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WHAT YOU NEED TO KNOW
RIGHT NOW

WHITE PAPER | The key to unlocking 50 billion connected devices

THE KEY TO UNLOCKING 50 BILLION CONNECTED DEVICES

- A white paper on the importance of lock-in avoidance in the M2M-market

ABSTRACT

A lot has happened within M2M since the first baby steps were taken at the dawn of the new millennium. M2M has transformed from being a bold futuristic vision into becoming a ground-breaking technology and business enabler. An enabler that has changed the way modern business is made in numerous industries such as utilities, security, automotive & transport, health care, public services, and retail.

In the past couple of years, many mobile network operators (MNOs) have made a conscious shift from mobile into M2M. They bring the strategies used in the mobile sector with them. These strategies end up leaving the customers locked-in with the technology provided by the chosen actor, inhibiting the flexibility needed to find suitable solutions to new challenges or to address emerging opportunities. Ultimately, leaving you as a customer at a great disadvantage.

Now we are facing a big change in the industry that can bring vast opportunities for businesses worldwide. This whitepaper addresses the importance of a power shift from a few MNOs to a more democratic market, where businesses enjoy an increased flexibility to choose between network providers, and how this shift will enable the countless possibilities that M2M-enabled services bring to your business.

ABOUT M2M

Machine-to-machine (M2M) are fixed or wireless communication technologies that enable you to get online with your products. M2M allows automated exchange of data between machines, equipment, assets, installations, individual modules, and entire systems - without human intervention. But M2M is very much more than technology, it's about end-to-end solutions that solve real business needs and improve everyday life for people all around the world.
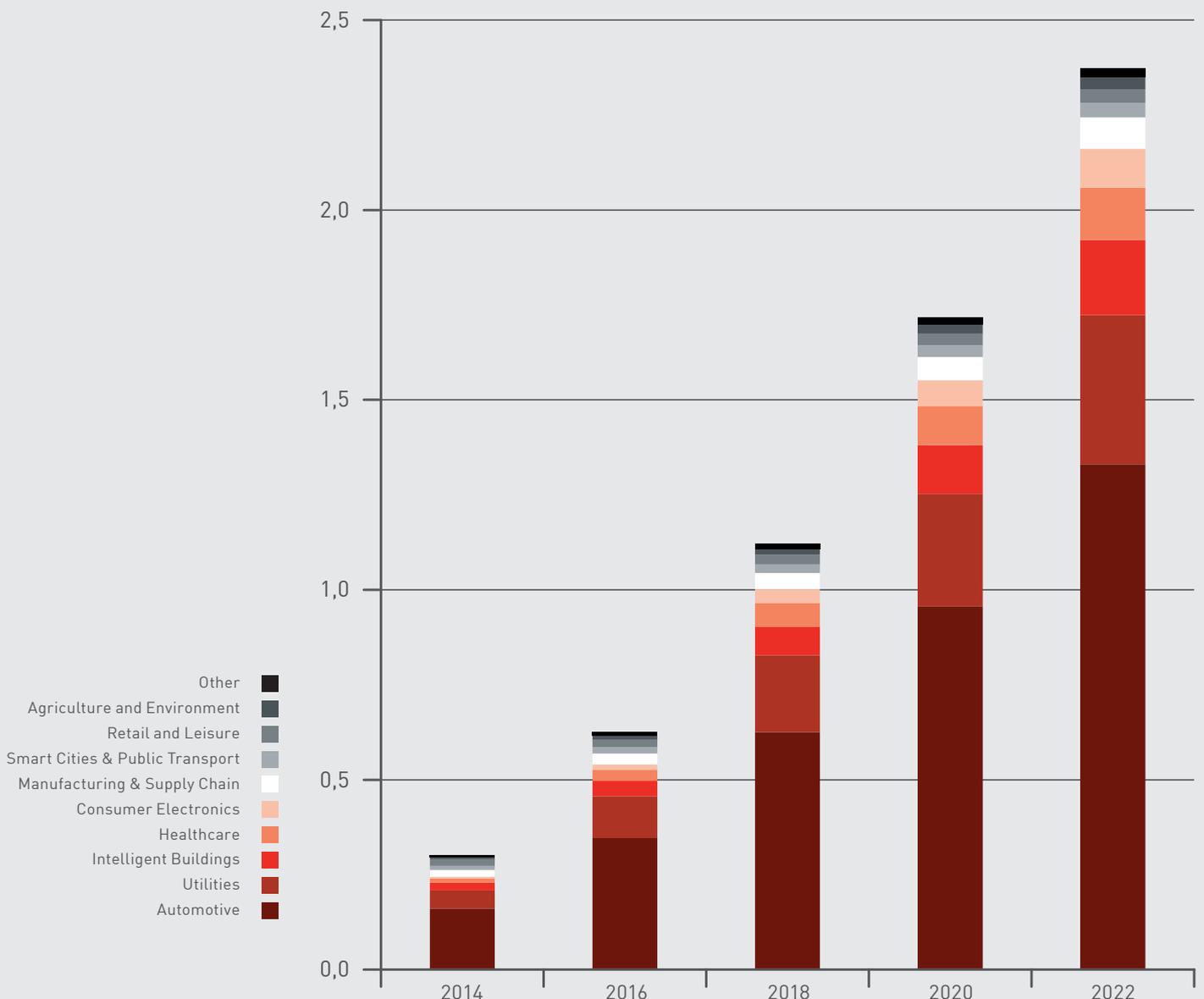
Just as the abbreviation M2M suggests, there are three vital building blocks that make up M2M:

