

COLLABORATIVE INNOVATION DAY  
4<sup>th</sup> October 2022 | Virtual Event

# VITAL-5G: Vertical Innovations in Transport And Logistics over 5G experimentation Facilities



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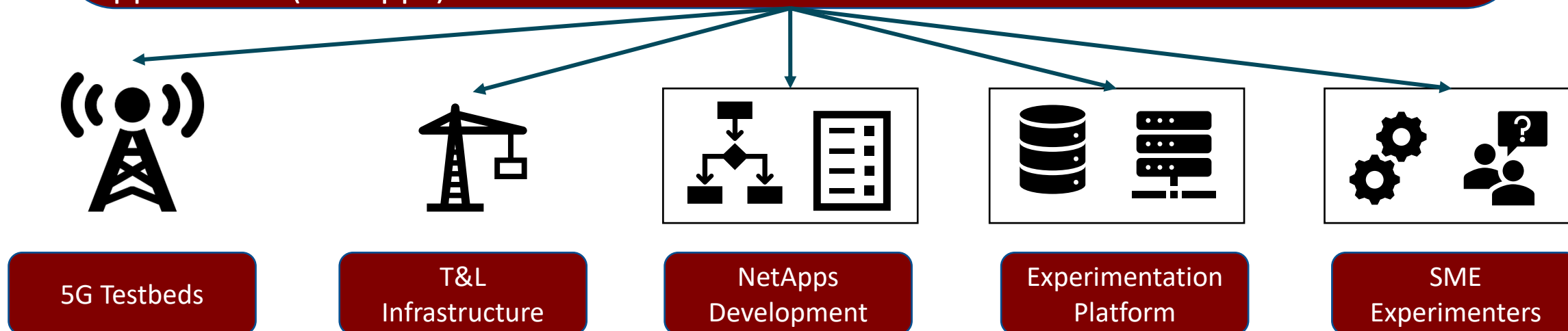


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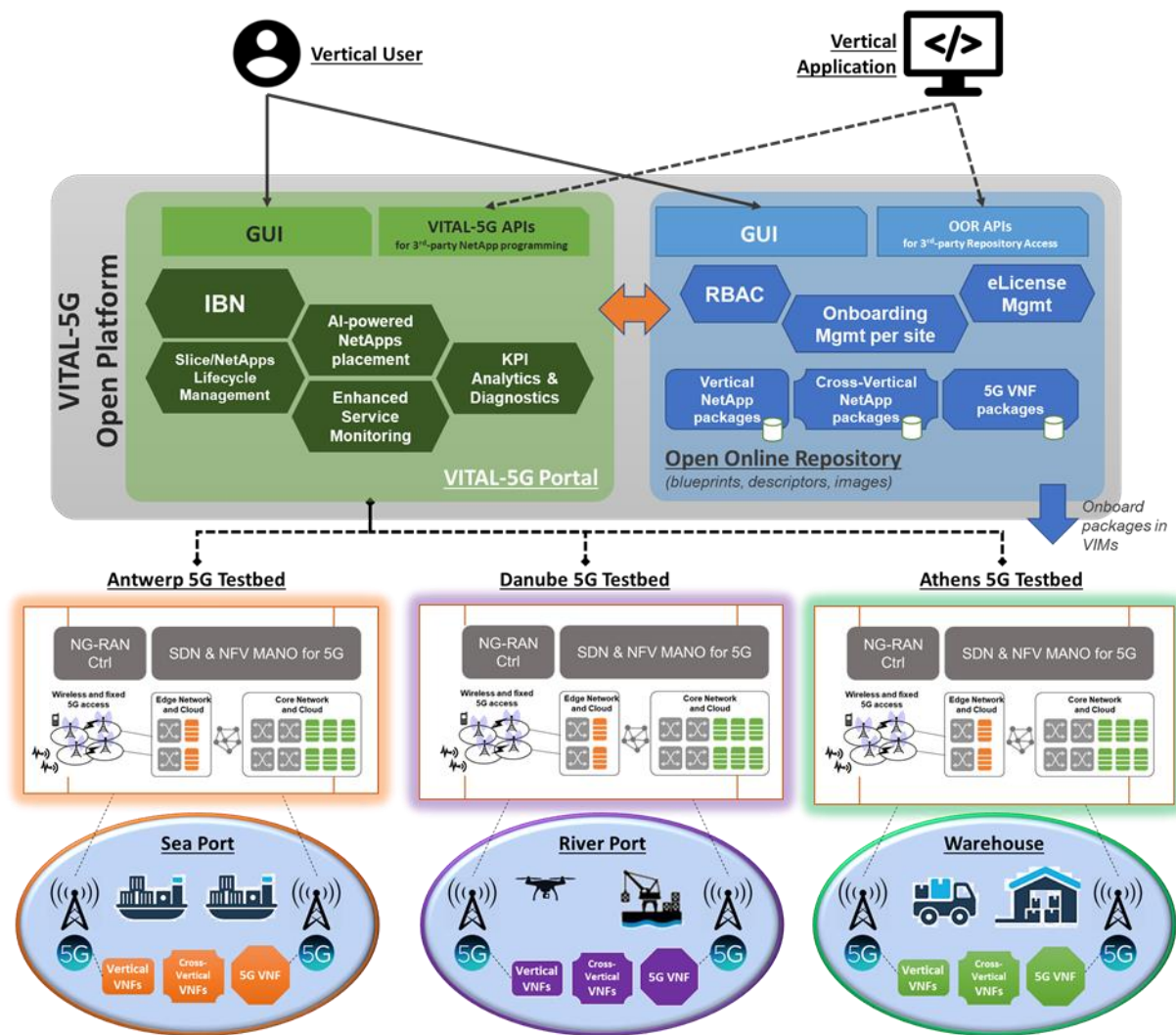
## VISION

