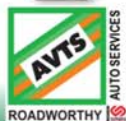


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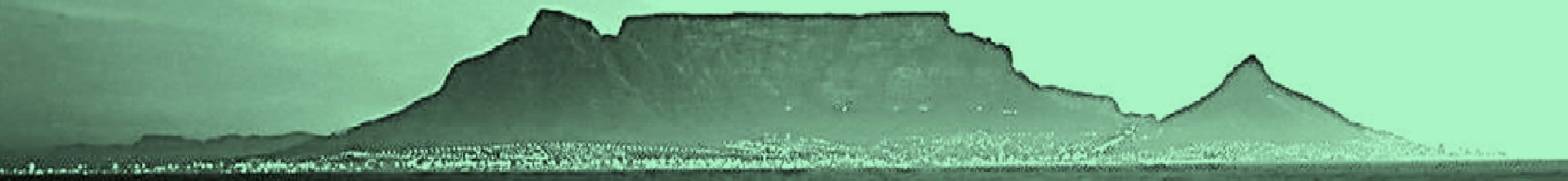
INTERNATIONAL MOTOR VEHICLE INSPECTION COMMITTEE

WWW.CITA-VEHICLEINSPECTION.ORG

EASI Emission Testing for PTI

Dietmar Muchitsch

Head of Product Management, AVL DiTest, Austria



High-speed exhaust measurement.
Join the clean side!



“E A S I” Emission testing for PTI

Let 's make it EFFECTIVE:

Efficient

Ambitious

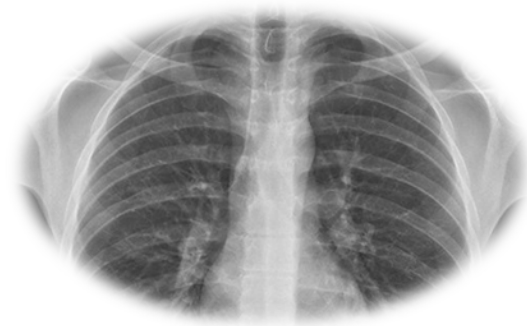
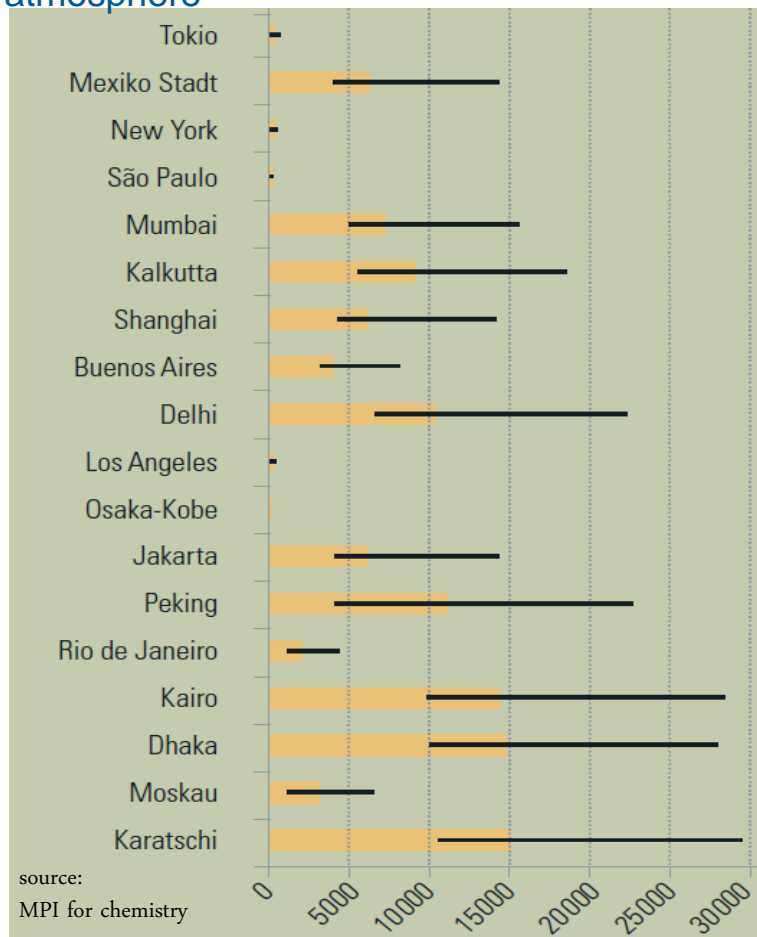
Sustainable

