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The certification European approach: the international experience of Italcertifer

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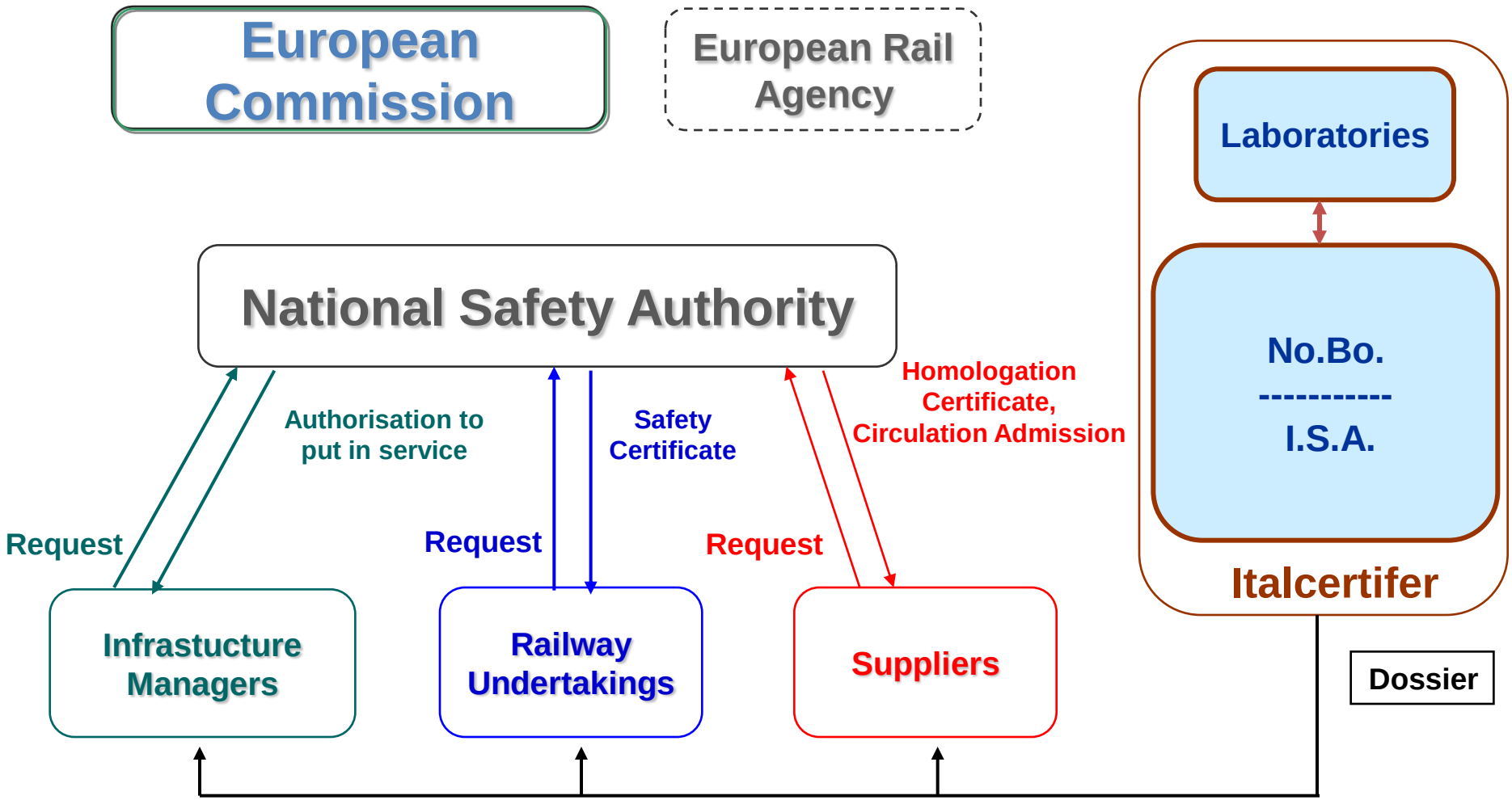
The Certification process in Europe



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No.Bo. and I.S.A. tasks

The No.Bo. performs the assessment of components, sub-systems and systems for railways use, in order to certify their compliance with the TSIs (Technical Specifications for Interoperability), issuing the relative "E.C. Certificate"

The I.S.A. performs the same assessment activities in order to certify the compliance with the national norms.

