Zero Vision
Everybody Drives, Nobody Dies

Klaus Burger

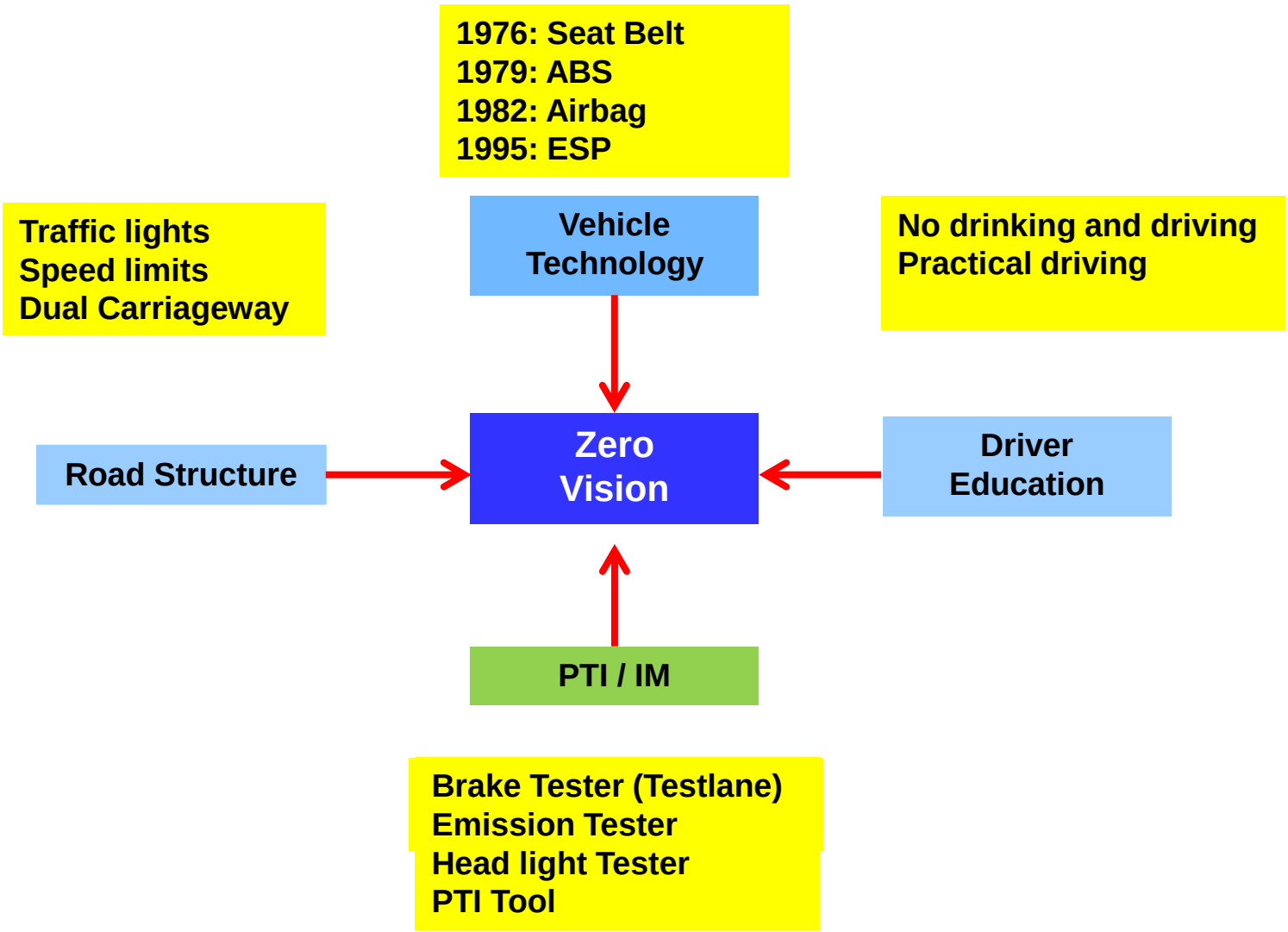
President, Sales, MAHA Germany

Zero Vision: Everybody drives, nobody dies

Case studies from different countries demonstrating best practice for PTI

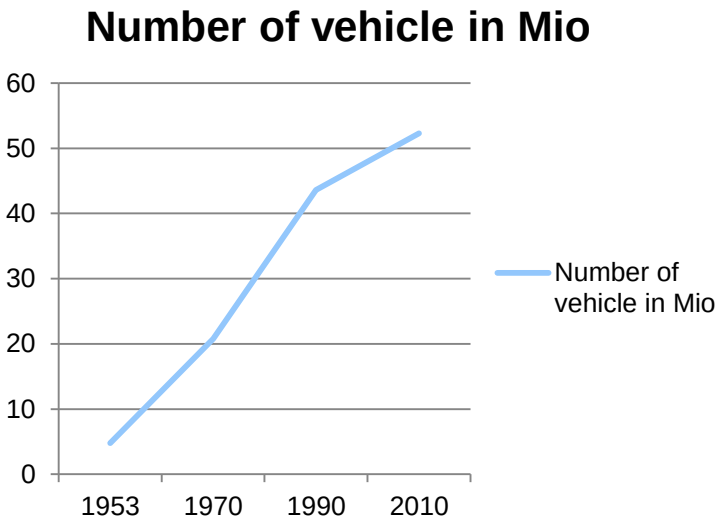
by Klaus Burger, President Sales MAHA, Germany

