



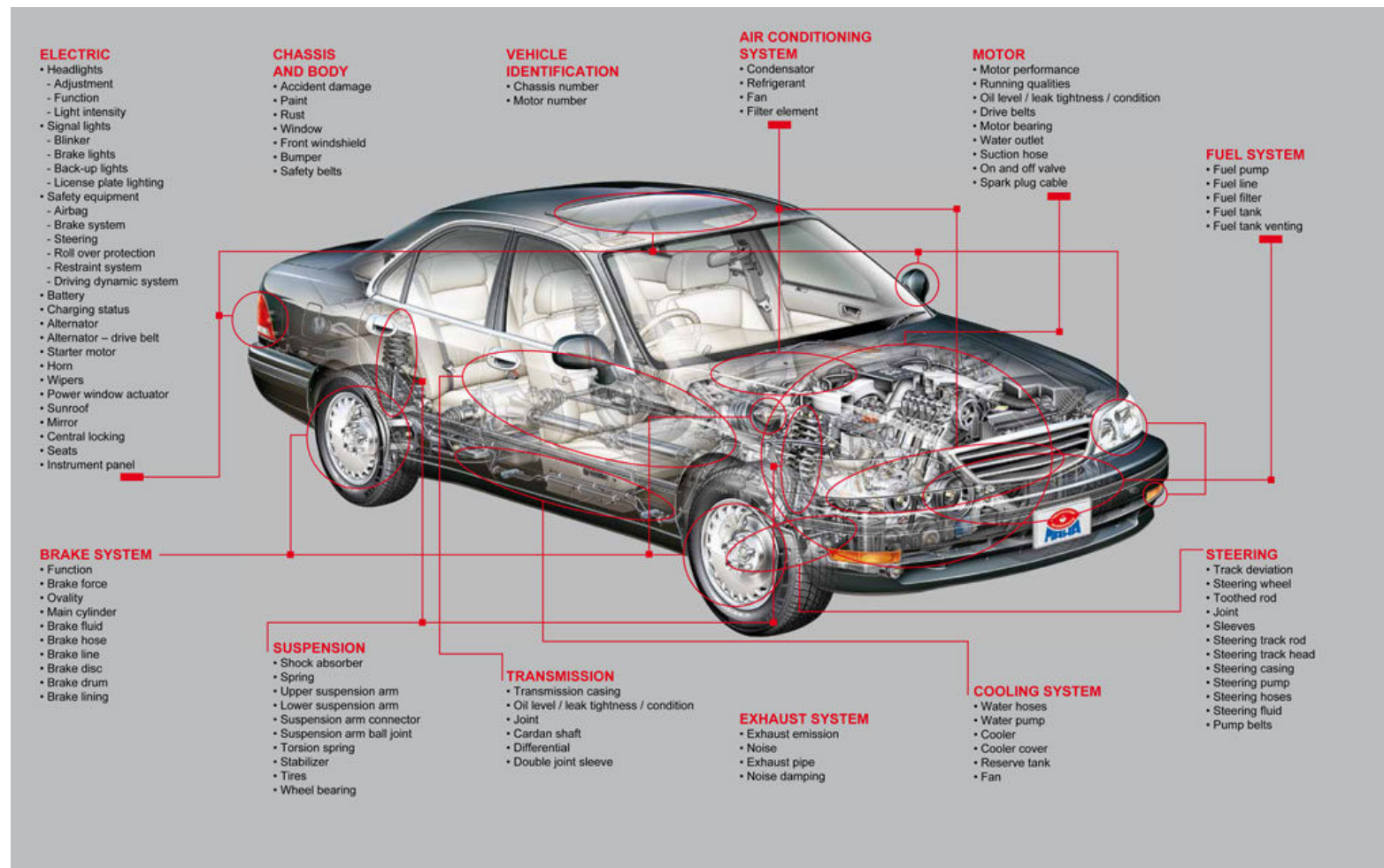
# **Operator friendly environment for a sustainable Periodical Technical Inspection**

## **The Value of Technology in Roadworthiness Inspection**

**by Klaus Eldner, Sales Manager Export, MAHA, Germany**

# TEST COMPONENTS

Complex vehicle technology requires modern technology for periodical vehicle inspection



