"IVAT S.R.L. Project co-financed under Tuscany POR FESR 2014-2020"
Project title: "***High-Tech NanoCoating"***
Acronym***: Hi-TNC***

The Hi-TNC project, carried out by IVAT Srl, a company that produces and sells paints, is based on two objectives.

The first one involves the development of transparent and / or opaque films (*top coat*) nano-additived and having a low environmental impact. These paints, both spreader and spray-applied, will be developed for the automotive, railway, shipbuilding and also for other industrial sectors. The presence of nanoparticles allows the paint to give specific performances such as anti-scratch, anti-wear, anti-stain, anti-bacterial and anti-slip properties. The topcoat paints will mainly be based on water as solvent which will replace the classic volatile organic solvents thus pushing production towards products that will be more eco-friendly than the so-called "solvent paints".

The second objective is based on the project of a portable spectrophotometer (prototype) able to "read" the color of the paints that are part of the IVAT samples, including those paints which will be obtained with nano-additive topcoats. At the same time, also within this operating objective, the development of new paints (undercoat) with so-called "effect" colors is also expected, such paints will be obtained through the use of metallic or pearlescent pigments. The color reading of paints with "effect colors" is much more complex than that of the "pastel colors" so it is necessary to develop an algorithm, specific for the prototype spectrophotometer, which appropriately will process the acquired data and will return useful information for the re-production of the scanned colors.

The data, obtained by the use of the prototype portable spectrophotometer will be shared through an on-line platform (virtual cloud platform), which will make it easy to use all the information concerning a certain color such as the chemical formulation of the paint, the recipe for preparation of the paint and the safety sheets for each of the used compounds.