A large, stylized globe composed of a network of red lines and dots, representing an IoT network. The globe is centered on the page and contains several circular icons representing various IoT applications: a signal tower, a network node, a padlock, a classical building, a city skyline, a car, and a drone.

GSMA INTERNET OF THINGS PROGRAMME

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MOBILISING THE IoT

Enabling a world in which consumers and businesses enjoy rich new services, connected by intelligent and secure mobile networks

ABOUT THE GSMA



THE GSMA
WAS FOUNDED
IN
1987

12 OFFICES WORLDWIDE:



LONDON



DUBAI



ATLANTA



BRUSSELS



BARCELONA



HONG KONG



BRASILIA



BUENOS AIRES



SAO PAULO



NAIROBI



NEW DELHI



SHANGHAI



The GSMA
represents
the interests
of mobile
operators
worldwide



UNITING
NEARLY
800
MOBILE
OPERATORS



WITH
300+
COMPANIES
in the broader mobile ecosystem



The world's leading mobile industry events,
Mobile World Congress and Mobile World
Congress Shanghai, together attract

130,000+
people from across the globe each year

The GSMA works to deliver a regulatory environment
that creates value for consumers by engaging
regularly with:



MINISTRIES
OF TELECOMS



TELECOMS
REGULATORY
AUTHORITIES



INTERNATIONAL &
NON-GOVERNMENTAL
ORGANISATIONS



CONNECTING
27,000+
Industry Experts

Exclusively for GSMA Members,
InfoCentre² is your place to
connect with a global
community of industry experts

GSMA Working Groups
provide frameworks and
standards in commercial,
operational and
technical matters that help
maintain and advance
mobile industry ecosystems



**7.5
BILLION+**
MOBILE CONNECTIONS
WORLDWIDE

THE INTERNET OF THINGS PROGRAMME 2018/19

GSMA INTERNET OF THINGS - "Mobilising the IoT"

Mobile IoT

Raise market awareness and support of commercial licensed spectrum LPWA solutions



IoT Big Data

Enable operators to generate value by delivering harmonised data sets and analytics services



IoT Security

Encourage adoption of IoT Security Guidelines and IoT Security Assessment



Industry Engagement – Smart Agriculture, Industrial, Smart Cities and Drones
IoT Business Enablers – Policy & Regulation



Email: iot@gsma.com to track progress or join the Interest Groups

Visit www.gsma.com/iot for more information on the Internet of Things Programme, upcoming events & industry research

