DESIGN FOR A SUSTAINABLE INNOVATION OF THE ITALIAN COMPANIES: THE ECODESIGNLAB EXPERIENCE

Jacopo Mascitti
Scuola Ateneo di Architettura e Design - Università di Camerino, jacopo.mascitti@unicam.it
Daniele Galloppo
Scuola Ateneo di Architettura e Design - Università di Camerino, daniele.galloppo@unicam.it

ABSTRACT

Since its foundation, the "School of Architecture and Design of Unicam" has been characterised by a particular sensitivity towards the environmental character of the project. This allowed the development of specific skills in the field of environmental sustainability, which led, in 2013, to the foundation of the spin-off "EcodesignLab srl". Its mission is to increase the capacity for innovation, and the competitiveness of companies in the direction of environmental sustainability, through the application of the criteria and methodologies that characterize the design for sustainability. The results of these five years of activity are represented by the development of new eco-innovative product concepts for small and medium-sized companies belonging to different business areas. The paper present, through the case studies developed by the spin-off, the methodologies, the good practices but also the difficulties of the commercial implementation of design for environmental sustainability within the national industrial network.
Key Words: design for sustainability, eco-innovative products, transferable research results

1. INTRODUCTION

The design for environmental sustainability is one of the main areas of research of the School of Architecture and Design of the University of Camerino, which has produced numerous projects and research into products and systems with reduced environmental impact; this has allowed to mature a wide range of specific skills, further strengthened by the creation, in 2007, of the Master in "Eco-design e Eco-innovazione di prodotto".[1]

The purpose of this specific training path is to generate new professional figures who are able to manage the life cycle of a product, in order to reduce its environmental impact from the early design stages.

First master on eco-design in the Italian university system, foresees a development methodology which is characterized by the use of intensive design workshops as a participatory process between universities, companies and designers. Nowadays, the Master has produced 23 workshops with 13 partner companies, 40 graduate students and around 160 projects of eco-sustainable products, which were developed during the workshops and master's theses. It is from this cultural background and human resources that in May 2013 the university spin-off "EcodesignLab Srl" [2] was born, which offers integrated eco-design and eco-innovation services for the development of products that are both innovative and environmentally sustainable.

Founded on the technical-scientific skills of researchers of the School of Architecture and Design of Unicam, eco-designers grown within the Master and a network of external expert consultants, EcodesignLab aims to increase the capacity for innovation and competitiveness of Italian companies, especially SMEs, supporting business strategies and good practices in the direction of environmental sustainability, through the application of the criteria and methodologies that are typical of the eco-design. Today, EcodesignLab is a strategic actor in the transfer of research results - developed in the School of Architecture and Design of Unicam - to the business world through specific design services tailored to each individual customer and, at the same time, always aimed at tangible innovation, in the short, medium and long term.

2. ECO-DESIGN IN ITALIAN COMPANIES: VERY APPRECIATED BUT LITTLE REQUESTED

That design can represent an instrument for the improvement and qualification of the industrial product, - not exclusively in terms of aesthetics - has now become a more or less consolidated acquisition in the Italian entrepreneurial culture and the designer is commonly called to make his own contribution to improve products already on the market, under the influence of economic and cultural factors, and to make their production more profitable.
Among these, it happens rarely (unless it is imposed by national or international regulations) that it is the theme of environmental sustainability that motivates an entrepreneur to improve his product. The phenomenon is determined by an incorrect perception of eco-design, considered a specialized, expensive tool, which can only be used in niche marketing and commercial contexts or suitable only for large companies. In reality this is not true and the need to innovate products in a sustainable key, although not clearly expressed, is often easily deduced from the demands of a company, but still commonly latent nowadays, in the awareness of the national entrepreneurial average.

The "Green2Desk" [3] line of office accessories, with reduced environmental impact, is an effective example of this statement. The line consists of five products, each of which is developed according to the criteria of eco-design: desk drawer, letter tray, magazine rack, pen holder and waste basket. Starting from the company needs to drastically reduce the amount of material used to contain the costs of production and management of each individual product, to maintain production in Italy and to create a recognizable and identifiable family line, the project has come to the ideation development of five accessories that innovate - for functionality and aesthetics - the type of reference product, achieving, at the same time, a significant improvement from an environmental point of view of the entire line compared to the previous collection (considerable reduction in the amount of material used for each type of product). All the strategies of Life Cycle Design and reduction of the environmental impact implemented in the design of the "Green2Desk" line, have substantially contributed to a general containment of production costs and product management.

