward offering more complex applications and services that go beyond just connectivity and involve partnering with a range of other providers in the value chain.

Connectivity accounts for a relatively low proportion of the overall revenue opportunity, estimated by several operators at only 10-20% of the total revenue opportunity from M2M services. As a result, operators are increasingly exploring opportunities to expand their portfolio to services beyond just the provision of connectivity. This trend also reflects that customers are increasingly demanding packaged solutions, rather than having to assemble a product themselves. Telstra commented that the customers were now looking at more broad-based opportunities around the deployment of M2M services, with the question increasingly one of "how can M2M fit in and solve the problems of my business?"

Partnerships

"Partnering reduces our cost of sale and improves our value proposition. In addition, our partner gains greater business exposure than it could on its own"
—Telstra

The need to offer complete solutions is leading operators to partner with key players in the value-chain. The nature of partnerships has evolved from just 'creating the market' to more strategic partnerships that integrate technical capabilities of key players. Operators are forging partnerships across the emerging M2M value-chain (see Figure 7). This also extends to companies in adjacent markets which are responsible for supplying connected devices and services to their customers.

A few operators have also created formal partner programmes to actively form mutually beneficial relationships. Some operators have also entered into partnerships with device manufacturers in order to certify modules, which helps to speed up time to market and so makes it easier to launch new services. Others noted the need to partner with systems integrators and applications developers in order to develop new services.

Hardware	Device Suppliers	Application Developers	Communication Service Providers	Systems Integrators
• Cinterion • Digi • Huawei • Intel • Sierra Wireless	• Denso • Landis & Gyr • Peiker • Itron	• Airbiquity • Bosch • Cantaloupe • Device Insight • Hughes Telematics • LS Cable • Wireless Car • Zelitron	• Crossbridge • Kore • Orbcomm • Wireless Logic	• Accenture • HP • IBM • Logica
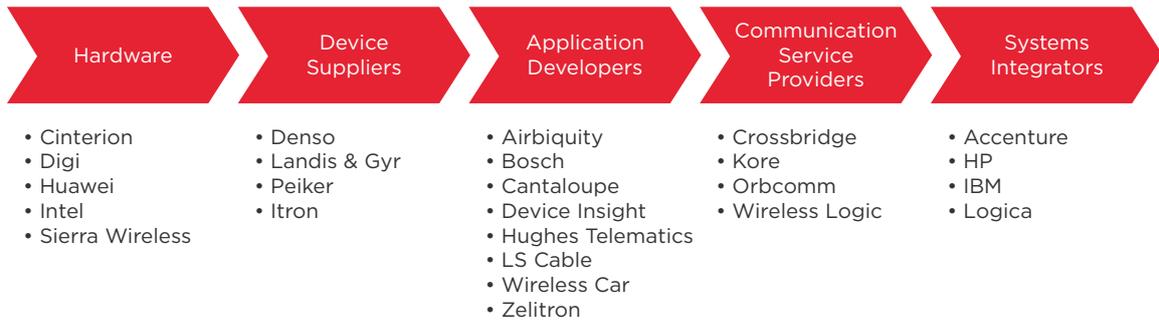
Figure 7: Vodafone Group M2M partner ecosystem (selected partners)
Source: Vodafone

Orange commented that they had different partnerships for different parts of the value chain. In addition, the growing range of new partnerships means that operators need to be increasingly flexible in their approach to revenue sharing. Deutsche Telekom noted that revenue share arrangements with partners could be based on transaction volumes, data usage or a more simple revenue share model.

In-house, outsource or acquire?

A number of mobile operators have developed in-house M2M operating platforms, as well as maintaining external platforms. Telecom Italia indicated that the development of an internal platform was for commercial reasons, as it is not always favourable to share revenue with external platform providers, especially in the low-ARPU M2M business and where the company already had a substantial number of active M2M connections.

This model resonates with a few large operators which have invested in multiple platforms to address specific requirements of their customers. However, the majority (60% of this study's participants) of operators continue to partner with specialised global providers such as Jasper Wireless and Ericsson, which allows them to offer similar user experiences across geographies.