THE INTERNET OF THINGS BY 2025

TOTAL CONNECTED DEVICES

2016: 6.3bn

2025: **25bn**

CELLULAR CONNECTIONS

2016: 0.44bn

2025: **3.1bn**

2G, 3G, 4G

LPWA

2G, 3G, 4G, 5G

Licensed Spectrum LPWA

2016: 0.44bn

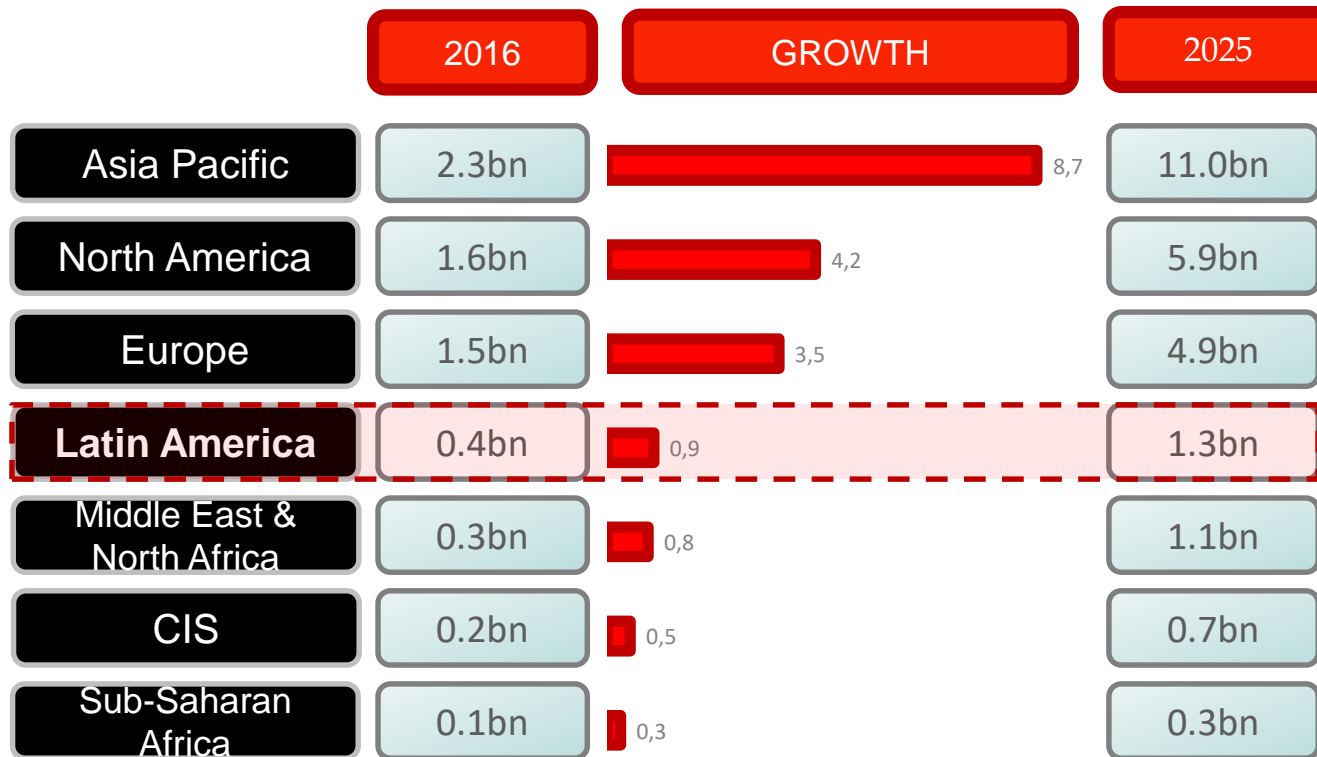
2016: -

2025: **1.2bn**

2025: **1.9bn**



GLOBAL IOT CONNECTIONS & GROWTH BY REGION



Source: GSMA Intelligence

TAINAN FLOOD CONTROL

- Tainan is the cultural capital of Taiwan and a large tourist destination.
- The city sits in a zone prone to typhoons, and suffers from regular flooding
- Tainan has been working with local operator Far EasTone to put new flood control measures in place.
- New flood control centre, 4G connected pumping stations, flood monitoring and distributed back-up

SINGAPORE TRAVEL ANALYTICS

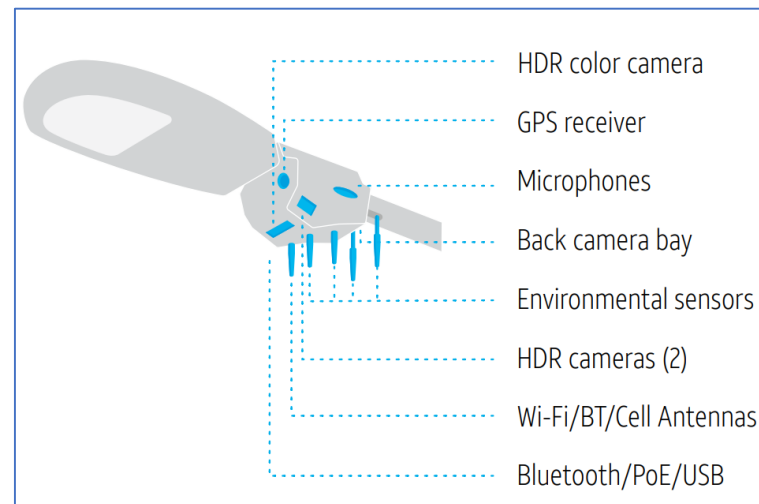


- Starhub in Singapore have developed a powerful analytics tool for the city
- Use of anonymised mobile location data combined with other data sets to provide analytics for smart cities, institutions, businesses and citizens
- City managers are able to understand travel behaviour, demographics and lifestyle and improve city infrastructure



STREET LIGHTING & DIGITAL INFRASTRUCTURE

- AT&T have partnered with GE Current to provide smart street lighting solutions
- Using CityIQ, AT&T can use street lighting to create a city-wide digital infrastructure
- This allows the city to measure traffic flow, air quality and parking availability
- Think beyond the bulb!



