The TiO₂ market has been globally estimated at about 6.6 billion € in 2009, where the European production accounted for 2.1 billion € in sales. Approximately 7 thousand people are directly employed in the European TiO₂ industry in 17 production sites.

In this scenario, the manufacture of TiO₂ NPs is a significant niche industry and demand for these materials is strong:

- around 5.0x10⁴ tons of TiO₂ NPs was produced in 2010, representing ca. 3% of the overall TiO₂ market
- production is projected to increase to ca. 2.0x10⁵ tons by 2015
- the market will only start approaching half of its production capacity post 2015, driven by increased demand in the Asian and developing countries markets.

The SETNanoMetro project will supply European SMEs with well-defined and controlled nanoparticles and films/coating production processes. Thereby, SMEs will compete with larger companies in order to become operational to a higher extended market.

Considering that only 32% of the TiO₂ sales are associated with European production, the products of this project, by means of traceable measurement methods for the production and characterization of TiO₂, could allow Europe to cope with 50% of world sales.
Titanium dioxide (TiO$_2$, titania) has been among the most exploited semiconductor oxides in various technological fields for many years, including the almost endless existing and potential applications involving nanoparticles (NPs).

TiO$_2$ NPs are indicated as the most suitable type of nanoparticles for one or more applications in the energy/power, healthcare/medical, engineering and consumer goods domains.

I) To perform the preparation of sets of TiO$_2$ NPs, each highly defined and homogeneous in bulk structure, shape, size, surface structure, to be used as such and/or in highly controlled and reproducible aggregated or assembled forms on proper supports.

II) To carry out an extensive and comprehensive metrological research devoted to the characterisation and production of standardised nanomaterials, that will allow the attainment of products with defined properties and sufficient homogeneity to be considered as candidate Certified Reference Materials.

These materials/systems, suitable for assuring metrological traceability to measurement results, will be used for measurements under traceability conditions of operational performances in some selected, actual technological applications, namely:

- dye-sensitized solar cells
- heterogeneous photocatalysis
- bone-substituting prostheses