



Centre Tecnològic
de Vilanova i la Geltrú



UNIVERSITAT POLITÈCNICA
DE CATALUNYA

LABORATORI DE METROLOGIA I CALIBRATGE



SART

Acoustic

Light
Pollution

Thermographics
Tests

Specialized
Training

Dimensional
Calibration



Data Base

Electric
Calibration

Temperature
Calibration

Customs Tests

Service Support
for Quality

SERVICE SUPPORT FOR QUALITY

Service support for quality

- In this case the service offered by the research group SARTI and Metrology and Calibration Laboratory is aimed at assessment.

This advice will consist :

- Definition of legal frameworks.
- Advice for optimizing processes.
- Seek external solutions to internal problems.
- Target Company to a system of continuous improvement of its quality.
- Calibration plans manage internal / external

SPECIALIZED TRAINING

Specialized training


- The service offered by the research group SARTI and the Laboratory of Metrology and Calibration, the experience gained over the years in performing occupational training courses [CFO], is specialized training in various fields.
- The custom courses can vary widely.

- We are inside the Polytechnic University of Catalonia, one of the foundations of the University is to train qualified personnel.
- We have qualified personnel taking courses in several areas, such as :
 - Renewable energy
 - Automatism
 - Quality Management
 - Automatic Control
 - Legislation and standardization
 - etc

CUSTOM TEST

Custom test

- Sometimes the companies must make some specific test, and this test is very expensive and difficult because isn't his field. In this case the companies have a choice of contact with the group of research SARTI and the metrology laboratory.
- In our case, we adapt to customer needs and design and make equipment to perform different types of tests are requested.

- 
- Some different types of tests we've done:
 - Wear a safety switch
 - Aging equipment in various weather conditions
 - Durability batteries
 - Etc


- To develop the assay is always necessary collaboration of the company making the request, so we get a free flow of information that always enriches both sides.

THERMOGRAPHICS TESTS

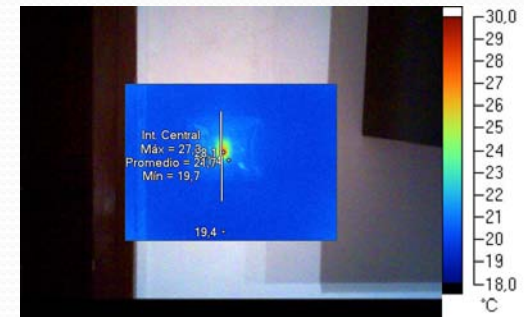
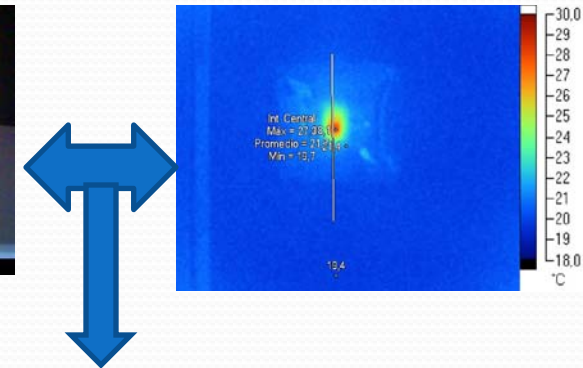
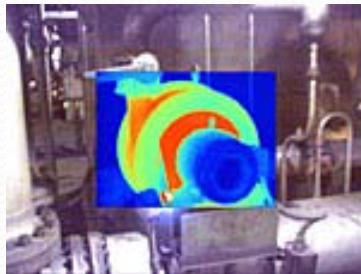
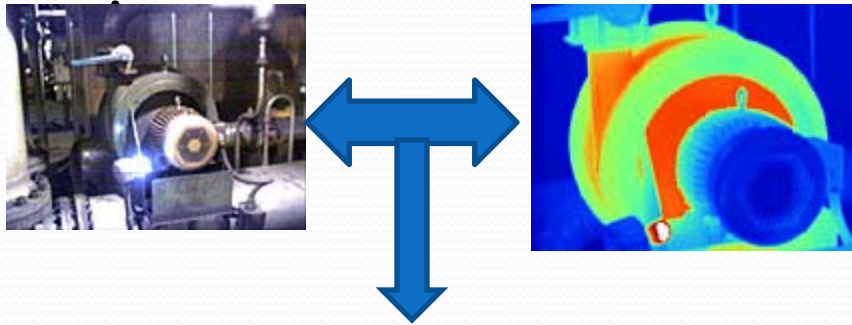
Thermograph tests

- The research group SARTI and the Laboratory of Metrology and Calibration, provides the Study of Thermograph.
- We have qualified staff and equipment to develop the service.



