Use Of National Numbering Resources for Global M2M Services

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Agenda

1. Global M2M Growth
2. AT&T Global SIM Platform
3. Numbering Options:
   - ITU Global Numbering Resources
   - Extra-territorial Use of National Numbering
   - A new European Numbering Scheme
4. Conclusions

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50 billion

“things” connected to the Internet by 2020

Source: DHL Trend Research/Cisco Consulting, 2015

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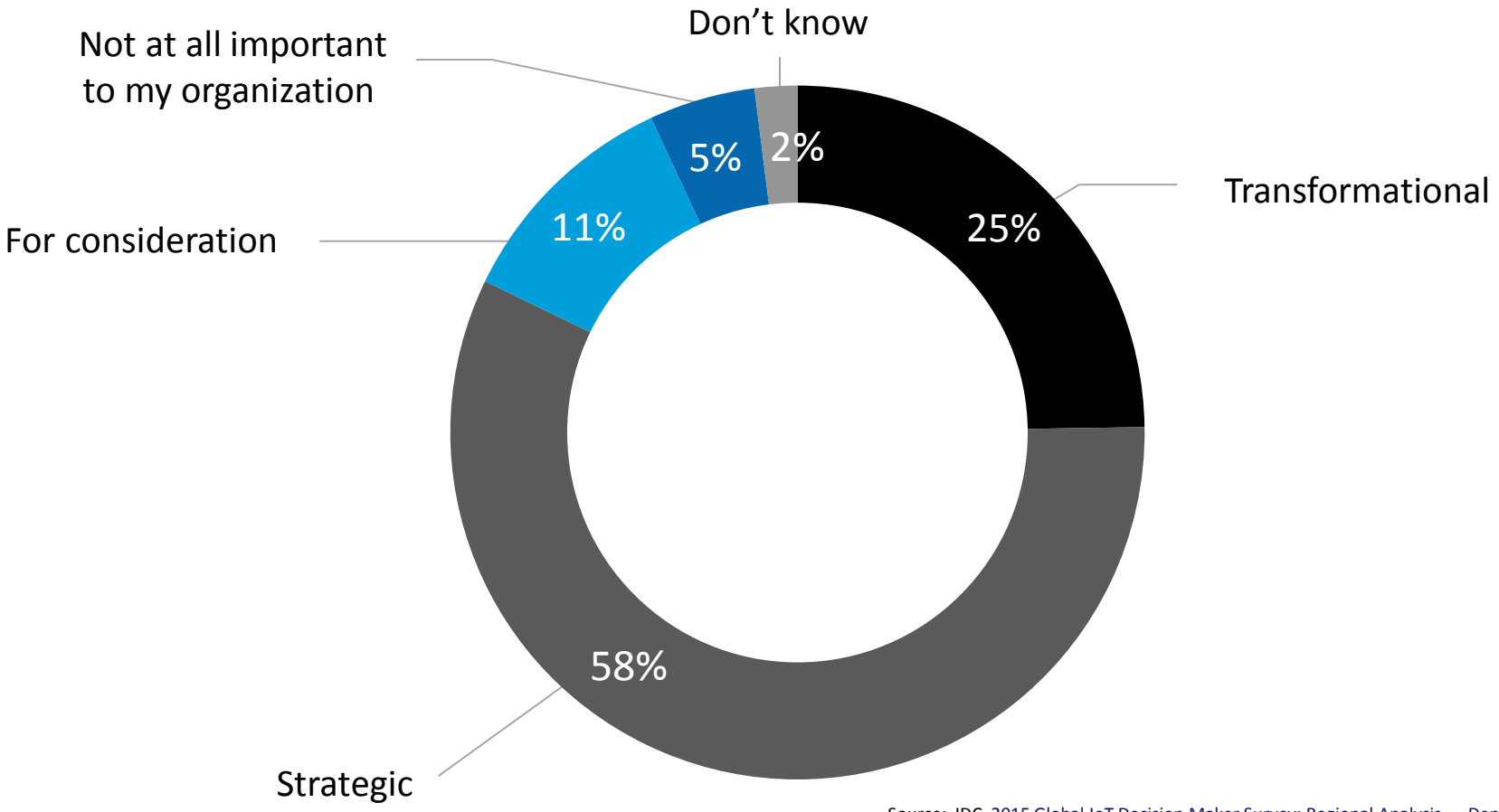
IoT is seen as strategic by the enterprise

