connect. digitize. get ahead.

T IoT

Driving Mobile IoT Adoption through Roaming & Global Partnerships

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T · · · **ERLEBEN, WAS VERBINDET.**

About Deutsche Telekom

Customers

- **241.8 mn** mobile customers
- **27.4 mn** fixed-network lines
- **21.7 mn** broadband lines

Markets

- Present in **> 50 countries**
- Own networks in **Europe and the USA**
- **T-Systems:** global presence & alliances via partners

Financials

- Revenue **€ 101 bn**
- Adjusted EBITDA AL[1] **€ 35 bn**
- Free Cashflow AL[1] **€ 6.3 bn**

Employees & responsibility

- **226,291** employees globally
- **6,100** trainees and cooperative degree students in Germany
- Pioneer of social issues (climate protection, data privacy, diversity etc.)

Figures based on Deutsche Telekom annual report 2020.
[1] EBITDA After Leases.

About Deutsche Telekom IoT

> € 200 mn
Revenue 2020

20,000
international clients

> 45 million
SIMs

600
IoT employees

Mobile IoT is gaining momentum

NB-IoT

1st choice for minimum cost and maximum battery life

The **3GPP 5G standards** for massive Machine-Type Communications (mMTC)

The powerful future-proof 2G/3G substitute

LTE-M

The multiple challenges of going IoT

Is it IoT at all?

Business benefits?

Costs?

Know-how to execute?

Strategic challenges

Technological challenges

Which components?

Which standards?

Technical risks?

Operations?

Growing global NB-IoT footprint – 105 launches so far

Legend:
- DT NB-IoT footprint (10 markets)
- DT NB-IoT roaming footprint (11 markets)
- Other NB-IoT coverage (33 markets)
- No NB-IoT coverage yet
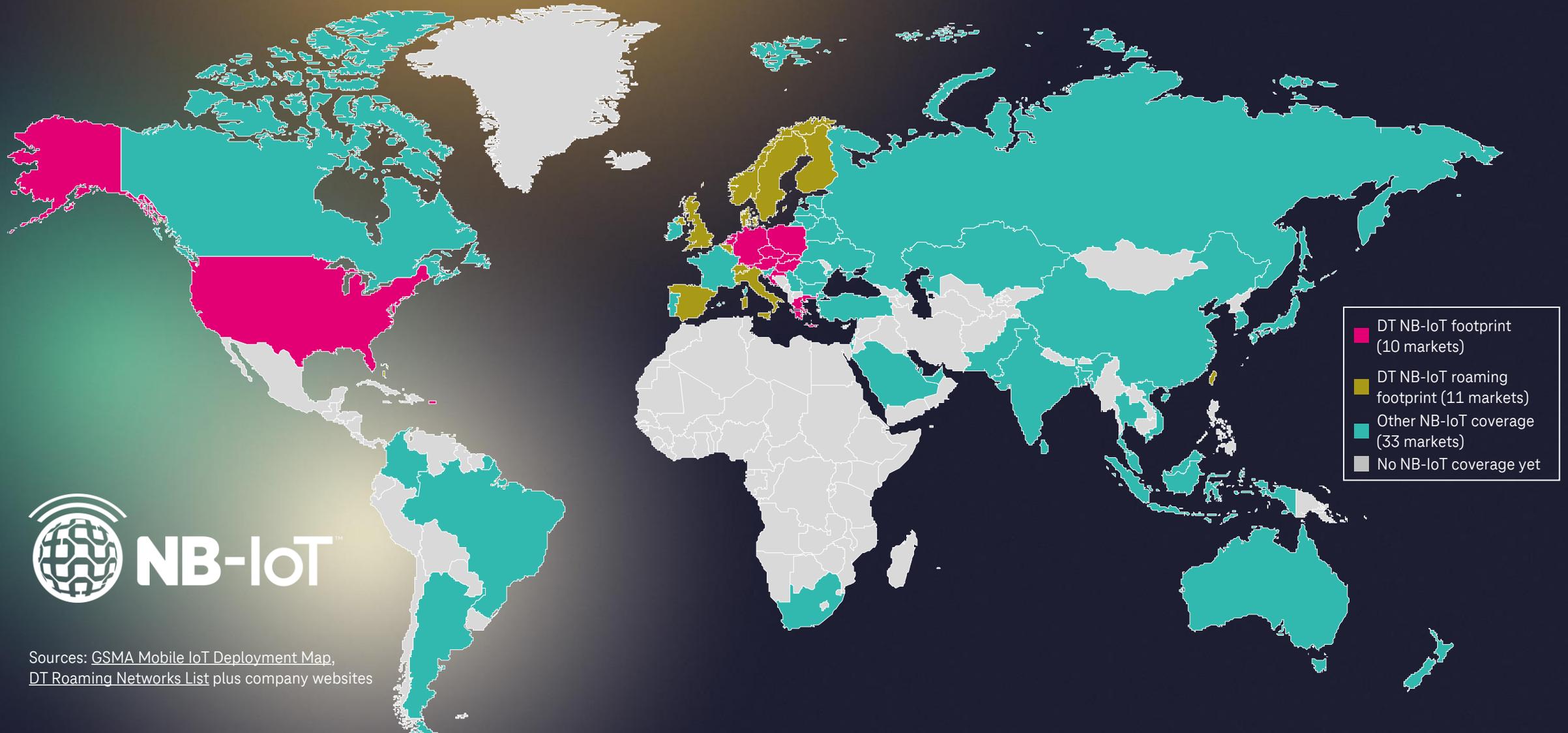
NB-IoT™