M   *The first "M" in M2M is the device (product or other asset) that you wish to connect to and communicate with.*

2   *The "2" in M2M symbolises the channel that enables two-way communication with the device, and this connectivity can be achieved through different kinds of fixed or wireless technologies. This white paper will focus primarily on wireless technology, especially cellular communication through wide area networks technologies such as GSM/GPRS/3G/LTE.*

M   *The second "M" is the system that communicates with the machine; that receives, stores and analyses the data from the machine and makes it available to human users or other systems. This M is also used to send information back to the machine.*

M2M is at the core of the broad vision of a future where everybody and everything – objects, machines and people – is connected and communicating. With the ever-growing importance of cloud-based services, M2M is gaining ground in previously unexplored territories. In the future, everything that will benefit from a connection will have one.

There are numerous benefits with M2M technology. Most companies who have integrated M2M into their business have done so for pure commercial reasons. M2M slashes costs, opens up for new revenue opportunities, strengthens brand attractiveness and delivers benefits to the end-customers. Companies who have taken this route have increased business efficiency and grown their business.

M2M CONNECTIONS (BILLION)

Legend:
- Other
- Agriculture and Environment
- Retail and Leisure
- Smart Cities & Public Transport
- Manufacturing & Supply Chain
- Consumer Electronics
- Healthcare
- Intelligent Buildings
- Utilities
- Automotive

*Machina Research

A BRIEF MARKET OUTLOOK

Since the birth of the technology in the late nineties, M2M has altered the playing field in many industries. M2M is today a crucial success factor in many different sectors from health care, utilities, security, to original equipment manufacturers, automotive and transport, to public services and retail.

The services built around M2M are growing faster than traditional business lines. Market research firm Machina Research forecasts that there will be 4.4 billion connected devices at the end of 2014, up 24 % from the previous year.

And there are no signs on the horizon of the market cooling down. The multinational communications technology provider Ericsson, which accounts for 40 percent of global mobile traffic, in 2010 made a well-known prediction of 50 billion connected devices by 2020.

Machina Research estimates that over 1 billion cellular connected M2M-devices were in use in consumer electronics in 2014. Besides consumer electronics, motor vehicles and energy meters constitute the base for the two largest industrial segments of the wireless M2M market. Communication devices for payments and security applications are a smaller but nevertheless important segment, comprising tens of millions of devices manufactured each year.

LOCK-IN AVOIDANCE –
THE KEY TO LONG-TERM SUCCESS

All cellular-based M2M requires the participation of a mobile network operator (MNO). The MNO provides the connectivity as well as the SIM card, in other words the "2" that enables communication in M2M. The MNO owns and controls the SIM card, which is the key to the M2M connectivity. Changing the SIM card once it is installed is costly and often virtually impossible, when the SIM card itself is buried deep inside the machine. This dilemma results in the card living for as long as the machine does. The MNO is therefore in control of the communication to and from the equipment during its entire life span, and thereby also in total control of the commercial and technical aspects of the communication between the devices. This gives the MNOs the power to dictate the terms of agreements and the quality of service. Hence, you and your business are locked-in with the MNO, with no option but to accept the terms that have been outlined. This harsh reality has been especially problematic in M2M solutions such as Smart Metering where the expected life span of the machines is particularly long, ranging from 15-25 years, and where the cost of a SIM card replacement is particularly high, amounting to 50-150 euros per unit.

A reversed selection process would, in contrast, provide the following benefits:

- Reduced total cost of ownership (TCO) throughout the life cycle.

- Increased control of quality of service (QoS), on your terms rather than the MNO's.

- In essence: flexibility, freedom and greater control of your own business.

