



Strade anas

SMART ROAD

The innovative road
that runs with progress

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Smart Road ANAS

A wired road to give and receive information

Hot Spot WIFI for a connection via Smartphone

Vehicle and road dialogue systems for self-driving and truck platooning

Infrastructure monitoring via Internet of Things

Real time Info-mobility for traffic flows management

Services on Board via Smartphone

Green Island to provide renewable energy

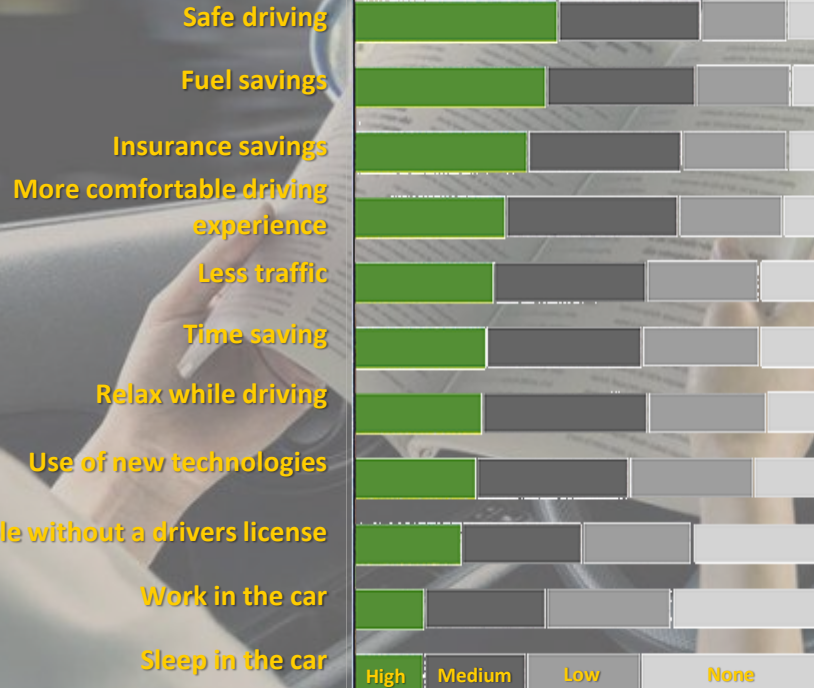
Drones for monitoring and rescue

Smart Road

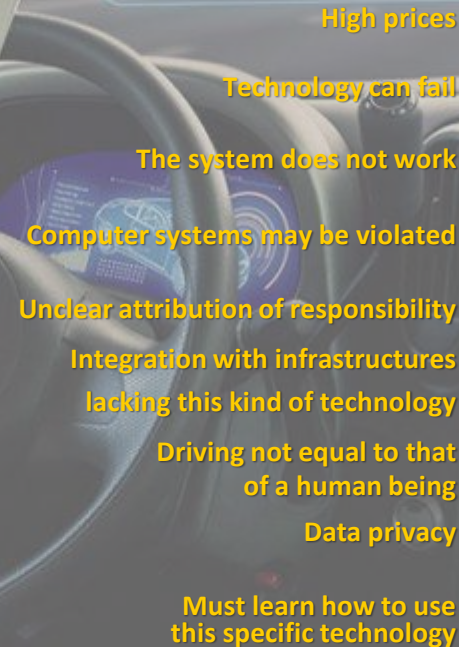
is

Autonomous Driving

PROS



CONS



*Source: Bain & Company

CONNECTIVITY

Wi-Fi in motion

Exchange of information between users and infrastructure. Access Points distributed along the road infrastructure for reliable connections with mobile devices in motion at motorway speeds

Wi-Fi Vehicle To Infrastructure DSRC- ETSI ITS-G5

Exchange of information between vehicles and infrastructure:

- OBU (On Board Unit): equipment for Wi-Fi connectivity on board the vehicle
- RSU (Road Side Unit): equipment for Wi-Fi connectivity distributed throughout the road infrastructure

MOVING WI-FI

Clients can now use various services, safely and according to traffic laws

- ☐ SAFETY
- ☐ INFO-MOBILITY
- ☐ WEATHER CONDITIONS
- ☐ SOS ON BOARD
- ☐ LOGISTIC SERVICES

All services are available through APPs which will **ONLY** be activated in *voice mode* while vehicles are moving, offering full usability when the vehicles are motionless