Zero Vision

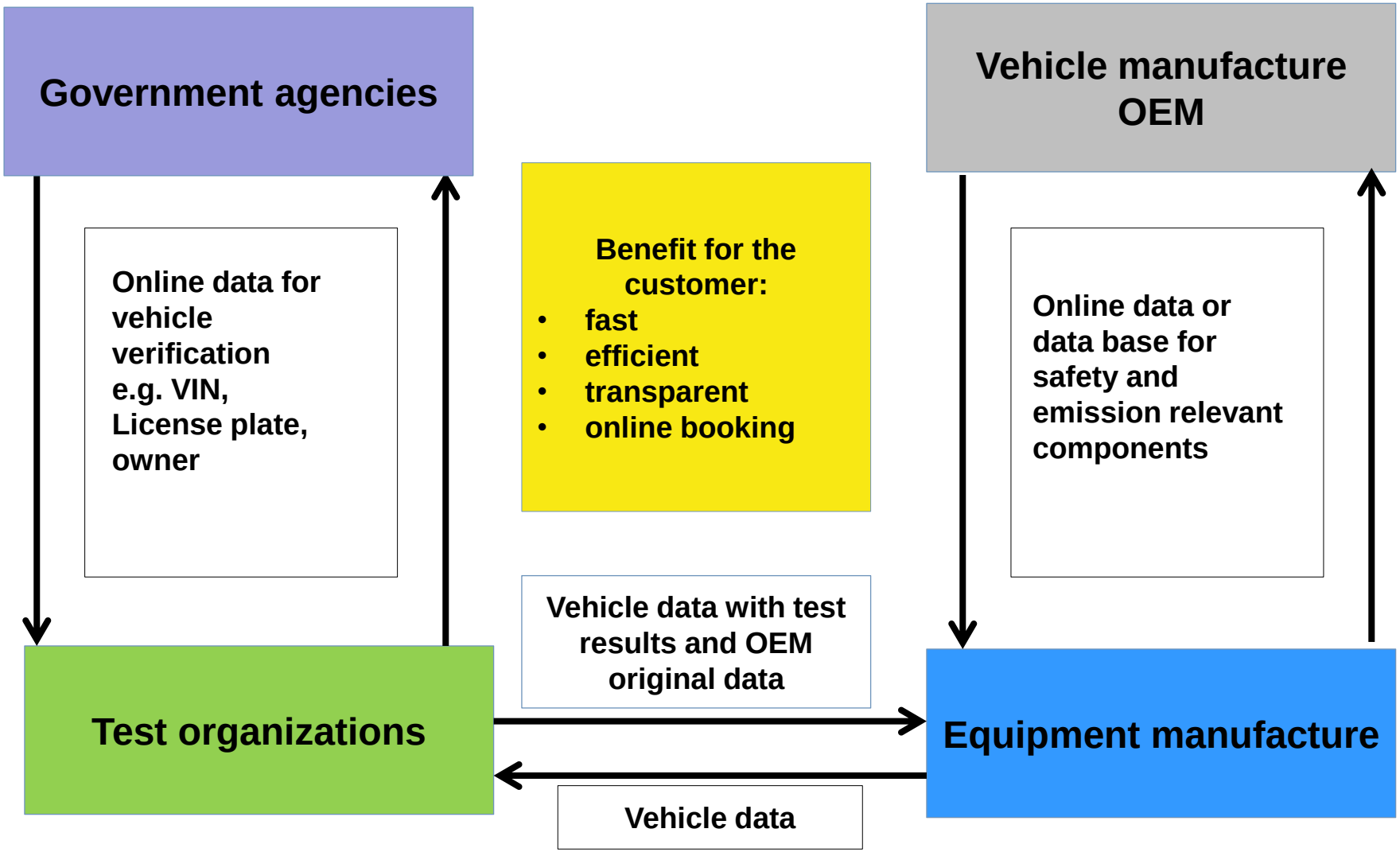


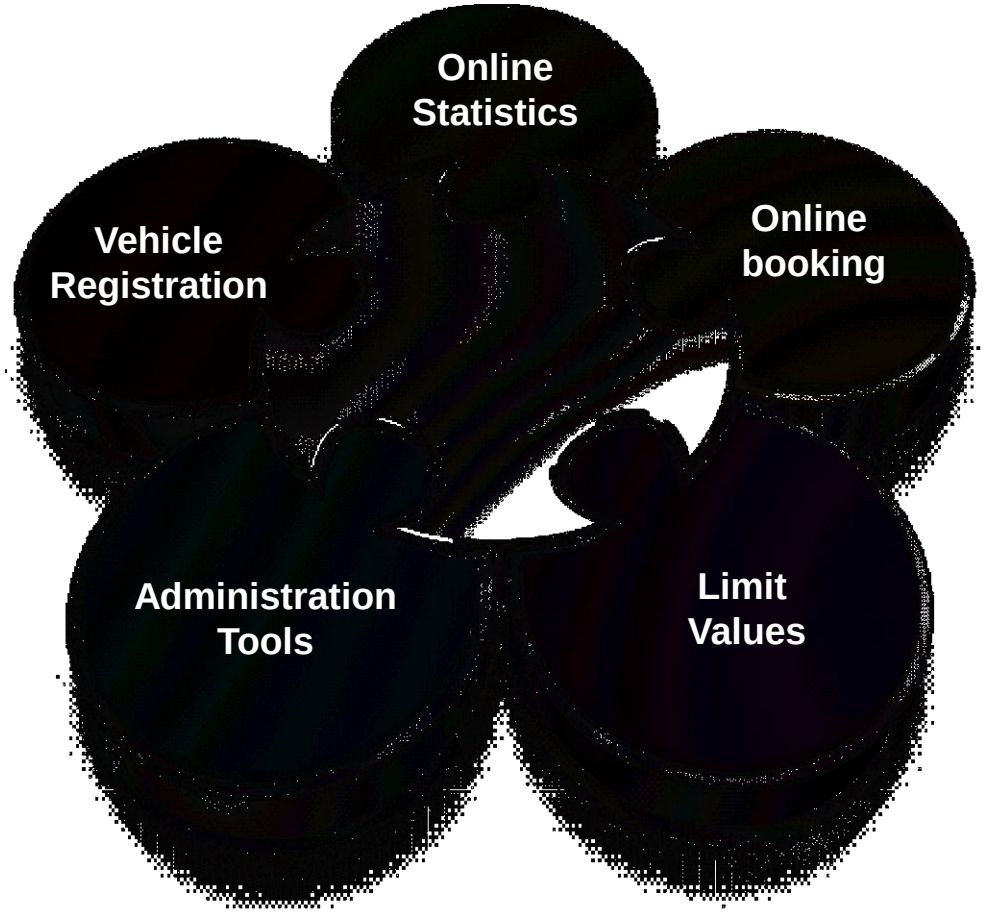
Number of road traffic fatalities in Germany

Fatalities caused by direct Impact



An efficient PTI System is based on a network of all major participants





DATA Center (DC) base for vehicle data and test data with:

- Centralized limit values
- Administration tools