- 
- Thermographs applications are varied, some of them mentioned:
 - Predictive maintenance of machinery
 - Switchgear
 - Heating systems (leak detection inspections of the installation)
 - Detection of heat loss (walls, systems, etc.).

- In the studies included Thermograph images in both infrared and visible, as well as fusion of both



SERVICE

END

ELECTRICAL CALIBRATION

Calibrations in the electrical field

- The Technological Center has the department that offers service of calibrations in the electrical field.
- The department has the multifunction generator FLUKE 5520 To, as well as the accessory for the electrical clamps.



Services- calibration electrical

- Multimeters

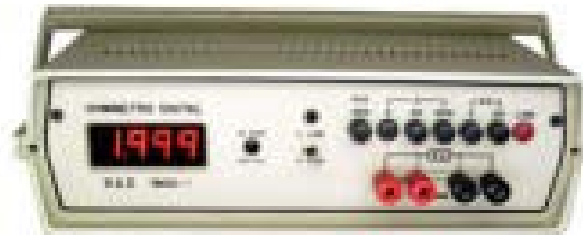


- Digital readers of temperature



Services- calibration electrical

- Ohmmeters



- Clamp meter



Services- calibration electrical

- Insulation testing:



- Earth Ground meter:



SERVICE

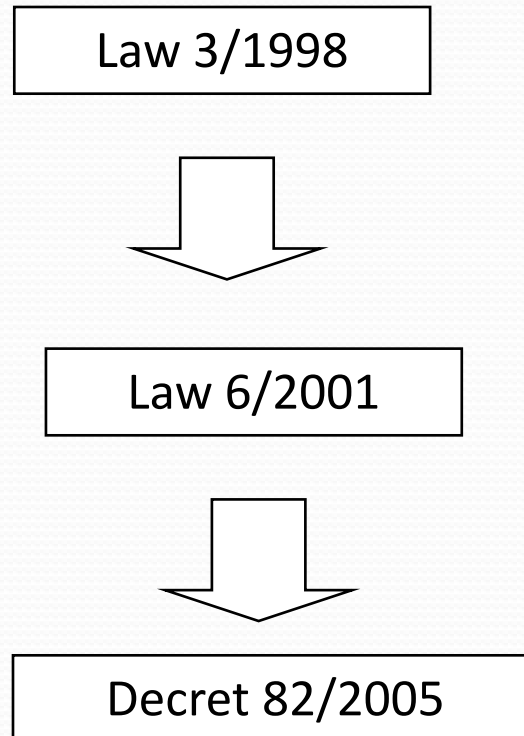
END

LIGHT POLLUTION

Light Pollution

- The light pollution is the emission of light from artificial sources nocturnal flow in intensity, spectral ranges or directions for making unnecessary the planned activities in the area where the lights installed.
- What effects can be increased artificial light?
 - unnecessarily consume natural resources
 - Disrupt the environment receptor
 - Modify the actittute
 - Decrease in natural vision of the sky at night
 - endanger the balance of certain ecosystems

- The light pollution is regulated within a legal framework. We reminded of the evolution of laws that directly affect :



- The Plan for the adequacy of outdoor lighting public and private must be made before 31 August 2009, according to the decree 82/2005. From this date the government will punish companies public / private plan that have not done.
- The research group SARTI and the Laboratory of Metrology and Calibration [LMC] are trained and have the means to design the plan adaptation.