In some cases, operators are making acquisitions in order to quickly gain the capabilities they need. An example of this is Verizon's 2012 acquisition of Hughes Telematics, a firm offering GPS tracking, communications and safety features in cars.

Operator platform strategies

In-house Platform Only	Multiple Platforms (both in-house and global partnership)	Partnership with specialized platform provider only
Vodafone	Telefónica	SingTel
Telecom Italia	Telekom Austria	Telstra
Deutsche Telekom	Orange	
China Unicom		

Operator alliances

The need to partner with an external provider is being driven by the increasing prominence of operator alliances, where the need to offer a unified service to customers across multiple geographies requires the use of a single operating platform. Almost 60% of operators that we spoke to are already part of a global alliance, with several having made the announcement over the last 12 months.

The role of alliances in helping the drive towards standardisation and in allowing collaboration for the development of new products and services was highlighted by several operators.

Summary of global alliances

Global M2M Association	M2M World Alliance	Bridge M2M Alliance
Bell Canada	Etisalat	Airtel
Deutsche Telekom	KPN	AIS
Orange	NTT Docomo	CSL
Telecom Italia	Rogers	Globe Telecom
TeliaSonera	SingTel	Maxis
SoftBank Mobile	Telefónica	MobiFone
	Telstra	Optus
	VimpelCom	SingTel
		SK Telecom
		Taiwan Mobile
		Telkomsel

Both a vertical and a horizontal play

The M2M sector spans a wide range of vertical market segments, detailed in the next section. Early deployments have tended to be bespoke solutions developed to serve specific vertical segments.

A vertical commercial market focus will continue to be important to enable operators to better understand specific customer need and ecosystem requirements, and for ensuring a view on the relevant regulatory framework.

However, cross vertical (horizontal) service platforms and enablers will be key to reducing service delivery costs and scaling the market. Many operators are now focusing on leveraging capabilities across verticals in order to achieve economies of scale (see section: Horizontal opportunities for growth).

The vertical view

The rate of adoption of M2M services varies across different industry verticals. For example, a majority of operators cited high adoption rates in the automotive sector. There was a less bullish view with regards to healthcare, which was not seen as an immediate priority (but was still seen to have long-term potential).

The rate of progress in M2M adoption also varies across geographies. It was highlighted that automotive segment is seeing strong activity across most regions; while smart meters are particularly strong in the Nordics and Southern European markets.

Regulation is another variable factor. Regulatory interventions have stimulated certain M2M sectors. For example, the EU-wide adoption of eCall and the government's smart-metering initiative in the UK. However, in some cases it is also seen as an obstacle, especially with regards to laws around data ownership, which inhibit operators from centralising their processes for certain markets. Healthcare regulation was also cited as an obstacle to the development of M2M services in this vertical in some Asian markets.

It was mentioned during the interviews that there is a need to educate a new wave of customers to speed up the adoption of M2M solutions. For example, SingTel believes that "customer education is crucial to scale" and has set up Customer Advisory Councils and other dedicated sources to promote M2M adoption.

Automotive

Many operators that we spoke to listed automotive as a priority focus area. This appears to be due to the size of the potential opportunity in terms of number of connected devices, with some operators already seeing high volumes in this segment. It was highlighted that servicing this industry vertical requires a global footprint (with low-cost roaming capabilities): this is a driving factor for regional operators to form cross-border partnerships to expand their global footprints. Operators such as Telecom Italia have partnered with players in adjacent industries to provide country specific products such as insurance telematics for automobiles. Advanced markets such as the US, and Australia are deploying 4G-LTE technologies in the automotive sector, while most other markets are currently working with 2G/3G technologies.

Consumer Electronics

"The next phase of growth will come from consumer electronics"
—Telecom Italia

Connectivity is increasingly becoming a core part of the consumer electronics proposition. Operators are envisaging this as the 'next big thing' and investing in their capability to service this segment. In some cases, the flexibility in the type of partnership in the consumer segment was also discussed. In some cases the operator takes the commercial lead in supplying and managing the customer relationship and in other situations its business partner occupies this role. A good example of this is Telefónica's partnership with Dell to provide connected laptops, where the customer is billed directly by Telefónica for connectivity. Some operators noted that the growth potential in the consumer electronics space (as well as the potential of the Connected Home) will see a shift in the M2M market in terms the end customer base. At present the M2M market is largely corporate/business focused, but over time the consumer segment will become an increasing focus.

