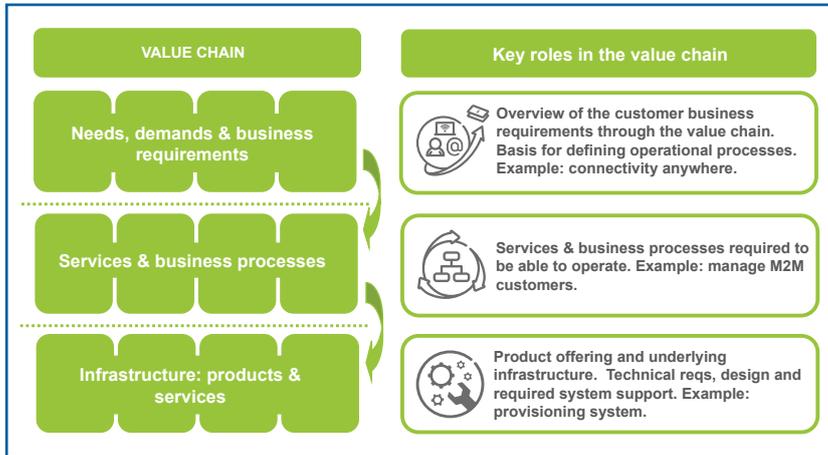


While there is great excitement surrounding the operator opportunity presented by M2M, only those that recognise that it is a different market, partner effectively and address the OSS/BSS implications will unlock the true potential of the market, write Per Blom and Mariette Lehto

Operators must understand the M2M management implications for OSS/BSS to make the business model work



A framework driving design of underlying infrastructure and processes based on the business requirements and their selected role in the value chain

The machine-to-machine (M2M) and connected devices market offers operators an entirely new customer segment to address. However, that's not without challenges. Such propositions typically involve large volumes of endpoints and relatively low traffic volumes per connection. On the face of it, that's easy to manage. Operators learnt how to provide devices and deliver, reliable basic connectivity at great scale decades ago, but the M2M market isn't the mobile voice business. Services must be tailored to the customer across market verticals and address the real business needs of the customer organisation. The challenge lies more in understanding those business priorities than the technical issues.

OSS/BSS to meet the business model requirements

Rather than looking at technical OSS/BSS functionalities, Ericsson is working to understand business requirements and priorities first. To demonstrate the business model impact on OSS/BSS architecture, we have chosen four alternative business models. In each case, we have analysed the business model requirements, key success factors and pain-points, and defined technology solutions accordingly. The framework and solution examples have been developed in consulting engagements with customers in the Mediterranean region.

Business model example 1: The connectivity provider

Today, most operators offering M2M services are acting as connectivity providers. Currently, operators' strategic focus is on building the subscriber base and building scale to address the opportunity. The top ten M2M players have captured approximately 60% of the global connections. Most of them are Tier 1 operators and operating in the key markets, if measured by connection volumes, of North America, Western Europe and China. In terms of M2M penetration, Northern European countries such as Swe-

den lead the market. As everyone cannot compete at that scale, some operators simply decide to become wholesale roaming partners for the bigger players or differentiate with added value.

It's also interesting to note that about 4.5 million — half of AT&T's M2M subscriber base — are Kindle users and around 5 million are OnStar connections on Verizon's network, according to analyst firm Yankee Group. According to T-Mobile USA, 90% of end users do not know which network their M2M devices are using. To succeed, operators have to be able to attract right partners. This includes offering OSS/BSS capabilities that make it easier for players from other industries to get started quickly.

Examples of OSS/BSS solutions, which Ericsson's connectivity provider customers have been looking for include:

- Bulk provisioning for efficient handling of large numbers of subscriptions
- Company self-care for subscriber activation
- QoS differentiation in the network and charging, including capabilities to prioritise business critical traffic and charge extra for that.
- Fraud detection and management solutions, such as capabilities to detect abnormal traffic and user behaviour as well as solutions that prevent the user from moving the SIM card from one device to another.
- Device data management

Business model example 2: Improved enterprise customer loyalty through M2M offerings

Commonly, enterprise customers' mobile ARPU is two to three times higher than consumers'. For an operator that has 20-30% enterprise customers, the actual enterprise revenues account for 50-60% of total revenues.

As a strategic option, the role of the M2M can be to retain enterprise customers and thus defend other service revenue. When M2M solutions are tightly related to companies' core business, churn can be prevented by providing attractive enterprise bundles of M2M, connected devices and standard mobile services. M2M devices, such as utility meters, are in place for long periods so a change of network operator carries with it significant business risks for a utility company. For operators focusing on loyalty improvement, the key challenge is to design and manage such bundles with agility and efficiency.

