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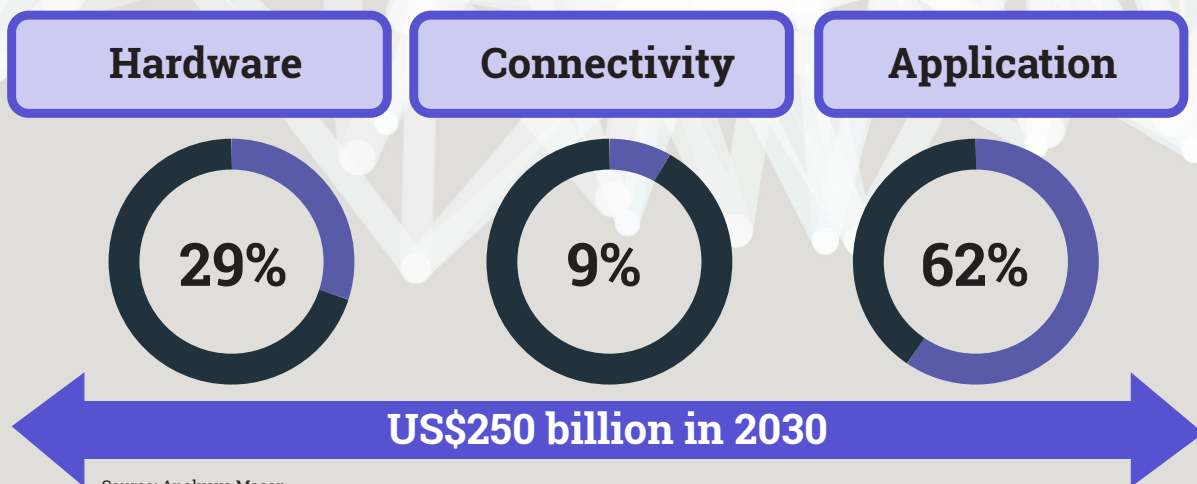
# How is the opportunity for module makers to sell integrated IoT connectivity maturing?

IoT is a relatively new technology: the market and IoT value chain are continuing to evolve and many IoT players are still figuring out their roles. Only a few module makers have attempted to sell IoT connectivity as a complementary offering to their core hardware proposition. This is despite the apparent advantages to module makers of providing an integrated solution, such as generating recurring revenue as opposed to a one-off sale, and a more direct relationship with their direct customers, original equipment manufacturers (OEMs), explain Ibraheem Kasujee, a senior analyst, and Tom Rebbeck, a partner, at Analysys Mason

Perhaps more importantly, there are signs of demand for an integrated solution from customers, which can also benefit from a streamlined procurement process and fewer issues with getting devices to work. However, as this report discusses, the opportunity will have its challenges, chief among them being how module firms can transform themselves into connectivity providers. Module makers that are interested in providing integrated connectivity need to think about the model of delivery that best fits their requirements in terms of risk, speed of deployment and level of control. ►



Figure 1: Percentage of total cellular IoT value chain revenue by revenue component, worldwide, 2030



Source: Analysys Mason

**Selling connectivity provides an opportunity for module makers to increase their addressable revenue**

The IoT revenue opportunity is sizable (Figure 1): Analysys Mason’s IoT forecast predicts the total value chain revenue worldwide from cellular IoT will increase from US\$150 billion in 2022 to US\$250 billion in 2030. Hardware will account for almost 30% of this revenue by 2030 but will grow at a CAGR of just 2% between 2022 and 2030. Connectivity will account for a lower share of the total revenue (9% in 2030) but will grow at a quicker rate than hardware (CAGR of 7%). The growth in connectivity revenue will be driven by strong growth in the automotive sector and deployments in sectors such as utilities, smart buildings and smart cities.

Most module makers have been reluctant to sell IoT connectivity and those that have, have had mixed results. Connectivity offers need to meet complex requirements. These include licensing and regulation, wholesale and roaming relationships, logistics for the SIM and subscription management, supporting their customers, adhering to data privacy acts and ensuring uniform performance globally. Some module makers may consider these requirements to be too far outside their areas of expertise.

However, as SIMs become smaller and the industry steadily moves towards embedded and integrated SIMs (eSIMs and iSIMs), connectivity will start to be integrated earlier in the IoT value chain. The introduction of eSIMs and iSIMs may lead module makers to reconsider the case for selling integrated connectivity, despite the concerns they may have about lacking expertise. The options to gain this expertise are outlined later in this report. ▶



## Bundling connectivity and hardware together helps the module maker to have a more direct relationship with their OEM customers

### Integrated connectivity could lead to better outcomes for module makers and end users

Module makers that integrate connectivity into their hardware products could benefit in the following ways.

- **Recurring revenue.** Selling modules typically generates one-off revenue. This can lead to swings in revenue from one quarter to another, or one year to another, depending on when modules are delivered. Selling connectivity adds a new source of revenue and one that is recurring. Connectivity contracts can be several years in length, providing a steady and reliable source of revenue that could improve the balance sheet of the module maker. Investors can be reassured by recurring revenue and may reward the firm with a higher valuation.
- **Greater stickiness.** Bundling connectivity and hardware together helps the module maker to have a more direct relationship with their OEM customers. The OEM customer has a streamlined relationship,

dealing with one supplier rather than separate ones for hardware and connectivity; the efficiency gains from this may lead the customer to be more willing to stick with the module maker.

