

Unlocking Captive Value

LPWAN Enables Emerging IoT Applications

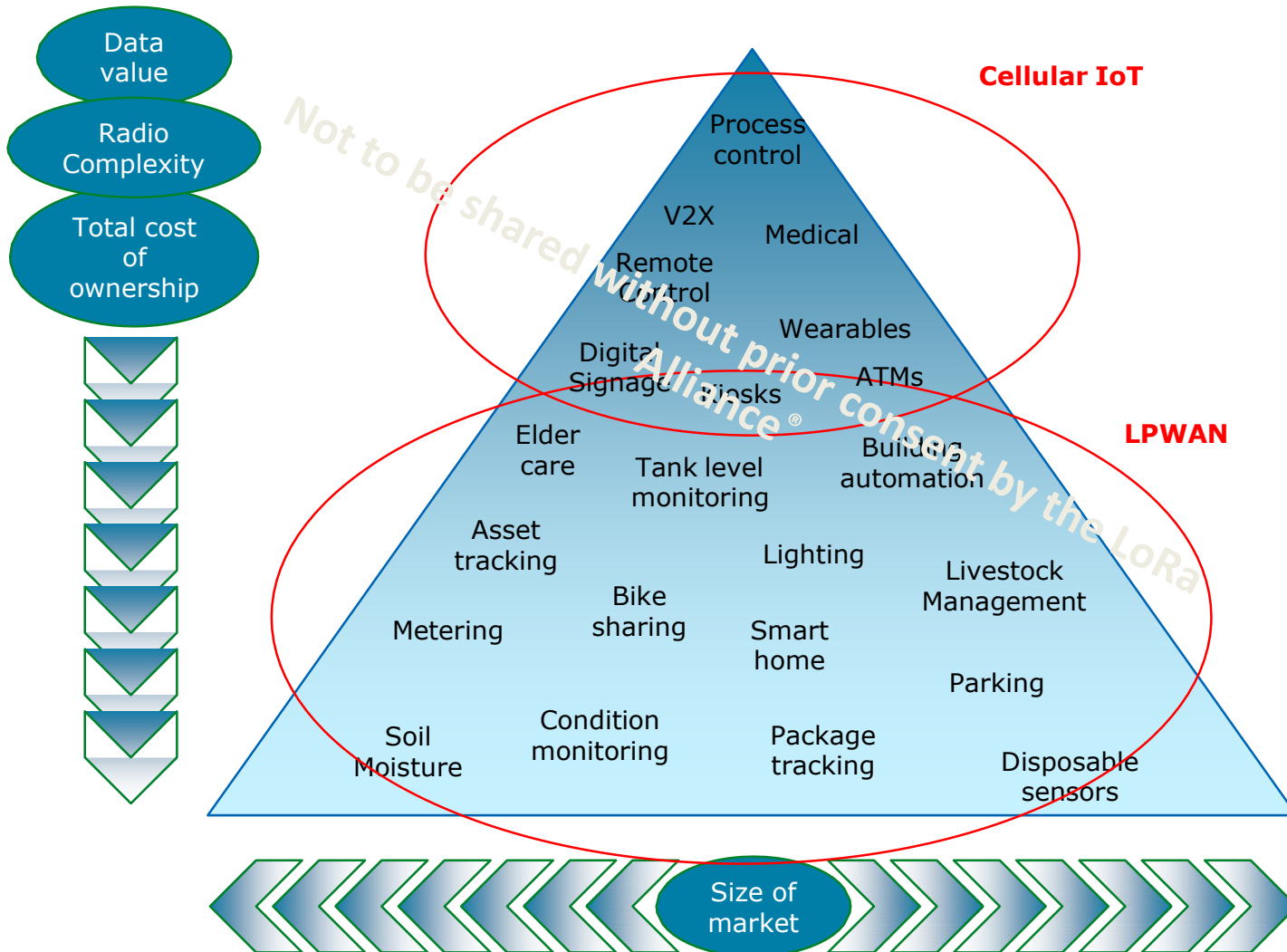
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LPWAN Market Report - 2019

- IHS Markit's 4th annual LPWAN report
- Published June 10th 2019
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 - > Module unit shipments, ASP, and revenue
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Market size and data value



LPWAN Applications

Smart meters & utilities

- Meters - Electric, gas, water, heat, retrofit modules
- Infrastructure - Aggregation nodes, gateways

Connected spaces

- Smart cities - Parking, street lighting, waste management
- Smart buildings - HVAC, occupancy, lighting, access control
- Public spaces - Airports, stadiums, museums

Consumer

- Smart homes - Lighting, HVAC, automation
- Security - Alarms, access control, networked cameras
- Wearables - smart watches, pet trackers

