



5G

# Business Potential from Industry Digitalization

ITU Seminar: 5G Implementation in Europe and CIS – Budapest 2-4 July 2018

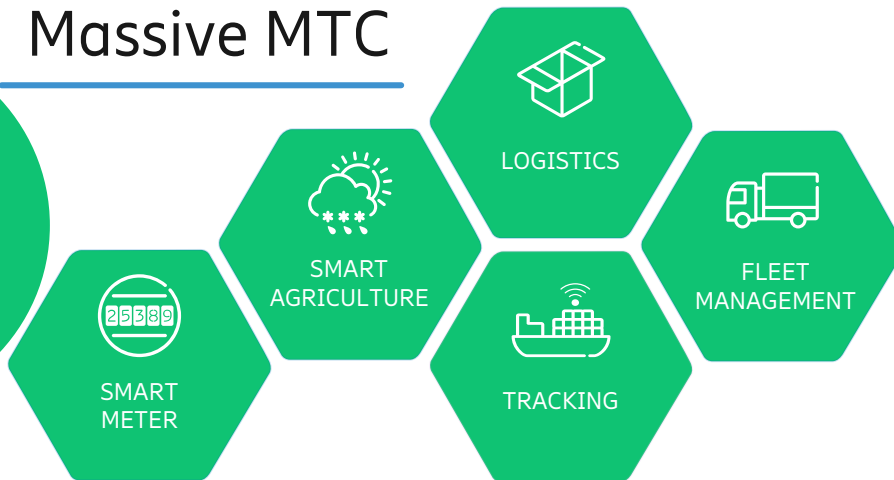
Silvana Apicella – Southern Europe Network Evolution Lead, Ericsson

# 5G Use Cases



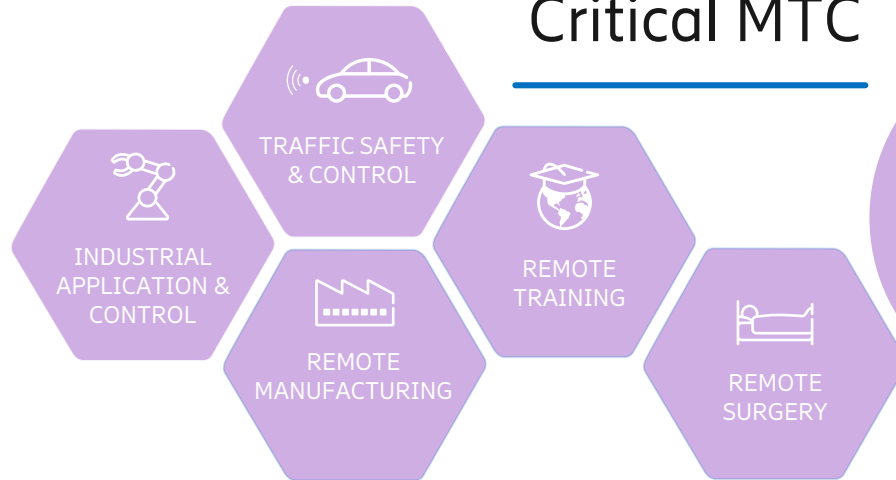
## Massive MTC

- Very large # of device
- Very low device cost/power
- High density
- Wide coverage