To enable the creation of 5G-enhanced services for the Transport & Logistics (T&L) industry by bridging the knowledge/expertise gap between the T&L sector, telecommunication experts and application developers. Vital-5G will engage key logistics stakeholders (sea and river port authorities, road logistics operators, warehouse/hub logistic operators, etc.) and innovative SMEs, offering them an open and secure virtualised 5G environment to test and validate their T&L-related, cutting-edge Network Applications (NetApps)





# Concept



## VITAL-5G Experimentation Platform & Open Online Repository

(NetApps Development, Onboarding, Deployment, Experimentation tools, etc.)

## 5G-Testbeds

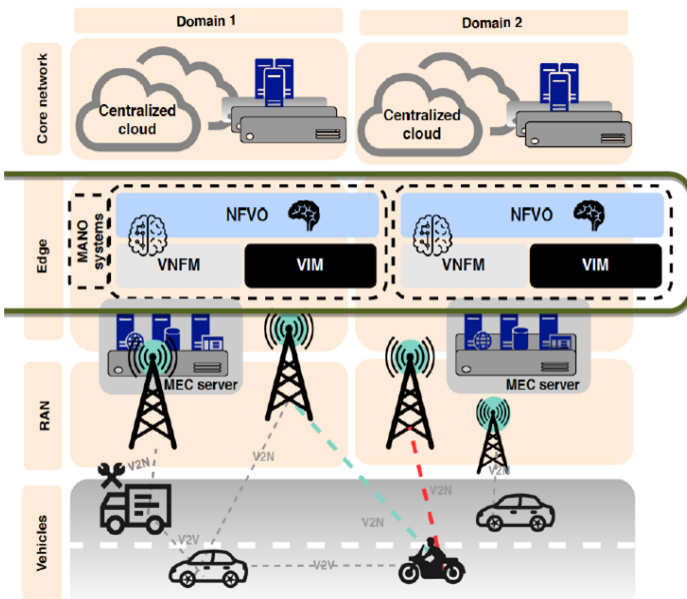
3GPP Release 16 Stand Alone testbeds @ Antwerp, Athens and Danube (Galati)

## T&L facilities & 5G-enabled use cases

(Automated vessel transport, Warehouse/freight logistics, Data-enabled assisted navigation )