MOBILE TECHNOLOGY - IDEAL SOLUTION FOR LOW POWER WIDE AREA (LPWA)



KEY FEATURES

Low Cost Module

Better Coverage

Long Battery Life

Low Data Needs

2-Way Communication

KEY BENEFITS

3GPP Standards

Global Coverage

Secure

Scalable





CHOICE OF TECHNOLOGIES

LTE-M

NB-IoT

MOBILE IoT POPULAR APPLICATIONS




UTILITIES

-  Smart Grid
-  Power Meters
-  Water Meters
-  Smart Gas

LOGISTIC

-  Logistic Tracking
-  Pallet Tracking

INDUSTRIAL

-  Smart screwdriver
-  Smart shelving
-  Safety shoes

SMART CITIES








-  Smart Lighting
-  Waste Management
-  Smart Parking
-  Electric car charging station
-  Smart Bikes




AGRICULTURE & ENVIRONMENT

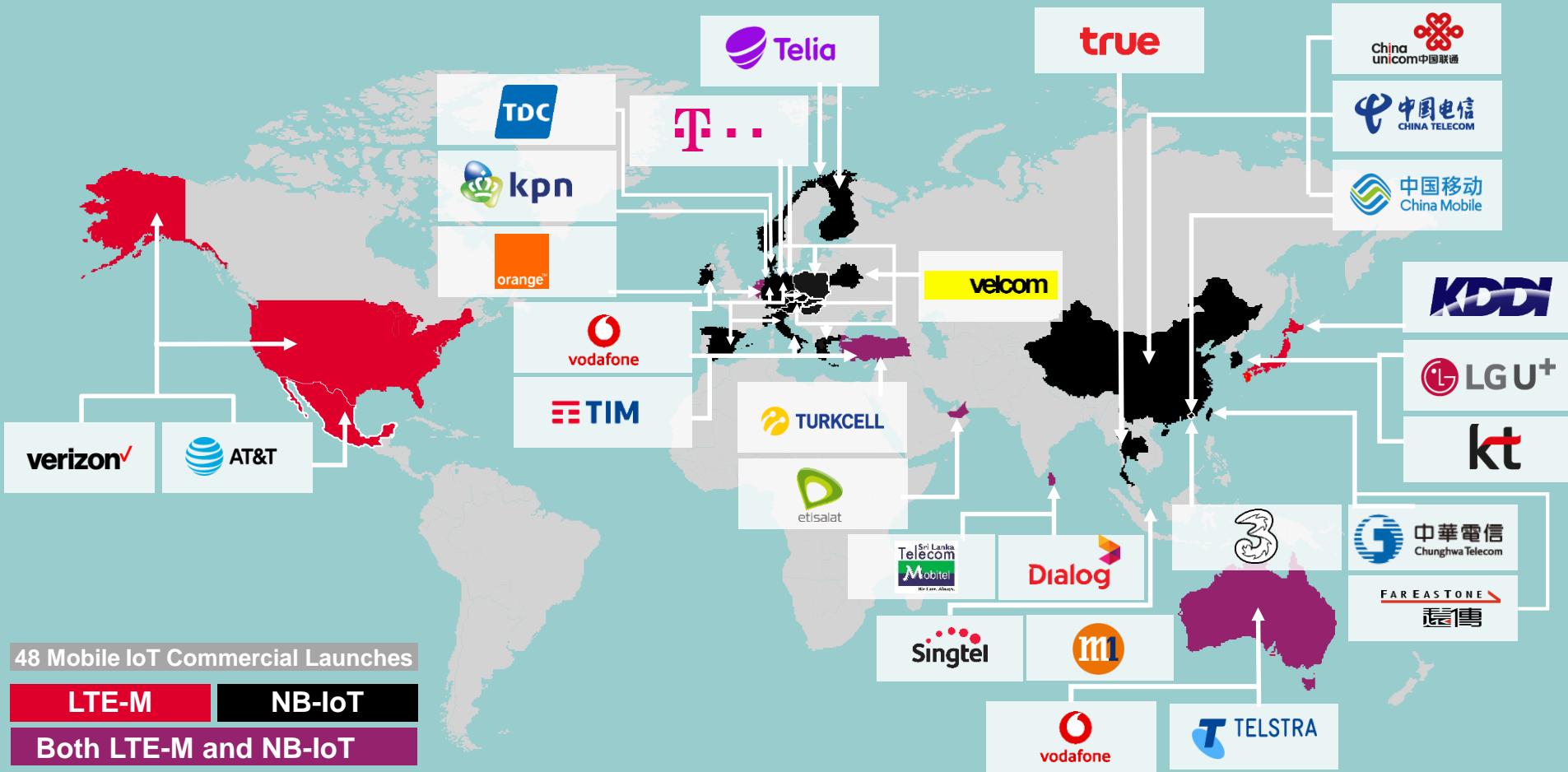
-  Live stock monitoring
-  Water quality
-  Compost monitoring
-  Irrigation monitoring
-  Environmental monitoring