## Computer controlled test lanes for light and heavy duty vehicles

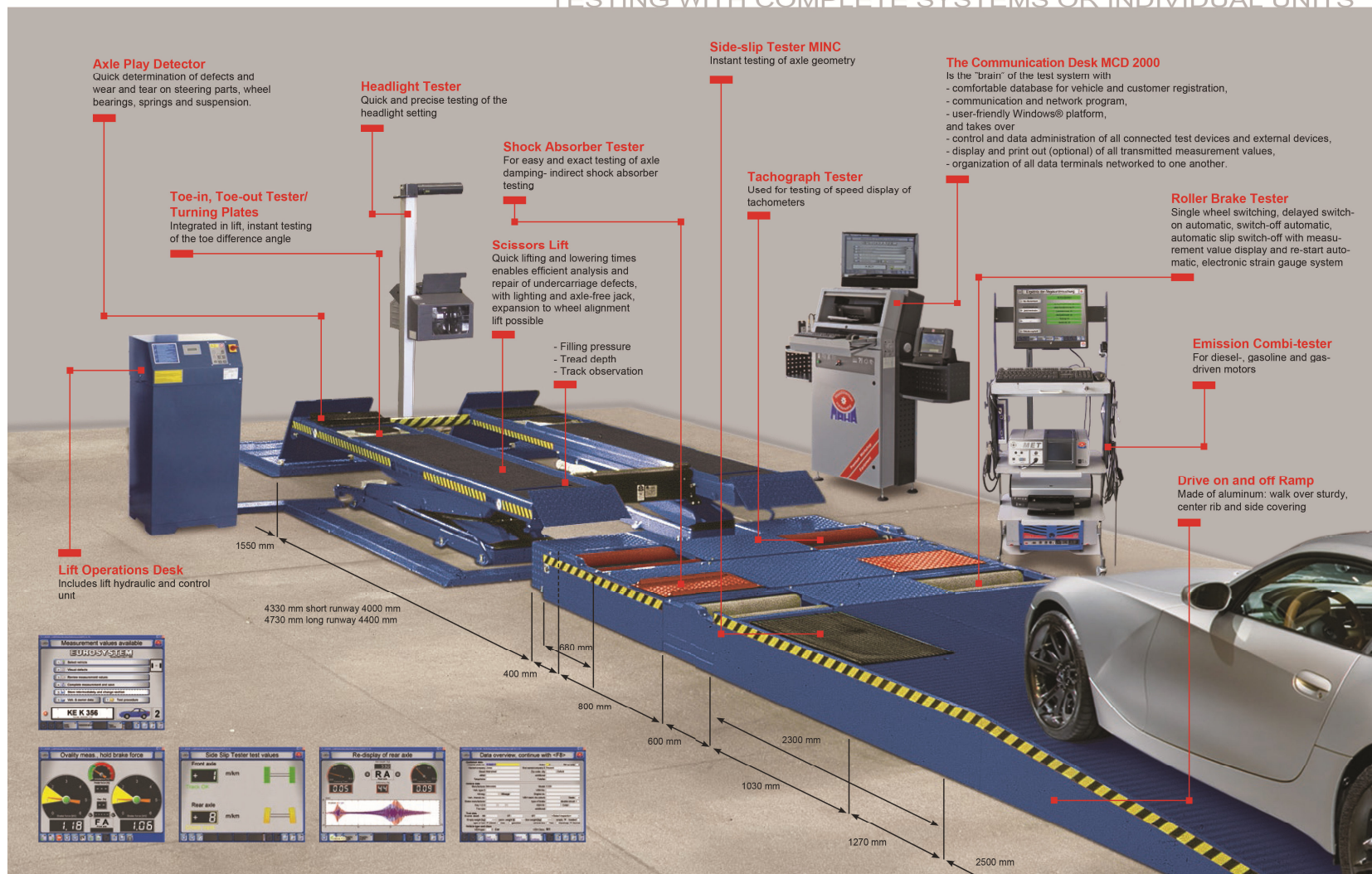
**Brake tester**, side slip tester, suspension tester