# 5G Testbeds



## Antwerp 5G-Testbed

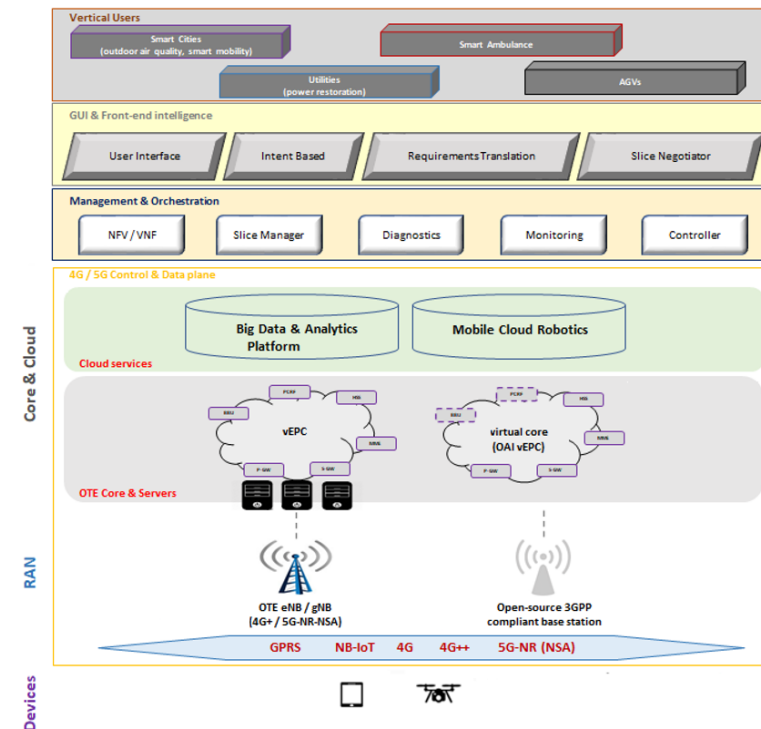
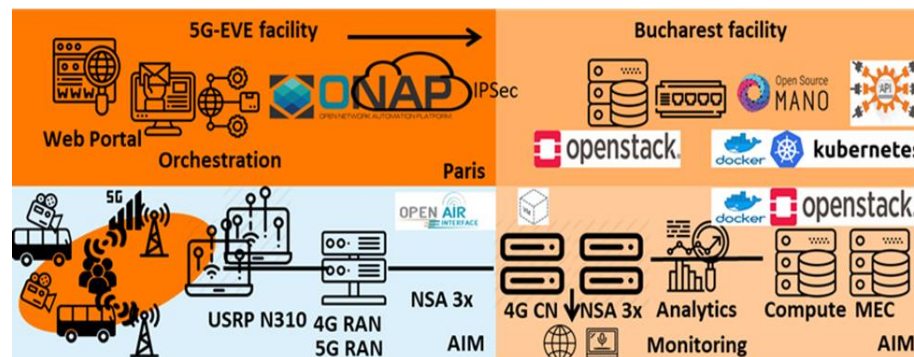
Based on i) Telenet's Innovation Center infrastructure, ii) Connectivity and components from 5G-Blueprint and iii) components from Telenet's commercial 5G network.

Upgraded to **3GPP Rel.16 SA**

## Galati (Danube) 5G-Testbed

Based on i) Orange Romania commercial infrastructure and ii) connectivity and components from the 5G-EVE testbed. Backhaul to be extended to Galati.

Upgraded to **3GPP Rel.16 SA**



## Athens 5G-Testbed

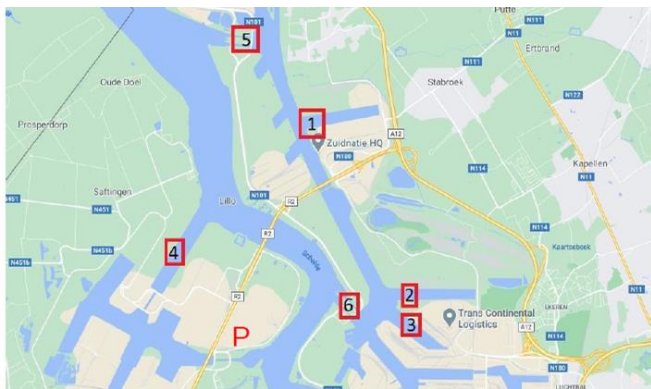
Based on i) OTE's backbone infrastructure and ii) connectivity and components from the 5G-EVE testbed. Indoor & outdoor connectivity over a fiber backhaul.