- Registration of vehicle and owner
- Online booking
- 24 h access to online statistics

Centralized

High Quality standard

Standardized equipment and process

Supervised by government operated by private sector

Easy Statistic and data management system

Example: Turkey, Spain, Vietnam, Chile, Belgium, …

Decentralized

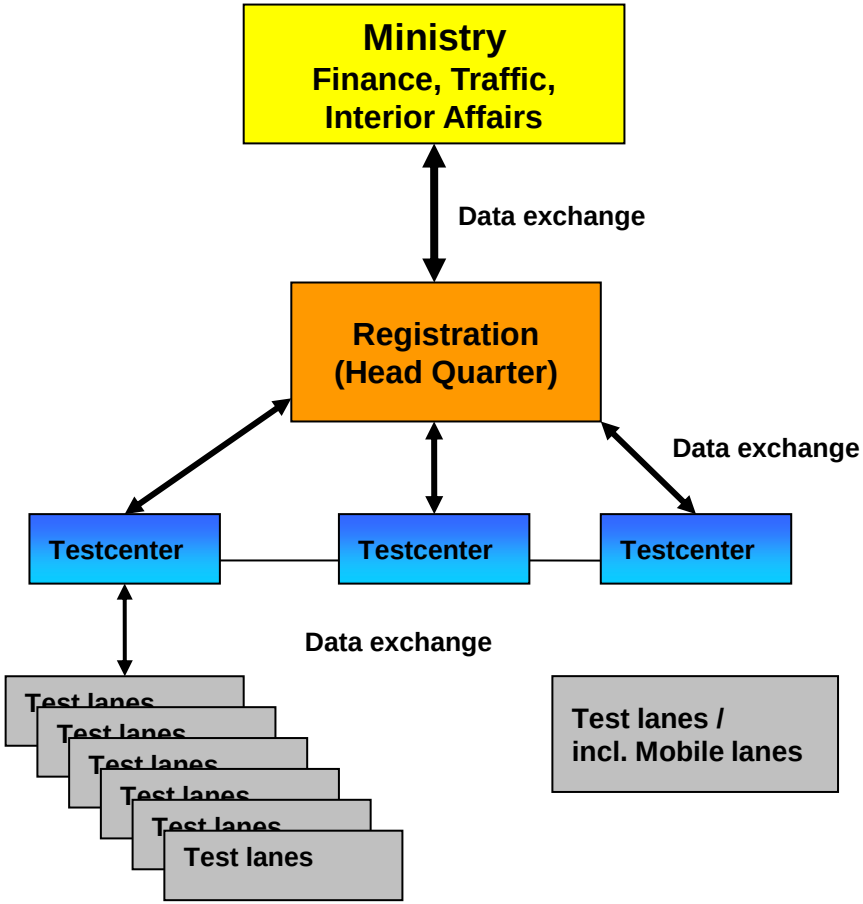
Highly prone to corruption.