Q. How important do you think the 'Internet of Things' could be to your organization?



Source: IDC, 2015 Global IoT Decision Maker Survey: Regional Analysis — Deployments, Drivers, Inhibitors, and Perceptions of Vendors, Doc # US40765415, December 2015

AT&T investing in the Internet of Things

The AT&T network has more than 26+ million cellular connected devices

More than 2,600 device types certified

The AT&T Single Global M2M SIM, delivers access
in over 200 countries and territories with over 500 carriers networks

A leader in Gartner's 2015 Magic Quadrant for Managed Machine-to-Machine Services, Worldwide

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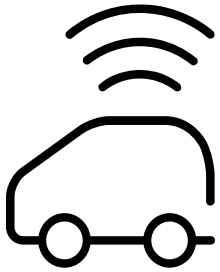
Use Case: Connected Car

- Connected Car will account for 52% of all cellular M2M connections in 2024 *(Source: Machina Research)*
- AT&T has relationships with 9 automotive OEMs to provide embedded connectivity solutions
- AT&T has approximately 7M connected cars, has been adding around 1M per quarter, 10M+ by end 2017



78%

Car buyers who would wait one year to buy connected

Source:
Ericsson & AT&T Global Connected Car Market Research, July 2015

News Release

AT&T AND VODAFONE INTRODUCE ONSTAR CONNECTED CAR SERVICE FOR OPEL AND VAUXHALL ONSTAR IN EUROPE

DALLAS, FEB. 22, 2016 — AT&T* and Vodafone have recently introduced OnStar's connected service for Opel and Vauxhall OnStar in select European countries. In Europe, the OnStar's Wi-Fi 4G LTE service, enabled by Vodafone, is available in all new Opel and Vauxhall passenger vehicles.

OnStar's 4G LTE Wi-Fi connection is already available in Spain, Germany, the Netherlands and the United Kingdom. The car becomes a powerful, mobile hotspot giving easier access to apps and services that require a high-speed cellular connection. The hotspot will support up to 7 mobile devices.

Opel and Vauxhall OnStar features also include emergency services, such as roadside assistance and automatic crash response, stolen vehicle assistance, vehicle diagnostics and destination download. There's a dedicated OnStar smartphone app for services such as remote door unlock.

http://about.att.com/story/att_vodafone_support_onstar_connected_car_technology.html

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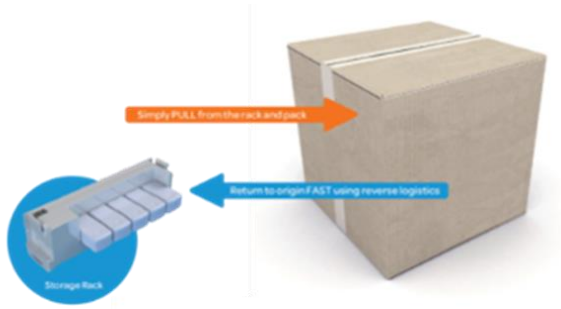
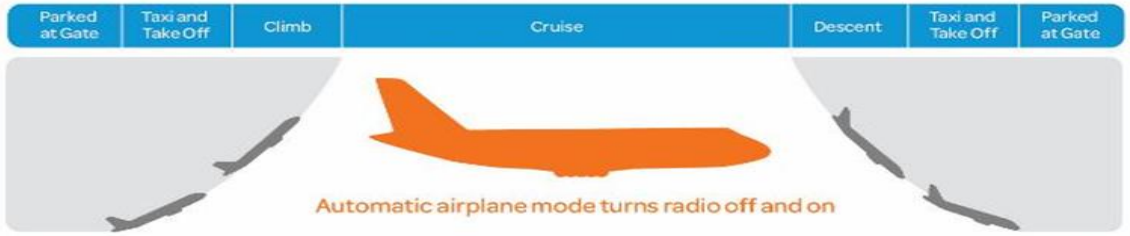
Use Case: Asset Management

AT&T Cargo View with FlightSafe®

Uses Sensors to Detect

- Location
- Pressure
- Light or Dark
- Temperature
- Shock





- Global near Real-Time Tracking & Monitoring Service
- AT&T Cloud-hosted & secured Cargo View application
- Automatic Airplane Mode with FAA Compliance
- Exclusive to AT&T – certified by 45 Airlines
- Tracking on land or air

