

# Public Policies of Smart Technology (ITS) applied to the Transport and Road Infrastructure



## International Conference Connected Car Turín, Italy

Daniel G. Russomanno, Eng., MBA

**ITS ARGENTINA**

**25/09/2013**



# ITS ARGENTINA



About us.  
What are we doing?



Why ITS within  
Government?



Argentina Data:  
Infraestructure Roads



Be careful with the  
deployment!



Buenos Aires City Data :  
Transport Infrastructure



ITS Public Policies  
Concepts



Current ITS Projects



Conclusions



Coming ITS Projects



End of discussion



# ITS ARGENTINA



## Foundation

- The non profit civil Association was founded at 2000.

## Partners

- Government Agencies
- Roads Concessionaires
- Private Companies: products, services, systems, integrators
- Consultings
- Universities
- Independent Professionals



# ITS ARGENTINA



## Objectives

- Apply to the Transport and Transit Infrastructure a wide range of ITS technologies to improve safety, traffic management, efficiency, productivity , environment, mobility and economy in general.
- Promote and develop studies and actions of R&D on ITS's and inform the results to the cultural, academic and industrial sectors.
- Promote the study and execution of standards and protocols for the creation of an ITS National Architecture that ensures compatibility, interoperability and expansion of the its subsystems.
- Promote the industrial development of products and systems ITS.
- Train people to improve their performance in this market.
- Transmit the works and projects to other regions.
- Provide a public place (forum) for ITS stakeholders .
- Establish relationships and agreements with similar ITS Organizations of other countries.
- Establish relationships and agreements with public agencies.
- Organize and share conferences , congresses and seminars with discussions about ITS.
- Be the most qualified organization in ITS topics.





# ITS ARGENTINA



## Vision

- Be recognized as a leading association with integrity, creativity, innovation and transparency to add value in the Mobility areas.



# ITS ARGENTINA



## Mission

- Promote, constantly, the improvement of the quality of life and welfare by promoting, collaborating, training, researching and working, together with other similar associations, helping to decisions makers about the needs of the implementation of the ITS technology in projects of Infrastructure and Transportation in all of its stages.



# ITS ARGENTINA



## Quality Policy

- Our priority is the whole Society.
- Our members agree our quality policy.
- Our partners focus on improving the quality of life.
- All our members must add sustainable value to the ITS world.
- The members of the Association must interact with other public and private sectors creating an environment for technical discussion.
- Our members must act proactively to the promotion of ITS technologies.
- Our Association must be considered the most authoritative voice on ITS for the political leaders, public agencies, private companies and the Community in general.
- We should be supported and / or collaborate on technically, financially and socially sustainable projects with positive impacts on the environment.
- We must act with integrity in all our actions and relationships.
- We must promote the implementation of the highest standards of ITS projects.



# ITS ARGENTINA



## Principles

- Ethics and integrity
- Orientation on costs, schedule, quality and Community in general, users, partners and colleagues satisfaction.
- Transparency.
- Participation
- Proactivity.
- Creativity.
- Leadership.
- Innovation.
- Social responsibility.
- Criteria and equilibrium.





# ITS ARGENTINA



## Actions

- Agreement with the National Roads Administration.
- Agreement with the National Secretary of Transportation.
- Agreement with the National Road Safety Agency
- Agreement with the Science & Technology Ministry
- Agreement with the Department of Roads of the Province of Buenos Aires
- Agreement with TTS Italia.
- Agreement with ITS Spain.
- Agreement with ITS Chile.
- Agreement with the Government of the City of Buenos Aires.
- Agreement with the University of Buenos Aires
- Agreement with the National Technological University (ITS Posgrade Course incoming).
- Agreement with IRAM, the National Organization of Standardization.
- Agreement with the Argentine Roads Association (and with IAPCR).
- Agreement with NOTITRANS, an Internet Company ( focused in topics of transportation) to report our activities.
- Agreement with TELAM, the most important News Agency to report our activities.
- Agreement with the Argentine Tunnels Association (ITA-AATES)



# ITS ARGENTINA



## Actions

- We are partner of the Argentine Association of Roads, recently named as the Argentine chapter of the PIARC.
- We are partner and founder of the Argentine Association Argentina of Tunnels and Underground space, Argentine chapter of the international AITES.
- We are members of the advisory committee of the National Agency of Road Safety.
- We promote the formation of a governmental unit of ITS.
- We are participating in the Transportation Program of the Science and Technology Ministry.
- We are member in the COPIME (Mechanical and Electrical Engineers Council)
- We promote the creation of an ITS National Agency, an ITS National Architecture.
- We promote the formation of a Metropolitan Transportation Agency with focus in ITS projects
- We promote a metropolitan act and ITS national act to establish necessary criteria of this technology.
- We edit our annual books ITS Argentina (perhaps next year our magazine).
- We have our institutional video.
- We are improving our website, including a forum of technical discussion and articles of interest.
- We are members of PAITS (Panamerican ITS Associations) and ITS Iberoamérica .



## New Web Page



# SISTEMAS INTELIGENTES DE TRANSPORTE

- Inicio
- Quiénes somos
- Proyectos
- Publicaciones
- Congresos
- Noticias
- Asociados
- Galería
- Normativa

- CONTACTO
- SOLICITUD DE INGRESO
- ACCESO A USUARIOS



### Ciudades Digitales 2012

GUILLERMO DIETRICH (GCBA), MONICA ALVARADO (ENTE DE TRANSPORTE ROSARIO), PEDRO VIDAL MATAMALA (ESPECIALISTA EN TRANSPORTE INTELIGENTE), DANIEL RUSSOMANNO (ITS ARGENTINA). Moderador: Ignacio Viale. Ignacio Viale: Explicó que la idea de movilidad sustentable surge ...



### Movilidad Inteligente

La Asociación civil ITS Argentina fue invitada por su homónima italiana TTS Italia a participar en su taller "Connected Car", evento a desarrollarse en la Ciudad de Torino, Italia el día 25 de setiembre como anticipo del Congreso Smart Mobility World, para exponer ...

[Continuar leyendo »](#)



### Ciudades Digitales 2012

Guillermo Dietrich (GCBA), Monica Alvarado (ente de transporte Rosario), Pedro Vidal Matamala (especialista en transporte inteligente), Daniel Russomanno (ITS Argentina). Explicó que la idea de movilidad sustentable surge a raíz del...

[Continuar leyendo »](#)



### Capacitación en Software de Gestión

Entre el 7 y el 12 de noviembre se realizará en Buenos Aires el "Curso de Capacitación Introductorio a la micro y macro simulación", dictado por profesionales de PTV Group. PTV Group es una empresa alemana líder en el desarrollo...

[Continuar leyendo »](#)

### Facebook



ITS Argentina

Me gusta Te gusta esto.

Contacto

Solicitud de ingreso

Acceso a usuarios

### RÁPIDO PASÁS FÁCIL LO SACÁS!



RÁPIDO PASÁS, FÁCIL LO SACÁS



OBTENELO AQUÍ

### Quiénes somos

- Dónde actuamos
- Políticas de calidad
- Organigrama
- Entidades relacionadas

### Proyectos

### Publicaciones

### Congresos

### Noticias

- Actuales
- Pasadas

### Asociados

- Organismos Públicos
- Empresas
- Profesionales

### Galería

- Imágenes
- Videos

### Normativa

### Contacto

### Solicitud de ingreso

### Acceso a usuarios

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secretaria@itsargentina.org.ar | Tel (+5411) 4331 2099

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# Seminars & Congresses



25/09/2013

Turin, Italia, International Conference Connected

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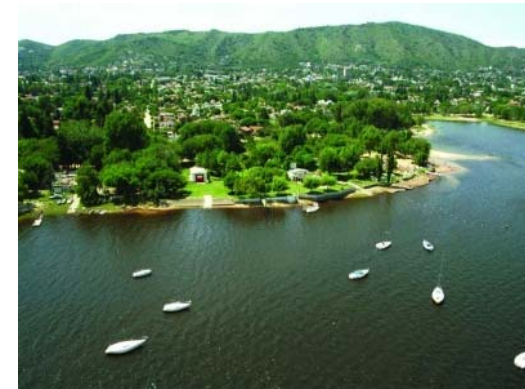




# ARGENTINA Data



## Argentine Landscapes: Gallery of Photos





## Argentine Landscapes: Gallery of Photos







## Argentine Landscapes: Gallery of Photos







## Argentine Roads: Gallery of Photos



25/09/2013

Torino, Italia, International Conference Connected Car  
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# ARGENTINA

The vast Argentine territory has a diversity of landscapes, where ice fields contrast with arid zones; mountains with valleys or plateaus; fluvial streams and lakes with large oceans, broad grassy plains with woods and forests.

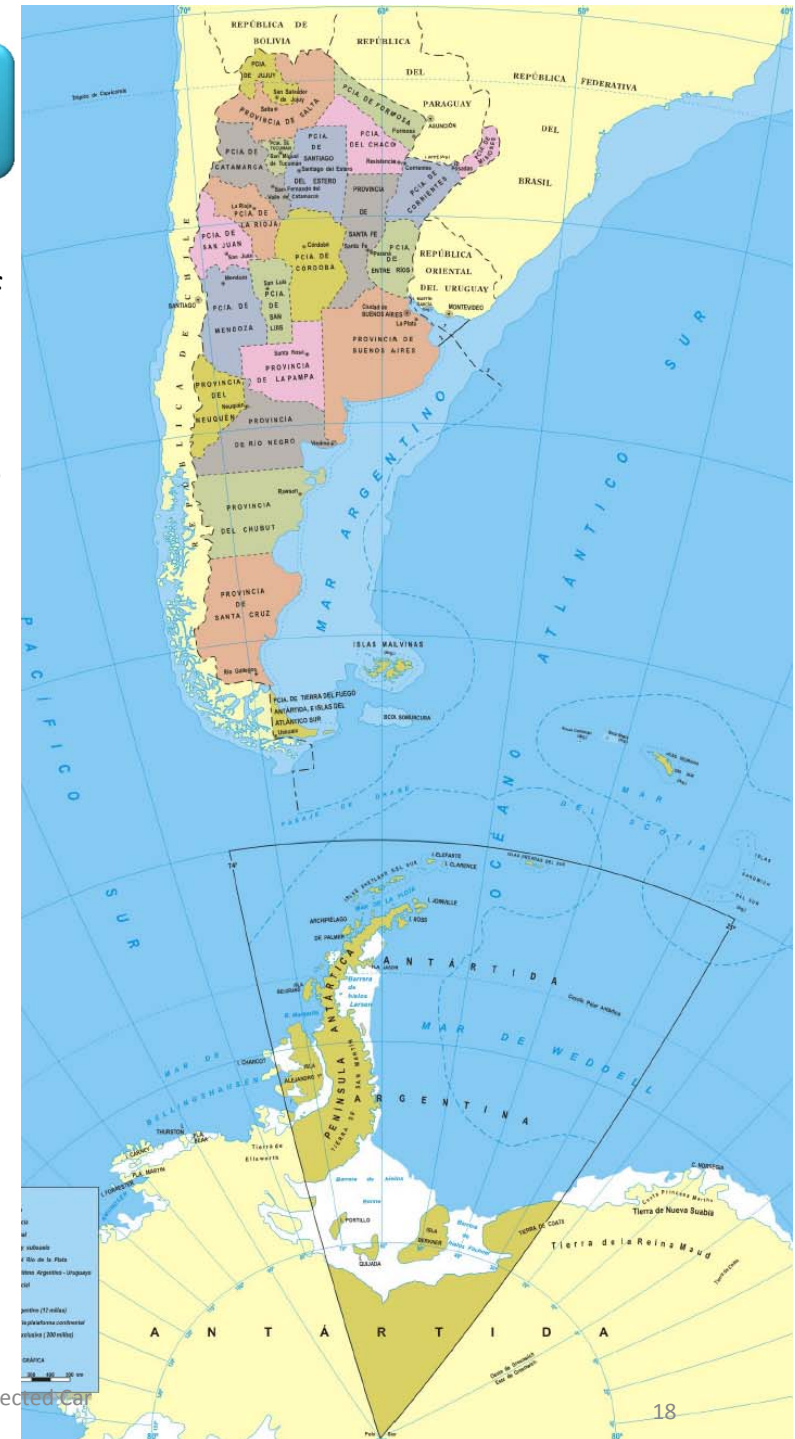
**Capital City:** Buenos Aires

**Language:** Spanish

**Estimated Population:** ~40.000.000 inhabitants.

**Currency:** Peso (\$)

**Area:** 3.761.274 km<sup>2</sup>



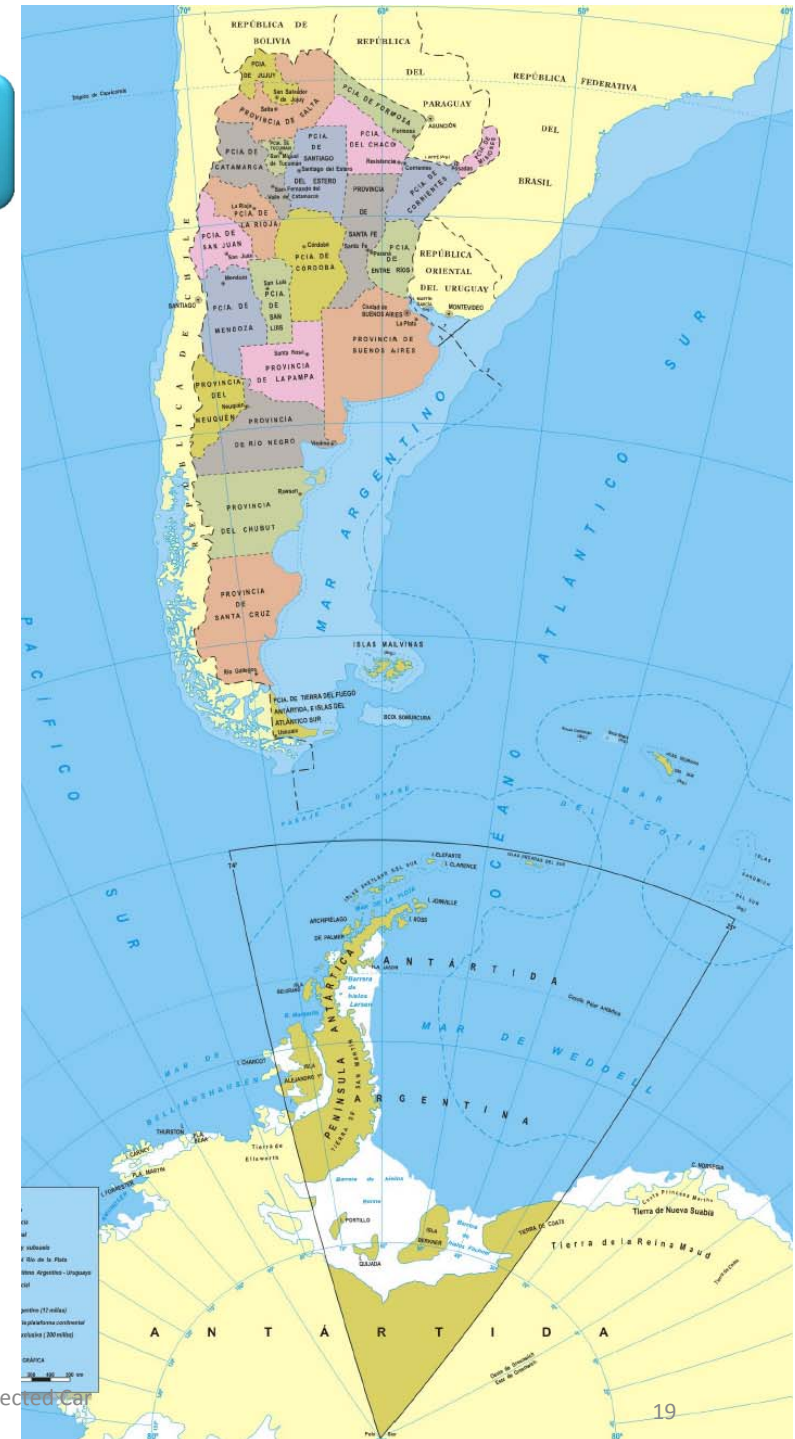


# ARGENTINA

**Political System:** Democracy with a  
**Government System:** Republican,  
 Representative and Federal.

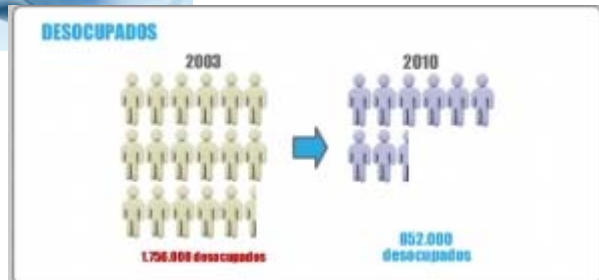
**Official Time:** GMT -3

**RELIGION:** No religion has an official character but is the Roman Catholic Apostolic Church, the most traditional and there are over 2500 officially recognized cults and religions, that co-exist harmoniously. There is freedom of cult and religion consecrated in the National Constitution.