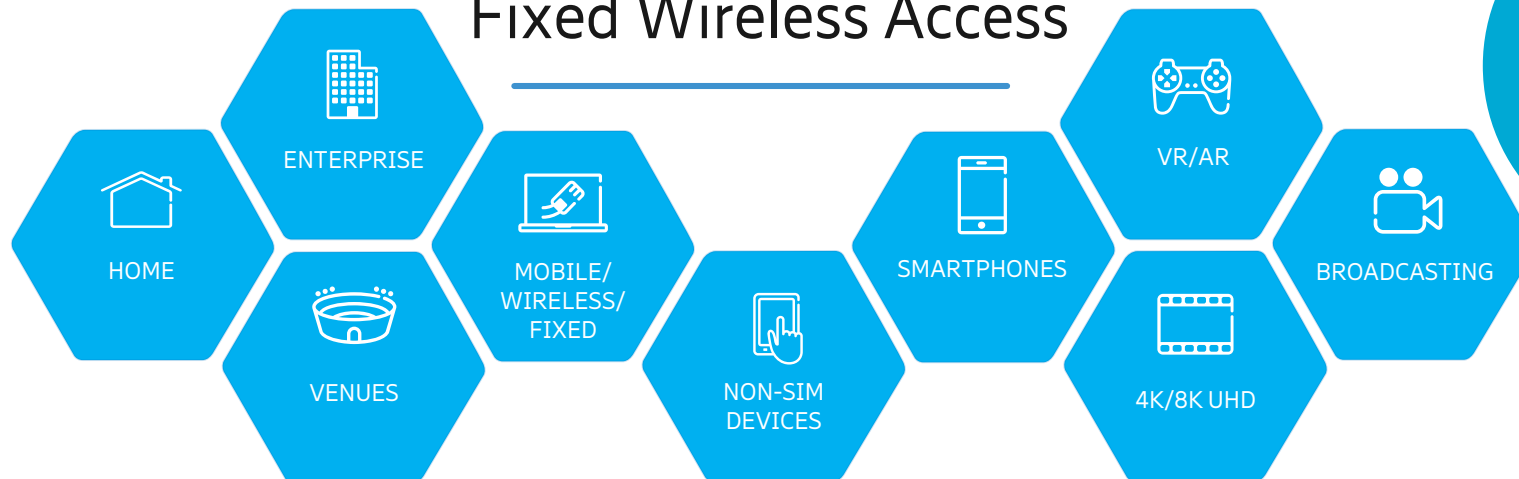
## Critical MTC

- Very low latency
- Very high reliability and availability



## Enhanced Mobile Broadband Fixed Wireless Access

- Very High Data Rate
- Very High Traffic Volumes
- Mobility



# 5G Architecture



10-100x  
END-USER DATA RATES

1000x  
MOBILE DATA VOLUMES

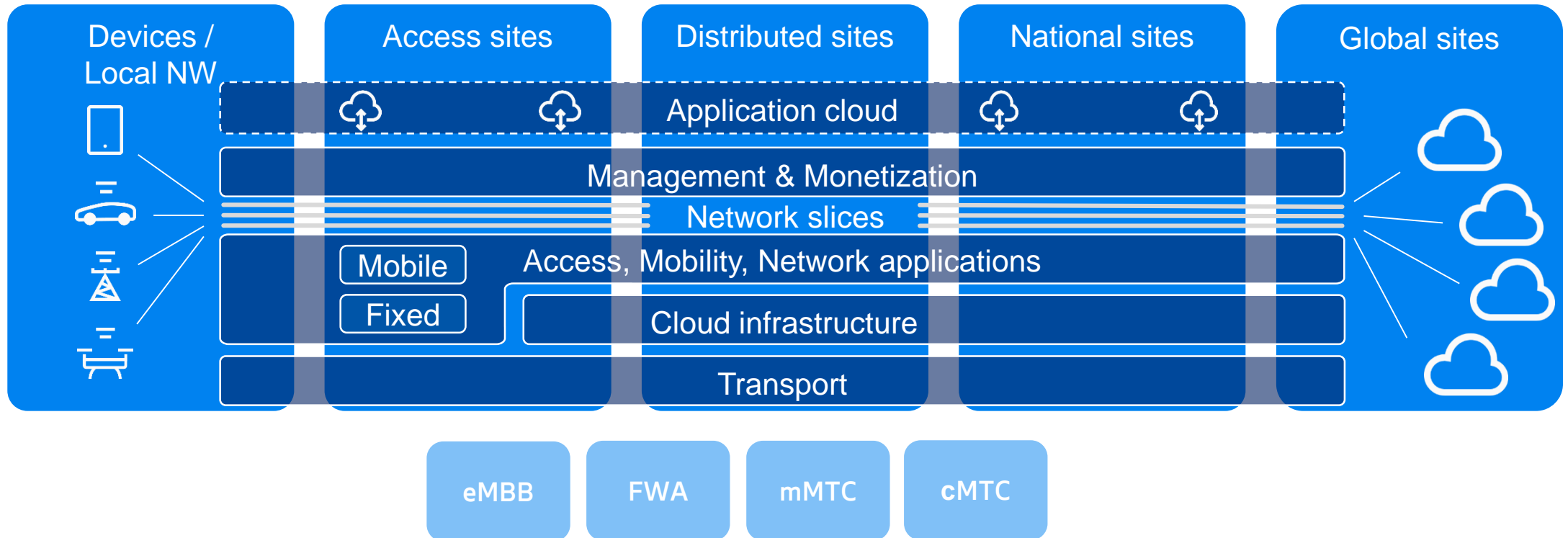
5x  
LOWER LATENCY

100x  
MORE DEVICES

Cost  
DEVICE COST REDUCTION

5x  
NW ENERGY EFFICIENCY

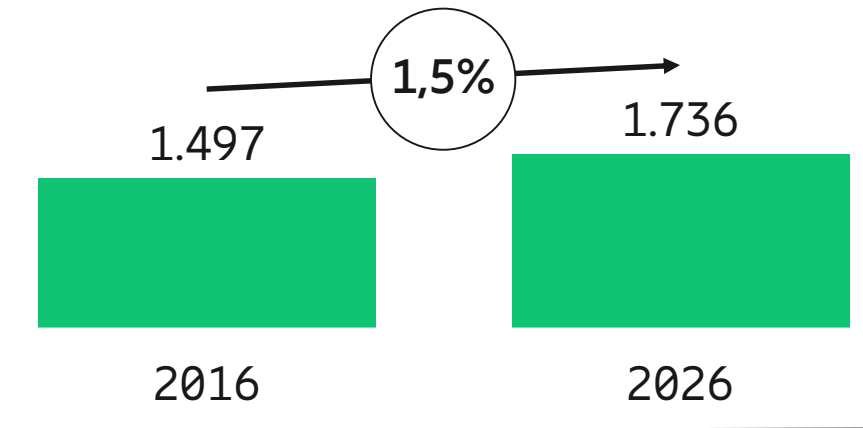
3x  
SPECTRAL EFFICIENCY



# With industry digitalization, new fast growing revenue pools emerges

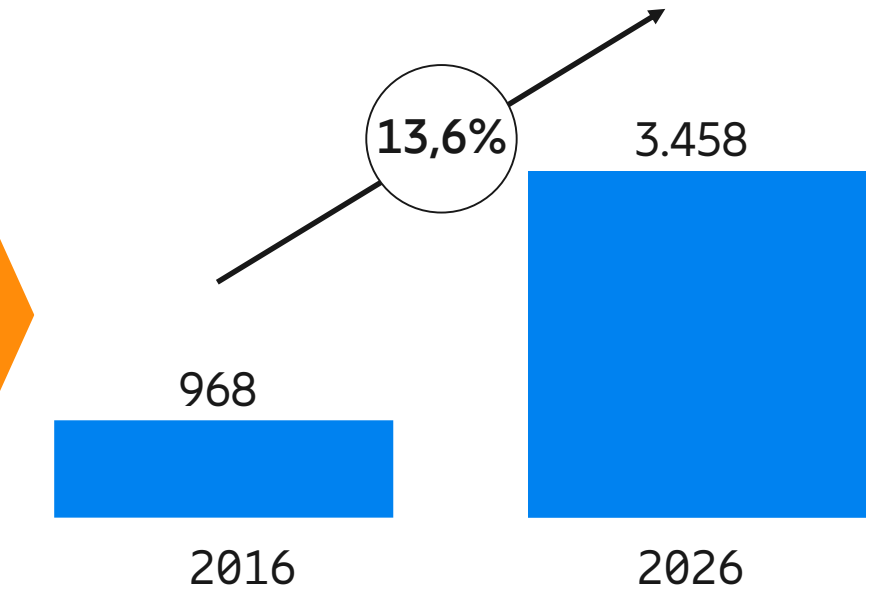


USDbn  
CAGR  
16'-26'



