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IoT forecast: connections, revenue and technology trends 2019–2028

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RESEARCH

About this report

This report analyses cellular and LPWA IoT adoption and summarises the forecast data that is published in detail in the DataHub.[1] The report includes the analysis of:

- technology trends including the number of 2G, 3G/4G, 5G, NB-IoT, LTE-M and 'other LPWA' connections worldwide
- key industry sectors and the share of connections and revenue that they contribute
- the revenue generated worldwide from hardware, applications and connectivity services.

WHO SHOULD READ THIS REPORT

This report addresses the requirements of executives and analysts that are assessing the demand for IoT supported by cellular and LPWA networks. These include:

- senior executives of IoT business units
- senior executives responsible for R&D and network innovation
- market analysts responsible for M2M market sizing.

Our forecasts are refined throughout the year. This report presents the results at the time of publication and will continue to give useful background information about key drivers. However, we recommend that you always use the Analysys Mason DataHub to view the latest data associated with this report.

GEOGRAPHICAL COVERAGE

- Central and Eastern Europe (CEE)
- China
- Developed Asia–Pacific (DVAP)
- Emerging Asia–Pacific excluding China (EMAP)
- Latin America (LATAM)
- Middle East and North Africa (MENA)
- North America (NA)
- Sub-Saharan Africa (SSA)
- Western Europe (WE)

- Full coverage of the forecasts for 80+ countries is included in the DataHub.

KEY METRICS

- Revenue for the following value chain elements:
  - applications
  - connectivity services
  - IoT hardware.
- IoT connections worldwide and by region, by technology type:
  - 2G
  - 3G/4G
  - 5G
  - NB-IoT
  - LTE-M
  - 'other LPWA'.
- Connections and revenue, by sector:
  - automotive
  - finance
  - health
  - industries
  - smart cities
  - retail
  - smart buildings
  - utilities
  - agriculture
  - tracking.

[1] Please see the accompanying document, IoT forecast: assumptions, definitions and methodology, for detail on the forecast methodology and assumptions.

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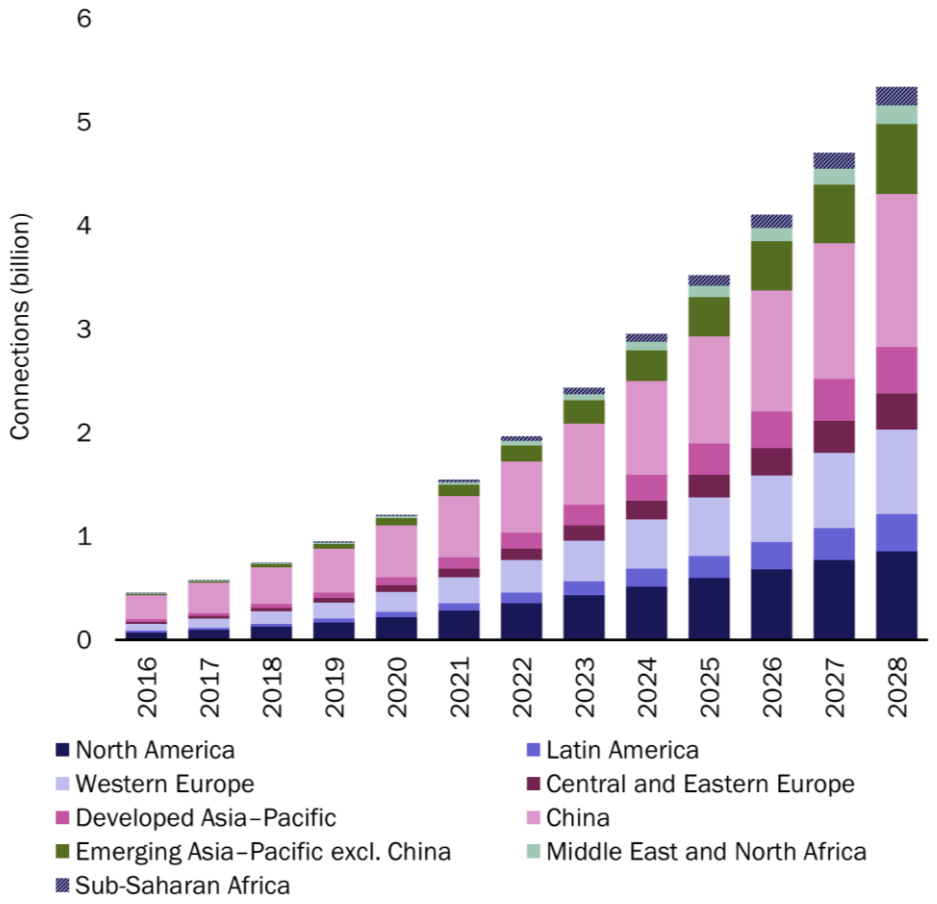
Worldwide: the total number of IoT connections worldwide will grow sevenfold between 2018 and 2028 to reach 5.3 billion in 2028

China will be the largest region in terms of the number of IoT connections, followed by Western Europe and North America.