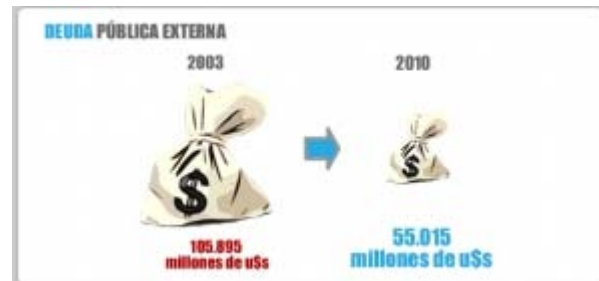




## Some Indicators of Argentina



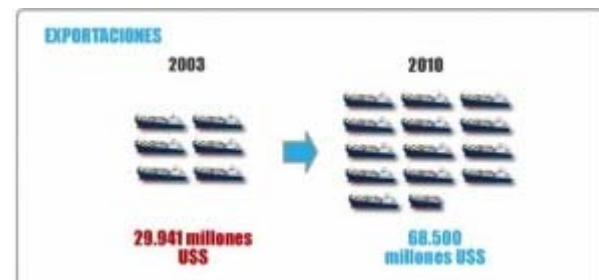
**Evolution of employment :** The unemployment rate marked a sharp decline between 2003 and 2010. Of 1,760,000 registered unemployed in 2003, moved to 852,000 in 2011. Source: INDEC



**Reduction of external public debt:** External sovereign debt was reduced from 105.895 million dollars in 2003- 55.015 million of the same coin in 2010. Source: Ministry of Economy.



**Internal Debt Reduction:** It went from 178.821 million dollars in 2003 to 92.100 million in the same currency in 2010. Source: Ministry of Economy.

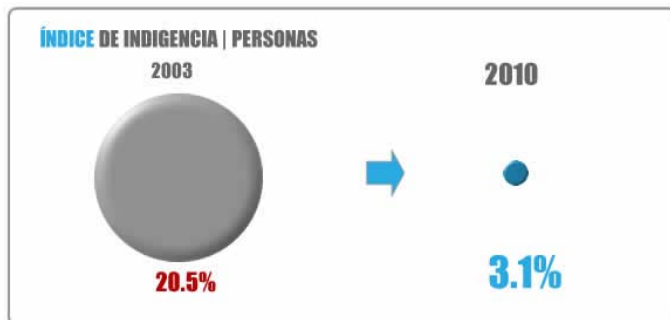


**Export growth:** Exports increased from 29.941 million dollars in 2003- to 68500 million in the same currency in 2010. Source: Ministry of Economy

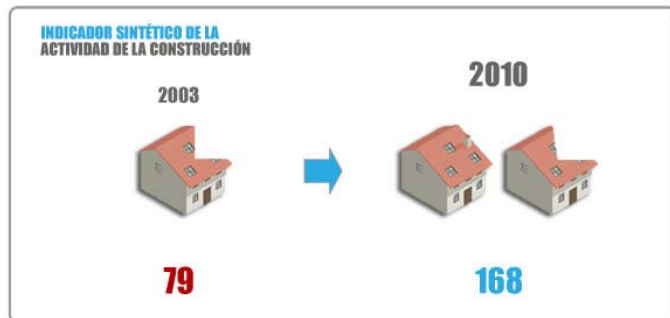




## Some Indicators of Argentina



**Decreased rates of poverty:** The indigent households, in percentage terms, changed from 15.1 to 2.7 in 2003-2010, respectively. Source: INDEC. The indigent, in percentage terms, fell from 20.5 to 3.1 in 2003-2010, respectively. Source: INDEC



**Construction growth:** The indicator of construction activity grew sharply, from 79% in 2003 to 168% in 2010 .



## Some Indicators of Argentina: Safety



### Variation 2008-2011

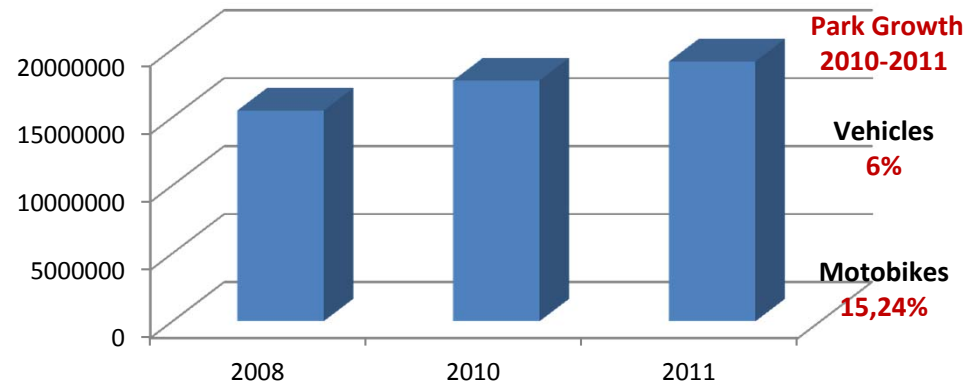
Total deaths year 2011	<b>5040</b>	<b>-12,48%</b>
Total deaths en crime scene	<b>4105</b>	<b>-11,80%</b>
Fatilities each 100mil inhabitants	<b>12,32</b>	<b>-14,96%</b>
Fatilities each 100mil vehicles	<b>26,36</b>	<b>-29.4%</b>
Share of motorbikes	<b>18,8%</b>	<b>60%</b>



## Some Indicators of Argentina: Safety

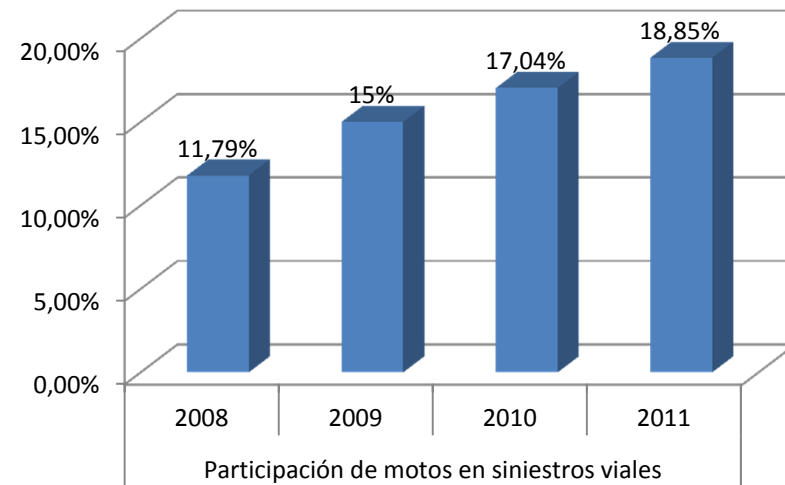


### Vehicles Park



	2010	2011	2010-2011
Motobikes park	3.629.136	4.173.506	15%
Vehicles park	14.163.125	15.012.912	6%

### Share of motobikes in roads accidents

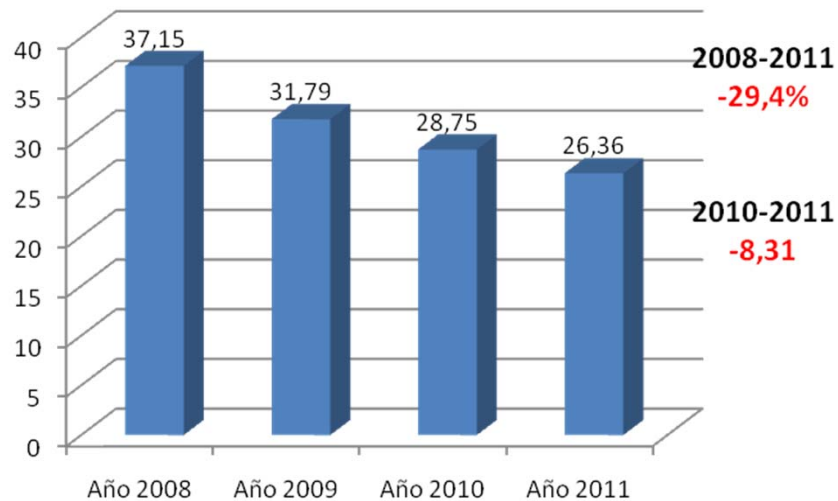




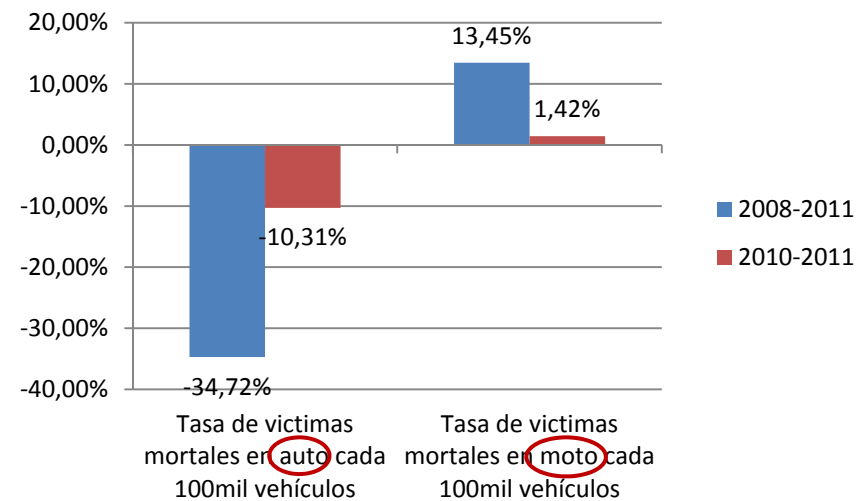
## Some Indicators of Argentina: Safety



Tasa de fallecidos totales cada 100 mil vehículos



Evolución de tasas comparadas total de víctimas mortales



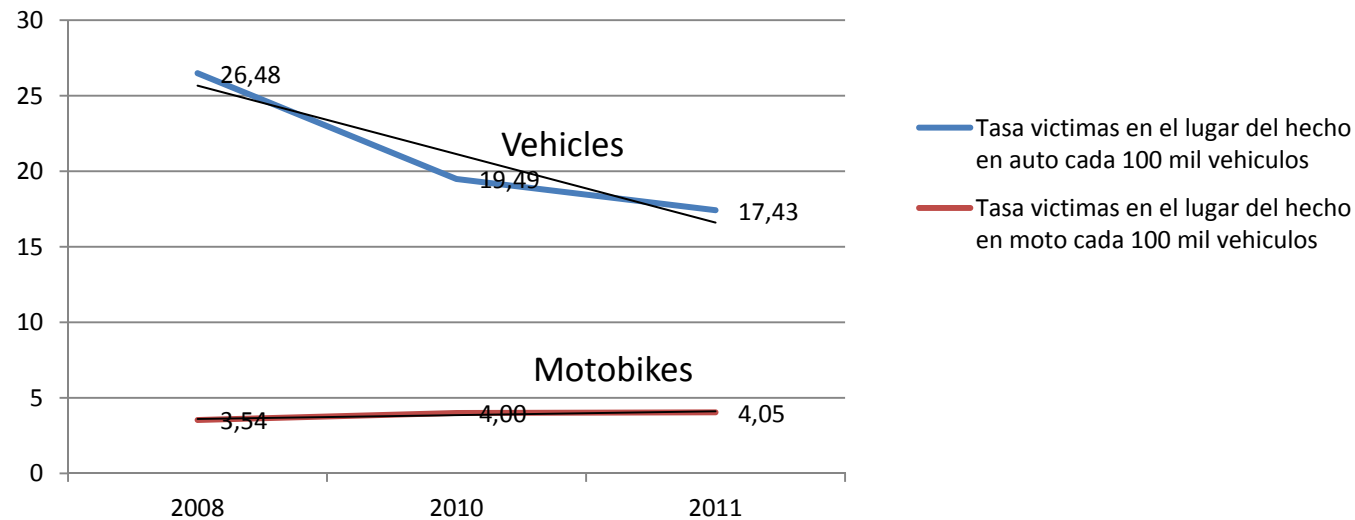


## Some Indicators of Argentina: Safety



### Rate victims at the crime scene by type of vehicle every 100.000 vehicles

#### Trends Analysis



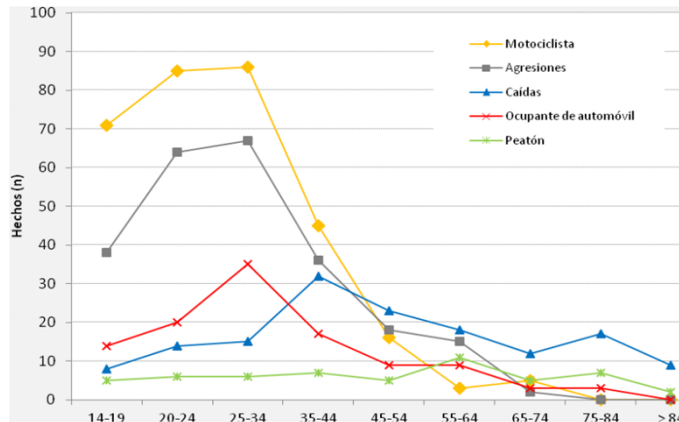


## Some Indicators of Argentina: Safety

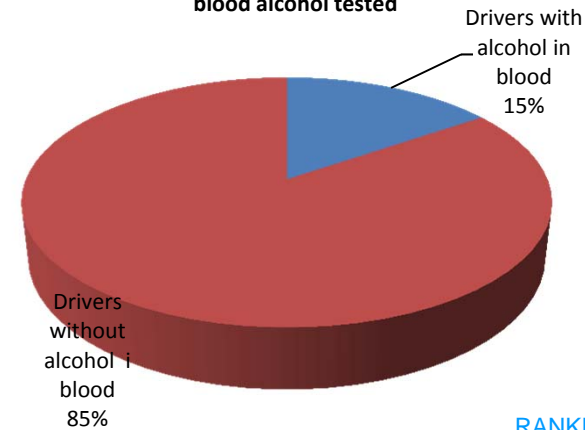


Distribución de mecanismos lesionales por edad

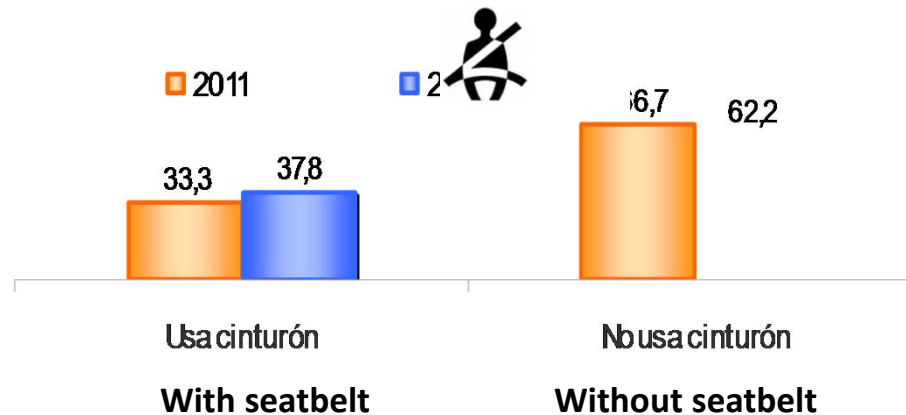
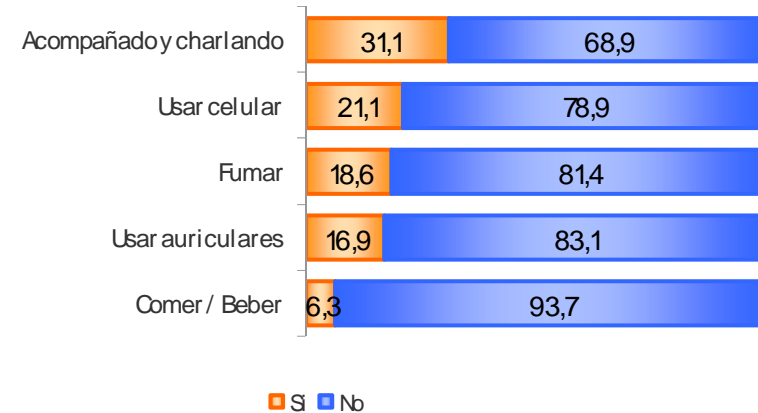
### Distribution of injuries by age