Challenge: current operator service revenues

Operator  
to seize  
emerging  
revenue  
potential



Opportunity: digitalization revenues\*

\* Digitalization revenues for ICT players from 10 key industries

Source: Ericsson and Arthur D. Little

# Of the total 5G enabled value in 2026, up to 47% is addressable by operators

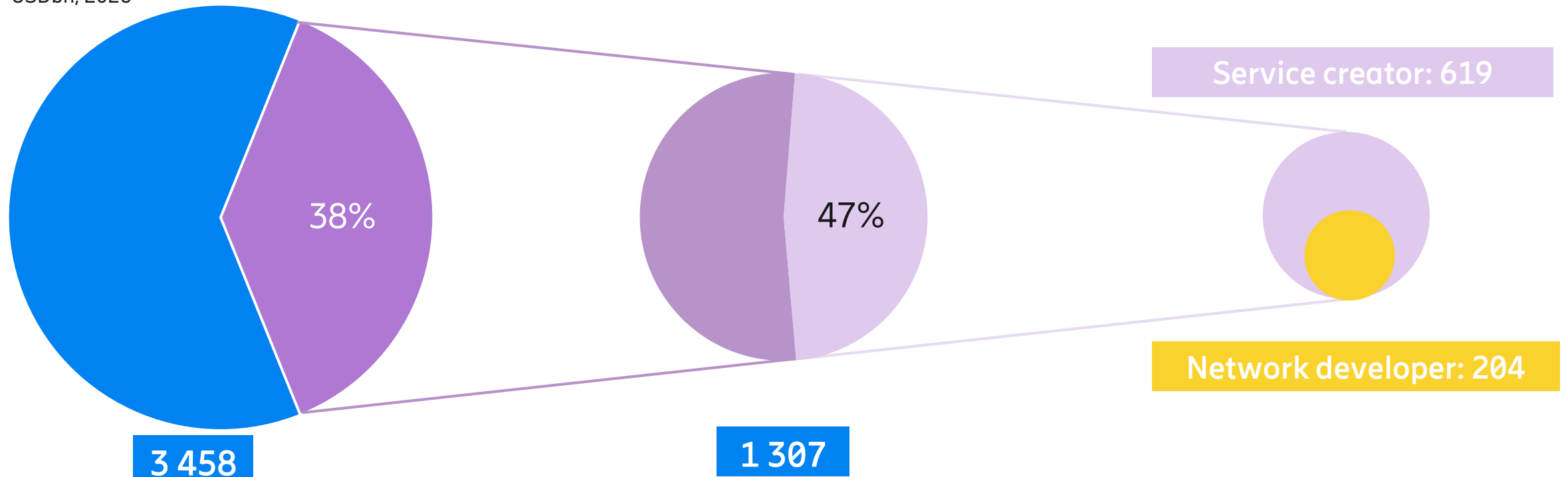


## Digitalization revenues for ICT players

## 5G enabled revenues

## Operator addressable revenues

USDbn, 2026



Digitalisation revenues for ICT players  
5G enabled digitalization revenues

5G enabled digitalization revenues  
5G operator addressable revenues

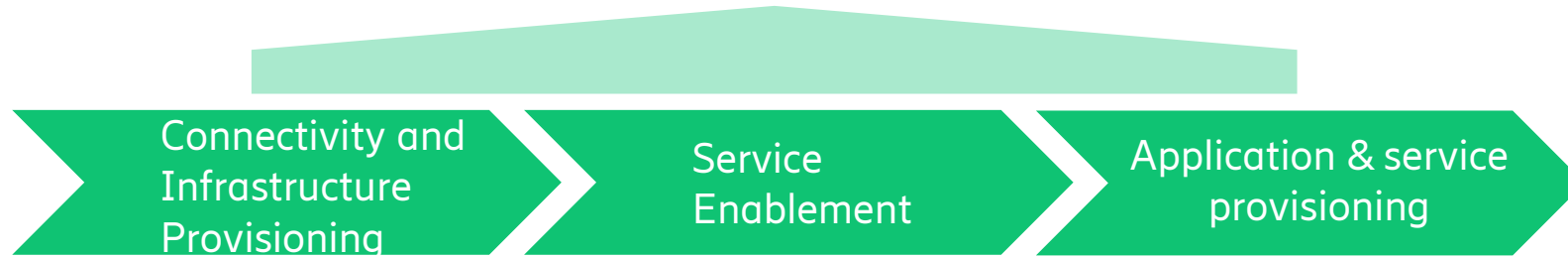
Source: Ericsson and Arthur D. Little

# Operators share of the 5G value created



Total 5G enabled revenue  
(USDbn, 2026)

1307 bn



Total 5G enabled revenue per  
value chain step

230 bn

646 bn

432 bn

Operator addressable share

89%

52%

18%

Operator addressable market  
for role Network developer

204 bn

204 bn

Operator addressable market  
for role Service enabler

204 bn

337 bn

541 bn

Operator addressable market  
for role Service creator

204 bn

337 bn

79 bn

619 bn

Sum of addressable 5G  
revenue per operator role

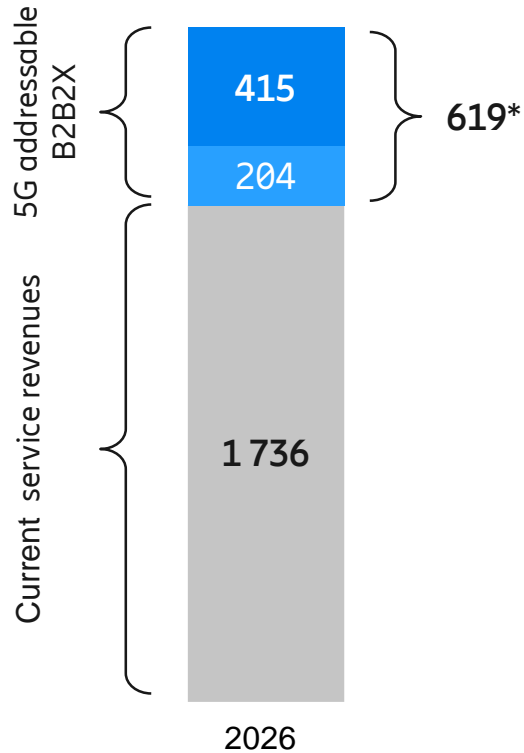
Source: Ericsson and Arthur D. Little

Note: The total addressable market for operator role Service creator is the total operator addressable market  
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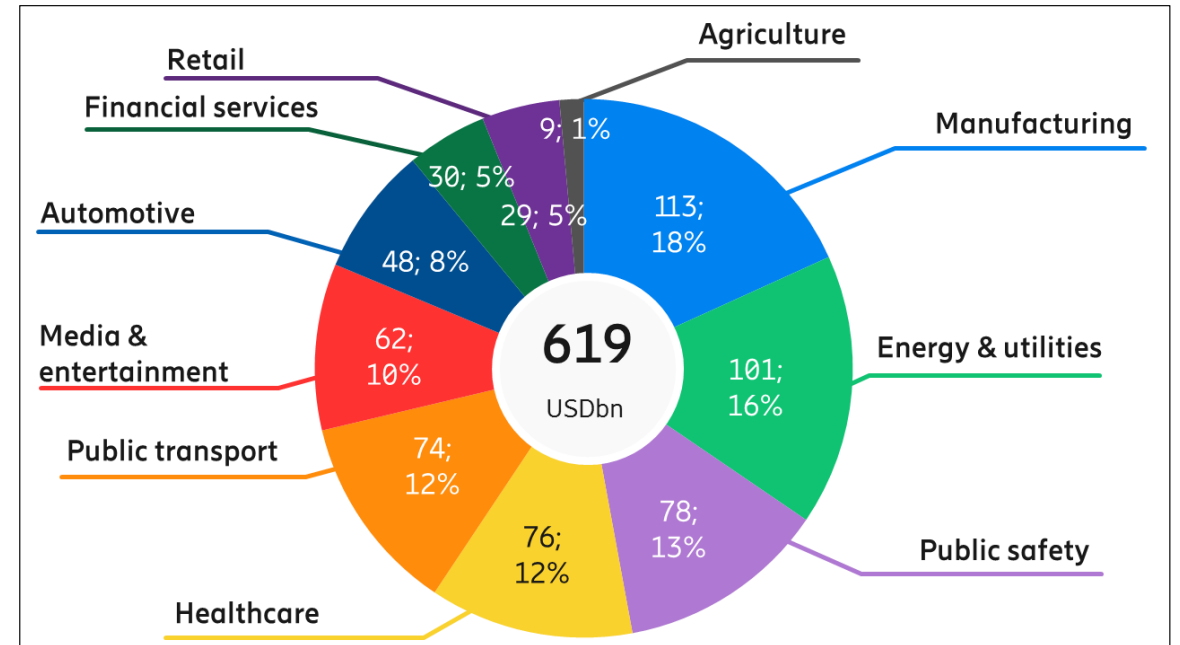
# 5G revenue potential for operators addressing industry digitalization