Intelligent

**Emission testing during PTI gives the opportunity to improve the air quality.
This can be achieved even with a little effort.
The things only must be done in the right way**

Risk of Mortality-Morbidity due to Air Pollution Ri-MAP per year

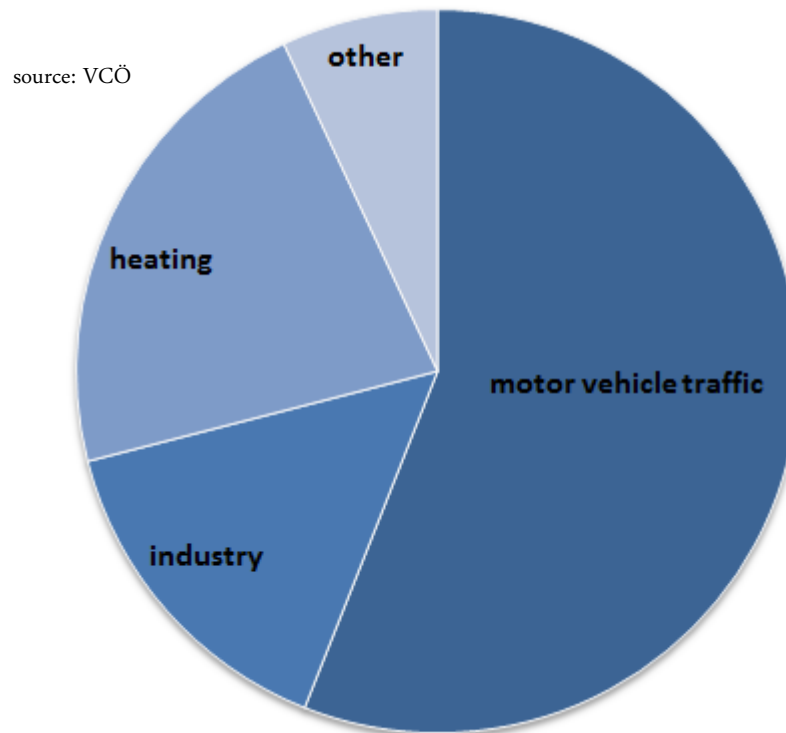
mathematical model for prediction of how many additional cases of death compared to life in clean atmosphere



children worldwide suffer from
air pollution as much as from
underfeeding

Example:

total PM 2,5 pollution
distribution in Vienna



Many other things must be
considered:

POLLUTANTS

SO₂

NO_x

CO

Pb

O₃

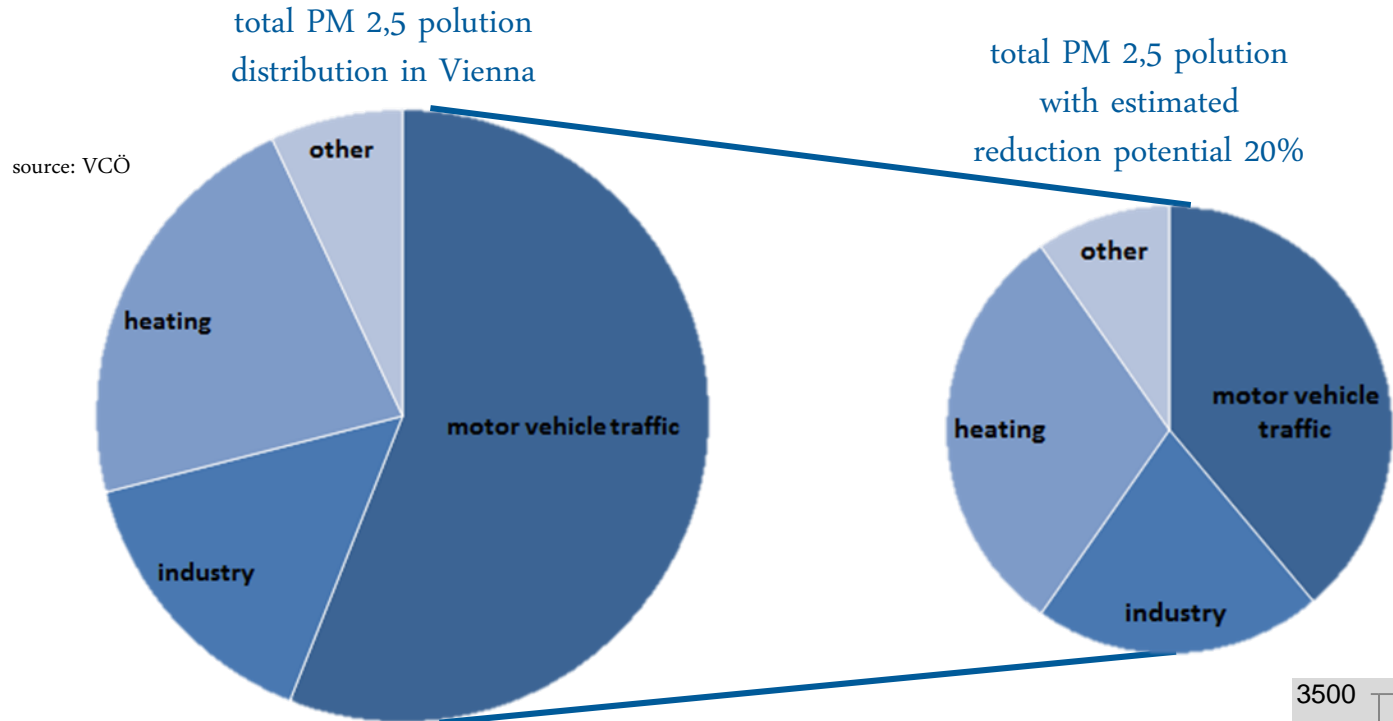
H_xC_y

CO₂

...

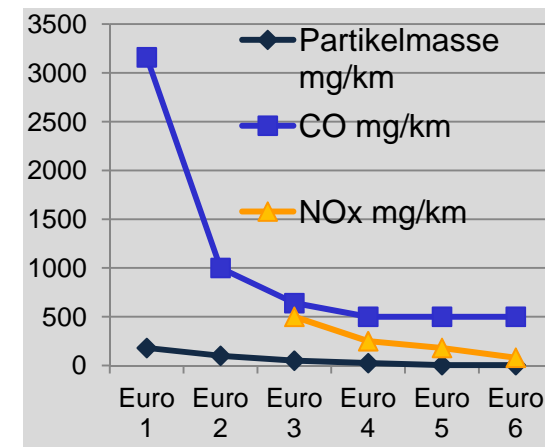
certainly with huge different impacts and variation due
to regional, climatical and geographical facts.

qualitative consideration: 20% reduction would bring total reduction of >11%



Not maintained vehicles might emit tremendous more:

e.g. after treatment fails: 100-1000 times higher

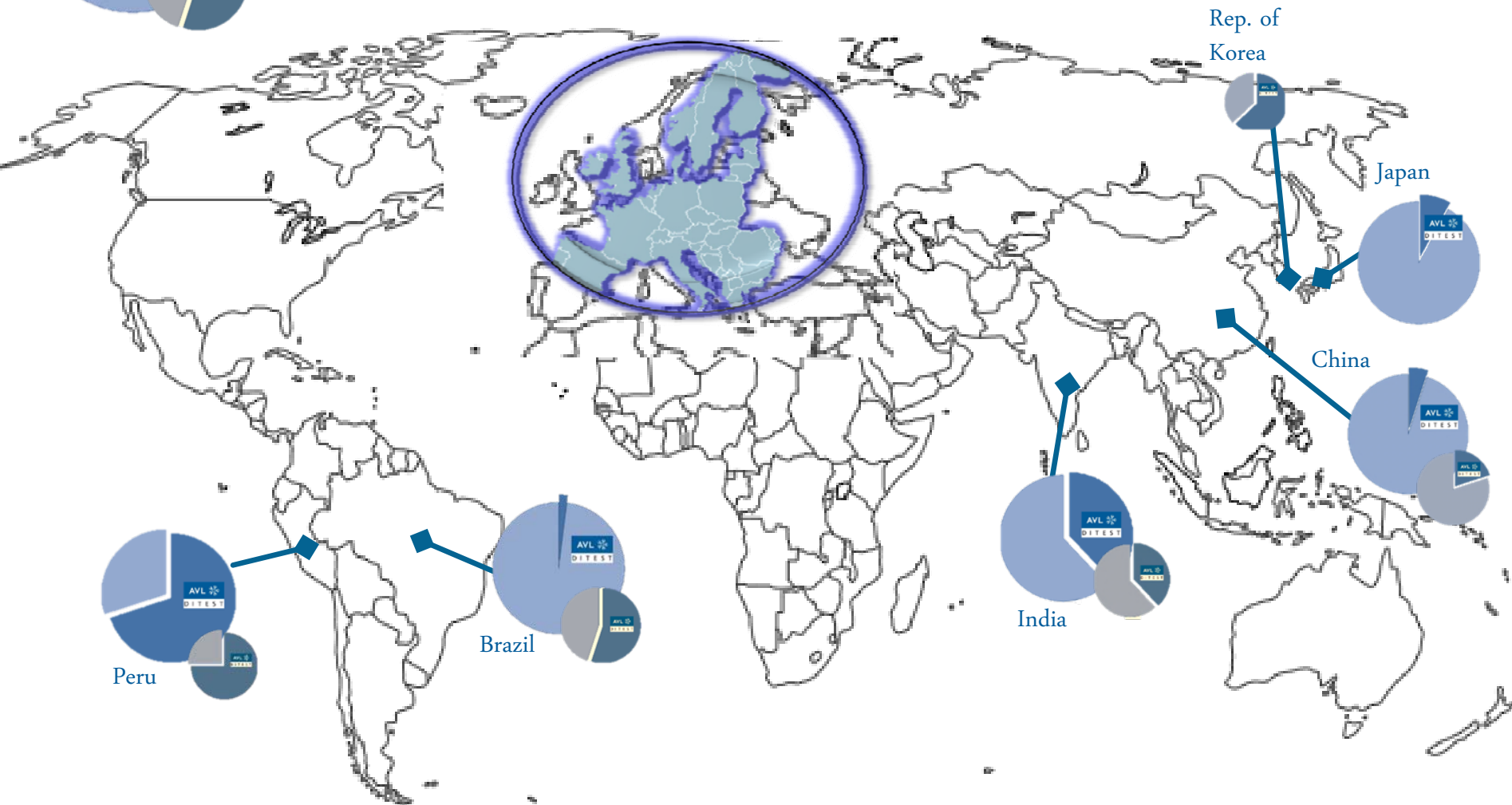


Our Experience in Emission Testing at PTI

PTI: AVL DiTEST shares of Emission Testing Equipment

share in the installed PTI Emission Testing equipment

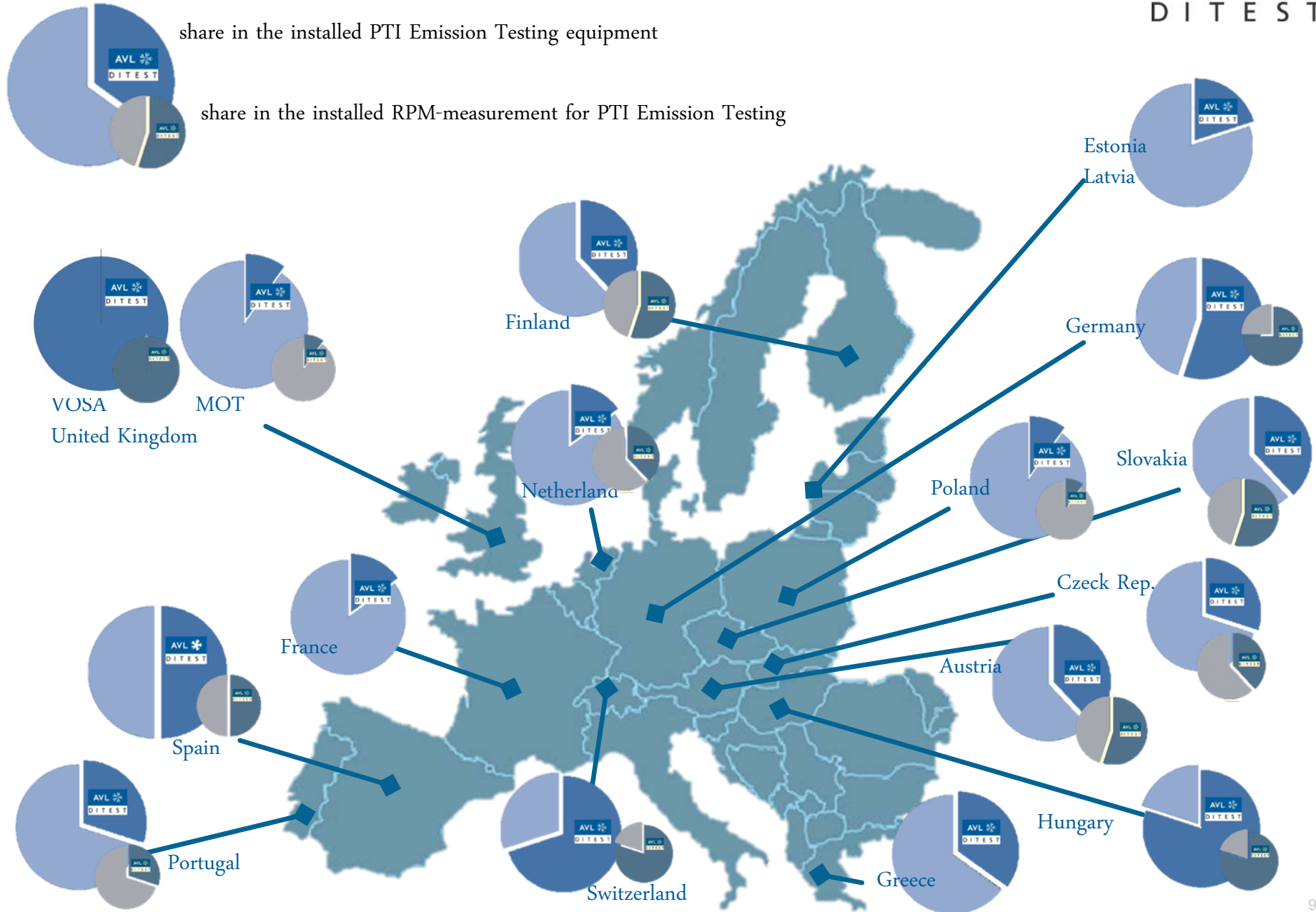
share in the installed RPM-measurement for PTI Emission Testing



