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FOREIGN TRADE AND TRADE FACILITATION

# Intelligent Ports

SAFE MULTIMODAL TRANSPORT IN SUSTAINABLE  
SMART PORTS AND REGIONS

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# Overall goal

Familiarize regional stakeholders with new approaches to intelligent port operations.

- Generate ideas and discussion
- Replicate experiences in LAC region
- Conditions for a smart port

# Specific goal

- Overview of integrated strategies for hub management
- Role of artificial intelligence & infrastructure in ports
- How can LAC ports start laying the groundwork

# Main Objectives in Intelligent Ports

Develop unified platform that integrates locational & transport strategies for improved management in intelligent port and its region.

## *User Services*

1. Transport conditions information to urban network users & port authorities
2. Safety/security information to port authorities
3. High-accuracy information to authorities on vehicle movements in/near port
4. Incident-related guidance to authorities/ drivers

# Target groups/ stakeholders

- **Port Authorities**
- **Fleet managers & drivers**
- **Port users**
- **Urban network users**
- **Regional/local authorities**

# Selected Intelligent Components

**A. INTELLIGENT INFORMATION SYSTEMS**

**B. INTELLIGENT SAFETY/SECURITY**

**C. INTELLIGENT DETECTION SYSTEMS**

**D. INTELLIGENT VEHICLE LOCATION ID**

# Intelligent Information Systems

## 1. Travel time to reach port

→ Time estimated to reach port from my origin or from the VMS location through the urban area

1.1 As a request by user

1.2 As an offer at Portal

1.3 As an offer at VMS

# Intelligent Information Systems

## 2. Waiting time at weight bridge or other queue location

➔ Time estimated while in queue at weight bridge in order to weigh my cargo upon my arrival at port



# Intelligent Information Systems

## 3. Sudden change in ship schedule

- ➔ Changes in ship schedule because of weather problems, delay of ship arrival, mechanical failures etc, that will affect my trip
- **View?** Web-portal, port VMS (*event triggered*)
- **Actor?** Travelers, Cargo Transporters

# Intelligent Safety & Security

1. Entrance of a vehicle which is included in the “black list” of wanted vehicles
  - ➔ The port possesses list containing license plates of vehicles, which are wanted or have legal/administrative issues.
  - ➔ LPR compares its readings with this list, and triggers alarm in case of a match.

# Intelligent Safety & Security

2. Quick access of vehicles which are included in the “white list” (e.g. port service vehicles)

- The port possesses list containing license plates of port or authority vehicles, which are free to move in port.
- LPR compares its readings with this list, and triggers “*clearance signal*” in case of a match.

# Intelligent Safety & Security

## 3. Alarm for fires

- In case of fire identified by cameras or personnel, alarm is activated and sent to private account of portal.
- Port authority will decide on –depending on scale of fire– whether to communicate alarm via intelligent information systems to the public.

# Intelligent Incident Detection

## 1. Road Incident: Vehicle collision

- ➔ Incident between vehicles, such as road collision.
- ➔ Port authority will decide on whether to communicate alarm through intelligent information systems to public.

# Intelligent Incident Detection

## 2. Delay at cargo control

- Smart cameras estimate the waiting time.
- If a threshold is crossed, alarm of delay is triggered.

## 3. Ship mechanical breakdown

- Upon report of ship mechanical breakdown, this info is communicated by port authority, including estimation of delay.

# Intelligent Vehicle Location Identification

## 1. Determine truck location

- Determine truck speed while in queue
- Determine if truck is not moving at all
- Determine waiting time in queue

