



ITS/TRAFFIC MANAGEMENT PROJECT FOR JOHANNESBURG-PRETORIA AREA IN SOUTH AFRICA (JUNE 2015)

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EFKON is a leading provider of Intelligent Transport Systems (ITS) and electronic toll (ET) applications

FACTS AND FIGURES

- Focus on tolling and intelligent transport systems
- Member of the STRABAG group
- EFKON has over 500 employees, plus several 100 in JV's
- Major operations are in Austria, India, South Africa, Ireland, Malaysia, Pakistan and Germany
- HQ in Raaba/Graz

PORTFOLIO – AN OVERVIEW

- EFKON offers all innovative solutions along the value chain: a one-stop-provider for components, systems and customized overall solutions.

COMPONENTS



In-vehicle: On-board units, modules

Infrastructure: Transceivers, machine vision, classification

SUBSYSTEMS



Toll collection: Multi-lane free flow, toll plaza

Enforcement: Stationary, portable, mobile

ITS: Vehicle tracking systems, highway traffic management systems

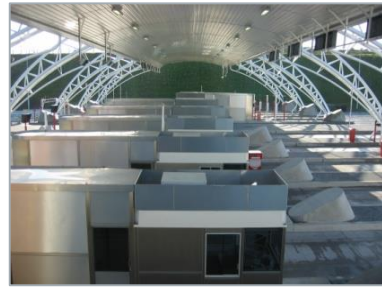
SYSTEMS INTEGRATION



Inter-urban

Urban

OPERATION



Toll operation

ONE-STOP-SHOP

REFERENCES:

SUCCESSFUL PROJECTS AROUND THE WORLD

Belgium



Nationwide truck tolling system: stationary, flexible and manual enforcement; central system software

South Africa



Manual toll plazas: installation, operation, maintenance; central system software
ITS: installation, operation, maintenance of traffic surveillance on freeways; operation and maintenance of traffic surveillance centers

Germany



One of the major suppliers of the German truck tolling system: manual & portable enforcement, parts of automatic enforcement

Austria



Delivery of on-board units: nationwide multi-lane-free-flow truck tolling system
Mobile label checking systems: toll control system for passenger cars
Section control: automatic speed control

REFERENCES:

SUCCESSFUL PROJECTS AROUND THE WORLD

Malaysia



Nationwide electronic tolling system: infrared-based toll collection system

Ireland



Equipment and operation of toll plazas in Limerick & Fermoy: design, development and integration and operation of toll systems

India



Market leadership in tolling systems: ITS, toll road operations & maintenance, vehicle tracking solutions

South Korea & Taiwan

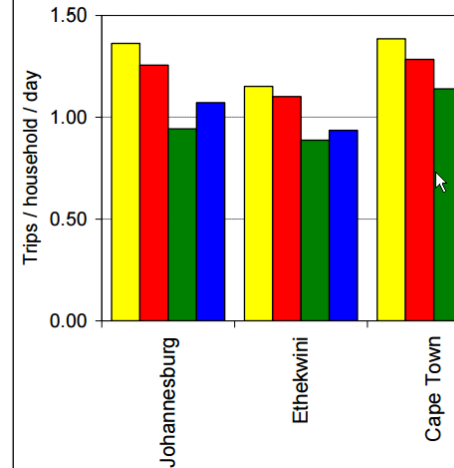
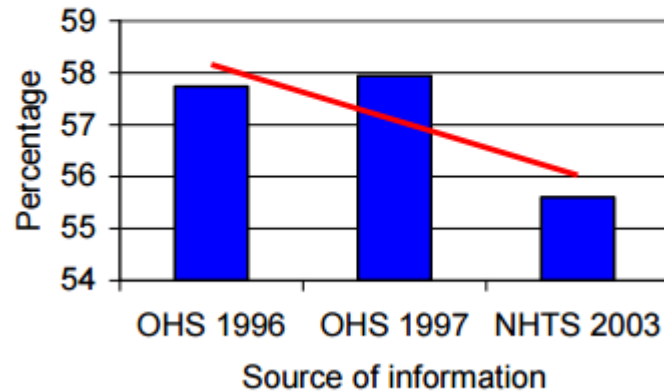