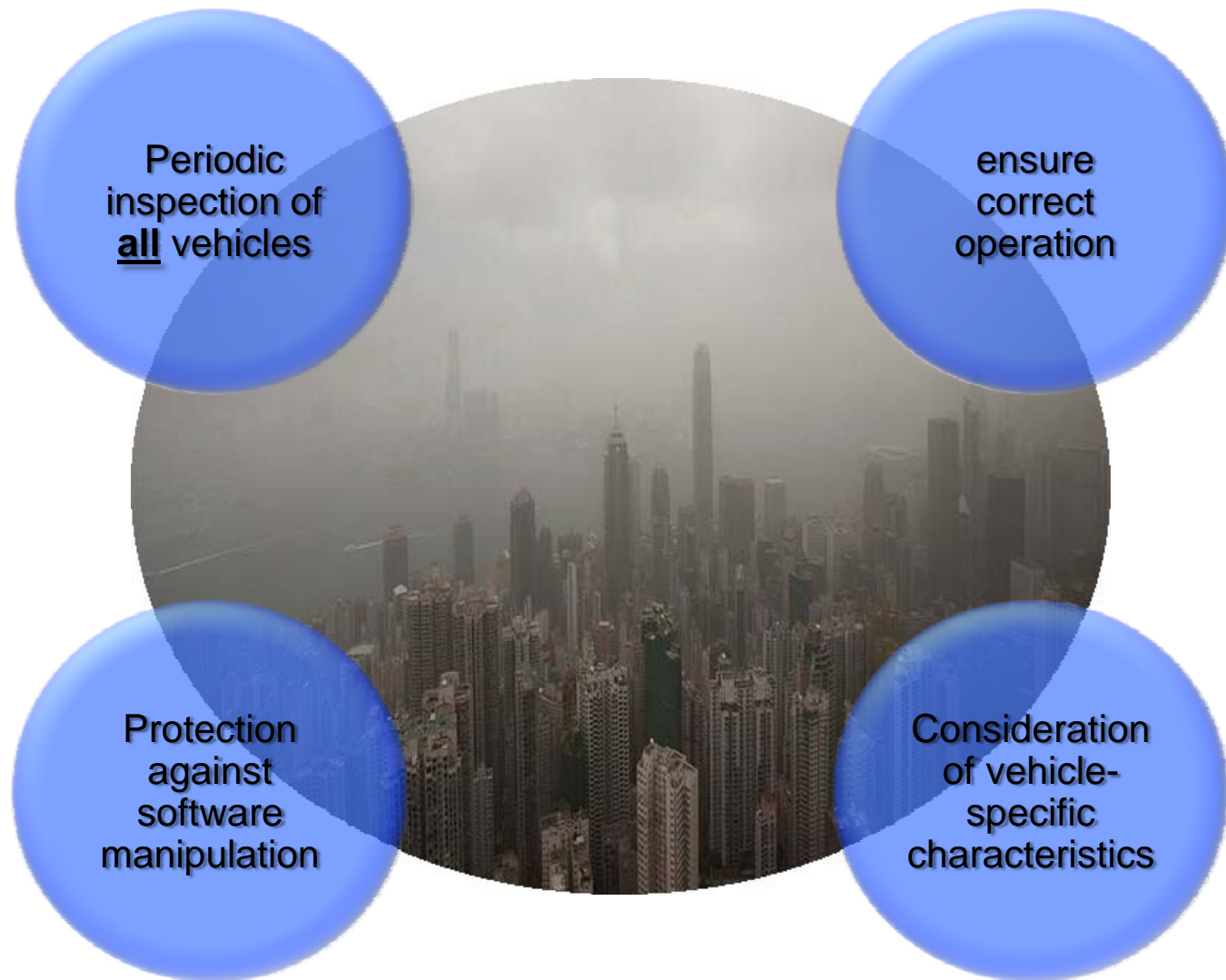
PTI: AVL DiTEST shares of Emission Testing Equipment

