

Expectations for IoT in 2017: key developments in LPWA technologies, connected cars and smart cities

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2016 has been a busy year for telecoms operators in the IoT market, most notably in low-power, wide-area (LPWA) technologies as NB-IoT and LTE-M approach full commercial deployment. Analysys Mason's analysts and consultants outline our expectations for IoT in 2017 in this article.

Telecoms operators' strategies for IoT

- **Telecoms operators will be under pressure to grow IoT revenues faster, possibly through acquisitions.** Currently, revenue from IoT accounts for less than 1% of most operators' total revenue. It will take until 2025 for IoT to exceed 5% of operators' total revenue, even starting from 1% and growing by 20% per annum (assuming flat top-line revenues), which is roughly in line with current growth rates for operators' IoT businesses. Senior management may view this as too long a timescale and some operators may explore acquisitions or investments as a result. Verizon was one of the few operators to make bold moves in 2016, spending over USD3 billion on its acquisitions of Fleetmatics, Telogis and some other smaller firms. Other operators may follow Verizon's lead in 2017.

5G

- **IoT will become less important to 5G.** Almost all presentations on 5G mention IoT, but the reverse is not true – few presentations on IoT mention 5G. IoT firms are already developing solutions and are not waiting for the launch of 5G. Massive machine-type connectivity (in other words, IoT) has been one of the key use cases proposed for 5G, but we think this aspect will receive less attention in 2017. The focus for 5G may instead be on nearer-term use cases, such as high-speed access in the final mile, as proposed by Verizon.¹ 5G will need to be significantly cheaper than NB-IoT to transform IoT and this is unlikely in the near term.

NB-IoT, LoRa and other LPWA network technologies

- **The first truly commercial NB-IoT networks will be launched.** There was a flurry of press releases on NB-IoT in Q4 2016, but no truly commercial NB-IoT networks (where customers would be charged for their usage) were launched. We expect to see the first customers paying for access to NB-IoT networks in 2017, possibly even in Q1. However, we do not expect a significant increase in numbers until the end of the year, as more modules become available and network coverage increases. We may even see the first contracts for more than 1 million NB-IoT devices – this is certainly possible, given the interest from large gas and water utilities.

¹ For further details, see Analysys Mason's Article [The investment case for 5G mobile is more distant without fixed wireless](#).

- **We expect to see heavy promotion of NB-IoT technology.** Few outside the telecoms sector are aware of NB-IoT technology and how it can be used, and even some within the sector remain unaware. We expect to see lots of activity from both vendors (such as Huawei) and operators (such as Deutsche Telekom and Vodafone) to raise awareness of the technology among a broader audience. Developer days, hackathons, competitions and other activities, such as the release of developer starter kits, will all be used to widen access to the technology
- **More unlicensed LPWA and LTE-M networks will coexist in 2017.** No announcements have been made on NB-IoT in the USA. AT&T and Verizon have committed to nationwide LTE-M networks and a number of companies are building LPWA networks in unlicensed bands, most notably Comcast using LoRa. KPN in the Netherlands is also planning an LTE-M solution to complement its LoRa network. We may see this combination of unlicensed LPWA and LTE-M networks in more countries in 2017.
- **More fixed operators may build IoT networks.** 3GPP technologies (such as NB-IoT and LTE-M) have high barriers to entry, which gives cellular operators an advantage. However, technologies in unlicensed spectrum (such as LoRa) have lower barriers to entry, which opens the market to new competition. Fixed operators in particular have brands, customer bases and other assets to leverage, which may encourage them to compete in this market. Predominately fixed operators Comcast (USA) and Dr. Peng (China) have both recently announced LoRa networks. Further announcements from fixed players may come in 2017.

Spectrum

- **Spectrum needs for IoT and Radio LANs (RLANs) will increase in prominence.** Spectrum requirements will receive more attention, as the industry and regulators determine how to deliver ultra-reliable, ultra-low-latency RLAN and IoT applications. The spectrum required to support particular applications, will be an important issue, and any additional requirements for both dedicated spectrum (for intelligent transport, for example) and shared spectrum will be a key debate.

Regulation

- **Regulators will consider increased oversight of IoT.** Regulators will almost certainly take a greater interest in IoT,² given its increasing importance and recent high profile DDoS attacks. However, the impact of any regulation is likely to be limited in the near term. New regulation will take time (perhaps years) to agree and implement and millions of potentially-vulnerable devices have already been deployed. Players in the IoT industry will strive to agree frameworks and self-regulate in 2017 to stem the need for imposed regulation.

Connected car

- **We expect to hear much more about V2X and network connectivity for autonomous vehicles.** Most autonomous vehicle announcements in 2016 (such as those from Google, Tesla, Uber and car manufacturers) have focused on the vehicle as an independent entity that is driven using a combination of on-board sensors and, in some cases, highly detailed maps. We expect to hear much more in 2017 about how the overall transport system can be improved by real-time information from vehicle to vehicle (V2V), vehicle to infrastructure (V2I) and other types of vehicle communication (V2X). Much of this remains uncertain – the benefits, business case, and technology are works in progress. However, we will see

² See Analysys Mason's Article [IoT: Seven areas for regulators and policy makers to consider](#).

developments in 2017 as operators and network vendors attempt to answer these questions, as Vodafone³ and others have already begun doing.

Smart energy

- **More utilities will embrace ‘energy transition’ fundamentals and adopt new operational and service models, supported by new technology.** Advances in technology have fundamentally changed the economics of providing energy and are disrupting the historical model for distribution through development of the distribution service operator or ‘on-demand utility’ model.⁴ We expect more utilities to embrace this new model in 2017.

Smart cities

- **There will be an increased focus on investment models to support the implementation of city-wide energy efficiency systems.** Cities represent 78% of global energy demand at present, placing the smart-city concept at the heart of the climate change agenda. The UN projects that an investment of USD53 trillion in city infrastructure and operations⁵ is necessary by 2035 to achieve the COP 21 objective of holding global average temperature increases below 2°C above pre-industrial levels. New investment models will be critical in transitioning from trials to full-scale smart city operations and we expect this area to attract much attention in 2017.

³ See <http://www.vodafone.com/content/index/what/technology-blog/emergency-braking.html>

⁴ For further details, see Analysys Mason’s White Paper *The ‘on-demand utility’*.

⁵ See http://www.cop21paris.org/images/downloads/Sustainable_Cities_by_SIF15.pdf