

# IoT Module Vendor Selection Made Easy: How to Select the Right IoT Module for Your Application



## INTRODUCTION

# Invest in the Long-Term Assurance of Secure and Connected Devices

The Internet of Things (IoT) module that connects your devices can mean the difference between an incredible user experience and an uncertain future marred by disruption and unplanned costs. But with low-cost options flooding the market, which is the right choice? Do you buy a name-brand or go for a cheap option clearly promising more than they can deliver?

With LPWA networks emerging as “the world’s fastest-growing connectivity technology” over the next seven years, 4 billion Internet of Things (IoT) devices are expected to be fully functional.<sup>1</sup> Additionally, 2G, GSM, and GPRS networks are reinvigorated in Europe as operators commit to keeping their networks fully powered through 2025. With so much opportunity in low entry-cost markets such as Europe, the crowded landscape of IoT module providers is ready to enable them – offering anything from lean, cheap, and diverse portfolios to fully supported, comprehensive offerings.

Deploying an optimized IoT network of connected devices and sensors is challenging, but it can become impossible when you have the wrong module. Just because a provider’s pricing is ultra-low and its portfolio is extensive, the selected module can still become an operational and administrative headache that introduces unintended risk, unpredictably high total cost of ownership, and uncertain outcomes.

The IoT value chain that you adopt for your solution is only as strong as its weakest link. Businesses cannot afford fragmented solutions, misfired data transmissions, or limited opportunities for innovation and evolution. IoT modules are a means to an end, which is the creation and deployment of applications. If the module is a one-time cost, long-term viability and quality can either create or mitigate recurring maintenance and repair costs. Why invest in a module that could limit your potential for long-term market leadership, revenue growth, and global reach?

By favoring a selection strategy based on cost of ownership over a purchase-cost approach, you can find a module that delivers cost effectiveness, consistent connectivity and security, and continuous stability. In this white paper, you’ll explore how to weigh key considerations and find the right IoT module vendor that can help your business ensure and scale your deployment with confidence.

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1. “4 Billion IoT Devices Will Rely on LPWAN Technologies by 2025, Ecosystem Creation Matters,” ABI Research, December 2016.

## VALUE PROPOSITION 1

### Weigh One-Time Module Cost Savings Against Long-Term, Strategic Value

Weighing the purchase cost of a module in a business plan must be the result of a complex calculation that takes into account at least three major elements of bringing the IoT business device from concept to delivery:

- **Development:** Including hardware design and prototyping, industrial and mechanical engineering, firmware security, application development, testing, and certification for regulatory, industry, safety, and carrier compliance
- **Manufacturing:** Covering contract manufacturing, lifecycle management, unit testing, boxing and shipping, warehousing, and distribution
- **Operational:** Supporting demos and pilots, installations, support and troubleshooting, returns and repairs, and connectivity

With everything involved in designing, producing, installing, and supporting a single IoT module into your device, the wide range of pricing can be confusing and worrisome – especially when the same functionality of a high-end module is promised by a low-cost alternative. But when lined up in a side-by-side comparison, you can quickly see which aspects of module development, delivery, and support process are lost in extremely low-cost offerings.

For example, a module that saves a few cents is sufficient as long as your operational plans do not require comprehensive device management information capture for analytics or reliable security. Although the technology is functionally lean when you are buying the module as a commodity, it only works adequately if you do not need customization. These modules may be helpful in delivering an excellent customer experience, but they will not move your business forward with insightful intelligence, value-driving capabilities, and consistent stability.

Your network of modules is the 24/7 engine of your IoT value chain. To support a sudden, unplanned shift to match or beat a competitor or to change operating parameters to address customer satisfaction, changing regulatory compliance, or other issues, the network must function in programmable operational environments with tightly controlled form factors and functionalities and a high level of cloud integration. At the same time, customization plays a significant role in ensuring that each of these capabilities matches unique business requirements, models, and processes.

The best providers take customization beyond tailored pricing. **They find the best solution by assessing the customer's top use cases and requirements.**

- McKinsey & Company<sup>2</sup>

2. "Unlocking Value From IoT Connectivity: Six Considerations for Choosing a Provider," McKinsey & Company, March 2018.

## VALUE PROPOSITION 2

### Keep Continuous Connectivity and Security as a Top Priority

The recent barrage of malicious botnets, viruses, and breaches over the past year serves as a constant reminder that attacks are growing stronger and putting collective networks, such as the IoT, at risk. A single attack can impact a wide variety of device types across multiple environments and spread faster than businesses can respond with a protective patch or upgrade.

As the number of connected devices continues to grow worldwide, concern over IoT security is high among businesses and their consumers. In fact, an estimated 8.4 billion devices were connected by the end of 2017, a 31% increase from the previous year.<sup>3</sup> At the same time, damages from cybercrime are trending upwards – potentially costing the world US\$6 trillion annually by 2021, up from \$3 trillion in 2015.<sup>4</sup>

This greatest transfer of economic wealth in history is putting every enterprise at risk for disrupted connectivity and lost consumer confidence. An investment in the IoT value chain – especially in modules – must bring a level of integrity that not only upholds existing identification, authentication, and operational safeguards, but also strengthens them.

