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IX MEETING OF INTERAMERICAN NETWORK OF SINGLE WINDOWS FOR
FOREIGN TRADE AND TRADE FACILITATION

Intelligent Ports

SAFE MULTIMODAL TRANSPORT IN SUSTAINABLE
SMART PORTS AND REGIONS

Yorgos J. Stephanedes, P.E.
University of Patras

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

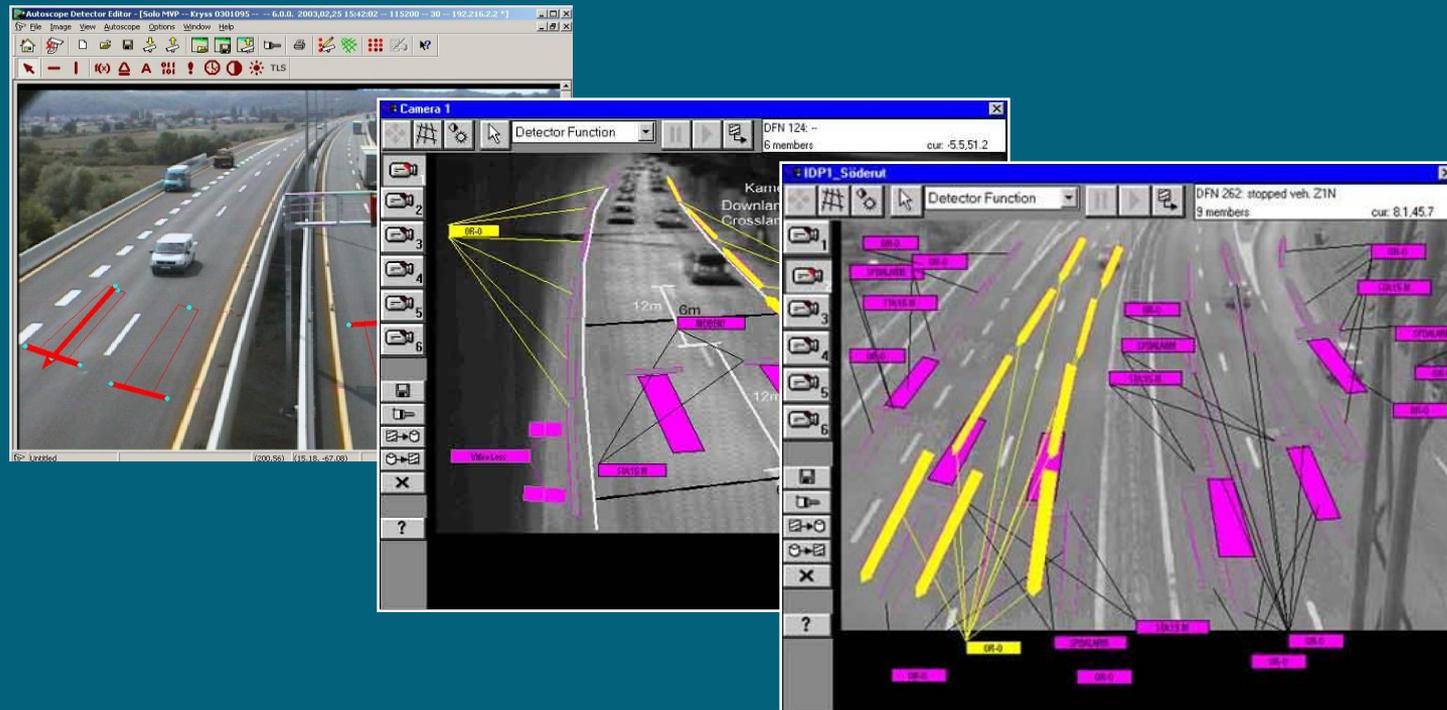
- Illegal parking

Radar



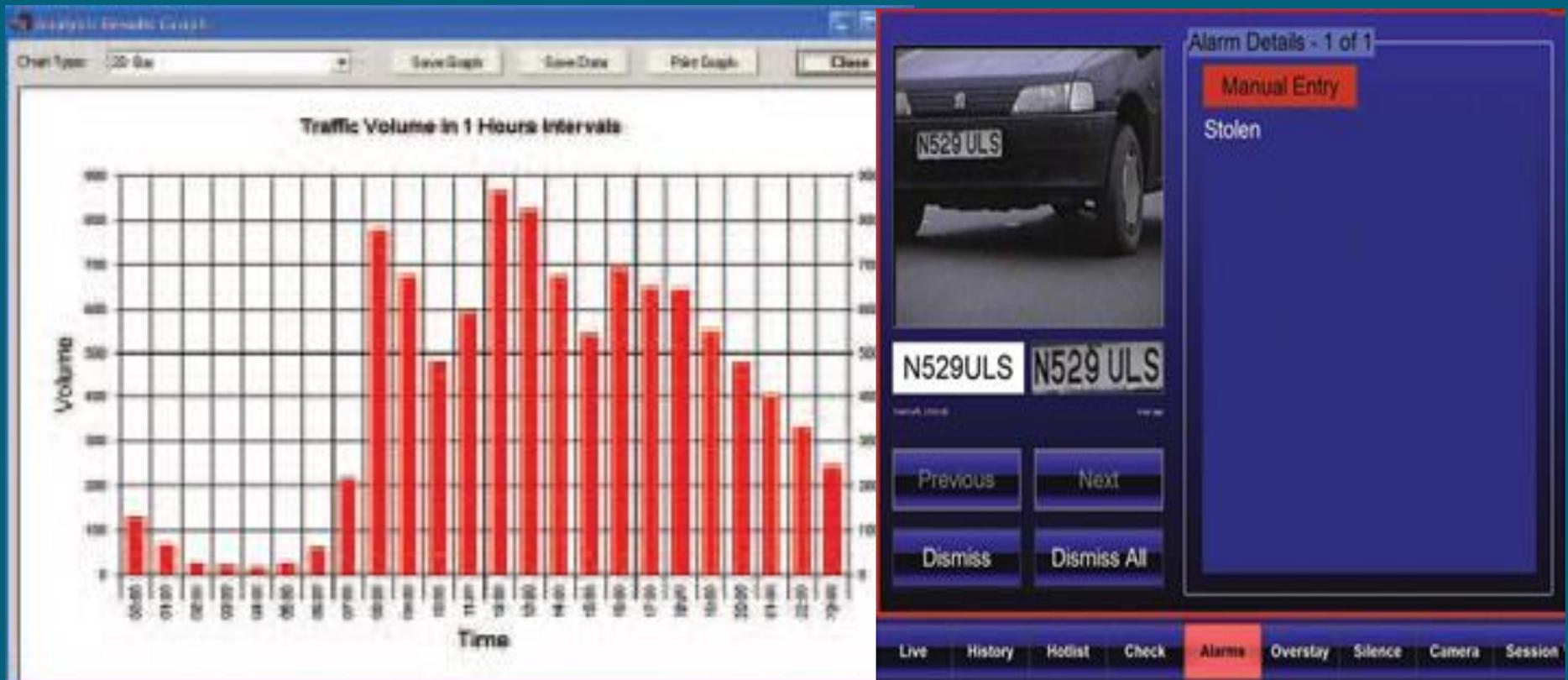
Traffic Measurements

- 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!