ACOUSTIC

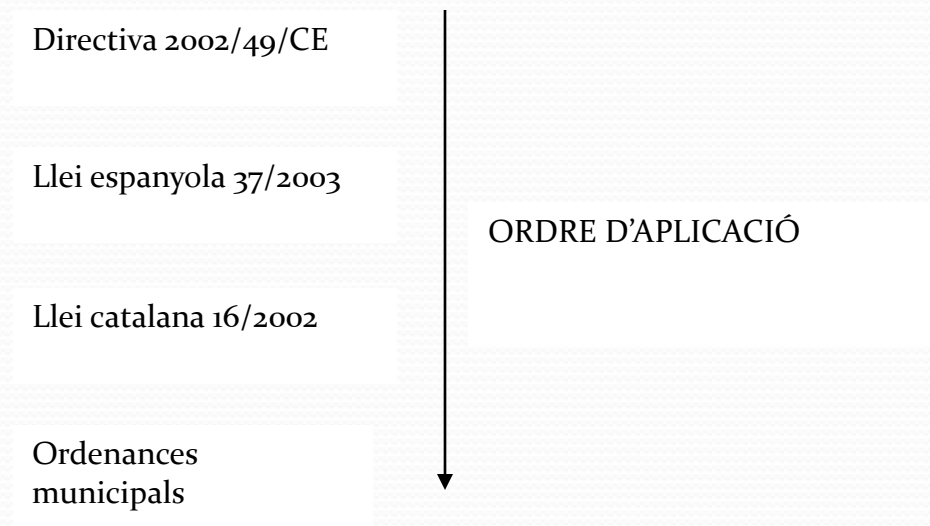
Acoustic

- In this field have a three sub fields:
 - Environment Acoustic
 - Isolation
 - Isolation's project
 - Shaker studies

Environment acoustic

- He is currently a field of citizenship, especially the municipalities are deeply aware as it is shown that a good quality in the field of noise directly affects the quality of life of people.
- Within the field of environmental noise has many applications, some examples below in detail:
 - Safety and prevention work
 - Obtain license for opening activity
 - Evaluation of the level of traffic

The environmental noise both inside and outside is controlled by the legislative field. We see a summary of the laws made in this field :



Each law is equal to or more restrictive than the previous.




In our case, we are concerned Catalan law 16/2002, or failing that the municipal ordinance where do the studies.

The studies that we can make are:

- Creation acoustic maps
- Evaluation environment acoustic test indoor and outdoor

These studies will be larger for determining whether or not the current legislation.

- 
- El Grup SARTI i el Laboratori de Metrologia i Calibratge [LMC] disposa del equipament necessari per efectuar les mesures d'aïllament acústic:
 - Altaveu dodecàedre (12 sortides, omnidireccional)
 - Un preamplificador i un amplificador d'àudio
 - Calibrador acústic i calibrador de vibracions
 - Dispositiu patró de impactes (vibracions i acústic)
 - Dos micròfons i un acceleròmetre
 - El Grup SARTI i el Laboratori de Metrologia i Calibratge [LMC] disposa de personal qualificat.



SERVICE

END

ACOUSTIC ISOLATION



Acoustic isolation

- A measure of quality of the construction

Certified to the constructor of acoustic isolation carried out by an external laboratory.

- The essay of isolation has to be carried out one time to finished the work.

- To carry out the measures of isolation it is necessary to fulfill the specific rules about construction :
 - UNE-EN ISO 140-4 :1999 Mesura a aïllament acústic a soroll aeri entre locals
 - UNE-EN ISO 140-5 :1999 Mesura a aïllament acústic a soroll aeri en façanes
 - UNE-EN ISO 140-7 :1999 Mesura a aïllament acústic a soroll d'impactes

- 
- 
- The Group SARTI and the laboratory of metrology and calibration [LMC] has the necessary equipment to make the measures of acoustic isolation :
 - Dodecahedron loudspeaker (12 exits surround)
 - A pre-amplifier and an amplifier of audio
 - Acoustic calliper and calliper of vibrations
 - Master device of impacts (vibrations and acoustic)
 - Two microphones and an acelerometer
 - The Group SARTI and the laboratory of metrology and calibration [LMC] has qualified staff.



SERVICE

END

Isolation's Project

- The Group SARTI and the laboratory of metrology and calibration [LMC] has tools to carry out the project of isolation for premises, façade, etc. Like this we will be able to keep on choosing the constructive elements that best they adapt to the needs.





SERVICE

END

Shaker tests

- In this class of studies detailing how it affects the vibration or impact to operating machinery in a given structure.
- A direct result of the study is to detect the weak points of a structure / building.