Sources: GSMA Mobile IoT Deployment Map, DT Roaming Networks List plus company websites

Growing global LTE-M footprint – 53 launches so far

Legend:

- **DT LTE-M footprint (4 markets)**
- **DT LTE-M roaming footprint (9 markets)**
- **Other LTE-M coverage (16 markets)**
- No LTE-M coverage yet

LTE-M

Sources: GSMA Mobile IoT Deployment Map,
DT Roaming Networks List plus company websites
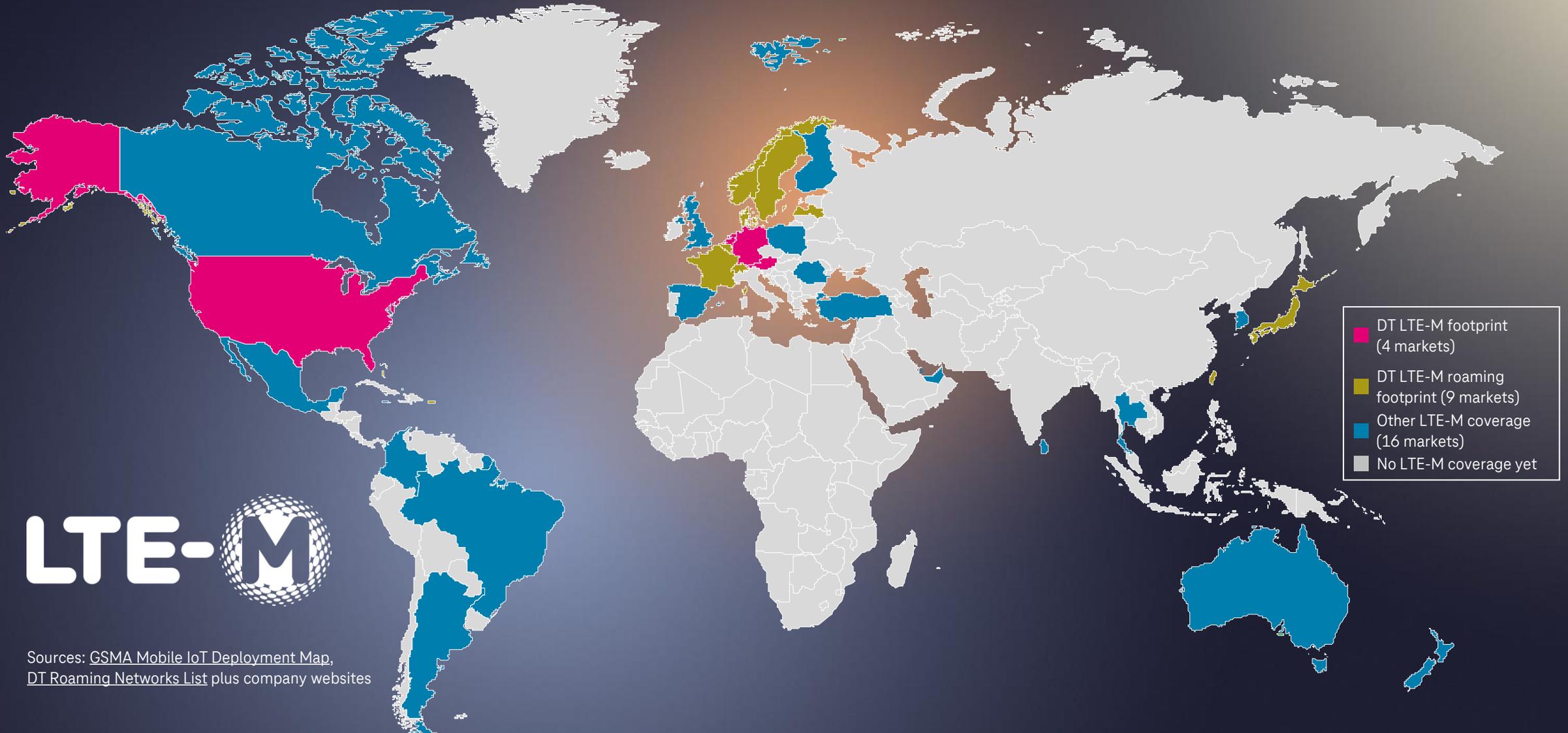
Monetizing NB-IoT and LTE-M networks