USDbn, 2026



Adding an addressable  
**36%**  
revenue growth potential



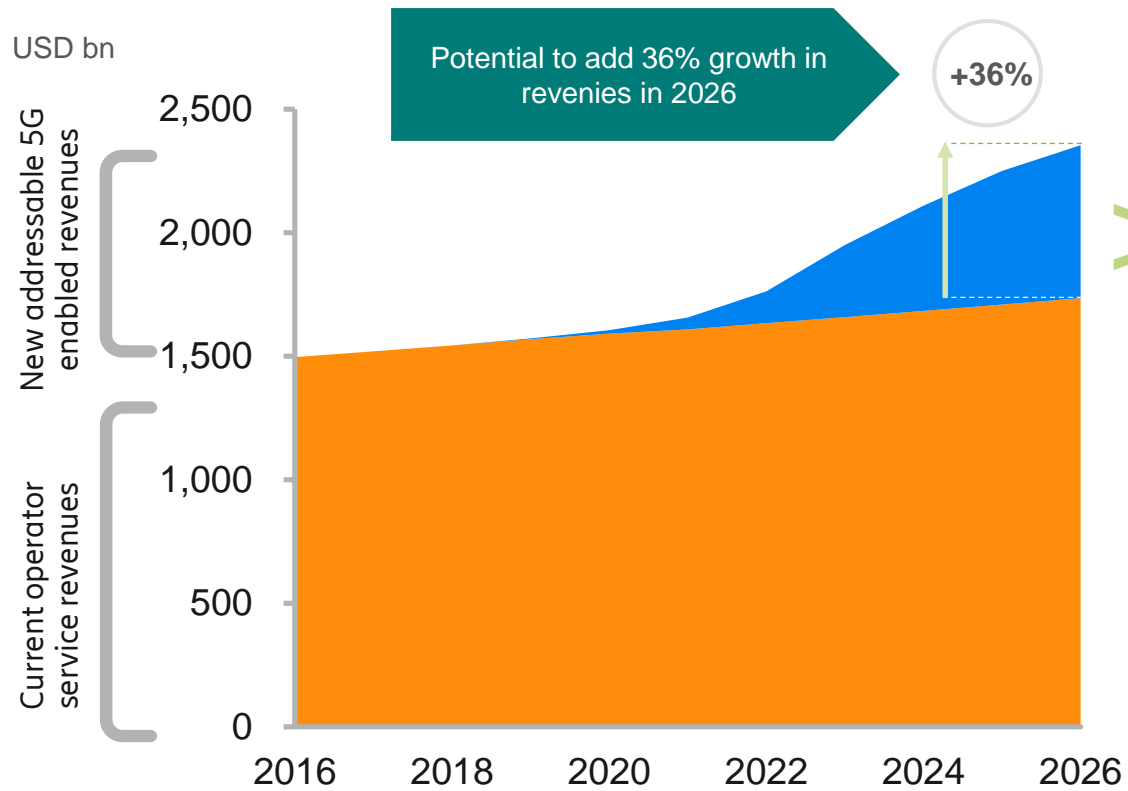
- Service enabler and service creator revenue potential
- Network developer revenue potential

\*Total addressable as Service creator operator role

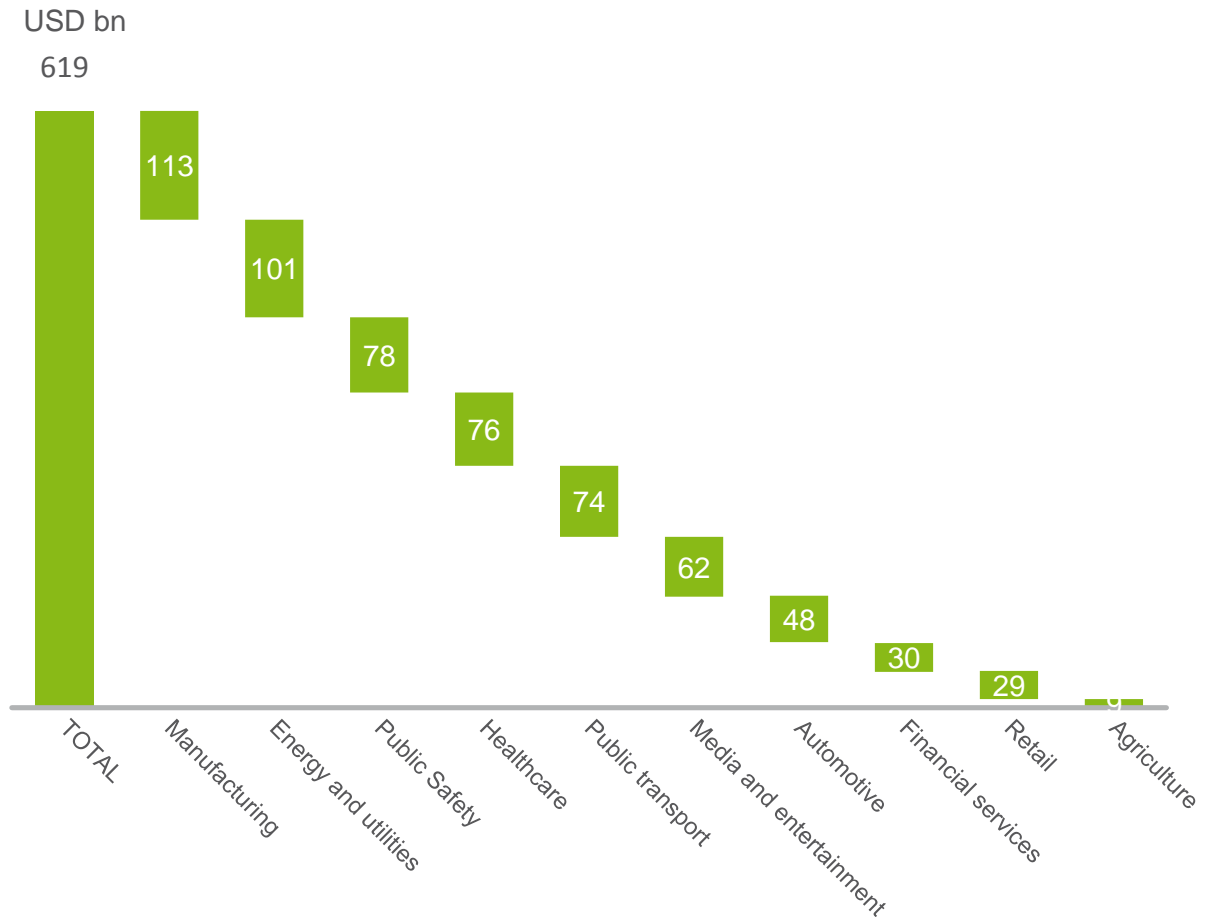
# Operator opportunity addressing Industry digitalization with 5G