Maersk Line

Maersk's Bottom Line Results

619 Container Vessels

Maersk Line is the world's largest container shipping company

+280,000

Refrigerated containers monitored via wireless

ITU Global Numbering Resources

- ITU-assigned numbering resources (from the E.212 shared 901 Mobile Country Code and/or E.164 +882/+883 ranges) provide potential numbering solution for global M2M
- But there are challenges:
  - ITU-T sector membership fees, application process and eligibility criteria
  - non geographic codes not open by default: reachability issue
  - imbalance in incentives to open codes
  - roaming agreements need to be amended
  - carriers can only manage a limited number of simultaneous code implementations
  - some subspaces had a history of misuse
  - almost half of available pool of 901 MNCs already assigned

It would be harmful to insist on ITU global numbering resources as the exclusive, or even preferred, numbering option for deploying global M2M

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Extra-territorial Use of National Numbers

- A proven and efficient approach to providing global M2M services
- BEREC : *"the use of existing numbering resources - the extra-territorial use of numbers and the use of ITU numbers - seems to be a reasonable approach."*
- A number of European regulators currently addressing historical restrictions
- United States: no restrictions on the use of M2M devices containing SIM cards/IMSI codes from other countries. *(Source: USG Contribution to CITEL M2M Questionnaire, 28 May 2015)*
- International M2M roaming framework provides a practical basis for extra-territorial use of numbers on a bilateral and transparent basis
- Allowing extra-territorial use may reduce pressure on national numbering resources

Requiring country-specific numbering for each device would limit potential of global M2M Services and the Internet of Things