Starting from the finding of the raw material in production, to packaging and distribution, the environmental benefits have generated parallel economic benefits, as required and clarified by the client, allowing to keep the Made in Italy brand production and to safeguard the jobs. At the same time they have produced tangible and quantifiable results, with regard to the environmental profile of new products, which have allowed the company to focus its communication and marketing strategy on the need strongly felt by the market (provided the economic convenience of the product) of new and performing green products, which, moreover, fully respond to the Green Public Procurement policies by type and characteristics.

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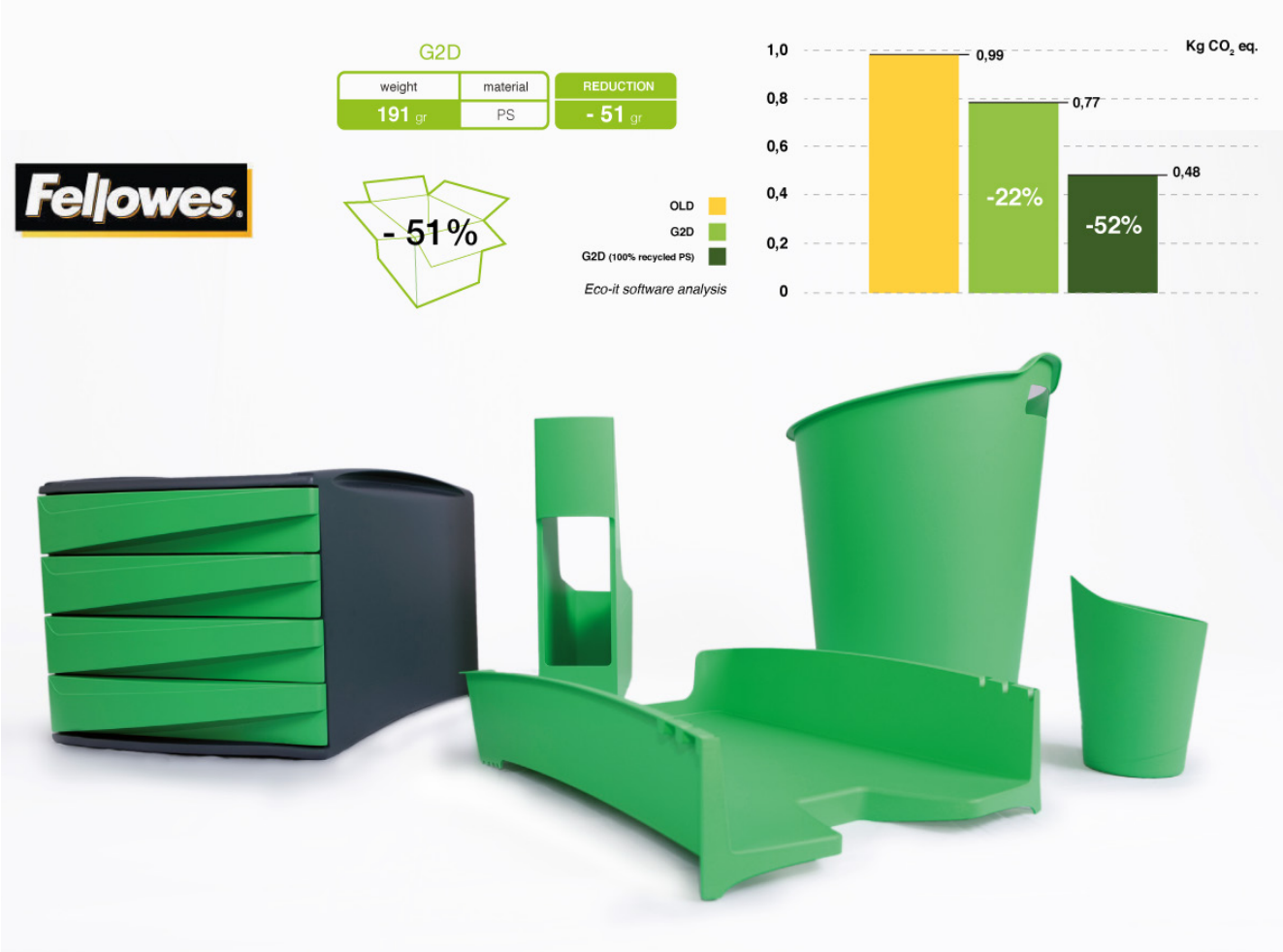
[1] The Master is now in its fifth edition, more information is available on the website www.masterecodesign.com.