The total number of IoT[1] connections worldwide will grow at a CAGR of 22% between the end of 2018 and 2028, and will reach 5.3 billion in 2028. China will dominate in terms of the number of active IoT connections throughout the forecast period; this figure will grow from 357 million in 2018 to 1.4 billion in 2028. IoT in China has benefited from state intervention. For example, the government has mandated the use of NB-IoT technology for some projects. In contrast, governments in Europe and the USA have been more focused on austerity than investment, and state-funded IoT deployments have tended to be more piecemeal.

All regions will undergo double-digit growth in the number of IoT connections between 2018 and 2028, but this growth will be greater in developing regions such as MENA and EMAP (there will be a CAGR of 37% in both regions). Governments in MENA have been slow to adopt IoT technologies, but there are signs that investment is now increasing. For example, cellular networks will be used to connect a large smart meter deployment in Saudi Arabia in the next few years. The number of IoT connections will grow at a CAGR of 21% in WE and NA; this is significantly higher than the growth rate for the overall mobile penetration, which will remain flat or decline.[2]

Figure 1: Total IoT connections by region, 2016–2028



Source: Analysys Mason

[1] IoT comprises cellular and LPWA technologies in this forecast analysis. We include 2G, 3G/4G and 5G in our cellular analysis. We recognise that NB-IoT and LTE-M are cellular technologies, but we include them in our LPWA category to analyse the impact of these emerging technologies on the traditional M2M market.
[2] For more information, see Analysys Mason's Western Europe telecoms market: trends and forecasts and Mobile services in North America: trends and forecasts.

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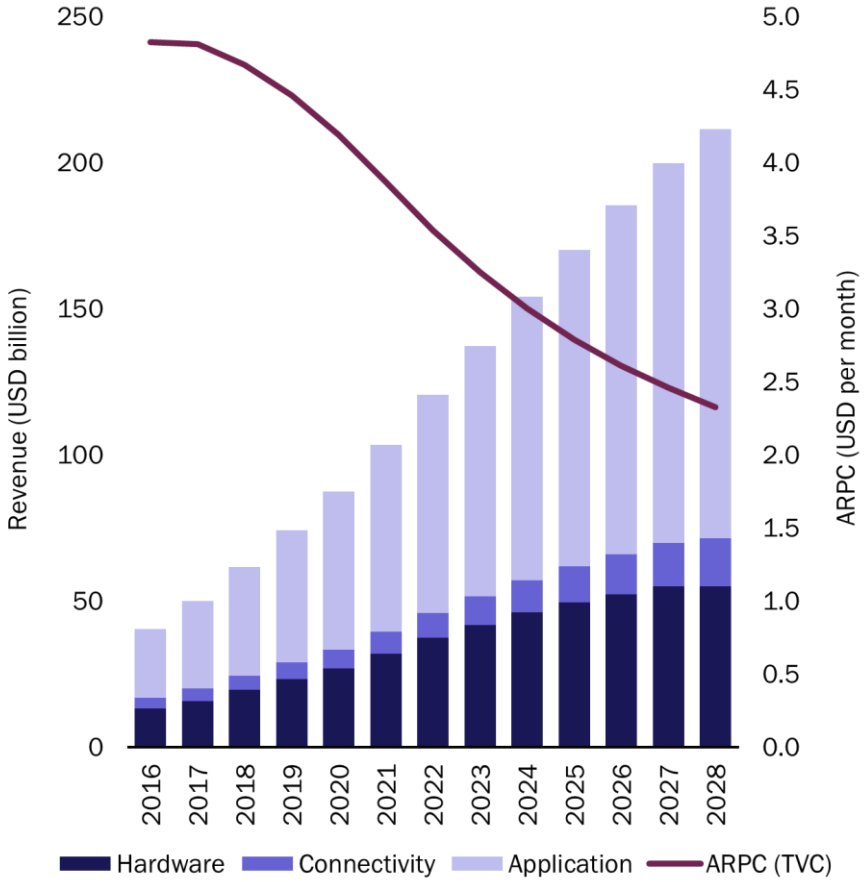
Worldwide: application revenue will form the largest share of the total value chain revenue, reaching 66% by 2028