- 
- 
- SARTI Group and the Laboratory of Metrology and Calibration [LMC] has the necessary equipment to make measurements of insulation:
 - Speaker dodecahedron (12 departures, omnidirectional)
 - A preamplifier and audio amplifier
 - Vibration and acoustic calibrator calibrator
 - Device pattern of impacts (noise and vibration)
 - Two microphones and an accelerometer
 - SARTI Group and the Laboratory of Metrology and Calibration [LMC] has qualified staff.



SERVICE

END

TEMPERATURE CALIBRATION

Calibration in temperature and humidity

- The department has a climatic chamber that entertains conditions of temperature and humidity controlled. With this equipment essays can be carried out of ageing, as well as calibrations of probes of temperature and humidity.
- The climatic chamber have one passes-walls to control the equipment that in its inside in real time.
- The climatic chamber is calibrated by a laboratory proved by ENAC.

Climatic chamber



SERVICE

END

DIMENSIONAL CALIBRATION

Calibration in the dimensional field

- The Technological Center has the department that offers service of calibrations in the area of the dimensional metrology.
- The department is accredited according to the reach nº 152/LC 375 by ENAC with the regulations ISO 17025.

Services- Calibration ISO 17025

- Calipers [Range top 300 mm]



- Dial indicators, probe [E \geq 0,001 mm]



Services- Calibration ISO 17025

- Micrometers



- Rings, plug gages

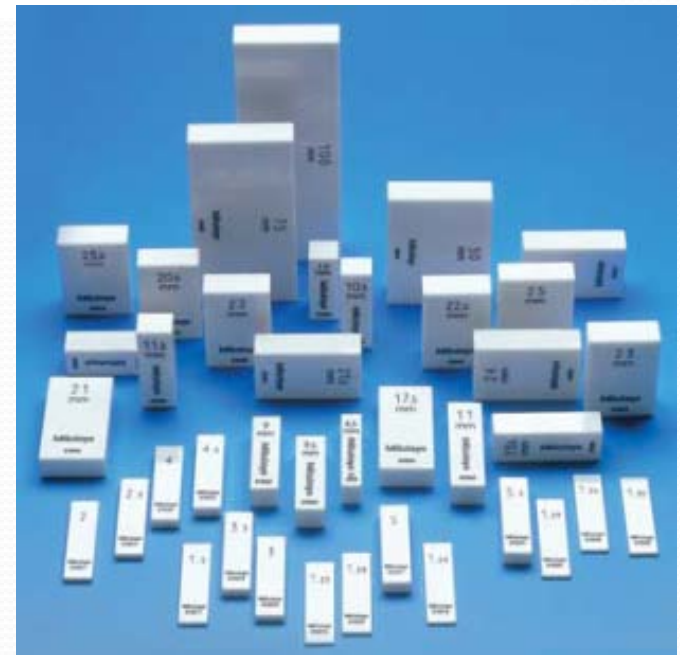


Services- Calibration ISO 17025

- Internal tube/ external thickness measurement



- Rectangular Gage Bloks
Range of 0,5 mm to 100 mm



Services- Calibration ISO 17025

- Measure of piece staff and varying tooling, through the accuracy depending :
 - High accuracy: Measure with uncertainty expanded of $0,1 \mu\text{m}$.
 - Medium accuracy: Measure with uncertainty expanded of μm .
 - Low accuracy: Measure with expanded uncertainty of one $0,01 \text{ mm}$.

Listing of customers with agreements

- Mahle S.A.
- Mahle Componentes del Motor
- Idiada Automotive Technology SA

Interesting links:

- Entidad Nacional de Acreditación.