The power position of the MNOs in the value chain is hard for customers and other actors to influence, and MNOs are not in a rush to alter the unequal power balance. But in order to deliver on the promise of M2M and realise the full potential of the connected enterprise today and tomorrow, the disequilibrium must be removed. A shift of power must occur, from the MNOs to the end-user: that is, to you and your business. This has been acknowledged by academics and technicians alike, as demonstrated by the following quote: "The physical provisioning of SIMs creates logistical challenges in distribution and the lock-in effect to one MNO from the point of manufacturing, puts limitations on distribution models, subscription management and commercial relationships." (*The Global Wireless M2M Market*. Berg 2013).

The Automotive industry has had a particularly hard time to realise the potential of M2M. It has therefore been a driving force in addressing the problems at hand at the global level. As a result the GSM Association[1] (GSMA) started developing an industry standard for the embedded SIM in 2010. GSMA released the first version of the specifications in December 2013, with the next release planned for the end of 2014. The European Telecommunication Standards Institute (ETSI) will do the formal standardisation and is expected to result in an official standard in earliest 2015.

Although the main purpose of GSMA's standard is to address the logistical challenges of global original equipment manufacturers (OEMs), it also has the potential of weakening the power position of the MNOs in the value chain. The embedded SIM standard will enable customers to replace the MNO service with another provider of M2M connectivity. This can, in the long run, prevent the lock-in effects that limit the benefits of the M2M innovations. Companies in other sectors such as security and home alarms have already come to acknowledge the benefits of greater flexibility. All M2M solutions that are defined by long life span expectancy and high SIM replacement costs could greatly benefit from an evolution towards reduced MNO power.

The sheer number of stakeholders involved in the process of developing the embedded SIM standards may jeopardise the result. The stakeholders have different agendas and propose different technological solutions, which lengthens the standardisation process. This, in the end, limits the benefits, flexibility and technical optimization experienced by the customers. When all is said, the customers therefore pay the highest price for MNO dominance of the M2M market space.
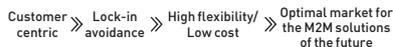
FACTS

A HEALTHY MARKET THAT ENABLES POSSIBILITIES OF THE FUTURE

To realise the full potential of the connected enterprise today and tomorrow, the disequilibrium of the value chain must be removed and the power must shift from the MNOs towards the customers.

THE MARKET TODAY

MNO centric » Lock-in effect » Low flexibility/ High cost » Sub-optimal M2M solutions

PROSPECTIVE MARKET

Customer centric » Lock-in avoidance » High flexibility/ Low cost » Optimal market for the M2M solutions of the future

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[1] *The GSMA represents the interests of mobile operators worldwide. Spanning more than 220 countries, the GSMA unites nearly 800 of the world's mobile operators with 250 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and Internet companies.*

A complete standardisation of SIM cards is an aspiration, but there are already solutions in place that enable the flexibility and cost efficiency that standardisation will open up for. A shift in the decision process will not happen organically, as the MNOs have much riding on an M2M market that continues to tilt to their favour. A comprehensive list of measures must be taken by all the industries involved to make this change happen, and many of them are already in place or underway. Many SIM card providers collaborate, and have developed a range of solutions to overcome the problems. However, at this stage it is up to you as a customer to plan ahead and demand such products from your vendor.

REAL COMPANY CHALLENGES

VATTENFALL

COMPANY CHALLENGE

Vattenfall's customers expect security of supply, regardless of the circumstances. The whole utility industry is going through a major change moving from traditional distribution of electricity to managing small scale generation anywhere in the grid. Access to relevant real time information is a key to success.

ABOUT VATTENFALL

Vattenfall is one of Europe's largest generators of electricity and the largest producer of heat. Electricity generation and sales of heat amounted to 181.7 TWh and 30.2 TWh, respectively, in 2013. Vattenfall has approximately 6.2 million electricity customers, 4.3 million electricity network customers and 1.9 million gas customers. The Group has approximately 31,800 employees. The Parent Company, Vattenfall AB, is 100 %-owned by the Swedish state, and its headquarters are in Solna, Sweden. Starting on 1 January 2014 Vattenfall is organised in two regions: Nordic and Continental/UK.

> *Vattenfall is dependent on collecting meter information from close to 1.000.000 customers all over Sweden. Flexibility when it comes to service providers is crucial for us in order to guarantee our customers the best services at all time.*
>
> Erik Nordgren
> Business Area Manager Vattenfall

BABS PAYLINK

COMPANY CHALLENGE

Babs Paylink is acting in a society where credit card transactions are the most used payment method and where more and more payment terminals become mobile devices. The customers of Babs Paylink are expecting a payment solution that is flexible, rapid and always online. During on-going transactions, there's no acceptance for delays or failed connections. Babs Paylink is therefore totally dependent on a stable and secure communication channel, offering full coverage even when the topography in the area is challenging.