WI-FI ELEVEN P AND THE EUROPEAN STRATEGY ON C-ITS SYSTEMS

Applications Categories	Applications	Tasks	Day	C-ITS Services List
Active Road Safety	Assisted Driving/ Road Safety Information	Signaling the presence of emergency vehicles	Day 1	C-ITS Services List
		Signaling the presence of slow-moving vehicle	Day 1	C-ITS Services List
		Collision alert nearby interchange	Day 1	C-ITS Services List
		Signaling the presence of Motorcycle		
	Assisted Driving/ Warning Signalling	Electronic emergency stop light	Day 1	C-ITS Services List
		Against-traffic-flow driving alert		
		Signaling the presence of vehicle involved in accident	Day 1	C-ITS Services List
		Signaling the presence of broken-up vehicle	Day 1	C-ITS Services List
		Traffic Conditions	Day 1	C-ITS Services List
		Detection of any road sign violation	Day 1	C-ITS Services List
		Signaling the presence of construction site	Day 1	C-ITS Services List
		Alert risk of accident	Day 1	C-ITS Services List
		Data from the vehicle / dangerous place		
		Data from the vehicle / rainfall		
		Data from the vehicle / road friction		
		Data from the vehicle / visibility		
		Data from the vehicle / wind		
Traffic Efficiency	Speed Management	Notification of speed limits	Day 1	C-ITS Services List
	Cooperative Navigation	Traffic information and recommended road routes	Day 1.5	C-ITS Services List
		Signalling road sections closed / Alternative routes	Day 1.5	C-ITS Services List
		Assisted navigation		
		Repetition of road signs in the vehicle	Day 1.5	C-ITS Services List
Local Cooperative Services	Services based on location monitoring	Notification of points of interest	Day 1.5	C-ITS Services List
Internet Services	Connectivity Services	Automatic parking areas access control and management	Day 1.5	C-ITS Services List
		Insurance/ Financial services	Day 1.5	C-ITS Services List
		Vehicles fleet management		

INFORMATION FROM ROAD

"Smart" Surveillance Activities with detection of hazardous events and critical situations on the road and traffic data, equipped with a remote focus function, with the capacity of taking footage day and night in all weather conditions

- ☐ Traffic Flow condition
- ☐ Traffic Congestion
- ☐ Motionless vehicle (accident, etc.)
- ☐ Slow vehicle
- ☐ Vehicle moving in the opposite direction
- ☐ Pedestrian on the road
- ☐ Thing on the road
- ☐ Automatic number plate recognition
- ☐ Lane change
- ☐ Real-time traffic
- ☐ Kemler code plate recognition
- ☐ Smoke or Fog on the road

IOT

Real-time management and control via IOT (Internet of Things) of the road infrastructure and its new technologies.



Road
Platform



Tunnel



Bridge



Hydrological
Conditions



Weather
Condition
s



Smart
Gate



Hazardous
Goods



Weigh in
Motion

SUSTAINABLE TRANSPORT

- ❑ **INTELLIGENT TRUCK PARKING (ITP)** for intelligent parking of heavy vehicles
- ❑ **TRUCK PLATOONING**, includes combinations of two or three vehicles, which proceed at a short distance from each other, driven by means of automated driver assisted systems and wirelessly connected to each other. These combinations of various vehicles permit to achieve improved safety and efficiency in transport which favors greater environmental protection.
- ❑ **SMART TRUCK**, Travel Planning, Position reporting, Driving regularity and vehicles arrival forecast, Possibility to convey transport documentation to their Logistics Centers
- ❑ **HAZARDOUS GOODS**, tracking of ADR Goods

DRONES

Drones can play an important role in monitoring the infrastructure and/or road conditions, since they can fly to otherwise «inaccessible areas» and take high-resolution footage.



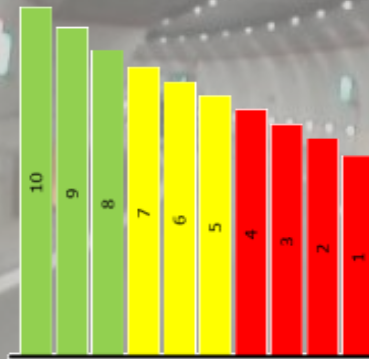
Also, in case of emergencies, drones can quickly reach the location where assistance is needed and can deliver emergency kits to rescuers, such as portable defibrillators.

Smart Tunnel

Intelligent management of tunnels through the Smart Tunnel methodology is based on "dynamic" risk analyses

It is a tool that allows the operator to verify the security level of tunnels, on well-defined timeframes, depending on the infrastructure's actual operating conditions, the current state of works and installations

Security
Level
Calculation



Real Time



Middle Time



Long Time

GREEN ISLAND

The Green Island is a multi-technology site for the generation and transformation of energy from renewable sources (photovoltaic, small wind systems).

It allows each segment of the infrastructure to generate its own power supply through an electrical distribution system that maximises energy efficiency by ensuring lower operating costs.

SMART ROAD ANAS

Anas has launched the Smart Road program

~
3000
km

The project also concerns

A2 – GRA - ROME FIUMICINO – A19 – E45/E55



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