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The added value of the Certification

The Certification (ISA and/or EC) is the final seal of the entire process of the project, implementation, use and maintenance of components, sub-systems and systems.

Which is its added value

also outside of Europe?

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The added value of the Certification

1. It gives a formal end to the process, in accordance with reference (European and national) rules/norms for safety and interoperability;
2. It guarantees the independence of the assessment because it's issued by a Third Certified Part;
3. It simplifies and speeds up all steps necessary to export results reached in a determined country to the others;
4. It reduces time, efforts and costs of V&V and Assessment due to updates/improvements of components and systems during their life cycles.

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European Railways as reference everywhere

Not only for the European countries not yet included in the European Community or crossed by European Corridors but also for many others far from, like USA, China, India, South Mediterranean ones, and others....

Why?

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European Railways as reference everywhere

1. The traffic intensity and network complexity biggest than in the rest of the world, as well as a mix of High Speed lines and traditional ones;
2. Very consolidated safety concepts, norms, procedures and technologies;
3. Standards for safety and interoperability that force technologies and systems to be in accordance;
4. Proven experiences in the implementation of rules, organizations and technologies/systems;
5. And, not last, a technology market more open and standardized.

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The Company

Italcertifer has been established in 2001 to perform products and systems certification, audits, inspections and other assessments in the field of guided transport, particularly railway.

The Shareholders are:

- Ferrovie dello Stato Italiane Holding
- University of Neaples Federico II
- University of Florence
- University of Pisa
- Polytechnic of Milan

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The accreditations

Italcertifer works accordingly to the European Norms EN 45011 and EN 17020 (as recognized by the Italian Accreditation Body Accredia) and has been officially appointed:

- **since 2007 as Notified Body (No.Bo.) by the Italian Ministry of Transport (nr. 1960 of the Nando register)**
- **since 2008 as Independent Safety Assessor (I.S.A.) by the National Agency for Railway Safety (A.N.S.F.)**

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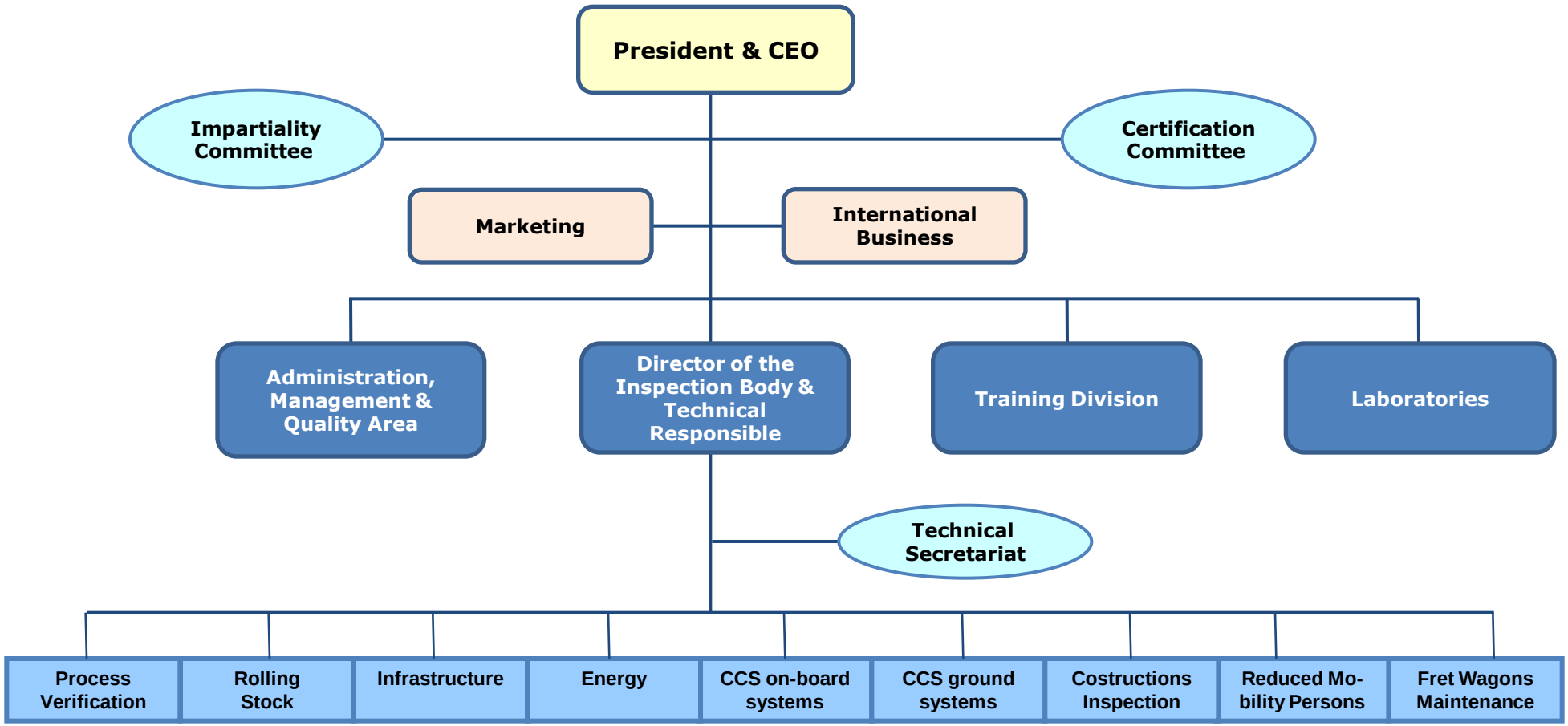
The Organization