ABOUT BABS PAYLINK

Babs Paylink, owned by Swedbank and Point Transaction Systems, is the market leader in Sweden for hardware and services regarding credit card payments. They are partnering with 70 ECR suppliers and administer more than 50,000 payment terminals in areas like stores, restaurants, arenas and shopping malls.

> *Customer Support statistics shows that about 10-15 % of our customers with GPRS terminals calls back within the first month and wish to switch mobile operator. With the freedom to choose operator by remote subscription management, we can strengthen our offering considerably in both coverage and quality!*
>
> **Gunnar Lundkvist**
> **Technical Manager Babs Paylink**

CARETECH

COMPANY CHALLENGE

CareTech is a market-leading provider of social alarms and personal security products. CareTech operates to the highest standards and in this business, realtime communication is not only a crucial component of the service – it's a matter of life and death. There is no "one-size-fits-all", flexibility is crucial and CareTech needs to have the same support from its partners and suppliers as it needs to provide to its customers.

ABOUT CARETECH

CareTech's mission is to develop and market high-quality social alarm and personal security products using leading edge technology. Our products can be tailored to both independent and assisted living accommodation. CareTech's headquarters are in Kalix, located in Northern Sweden. Our Swedish operations are managed from Falun, with a sales office in Stockholm. CareTech also has offices in Germany, London and an extensive network of partners throughout Europe and Australia.

> *Reliability is the number one requirement on all parts of our digital social alarms and personal security products. The connectivity within our services and products need to support this requirement, and we need to be able to utilise the most reliable and stable connectivity network at any place and at any point in time – all the time.*
>
> **Ulf Lindsten**
> **CEO CareTech**

SECURE THE FUTURE, TODAY

The M2M-technologies are developing fast and changing the way modern business is made in numerous industries. The pace of evolution is high and the numbers of companies/actors that want to benefit from these developments are increasing. Connecting your products early on becomes a competitive advantage. Preparing your company for the new market realities is vital. A swift shift improves customer satisfaction rates, increases profit margins and opens up for new business possibilities. It also enables you to contribute to a more sustainable world through the use of smart, customer-friendly systems. At Maingate we call it a win-win-win situation.

To create the best conditions for your business it is crucial that you, as a customer and as a guardian of the future success of your business, take a step forward and put pressure on the vendors. Make an inventory of the entire life cycle of your products and services, comprising future needs and possible scenarios (for example, what happens if your MNO changes the network coverage or decides to close down the 2G network if your system is built around GPRS?). Create a requirements definition based on the needs of tomorrow, and set clear quantitative objectives.

As discussed earlier, there is standardisation work on going, but there is neither a need nor time to await an official standard. The technological frameworks and infrastructure are already in place, and independent service providers can make this happen today.

Now it is up to you.

FUTURE PROOF YOUR CONNECTED SERVICES

Here are three initial questions that need to be asked to future-proof your connected services.

1. *How will your product/service/solution evolve during its life cycle?*

2. *What may change in the commercial and technical environment and how will this impact your product/service/solution?*

3. *How can you manage necessary changes to the components of your product/service/solution?*

ABOUT MAINGATE M2M

Our solutions create value to both our clients' customers and their own operations and business support. With significant experience in international markets, we offer solutions based on deep business and technology experience.

At Maingate we welcome competition. But we don't welcome business models that only benefit the operator at the customers' expense. We believe in lock-in avoidance and flexibility. We believe in innovation and taking action. Our services are always adaptable so that no customer is stuck with outdated technology. This is the only way in which we as an industry, as well as you as a customer, can truly benefit from the countless possibilities that M2M-enabled services bring.

ABOUT MAINGATE

Founded in 1998, Wireless Maingate AB is an ICT company, providing M2M Connectivity and Data Management services to customers around Europe. We are a trusted partner to more than 1.000 customers, including leading utilities such as E.ON, Fortum and Vattenfall. We work closely with leading technology partners such as Gemalto, Giesecke & Devrient, Oberthur, Schneider Electric, Kamstrup, Telia, Tele2 and Deutsche Telekom.

Today we connect more than 55 % of all smart meters in Sweden, 20 % of all smart meters in Finland, 70 % of the Point-of-Sales terminals in Sweden and 40 % of all residential alarms in Sweden.

Maingate is a company in the Nordic VC Verdane Capital fund VI.

www.maingatesolutions.com