Real-time connectivity monitoring, control, and security functions require key capabilities such as:

- **Performance analytics framework:** Troubleshoot device connectivity issues on the hardware level.
- **Remote switching:** Support the on-the-fly, proactive changes made by a roaming network provider at the asset level and restore connectivity during radio service degradation.
- **Ground-based geo-positioning service:** Obtain the approximate indoor and outdoor location of your devices without the need for GPS positioning device.
- **Access to real-time, intelligent insights:** Leverage information on data usage and financial reports on demand to understand the barriers and costs of roaming across mobile networks – including data, text messages, and voice.

Saving a cent on the one-time cost of the module by going down the commodity route can close your business from limitless possibilities created by large volumes of data and millions of live signals from devices. Your operations can respond to a connected world with the ease and speed you need to stay competitive.

Cybercrime will more than triple unfilled cybersecurity jobs, which is estimated to reach 3.5 million by 2021.<sup>5</sup>

3. "Gartner Says 8.4 Billion Connected "Things" Will Be in Use in 2017, Up 31 Percent From 2016," Gartner, February 2017.

4. "Cybersecurity Economic Predictions: 2017 to 2021," Cybersecurity Ventures, October 2016.

5. Steven Morgan, "Cybersecurity Labor Crunch to Hit 3.5 Million Unfilled Jobs By 2021," CSO Online, June 2017.

## VALUE PROPOSITION 3

### Innovate with the Stability of a Committed Module Design

The IoT is a significant source of innovation. From new business models and processes to attention-grabbing products and services, brands in all industries are betting that their network of IoT devices and modules will support them – without the destabilizing risks of disruption, failure, or limitation.

The overwhelming majority of ultra-low cost IoT modules are designed to deliver particular functionalities that can support these innovations – but only for the short term. Focused on the quick-turn engineering of new, underlying chipset availability, providers in this market space develop modules as commodities.

With chips getting smaller and offering different features, low-cost vendors typically create the next-generation product in a new form factor with different pins, requiring the customer to redesign their IoT devices. Over time, this approach becomes prohibitively expensive because the design of cellular chipsets are revised 10 times more frequently than the IoT devices that they connect.

Unfortunately, the lifecycle of these ultra-low cost modules does not meet the needs of today's digital strategies. Most businesses understand that the value of the IoT comes from the ecosystem that supports it, whether their innovation generates revenue for 10 months or 10 years.

When you are purchasing an IoT module, you are not just buying technology. Instead, you are investing in the long-term viability of your innovations enabled by crucial elements that must be supported by your IoT module including:

- **Application enablement platform:** Cloud services simplify the creation of IoT applications – from simple dashboards to big data analytics.
- **Easy-to-use management portal:** This approach allows you to connect, collect, and control IoT assets; manage devices remotely; provision the network; and store unlimited data volumes.

By viewing the IoT network as a living, complementary evolution, your business can deliver products and services that continually wow customers across the industry, cross-connect vertical solutions to invigorate demand, and crossover into new markets.



## CONCLUSION

### Build Up Your IoT Network Without Unwanted Surprises

Now that the IoT is a wide-ranging development that is driving a new economic order, businesses need to take a critical look at the robustness of the IoT device networks that they are connecting to their information systems. They have no option other than ensuring each element of those networks can significantly impact the way they operate, engage with customers, boost their profitability and competitive position throughout the entire lifecycle of the deployment.

Simply put, they have no time to react to unwanted surprises such as unforeseen support costs and unexplained downtime. Unless your business model requires your IoT device to operate for a few hours and then be discarded, the commodity selection model for module selection is a ticking time bomb for your IoT project.

By looking beyond a low price tag, you can:

- Uncover the right solution that will unleash your operational efficiency
- Enhance customer relations
- Leverage insightful information based on real-time data
- Enable new business models

An ultra-low-cost offering may deliver first-year ROI value for your IoT network. However, the most important part of the selection process is going beyond arriving at the lowest bill of materials cost. Instead, it should help ensure that your devices have the flexibility, reliability, and resources needed to open up new capabilities that will help elevate the market position, and tap into unexploited revenue streams.

## ABOUT TELIT

Telit offers the world's most comprehensive portfolio of high-performance IoT modules, connectivity services, and software. Our innovative spirit, decades of experience, deep industry insights, and unmatched IoT technology expertise is the foundation of everything we do.

We help customers and partners who require best-in-class performance with our uncompromising engineering practices and design methodologies that exceed stringent environmental requirements and industry standards. Our IoT experts have pioneered a successful end-to-end system approach that assures that all the pieces work together seamlessly when connecting "things to apps" – from device management to connectivity and data management and everything in between.

