

M2M ~ Building a Connected World

This whitepaper is an extract from:

**M2M & Embedded Strategies
Telematics, Smart CE, Meters and Buildings 2012-2017**



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I. Introduction

While the reality of the M2M market may have fallen short of expectations since its early days, in the 2011 to 2012 period Juniper Research has observed an increasingly coherent approach to the market of both operators and M2M-enablers. On one hand, the interfaces built by companies to manage devices are becoming more sophisticated as the power of the Internet and the cloud are leveraged to their full extent. On the other hand, the automation of delivery and control means that the costs associated with M2M roll outs are reduced, improving the economic viability of M2M projects.

This coincides with a reappraisal by operators of how M2M will deliver revenue, away from standard revenue-per-device towards a revenue model which is defined by the service that is delivered. Both operators and M2M enablers now see the M2M market as a market in its own right, with its own characteristics with respect to revenue generation.

Juniper Research believes that the combination of cloud-based infrastructure and the introduction of technologies such as Bluetooth low-power at an affordable cost will give the market further impetus, while the acquisition route is strengthening some of the most respected M2M companies, affording them an increased level of sophistication.

Trends in the broader communications market, which also have an important impact on M2M will continue to develop. In the vehicular industry, a major M2M vertical, for example, internet connectivity will be provided through tethering the smartphone to the in-car head unit. This may impact on the number of passenger vehicles which will have embedded devices installed, although there are plenty of telematics applications that do still require such embedded devices.

Similarly, in the healthcare and payment sectors, both of which are promising M2M markets, smart wireless accessories, or app-enabled devices have an impact on the number of bespoke units with embedded connectivity that are installed, since the same service may be delivered via an add-on to a smartphone.

Juniper Research anticipates that the results of this potentially-cannibalising technology will be most evident in the payment industry, where small players will opt for app-enabled devices, rather than opting for bulky POS devices with embedded M2M modules.

Moves by several standards bodies have also been made to standardise the various technology elements that comprise an M2M service, though there remains a high degree of fragmentation in the M2M industry. Juniper Research contends that while moves to remove some of this fragmentation are laudable, the

market will remain fragmented, if only due to the wide variety of M2M use-cases. While industry-specific standardisation relating to automotive M2M or smart metering, for example, may be achieved, standardisation of the entire M2M technology chain will take longer.

2. The M2M Value Chain

M2M's requirement for cellular connectivity places operators in a crucial position within the M2M value chain. However connectivity alone is but a small element of that M2M value chain, and often the most difficult to monetise, owing to low bandwidth requirements for M2M uses. The interface whereby M2M users interact with the devices has now become equally important, giving rise to the application programming Interface. The API, often cloud based, is now the key differentiator between M2M service providers. Such APIs are often provided by specialists. Companies including Raco, Wyleless, Numerex, Trimble, Jasper Wireless and Kore Telematics all work on behalf of companies to tailor the M2M solution for them through their own API, developing software to analyse information coming from the M2M modules.

These players have a deep understanding of what a company may need from an M2M solution, and have proved that they are often able to tailor a service for a particular client where a multinational operator may not be able to, due to the MNOs focus on human subscribers and not specialist M2M roll outs.

M2M specialists have also been important in creating awareness of the industry, in achieving the first roll-outs in different fields and in pushing M2M beyond pure connectivity to analysis of data and the creation of cloud-based applications. These company's business models differ in detail, but as they all occupy the space between the MNO and the end-user of the M2M service, Juniper Research refers to them in this report as M2M enablers.

Alongside these enablers there have been increased levels of interest from operators in the last three to five years in creating their own interface with the end-user. Vodafone and AT&T both showed an early push towards M2M roll out in 2009. These operators have been progressively followed by players like Verizon, Orange Business Services, Everything Everywhere, the joint-venture between Deutsche Telekom and France Telecom, and Telefonica, to name but a few. As stated in previous Chapters there are now several operator alliances which simplify cross-border M2M roll outs. The most significant being the alliance between seven operators headed by the connectivity enabler Jasper Wireless.