Percentage distribution of controlled drivers with blood alcohol tested



PEDESTRIAN RANKING FACTORS OF DISTRACTION (in percent)







## Some Indicators of Argentina: Safety



### Evolution of total road accidents

#### EVOLUCIÓN SOBRE TOTAL DE SINIESTROS VIALES

PROVINCIAS	SINIESTROS 2008	SINIESTROS 2009	Evolución 2008-2009	SINIESTROS 2010	Evolución 2009-2010	Evolución 2008-2010
Buenos Aires	15.944	14.672	-7,98%	14.730	0,40%	-7,61%
CABA	11.264	10.506	-6,73%	10.145	-3,44%	-9,93%
Catamarca	1.482	1.495	0,88%	997	-33,31%	-32,73%
Chaco	12.721	13.460	5,81%	13.515	0,41%	6,24%
Chubut	8.852	7.835	-11,49%	7.839	0,05%	-11,44%
Córdoba	6.390	5.731	-10,31%	7.957	38,84%	24,52%
Corrientes	1.782	1.373	-22,95%	843	-38,60%	-52,69%
Entre Ríos	3.009	2.767	-8,04%	2.845	2,82%	-5,45%
Formosa	2.007	2.430	21,08%	1.529	-37,08%	-23,82%
Jujuy	2.577	2.484	-3,61%	2.432	-2,09%	-5,63%
La Pampa	6.441	5.972	-7,28%	4.963	-16,90%	-22,95%
La Rioja	3.078	3.103	0,81%	3.441	10,89%	11,79%
Mendoza	26.166	16.570	-36,67%	14.753	-10,97%	-43,62%
Misiones	9.888	10.196	3,11%	10.497	2,95%	6,16%
Neuquén	4.682	4.319	-7,75%	3.256	-24,61%	-30,46%
Río Negro	10.590	10.769	1,69%	10.513	-2,38%	-0,73%
Salta	2.389	2.064	-13,60%	1.446	-29,94%	-39,47%
San Juan	8.536	9.268	8,58%	9.949	7,35%	16,55%
San Luis	3.984	4.030	1,15%	5.142	27,59%	29,07%
Santa Cruz	3.013	2.327	-22,77%	2.404	3,31%	-20,21%
Santa Fe	33.052	30.096	-8,94%	27.517	-8,57%	-16,75%
Santiago del Estero	5.011	5.386	7,48%	5.596	3,90%	11,67%
Tierra del Fuego	5.328	4.753	-10,79%	5.793	21,88%	8,73%
Tucumán	8.875	8.423	-5,09%	6.726	-20,15%	-24,21%
<b>TOTAL</b>	<b>197.061</b>	<b>180.029</b>	<b>-8,64%</b>	<b>174.828</b>	<b>-2,89%</b>	<b>-11,28%</b>

Fuente: ANSV



## Some Indicators of Argentina: Safety



### Evolution of total fatalities in the crime scene

#### EVOLUCIÓN SOBRE TOTAL DE VICTIMAS MORTALES EN EL LUGAR DEL HECHO

Provincia	2008	2009	Evolución 2008-2009	2010	Evolución 2009-2010	Evolución 2008-2010
Buenos Aires	1011	908	-10,19%	833	-8,26%	-17,61%
CABA	128	76	-40,63%	102	34,21%	-20,31%
Catamarca	72	64	-11,11%	69	7,81%	-4,17%
Chaco	151	186	23,18%	173	-6,99%	14,57%
Chubut	108	65	-39,81%	73	12,31%	-32,41%
Córdoba	580	521	-10,17%	505	-3,07%	-12,93%
Corrientes	171	147	-14,04%	149	1,36%	-12,87%
Entre Ríos	171	142	-16,96%	148	4,23%	-13,45%
Formosa	74	94	27,03%	72	-23,40%	-2,70%
Jujuy	115	114	-0,87%	120	5,26%	4,35%
La Pampa	89	90	1,12%	88	-2,22%	-1,12%
La Rioja	63	81	28,57%	80	-1,23%	26,98%
Mendoza	266	220	-17,29%	212	-3,64%	-20,30%
Misiones	209	202	-3,35%	249	23,27%	19,14%
Neuquén	77	80	3,90%	77	-3,75%	0,00%
Río Negro	131	111	-15,27%	91	-18,02%	-30,53%
Salta	106	172	62,26%	177	2,91%	66,98%
San Juan	129	127	-1,55%	114	-10,24%	-11,63%
San Luis	52	53	1,92%	70	32,08%	34,62%
Santa Cruz	36	40	11,11%	25	-37,50%	-30,56%
Santa Fe	605	373	-38,35%	358	-4,02%	-40,83%
Santiago del Estero	160	180	12,50%	197	9,44%	23,13%
Tierra del Fuego	10	17	70,00%	16	-5,88%	60,00%
Tucumán	140	190	35,71%	164	-13,68%	17,14%
<b>TOTAL</b>	<b>4654</b>	<b>4253</b>	<b>-8,62%</b>	<b>4162</b>	<b>-2,14%</b>	<b>-10,57%</b>

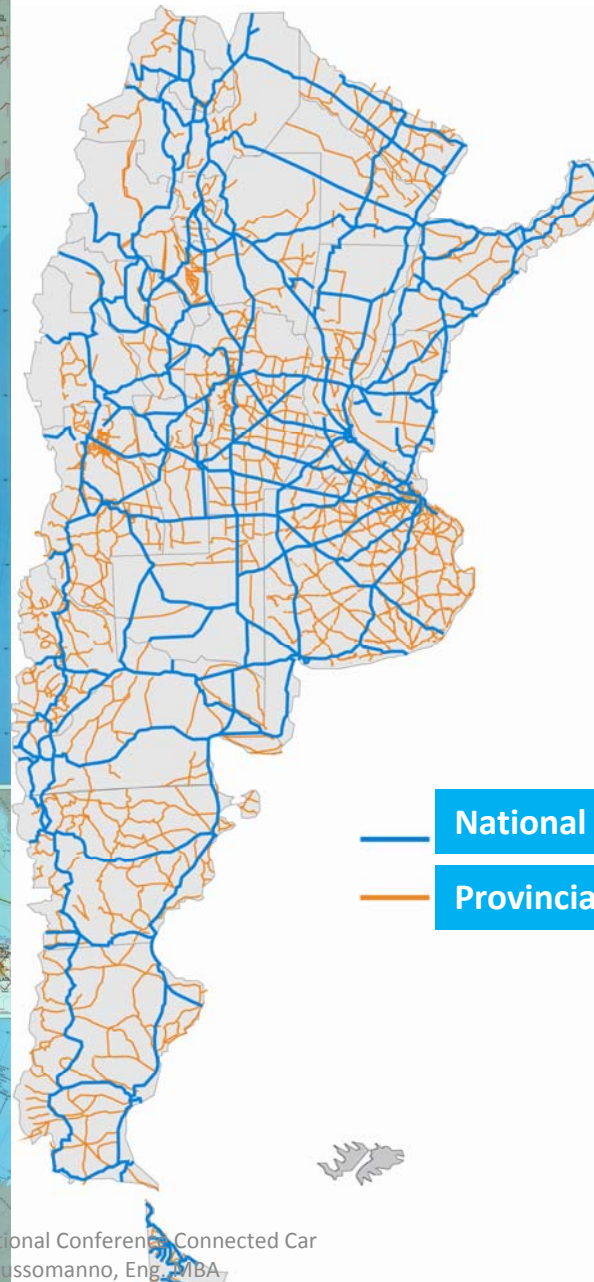
Fuente: ANSV



## National Data: Infrastructure of roads



# Roads



National roads

Provincial roads



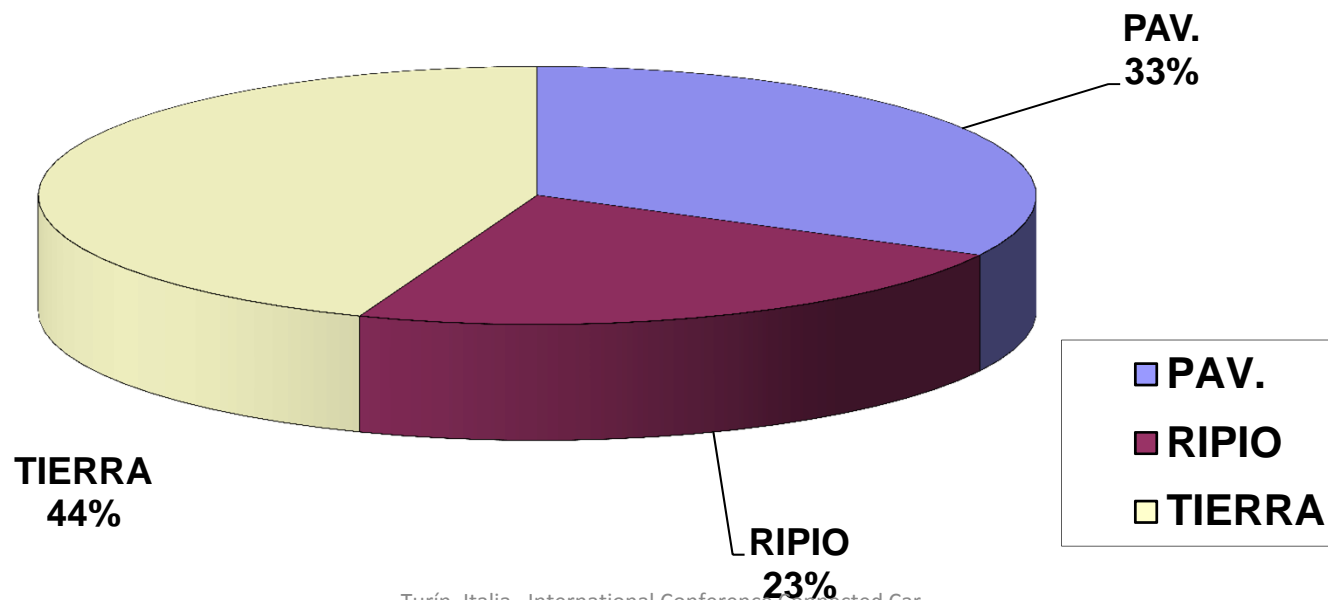


## Total Length of the Argentine Roads Network



	<b>Pavement</b>	<b>Granular surface</b>	<b>Unimproved roads</b>	<b>TOTAL</b>
<b>NATION</b>	<b>34.856</b>	<b>3.402</b>	<b>1.139</b>	<b>39.398</b>
<b>PROVINCES</b>	<b>42.040</b>	<b>50.896</b>	<b>102.901</b>	<b>195.838</b>
<b>TOTAL NETWORK</b>	<b>76.896</b>	<b>54.298</b>	<b>104.040</b>	<b>235.236</b>

**National and Provincial Roads Network (km)**





## Total Length of National Roads Network (km)



District	Pavement			Total	Granular surface	Unimproved Roads	TOTAL (*)
	Simple Road	Freeway	Dual Road				
01 - Buenos Aires	2784	329	312	3425	0	0	3425
02 - Córdoba	2372	291	43	2706	0	0	2706
03 - Tucumán	448	34	22	504	41	0	545
04 - Mendoza	1461	30	160	1651	336	210	2197
05 - Salta	1359	0	38	1398	275	178	1851
06 - Jujuy	708	29	12	750	423	16	1189
07 - Santa Fe	2260	116	101	2477	0	94	2571
08 - La Rioja	1851	0	11	1862	24	0	1886
09 - San Juan	1002	4	18	1025	105	65	1195
10 - Corrientes	1754	0	0	1754	0	0	1754
11 - Catamarca	1086	0	0	1086	42	0	1128
12 - Neuquén	1374	0	21	1395	0	0	1395
13 - Chubut	1861	0	13	1874	291	0	2165
14 - San Luis	753	0	207	960	0	0	960
15 - Misiones	714	0	3	718	0	104	822
16 - Sgo. del Estero	1429	0	0	1429	0	59	1488
17 - Entre Ríos	1484	5	120	1608	0	0	1608
18 - Chaco	967	0	20	987	0	0	987
19 - Bahía Blanca	1229	0	13	1242	0	0	1242
20 - Río Negro	1835	0	2	1836	468	0	2304
21 - La Pampa	1399	0	6	1405	0	191	1596
22 - Formosa	1085	0	0	1085	0	224	1309
23 - Santa Cruz	1364	0	23	1387	1040	0	2427
24 - Tierra del Fuego	294	0	0	294	358	0	652
<b>TOTAL</b>	<b>32872</b>	<b>839</b>	<b>1145</b>	<b>34856</b>	<b>3403</b>	<b>1139</b>	<b>39402</b>

PERCENTAGES(%)

