

From “beneficial properties” to the “benefits” of nanos : a social process

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1° **The nanos topic** has emerged **as a public problem** in a long-term tendency which has questioned the legitimacy of many industrial, technological and scientific activities as: nuclear, chemical processes and products (Seveso plants, asbestos), GMO, and now “nanos”: nanoproducts, nanotechnologies and nanosciences. This tendency has been institutionalized through many and major regulations, like “Reach” (Registration, Evaluation, Authorization of Chemical substances).

2° **If we concentrate on the risks** (environment and health) aspect (without regarding others as “enhanced human being” or “civil rights” dimensions), the challenge facing scientists and social scientists is enormous since knowledge on toxicity and ecotoxicity of nanos appears to be quite weak. This knowledge is improving but since “each case is a case”, addressing nanos uniquely through the risks aspects could lead to a deadlock. In order to move, it seems necessary and relevant **to go towards the “benefits” aspect**. But this aspect is much more complicated than generally supposed.

3° There is classically **a confusion between beneficial properties and benefits** (of nanos or any material). *Beneficial properties* are determined by scientific researches which can say if, for instance CNT (or graphene) is more conductive or more resistant than other particles; or if nanosilver is a better biocide than silver in its bulk form. *Benefits* represent some kind of social utility. Thus from “beneficial properties” to “benefits”, there is a social process which needs to be formalized (I will rely on a research dealing with the conception of a nanomedical device to illustrate the difference between both notions).

4° This distinction has consequences and paves the way **towards a new paradigm** for researches on nanos. Firstly, it creates room for concrete cooperation between sciences and social sciences on applications. In that optics, the social process of transformation of beneficial properties into benefits must be taken into account as soon as the research begins. Secondly, this approach opens a way to master the risks dimensions because it supposes that nanos used in shaping applications should be evaluated before their use.

To that extent, nanos could rebuilt as a public question.