Classic wholesale charging models not suitable for Mobile IoT

Billing & Charging Evolution (BCE)

- New charging model incl. "attach" fee
- Bulk reporting for cost-efficient invoicing

Defined by GSMA (BA.27, TD201-TD206) in 2019

Ensuring an excellent Mobile IoT roaming user experience

Global network coverage

Further national roll-outs

Transparency on network availability

Exhaustive online coverage maps

Up-to-date feature sets

Deployment of essential Rel. 13/14 features

Network-conform application design

Guidelines for IoT developers

International service continuity

Transparency on network features and settings

Highest service availability

No Harm to Network embedded in chipsets

DT's IoT Chipset and Module Certification Program

Chipsets

Modules

≈200 certified

IoT devices

Compliant IoT devices

Learn more: DT IoT Hardware Portfolio
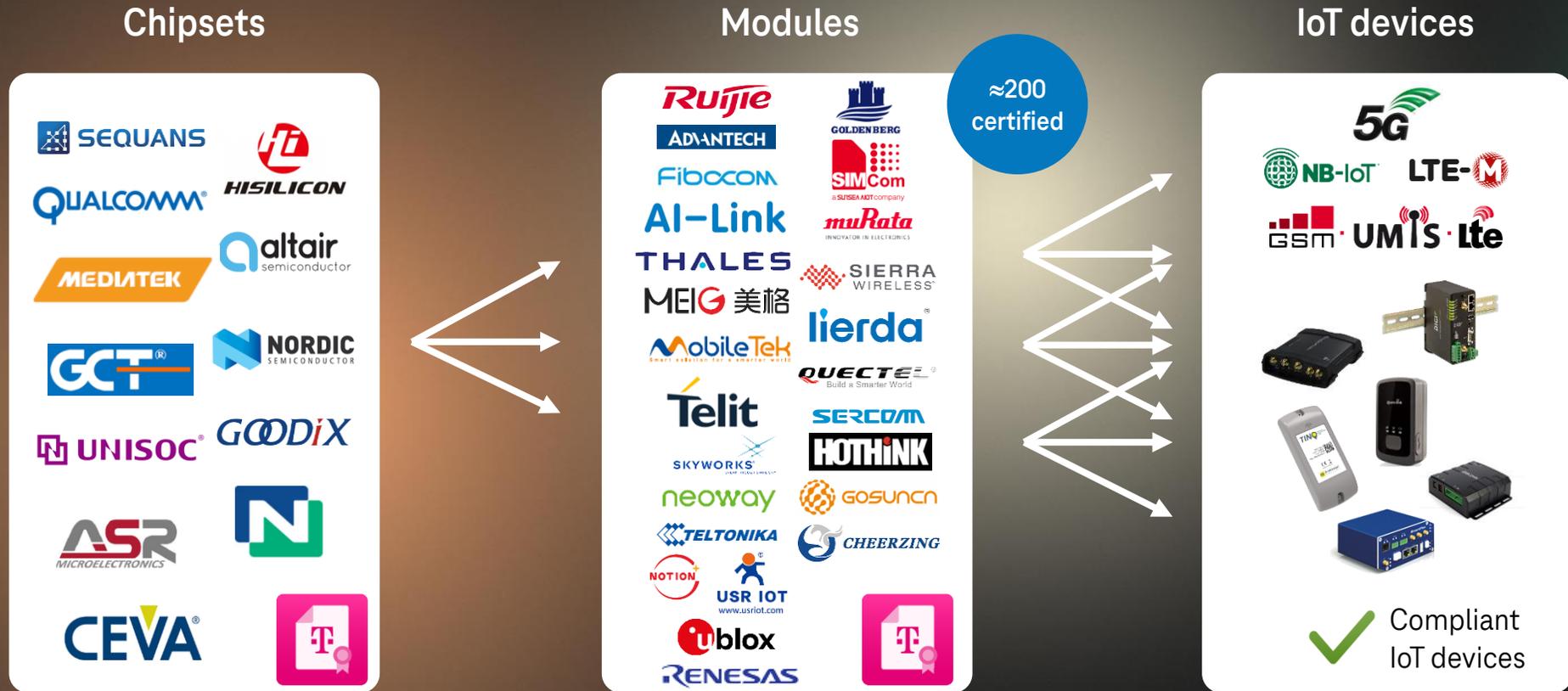
The IoT Solution Optimizer