Delivery of nationwide electronic tolling system

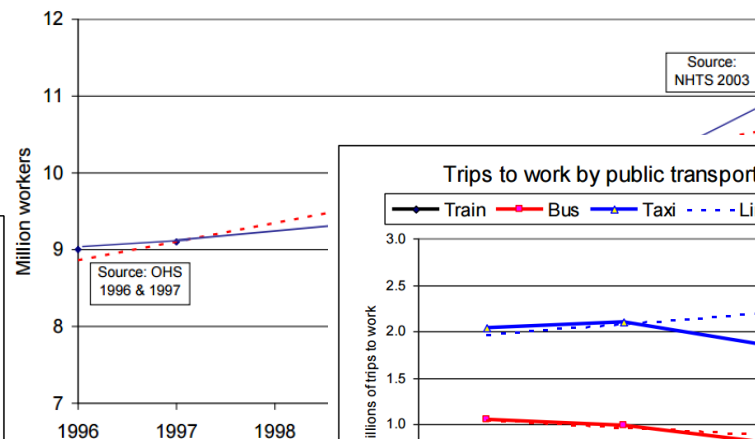
SOUTH AFRICA

- Highly industrialised country due to mining
- Life expectancy close to 70 years
- 40% under 15 years as population doubled in last 30 years from 30 to 60 million
- Major areas grew 20% in last 5 years only
- Car ownership 40% per household
- Still, relatively low population density, as space is available.
- ➔ BUT THIS CAUSES TRAFFIC!

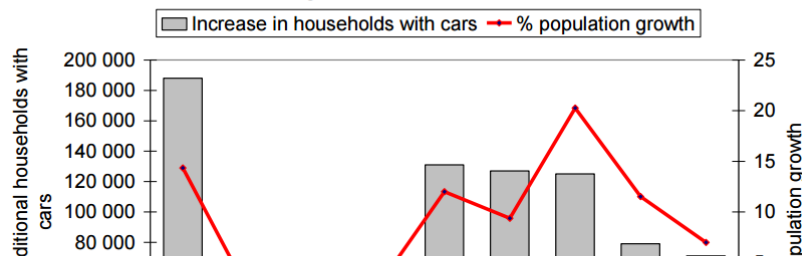
Public Transport as a percentage of all trips to work



