An analysis tool for decision making support on nanomaterials applications - a preliminary case study

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Abstract

The relevance of nanotechnology for innovation is a reality scientifically well documented [1]. Despite this fact, its effective and practical application is still a challenge that must be assumed in order to define guidelines of intervention to a deep collaboration between stakeholders. Being so relevant, the university and business effective collaboration for (in)novation, competitiveness and personal enrichment, several steps must be followed (or reinforced) in a hierarchical intervention, in which all the agents must be aware of their role. However, considering that the physical infrastructures, for that purpose, already exist, such as incubators, competitiveness and transfer knowledge units, the main question remains: Are the actors really communicating and, consequently, committed? That's the biggest challenge: The need for a social change in order to overcome the current obstacles: distinct entities dynamics and “languages” between stakeholders, as well as responses/feedback to society demands. Consequently, the gap in communication (mostly regarding quality) must be narrowed to pursuit the excellence in R&D, in universities curricula and the effective dissemination and final application at the industry.

The work developed, based on preliminary study cases, intends to provide a tool to assist the narrowing of the gap that still exists between R&D in research centres/universities and its application at industry, by means of providing a common language translated in to the development of an index that expresses and measures the usability of a trinity of nanomaterials/production technology/product – developed in universities and research centres – into the business environment, considering both stakeholders' demands. Therefore, the major outcome intends to be a contribution to improve the industry competitiveness and economic growth through the innovation process. For that purpose, the development of a tool – NTU (Nano-Technology-Usability) index – as illustrated in Figure 1, gathering the information based on TRL index, HSSE issues, economic viability considering the research conducted in universities and research centres but also, and with the same relevance, the industry sector demands and trends is proposed. The NTU index intends to define a common “language” that allow stakeholders to communicate in a more efficient and effective way and, more important, to take advantage of the competencies and knowledge from both sides.

References

[1] P. Queipo, D. Gonzalez, A. Reinhardt, T. Zadrozny, M. Cioffi, A. Bianchin and P. Matteazzi, Sustainable Development, Knowledge Society and Smart Future Manufacturing Technologies World Sustainability Series 2015, 73-79

Figures

Figure 1: NTU index schematic