Connected Home

While the market is still at an early stage, some operators like Deutsche Telekom are launching 'lighthouse projects' while others are trying to explore the role mobile connectivity can play in this segment. AT&T and Telefónica have both established Digital business units to serve this market. AT&T Digital Life is a security/home automation consumer offering, while Telefónica Digital includes M2M divisions and many other offerings from across the Telefónica Group. AT&T Digital also recently acquired Xanboo, a home automation and monitoring technology platform provider.

Smart City

The 'Smart City' concept can be seen as a collection of vertical services. In countries such as China, operators noted that Smart City projects have been promoted by the government, which has helped to simulate the market. In contrast, given the pressures from austerity in parts of Europe (especially Southern Europe), some operators question where funding for Smart City initiatives will come from if not from central or local government. One operator suggested that the emerging opportunities around big data could be key to unlocking funding sources other than the government.

Healthcare

"Healthcare is going to be a part of the M2M ecosystem because there is a need for healthcare to become more efficient"
—Ooredoo Group, Innovations

Most operators saw the health vertical as a valuable medium to long-term opportunity, but one which has still not entered the growth phase evident in several other industry verticals due to a combination of issues. In addition, some Asian operators have de-prioritised this sector due to regulatory barriers in their local markets. As was the case with other industry segments, the rate of adoption of M2M in healthcare varies across geographies.

Establishing sustainable business models in mHealth has proved more challenging than in some other industry verticals, in part as it involves changing existing reimbursement schemes and other established healthcare industry practices. It is also an area where mobile operators need to work closely with government and other regulatory stake holders at a national level. A further challenge is that some mHealth solutions, such as chronic disease management solutions, need a longer time frame in order to deliver appropriate returns, while many business customers are looking for a returns on a shorter time frame.

However, operators are seeing traction for mHealth solutions in developing markets, such as Latin America and Africa, where mHealth offers access to healthcare services to currently under-served populations. In these markets, B2C (or direct to consumer) and B2B2C mHealth services are also a big opportunity with some operators, such as Telefónica and Orange, seeing good traction with mHealth offerings.

Smart Factory

Connected technologies in manufacturing processes are coming into the spotlight in some markets, especially Germany. "The targeted point of arrival is the Smart Factory which is ruled by totally new modes of production," says Deutsche Telekom. "It takes individual customer requirements into consideration and models both business and engineering processes dynamically. The Smart Factory can adapt quickly to changing demands and handles resources more efficiently than ever."

Horizontal opportunities for growth

A vertical commercial market focus will continue to be important to enable operators to win business across the various M2M vertical sectors. However, cross vertical (horizontal) service platforms and enablers will be key to improving service delivery, reducing support costs and scaling the market.

For example, Deutsche Telekom has developed an 'application layer' on its M2M platform on which developers can create M2M apps targeting a wide range of vertical customers. It likens this approach to Apple's 'App Store' model, which allows developers to create apps for the iPhone and iPad and then sell those apps to end customers.

Horizontal strategies will become increasingly important as the M2M market matures and additional value, in the form of new services or increased efficiencies, is derived from enablers and platforms that are applied across the vertical segments.

By developing capabilities across verticals, operators will create several 'levers' to create and capture value. This can be achieved by creating core ecosystem assets in areas around developer APIs, device and connectivity management (Eg: to enable data analytics), standardisation and security.

Big data

One area of focus for this horizontal approach is with regards to 'big data' analytics. Operators are increasingly embracing the era of big data and looking at ways to analyse data from various sources, and monetise it by creating new service lines.

Standardisation

Standardisation is a fundamental enabler of future M2M growth. A majority of operators interviewed expressed the need for standardisation across all elements of the value chain, including integrators, hardware companies and application developers. This will reduce the cost of deployments (with the move to a more 'plug and play' functionality), as well reducing integration issues. Most operators emphasised the positive role of global alliances and trade bodies such as the GSMA in achieving standardisation.