## Current & 5G addressable revenues

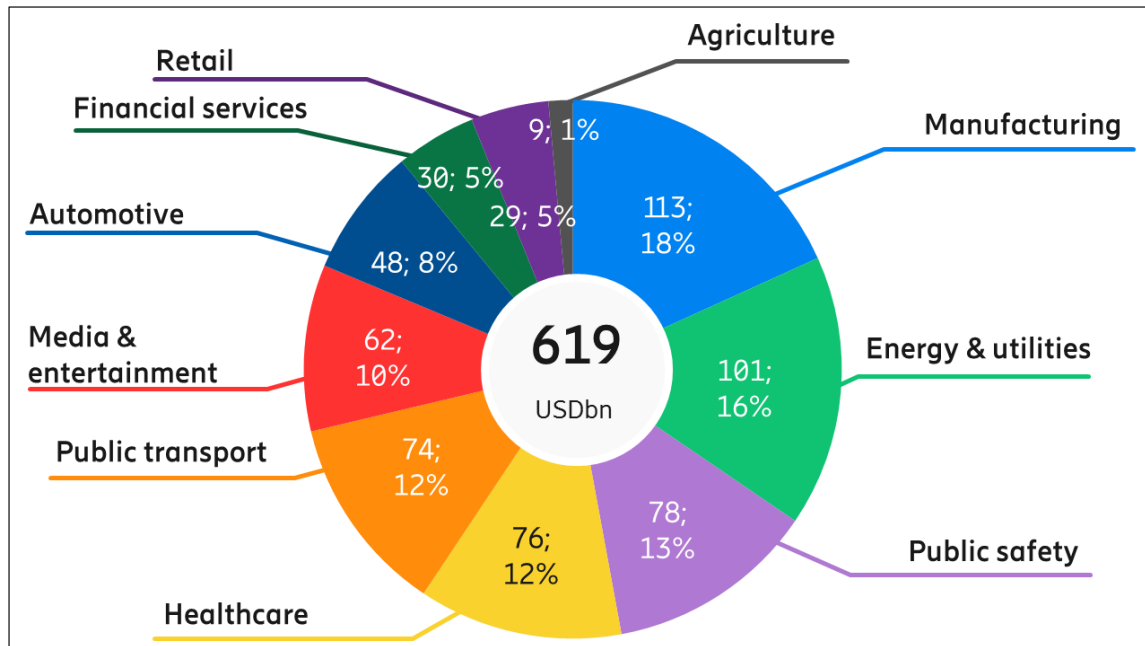


## Split per Industry (2026)





# Use Case clusters



From industries  
to clusters  
From what  
to how

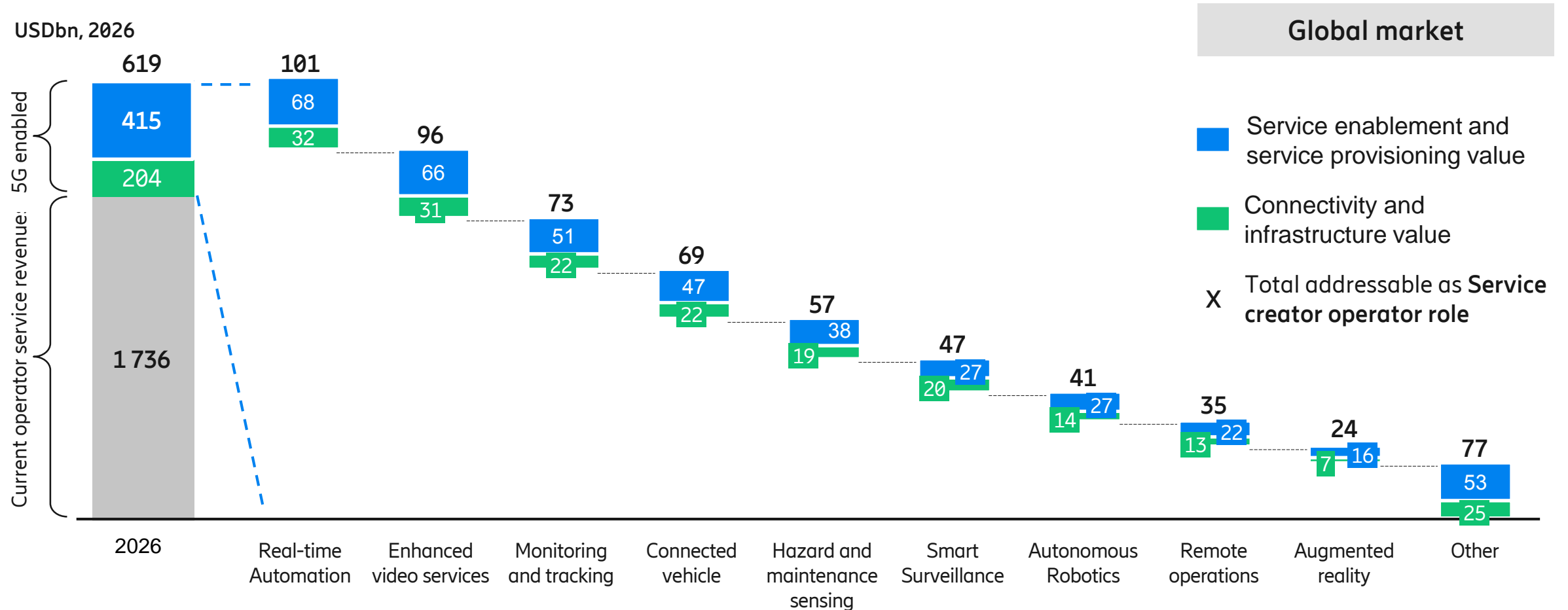
## Cluster approach

Enables shared investments and resource allocation across a larger revenue pool

Possible to prioritize opportunities depending on investment

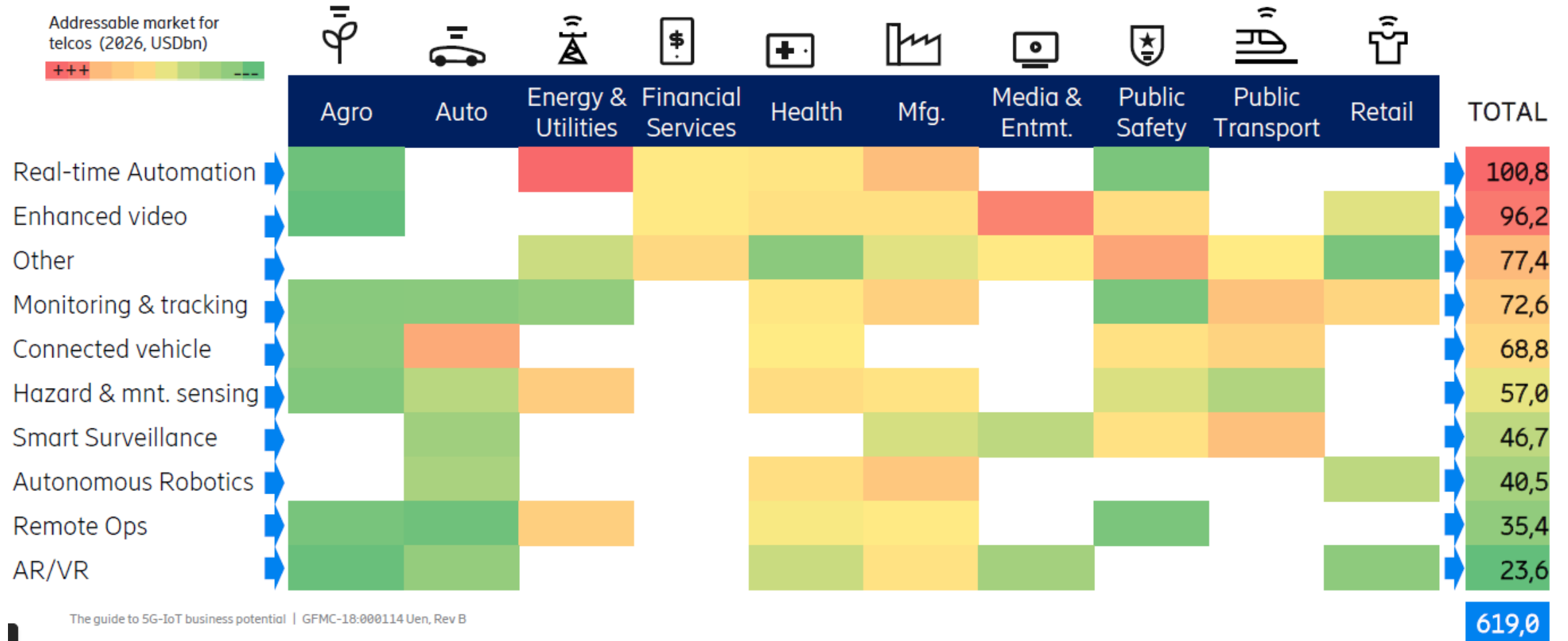
Increase scalability across industries

# To grow with up to 36% operators can address 9 Use Case clusters



Source: Ericsson and Arthur D. Little