- Tachograph tester
- **Headlight tester**
- Emission tester for petrol and diesel vehicles
- Axle play detector
- Under carriage inspection with pit jack
- Sound level meter, brake fluid tester,
- Closing force meter
- Gas leakage detector, Infrared thermometer
- **PTI Tool**
- Eurosystem (SQL Database)
- VIMAS (operating system)



# SYSTEM SOLUTIONS

TESTING WITH COMPLETE SYSTEMS OR INDIVIDUAL UNITS





# Roller Brake Tester with automatic 4WD detection

Safeing time and money



Smart measuring methods  
avoiding brake force transfer to  
the wheel at the same axle



No influence to manipulate the  
brake test results

Reliable brake force results  
incl. imbalance and ovality,

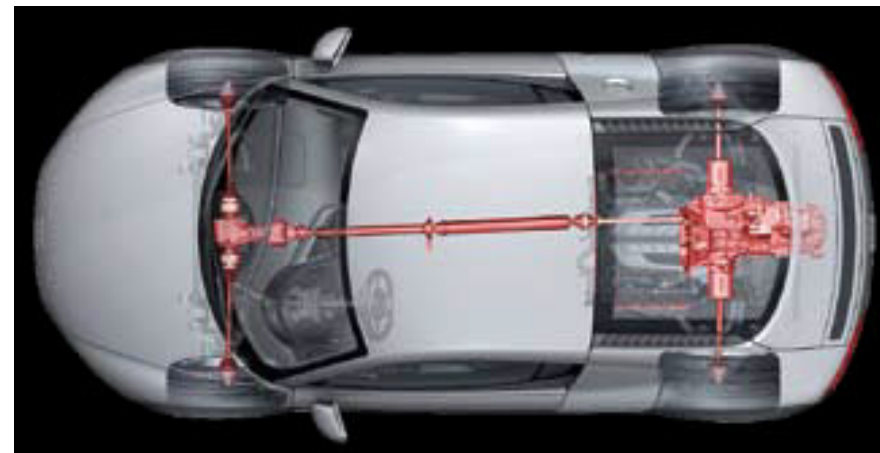


Benefit of testing different  
complex 4x4 systems



no damages to drive system  
(gearbox)

**Smart user interface  
provides clear commands  
and supports during the  
test procedure**

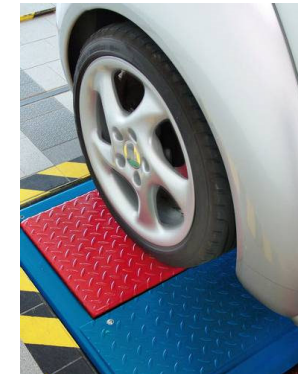


# Suspension Tester



## The benefits

- The suspension tester specifies the damping ratio of the entire car suspension which is a compareable value
- The damping ratio according to Lehr is accepted by vehicle manufacturers PTL organizations
- Absolut limit value 0.1! No data base needed!
- The complex suspension system gets an indication
- Neither the tire pressure nor the actual loading affect the result significantly, no preparation for examiner, no discussions with final customer
- Good repeatability and high accuracy