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The staff

- **Total persons:** **100**

- **Assessors:** **55**
  - **Experts (more than 15 years)** **18 (32,7 %)**
  - **Seniors (more than 5 years)** **19 (34,6 %)**
  - **Juniors** **18 (32,7 %)**

All experts Assessors made their previous experiences as top level persons within the Italian Railways (RFI and Trenitalia) and other important Companies in the fields of:
Signalling, Centralized Traffic Control, Infrastructure, Energy, Tele-communications, Civil Works, Rolling Stock.

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Main Clients

Infrastructure

- CAVET
- CAVTOMI
- IRICAV1
- Pandrol
- Pegaso
- RFI
- Salcef
- TCDD
- Unieco

Energy

- Contact
- RFI
- Salcef
- Schunk
- Stemmann
- TCDD

Rolling stock

- Alstom
- Ansaldo Breda
- Bombardier
- CAF
- Contact
- DB Shenker rail
- FER
- Ferrovie Nord
- Firema
- Funkwerk
- Hupac
- ISAM
- Inrail
- Lucchini
- Matisa
- Mecoser
- Mer-Mec
- Pesa
- Plasser & Theurer
- Siemens
- Stadler
- Trenitalia
- Vossloh

Control/Command

- Alstom TS
- Ansaldo STS
- Bombardier
- Circumvesuviana
- ECM
- FER
- Ferr.del Gargano
- FSE
- Galeb
- GE Transportation
- Mer-Mec
- Mitsui
- Saipem
- Salcef
- Sangritana
- Selex
- Selta
- SBB Cargo
- Siemens
- Sirti
- SITE
- SNCF
- Thales
- TCDD

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No.Bo. and I.S.A. for the Italian High Speed Network

Client: **RFI-FS**
Year: **2006 / 2012**

Characteristics.

- High Speed Line up to 300 Km/h
- Length of double track lines:
  - now: 1.200 km
  - at the end: > 2.500 km
- ERTMS L2

Italcertifer work.

ISA and EC Certification of:

- Energy,
- Infrastructure,
- Civil Works,
- Control Command,
- Signalling,
- Telecommunications

