



# MARSAL

Machine Learning-Based, Networking and Computing Infrastructure Resource Management of 5G and Beyond Intelligent Networks

# Enabling New Business Roles in the 6G Ecosystem

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Infocom World

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## MARSAL aims to provide an evolved architecture towards B5G, offering:

- unprecedented degrees of flexibility and closed-loop autonomy at all tiers of the infrastructure,
- > and significantly improved Spectral Efficiency via Cell-Free Networking.
- New business challenges affecting the B5G market



# **Market Opportunities**

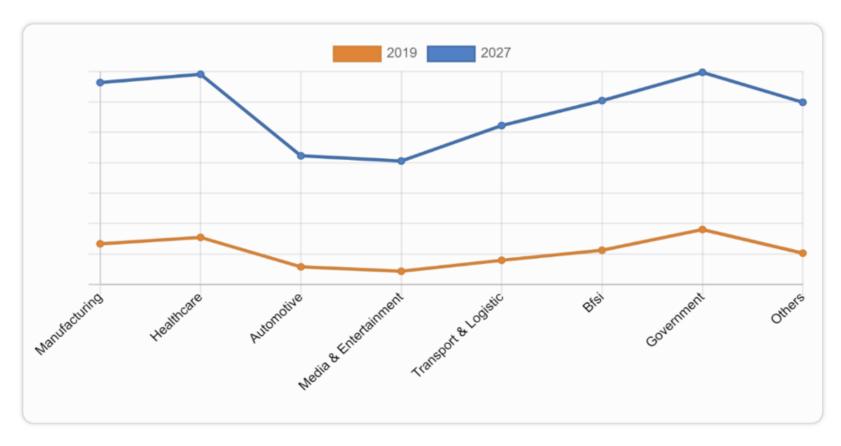


	Impact of 5G by industry and use case category			Industry output (sales) enabled by 5G	
Industry	Enhanced mobile broadband	Massive internet of things	Mission critical services	5G-enabled sales (2016\$, B)	Percent of industry sales
Ag., forestry & fishing				\$389	5.3
Arts & entertainment				\$65	3.5
Construction				\$731	4.3
Education				\$258	3.6
Financial & insurance				\$609	4.5
Health & social work				\$447	3.9
Hospitality				\$121	2.2
Information & communication				\$1,569	10.7
Manufacturing				\$4,687	5.4
Mining & quarrying				\$330	4.9
Professional services				\$536	3.0
Public service				\$985	6.3
Real estate activities				\$365	2.4
Transport. & storage				\$627	5.4
Utilities				\$265	3.9
Wholesale & retail				\$1,198	5.1
All industry sectors	\$4,351	\$4,219	\$4,614	\$13,183	Overall average: 5.0%

<sup>1</sup>AI and Operations Automation in 5G Networks: https://www.abiresearch.com/press/bid-capture-new-growth-telcos-turn-ai-and-operations-automation-5g-networks/







Network slicing market by industry vertical (2019-2027)

<sup>2</sup>Allied Markets Research: <u>https://www.alliedmarketresearch.com/network-slicing-market-A07916</u>



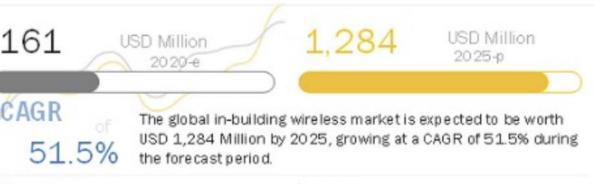
# Market Opportunities (cont.)





The market growth in APAC can be attributed to the digital transformation and automation across businesses in the region.







The growth of this market can be attributed to growing demand for coverage and capacity.

The increasing business demand

for enhancing network efficiency,

high speed, and virtualization of

network security is expected to make network slicing a dominant



Network Slicing solution vendors have adopted organic and inorganic strategies to expand their market presence, which in turn is expected to drive business revenue.



North America and Europe are leading the market in terms of market share.