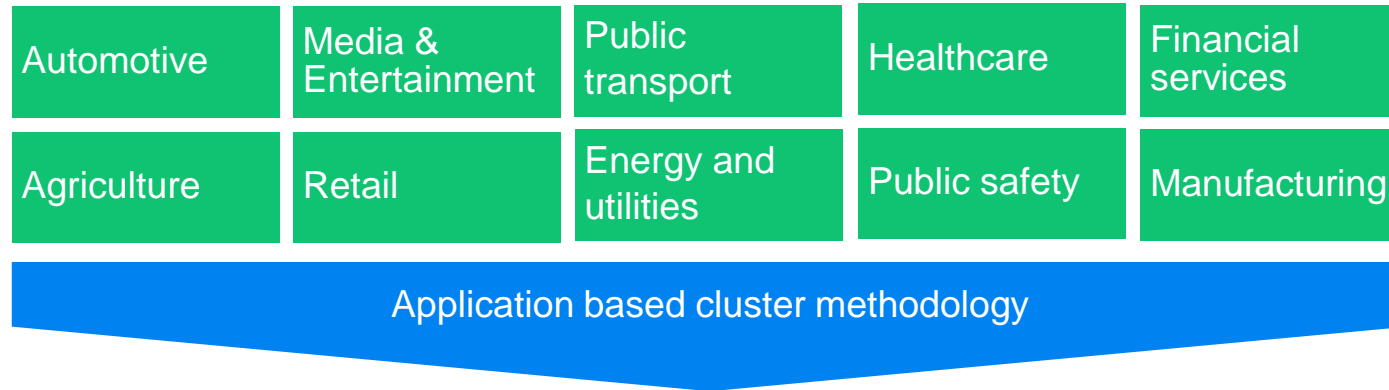
# Industries and Use Case Clusters



# 5G Use Case clusters



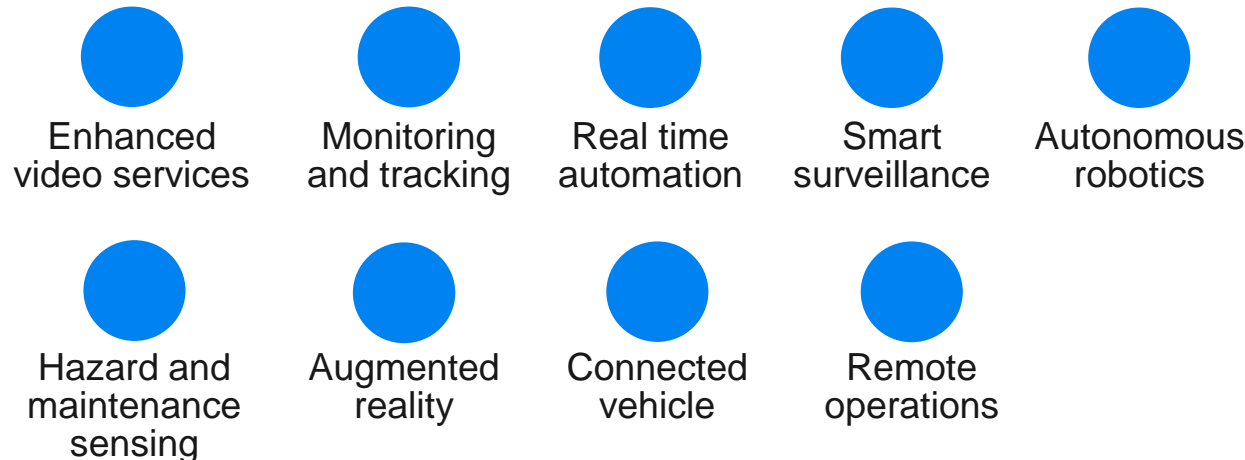
**+200 use cases in 10 industries**



## Go-to-market challenges



- Business and monetization model
- Value chain positioning
- Role in ecosystem
- Partnership development



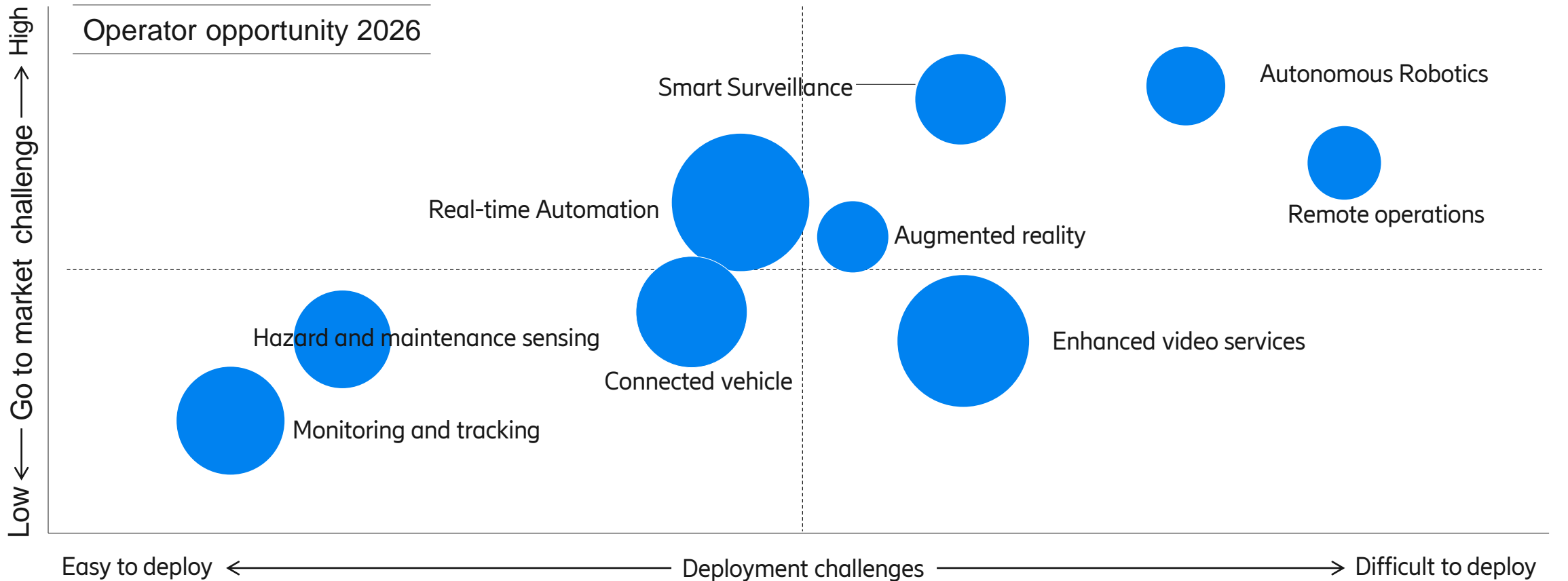
## Deployment challenges



- Technical performance criteria
  - Role of 5G
- 
- Device, network, computing and service enablers