Approaches vary from operator to operator but typically those operators that target business customers, the tier one and two operators, have found enterprises are prepared to pay more if the network works. Classically the first ones to enter the market have the highest ratio of business subscribers.

Examples of OSS/BSS solutions, which Ericsson's customers acting as service enablers have been looking for, include:

- Billing and CRM system flexibility to manage advanced corporate hierarchies, where one subscription may cover several devices
- Customised tariff plans and new accounting hierarchies and structural changes in product catalogues
- Device management portals and device certification support when the number of device models and application complexity is increasing
- Multi-vendor verification programmes for certifying new devices

Business model example 3: Permanent roaming

The key difference compared to voice subscriptions is that most M2M traffic is low bandwidth traffic. When the value of the transaction is high, roaming fees for such traffic are insignificant. For operators this means new opportunities to target customers who are located in foreign countries and lowers the barrier to entry when moving to other markets. AT&T, for example, has identified that opportunity.

When managing operations remotely such as with an operator located in Germany serving a customer in Thailand, new challenges involving customer and revenue management processes arise. Other challenges related to permanent roaming include situations in which quality of service has to be guaranteed and requires special service level agreements with roaming partners, both of which need to be monitored and managed.

Examples of OSS/BSS solutions, which Ericsson's customers considering to offer permanent roaming solutions have been looking for, include:

- Customised tariff plans for permanent roamers. For example a customer specific tariff plan based on the estimated traffic pattern, commonly visited roaming networks and number of connections.
- Network connectivity that is tightly integrated with OSS/BSS capabilities. Securing end to end quality of service regardless of network the customer is using.
- Remote operations; ways of managing the end-users and customers remotely, capabilities to manage, store and access customer data from remote locations. Local laws and regulations also must be addressed.

Business model example 4: End to end solution provider

When acting as an end-to-end service provider, the operator, together with partners, acts as a prime integrator and exploits the whole value chain by investing in vertical integration.

To succeed in this position, the operator must establish partnerships to be able to provide customised solutions that can meet very specific vertical business requirements and also consider creating dedicated units to manage sales and customer support.

OSS/BSS solutions for end to end solution providers vary depending on the target customers and application areas. Some examples include:

- Public Transport ticketing; payments and tickets management over the mobile networks
- Road usage charging; electronic road pricing based on GPS data
- Smart mobility; supervision and road traffic control, rationalisation and efficiency of urban public transport

- Critical Infrastructure Protection (CIP); complete and robust solutions for protecting the infrastructure, such as utilities, airports, railways and roads that are critical to a society's existence.

When starting to develop M2M offerings, operational processes and the OSS/BSS environment have to be reviewed and designed to manage new business models and requirements. Attempting to address M2M with traditional telecoms systems is likely to invite failure.

In service activation alone, Ericsson sees a wide range of requirements. These include:

- Pre-active subscription: where, for example, a corporate customer can activate the SIM cards themselves through a self-care portal. This changes the start time at which the activation request has been executed and, improves accuracy in comparison to provisioning the SIM at the time of dispatch. Customers will not pay for non-active SIMs sitting in their warehouse.
- Active subscription: This involves changing how the SIM is started after the first usage. This can be connected with the user registration process, where the user enters the personal information through a self-care portal. At this point, the operator may want to offer special promotional packages including free usage of specific services.
- Change of home operator: The life time of a utility meter, for example, is approximately 20 years so the need to change home operator may arise during that time.
- Choice of home country: During the device production there may be a need to test the devices in the local network. When the device has been distributed to the end-user, there may be a need to change the home country as well as network. Selection of country and registration could be performed by the end-user or the sales agent. These capabilities are vital when selling and distributing connected consumer electronics to mass market and when the final destination of the device is not known. For instance if a user lives in London and brings the device to Stockholm.

Based on Ericsson's analysis, the key element for success is to attract the right partners, this includes those with the OSS/BSS capabilities to enable them to get started quickly.

Operators are expanding M2M across international boundaries so offering permanent roaming at appropriate costs is a challenge they need to address. Although 80-90% of M2M traffic is low bandwidth, roaming fees will be insignificant for high value operations. However, value differs in the M2M world, depending on type of application, so offering permanent roaming will be important.

When M2M solutions are tightly connected to companies' core business, it can improve retention and operators can create further competitive advantages by bundling M2M offerings together with other mobile services.

Operators shouldn't wait to address this market. They need to build the required flexibility into the OSS/BSS environment to be able to customise offerings and activate M2M subscribers at large scale. The US example shows that providing OSS/BSS capabilities for enterprises is vital. It will reduce enterprises' need to acquire telecoms competence in-house and reduce investments in telecoms systems thus speeding up time-to-market and M2M adoption. ■