Asset management

- Asset tracking - location, proximity, vibration, temperature
- Condition monitoring - tank level, maintenance, temperature

Transportation

- Fleet monitoring - Location, speed, direction, maintenance
- Insurance - OBDII dongles

Other applications

- Agriculture - Soil moisture, automation, livestock management
- Medical - Patient monitoring
- Health - Elder care

Stereotyping LPWAN technologies

LoRa/LoRaWAN

- Accessible choice for private networks and non-traditional wireless service providers

Sigfox

- Minimum viable network for low-end applications

NB-IoT

- The comfortable choice for traditional wireless service providers

LTE-M

- Higher performance, but too expensive for truly massive IoT

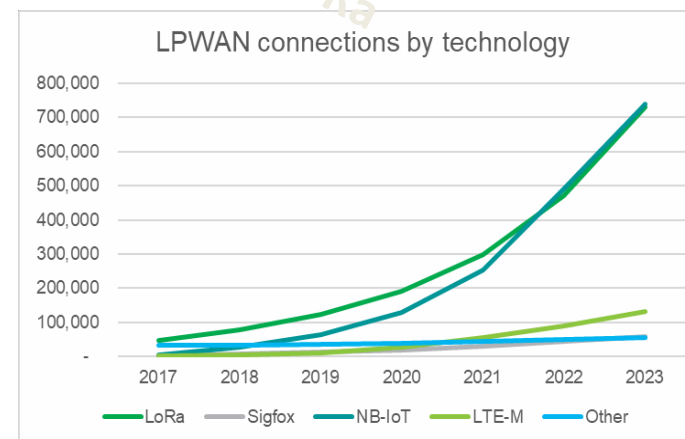
LoRa & NB-IOT: A two-horse race

LPWAN connections by technology - Worldwide, 2017-2023 (thousands of connections)							
	2017	2018	2019	2020	2021	2022	2023
LoRa	46,383	78,339	123,329	190,755	299,061	470,690	730,686
Sigfox	2,458	6,155	11,928	19,943	30,124	42,925	58,046
NB-IoT	5,428	27,421	64,940	129,581	252,077	491,192	739,802
LTE-M	861	3,858	10,508	25,933	56,041	89,826	132,746
Other	32,402	34,123	36,585	39,897	43,936	49,219	55,704
Grand total	87,537	149,896	247,289	406,109	681,239	1,143,852	1,716,985

Source: IHS Markit

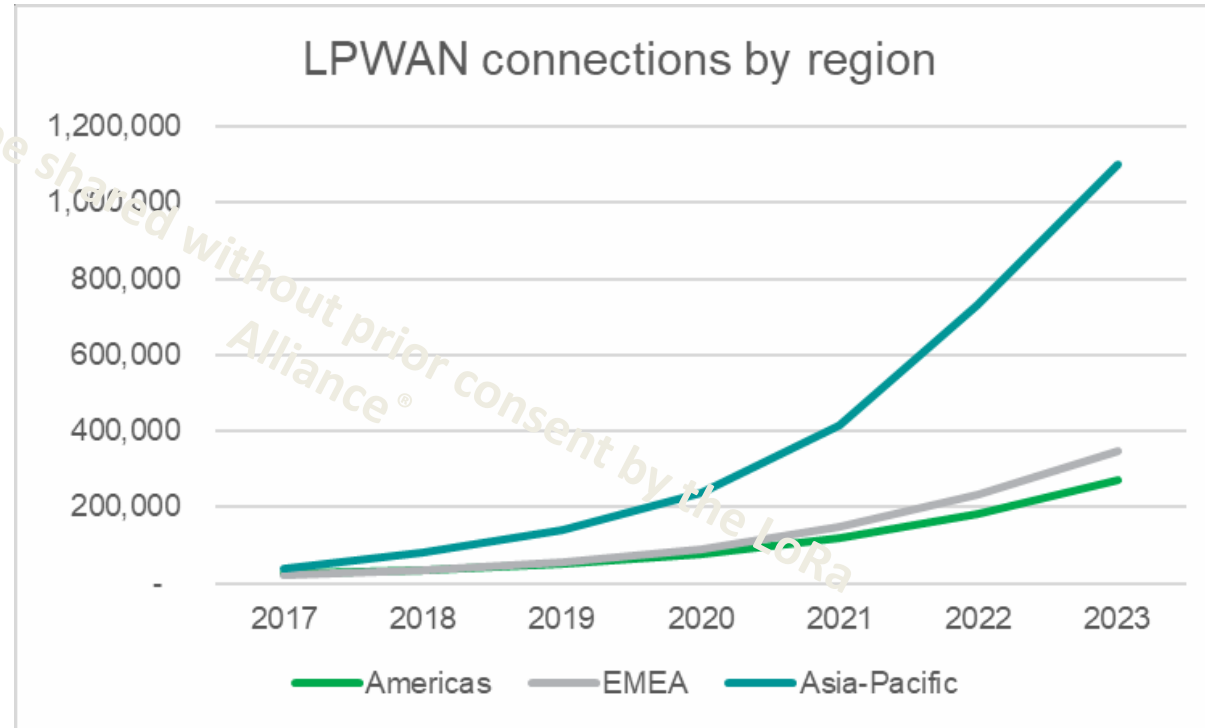
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By 2023, LoRa & NB-IoT will account for 86% of total LPWAN connections