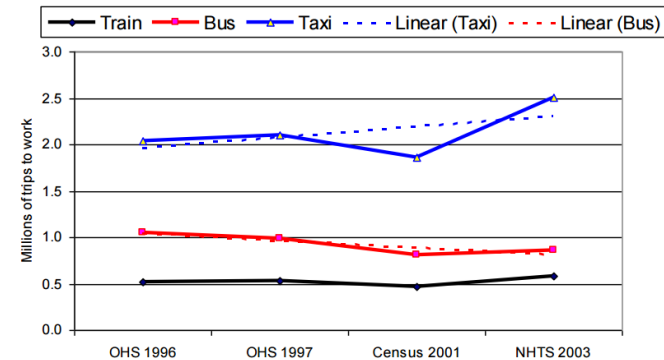
Number of workers in the RSA



Increase in absolute car ownership against population growth 1995-2003



Trips to work by public transport 1996 to 2003

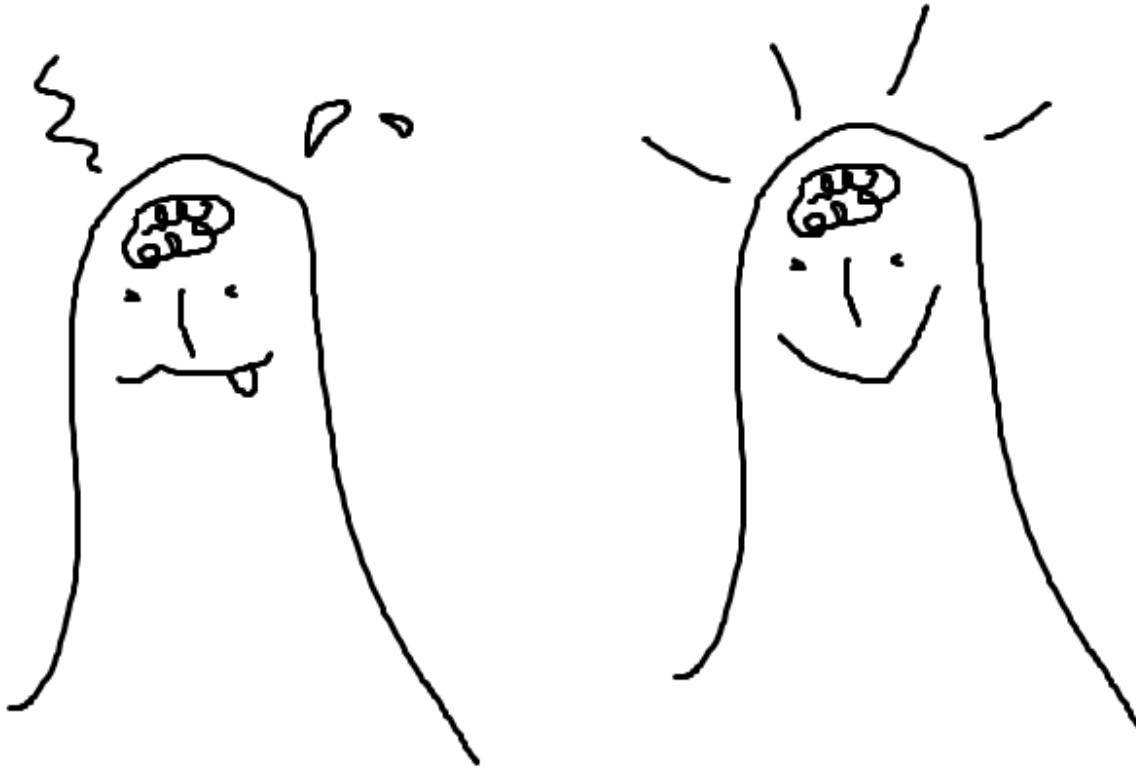


SOUTH AFRICA



- High traffic volumes are moving on major routes out of Gauteng"There are in excess of 2000 vehicles per hour [on highways],"
- deadly accidents on the roads at the weekend, said provincial traffic spokesman Jacques Mostert.
- On Sunday, a male pedestrian was knocked down and killed on the N1 between Worcester...
- On Saturday morning, a husband and wife died when they lost control of their BMW on the N1 towards Paarl. The man died on the scene and the woman died later in hospital. Their teenaged daughter was still fighting for her life.
- Early on Friday, two cars crashed into an earlier accident scene on the road between Laingsburg and Matjiesfontein.
- In the first accident, a head-on collision between two cars resulted in the death of both the drivers, a man and woman.
- In the darkness, two other cars then crashed into the scene. One person was seriously injured and taken to hospital.
- Limpopo roads and transport spokesman Jimmy Machaka said five people died on Sunday night in an accident on the R579 in Nebo.
- A minibus, which was speeding, collided with a car. Five people died and two were injured.
- Fatal crashes of year 2006 up 6,12% to 12,454. (The increase from 2004 to 2005 was 10,41%).
- Fatalities increased to 15,393 during 2006 (300/m/a; 4x EU). (2004 to 2005 was 10,62%).
- Cost of fatal crashes increased (6,12%) to R 10,96 billion in 2006 (€1bn)