- **Options to provide other services.** Module makers may want to eventually provide other features linked to a subscription service, such as security. Connectivity would be a logical place to start and develop this business model for module makers, which they can then build on with other services.

Device manufacturers could also realise the following benefits from having integrated connectivity.

- **Recurring revenue.** OEMs can also benefit from new recurring revenues. With connectivity integrated with the hardware, the OEM can add the application component and offer an end-to-end solution. For instance, a tracker manufacturer could build a cloud-based application that controls and manages the fleet of tracked assets, with the ability to see the assets' location in real-time and apply geo-fencing and other rules. ▶



## Module makers have been reluctant to offer connectivity because providing connectivity requires knowledge of several areas that are unfamiliar to module makers

- **Simpler procurement process.** The OEM can buy hardware and connectivity together without having to go through a separate procurement process for connectivity. This is particularly helpful if the connectivity provider can provide connectivity in multiple countries. The customer can go from having to deal with multiple connectivity contracts, plus procurement of modules, to having one contract for everything. This could reduce the total cost of ownership for the end customer.
- **One point of contact.** The OEM knows exactly who to go to if there are problems with the device. If there is an issue with the device or connectivity, the OEM knows exactly who to go to resolve it, avoiding cases where the customer has to go through two (or more) parties who may blame each other for being the cause of the problem.
- **Simplified logistics.** Logistics are made easier for the customer if the module is shipped to them with the SIM included and pre-connected. A single stock-keeping unit (SKU) provides an immediate cost saving to OEMs (in terms of logistics, storage, multiple part numbers, inventory management and so on).
- **Fewer connectivity and device issues.** If connectivity and hardware are integrated early in the value chain, it is likely that problems with the device – such as device provisioning or applying the correct configuration and network selection – will be reduced. The module vendor can ensure that connectivity works on all of its devices before they are shipped to the customer, rather than the customer trying to solve any problems later on in the process. An issue with a tiny proportion of the devices deployed, but which results in needing manual intervention for those faulty devices, can make the business case for the entire deployment void.

### Module makers have several options for how to offer connectivity, each with pros and cons

Module makers have been reluctant to offer connectivity because providing connectivity requires knowledge of several areas that are unfamiliar to module makers. These areas include licensing, regulation, inventory management, billing, and sales and marketing. Module makers have a few options for gaining expertise in these areas (Figure 2). ▶



Figure 2: Options for module makers to gain capabilities to provide connectivity



Source: Analysys Mason

The option selected by the module vendor will depend on their priorities and appetite for risk. An acquisition is the riskiest option, because any acquisition comes with hazards such as integrating one company's systems with another's and retaining staff. Acquisitions have the advantage of being quicker than building organically and allow the module maker to gain expertise from the acquired firm rather than having to develop it itself. Building an MVNO is less risky than acquiring, and provides complete control, but is a slow, complex and potentially expensive process.

Outsourcing to a partner is the cheapest and least-risky option. The partner manages the connectivity aspects on behalf of the module maker. Connectivity partners can offer a single SKU to solve the inventory and logistics issues that are associated with connectivity and can provide support with meeting licensing and regulatory requirements. A partner can also handle aspects such as billing, sales and marketing on behalf of the module maker, if required. In addition, partnering does not block the option of buying or building an MVNO at a later date. The partnership model can be used as a first step to test the opportunity. However, outsourcing comes with the downsides of the module vendor having less control and having to share a proportion of revenue accrued.

If module makers are serious about providing integrated connectivity, they should consider the following:

- To enable integrated connectivity, the module maker should study the option of working alongside a global connectivity professional that will take full responsibility for all aspects of connectivity. The module maker will not have to deal with elements of connectivity that it is unfamiliar with directly but can still enjoy the benefits in terms of new revenue and customer stickiness.
- The ability to provide a single SKU is vital. Many connectivity providers rely on multiple SKUs (i.e. providing a different type of SIM for different countries/regions). Being able to provide a true single SKU will help to simplify logistics, inventory and cost issues.
- Any connectivity partner/acquisition target must be a well-established one, with proven experience and a global presence to give the module maker credibility. The partner must have credentials in enabling global connectivity and understand emerging technologies such as embedded universal integrated circuit card (eUICC) and iSIM. Financial stability is also an



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important trait to look for in a partner to ensure any relationship will be long-term.

- Customer service is critical when providing global connectivity for IoT. Module makers are unlikely to be able to offer the same depth of customer service relating to connectivity, compared to MNOs and MVNOs, so partnering or acquiring a connectivity provider that prioritises customer service is essential.
- It is important to be flexible enough to support the ever-changing needs of the IoT ecosystem, such as flexible network configurations and business models. This is a commitment that will provide challenges to a module maker if it seeks to go it alone. A provider which owns its own technology will have the means to support the module maker as requirements evolve.

### **The ever-changing IoT market provides an opportunity to approach connectivity in a different way**

The adoption of eSIMs and iSIMs will change the IoT value chain, with connectivity being integrated much earlier in the process and the ability to off a single SKU becoming increasingly important. Chipset providers, SIM vendors and module makers must adapt to the new value chain and figure out the best way to maximise their roles.

This brings opportunities to think about connectivity in a different way to the status quo. IoT remains relatively immature and much more work is required to optimise the IoT experience for the end customer. IoT has failed to grow as quickly as previously expected, in part because it is overly complex (and therefore expensive). New business models and experimentation with integrating connectivity comes with risks, but could make IoT simpler and help the market to realise its potential. ■