share in the installed PTI Emission Testing equipment

share in the installed RPM-measurement for PTI Emission Testing



REQUIREMENTS FOR EFFECTIVE PTI EMISSION TESTING



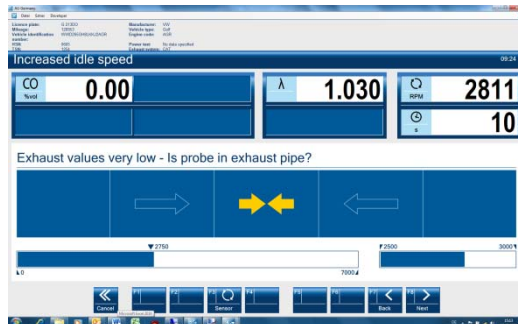
Periodic
inspection of
all vehicles

- Legal conditions
- Cost efficient PTI for vehicle owners
 - Low acquisition costs and cost of ownership of PTI Station
 - Fast and easy PTI procedure
 - Low effort for operator-training
 - low maintenance effort
- Applicable procedure for all vehicles



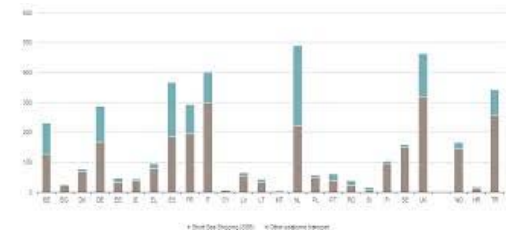
ensure
correct
operation

- Smart user guidance of emission test (rpm / flow triggered, ...)
- Implementation of database with reference values of each vehicle.
- Detection if emissions were really measured



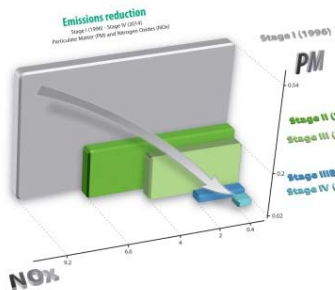
Protection
against
software
manipulation

- Equipment homologation according to state of the art standards
- Software / data protection. (e.g. according to Welmec guides)
- periodic measurement equipment monitoring
- statistic analysis



Consideration of vehicle specific characteristics

- Implementation of appropriate limit values
 - clustering of vehicle types
 - reference data (data base)
- E.g.: Motorbikes: Take consideration of emission pulsing.
- e.g.: acceleration limit by OEM for free acceleration
- Hybrid vehicles: Switch on the combustion engine
- Exhaust manifolds



BY DOING IT IN THE RIGHT WAY, WE CAN ACHIEVE A BETTER AIR QUALITY

Periodic
inspection of
all vehicles

ensure
correct
operation

Protection
against
software
manipulation

Consideration
of vehicle-
specific
characteristics



