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Nano-enabled medical devices: Mapping the cross-fertilization of key enabling technologies in H2020 projects

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Technological cross-fertilization has become a current phenomenon that can generate new product properties and technology features which are important to achieve social impact and technological progress. In this context, the cross-fertilization of Key Enabling Technologies (KETs) could improve the overall performance of the technological and biomedical systems. The concept of cross-cutting KET, firstly introduced by the European Commission is relatively new and has special attention in incentives such as the Horizon 2020 Framework. KETs are technologies that have a strategic importance to future competitiveness and prosperity. Given this foregoing, a common strategy on behalf of the development of these technologies for their potential impact in strengthening Europe's industrial and innovation capacity is highly fostered. At the healthcare domain, crosscutting-KETs could improve the overall performance of the technological and biomedical systems given that the convergence of technologies in Nanotechnology, Biotechnology, Micro/Nano-electronics and Advanced Materials allow the development of new and better medical devices. The aim of this study was to identify the principal actors and the market trends when developing nano-enable medical devices as the result of the integration of different KETs. For this purpose, we selected signed projects under Horizon 2020 Framework under the pillar of Industrial Leadership. International and Institutional diversity and collaboration, as well as the market trends have been analyzed through social network and text mining analysis techniques. The scope of this research encompasses the scientific practitioners and innovation managers in the strategies of managing and developing innovative devices. It also has a scope to companies, research organizations, and other organizations that are involved in the sector and that aim to foster the interdisciplinary integration of technologies and collaboration. The insights obtained from this research can be used for policy recommendations that can influence the process of future cross-fertilization of nano-enabling technologies.

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