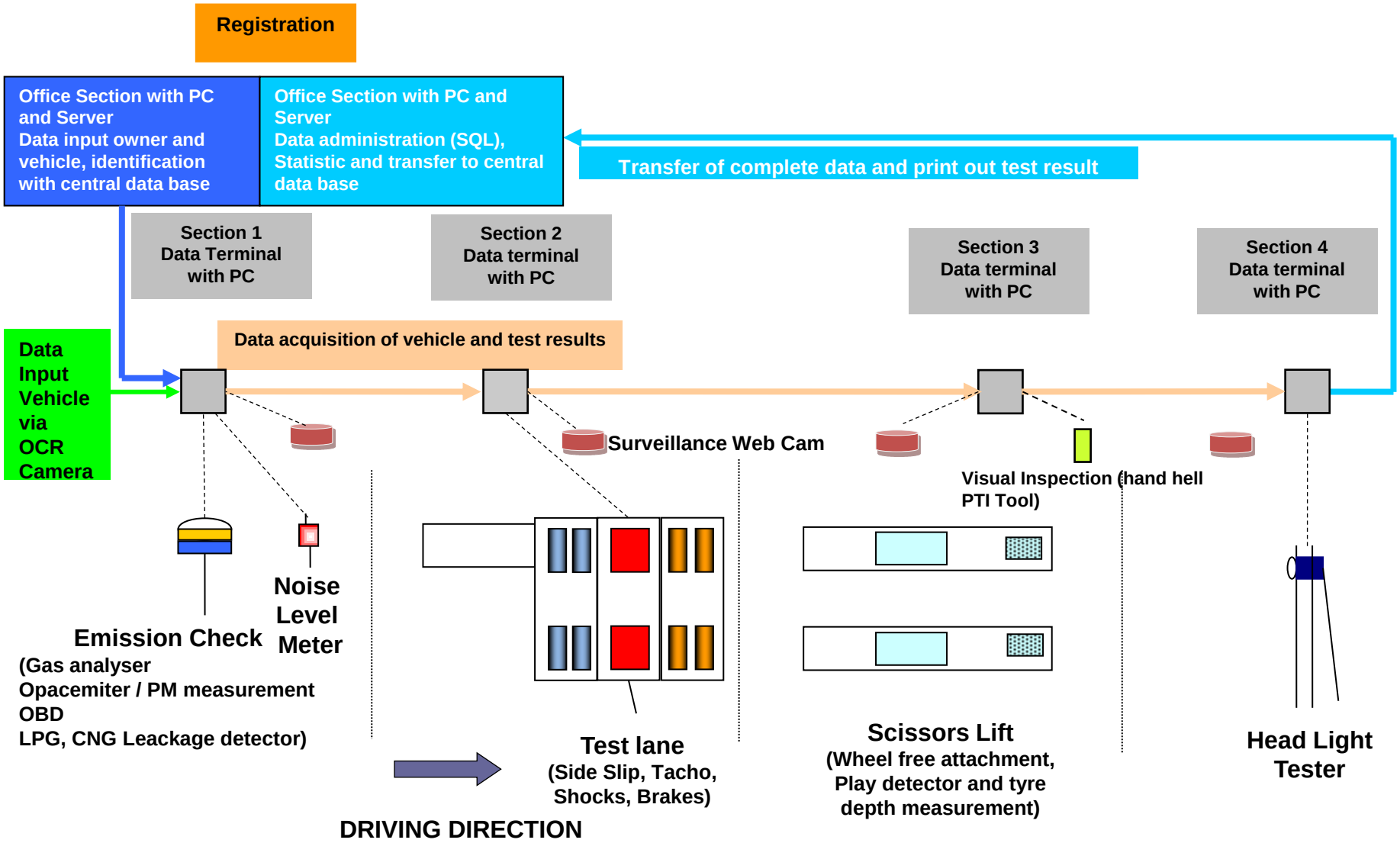
Different standards and processes from the individual test facilties

many different operators – limited control and hard to managed

Audit and accreditation of of individual operators and equipment will be a big challenge