To be upgraded to **3GPP Rel.16 SA**



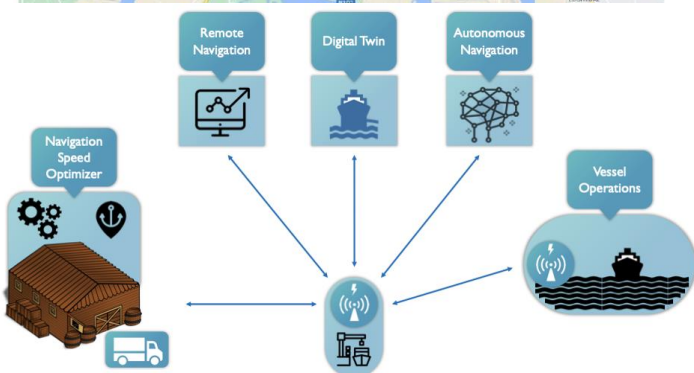


# T&L facilities & 5G-enabled use cases



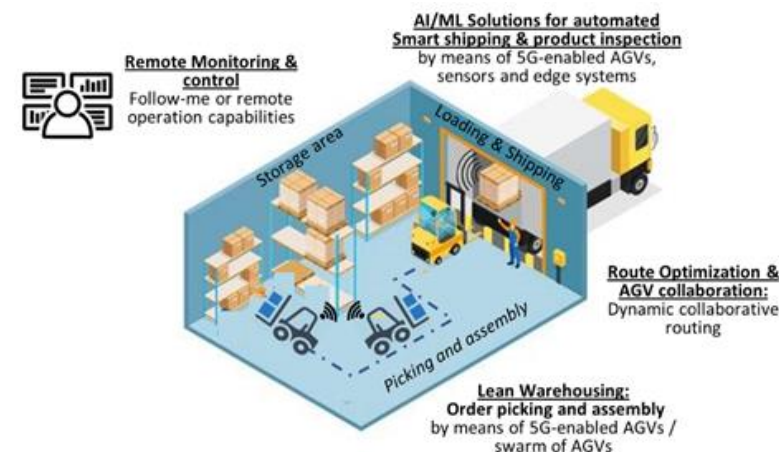
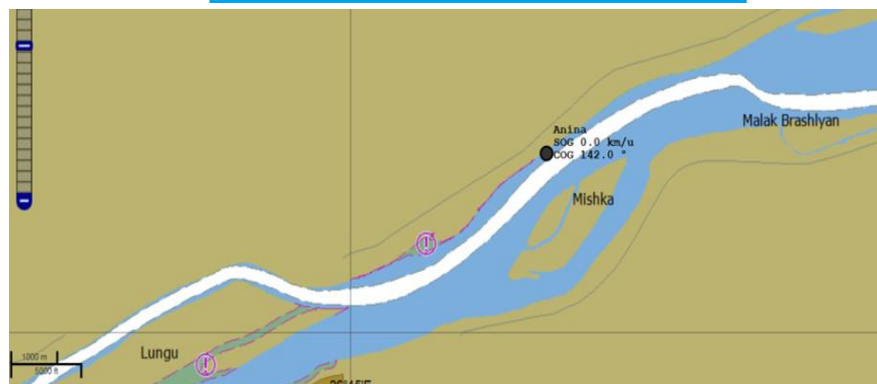
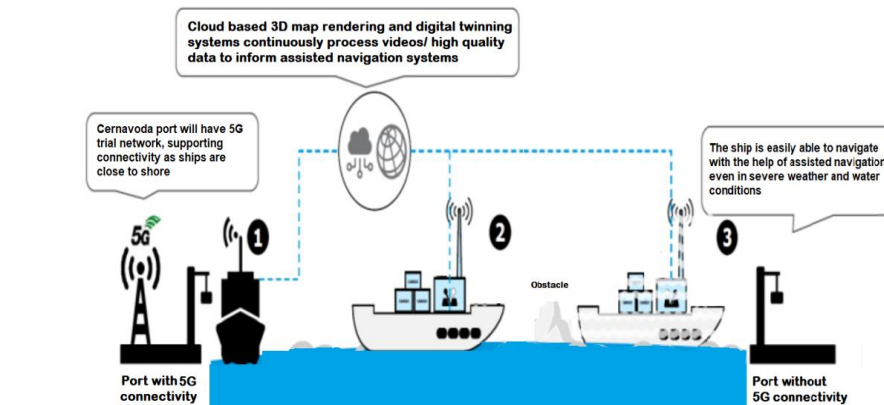
## Galati (Danube) T&L Facility & UC

- **Galati river port (Danube)**
- Data-enabled assisted navigation in severe weather/water conditions
- Remote inspection, fraud detection, insurance
- **KPIs:** Increased safety, electronic map accuracy, etc.



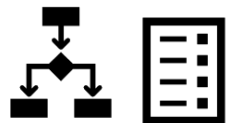
## Antwerp T&L Facility & UC

- **Antwerp sea port (Mission critical)**
- Automated & Remote Vessel navigation in busy port environment
- Port Digital Twin
- **KPIs:** Port safety, reduced dwell times, reduced personnel, etc.