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Abroad contract awards

Nation	Characteristic	Order's Year	Italcertifer work
Arabian Emirates	**Shan-Habshan-Ruways** - Traditional Lines - Length: 270 km	2012	ISA Certification of Control/Command
China	**Zhengzhu - Xi'an** - High Speed Line - Length: >700 km, 30 stations, Local adaptation to ERTMS L2	2010	ISA Certification of Radio Block Centre
Czech Republic	**Poricany-Kolin** - High Speed Line - Length: 22km, 3 stations, IV European Corridor, ERTMS L2	2010	ISA and CE Certification of Radio Block Centre
Finland	**Ring Rail Line, Helsinki** - Traditional Line - Length:18 km, 7 km under tunnel.	2010	CE Certification of Infrastructure, Safety Railways Tunnels, RMP
India	**Chennai suburban section** – High Speed Line – Length: 67 km, ERTMS L1	2012	ISA Certification of Control/Command
Poland	**Wroclaw-Zgorzelec** - Traditional Line - Length: 16 km	2012	ISA Certification of Control/Command, Energy, Infrastructure
Saudi Arabian	**Mecca-Medina** - High Speed Line - Length: 444 km, Speed 300 km/h, ERTMS L2	2012	ISA Certificate of Control/Command, Energy, Infrastructure
Serbia	**Level Crossing Controller** Galeb FSU-L C09	2011	ISA Certification of Level Crossing Controller Galeb GFSU L09
Sweden	**Heparanda** - High Speed Line - Length: 114 km, 8 stations, ERTMS L2	2010	ISA and CE Certification of Radio Block Centre
Turkey	**Ankara – Konja** - High Speed Line -Length: 210 km, Speed: 250 km/h, 25 kV-50Hz,ERTMS L1 **Ankara-Sinha** – Traditional Line - Length: 16 km	2010	ISA Certification of Energy, Infrastructure, Control/Command, Telecommunications
Turkey	Railways Integrated Safety Management System (**R-ISMS**)	2012	Definition of the R-ISMS, support to the implementation, training

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Interoperable train assessment contract awards

Client	Interoperable Train	Order's Year	Italcertifer work
Alstom	**ETR 500 PLT, 600, 610, 485** ERTMS L1 and L2, speeds 250/300 km/h	2008/2012	Conformity Assessment to STI and Cenelec for STB ISA Certification for the Italian and Swiss rail networks
Ansaldo Breda	**E 403** ERTMS L2, speed 300 km/h	2008	Conformity Assessment to STI and Cenelec for STB ISA Certification for the Italian rail network
Ansaldo STS	**Trains for: China, France, India** ERTMS L1 and L2, speeds 250/300 km/h	2009/2012	Conformity Assessment to STI and Cenelec for STB
Bombardier	**V 300** ERTMS L1 and L2, speed 360 km/h	2012	Conformity Assessment to STI and Cenelec for STB, Fire & Smoke, Safety in rail Tunnels, Pantograph, Dynamic Behaviour CE Certification and ISA Certification for the Italian rail network
Siemens	**Vectron** ERTMS L1, speed 250 km/h	2011	Conformity Assessment to STI and Cenelec for STB, Fire & Smoke, Safety in rail Tunnels, Pantograph, Dynamic Behaviour CE Certification and ISA certification for the Italian rail network
Siemens	**E 189** Speed 180 km/h	2009	Conformity Assessment to STI and Cenelec for STB ISA Certification for the Italian rail network
Turkish Railways TCDD	**HT 65010** ERTMS L1, speed 250 km/h	2010	ISA Certification for the Turkish rail network

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Turkey: Ankara-Konya High Speed Line