83,43

2,13

2,91

88,47

8,64

2,89

32

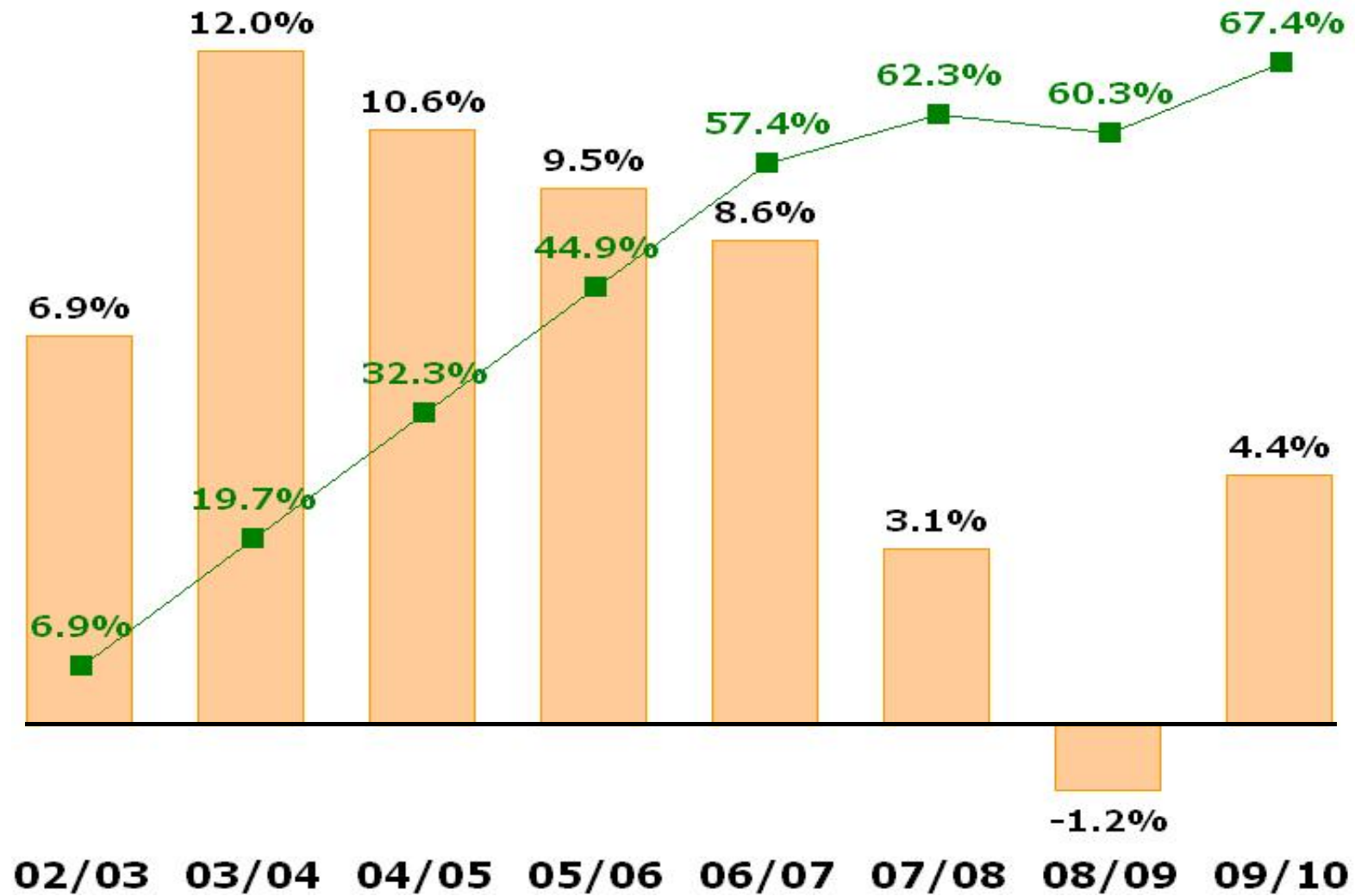
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Turín, Italia, International Conference on Connected Car

Daniel G. Russomanno, Eng., MBA







## Average Annual Variation of Traffic Volume in National Roads





## Management Systems in National Roads Network

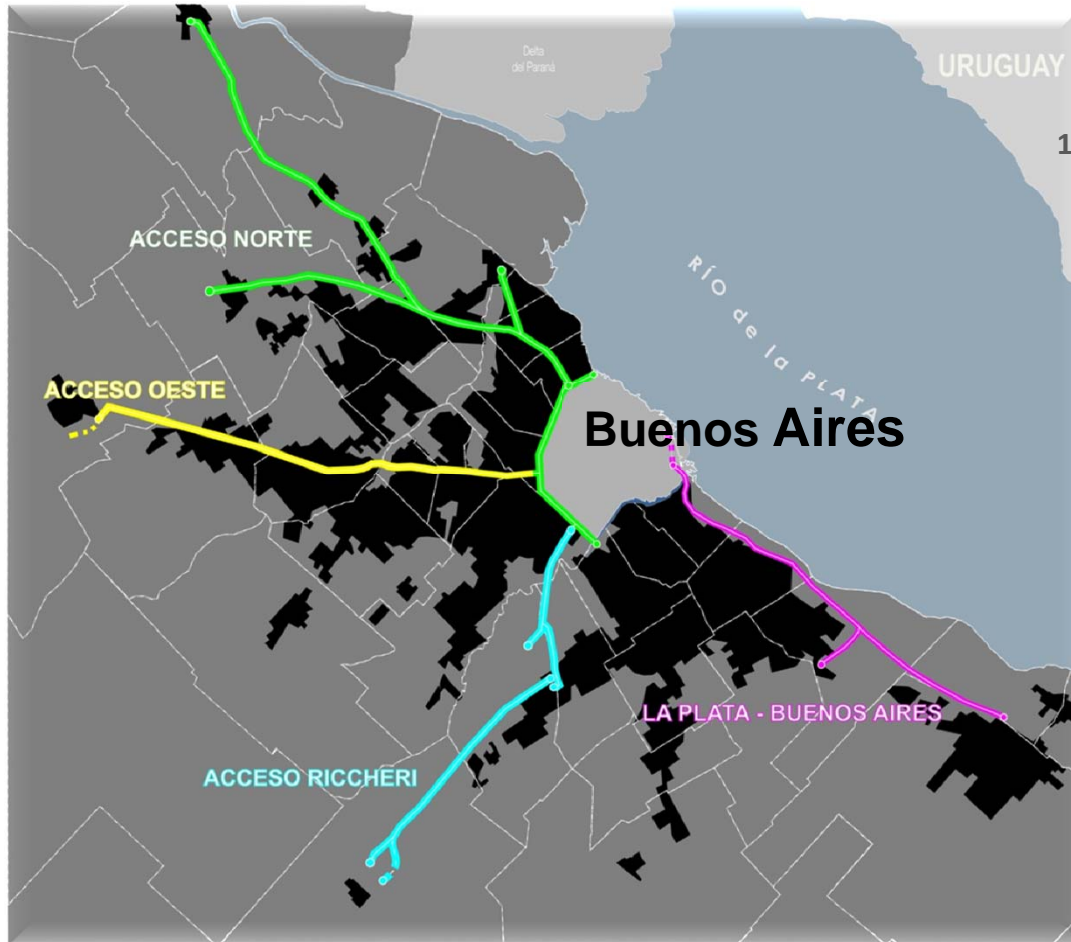


Management systems	Lenght (km)
<b>a.- Rehabilitation and Maintenance Systems</b>	
a.1. Toll Concesions por peaje ( Administration by DNV) (through agreements with Provinces)	 9171 656
a.2. Recovery and Maintenance Contracts (C.Re.Ma) (in progress)	13802
a.3. C.O.T. System	608
<b>b.- Maintenance Systems</b>	
b.1. Modular System	 795
b.2. T.F.O. Agreement	 4347
b.3. by Administration	 10019
<b>TOTAL NETWORK [km]</b>	<b>39398</b>





# Highways Network to Buenos Aires City



## Acceso Norte

119,935 km, 347.652 v/d.



## Acceso Oeste

55,050 km, 268.022 v/d

## Acceso Sur AU Riccheri –Ezeiza - Cañuelas

52,260 km, aprox. 200.000 v/d



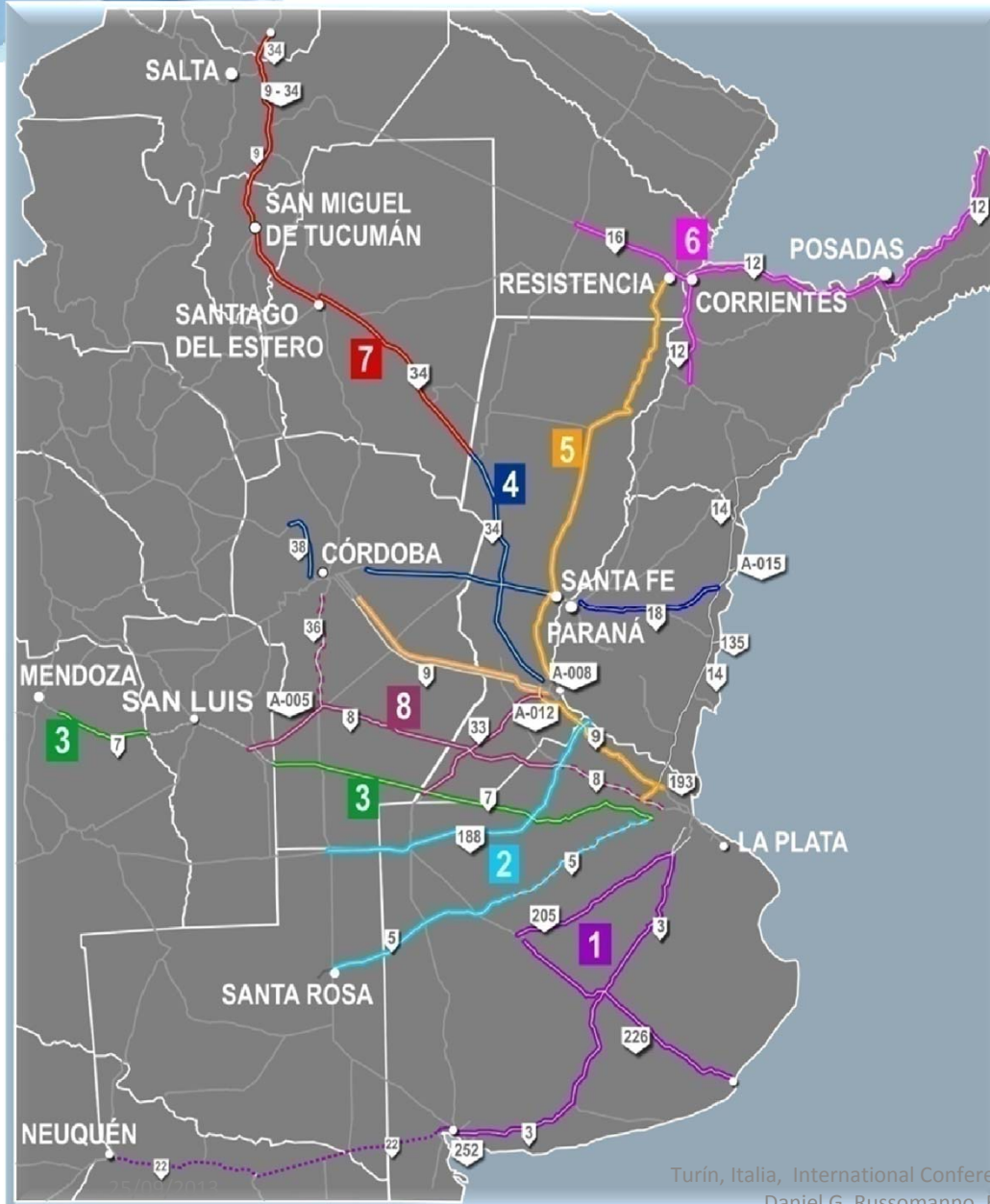
## Acceso Sudeste AU La Plata – Buenos Aires

62,600 km, 206.137 v/d





## National Roads Network: New Roads Corridors



- 8 Nuevos Corredores Viales Concesionados por Peaje.
- Longitud total: 7.583 Km
- Inversión Estado Nacional \$ 13.749.944.064,05
- Inicio de la explotación: 22 de abril de 2010
- La concesión contempla la construcción, mejoras, reparación, conservación, ampliación, remodelación, mantenimiento, administración y explotación de los mismos.



CV1

# Roads Corridors

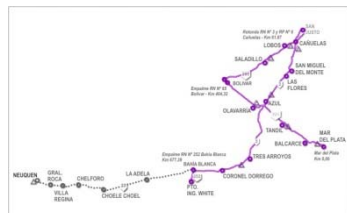


CV2

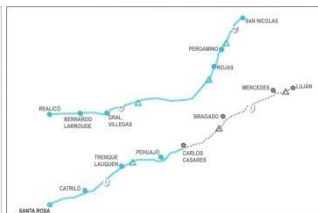
CV3

CV4

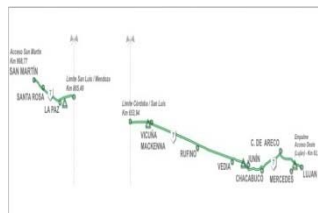
CV5



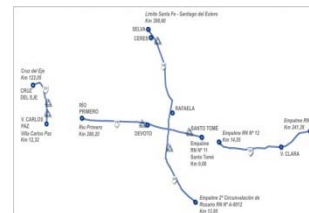
1281.62km



769km



724.02km

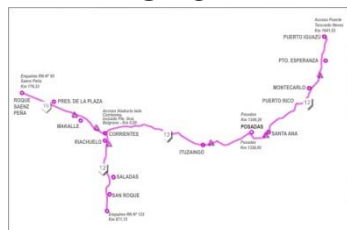


1000.69km



1335.53km

CV6



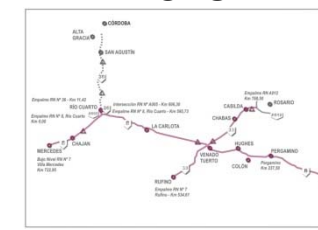
933.50km

CV7



797.83km

CV8



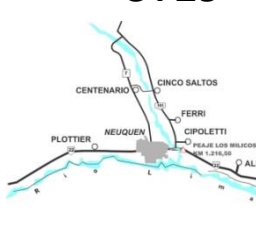
921.84km

CV18



617,77km

CV29



17,38km

H5



251.89km

Rosario – Victoria Bridge



59.40km





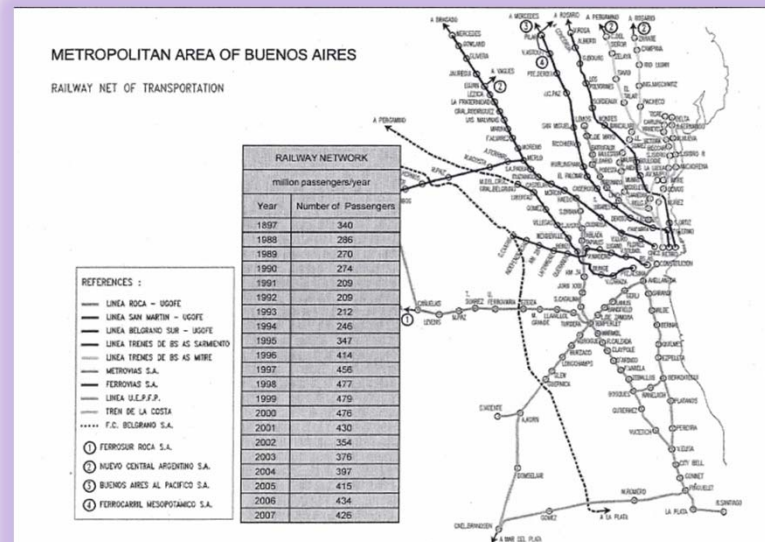
# Railway Network



Lines : 7

Cost: Min. \$1 with SUBE card and \$2 with other payment modes.

Tramway: Premetro  
Lines : 1





## Ports and Airports



**Buenos Aires Port:** is the largest port in the country with 70% of imports and 40% of foreign trade. It also receive a significant number of cruise ships and has a passenger flow to and from Uruguay.