[2] EcodesignLab Srl is a spin-off of the University of Camerino established in Ascoli Piceno, Marche Region (Italy). More information on the company's activities is available on the website www.ecodesignlab.it.

[3] Green2Desk office accessories , developed by EcodesignLab Srl, is produced and marketed in the national and international market by the Fellowes Leonardi SpA company in Camerano (AN), Italy. For further information, visit the websites www.fellowes.com or www.ecodesignlab.it



[Figure 1] The Green2Desk accessories collection designed by EcodesignLab and manufactured by the Fellowes Leonardi SpA Company. Above you can see specific data about the reduction in consumption of materials and transport volumes and storage thanks to the design strategies adopted for the letter tray.

Through design strategies, aimed at optimizing the use of materials, the reduction of transport and storage volumes and the correct disposal of individual products at the end of their life, it was also possible to obtain reductions in CO2 emissions equivalent to values between 9% and 62%, in addition to a total recyclability of the materials used. Finally, the line of black products was entirely made of 100% recycled polypropylene and polystyrene.

To ensure that the environmental communication of the new products could not be subject to interpretation or distortion, the Green2Desk line was subsequently validated by an LCA analysis according to the UNI EN ISO14040 standard, considering the system boundaries, starting from the production of the raw material up to the distribution of the finished product, with the aim of certifying the results achieved through an Environmental Product Declaration (EPD).

Currently, these mass market products, made exclusively in Italy and marketed in Europe, allow an excellent profit margin and a clear commercial recognition to the client company, which is now also characterized by the sustainable nature of this green product line.

3. A STRATEGIC INNOVATION LEVER STILL TO DISCOVER

The world of clothing is a universe of constantly changing artifacts, subject to rapid and programmed obsolescence. To this diktat still escapes the merchandise sector of professional clothing, whose products must meet specific technical and functional needs and must represent, often more than for other items of clothing, the image of a brand or simply of a trade.

Starting from these assumptions and identifying in the theme of environmental sustainability a strategic lever of innovation and marketing for the reference market, the "Apron Design" [4] project had the objective of devising and developing new professional aprons with reduced environmental impact, for a catering context evolved and qualitative, which did not express the concept of green through the simplistic - and often overestimated in environmental terms - use of organic cotton.

4.The project was conducted in collaboration with the professional clothing company Toma Srl in Appignano (MC), Italy - www.tomayouniform.it

[Figure 2] One of the concepts developed in the Apron Design proct context and designed in collaboration with the company Toma Srl, characterized by the use of cork, hemp and linen fabrics.

Instead, the project began with a thorough analysis of the performance requirements, the use contexts, the formal constraints and the environmental profile of the product, and then finally defined the design development parameters. Based on the research conducted, two scenarios of project development were constructed, polarized between the dichotomous approaches of a long-lasting product and a short-term product, defined for different types of clientele, from the professional to the amateur, and for different use contexts (hall, kitchen, cooking show, etc.), but all characterized by the driver of environmental sustainability innovation.

For each scenario, we have identified and grouped - using consistency and respect towards established criteria - sets of materials that are suitable for use and which allow a correct management especially of the end of life of the product. Of the more than fifty materials identified, the main national suppliers were identified and the samples required for the subsequent analysis phases, for the tests and for a further selection made by the company were requested.Through the strategies of modular composition, substitutability of parts and / or components and the total monomateriality of the product, 11 concepts have been developed of new aprons with reduced environmental impact, which consciously use materials, both natural and artificial, to respond to the better to the technical, aesthetic and expressive needs of this product in relation to the different defined user and use targets.

The use of this approach in this specific project context, not yet sensitized on the issue of environmental sustainability, is still today a unicum from which the company can gain a real competitive advantage, compared to its direct competitors, demonstrating once again how the eco-design can play a fundamental role in the process of developing new products, real innovation and differentiation on the business market, even and above all where this has never been taken into consideration.

4. A STRATEGIC INNOVATION LEVER STILL TO DISCOVER

Roland is a Japanese company whose division DG is specialized in the production of peripherals for visual communication such as plotters for cutting and printing of large format, engravers, modeling cutters and three-dimensional scanners, mainly addressed to the world of digitalized craftsmanship and of design.