Client: Turkish Railways - TCDD
Year: 2010

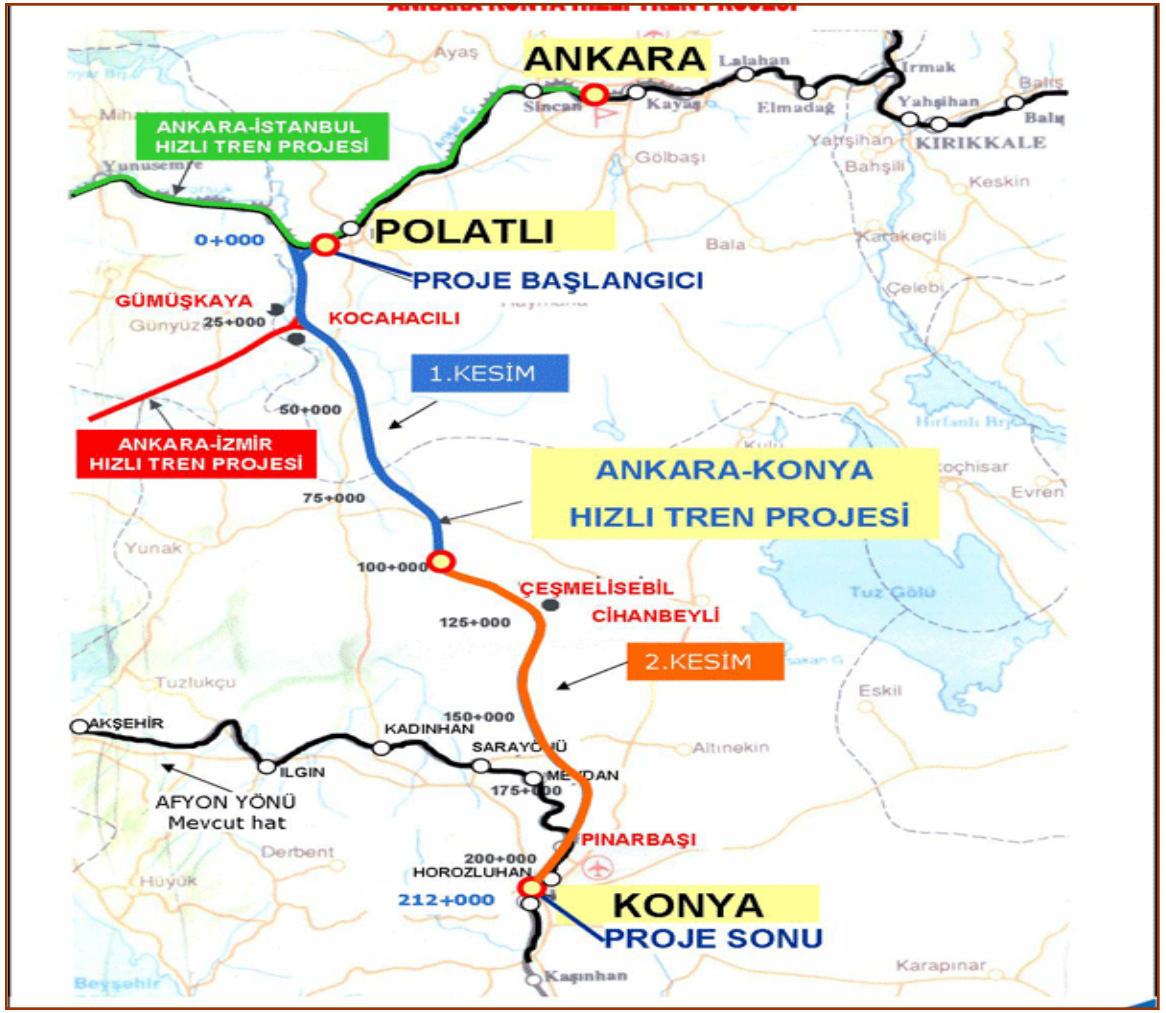
Characteristics.

- High Speed Line up to 250 km/h
- Double track line length: 230 Km
- Traction: 25 kV, 50 Hz
- Central Post: Ankara
- ERTMS L1 and lateral signal

Italcertifer work.

ISA Certification of:

- Energy,
- Infrastructure,
- Control Command,
- Signalling,
- Telecommunications



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Turkey, Ankara - Konya: the experience

There was more knowledge of the European railways aspects and rules than we had supposed before.

What was learned from this experience?

- **Flexibility and speed in answering Client requests are strongly needed**
- **The distance from home forced the persons to be more independent and to take quick decisions: all increased their autonomy**
- **The knowledge of the European standard and rules, as well as of the technologies and systems of Producers, have been real advantages and gave great results to the Client too**
- **The consolidated experience of the railway process allowed the Client and the Assessor to speak the "same language";**
- **The abroad experience allowed to grow a wider knowledge of railways cases, of components/systems adaptations and solutions, useful to the Italian Clients too.**

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The Infrastructure laboratory

Fatigue tests (1:1 scale)

Frequency resonance test

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The static laboratory

The laboratory allows to test all the ERTMS ground and on-board components, GSM/R included