$$D = \frac{d}{2\sqrt{c * m}}$$

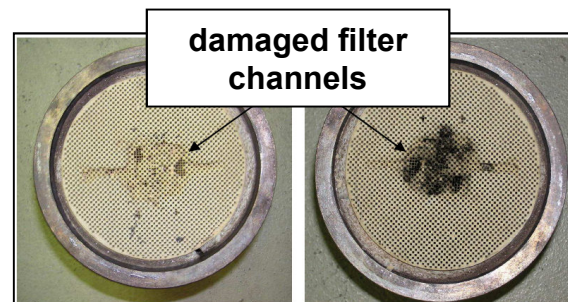
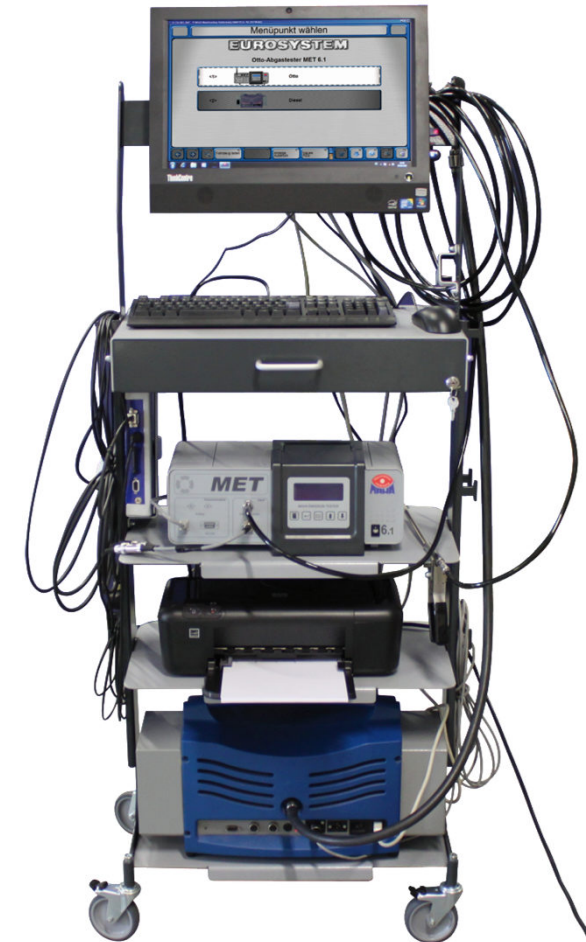


- Quick diagnostic
- Test results can be compared and repeated
- Network connected devices improving the work flow for best practice
- Managing more efficient high traffic
- Reducing of failer rates provides more income
- Documentation of tests for verification of exmaniners



## Emission test technology

- Analysing quick different type of vehicles
- running with petrol, diesel, LPG, CNG
- Menue-driven user guidance
- High measurement resolution
- OBD is not covering all emission aspects
- Mechanical tempering exchange of lamda sonde
- Removing of particle traps
- New technologies for measuring the emission at the tail pipe are sufficiently sensitive to deliver valid results



## PTI Tool

- *provides efficient electronics testing*
- **contributes significantly vehicle inspection**
- **reads various data from the control units (information code)**
- **faster testing process**



## Digital headlight testing for high sophisticated headlight systems - LED



### Innovations

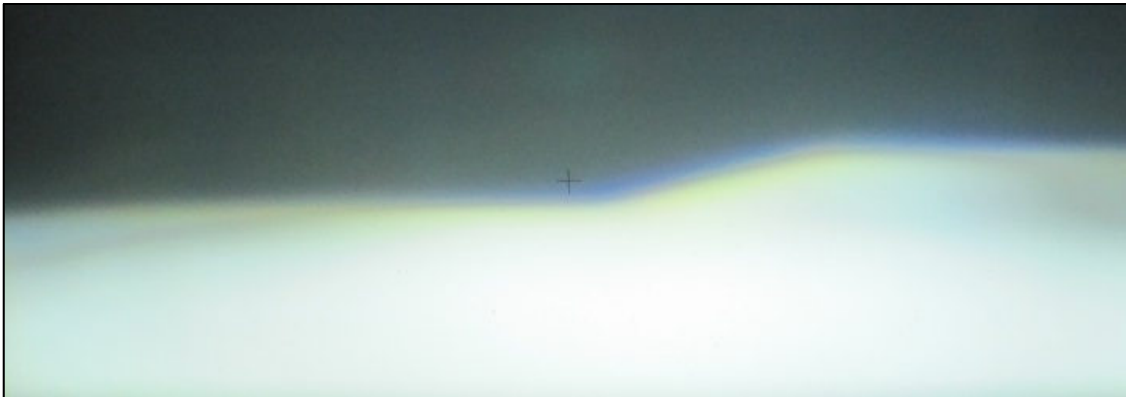
- User-friendly guided operation via LCD touch display
- High quality and clear presentation of the measurement results with color graphic display.
- Rear view of the headlight adjustment for easy setting of sides of the vehicle.