As the M2M value chain has become more complex, the various elements of the M2M value chain are now being performed by companies that have developed expertise in areas of M2M other than where their key expertise lie (or more precisely, where they first started offering services). The most obvious example of this, is the MNOs that are providing more sophisticated management platforms to complement the connectivity that they provide rather than pure connectivity as they have previously offered. This can also be seen in companies that provide the chipsets and modules such as Sierra Wireless, which provides the interface for managing devices but also the web-based infrastructure to support these devices.

One of the most integrated M2M provider, which comes from a background in digital security, is Gemalto, which acquired the specialist M2M chipset manufacturer Cinterion in 2010 and more recently acquired the systems integrator Sensor Logic.

In practice, therefore, operators and systems integrators alike face competition from several fronts but also have a wide selection of potential partners with whom they can build their M2M presence. These include MVNOs specialising in offering M2M such as Numerex and Kore Telematics, and systems integrators and software manufacturers such as Jasper Wireless.

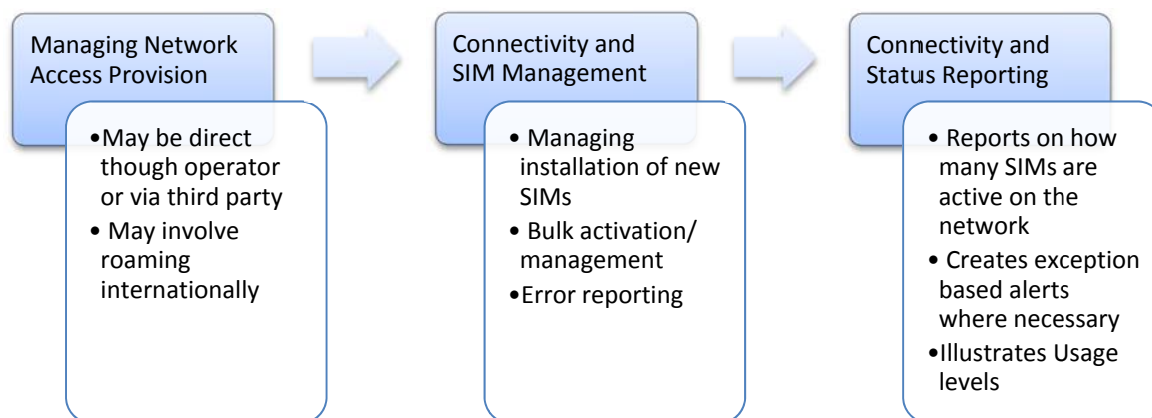
This latter group have developed platforms to enable M2M on behalf of operators, while MVNOs will typically lease network capacity from operators enabling them to provide a tailored offering for M2M customers.

Clearly the range of services that are available under M2M varies according to the complexity of the deployment, the number of devices as well as according to the degree of integration of the M2M service with the business software of the company for which the M2M roll out has been conducted.

Figure 1 below details what has now become the basics of the M2M service, M2M comprises activity ranging from the management of network resources by an operator or through a specialist intermediary, to the management of the SIMs once they are on the network, including the automated activation of SIMs, and the monitoring of connectivity status across the SIMs in question.

All of the activities illustrated in Figure 1 concern connectivity in one way or another, and constitute a significant “value-add” on top of pure network connectivity provision.

Figure 1: Connectivity Services within the M2M Environment



Source: Juniper Research

Increasingly a second tier of services is becoming evident in the M2M ecosystem, and this pertains to information derived from network status and activity as well as data analysis, processing and disseminating where required.

