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Life Cycle Approach and Human Risk Assessment

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The EU FP7 project LICARA (Life Cycle Approach and human Risk Assessment, product stewardship and stakeholder risk/benefit communication of nanomaterials) has elaborated the LICARA guidelines for SMEs in order to support their decision making towards developing safe and sustainable nano-products. SMEs - in contrast to large companies - often lack personnel resources to elaborate in-depth knowledge and to develop a product with a compelling "story".

The LICARA guidelines are aimed to assess qualitatively the benefits (e.g. reduction of material consumption) and the risks of engineered nanoparticles, nanomaterials and nanoproducts during their life cycles. This may help to profit more from the environmental benefits of new nanomaterials and nano-products while reducing the risks. The guidelines also intend to facilitate the communication within the value chain towards sustainable innovation. The guideline is generic and therefore the user has to add sectorial knowledge about the detailed business case and the specific regulatory risk assessment for the nanomaterial or nanoproduct considered. The LICARA guidelines are accompanied by a prototype semi-quantitative tool, the LICARA nano-SCAN, that support the implementation of the guidelines.

The first part of the LICARA guideline is structured in seven steps, raises relevant questions to be answered and provides background information. The second part describes the modular LICARA nano-SCAN, which enables you to answer relevant questions concerning your innovative material or product and evaluate the results in a semi-quantitative way. The third part presents further information for further steps and gives information on case studies.

Both the LICARA guideline and the LICARA nanoSCAN are structured in modules: the guideline in "steps" and the tool in "boxes". The user may start with any module and select and apply only the modules of interest. Furthermore, the user may also update and re-evaluate the results from the application of the guideline and the tool (please see figure).

The basis of this guideline is the scientific work of three research institutes TNO, Empa, RAS and the experiences of the private sector NCB, SNT, Freso, Nanothinx and AGPYME, which have been partners in the consortium of LICARA in the EU FP7.