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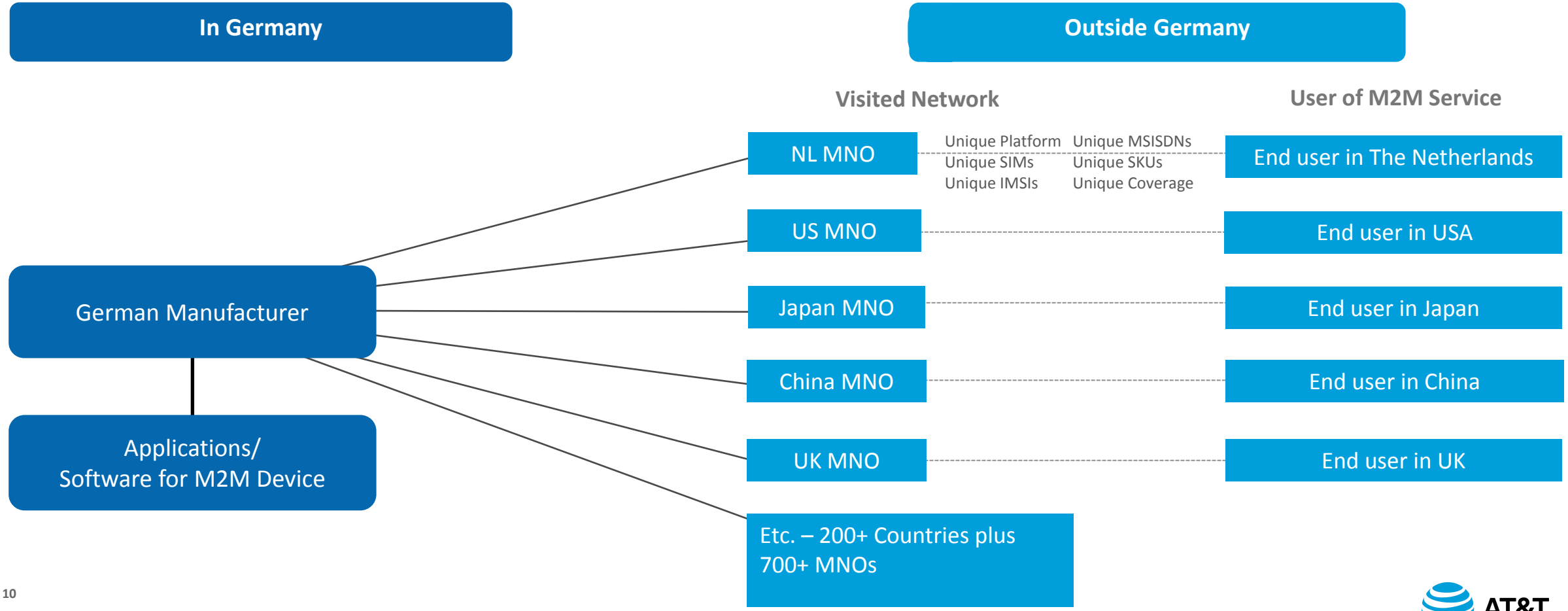
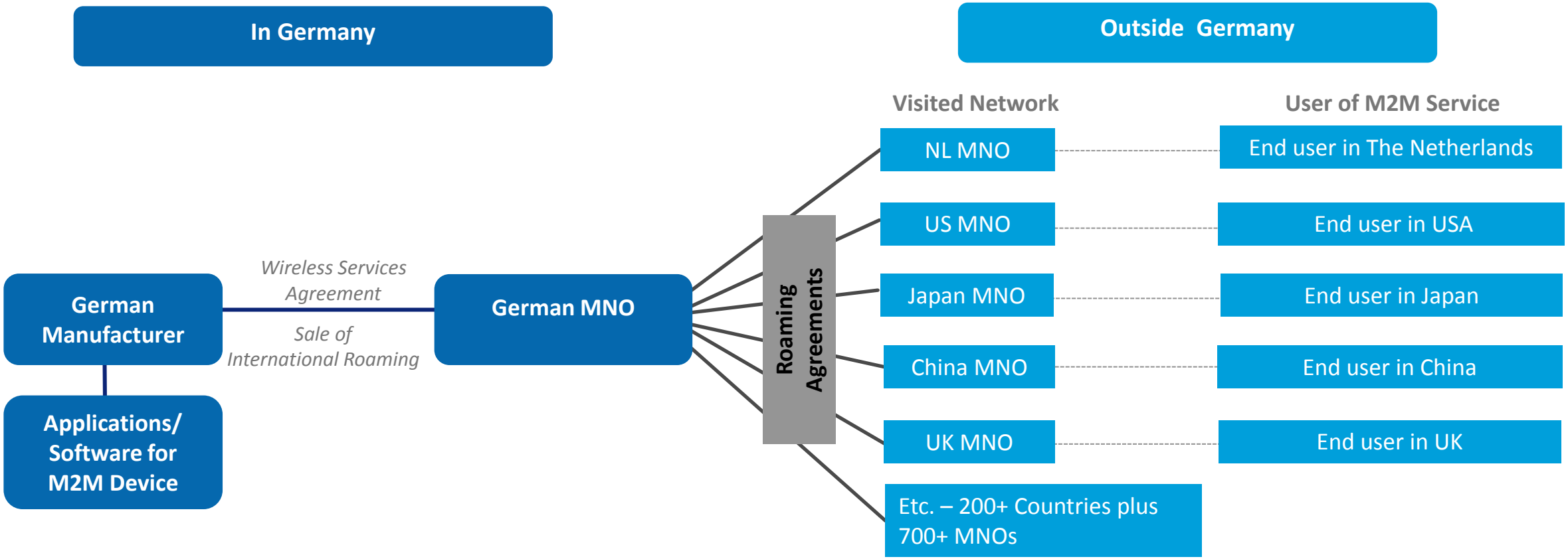
Not Using International M2M Roaming

- Restriction on extra-territorial use of numbers would stifle M2M roaming
- Manufacturers would need to build between 200-700 platforms to have global coverage
- Each platform costs hundreds of thousands of euros



Using International M2M Roaming

- One agreement makes global expansion economically and logistically viable
- Eases expansion and provides predictability
- Critical for MNCs and SMEs alike, both exporting and importing



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A New European M2M Numbering Space

- It didn’t work last time…
- BEREC consultation didn’t detect any significant interest from stakeholders
- BEREC IoT Report highlights absence of benefits to justify the costs
- Global M2M services not limited to Europe
- Two existing options challenging enough
- Complexity if other regions followed suit
- In time, IP addresses will provide solution

Conclusions

- Use of national numbers and ITU numbers should be considered as complementary options for the provision of global M2M services.
- Neither option should be mandated, promoted, imposed or prevented by regulation.
- There is no compelling case for the introduction of a new European M2M numbering scheme.

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