www.enac.es

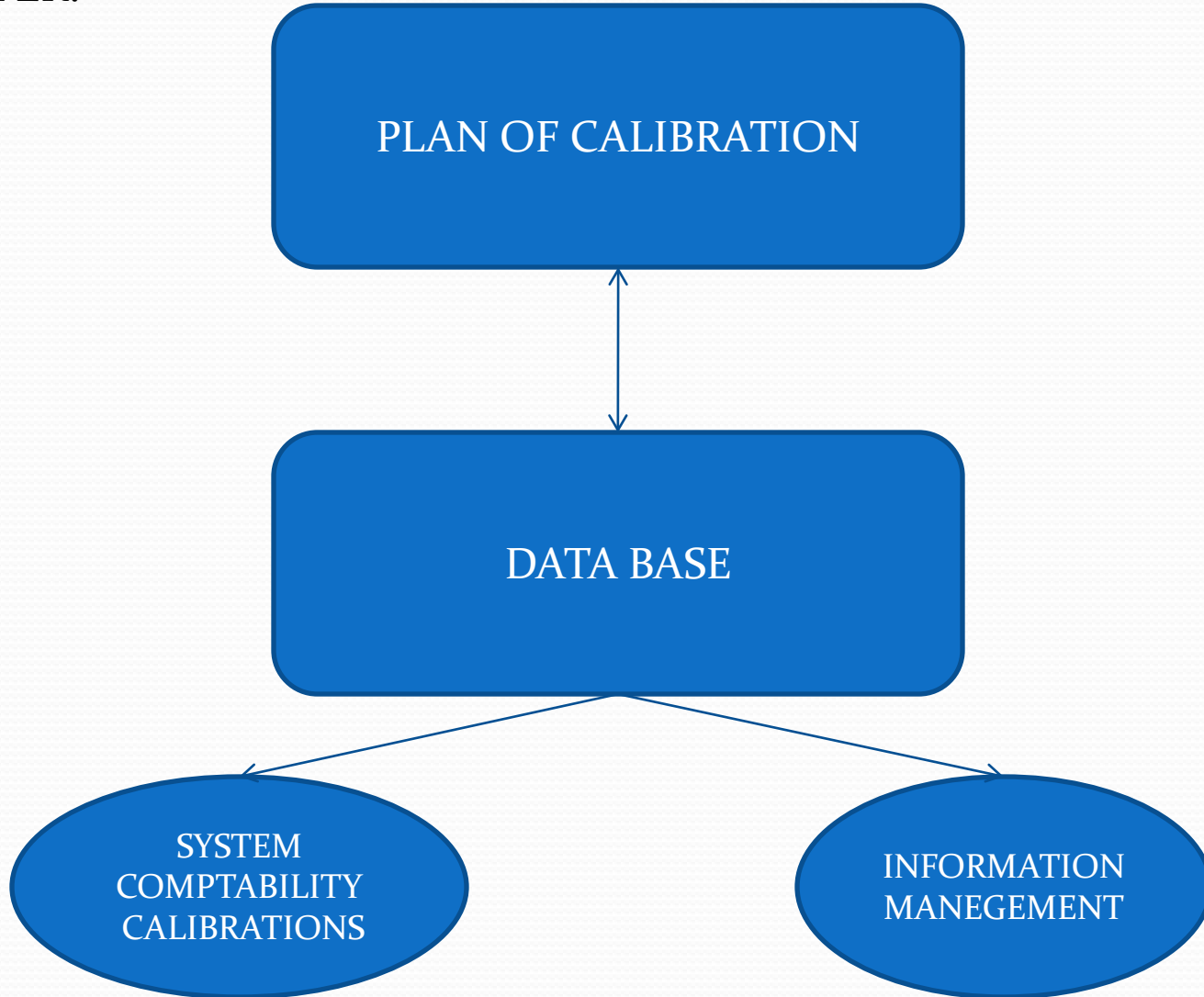
- Centre Tecnològic de Vilanova i la Geltrú.

