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Strategies for sustainable innovation in emerging technologies: The cases of nanotextiles and smart textiles

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Research-oriented practitioners and entrepreneurs aim to take advantage of the opportunities of emerging technologies while producing economically profitable and ecologically sustainable products. Nanotechnologies and smart technologies for example have unleashed exiting prospects for the development of new applications in a number of industrial and consumer sectors. The increasing use of nanomaterials has, though, raised certain concerns over their safety to human health and the environment. How can enterprises in the context of uncertainty then make technological choices that will be economically profitable and ecologically sustainable? In this paper we draw lessons from case studies in the emerging fields of nanotextiles and smart textiles. We observed how innovators lack a holistic view of basic aspects essential for sustainable innovation. Furthermore, the incentives for sustainable innovation seem to be weak during the early stage of technology development. We illustrate what strategies may help to avoid unsustainable development trajectories and thus reduce the risk of misguided investments. These strategies could support informed decision making by industry, research and regulatory agencies to develop and foster sustainable innovation.

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