A complete ERTMS system can be verified and tested

The wind gallery

Studies on the lateral wind effects on the HS trains

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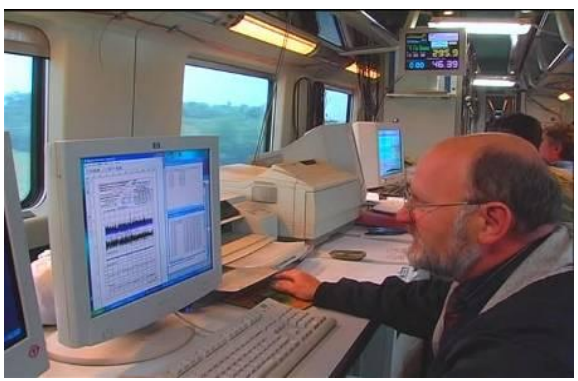
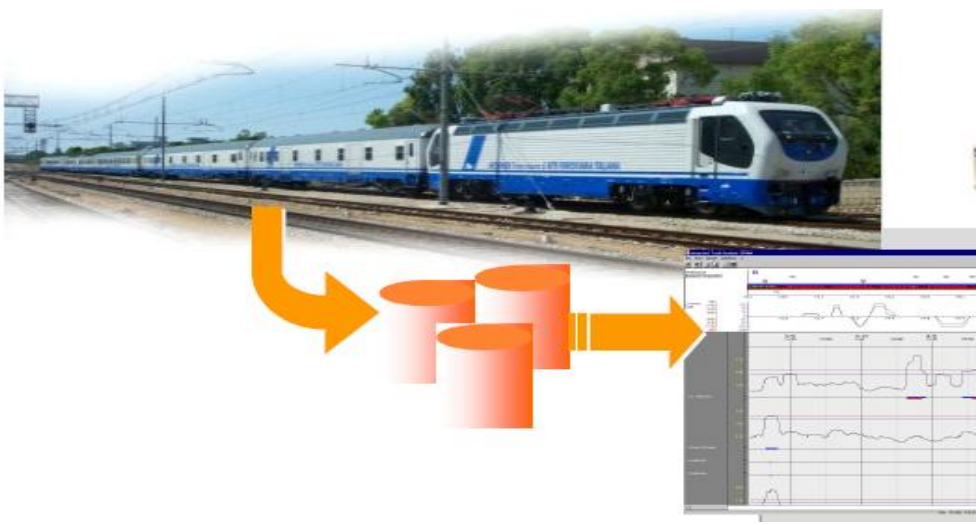
The on-board laboratories

ETR500-Y1: the first train capable to perform measurements till 350 km/h

Archimede: for speed till 200 km/h, it's able to monitor 115 different parameters, covering the most critical aspects of the rail verification.





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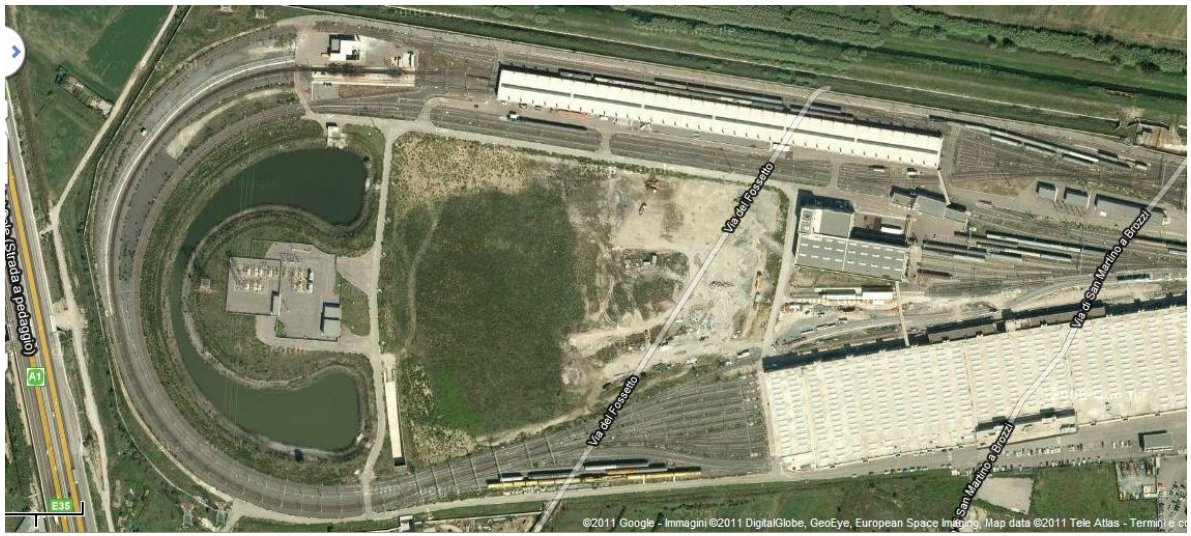
The dynamic laboratory: Osmannoro Test Centre



The “Dynamic Test Centre” of Osmannoro is fully devoted to Research, Development and Tests fort any type of vehicles.

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Benches

Semi-anechoic chamber

Body resistance

Railway simulation distorsion

Braking components pneumatic

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Thanks for your kind attention

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