

## Technological Exploitation and User Experience in Product Innovation: The Case Study of the High-Tech Mask

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**Abstract :** We live in a world pervaded by new advanced technologies that have been changing the way we live and experience the surrounded. Besides, new technologies enable product innovation at different levels. Nevertheless, innovation does not lie just in the technological development and in its hard aspects but also in the meaningful use of it for the final user. In order to generate innovative products, a new perspective is needed: The shift from an instrument-oriented view of the technology towards a broader view that includes aspects like aesthetics, acceptance, comfort, and sociability. In many businesses, the user experience of the product is considered the key battlefield to achieve product innovation. (Holland 2011) The use of new technologies is indeed useless without paying attention to the user experience. This paper presents a workshop activity conducted at Design School of Politecnico di Milano in collaboration with Chiba University and aimed at generating innovative design concepts of high-tech mask. The students were asked to design the user experience of a new mask by exploiting emerging technologies such as wearable sensors and information communication technology (ICT) for a chosen field of application: safety or sport. When it comes to the user experience, the mask is a very challenging design product, because it covers aspects of product interaction and, most important, psychological and cultural aspects related to the impact on the facial expression. Furthermore, since the mask affects the face expression quite a lot, it could be a barrier to hide with, or it could be a mean to enhance user's communication to others. The main request for the students was to take on a user-centered approach: To go beyond the instrumental aspects of product use and usability and focus on the user experience by shaping the technology in a desirable and meaningful way for the user reasoning on the metaphorical and cultural level of the product. During the one-week workshop students were asked to face the design process through (i) the research phase: an in-deep analysis of the user and field of application (safety or sport) to set design spaces (brief) and user scenario; (ii) the idea generation, (iii) the idea development. This text will shortly go through the meaning of the product innovation, the use and application of wearable technologies and will then focus on the user experience design in contrast with the technology-driven approach in the field of product innovation. Finally authors will describe the workshop activity and the concepts developed by the students stressing the important role of the user experience design in new product development.

**Keywords :** product innovation, user experience, technological exploitation, wearable technologies

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