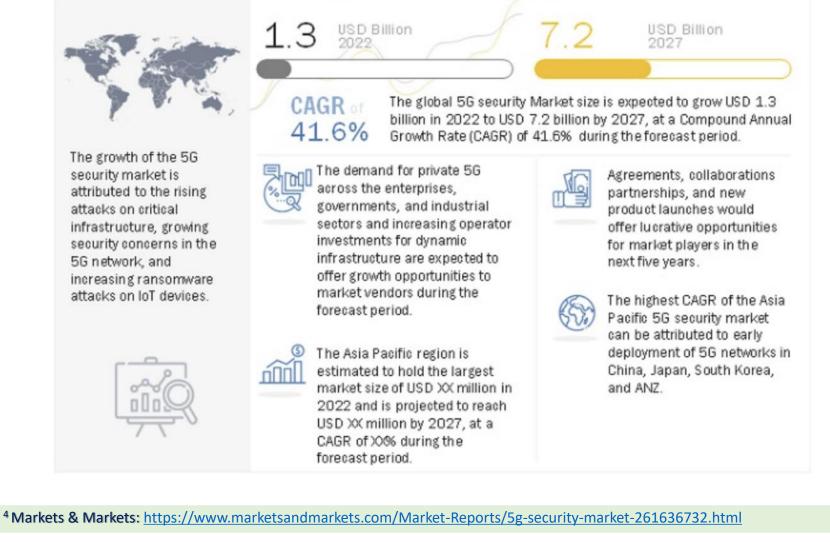
<sup>3</sup>Markets & Markets: <u>https://www.marketsandmarkets.com/Market-Reports/network-slicing-market-120515704.html</u>

model



# Market Opportunities (cont.)











# Definition of requirements, specifications, KPIs and test scenarios for the following MARSAL PoCs

## **PoC1:** Cell-free networking in dense and ultra-dense hotspot areas

- Experimentation Scenario 1.1: Dense User-Generated Content distribution with mmWave Fronthauling.
- Experimentation Scenario 1.2: Ultra-dense video traffic delivery in a converged Fixed-Mobile network.

## PoC2: Cognitive assistance and its security and privacy implications

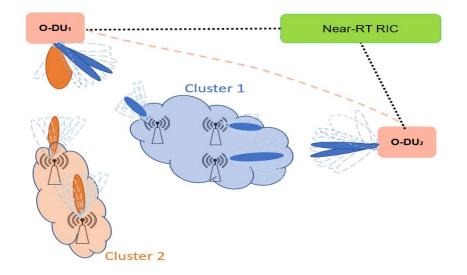
- Experimentation Scenario 2.1: Cognitive Assistance and Smart Connectivity for next-generation sightseeing.
- Experimentation Scenario 2.2: Data security and privacy in multi-tenant infrastructures.





## Dense User-Generated Content distribution with mmWave Fronthauling

- Cell-free mMIMO infrastructure provider
- Cell-free vRAN VNFs provider
- RAN intelligent controller and xAPPs provider
- mmWave fronthaul provider
- mmWave transport network
- Network equipment manufacturer

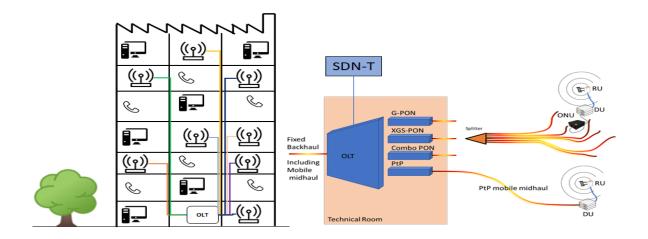






# > Ultra-dense video traffic delivery in a converged Fixed-Mobile network

- Optical access networks and fiber infrastructure provider
- Radio intelligent controller provider
- The RAN components provider
- Network equipment manufacturer







# Cognitive Assistance and Smart Connectivity for next-generation sightseeing

- High-level definition of two real-time, interactive, cloud-native AR applications for 6G outdoors sightseeing, supporting human-centered interaction via 3D cameras, equipped with untethered AR glasses.
  - APP1: real-time video analytics, visual guidance
  - ✓ APP2: cognitive assistance, virtual representation of an artefact projected at AR glasses
  - Provide a *flexible network architecture* capable of adapting to fulfil applications performance requirements.
  - Cope with the *challenging applications requirements*, while keeping the *SLAs* of the rest running apps.
  - Load balancing according to priority services.
  - MEC approaches:
    - lighten the network burden of the AR applications,
    - leverage the use of edge computing nodes.





# **Experimentation Scenario 2.1**



- End-user
- User equipment manufacturer
- Network equipment manufacturer
- Connectivity provider
- Service provider
- Service Virtualisation Platform Operator
- Applications developer

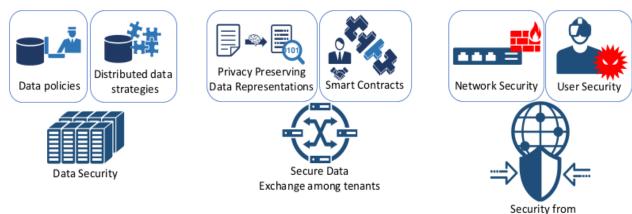






## Data security and privacy in multi-tenant infrastructures

- Network operator
- Cloud providers
- Slice tenants
- Network equipment manufacturers
- End-users





GROUP OF COMPANIES

#### **Contract Information:**

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