Example: UK, France


Ministry
Finance, Traffic,
Interior Affairs
Data exchange
Registration
(Head Quarter)
Data exchange
Testcenter
Testcenter
Testcenter
Data exchange
Test lanes
Test lanes
Test lanes
Test lanes
Test lanes
Test lanes
Test lanes /
incl. Mobile lanes



License plate recognition with OCR camera system solution

- **OCR camera scan of the license plate while the vehicle is approaching the test center**

- **Data exchange with the server to avoid false data input or manipulation**

- **Data available on the test lane to speed up the process for the test. And Print out**

Automatic Tire Depth Measurement Device MTD 2000

Stand alone / or lifting platforms integrated

very fast measurement as vehicle drives over

Immediately display and stored in the main computer

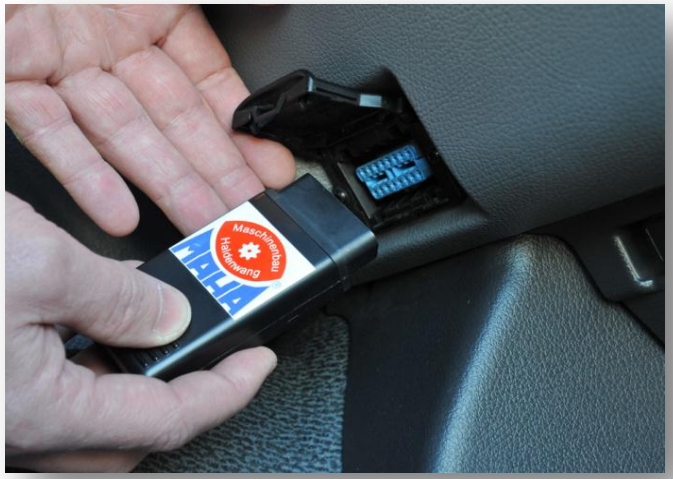
Automatic Head Light Tester MTL 3000

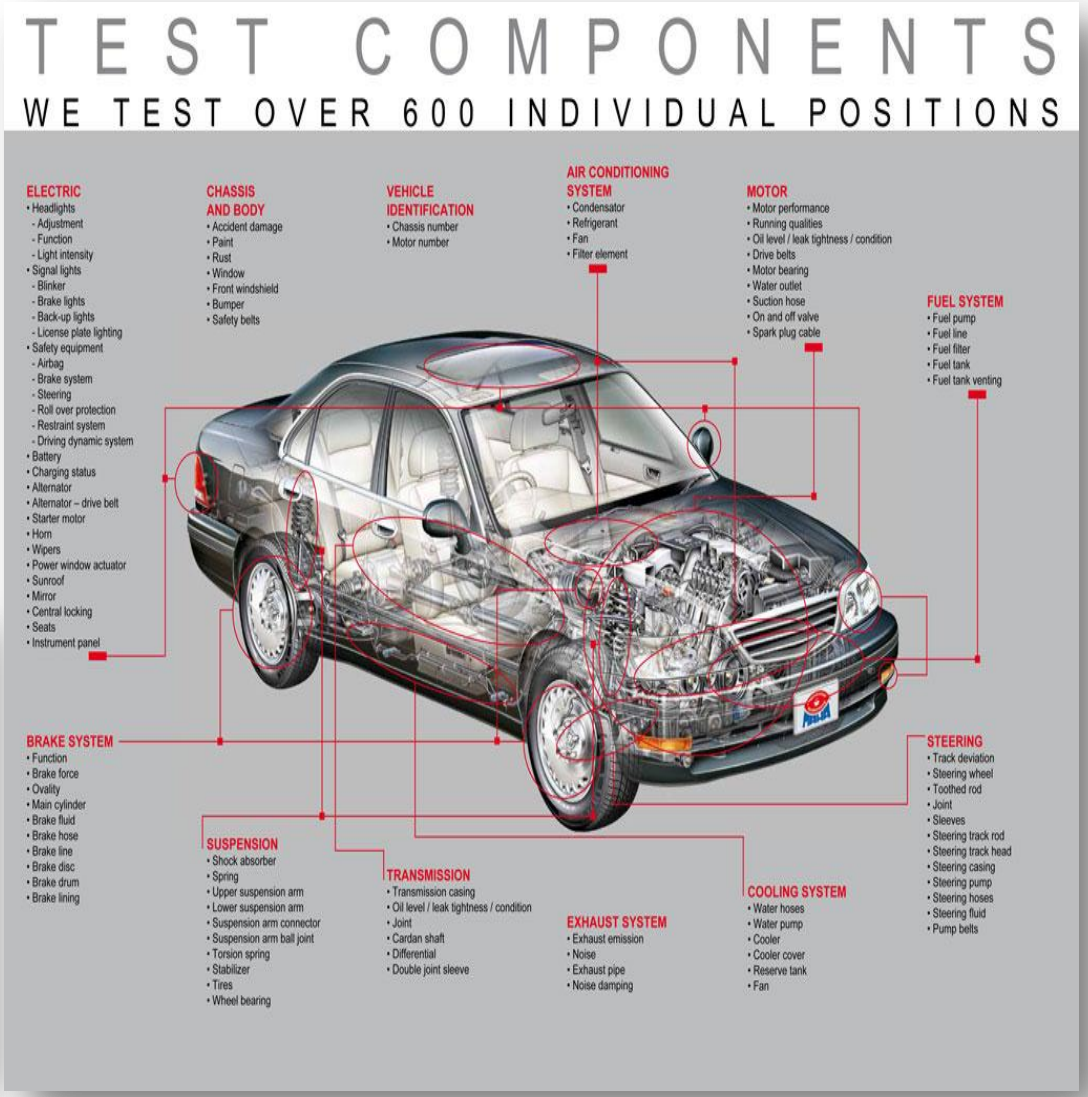
- User-friendly guided operation via LCD touch display.
- High quality and clear presentation of the measurement results with color graphic display.
- Rear view of the headlight adjustment for easy setting of sides of the vehicle.