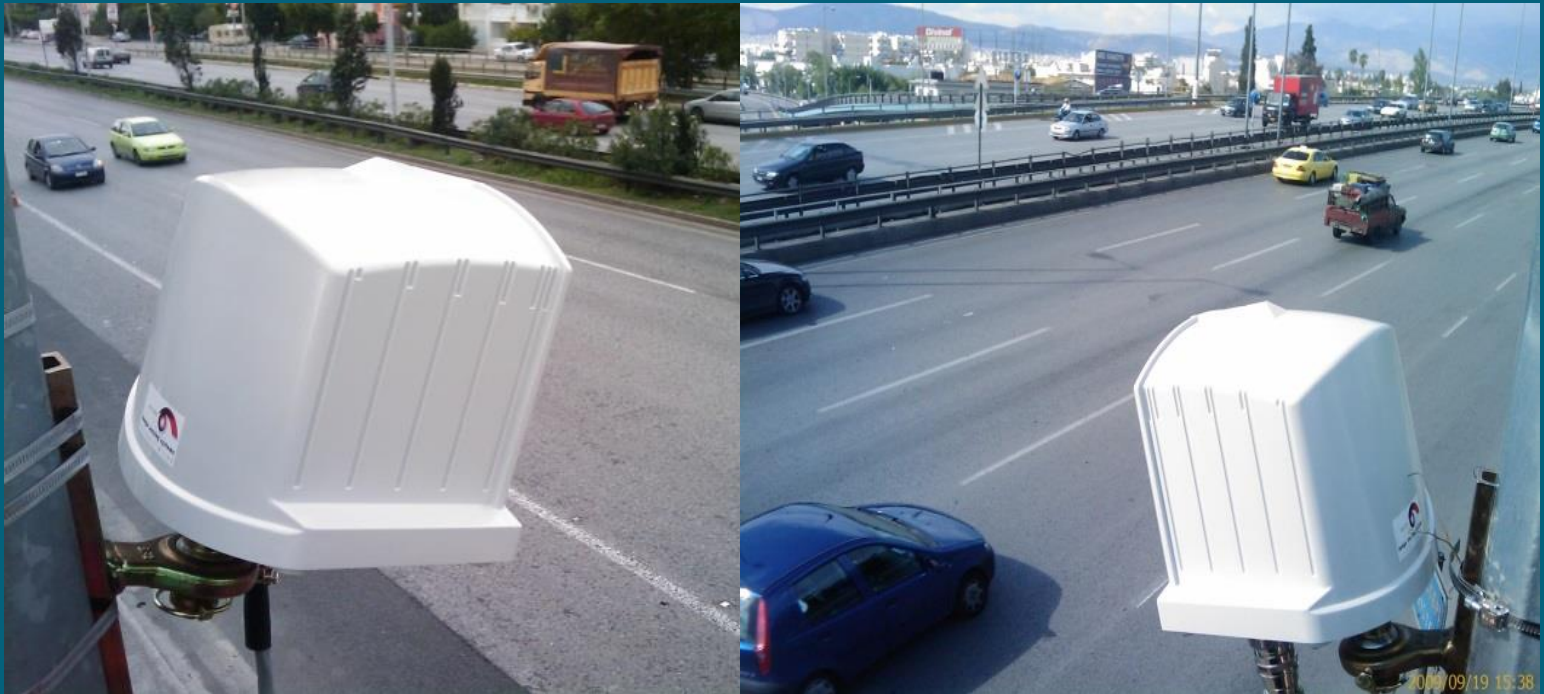
## 2. Determine car location

- Determine waiting time in queue

## 3. Determine illegal location of vehicle

- Illegal parking

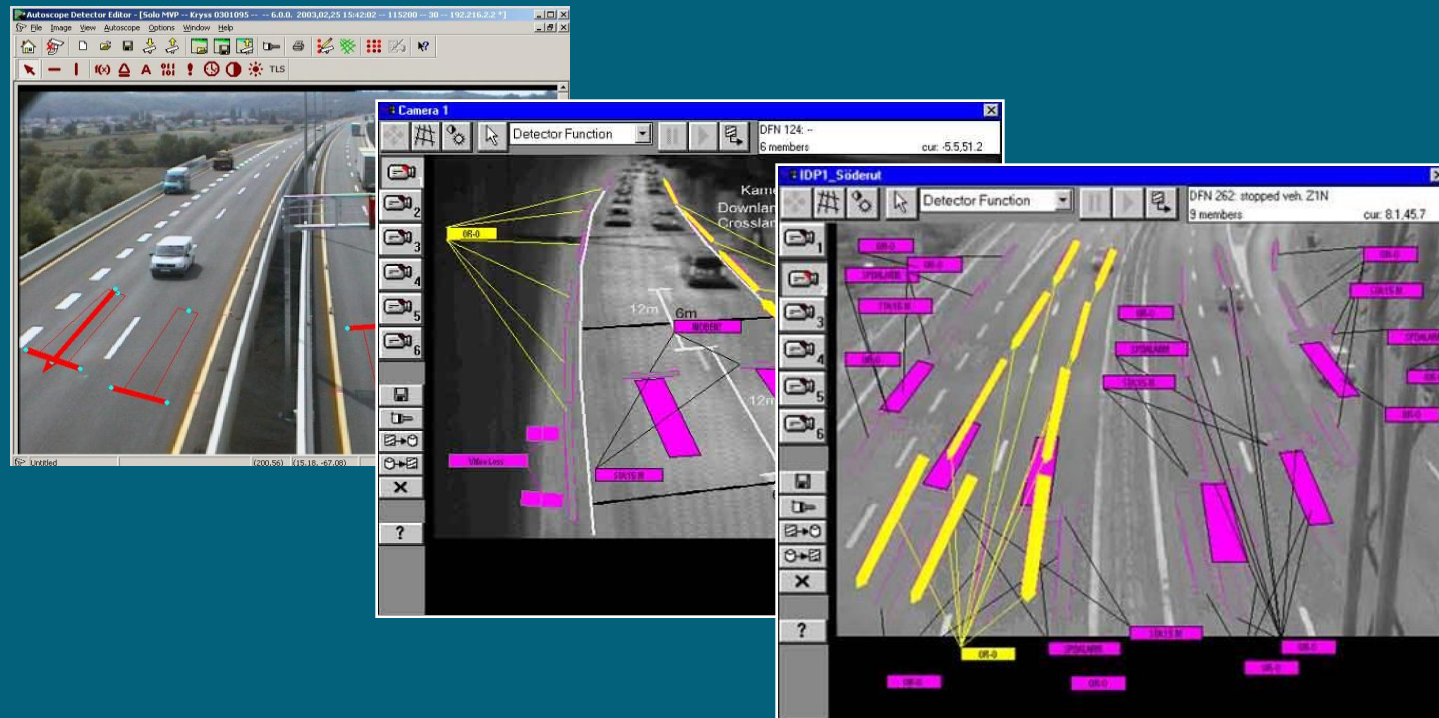
# Radar





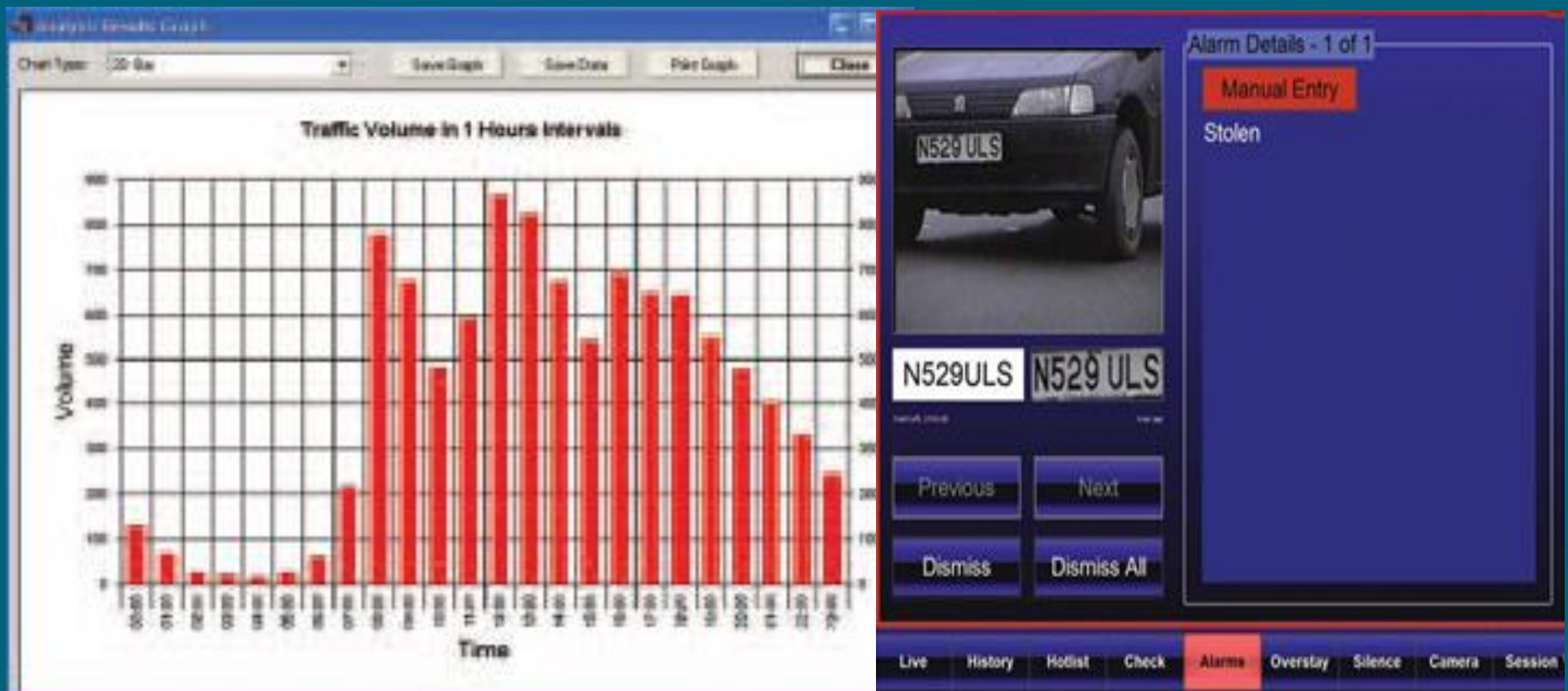
# Traffic Measurements

- Limitless number of sensors



# ANPR

- Supported by Intelligent Infrastructure
- Velocity verified by 2 or more ANPRs



# Example Directives

- **Intelligent Transport Systems**
  - EU Directive 2010/40
  - ITS America
- **Smart Cities and Communities**
  - INSPIRE open data
- **TEN-T, Interstates**
- **Megaregions**

# Example EU Synergies

- **PRODROMOS**

- TEN-T, ITS Crosscountry standards, Min Data Sets between ports, Dangerous cargo, Door-to-Door tracking

- **GIFT 2.0**

- HUB Travel/Info Centres, Dynamic profiling, Travel Patterns, Time/Cost Budget, Real-Time Info

- **EA SEAWAY**

- Integrated Infomobility, Hinterland connection

# Imagining the Future

- LAC has turned the corner: after six years of slowdown, including two of recession, it is growing again