Figure 8: Revenue by type and blended ARPC, worldwide, 2016–2028

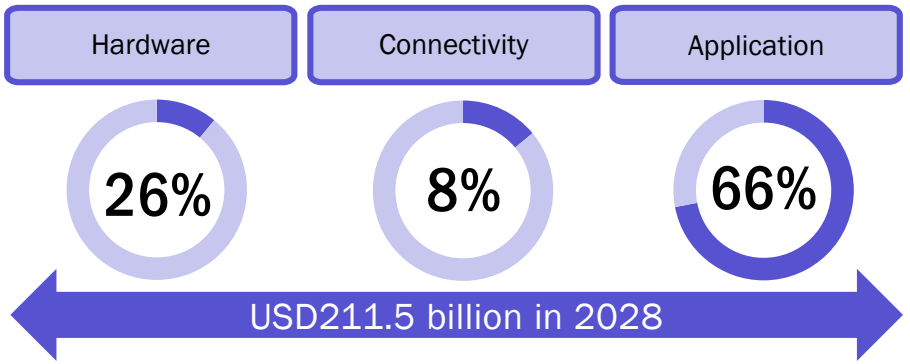


Source: Analysys Mason

The total value chain (TVC) revenue will grow to USD211.5 billion by 2028, but connectivity revenue will only account for 8% of this.

Application revenue could generate significant additional value for operators.[1] The ARPC for the total value chain will be USD2.3 in 2028, compared to USD0.27 for connectivity, thereby making end-to-end services an attractive target service for operators. However, delivering application and hardware services is a more-competitive and challenging objective for operators to address. Hardware revenue will plateau over the forecast period as larger infrastructure projects that generate significant hardware sales (such as smart metering) near completion.

Figure 9: Percentage of TVC revenue from each component for traditional cellular and LPWA networks, worldwide, 2028



Source: Analysys Mason

[1] The application category includes services such as application development and enablement, security and device management.

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About the authors

Michele Mackenzie (Principal Analyst) is an analyst for Analysys Mason's *IoT and M2M Services* research programme, with responsibility for M2M and LPWA forecasts. She has 20 years of experience as an analyst and conducts research on IoT verticals such as utilities, automotive, healthcare and fleet management. She also writes reports on the role of network technologies such as NB-IoT. Prior to joining Analysys Mason in February 2014, Michele was a freelance analyst with a focus on M2M and IoT technology and trends. She has written reports for Machina Research and produced research for other clients in areas such as mobile broadband and digital media. Before that, Michele worked for Ovum for 12 years, where she focused on consumer mobile applications and held various roles including Practice Leader for Consumer Services. She has also worked as a consultant for Ovum's consultancy division.

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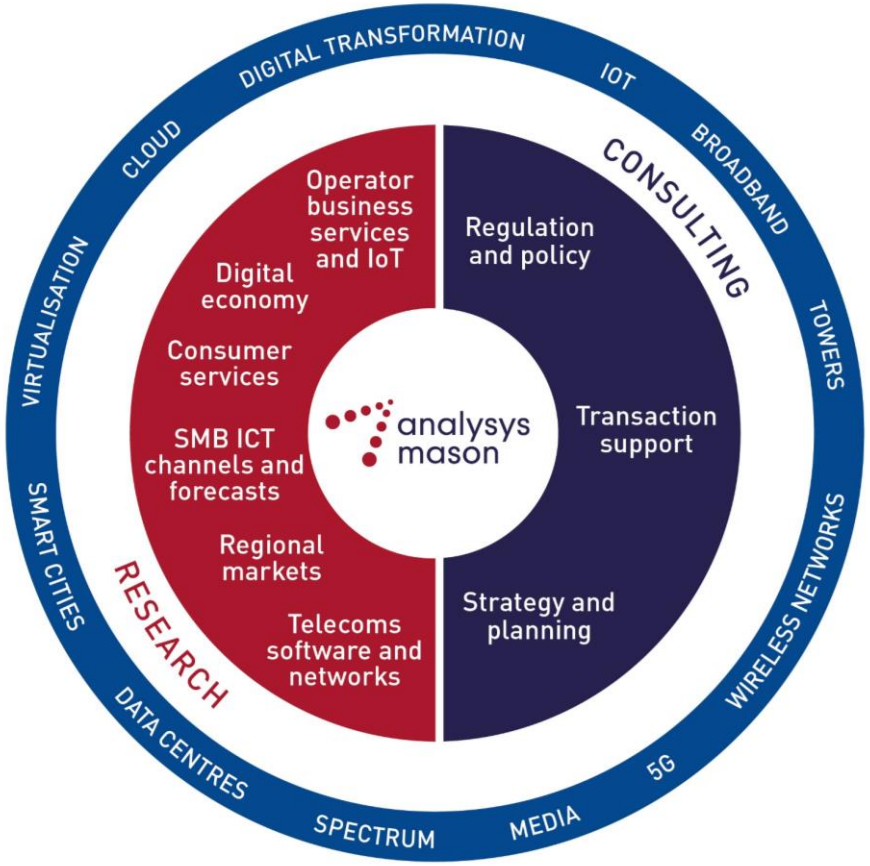

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