Area: 470 ha

Water surface: 2 million km



**Airports:** 54 airports.

Buenos Aires International Airport : [Aeropuerto Internacional Ministro Pistarini](#)



Buenos Aires Internal Flights: [Aeroparque Jorge Newbery](#)





## Buenos Aires City Data: Transport

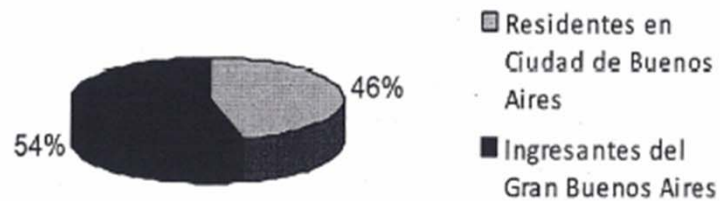


# People & Vehicles

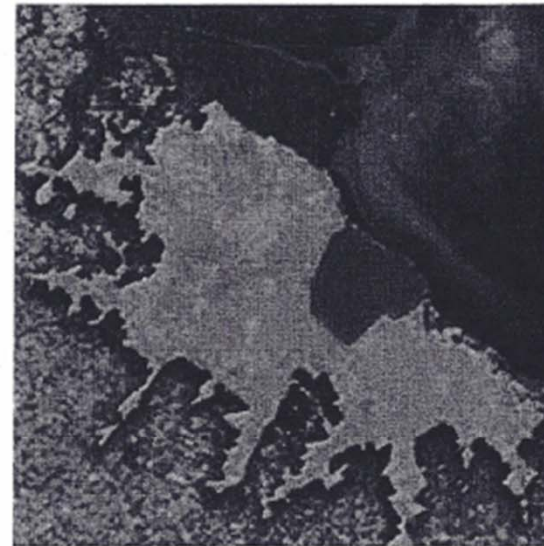
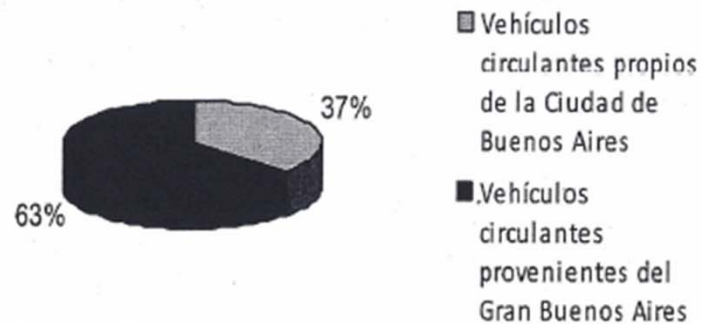


## • INTRODUCTION

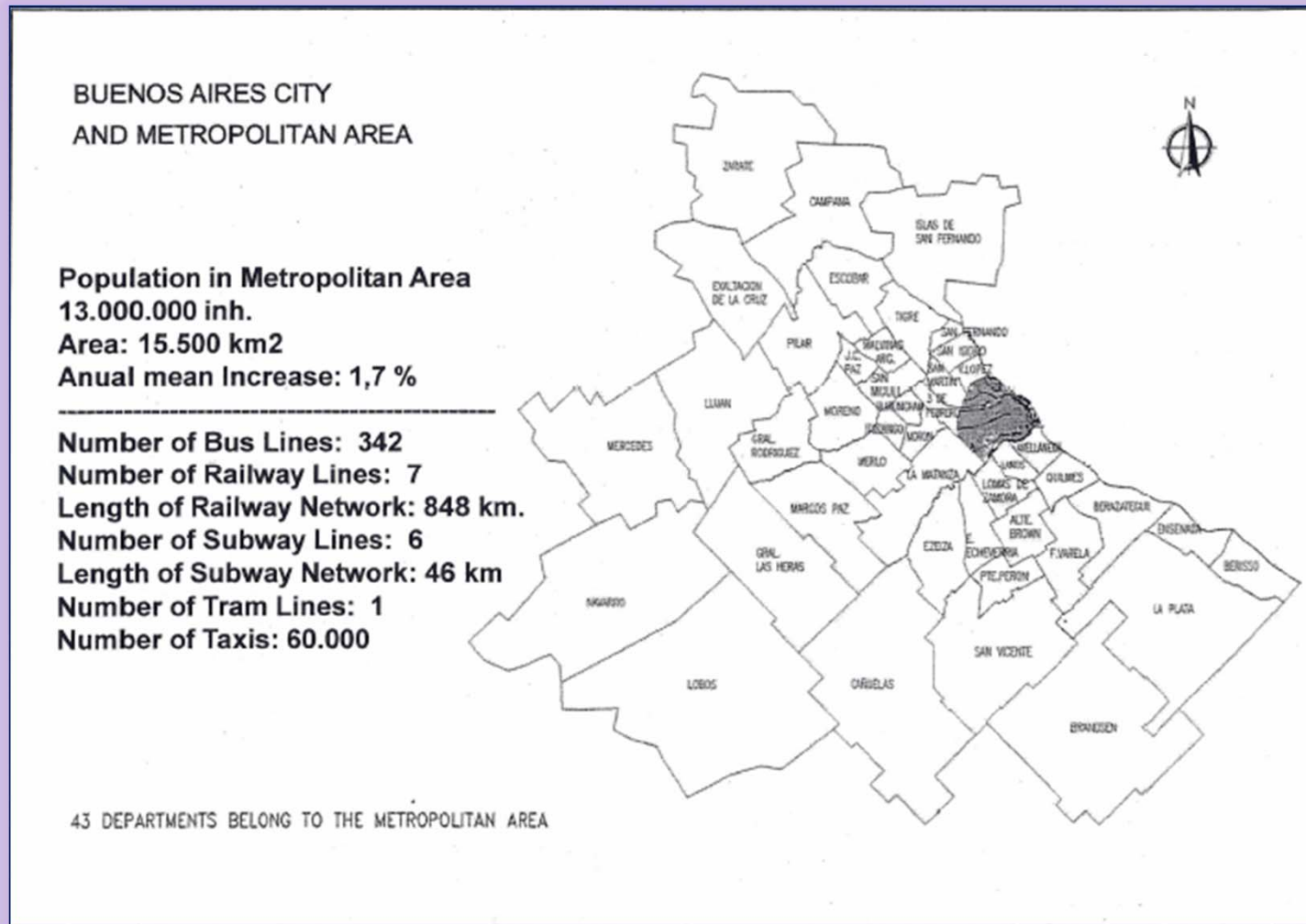
- 3.2 millions people enter BA from GBA daily, doubling its population.



- 1.3 million vehicles per day enter through routes from GBA.









## BUENOS AIRES CITY



**MAJOR CITY:** Buenos Aires City

**Political system:** It has an autonomous form of government, with its own legislation power and jurisdiction and its governor is directly elected by its citizens.

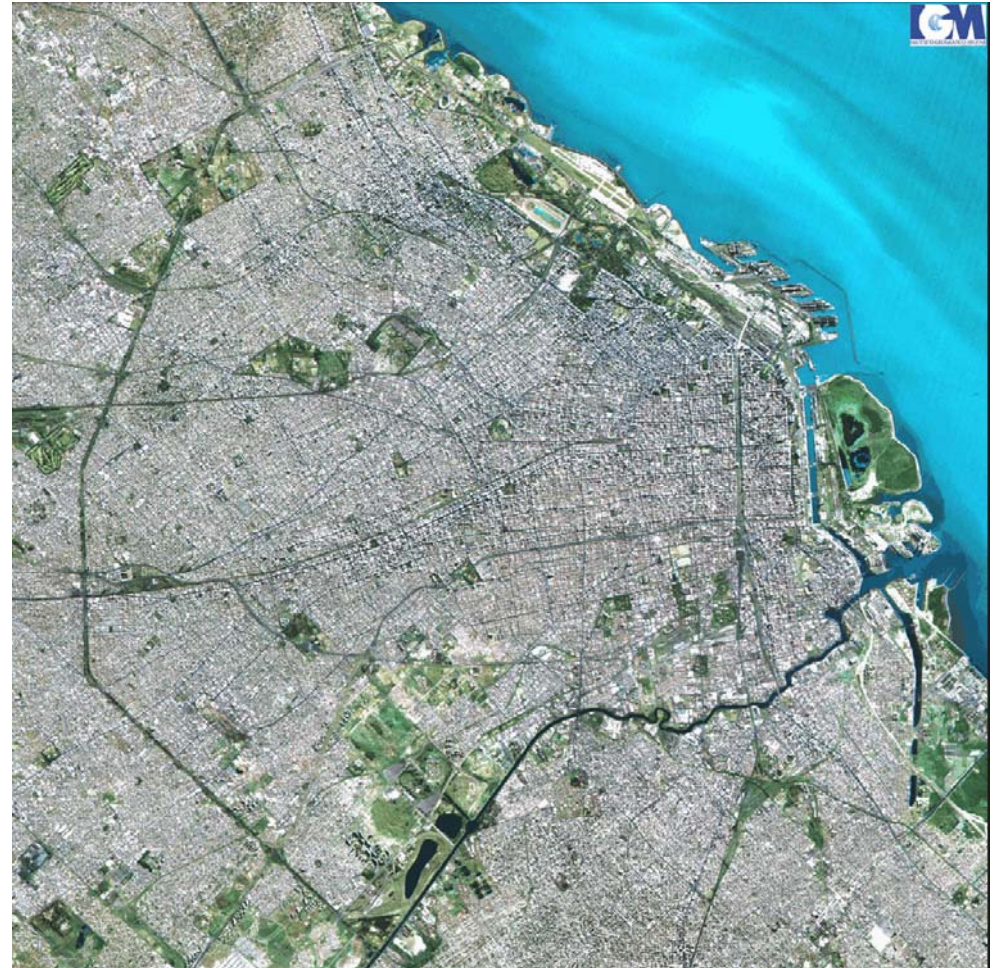
**Area:** 203 km<sup>2</sup> (79 sq mi)

**Population:** 2,970,950 inh.

**Distance International Airport-City:** 22 km (14 miles)

**Climate:** Mild with maritime influence.

**Average temperature:** 10° C – 50°F (winter) / 24° C – 77°F (summer).





## Buses



**Lines:** > 135

**Schedule:** not fixed and they working during all day,

**Frequency:** from 10 minutes to 1 hour.

**Mode of payment:** UP card or coins

**Cost:** between \$ 1.50 and \$ 1.70 in the city and in the suburbs between \$ 1.50 and \$ 3.35 with SUBE

**Annual passenger volume:** 400 millions.

**Subsidy:** cost of diesel, collection, kilometers traveled and number of passengers carried, which on average is 1,900 pesos per month for bus.



**Omnibus:** There are two bus terminals of medium and long distance. Retiro Station has 75 platforms for 2,000 buses daily. The total annual quantity of services is more than 572,000





## Other modes of transportation



### **Metrobus**

System: buses (articulated) with exclusive lanes. Currently, it works only for a exclusive boulevard with 21 bus stop with 12.5 km length but the City are building two lines more.

### **Taxis**

Color: black and yellow.

Quantity:> 38,000.



### **Remises**

System: car rental with driver, with unregulated fare by the state.

Service: Point-to-point through a call.

Quantity:> 2300

**Bikes:** There is an integrated cycling network protected in low-traffic streets with a free rental system







# Subways Network of Buenos Aires City

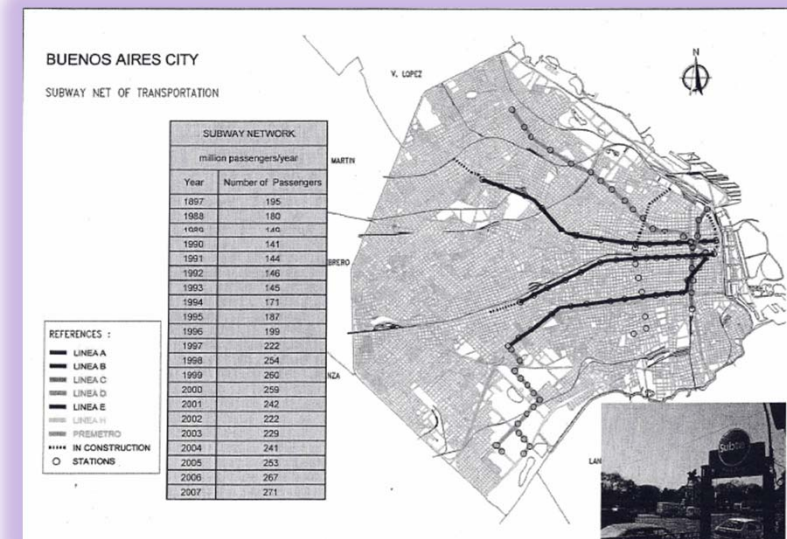


Length: 50 km,

Lines: 6

Operation Schedule: Monday to Saturday: 05 am - 10:30pm; Sunday: 08am – 10pm.

Cost: 2,50 \$ (pesos).





## Current ITS Projects



# National ITS Projects Department (since 2010)



## Objectives and functions

**Standardization**

**Technical criteria :**  
approval, licensing and  
certification of  
systems and products.

**Project Management:**  
Generation ,Monitoring,  
Control, Assessment

**ITS Architecture :**  
Physical, functional and  
organizational

**Technology update:**  
Scenarios and trends



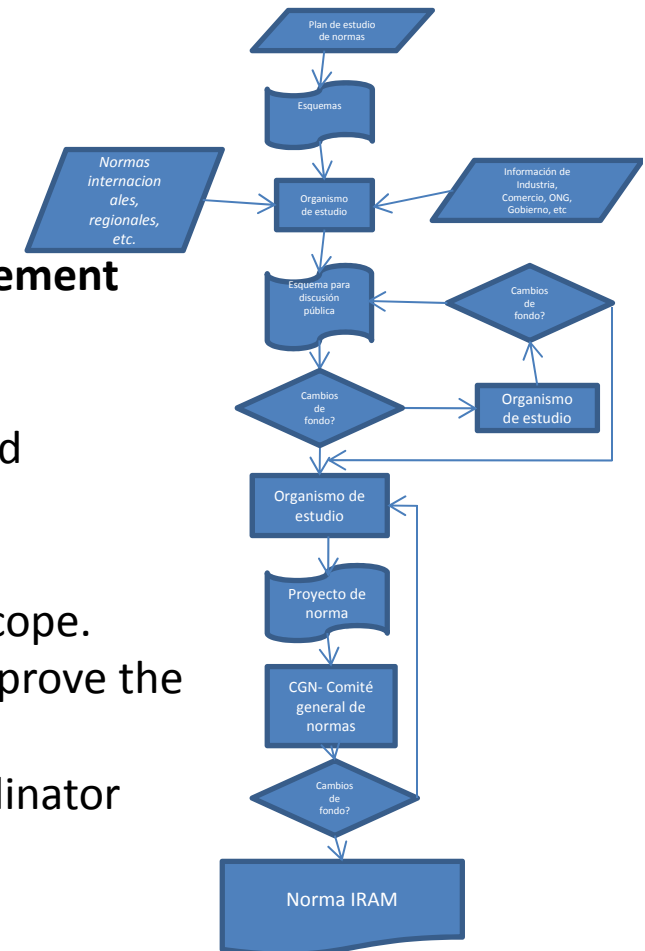
# National ITS Standardization



## Standardization

### Creation of ITS Standardization Committee through an agreement with IRAM

- Provide guidance and establish the strategies to be followed in the development of studies in areas of a specialty.
- Coordinate the Plan of Standards of a specific area, create appropriate subcommittees and determine its scope.
- Supervise the work of dependent Entities of Study and approve the documents studied by them.
- To operate, designate a Chairman and a Secretary. A Coordinator is appointed by IRAM too.