Asia-Pacific to dominate LPWAN activity

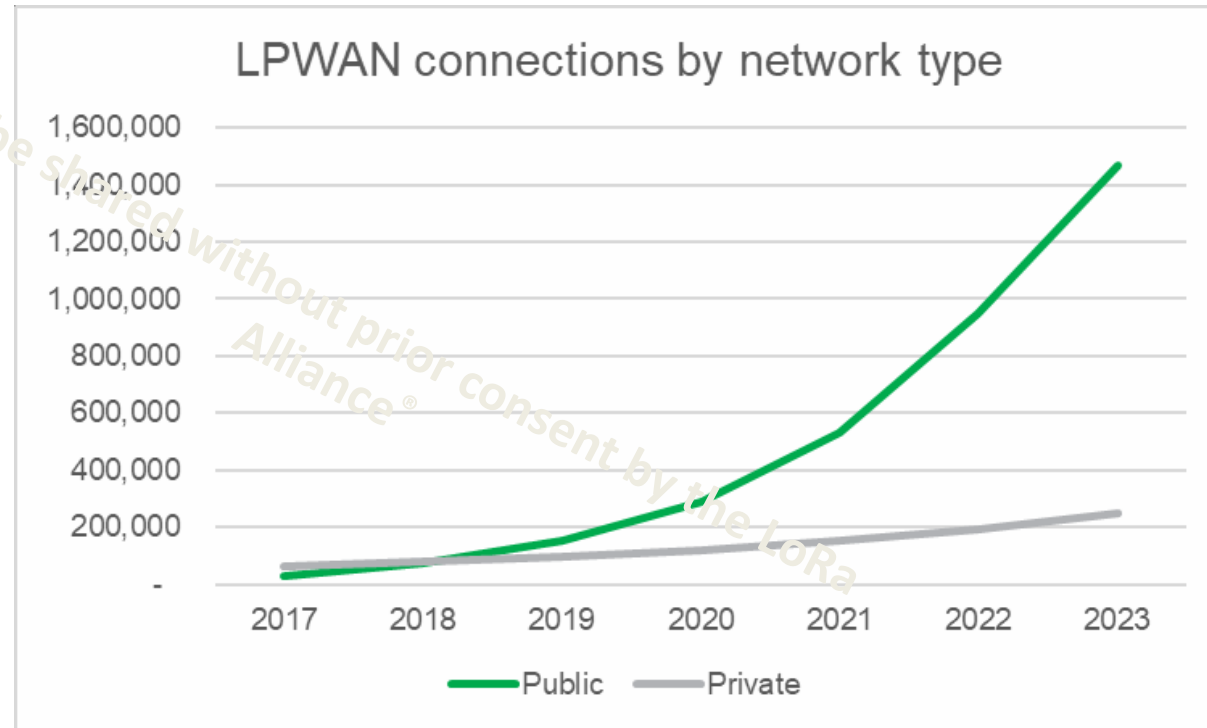
By 2023, Asia will account for 2 out of 3 LPWAN connections



LPWAN standards must have exposure to China to be volume leaders

Availability of public networks fuels LPWAN growth

2019 is the first year in which public connections will outnumber private connections



Public networks reduce the time to break-even ROI and enable LPWAN applications that would not otherwise be feasible.

Key Findings

- It's a two-horse race between LoRa/LoRaWAN and NB-IoT for the majority of volume in the LPWAN market. They will account for 86% of all connections in 2023.
- China will continue to lead in NB-IoT market adoption.
- NB-IoT and LTE-M market adoption is slower than expected.
- 2019 will be the first year that connections on public LPWAN networks outnumber connections on private LPWAN networks.
- As a region, Asia-Pacific will account for 64% of total LPWAN connections in 2023.
- A single company, Securitas, accounted for 45% of the 6.2 million Sigfox connections as of February 2019.

Thank You

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