(De-)fragmentation

The early-stage nature of the M2M value is characterised by a large number of relatively small players – a situation operators say makes it "complicated" when selecting hardware. This was highlighted as a major issue when scaling M2M solutions, largely a result of bespoke solutions that would be addressed by a horizontal approach. Some operators have addressed this challenge by developing in-house platforms and system integrators, while others have partnered key players in the value chain.

Embedded SIM

In some devices or pieces of equipment such as anti-theft modules in cars, utility meters, personal or property tracking devices and security modules, the SIM card needs to be inserted in the machine and hermetically sealed during the manufacturing process. At this time, it is often unknown in which country the connected devices (or equipment or vehicles) will be sold or which mobile operator will be operating the M2M service. This differs from the traditional mobile telephony market where the mobile operator usually bulk purchases and inserts its credentials on to the SIM, and then inserts it in to the mobile phone. To address this situation and enable the M2M market, the mobile industry through the GSMA has produced the 'Embedded SIM' specification to enable the remote 'over the air' provisioning and management of SIMs in M2M devices. Nearly all of operators in our review expressed clear support for this concept. This is designed to speed adoption of M2M services and open up opportunities for new services and applications in new industry verticals.

Security

The ability to offer a secure solution is a key asset provided by operators across the verticals. There is a general need to offer secure connectivity and to assure customers on this point, with security issues coming to the fore as M2M solutions are increasingly deployed in business critical areas and increasing in complexity. As operators are already seen as "trusted partners", there is an opportunity for operators to build on this relationship in the development of new services. "Operators are well placed for this as [we] have a trusted relationship and already manage a full service stack," said Deutsche Telekom.

Methodology

Definitions and scope

While mobile operators and regulators increasingly report M2M connections, their definitions can vary considerably. As a result, we have standardised M2M connection definition as the following:

A unique SIM card registered on the mobile network at the end of the period, enabling mobile data transmission between machines. It excludes consumer devices such as smartphones, dongles, tablets, e-readers, routers, and hotspots.

To initiate our modelling exercise, we have collected publicly available information about mobile operators' M2M services to derive the number of operators worldwide that commercially offer M2M solutions and tariffs, telemetry packages, and connectivity-only for M2M applications. We also gathered information about M2M services launch dates, partnerships, and vertical applications, both via secondary and primary research, which inputs into our modelling process.

Data modelling

Our M2M connections modelling methodology is based on a bottom-up approach, aggregating data for each mobile operator that has commercially deployed M2M services. Our data model is further based on a set of historic M2M connections reported by mobile operators and regulators, along with market assumptions based on our large scale survey of M2M operators and vendors.

As of Q3 2013, 25 mobile operators worldwide reported M2M connections while 13 additional operators have reported at least once prior to Q3 2013. In addition, we have surveyed 76 industry players worldwide over the past 12 months.

This pool of data has been analysed to identify specific M2M adoption profiles. Each 'known' adoption pattern has been clustered based on metrics such as quarterly connections growth and GNI per capita to derive a set of adoption profiles representing the average share of M2M connections within total connections over an indexed time series. These adoption profiles have then been applied to all operators that have commercially launched M2M services but do not report M2M connections.

Lastly, we have run a 'sanity check' of our preliminary results with a number of industry partners, including M2M vendors and mobile operators.

Country classification

GSMA intelligence classifies developing countries and economies as defined by the World Bank. Economies are divided according to 2011 gross national income (GNI) per capita into: low-income ($1,025 or less); lower middle income ($1,026 – $4,035); upper middle income ($4,036 – $12,475); and high income ($12,476 or more). Countries that fall within the low- and middle-income brackets are then classed as developing markets.

About the authors

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Neha joined GSMA Intelligence in early 2013, after having spent over four years as an economic researcher at organisations such as Deloitte, Government of India and Harvard Business School. Neha has a keen interest in telecom and M4D trends in developing markets. Neha holds a BA (Honours) degree in Economics from Delhi University, India and a Master's degree in Economics from Boston University, USA.

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