DUMB → SMART

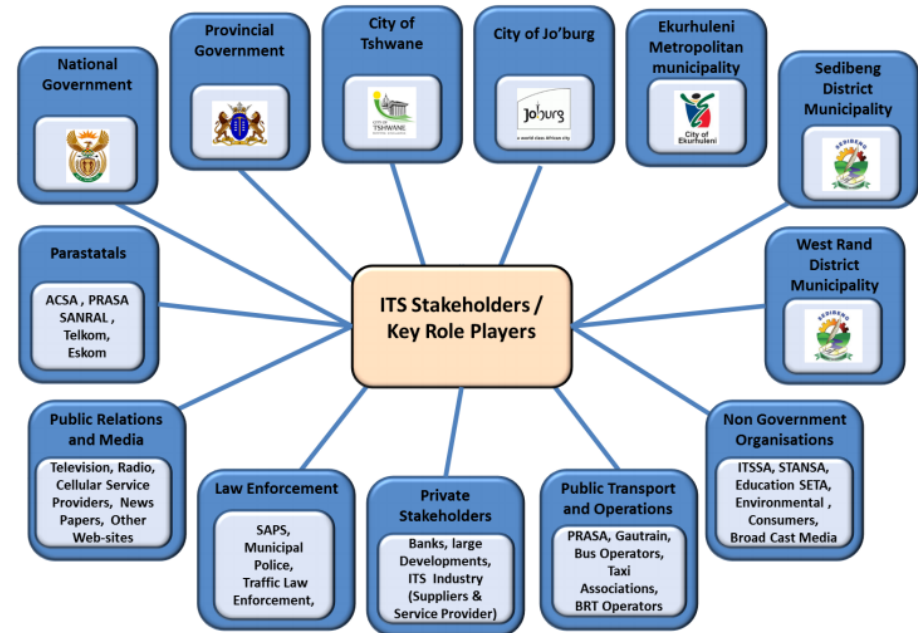


- Understands the context
- Plans activities
- Has the information at hand at the right time
- Sets the right priorities
- Does not carry surplus load
- Knows his options
- Thinks sustainably

MEASURES SINCE 2009

- Intelligent Transport Master Plan to align technology, stakeholders and institutions
- Comprehensive Intelligent Traffic Management Systems in all Major Cities
- Advanced Public Transport Management Systems in all Major Cities (20)
- Road Pricing to fund infrastructure
- Gautrain high speed metropolitan rail
- **Regional Intelligent Transport Systems with rapid reaction force for handling accidents in the major conurbations like Gauteng (Johannesburg-Pretoria), Cape, Durban, Port Elizabeth; \$100m+ project**

FIGURE 3: Key ITS Role Players in Gauteng



TARGETS

- Improved Incident Management
- Reduced Congestion
- Increased Road Safety
- Provision of information
- Evaluation (view for further deployment)



DEPLOYMENT

The following systems have been implemented in total >1000 sites on >500km:

- Integration and management software
- Fiber optic communication Backbone for communication between the field devices and the Network Management Centre
- CCTV Cameras
- Variable Message Signs
- Ramp Metering
- Wireless communication
- Traffic detection equipment
- Emergency vehicles
- Several 100 staff are operating the systems
- Ducts, gantries, poles, 2/3G modems etc...



Emergency vehicles

Incident recovery vehicle	10
Light tow recovery vehicle	10
Heavy tow recovery vehicle	7
Medical recovery vehicle	6
Motorbike medical recovery vehicle	5

USER EXAMPLE: ROUTE PLANNING WITH REAL TIME TRAFFIC INFORMATION

- www.i-traffic.co.za
- Select region
- Plan trip
- Get information
- View traffic

Freeway Route Planner

Disclaimer: Although start and end points of a route can be dynamically selected, the final route will be from the nearest point on a major freeway to end point on a freeway closest to the destination. [Click here to see the coverage area for traffic data.](#)

(A) Centurion Mall, Centurion, Gauteng, Südafrika
(B) Mamelodi West Clinic, Pretoria, Gauteng, Südafrika

Generate Route Start Over

Route Summary Route Details

[This freeway may have toll. Click for more information.](#)

From Centurion Mall, Centurion, Gauteng, Südafrika to Mamelodi West Clinic, Pretoria, Gauteng, Südafrika

Total Route Distance:	38.1 km
Total Freeway Distance:	27.9 km
Total Freeway Travel Time:	No Data
Associated Event(s):	

The screenshot shows the i-traffic.co.za website interface. At the top, there's a navigation bar with links like HOME, LIVE TRAFFIC, INCIDENTS, TOLL ROADS, TRAFFIC CAMERAS, and DRIVING TIMES. A map of South Africa is displayed, with the route from Centurion to Pretoria highlighted in green. A camera view is shown at the bottom right, displaying a road with traffic and a timestamp of 24/06/2015 07:17:25. The text 'Where is the camera pointing?' is visible below the camera view.