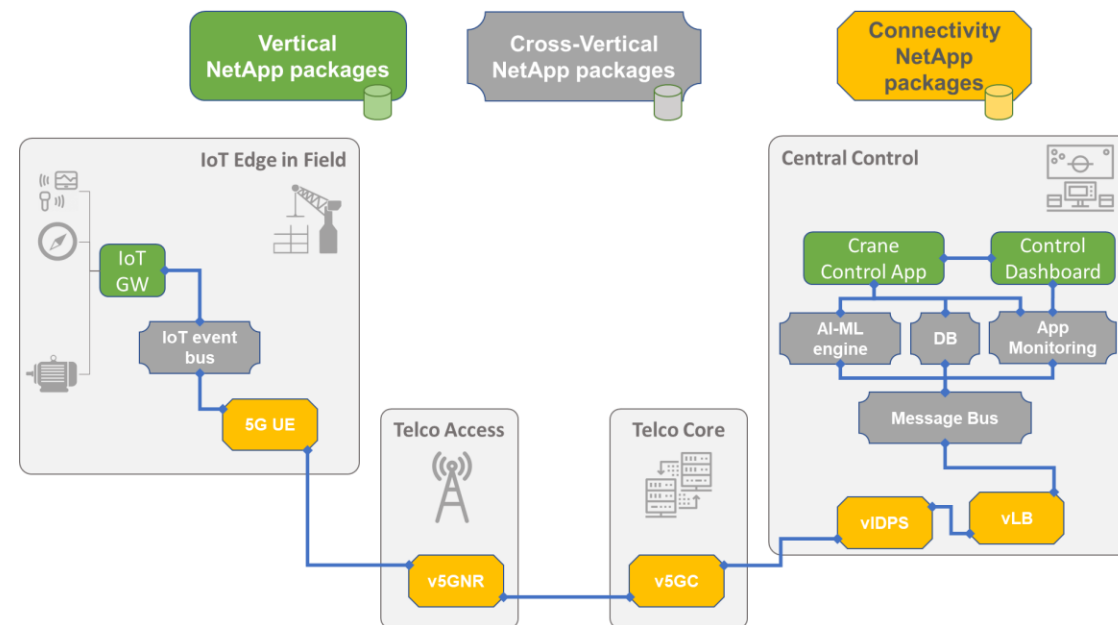
## Athens T&L Facility & UC

- **Athens Logistics hub (3PL warehouse)**
- Smart warehouse / freight logistics
- Lean warehouse, human-AGV collaboration, remote monitoring & control, etc.
- **KPIs:** Increased operational efficiency, productivity, warehouse capacity, etc.



## Network Applications (NetApps)

*Packages containing NFV descriptors, software images, configuration scripts for service chains formed by virtual (VNF) and physical (PNF) functions.*



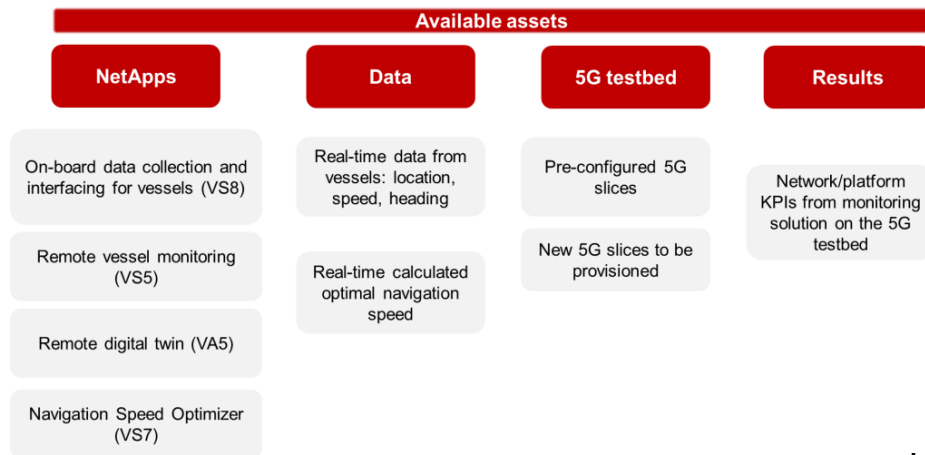
- **Application –specific NetApps (Green):** Address specific industry challenges for the T&L sector. They can be specific to the connectivity layer implemented at the target T&L premises, e.g., autonomous/remote vessel control, human-robot collaboration application, etc.
- **Application – agnostic NetApps (Gray):** Used to implement core primitives for data processing at the application layer. They include functionalities that can be used in a variety of vertical applications and T&L services, e.g., generic IoT management platform, data ingestion, fusion and processing engine, etc.
- **NetApp implementation:** Multiple NetApps (specific & agnostic) will be “chained” together in a flexible and reconfigurable manner to provide advanced E2E services.
  - Autonomous Vessel Navigation = Digital twin + Monitoring sensor data + Obstacle detection & tracking + Path prediction & vessel control