Modelling IoT projects at the blink of an eye

>1 **Year Battery Life**
gained on average

1.2 **Years of faster time-to-market**
for a superior return on investment

Global partner ecosystem of IoT companies

SAMSUNG · SONY · VEOLIA · SEQUANS · lierda · SIERRA WIRELESS · DIGI · aws

CEVA · Wireless 2020 · SAFT a company of TOTAL · ADVANTECH · muRata · SIMCom · SERCOM · Heiman

QUBISCALE · CHANGHONG · Altair · CHEERZING · neoway · Telit · nedap · wisebatt

NORDIC SEMICONDUCTOR · GOSUNCN · HISILICON · Fibocom · NOTION · TELTONIKA · CompoTEK · WÜRTH ELEKTRONIK

USR IOT · UNISOC · MEDIATEK · FOXCONN · QUECTEL · u-blox · tekmodul GmbH · ignion

ALLTERCO · GOODiX · POLTE · gemalto · Ruijie · CHORDANT · QOITECH · EKKONO

MOBILISIS · AVAX · GCT · BEWHERE · SKYHOOK · GOLDENBERG · MobileTek · Jimi IoT | Concox

Miot · EVE · + many more on the way...

Incl. NB-IoT & LTE-M

IoT > Connectivity Solutions Hardware ˅ Services ˅ Learn ˅ Partners

Digital Shelf · Services · IoT Solution Optimizer · My Projects

IoT Vertical

Please select which vertical your IoT application best corresponds to:

- Agriculture
- Asset Tracking
- Building Construction
- Building Monitoring
- Condition Monitoring
- Developer Kits
- Elderly Care
- Environmental Monitoring
- Farming Equipment
- Gateways
- Health
- Logistics

Next

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IoT Creators

iotcreators.com

DT's channel for all IoT solution makers

- Early access to IoT innovations
- Developer-friendly
- Supporting community
- Documentation & knowledge base
- Free starter kits & simple tariffs

nuSIM – The integrated SIM for IoT

Chipsets

- Altair
- CommSOLID by GOODIX
- HISILICON
- MEDIATEK
- SAMSUNG
- NORDIC SEMICONDUCTOR
- Qualcomm — Qualcomm Technologies, Inc.
- ACP AG — Advanced Circuit Pursuit
- SEQUANS

Modules

- Fibocom
- muRata — INNOVATOR IN ELECTRONICS
- NORDIC SEMICONDUCTOR
- QUECTEL — Build a Smarter World
- SEQUANS
- SIERRA WIRELESS
- SIMCom — a SUNSEA AIOT company
- Telit

Bringing together industry-leading players to innovate the IoT market

Security & Software

- brightsight® — the number one security lab in the world
- COMPRION
- SCOOP SOFTWARE
- eShard
- G+D Mobile Security
- irdeto
- TÜViT
- Tiempo SECURE
- TRUPHONE
- 红茶移动 Redtea Mobile
- NAGRA KUDELSKI GROUP
- Kigen

Available online at iotcreators.com

Fostering an open IoT ecosystem with protocols and standards

Unified object/resource **data model**

Standardized communication between devices & platforms

Interoperability **across applications**

Compatibility **across vendors**

International collaboration

E2E view on IoT solutions

Services to support IoT development

Let's work together to make Mobile IoT globally available