# Emerging 5G strategies

## Ambition level steers the ability to capture the value



Source: Ericsson and Arthur D Little

# Use Case deep dive – Structure of the Analysis



## Connected vehicles – Cluster description

**Description**

**Description of cluster**

- Connected Vehicles cluster includes applications to provide moving vehicles with a continuous, nationwide connection
- The cluster should allow operators to enhance their products without investing extensively in new deployment or go-to-market capabilities

**Example use cases – connected vehicles**

- Connected ambulance
- High-speed internet on trains
- Vehicle to vehicle networking systems
- Emergency vehicle notification system
- Vulnerable Road User (VRU) discovery

**Realization challenge**

- Key challenge for connected vehicles cluster is wide area deployment of high speed mobile broadband
- New sales capabilities to deal with several customers e.g. OEMs, end-customers, public transport companies, etc.

**Deployment challenge**

Low High Low High

Source: Ericsson and Ahref | D146

## Connected vehicles – Drivers and roadblocks

**Drivers and roadblocks**

**Drivers**

- Growing car sharing market**
  - The market is estimated to grow 34.8% CAGR over 2016-2024 (US\$16.5bn by 2024)
- Demand for car connectivity**
  - End-customers have shown a high demand for connectivity features, especially car safety enhancing features and data tracking
- Safety issues**
  - From April 2018 all new cars in Europe must be equipped with eCall – additional safety requirements are to be included
- High-tech entrants**
  - High-tech companies are disrupting the traditional automotive industry, e.g. Tesla cars, Google's autonomous cars, and AT&T partnership with GM

**Roadblocks**

- Automotive life cycles**
  - New connectivity features have a shorter lifecycle than typical automotive life cycles
- New monetization models**
  - Consumers are used to a one-off payment for a car while connected cars and features will likely be based on monthly or yearly subscriptions

Source: CBSE, Intel, Inpho, European Commission, UK Connected Car Club, MIRA, Ericsson and Ahref | D146

## Connected vehicles – Customer benefits

**Customer benefits**

**Car owners**

- Enhanced driver experience through enhanced infotainment
- Connected cars will increase safety for drivers through applications such as vulnerable road users applications

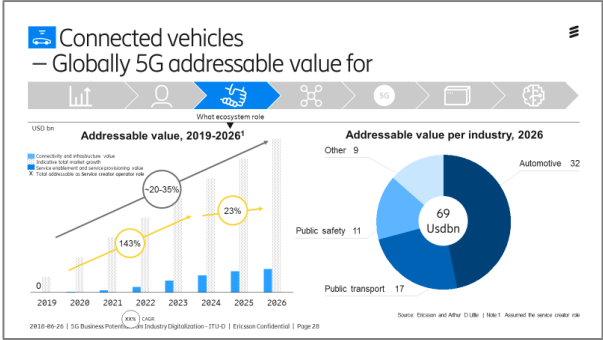
**Insurance firms**

- Increased revenue for ecosystem players by increasing customer base and through new offerings
- Insurance firms can provide tailored solutions to their customers based on data driven approaches

**Hospitals**

- Connected ambulances would be able to share patient's vitals and images/video streams "on the go" to hospital staff
- Connected emergency vehicles will be able to reduce time to incident by coordination with infrastructure and other vehicles

Source: T-Mobile, The Promise of Insurance Companies, Q&A Health, Ericsson and Ahref | D146



## Connected vehicles – Go-to-market challenges and requirements

**Industry**

- Automotive
- Public transport
- Public safety

**Go-to-market challenges**

Operators alliances already provide connectivity as a service to OEMs, the speed and quality of connectivity is expected to be increased in the future. Operators would have to partner with solution providers (e.g. infotainment) in order to move up from connectivity to other value adding services.

In developed countries operators would have to move up from connectivity to value added services based on partnerships.

Partnership management

**Go-to-market challenges**

Regulatory environment

Sales channels

Customer engagement

Go-to-market replicability

Source: Ericsson and Ahref | D146

## Connected vehicles – Monetization models

**Monetization models**

Operator role	Operators' primary customers	Project-based	Access-based fee	Revenue share	Subscription-based	Licensing cost	Benefits-based	Other
1. Network developer Providing connectivity	End customers	Green	Green	Green	Green	Green	Green	Green
2. Service enabler Providing connectivity and service platform	3rd party app providers	Green	Green	Red	Green	Green	Green	Green
3. Service creator Providing connectivity, applications & services	End customers	Green	Green	Green	Green	Green	Green	Green

Source: Ericsson and Ahref | D146 | Note: \* Transition based on network

## Connected vehicles – Cluster evolution

**Cluster evolution**

**5G Requirements**

- Real-time driver statistics
- Personalized insurance services on driving behavior
- Connectivity within the vehicle
- Assisted driving
- Traffic jam warnings

**Smart driving**

- Vehicle to vehicle communication systems
- Connected ambulance
- High-speed internet access
- Semi-auto pilot driving
- Vulnerable road user (VRU) discovery

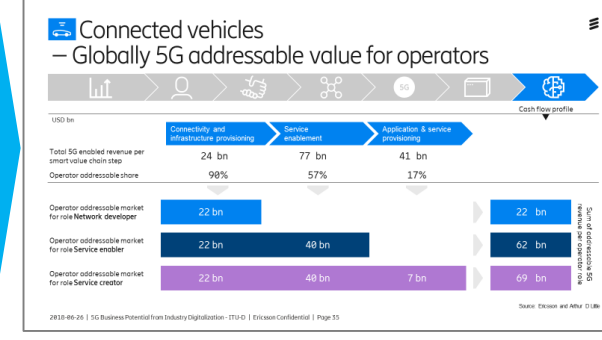
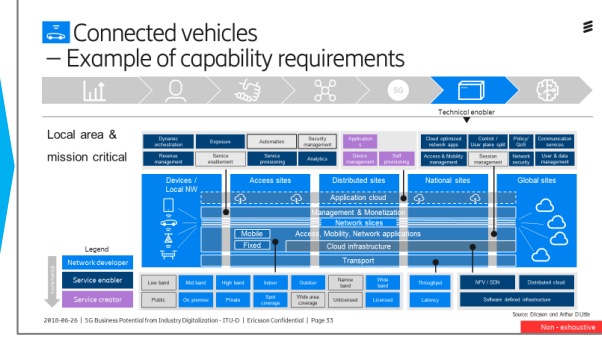
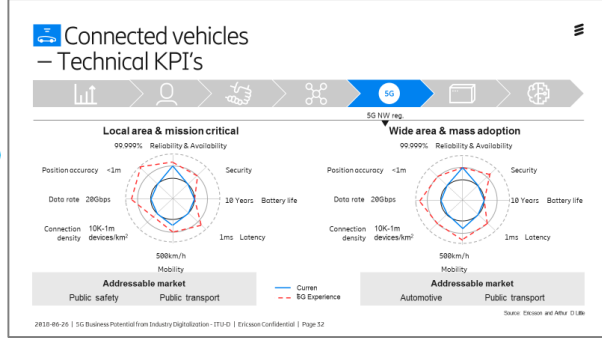
**Advanced performance**