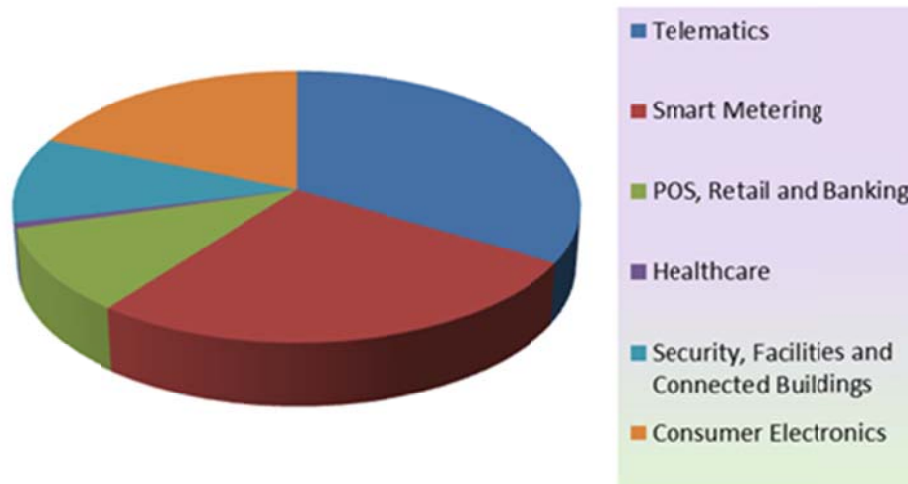
This is achieved through the integration of M2M into company processes, software, and CRM systems. More and more, M2M companies have developed an API (Applications Programming Interface) to enhance M2M and to allow companies to drive specific automated responses based on defined criteria from the information stream that is coming from the connected devices on the M2M network. The API may best be understood as a set of “hooks” onto which software developers within a company can attach their own software-driven rules.

This allows the end-user to manage and monitor the machines themselves on the M2M network and make changes, either automated or following detailed reports, to actual processes pertaining to the M2M units on the network. The key benefit of the API, which may also be tailored to the company for which the service provider is offering the service, is to reduce operational and management costs.

3. The Global M2M Market

The forecasts below cover the six industry verticals that account for the lion's share of M2M deployments.

Figure 2: Number of Connected Devices (400m) Split by M2M Category 2017



Source: Juniper Research

Juniper Research forecasts that there will be a total of 400 million connected devices in service across all industry segments by the end of the forecast period in 2017. From a sector perspective, the last 18 months have seen significant take up of embedded consumer electronics devices, specifically eReaders, a trend which is expected to continue over the forecast period. In addition consumer and commercial telematics will show increasing device numbers as automotive manufacturers aim to embrace embedded connectivity in the next five years in new vehicle sales.

Order the Full Report

M2M & Embedded Strategies: Telematics, Smart CE, Meters and Buildings 2012-2017

- M2M Ecosystem Analysis
- Stakeholder Business Model Assessment
- Sector Prospects and Forecasts

The 3rd edition of this market-leading report delivers an in-depth analysis of the fast moving M2M (Machine-to-Machine) market, highlighting the evolution of business models and assessing sector-by-sector prospects within both consumer and enterprise-focused applications and services.

This report covers

Optimising the M2M strategy. This report delivers a thorough examination of the critical issues facing players across all sectors of the M2M marketplace, including:

- Market fragmentation
- Developing a global M2M standard

- The MNO opportunity
- Extending the customer relationship
- Regulatory initiatives

Expert analysis is backed up by interviews with and commentaries from leading players across the M2M space, including Jasper Wireless, Numerex, Sierra Wireless and Trimble.

Market forecasts. Juniper delivers the benchmark forecasts on the M2M industry. These revised and expanded five-year forecasts project key metrics such as:

- Device base
- Average revenue per annum
- Service revenues
- Connectivity enablement revenues

Separate regional forecasts are provided for the automotive, healthcare, smart metering, retail/banking, consumer electronics and connected building segments. In addition, the report also includes hardware forecasts for the shipment volumes and values of M2M chipsets.

In all, the report features 30 forecast tables, backed up by an assessment of how the various drivers and constraints in each sector – including national initiatives, regulation and changing behaviour patterns – will impact upon service deployments and adoption.

Readers can also benefit from the accompanying **M2M Interactive Forecast Suite 2012-2017 Excel**. This dataset offers nearly 140 forecast tables and more than 7,000 datapoints. It includes additional layers of granularity per sector and enables you to quickly create and export customised perspectives of our forecast data using the high-quality, straightforward user-interface.

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Publication Details

Publication date: October 2012

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