- LAC needs to spur economic recovery and find engines of growth
- Gaps in logistics & infrastructure are obstacles to intra-regional trade → average logistics cost 3 to 4 times higher than OECD countries.

# Imagining the Future

- In mid-size cities, where most new urban dwellers live, city planners have opportunity to design sustainable and inclusive transport from the start, leapfrogging more polluting and costly modes.
- In larger cities, technology and big data can better map travel patterns and needs, engaging citizens, and improving quality and efficiency of transport solutions.

# Imagining the Future

- LAC needs to increase actions that
  - build resilience to economic, natural, social shocks - including crime
  - encourage greater transparency and accountability.
  - Shift to countercyclical policy framework  
→ sustainable growth.

# Imagining the Future

- LAC needs to invest in intelligent technology and intelligent people, particularly the poor.
- Investment in intelligent technology and intelligent education will play important role in allowing all to contribute to and benefit from future economic growth.



# Imagining the Future

- Transport is critical driver of economic & social development, bringing opportunities for the poor and enabling economies to be competitive.
- Intelligent transport infrastructure
  - connects people to jobs
  - enables supply of goods and services
  - allows people to generate solutions for long-term growth
- Intelligent ports can help increase/ diversify farmers' income by efficiently connecting them to markets.

# Imagining the Future

- Equip decision makers w indicators to show interplay between economic vision for the port, its land use and transport network, urban growth and market vibrancy
- Megaregion, interregional, intercountry:
  - Open data to all
  - Maximum Safety and Security
  - Door-to-Door Infomobility across ports/hinterland

**INTEGRATED ACCESSIBILITY AND ROUTING GUIDANCE PLATFORM FOR  
SAFE MULTIMODAL TRANSPORT IN SUSTAINABLE  
SMART PORTS AND REGIONS**

**Thank you!**