CONSUMER

-  IoT button
-  General purpose tracker
-  Safety jackets
-  Wearable
-  Pet tracker

SMART BUILDING

-  Alarms
-  Smoke detectors
-  Flood detectors



48 Mobile IoT Commercial Launches

LTE-M **NB-IoT**

Both LTE-M and NB-IoT

MOBILE IoT IN THE 5G FUTURE

- Mobile IoT delivers massive IoT for the 5G
- Mobile IoT is set to coexist with other 5G technologies
- 3GPP will continue to address LPWA use cases by Mobile IoT in 5G specifications



REQUIRE NEW BEST PRACTICES

Companies need to ensure

AVAILABILITY

→ Ensuring constant connectivity between Endpoints and their respective services

IDENTITY

→ Authenticating endpoints, services, and the end-user operating the endpoint

PRIVACY

Reducing the potential for harm to individual end-users.

INTEGRITY

Ensuring that system integrity can be verified, tracked, and monitored.

In services and devices that are

LOW COMPLEXITY

- Low processing capability.
- Small amounts of memory.
- Constrained operating system.

LOW POWER

- No permanent power supply
- Possibly permanent, but limited power supply.

LONG LIFECYCLES

- Requires cryptographic design that lasts a lifetime.
- Manage security vulnerabilities which can't be patched within the endpoint.

PHYSICALLY ACCESSIBLE

- Access to local interfaces inside the IoT endpoint.
- Hardware components and interfaces potential target of attackers.

Reference By:



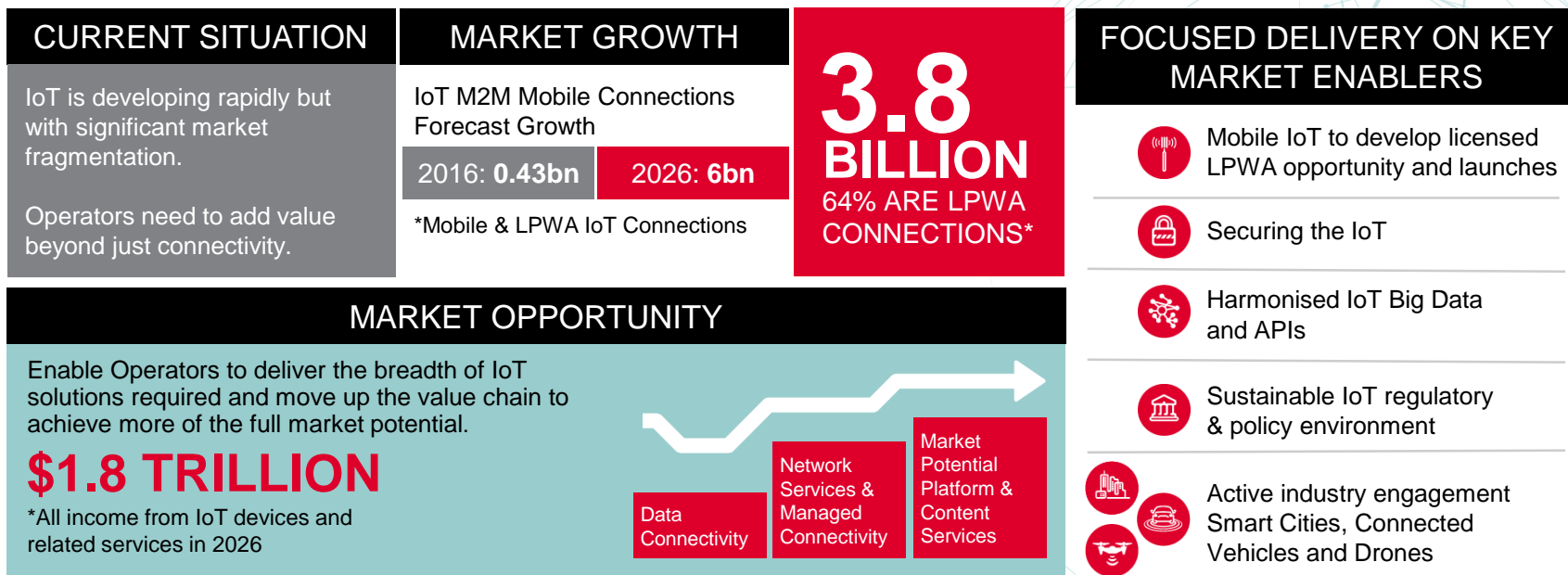


FIND OUT MORE: www.gsma.com/loT
GET IN TOUCH: snicoletti@gsma.com
FOLLOW ON LINKEDIN: www.gsma.at/loT