# National ITS Standardization



MOU with IRAM, National Standardization Organization and National Roads Administration

- **ITS Working Committee**

- **WT Variable Messages Signs**
- **WT Traffic Lighting**
- **WT Works Signalization**
- **WT Public Lighting**
- **WT Project Management**
- **WT Electromagnetic Compatibility**
- **WT Traffic Controllers**



## Deployment of ITS Systems



- 80 CCTV Systems
- 80 VMS Systems
- 2 Traffic Control Centres
- Electronic Tolls Collection (with technical interoperability with ISO18006C protocol)
- SOS Systems each 5km in Highways in Concession
- Enhancement Systems (pilot)
- 8 Meteorological Systems
- Communications Protocol (DGT of Spain)



# Ticketing System: SUBE

**SUBE**

## SISTEMA ÚNICO BOLETO ELECTRÓNICO

### OBTIENE LA TARJETA

Las tarjetas son gratuitas y se entregan una por persona, tras completar un formulario de registro y presentar DNI.



### REALIZA LA CARGA

El SUBE cuenta con una red de bocas de distribución y recarga masiva de las tarjetas con amplia dispersión geográfica y horaria.



### UTILIZA EL SERVICIO

La tarjeta, ante el simple acercamiento a la máquina lectora, descuenta el valor del viaje realizado.



El Sistema Único de Boleto Electrónico (SUBE) fue establecido por el Poder Ejecutivo Nacional mediante el decreto N° 84 / 2009, con el objetivo de optimizar el acceso al Sistema de Transporte Público de Pasajeros del país.

Fuente: [www.sube.gov.ar](http://www.sube.gov.ar)

## VMS Systems







## Deployment of National ITS Systems



### Meteorological Stations and SOS phones Systems





# Deployment of National ITS Systems

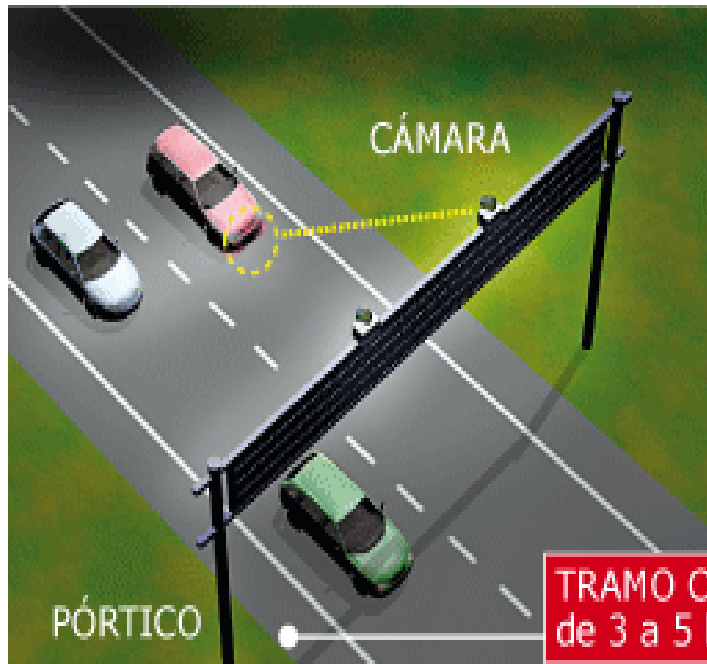


## Enforcement Systems in roads sections

### EL SISTEMA DE VIGILANCIA POR TRAMOS

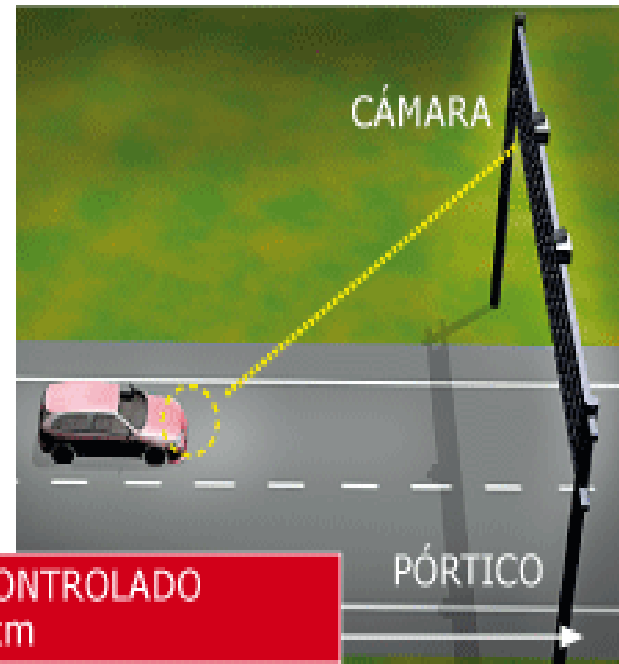
#### 1 Inicio del tramo PÓRTICO 1

Una cámara por cada carril fotografía las matrículas y la hora de paso




#### 2 Final del tramo PÓRTICO 2

Otra cámara captura la nueva imagen y la hora exacta de paso



#### 3 El análisis de los datos tomados ORDENADOR



Calcula la velocidad media a la que va el vehículo:

$$\frac{\text{distancia recorrida}}{\text{tiempo}}$$

Si la velocidad media es superior a la permitida, cursa la sanción

FRANCINA CORTÉS



# Deployment of Urban ITS Systems



## Ramp metering (Urban Highway)





# Deployment of National ITS Systems



## Electronic control heights





## Ausol Highway Control Centre



25/09/2013

Turin, Italia, International Conference Connected Car  
Daniel G. Russomanno, Eng., MBA

58



## Oeste Highway Control Centre



25/09/2013

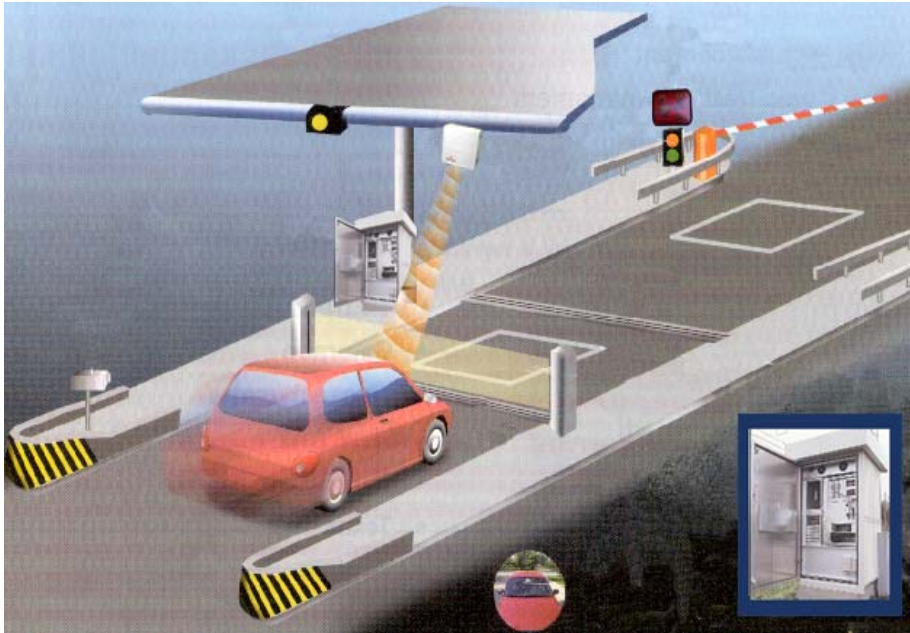
Turin, Italia, International Conference Connected Car  
Daniel G. Russomanno, Eng.,MBA

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## Deployment of National and Urban ITS Systems



### Electronic Toll Collection

Interoperability in all the Country with antennas ISO 180006C and multiprotocol antennas, 915 MHz and stickers tags.





## ETC: Interoperability



The Organ of Control of the Roads Concessions of the Dirección Nacional de Vialidad plans to implement a system ETC (Electronic Toll Collection) interoperable in all of the corridors and domestic routes in the country:

- **Interoperability for all the roads network (using ISO 18006C until 2017)**
- **The cost of the Transponder device must be accessible for the user.**
- **Reliability.**
- **Multiprotocol operation.**
- **Scalable.**
- **Global trend.**





# Deployment National Projects



Modernization  
of railway stations



Burial of the FFCC  
Sarmiento



Renewal of fleet of  
Buses.



New double-decker  
rail cars



Renewing and  
upgrading  
of railway terminal  
stations



Modernization of the  
cruise terminal  
B. Quinquela Martin



New Terminal C in  
Ezeiza Airport



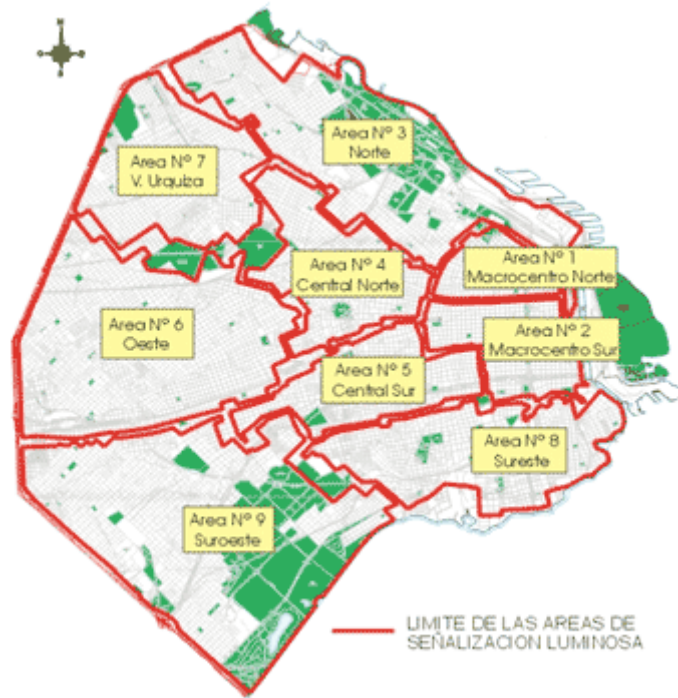
Extension of the  
subway line E



New Central Railway  
Station, Mar del Plata  
City



## ITS Systems: Buenos Aires City

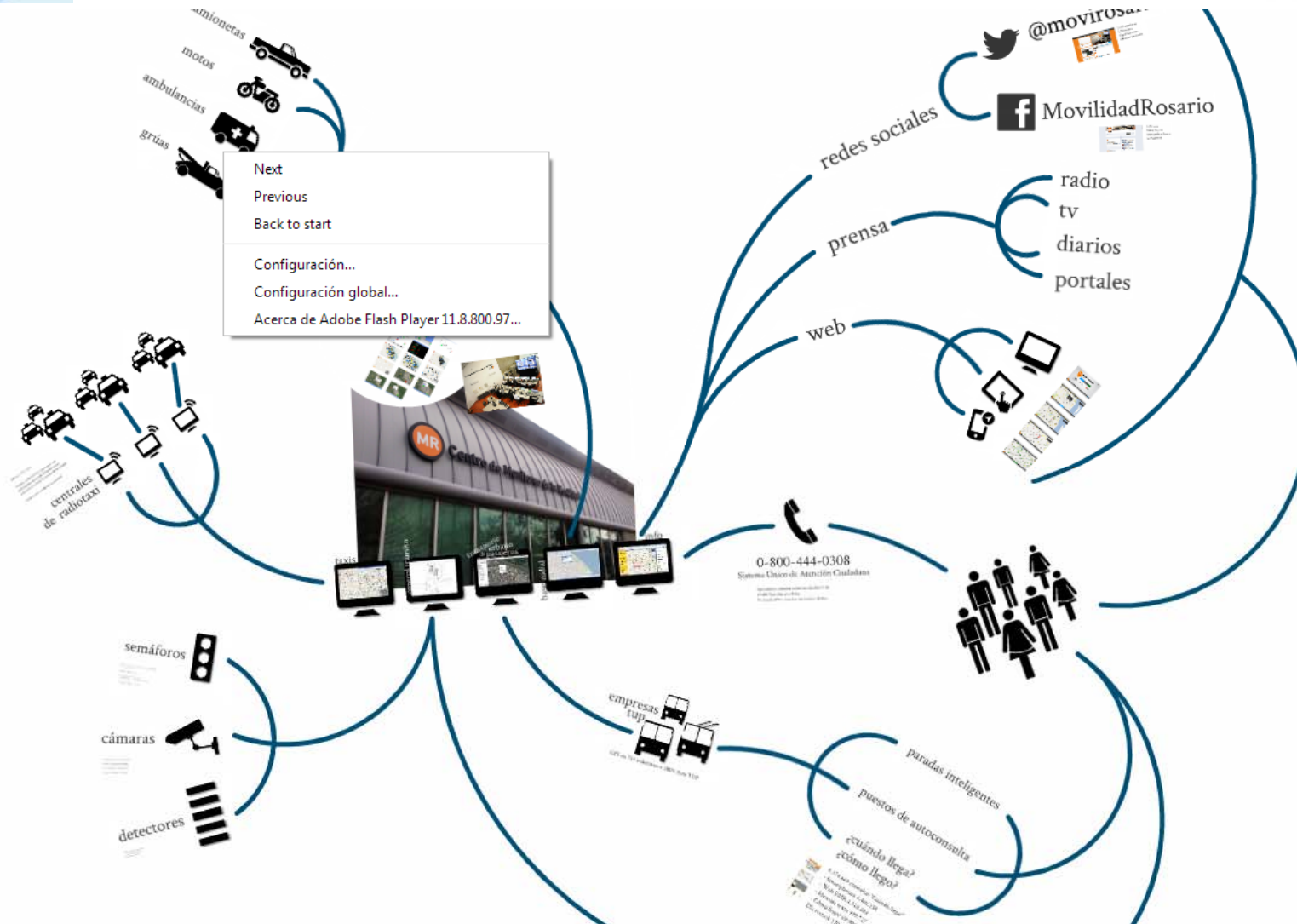


Aprox. 3.800 Traffic Controllers  
Aprox. 30 CCTV Traffic Cameras  
Aprox. 400 Traffic Sensors  
Aprox. 40 VMS  
5 Traffic Control Centres (isolated)  
Proprietary Protocol of Telecommunications  
6 Subcontractors (local and foreign)  
Fiber optic and cable





# Mobility Concept Rosario City







# Mobility Concept Rosario City



- Traffic Control
  - Traffic lights
  - Traffic sensors
  - CCTV
  - VMS
- Radio Communications
  - Ambulance
  - Fire Station
  - Policy
  - Maintenance team
- Public Transport monitoring (GPS, CCTV)
  - Buses
  - Taxis
- User Information
  - Smart Bus StopsParadas
  - Posts of autoconsult
  - ¿When arrive? ¿How arrive?







## ITS Systems: Urban Highways System



- 150 CCTV cameras for monitoring and control (next w/ IAD system)
- 42 Data Acquisition Stations
- Over 600 magnetic loops. (next, video detection)
- 46 electronic variable message signs
- More than 90 km of fiber optic lines
- 4 Local Control Stations.
- 2 Dissuasive Signs of speed. (next, limit speed signs)
- 118 SOS posts. (next, replacement of all of them)
- 18 Ramp metering posts.