- See-through sensing
- Auto pilot driving
- Advanced infotainment (e.g. 4K streaming)
- Auxiliary services such as Vii presence

**On the road to 5G**

**5G experience**

Source: Ericsson and Ahref | D146



# Operators in all geographies of the world are embarking on their 5G journey



Cluster	Market	North America	Europe & Latin America	North East Asia	Oceania & India
Real time automation			Telefonica-Vivo (Brazil) Smart grid		
Monitoring and tracking		AT&T (US) Fleet management solutions			
Enhanced video services					Telstra (Australia) Connected venues
Hazard and maintenance sensing			Orange (Europe) Remote patient monitoring	China Mob. (China) Condition-based maintenance	
Connected vehicle		Verizon (US) Commercial drone solutions			
		Ericsson (US) Conn. Urban Transport	Telia (Sweden) Connected cars		

■ Case study

Source: Ericsson and Arthur D Little

# The Ericsson industry digitalization tool quantifies the 5G cluster opportunity



## Key inputs<sup>1</sup>

Main top-down market sizing

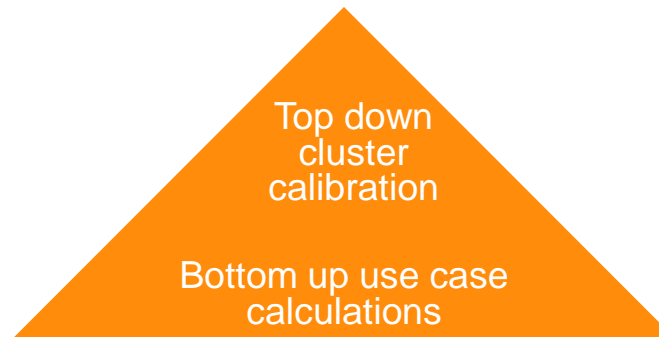
- +36 industry market reports
- +400 digitalization use cases

Triangulation sources

- Proxy business cases
- Market reports sizing use cases
- ICT company P&L structure benchmarks
- ADL ICT and industry expert evaluation
- Selected bottom-up case study quantification sanity check
- Industry ICT investment benchmark

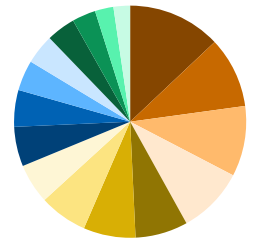
## Steering variables

Cluster    Region/ footprint    Operator role    Currency

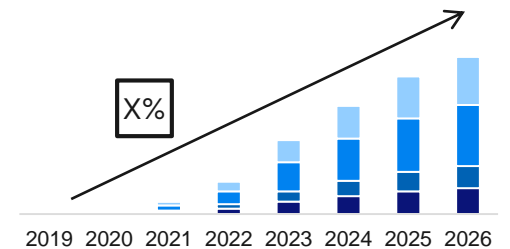


## Outputs

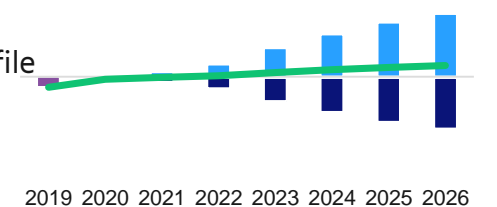
Revenue potential per cluster



Revenue 2016-2026



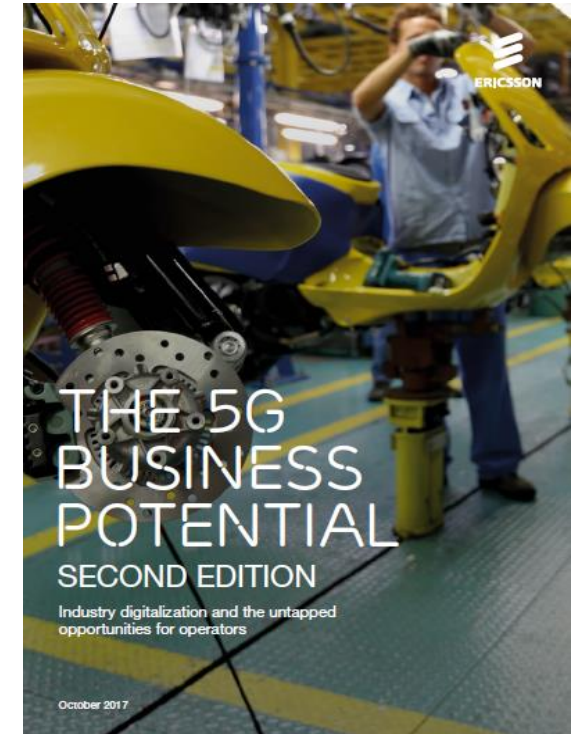
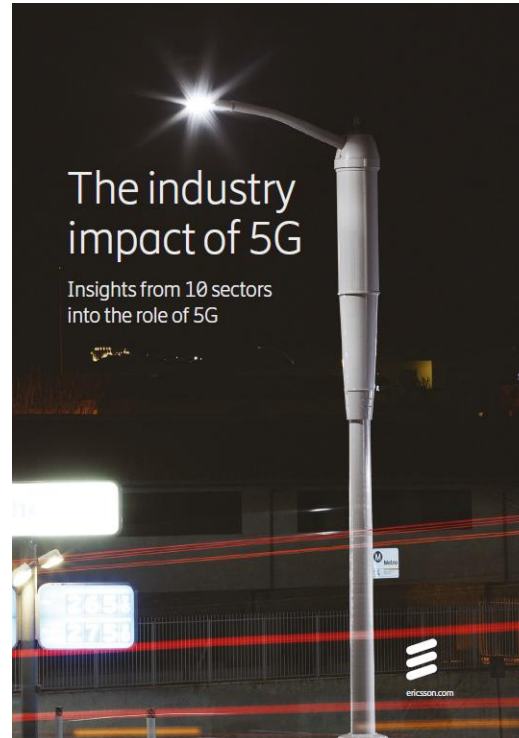
Cash flow profile Cluster X



Source: Ericsson and Arthur D Little | Note: Other sources used include GDP forecasts, exchange rates, ICT development index ... etc.



# Ericsson Studies and Analysis



<https://www.ericsson.com/en/5g>

<https://www.ericsson.com/en/networks/trending/insights-and-reports/the-5g-business-potential>