PTI Tool via OBD

for the test of safety relevant electronic controlled components

- Identification of the safety relevant in build system by data exchange
- Recognition if all components are existing
- Recognition if all systems are working correct





Beijing Smog

World Health Organization

Health topics | Data and statistics | Media centre | Publications | Countries | Programmes and

Diesel engine exhaust carcinogenic

WHO/PAHO

12 June 2012 -- After a week-long meeting of international experts, the International Agency for Research on Cancer (IARC), which is part of the World Health Organization, today classified diesel engine exhaust as carcinogenic to humans (Group 1), based on sufficient evidence that exposure is associated with an increased risk for lung cancer.

Read the press release from IARC on diesel engine exhaust

EU TEDDIE Study (2011-2012):

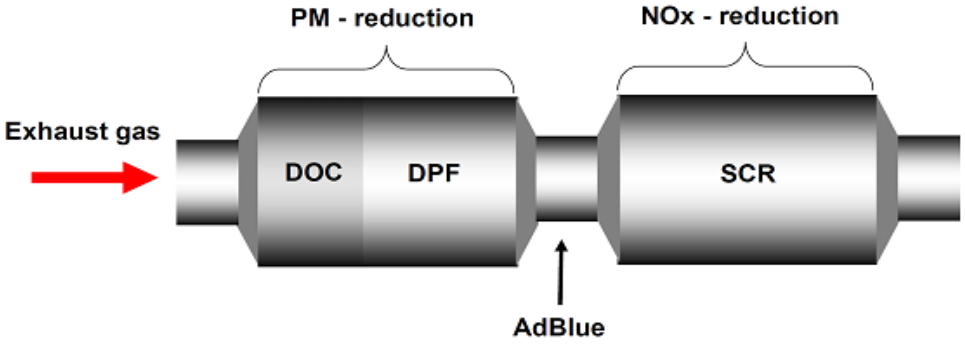
Founded by the European Commission in 2011

- to investigate new measurement devices for particle mass and NO/NO_2-ratio
- to evaluate if OBD is capable via MIL or storing DTCs to identify PM emissions above the given limits

  Limits: type approval = 5 mg/km in NEDC, OBD threshold = 50 mg/km
- to identify reliable and effective methods of emission testing

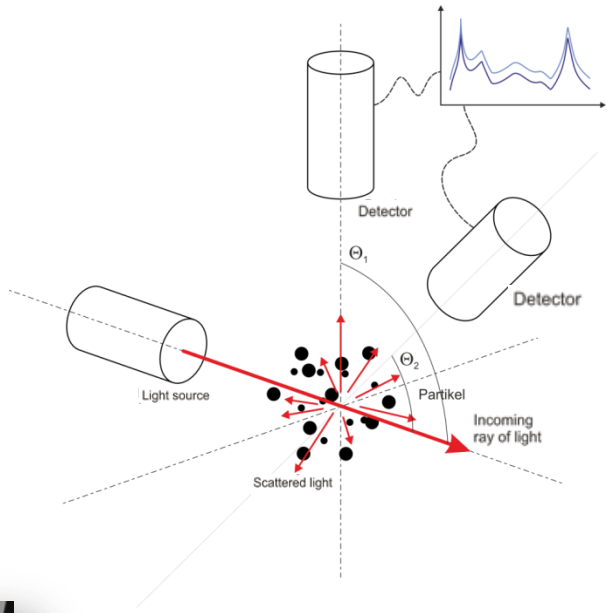
Vehicles prepared with defects of the exhaust emission system:

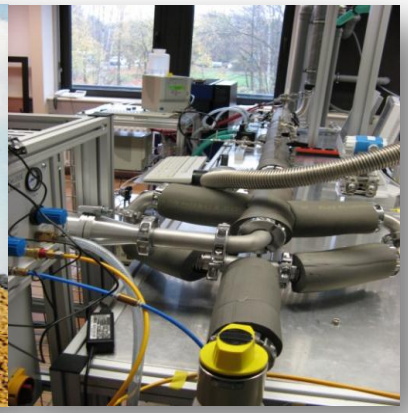
- defects of particle trap (DPF)
- defective/damaged/aged SCR
- manipulated crankcase breather
- defective air mass flow sensor



LLSP – Laser Light Scattering Photometry

- size range 40 to 1000 nm
- 0.01 – 700.00 mg/m^3 PM concentration
- m^{-1} (Opacity) by correlation
- #/m^3 number concentration
- nm (mode) particle at logarithmical normal size distribution
- non road PM emitters
- …





For an Environmental effective Diesel Emission Test it is necessary to have a modern Mechatronic System.

OBD + Tail Pipe = is the Ultimate Diesel Emission Test System (UDES)
for an 100% PTI

Especially for modern diesel-powered vehicles equipped with a emission after treatment system such as a diesel particulate filter, SRC, SRCT,…, only this combination of tests ensure the effectiveness of the emission test during PTI.

The above mentioned measuring instruments are available today.

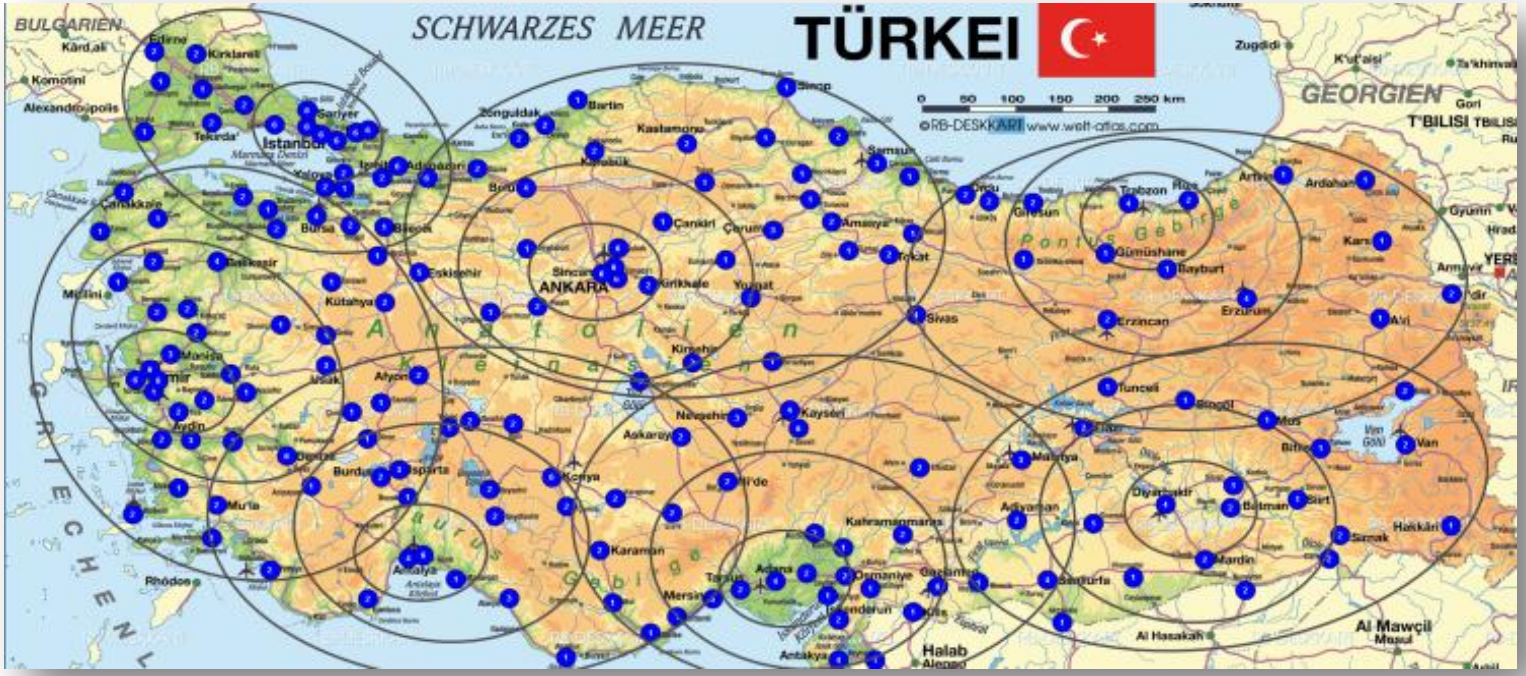
TÜVTURK Project in 2008:

MAHA equipment for all

189 test stations in Turkey.