# National Telecommunications Plan: Argentina Connected



## Lines of Action of Argentina Connected Program

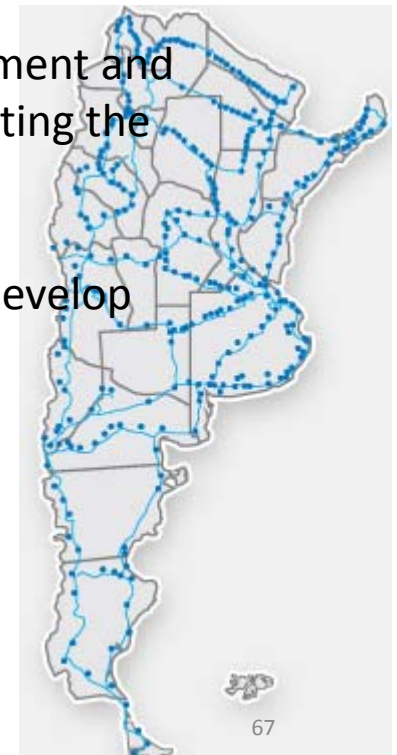
**Infrastructure and connectivity equipment:** set up a secure fiber optic network, strategic and sovereign, starting with areas without infrastructure and federalizing quality, prices and content.

**Government services and cultural content:** technology for better management and quality of communications between different areas of government. Promoting the development of converged content and social value.

**Digital Inclusion:** Implementing spaces for access to new technologies to develop skills and tools that support the development of communities.



Estrategia Integral  
de Conectividad





## Sciency & Technology Ministry



### **“Technologies for Logistics and Transport”: Deployment Roundtable**

- Strengthen strategic areas and sectors to generate a substantial change in the Argentine production profile.
- Devising mechanisms, instruments and incentives to optimize the System of Science, Technology and Innovation.
- Coordinate working groups that developed the National Plan for Science, Technology and Innovation.
- Instruct the development of prospective analysis to anticipate possible scenarios and carry out strategic planning.
- Consolidate social generation and use of knowledge for the promotion of the National Innovation System in coordination with the productive sector.



## Coming New ITS Projects





## Buenos Aires - Rosario – Córdoba: New Highway (800km)



Section  
**Córdoba - Rosario**

Section  
**Rosario - Campana**

Section  
**Campana - Buenos  
Aires City**



## Buenos Aires - Rosario – Córdoba: New Highway (800km)



- Along the Corridor most important of our country on the route of the National Route Nº 9, which connects the cities of Buenos Aires, Rosario and Cordoba, ITS technologies will be developed. These intelligent systems and subsystems will be developed linking the Buenos Aires - Rosario Highway and Rosario - Córdoba Highway, through the called second ring road of Rosario A02. It will be a corridor of approximately 800 km in length.
- The project includes the installation of control centers in the Gran Rosario (on the Second Ring Road) and the City of Villa Maria, Province of Córdoba, which should interoperate with the control center of the Autopistas del Sol Highway installed and currently operating in San Isidro City, Province of Buenos Aires.



# Bioceanic Corridor: National Route N°7



Height: 3165 m.



VALPARAISO

SANTIAGO

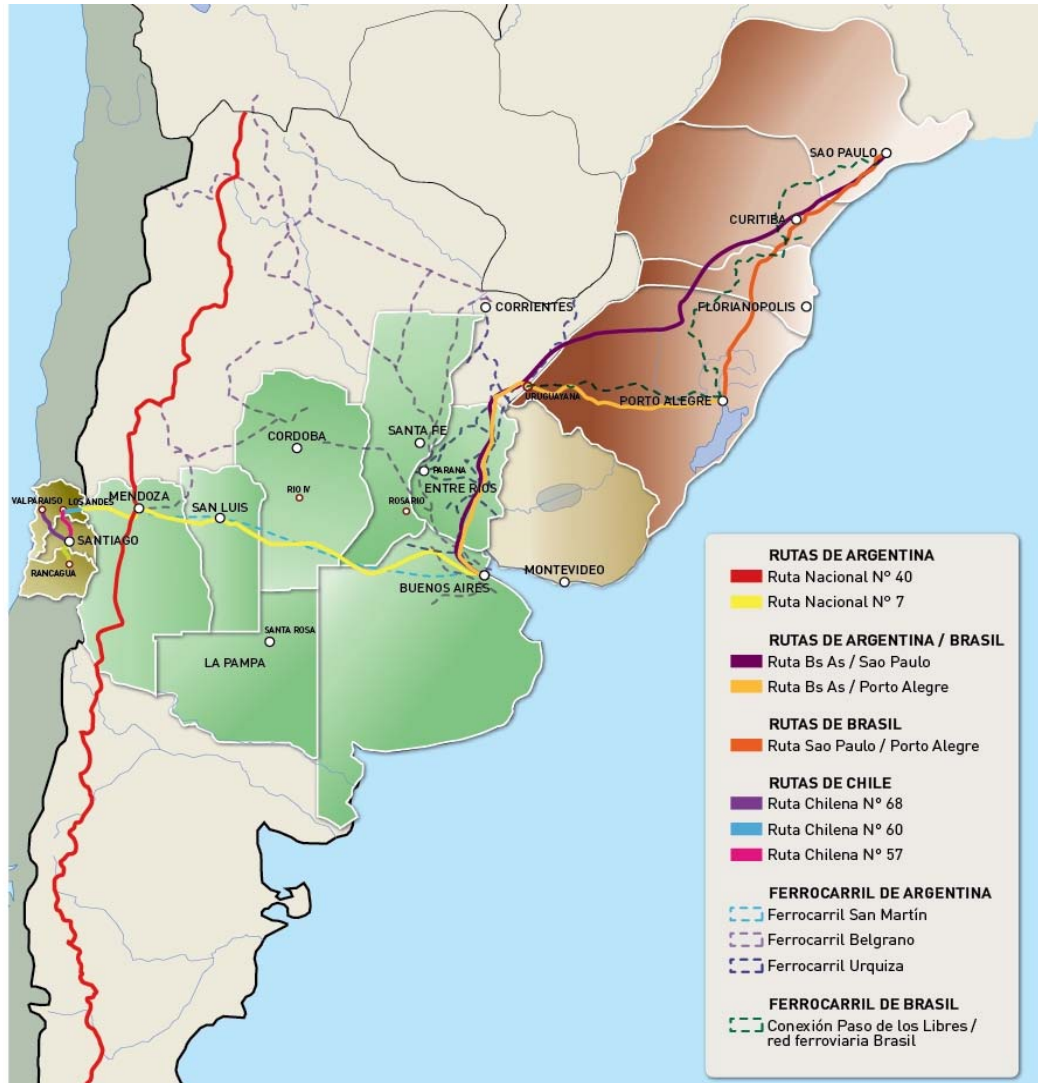
BUENOS AIRES

MONTEVIDEO





# Bioceanic Corridor: National Route N°7



**Trough the Axis Mercosur-  
Chile spends 70% of South American  
economic activity, to include the most  
industrialized states of Brazil,  
Uruguay and the Central  
Corridor Buenos Aires - Santiago  
de Chile.**

**This corridor has a influence area of  
3.1 million km2 and a population of 125  
million people, linking Santiago (Chile),  
Buenos Aires (Argentina) and Sao  
Paulo (Brazil).**

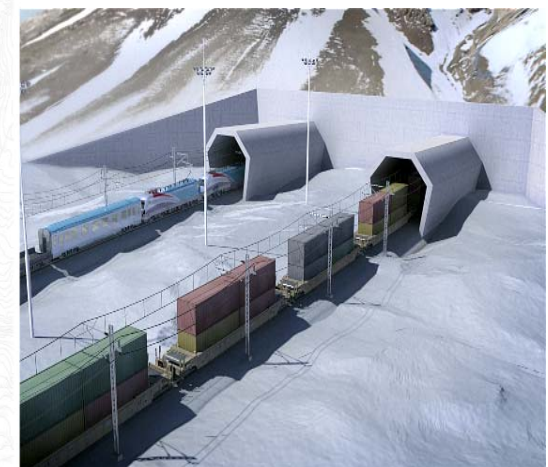
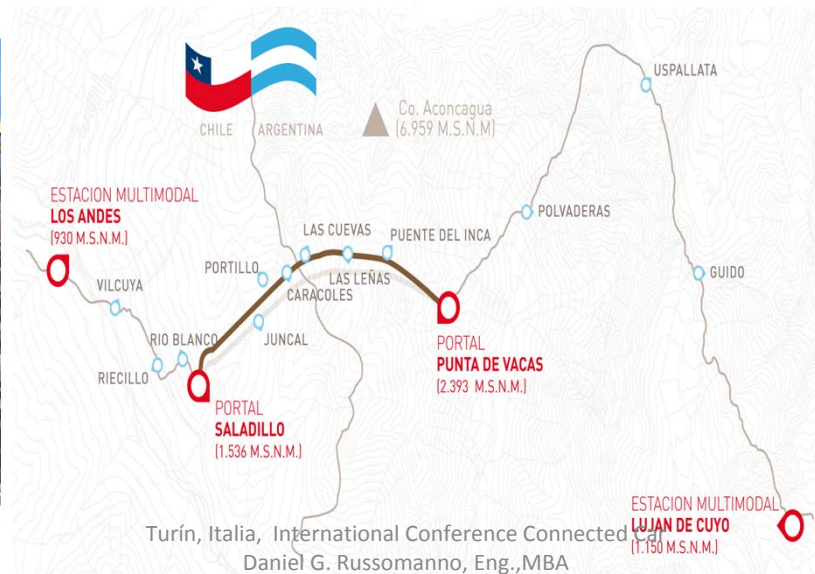




# Bioceanic Corridor: Electric Railway System



	TS-VS	TS-VD	TD-VD
Capacity Max. (MM ton)	24	34	77
Length trains (meters)	750	750	750
Inter time (minutes)	40	25	9
Trains per day (Maximum) (*)	72	110	200
Travel Time	3h10min-4h	2h40min-3h10m	2h30min





# Zárate – Brazo Largo Bridges (Road and Railway)





# Cristo Redentor Tunnel



## Border crossing Cristo Redentor:

- Height 3,165 m. above sea level
- Place: Province of Mendoza
- Mean access National Route N° 7
- Distance: USPALLATA – LOS ANDES: 166 km.
- The tunnel will power the Atlantic-Pacific trade of 7 million tons currently to thirty million tons in the first stage.





# Cristo Redentor Tunnel



Example

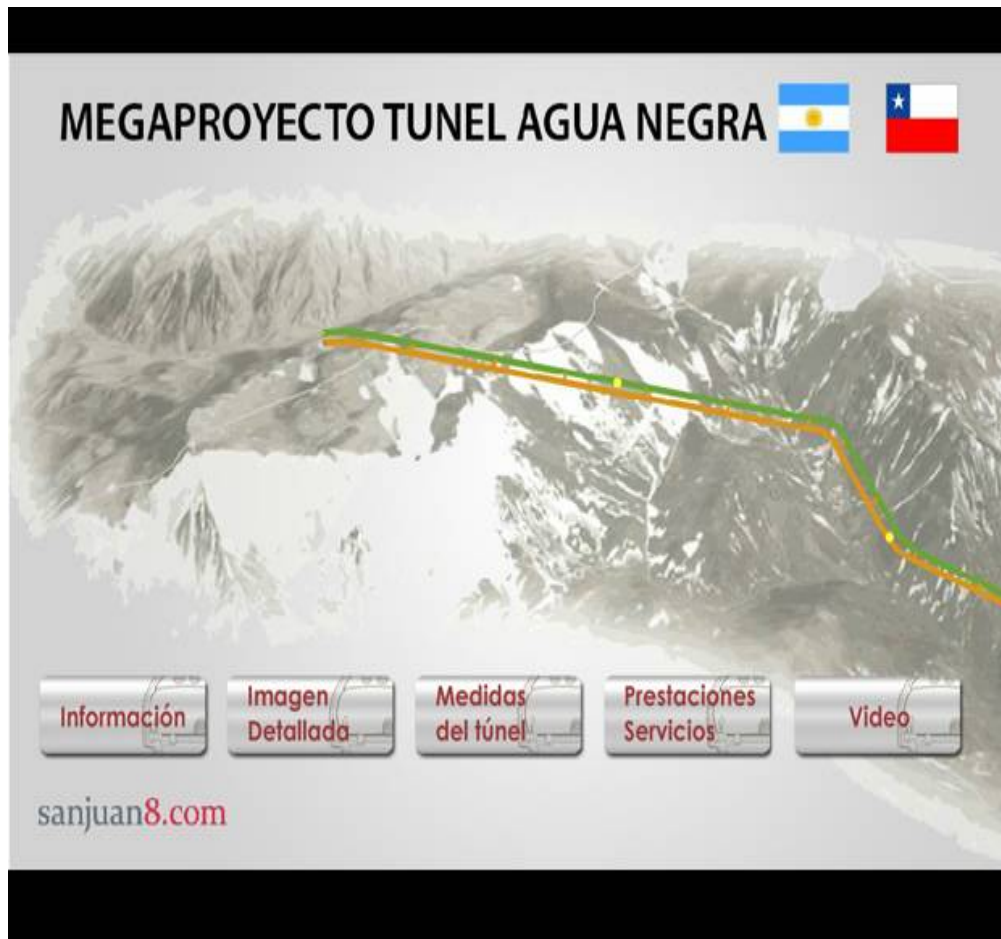
The implementation of ITS in the tunnel Cristo Redentor is linked to the need to improve, modernize and integrate all the infrastructure of the tunnel.

- VMS.
- Traffic control.
- CCTV.
- Ventilation.
- Fire Control.
- Lighting Control.
- Communications and Energy Systems.





# Agua Negra Tunnel



## Highlights

- .- 2 tunnels separated by 60 meters apart, with short interconnecting tunnels every 300 meters
- .- 2 lanes per tunnel
- .- 2000 vehicles per hour.
- .- Duration of the work: 5-7 years.

Entry into San Juan, Argentina: height 4050 m

Entry into Chile: height 3,600 m above sea level

Length: 14 km



# CIM: Monitoring Integral Centre



(Example: Image from Spain)

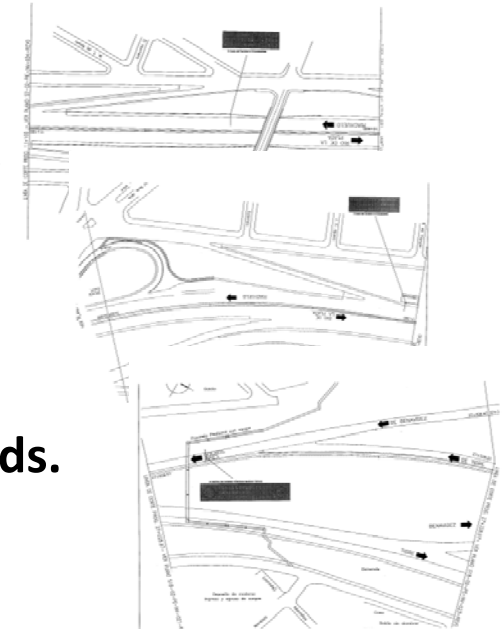


# Highways and Corridors



## Acting Tasks

- Expanding and integrating the Access Network to Buenos Aires with the National Road Corridors.
- Installing variable messages signs with international standards.
- Installing SOS equipments each 5 km.
- Installing Weather Stations connected to the ITS network.
- Installing Traffic Controllers connected to the ITS network.
- Monitoring in the Control Centres of the images of the roads.
- Traffic Sensors connected to the ITS network.
- Installing weigh in motion and other systems.