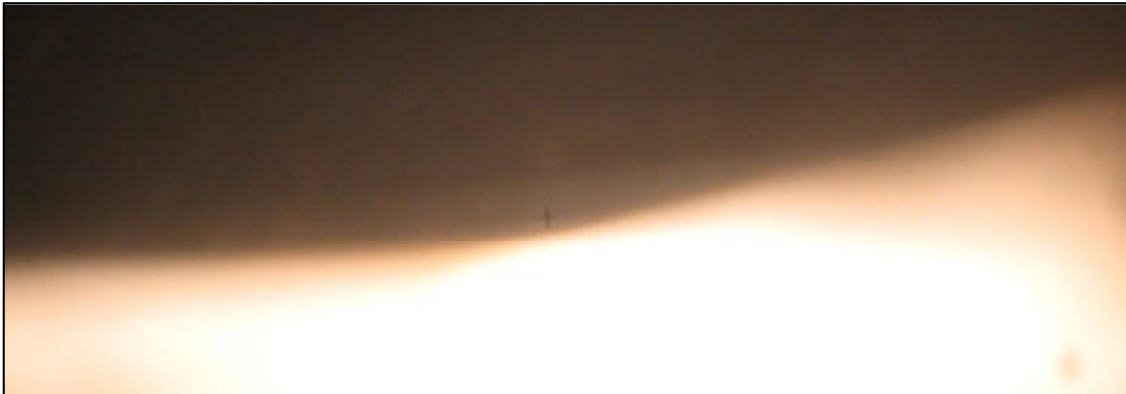
# Digital head light tester



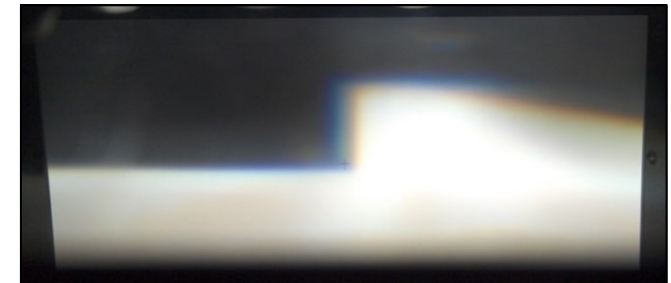
**Problematic recognition of the light / dark boundary due to „blue area“.**



**Problematic assessment due to missing inflexion-(break-)point**



**Adjust mode**



# Values of Digital head light tester



## Advantages of digital testers

Objective evaluation of results

Electronic analysis

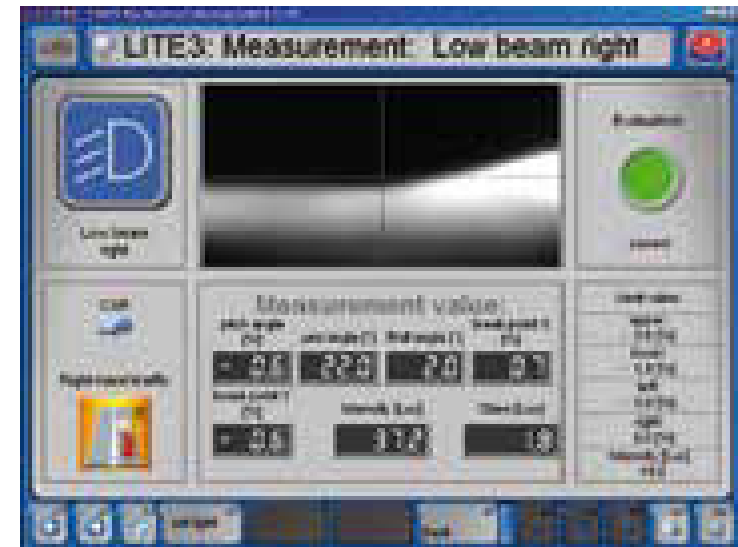
Documentable measurements

Accurate measurements

Adjustable tolerances

Ergonomic operation

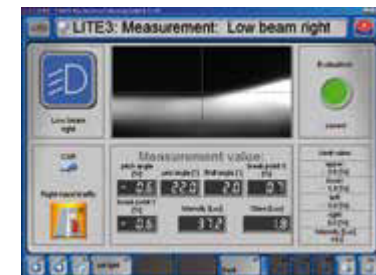
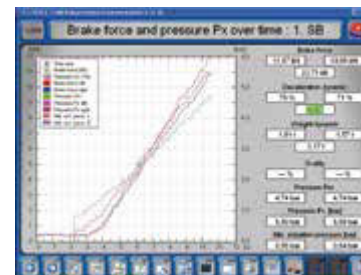
Possibility for testing of all lighting systems