www.ctvg.upc.es

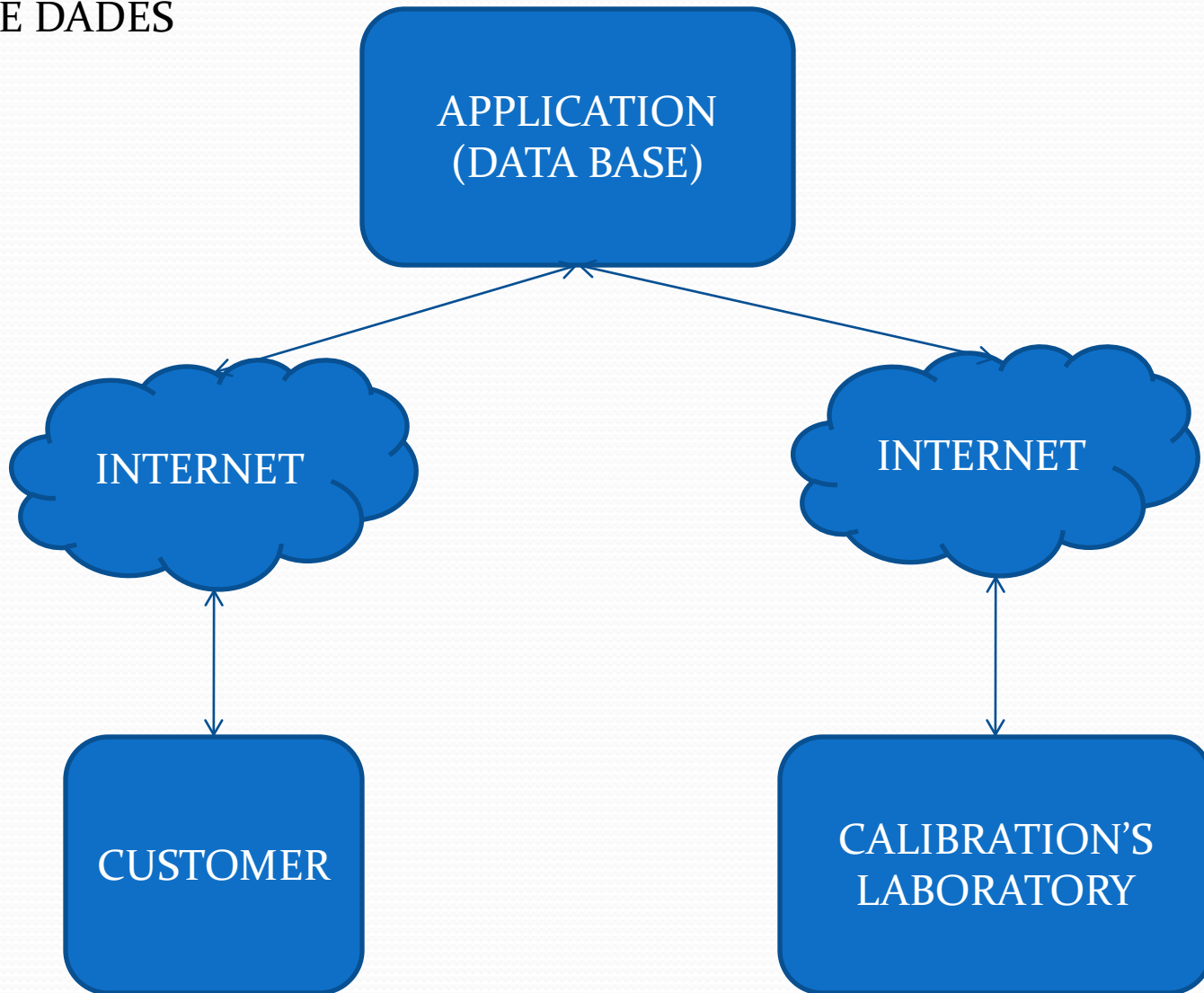
- Group of research SARTI.

www.cdsarti.org

WE OFFER:



BASE DE DADES



PROFITS

- REMOTE ACCESS VIA WEB PAGE.
- DOES NOT NEED INSTALLATION, ONLY A BROWSER OF INTERNET.
- ACCESSES PERSONALIZED BY USER.
- UPDATED INFORMATION ON-LINE (LISTINGS, STATE OF EQUIPMENT, ACCOUNTING STATE, ETC...)
- PERSONALIZATION OF THE APPLICATION ACCORDING TO ITS| NEEDS (LISTINGS, STATISTICS, ALERTES,ETC...)
- SECURITY OF DATUM GARANTITY (EXTERNAL SERVER)

CONTACT

CENTRE TECNOLÒGIC DE VILANOVA I LA GELTRÚ

CAMPUS VILANOVA I LA GELTRÚ
UNIVERSITAT POLITÈCNICA
DE CATALUNYA

RAMBLA DE L'EXPOSICIÓ 24
08800 VILANOVA I LA GELTRÚ
TEL.: 93 896 72 00
FAX.: 93 896 72 01

www.cdsarti.org
www.ctvg.upc.es

info@cdsarti.org

laboratori.metrologia@upc.edu