The project “Refreshing Design Workshop” [5] developed for this company by EcodesignLab was aimed at stimulating and encouraging the birth of new creative enterprises through the design and implementation of an innovation platform characterized by a multi-stakeholder approach that allowed a process of cross fertilization between design, craftsmanship and Roland DG technologies. With an intensive two-week design workshop carried out in a two thousand square meters industrial context and with all the machines produced by the company available, 32 designers, 6 makers, 11 technological craftsmen and 4 traditional artisans were called upon to devise and develop new

5. The term Refreshing Design indicates a design activity that refreshes, reinterprets, reactivates and regenerates a manual craftsmanship that is innovated with the use of low cost digital technologies and with the facilitated sharing of intellectual resources and innovative contents through the web 2.0.

products and services able to renew the concept of "craftsmanship" through the use of Roland DG technologies and waste materials and products to be regenerated.

[Figure 3] Some images of the Refreshing Design Workshop held on 27 October to 7 November 2014 at the Roland DG Mid Europe in Acquaviva Picena (AP), Italy.

During the workshop, the working groups have given life to 13 product and service ideas, resulting from the merger of the various sectors of expertise, the manual skills of craftsmen and the use of low-cost production technologies available for the transformation and reuse of waste materials and components. In order for the process to produce results in such a short time, the cultural alignment of all the participants regarding the themes of the reuse project but also the desktop personalization and modification technologies present in the workspaces was fundamental. The coordination group made up of the EcodesignLab team, then developed a full-bodied and detailed dossier, distributed one month before the start of the work, to all the participants, in which the fundamental themes of self-production, reuse techniques and services offered from the individual machines they were made explicit.

The result of the intense planning activity has seen the selection by the company of the three ideas considered to be the best and able to move on to the subsequent phases of business incubation and support to the commercial launch as a start-up. At the base of the methodological and scientific success of the project, as strongly believed by the company, there is certainly a critical reading of the process that uses the theme of environmental sustainability as a strategic lever for the birth of new entrepreneurial reality, further amplified to the use of by now pervasive rapid production technologies, that allow the further approach of the design theme to the one of handicraft production and small series in general.

5. CONCLUSIONS

The phenomenon of "greenwashing" and the advertising campaigns of companies that have declared "green" their products without having the objective and verified characteristics, have proved to be heavy boomerangs, because the theme of environmental sustainability does not admit the character of subjectivity, but makes use of specific and transparent tools and methodologies. Every action that is carried out and every design choice has a precise consequence, quantifiable numerically and verifiable by anyone.

This has been a deterrent for many companies to take actions aimed at the sustainable development of their products, citing the motivation of not being able to afford the investments necessary to change their production activity in the direction of environmental sustainability. The innovative approach that EcodesignLab proposes is to adapt to the potentials, expectations and real capabilities of the companies that address them, strategies and design actions for environmental sustainability, developed and tailored ad hoc for each specific business reality and for every design challenge.

This means not proposing a standardized methodological design process, through the offer of service packages or the use of predefined tools, but rather: dynamically analyzing company needs and the real motivations behind a new green product or service and developing innovative solutions that combine the highest environmental performance with the best opportunities for economic and social growth.

BIBLIOGRAPHY

1. Brezet H. and van Hemel C. (1997), Ecodesign. A promising approach to sustainable production and consumption, UNEP, Paris, France.
2. Enel and Fondazione Symbola (2018), 100 Italian Circular Economy Stories, book available at the Internet address http://www.symbola.net/html/article/100italiancirculareconomy [24 February 2018].
3. Fiksel J. (1996), Design for Environment. Creating eco-efficient products and processes, McGraw Hill, US.
4. Lewis H. and Gertsakis J. (2001), design + environment: a global guide to designing greener goods, Greenleaf Publishing Limited, Sheffield, UK.
5. McDonough W. and Braungart M. (2003), Dalla culla alla culla, BLU Edizioni, Milano.
6. Pietroni L. (2013), EcodesignLab Srl. Uno spin off universitario al servizio delle imprese, in "Mappe. Luoghi percorsi progetti nelle Marche" n. 2/2013, Gagliardini Editore, Ancona, Italy.
7. Tamborrini P. and Vezzoli C. (eds) (2007), Design per la sostenibilità. Strategie e strumenti per la Decade, United Nations (2005-2014), Libreria CLUP, Milano, Italy.
8. Valentino P. A. (ed.) (2014), L'arte di produrre arte. Imprese italiane del design a lavoro, Marsilio Editore, Venezia, Italy.
9. Vezzoli C. And Manzini E. (2006), Design per la sostenibilità ambientale, Zanichelli, Milano, Italy.