

# Environmental opportunities and risks of converging technologies<sup>1</sup>

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The integration of communication, computation and biological capabilities in molecular devices has enormous potential for social, economic and environmental benefits. Nanotechnology and Converging Technologies (CTs)<sup>1</sup> are currently attracting massive investments in research and development and are poised to become major elements of the global economy. However, as well as providing opportunities, these short and long-term innovations present little known, potentially significant risks and huge responsibilities for regulators.

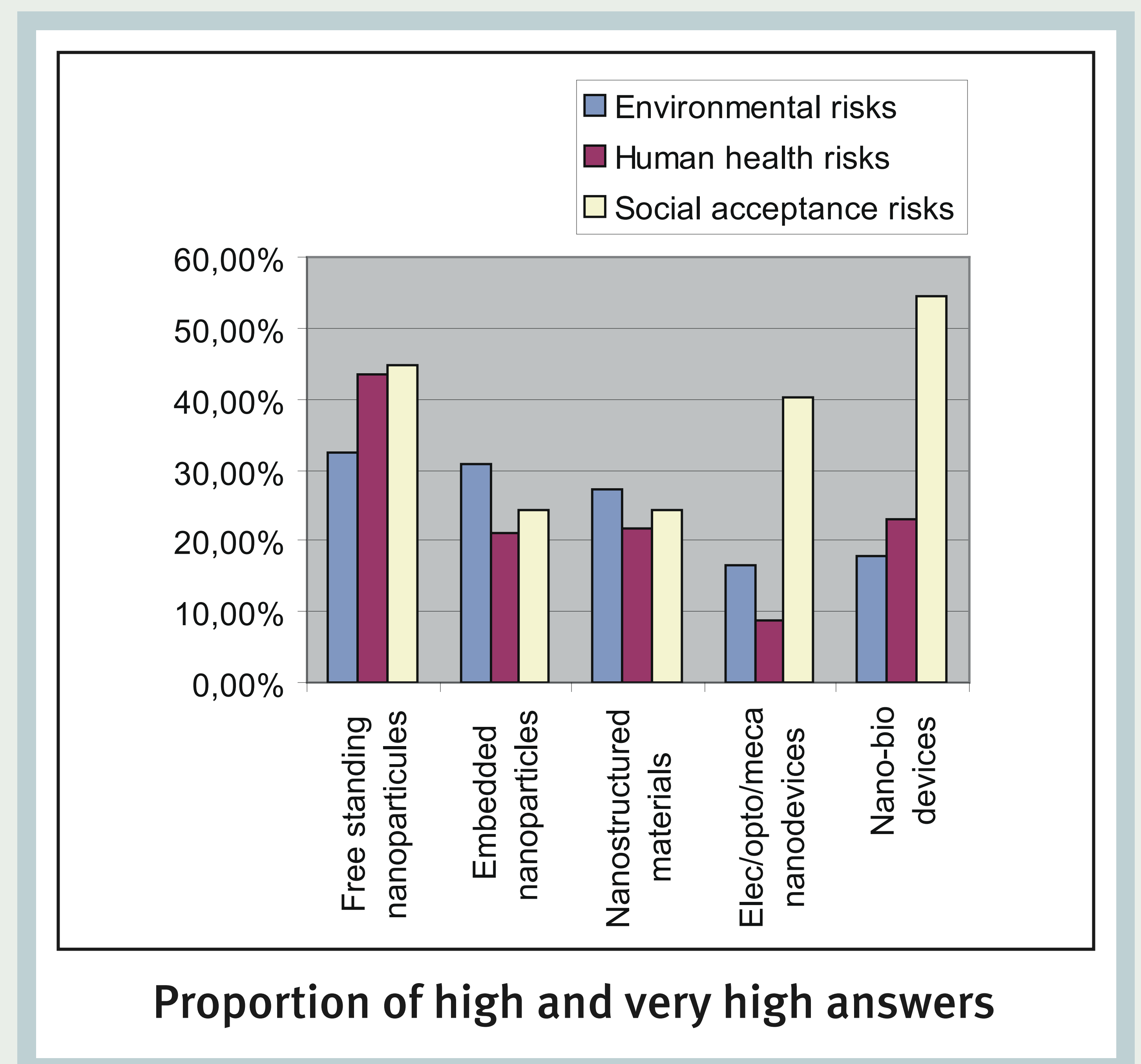
SKEP<sup>2</sup> Work Package 6, led by MEEDDAT and ADEME, is dedicated to foresight studies and focuses on the environmental risks and opportunities of CTs and their regulation.

As part of this work a European questionnaire was launched to review the perceptions, information and science needs of environmental regulators, scientific experts and other stakeholders in the field of converging technologies within and beyond the SKEP network. The analysis of the questionnaire results<sup>3</sup> demonstrate some interesting findings:

**Perceived risks.** Free-standing nanoparticles are a major concern and social acceptance is an issue for all CTs applications.

**Environmental opportunities.** Environmental monitoring using nanosensors or biochips, nanoporous membranes for water or air decontamination, and photovoltaic applications are considered most potentially environmentally beneficial.

**Regulatory needs and opportunities.** More than half respondents felt legislation in the regulatory areas of traceability, workers' exposure, labelling, waste management and adapting REACH need adaptation. The most common obstacles were insufficient scientific knowledge and political will.



**Priorities for research.** Research on risks for human health issues and environmental impacts, are top priorities, especially for free-standing nanoparticles. There is a lack of the fundamental knowledge and technical means for risk assessment.

The resulting research priorities from this work and its review will be important drivers for the 2009 SKEP collaborative research funding programme, the third and main joint call.

1 Converging Technologies of nanotechnology, biotechnology, information and communication technology and cognitive sciences

2 Scientific Knowledge for Environmental Protection: European network of environmental research funding institutions

3 SKEP D6.3: Nano-Bio-Info-Cogno technologies and the environment: Summary of perceptions and science needs of: policy makers, operational staff, scientists, experts and stakeholders.