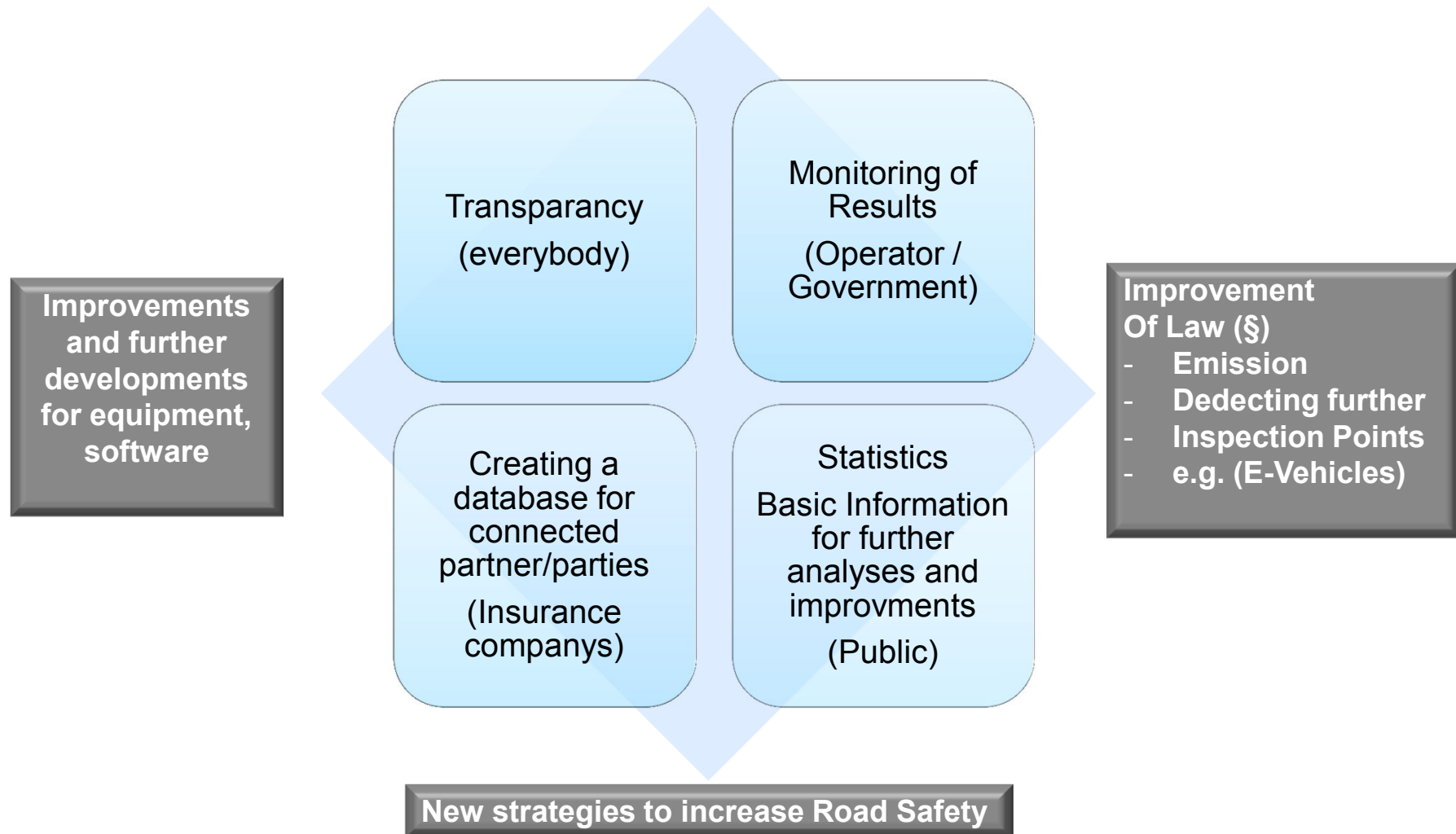


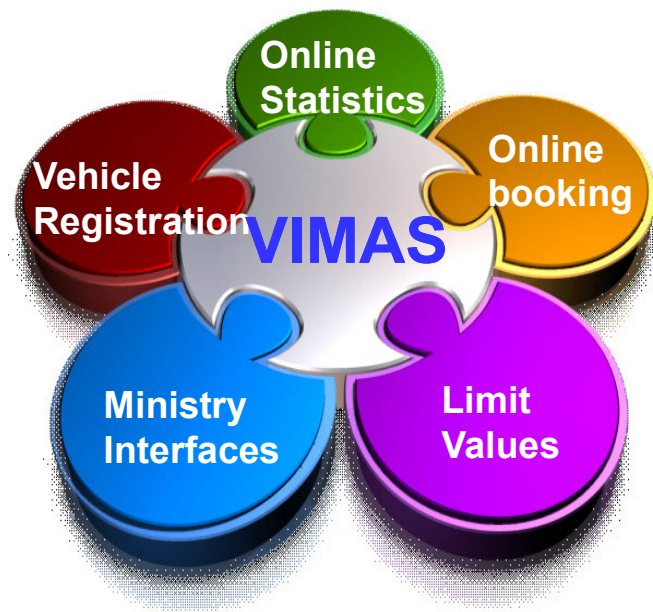
## Eurosystem

- Fully automatic test procedure with operator guidance
- Windows based Pc application for user-friendly operation
- Modular design system for easy expansion
- PC network capabilities and ASA workshop network-compatible
- Connection to country-specific networks such as MCTC
- NET, GIEGNET, EBV etc. possible
- Central data management reduces the possibility of errors
- Optimization of working processes for best practice
- Permanent control
- Technical support via hotline in connection with internet

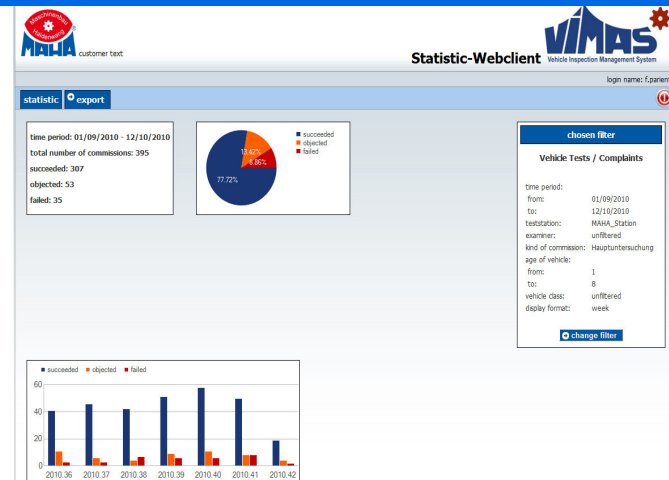


## Facts of success with PTI-Projects providing more business





- modular designed
- flexible to customize
- many administration tools
- rights management
- control of payments
- online access to reports
- online booking



**Countrywide management of vehicle data and test data.**



- Managing more efficient the daily high traffic
- Documentation of tests, verification of exmaniners
- Higher image with latest technology
- Happy staff using modern technology for better working conditions



- Final reports designed to be more final customer friendly
- Conditions of vehicles become more understandable and transparent
- Supports Quality Management
- Ensures standards and requested accuracy
- Avoiding / reducing possibilities of corruption





**Thank you very much  
for your attention!**

**MAHA Maschinenbau Haldenwang GmbH & Co. KG · Hoya 20 · 87490 Haldenwang · Germany**  
Tel.: +49 (0)8374/585-0 · Fax: +49 (0)8374/585-499 · Internet: [www.maha.de](http://www.maha.de) · E-Mail: [maha@maha.de](mailto:maha@maha.de)

**Premium Workshop  
Equipment**