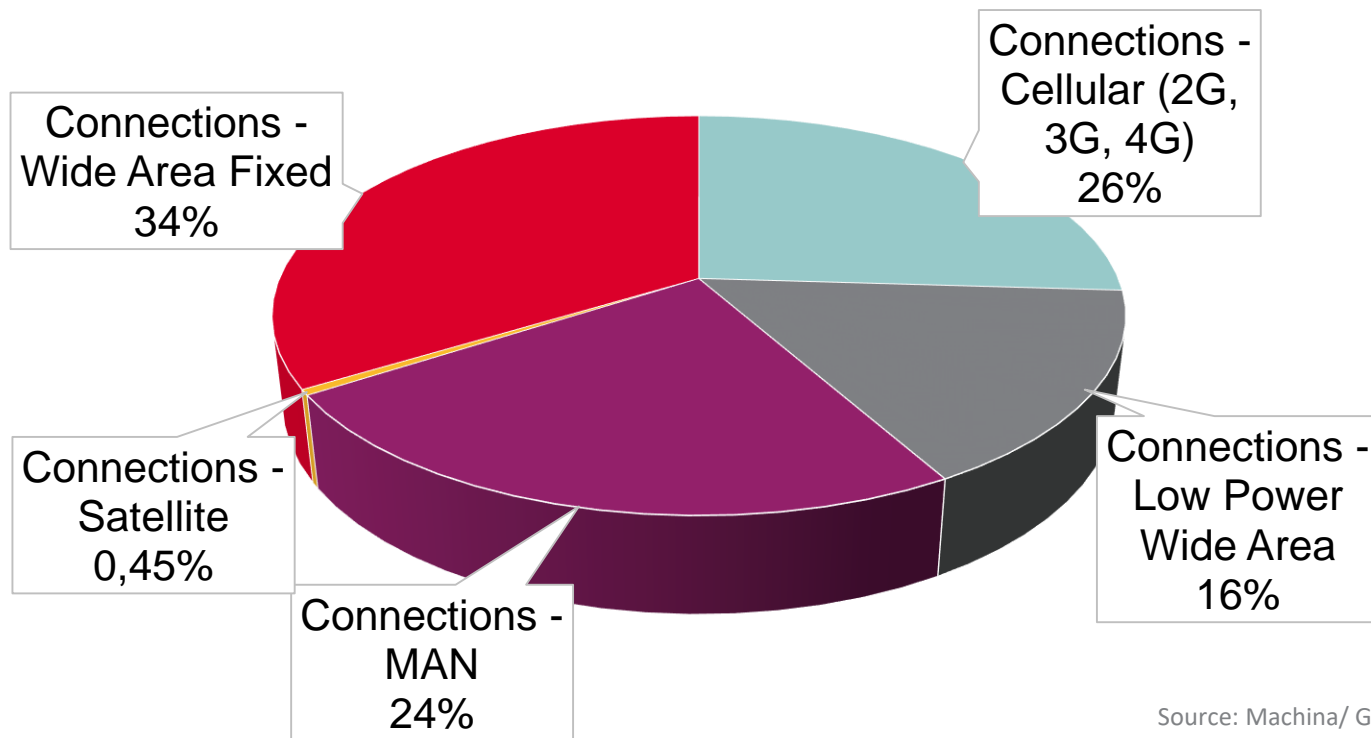


APPENDIX

MOBILISING THE IoT – ENABLING GROWTH & OPPORTUNITY



WIDE AREA IOT CONNECTIONS IN LATAM BY TECHNOLOGY BY 2023



MOBILE IoT TODAY

900+ INNOVATORS

www.gsma.com/iot/mobile-iot-innovators/

35 Open IoT Labs
In 14 countries

ECOSYSTEM

Support for Mobile IoT
from **51 MNOs**
and **31 vendors**
worldwide



48

COMMERCIAL
LAUNCHES
by April 2018

**WIDE RANGE
OF MODULES AND KITS**
90+ MODULES
COMMERCIALY
AVAILABLE

20+ DEVELOPER KITS

LTE-M

NB-IoT

With the support of LTE-M Task Force and NB-IoT Forum, GSMA designed the LTE-M & NB-IoT technology marks which are designed for MNOs and wider ecosystem players to market and promote LTE-M & NB-IoT technology and products.

Download here: LTE-M: <https://www.gsma.com/iot/lte-m-logo/> // NB-IoT: <https://www.gsma.com/iot/nb-iot-logo-download-pack/>

MULTIPLE CONFIGURATIONS FOR IOT SOLUTIONS

