



**nitel**

Consorzio Nazionale  
Interuniversitario  
per i Trasporti  
e la Logistica

Il NITEL – Consorzio Nazionale Interuniversitario per i Trasporti e la Logistica is a no profit organization founded in 2003 an under supervision of Ministry of University and Research.

18 Italian universities are members of NITEL. They operate in the field of transportation and logistics and also in correlated fields such as computer science, safety, security, telecommunications, plants, electronics, mechanics, environment, chemistry.



Università degli Studi di  
Roma La Sapienza



Università Campus Bio-  
Medico di Roma



Università degli Studi  
Roma Tre



Università degli Studi di  
Roma Tor Vergata



Università degli Studi di  
Cassino e del Lazio  
Meridionale



Università degli Studi di  
Genova



Politecnico di Bari



Politecnico di Milano



Università degli Studi  
dell'Aquila



Università di Pisa



Università degli Studi di  
Palermo



Università degli Studi di  
Napoli Federico II



Università degli Studi del  
Sannio



Università degli Studi di  
Urbino Carlo Bo



Università degli Studi di  
Trieste



Alma Mater Studiorum  
Università di Bologna



Università IUAV di Venezia



Università degli Studi  
Mediterranea

The Universities of the Consortium represent highly expert entities that take advantage of existing expertise and that encourage the research and the innovation.

NITEL takes advantage of the support of different Ministries and of major Italian industries such as, for example, RFI, ANAS, Telespazio, Poste Italiane, members of the scientific committee, to exchange know how with the real word transferring the results of the university research.

Key factors are the skilled and motivated academic team cooperation with experts from different technologies fields, research institutions (included other inter-university Consortia), valued companies which care innovation in technologies.

NITEL supports companies developing research activities on topics in line with their industrial goals, implementing technology transfer of know-how, proposing innovative solutions, leveraging on the expertise of the research groups working in the consortium, and provides support to the design, prototyping and development of technologies and services.

## Topics

### Transportations

- ❖ Autonomous driving systems
- ❖ Smart and automatic systems to track people and goods
- ❖ Tools and systems to manage, control and development of Smart Roads

### Robotics

- ❖ Analysis of security systems and identification of incorrect behaviour of autonomous robot systems (including flying vehicles – UAV and autonomous driving cars)

### Geomatics

- ❖ Analysis and processing of GNSS data (Global Navigation Satellite System) for the positioning and the real-time standalone navigation for the self-driving and railway security;
- ❖ high Resolution SAR and Optical Satellite Imagery processing (orthophotos and Digital Surface Models generation).

### Law

- ❖ International, European and national regulations in road, maritime and railway transportations, international conventions for road transportations;
- ❖ regulations on logistics supply chain responsibilities for many road violations connected to the transportation (respect to driving times and rest periods, surplus weight, speed limits, etc.).

### Logistics

- ❖ Dimensioning and management of industrial storehouses;
- ❖ Optimization of input and output materials flows;
- ❖ Identification and dimensioning of internal systems;
- ❖ Identification of optimum paths for transportations means.

### Chemistry

- ❖ Chemical-physical sensors
  - Design and synthesis of artificial receptors Nanostructures
  - Optical, impedance and mass transducers, ChemFETs
  - Hybrid materials: porphyrins, carbon nanotubes, graphene
  - Kelvin probe, scan microscope optical methods

### Telecommunications

- ❖ 5G
- ❖ Satellite-terrestrial integrated networks
- ❖ Satellite systems for multimedia wideband services both fixed and mobile
- ❖ Network protocols and sensor networks

### Cyber Security

- ❖ computer science security and networks security.
- ❖ design and development of end-to-end solutions for fulfilment, management and practice of security procedures;

### Environment and Energy

- ❖ Sustainable transportation systems with hydrogen vehicles and energetic cycle at no emission, electric system, storage system in smart-grid, electric system;
- ❖ study of noise and atmospheric pollution from vehicular traffic;
- ❖ CA – Life Cycle Assessment of systems for electric cars;
- ❖ energetic efficiency.

### Computer Science

- ❖ AI and machine learning
- ❖ cloud computing and Big data
- ❖ design and development of health systems
- ❖ Development of smart transportation systems
- ❖ Software engineering
- ❖ Distributed simulation systems
- ❖ Cloud platforms for Smart Waste Management

### Industrial plants

- ❖ Analysis and dimensioning of plants for plastic recycle;
- ❖ Optimization of input and output materials flows;
- ❖ Safety of plants;
- ❖ Chemical physical analysis of the final products

- ❖ Electronic nose
- ❖ Electronic tongue
- ❖ Molecular Films
  - Functional surfaces
  - Kelvin Probe, AFM, Optical Anisotropy
- ❖ Sensor Matrix development for:
  - Environmental control,
  - Industrial processes,
  - Quality control