Design and Innovation:
How Many Ways?
Cabirio Cautela, Alessandro Deserti,
Francesca Rizzo, Francesco Zurlo

The contributions to this special issue come primarily from the keynote addresses of the fifth Designing Pleasurable Products and Interfaces (DPPI) conference, hosted by Politecnico di Milano in 2011. (The addresses have been revised as necessary for publication purposes.)

DPPI was established as an international conference in 2000 by a group of researchers active in the area of the "beyond usability" movement, with the aim of moving the design of interactive products away from a purely functional approach and toward the idea of a "rich" usability. Initially, DPPI was conceived primarily to give a stage to projects and research results that were experimenting with a more experiential approach to human-product interaction.

DPPI landed in Milano, as its founders (Jody Forlizzi, Ilpo Koskinen, and Kees Overbeeke) pushed for the idea of opening the North European and the North American design research communities to the South European one, integrating its original ways of conducting and practicing design research. Here, we want to thank the DPPI founders for their foresight and, especially, we want to remember Kees Overbeeke, who died in October 2011, for his effort in pursuing the merging of these communities.

Looking for a topic that could work as a platform to boost the discussion, the Milanese edition of the conference focused on presenting and debating different perspectives on the relation between design and innovation.

During the past few years, this question has been investigated in its multiple forms and manifestations. Literature on design and innovation is characterized by a multiplicity of viewpoints, expressed by different authors who tend—willingly or not—to build contrapositions: Innovation might be discussed from a practice versus an academic perspective; innovation can be presented as led by end-users or as a design-led process; market-driven innovation can be contrasted with production-driven

innovation; meaning innovation with technological innovation; and radical or disruptive innovation with incremental or continuous innovation.

Although many authors and schools clearly make a question of prioritizing their approach over the others, the idea behind the conference and this special issue is that we should consider the different positions as expressions of the situatedness of the design processes, assuming two main perspectives:

- On the one hand, the relation between the different approaches and the disciplinary areas from which they come; and
- On the other hand, the relationship among the trigger for innovation, the context where the design process occurs, and the generated outcomes.

Assuming the first perspective, we should recognize that there is no need to look for primacies and that an integrated vision appears as the only reasonable approach because it gives us the opportunity to consider the different viewpoints on design and innovation as complementary rather than as opposed. Assuming the second perspective, we should notice that the literature on technological innovation does strongly acknowledge causal links among the "sources of innovations" (science and industrial progression), the environment of innovation (R&D), and its derivative outputs (technological standards and applications); but in design literature, these relations appear weakly tied, in favor of other dimensions. These other, more relevant dimensions include the following:

- The role of different triggers—including socio-cultural changes, stimuli coming from arts and crafts, technological innovation, and new market needs—in feeding the innovation process;
- The heterogeneity of innovation leaders—from big companies, to small and medium-sized enterprises (SMEs) operating in networks, to social communities developing bottom-up solutions; and
- The variety of outcomes—from new product-systems, to new interfaces, to new services, to new business models.

Starting from this frame, we imagine this special issue acts both to reframe the question of how design and innovation integrate different perspectives, and to document new areas of innovation and new ways of innovating in which design plays a relevant role. Design appears today as an open territory, in continuous expansion from a "solid" center to much softer peripheral areas, characterized by a progressive overlapping with other disciplines. Building an overall map of this moving territory would not be

possible: Our idea is that this special issue should offer to readers a few cardinal points, and bring them to explore some of the most interesting new territories.

"Incremental and Radical Innovation: Design Research versus Technology and Meaning Change," by Donald Norman and Roberto Verganti proposes a framework built on different theories to illustrate the dynamics of the innovation processes related to design. The authors start from the idea that design is concerned with the meaning of artifacts, and they combine it with well-established theories in the field of scientific/technological innovation and research, such as the theories distinguishing radical and incremental innovation, basic and applied research. They reinterpret, adapt, and enrich these theories, discussing cases of design-driven innovation, to draw the conclusion that human-centered design is ideally suited for incremental innovation and unlikely to lead to radical innovation, which is normally connected to changes in technology or meaning.

"Design and the Cultures of Enterprises," by Alessandro Deserti and Francesca Rizzo explores the idea that designing significantly new products might bring unexpected changes in the culture of an enterprise because their development can generate contradictions between the current culture and the one needed to implement the innovation. The authors propose a bottom-up perspective on organizational change, linking it to the observation of real cases and to the situatedness of the design practice and culture as a possible value, in contrast to the idea of models and techniques that can supposedly be applied in any context and situation. For this reason, the authors criticize top-down change management approaches, including design thinking; as inadequate to lead managers to face the question of change and innovation.

"The Hidden Side of Design: The Relevance of Artisanship," by Marco Bettiol and Stefano Micelli, discusses the idea that design innovation derives its main roots from the culture of artisanship. Based on an analysis of the evolution of Italian design, the paper highlights the relevant role that artisanship plays in improving the quality and success of design, even in the context of series production. The paper presents artisanship as part of a complex system of production, in which it simultaneously plays the role of exploring new ideas (through small scale prototyping, or through the adoption of new solutions) and the role of cooperating through specific competences with industrial production (e.g., production of components and execution of peculiar phases of production).

"Making Things Happen," by Ezio Manzini, illustrates the phenomenon of social innovation as a new and emerging field of application for design. Manzini identifies three main typologies of innovation processes: top-down, when strong actors take the lead

to promote and enhance a social change; bottom-up, when social changes emerge from grassroots activities; and hybrid, when a variety of bottom-up and top-down innovations take place within the framework of a coherent program. According to the author, promising cases of socio-technical innovation are at the same time solutions to current problems and meaningful steps toward a sustainable society. Starting from this assumption, he describes a framework in which design competences and knowledge can be applied to develop constellations of initiatives that can facilitate, support, and strengthen the processes of social innovation, making them spread.

"What Happened to Emphatic Design?" by Tuuli Mattelmäki, Kirsikka Vaajakallio, and Ilpo Koskinen, provides a review of the evolution of empathic design. The article focuses on research conducted in Helsinki, where the first explorations with emotions and experiences in designing interactive products were turned into a significant research program. Authors explain that at the core of this program is an interpretive approach that combines design and contextual engagement with research that has connections to the humanities. Describing the evolution of this field of research, authors illustrate how it has produced "excess content" in the key areas of research practices, methods, and topics. With this historical perspective, the authors show how the roles of designers and users and their relationships have changed, as well as how designers' tasks have shifted from traditional product design to a variety of other fields of application.

"Design Strategies in Different Narrative Frames," by Cabirio Cautela and Francesco Zurlo, frames the relationship between companies and designers adopting a "narrative" lens, showing how design strategies change depending on what companies narrate in their innovation effort and how they narrate it. The different narrative frames and the derived design strategies are presented as linked to the behavior of companies in relation to the market and to their technological assets. The authors distinguish four main narrative typologies—exploitative, user-centered, techno- and explorative—and describe how design processes and tools change within the different narrative frames, offering differentiated ways to deal with design management.