INCIDENTS INFORMATION

<https://www.i-traffic.co.za/traffic/incidents.aspx>

mp GG sat24 T OAN knoema CT-BD BE CTOXqa5376 TED

Traffic Map

Incidents

Road Conditions

Roadwork / Closures

Cameras

Message Signs

Travel Times

Toll Roads

On Road Services

Traffic Volumes

Learn about traffic conditions that might affect your trip. i-TRAFFIC's live traffic reports will notify you if there are adverse conditions. Simply select your Region to learn if your commute is affected.

OPTIONS SELECT

Affected Roadways ▾ All Directions ▾

Region	Roadway	Direction	Location	Description	Reported At	Last Updated
Gauteng	R21	Northbound	0.6 km after Ramp from Griffiths I/C	Stationary vehicle Left lane blocked	07:17:03 24/6/2015	07:23:33 24/6/2015
Gauteng	N3	Northbound	0.9 km after Ramp from Linkfield I/C	Multi-vehicle accident Left lane blocked	06:46:27 24/6/2015	07:23:24 24/6/2015

Gauteng

TRAFFIC OPTIONS

Traffic Map

Incidents

Road Conditions

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On Road Services

Traffic Volumes

Gauteng

Gauteng

Gauteng

Gauteng

Gauteng

Gauteng

Gauteng

Gauteng

Gauteng

Road Work

Easily learn if road work is being performed on your commute with i-TRAFFIC's live road work traffic reports to learn if your commute is affected.

OPTIONS SELECT

Affected Roadways ▾ All Directions ▾ Active between: 24/6/15 ▾ and: 24/6/15 ▾

Region	Roadway	Direction	Location	Description	PL
Gauteng	N1	Eastbound/Westbound	0.5 km after Ramp to	Roadwork	01
				Right lane	30
				blocked	
				Roadwork	15
			I/C	Right lane	20
				blocked	

Roadwork / Closures

Cameras

Message Signs

Travel Times

Toll Roads

On Road Services

Traffic Volumes

see the live traffic message along your commute.

OPTIONS SELECT

Affected Roadways ▾ All Directions ▾

Region	Roadway	Direction	Location	Message	Message 2
Gauteng	N12	Eastbound	N12 at Jet Park & R21 I/C	STATIONARY VEH R21 NORTHBOUND LEFT LANE CLOSED	STATIONARY VEH R21 NORTHBOUND AFTER GRIFFITHS
Gauteng	N12	Westbound	N12 at Atlas & Rietfontein I/C	STATIONARY VEH R21 NORTHBOUND LEFT LANE CLOSED	STATIONARY VEH R21 NORTHBOUND AFTER GRIFFITHS
Gauteng	R21	Northbound	GP VMS N3 2023a	STATIONARY VEH AFTER GRIFFITHS	STATIONARY VEH AFTER GRIFFITHS



CONCLUSION

- Africa's most advanced intelligent transport system for Africa's most developed country
- Comprehensive approach
- Focus on sharing information with the public
- Strongly improved incident control

However,

The road is always full ... so more work to be done!

INCIDENTS

En-Route Information

- Traffic information is also forwarded to radio stations and television
- Users can subscribe to an SMS service that provides them with information about incidents as well as progress with the clearance thereof.
- In order to communicate with the public while travelling, electronic sign boards called variable message signs are placed at strategic positions that allows the operator to give information about incidents, road works etc. by means of pre programmed messages. There are also electronic signs placed at high accident spots such as Buccleuch and New Road that warns travellers automatically to slow down when a queue is building up in front of them.

**THANK
YOU
FOR
YOUR
ATTENTION**