# My current proposals of ITS projects



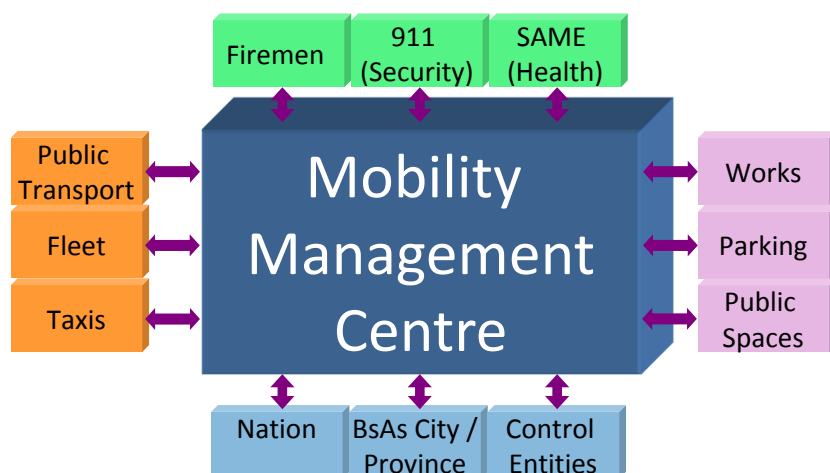
## Free Flow (like in Chile)



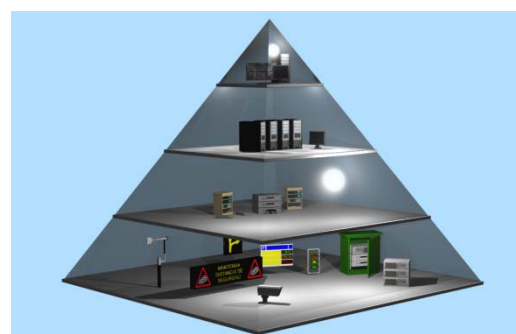
## Electronic "lomada" (like in Brasil)



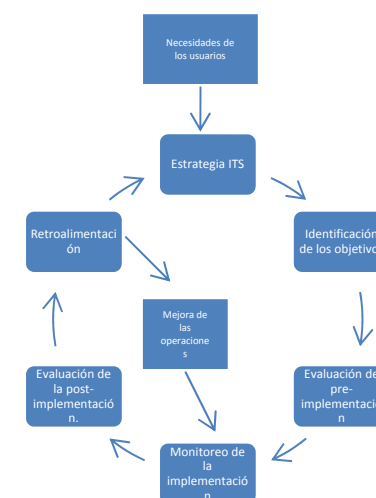
## Regional Full (Bra-Arg-Chi) ETC Interoperability with CEN Standards



## ITS National Architecture



## Projects ITS Analysis Process







**Be careful with the deployment!**



# Be careful with the deployment!



## Traffic Control Centre



Image: ITS centre, Singapore





**Be careful with the deployment!**



## Height control







# Be careful with the deployment!



## Retractable Bollards



## User Information in Bus Stops







# Be careful with the deployment!



## Electronic bump



## Priority Public Transport

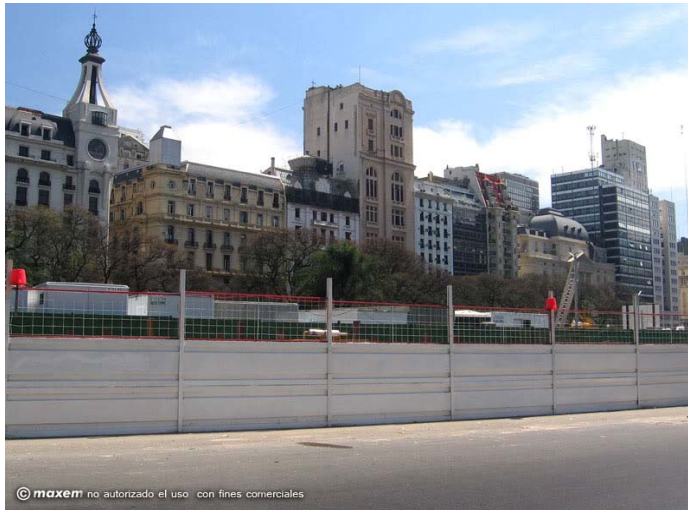




# Be careful with the deployment!



## Signaling and safety in public works



## Maintenance







# Be careful with the deployment!



## VMS

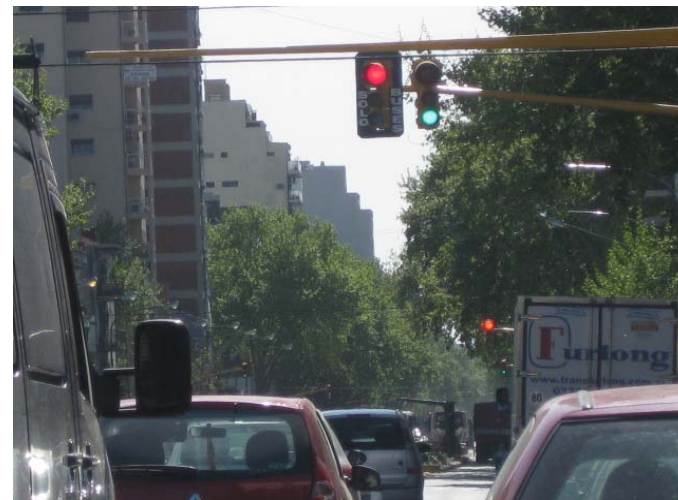




# Be careful with the deployment!



## Traffic Lights







Be careful with the deployment!



## Parking Signaling





## ITS Public Policies



## ITS Public Policies



### I believe that:

- The ITS must be considered from the planning of investment in infrastructure and transportation projects.
- We should stimulate the creativity and the innovation in ITS projects.
- The ITS always will be in a process of transition, so the flexibility will be important.
- The ITS projects should be evaluated throughout its life cycle from planning to dismantle, not only in products and systems but also in technical services.
- The ITS projects should be evaluated with effective key performance indicators (“before” and “after “ works).
- In the ITS projects should be considered also the possible technological change within the lifetime of the total project, the standardization, its control, the training, the risks, the global trends and the learned lessons.





# Objectives of the Public Policies of Transport



**Improve the quality of life, welfare and social inclusion of people.**

## **Improve the Transportation System.**

Improve the infrastructure (design and implementation)  
Improving the quality of service (operation and maintenance).  
Improve intermodality.  
Improve interoperability.  
Improve the infrastructure (design and implementation)  
Improving the quality of service (operation and maintenance)  
Improve intermodality.  
Improve interoperability

## **Improve the corresponding KPI's with SMART goals:**

- Improve the road safety
- Improve the environment
- Improve the mobility
- Reduce costs
- Rationalize the use of energy



## Recommendations to the Authorities of Transport



- **Develop cooperation between all actors involved in the mobility.**
  - Currently, the rapid development of private initiatives to offer travelers various information services, it strongly modified the mobility ecosystem. However, traffic authorities operators of roads do not participate fully, in general, with service providers and can be done more to take advantage of these services.
- **Take initiatives in order to have a comprehensive approach to the problem of mobility.**
  - Considering all modes and all stakeholders and taking fully into account the private sector initiatives
- **Find ways to involve more organizations of private actors.**
  - Such is the case of the automotive industry, main traffic service operators, equipment suppliers, ITS associations, etc.
- **Analyze trends**
  - Promotion of Public Transport; Intermodal network; Total accessibility; Promoting use of hybrid and green vehicles ; City more comfortable and pedestrian ; BRT systems to the backbone; Multicentric and more vertical cities; Online users information systems ; Transformation of freight logistics; Increased use of the Railways and waterways; ITS Systems Deployment.



## ITS Public Policies



- **Take in account that the ITS grow rapidly**
  - Is likely to penetrate into the vehicle fleet on a large scale in the following 15 years.
- **Implement the ITS in coordinated way**
  - with common visions and strategies.
- **Promote the deployment of ITS based on vehicles and road infrastructure**
  - to improve safety.
- **Increase efforts in research and development**
  - on prototypes and investments in areas related to security
- **Need to exchange experiences**
  - on technical performance, economic feasibility and impact on road safety.
- **Have enough references**
  - regarding road safety aspects of ITS and consult the research and experience from international forums since the existing industry tends to focus on other aspects of the ITS.
- **It is essential to monitor the quality of services and systems and define and publish standards.**
  - Since the quality of the systems and services are directly related to their acceptability and effectiveness





## ITS Public Policies



- **Oversee the activities of standardization**
  - and, when be necessary , take measures to ensure that needs are met.
- **Consider the coordination of points of views on regional standardization**
  - and between stakeholders in each country
- **Take into account the interests of local industries**
  - and also the global companies
- **Develop a systemic vision and strategy for the implementation and operation**
  - between transit authorities, operators and auto-industry about their services and systems.
- **Use without discussion dynamic traffic management and local VMS on bridges or tunnels**
  - because the cost-benefit ratios are greater than 1 the higher the traffic volume.
- **Establish coordinated strategies and common practices between the support services to infrastructure and vehicle-based systems,**
  - taking into account road safety, costs and other benefits



## ITS Public Policies



- Certain sectors of our economy have depended, and still depend on imported foreign technology. Such dependence is, to some extent, a particular aspect of domination, hard to solve .
- The total elimination of the import of technology is not a way to achieve, but it must be reduced to what is necessary.
- It must be have a just, fair and measured balance between local and foreign knowledge towards achieve the planned objectives.
- For us, the world is, in this matter, ever more interdependent, and our current potential has the critical skills necessary to enable a smart national policy focusing this potential, working with effective programs and unity of purpose, and operate interacting with all the world's centers.
- The technological dependence is very difficult to reverse as it requires a long sedimentation which requires an action decanting in the time and only is successful when it reaches a certain level of cost and an acceptable degree of perfectibility.



## ITS Public Policies



- **Develop an adequate capacity allowing to have enough national decision.**
  - because every sector of knowledge helps to strengthen this power..
- **Make available, at the right time, the right technology to achieve the best results**
- **Export technology with the highest possible degree of complexity.**
- **Replace, gradually, the import of technology, with competitive cost and quality.**
- **Be prudent and take into account the lessons learned from experience**
- **Require the maximum effort to incentive the creativity and the innovation,**  
understood Creativity as the power to establish, found or introduce something for the first time and  
Innovation as the grounding of that creation.
- **Develop criteria for adaptation of foreign technology,**
  - to the extent be appropriate, but without locating our Society within a simple adaptive model.



## ITS Public Policies



**¿Why do we need the government to create a public policy planning office?**

**“Because if we are closer to power, we can reinforce the principles we believe and we can deepen the reforms we want.”**

**Dr. Néstor Kirchner**

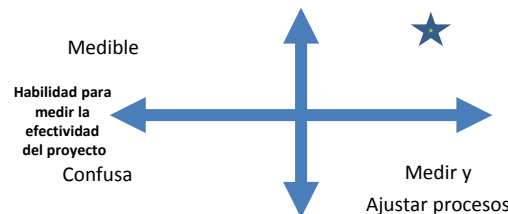
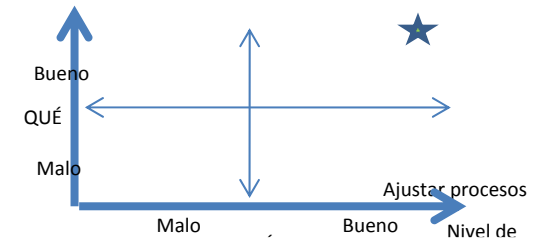
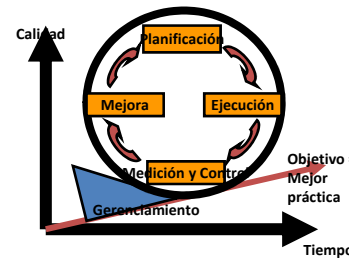
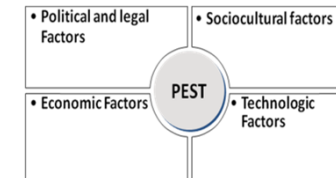
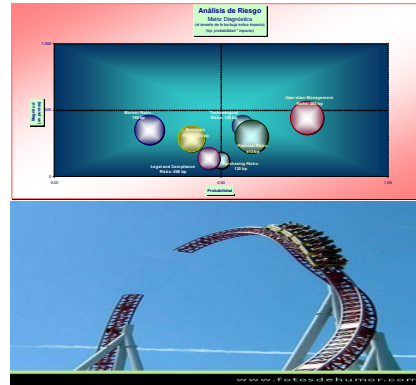




# Recommendations



- Risk Management!
- Scenarios Analysis!
- Project Assessment!
- Project Management!
- What and How do!
- “Smart” Objectives!



Repetir y mejorar



## Conclusions

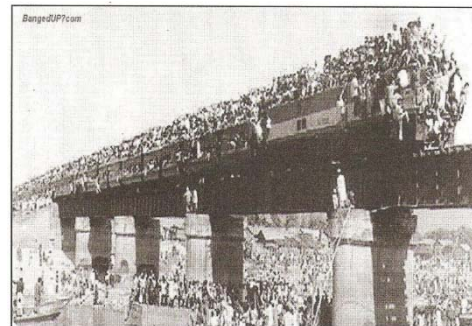


It is important to note that ITS have a crucial role to play in our world in search of a greater self-determination and solution of the evident problems to achieve better key performance indicators in road safety, environmental protection, energy consumption, production, productivity, mobility and economy, and therefore, quality of life, welfare and happiness of people.

***It is NOT possible to have a sustainable mobility without the use of ITS! "***



# What is our future without ITS?





***THANKS A LOT  
FOR YOUR ATTENTION!***

***See you soon!!  
Buenos Aires City, AIPCR Seminar  
“Urban Mobility, Highways Management and ITS Apps.”  
November 6&7, 2013***



Asociación Argentina  
de Carreteras



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## Conclusions: Challenges for the ITS deployment

- Financing
- Assessment Process
- Road user training
- Reliability
- Determination of Responsibilities
- Infrastructure: robustness, architecture and standardization.
- Professional training and dissemination
- R & D



## Conclusions: What should do the Industry?

- Maintain a high commitment to road safety (security, cost, reliability).
- Develop analysis of risks, benefits and outcomes.
- Develop cooperation with governments (standards, information, interoperability, improvements, kind of technology, products, etc.) that do not affect the road safety.
- Establish a clear and concrete communication with the user about the capabilities and limitations of the systems.



## Conclusions: ¿What should do the Governments?

- Determine and use Key Performance Indicators of ITS.
- Plan and develop strategy on ITS (management, standardization, interaction with other state agencies, specialists, and technical services and others)
- Implement a basic infrastructure and architecture for ITS.
- Invest in R & D.
- Ensure the benefits and safety of ITS.



## Conclusions: ¿What should do the Governments?

- Set priorities for their implementation.
- Lead the recovery for promotion and education for the Society and decision makers to be a state policy.
- Assist and cooperate with developing and promoting the use of architectures and standards for a regional harmonization.





## Reference Phrases

- "... It is necessary to coordinate the private and public actions, to promote the scientific and technological knowledge and apply it to the productive activity "
  - (President Cristina Fernandez de Kirchner)
- " ... to promote the inclusive and sustainable product innovation based on the expansion and fuller utilization of our national scientific and technological capabilities "
  - (President Cristina Fernandez de Kirchner and Science & Technology Minister. Luis Barañao) .
- " Economics of Happiness is a general term, that Mr. Pierre Bourdieu (1998 ) put to the economic that cared not for the mere growth in the GDP but also by the consequences of the growth in other areas of the personal and social life . "
  - (Esteve , 2004)



## Reference Phrases

- " The proper functioning of the governments depends on the adequate interface between their systems. "
  - William Schweinheim .
- ".. To deny the planning is to deny the possibility of choosing the future, it is accepted as it is."
  - Carlos Matus
- “The planning precedes and governing the actions”
  - Carlos Matus