- 7 decentralized offices as base for technician teams
- 25 local technicians
- 2.200 service visits / year

TÜVTURK Project in 2008:



6.313.862 inspections in 2012 containing the following tests:

Brake test	(231 car brake tester / 269 truck brake tester)
Headlight test	(500 headlight tester)
Exhaust test	(500 exhaust tester)
Axle test	(269 play detectors)
Under carriage insp.	(1.002 pit jacks)
> Coming next:	Automatic vehicle dimension measurement system

- No of test lanes: 215 car lanes, 244 truck lanes
- Projekt time: 12 month (approx. 40 lanes/month)
- Installation: turnkey solution
- Transport: 480 shipments
- Maintenance: 5 years

Vietnam

- No. of Test Stations 105 stations
- No. of Test Lanes 184 Inspection lanes
- No. of mobile containers 2 Complete lanes

Vietnam

MAHA was awarded in 2004 to supply fully computerized car and truck test including 2 Mobile Test Lane Container in 2010 to the state- owned Testing Authority, Vietnam Register (VR).

The upgrading of the other test lanes to MAHA equipment will be carried out within the next 2 years to 2014.

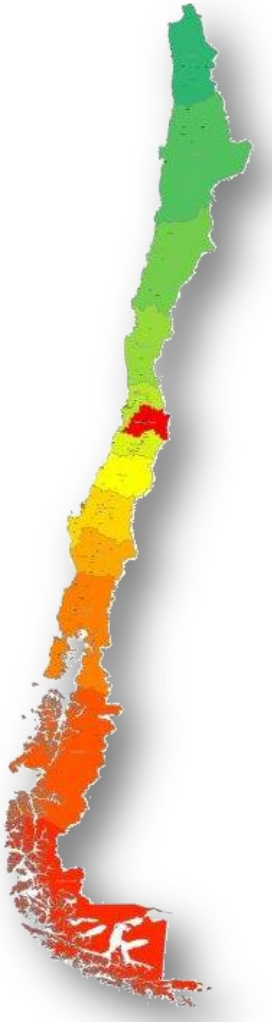
Total Lanes: 184 Test lanes
MAHA Share: 150 Test lanes

- Vehicle Population 1.401.605
- Passenger Vehicles (Buses) 103.564
- Truck 602.859
- Cars 639.261
- Motorcycle above 30 million with an average of 3 million new motorcycle registered every year

(Statistic as of September 2011)

Chile Project in 2004

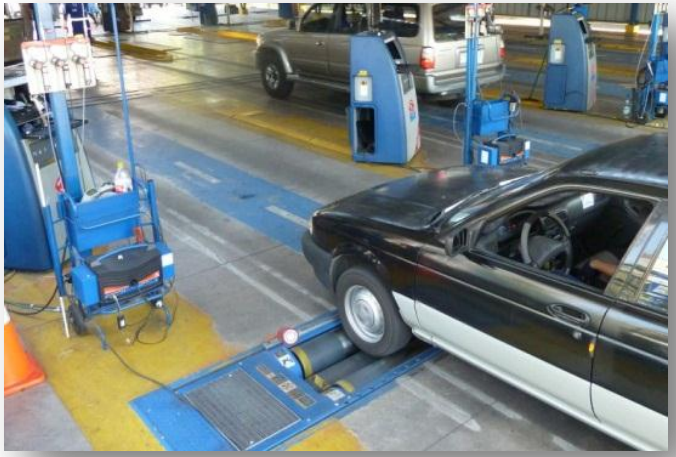
MAHA equipment for 70% test stations in Chile



- Operators: Applus, TÜV Rheinland, SGS, Autotest…
- Inspections in 2013: 4.000.000
- Vehicle population: 3.500.000

prt PLANTA DE REVISIÓN TÉCNICA

Chile Project in 2004



- No. of test lanes: 249 car lanes
  84 truck lanes
- No. of test stations: 94 distributed all around the country
- Inspection equipment: Brake Testers
  Side Slip Testers
  Shock Absorber Testers
  Headlight Testers
  Play Detectors
  Gas Analysers
  ASM Dynos for dynamic emission test (since 2008 in Santiago de Chile)

PLANTA DE REVISIÓN TÉCNICA

Ecuador Project in 2003

MAHA equipment for 100% test stations in Quito

Operator:	Applus
Inspections in 2013:	485.000
Vehicle population:	400.000

Ecuador Project in 2003

- No. of test lanes: 16 car lanes
  4 truck lanes
- No. of test stations: 6 distributed in the city
- Inspection equipment: Brake Testers
  Side Slip Testers
  Shock Absorber Testers
  Headlight Testers
  Play Detectors
  Gas Analysers

IVORY COAST – PTI Project: SICTA

Computer controlled test lanes for light (VL) and heavy duty (PL) vehicles

- Brake test, side slip test, suspension test
- Headlight test
- Axle play test
- Under carriage inspection with pit jack

Inspections per day in average: high frequent vehicle tests for cars, busses and trucks, computer controlled test lanes for light (VL) and heavy duty (PL) vehicles at vehicle inspection centres

All data provided from Eurosystem are connected to the PTI system of the operator