# What assets we offer

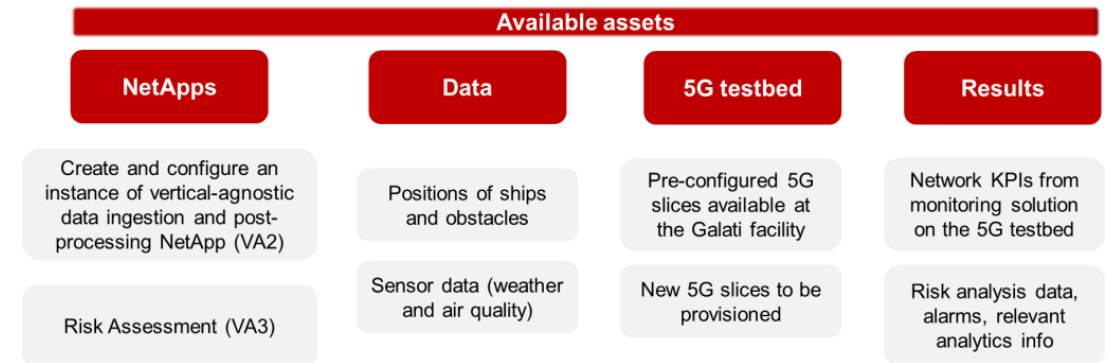


**VITAL-5G will open its unique 5G experimentation infrastructure to innovative SMEs, startups and researchers in order to develop and test their vertical services for the T&L sector.**

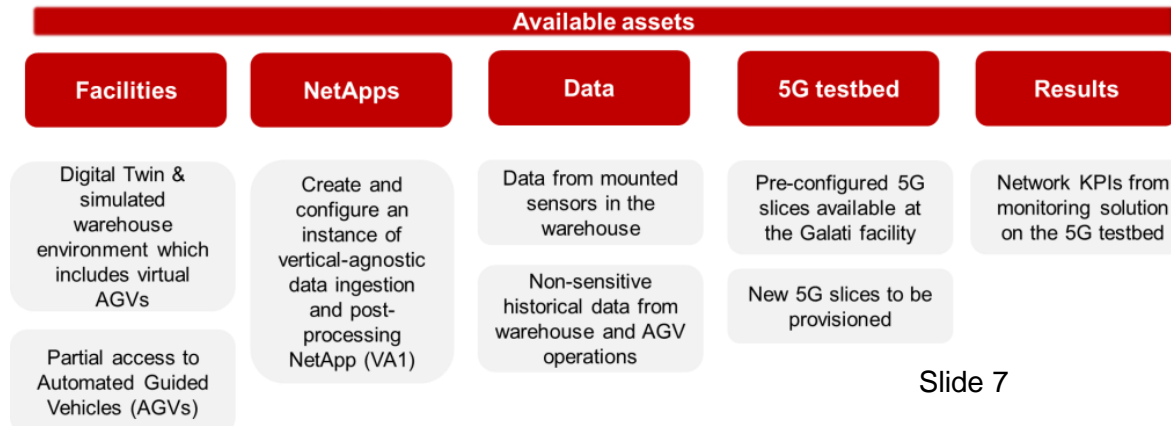
## Antwerp Seaport



## Galati Riverport



## Athens Warehouse



Are you:

- i) An innovative SMEs that is looking for their next big step in developing vertical or agnostic services
- ii) A start-up that needs a foot ahead of the competition in developing new technologies
- iii) A researcher that requires **FREE** access to experimentation facilities for their research project

Then VITAL-5G wants to help you develop and test your vertical services for the T&L sector or try your agnostic service development by:

- Getting **FREE access** to the latest state-of-the-art testbeds technologies
- Getting **FREE access** to resources for your experimentation needs
- Getting 1 on 1 support from our experts to tailor your needs on our experimentation facilities





Thank you for you attention!



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