

Design as a knowledge agent How design as a knowledge process is embedded into organizations to foster innovation

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This study presents how design, as a 'knowledge agent' can contribute to innovation processes. It was developed through the analysis of 30 cases in which design was applied as a strategic competence for the development of product and business innovation. In order to examine and compare extremes, the cases were selected from two distinctive contexts with different characteristics in corporate strategies, organizational structure, and 'contextual infrastructure'. From the analysis of the cases, it was possible to identify how design activities adapt to different contexts in accessing different knowledge domains. In fact, this research presents two distinctive ways in which design acts as a knowledge agent: as a 'knowledge integrator' in 'global corporations'; and as a 'knowledge broker' in 'local companies'. The two identified strategies emphasize the opportunity of envisioning design as a multi-functional activity, capable of flexibly adapting to specific contextual factors and contributing to the development of product and business innovation in any given situation.

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1 Drucker, P F *Management challenges for the 21st century* HarperCollins Publishers, New York (1999)

2 Galbraith, J K *The new industrial state* Signet Books, New York (1968)

3 Davenport, T H and Prusak, L *Working knowledge: how organizations manage what they know* Harvard Business School Press, Boston (1998)

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It has been generally accepted in management and organizational studies that knowledge plays an important role inside business innovation, not only through its codified dimension but also through its tacit nature. Researchers from many disciplines have tried to describe the different domains through which knowledge can be defined as an important resource for promoting business innovation¹⁻⁴. In this research, knowledge is categorized in three domains. They are: users' community knowledge; organiza-



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tional knowledge; and network knowledge. These domains refer to the distinctive types of knowledge that design accesses in order to support the development of business innovation.

Users' community knowledge relates to knowledge contained in the interaction between individuals and products, the routines and practices formalized by individuals and groups, and the shared understanding and values negotiated among them. It can be defined as the knowledge contained in everyday practices of individuals. This knowledge is developed through time based not only on how individuals interact physically, conceptually, and emotionally with products, but on the cultural and social models that emerge and affect individual behaviour and values⁴⁻⁶.

Organizational knowledge relates to knowledge embedded in organizational routines, processes, and practices, as well as tacit and explicit knowledge possessed by employees. Here, organization is defined as a 'community' of people who share specific practices and values. The dialectical negotiation through time of distinctive skills, know-how, practices and values creates shared organizational routines that become socially accepted and adopted among its members. This process creates an organizational culture, in which its tacit elements—such as core competencies—can eventually be more important for fostering innovation than explicit ones⁷⁻⁹.

Network knowledge relates to knowledge that is developed beyond the boundaries of an organization. It is the knowledge developed spontaneously, or through private and public policy, and diffused through networks of individuals (experts from specific disciplines or from multiple ones), communities (from specific segments or multiple ones), and the combination of both. It is the knowledge that flows between corporations, outsourcing services such as suppliers and distributors, and research and educational centres. The main contribution of network knowledge to innovation processes is the continuous exchange of discoveries, one of the fundamental components for fostering innovation^{10,11}.

In order to identify how design can access the knowledge contained in those three domains, an analysis of 30 design case studies was developed. The cases were analyzed to identify how design, as a knowledge agent, contributes to innovation. The research analyzed cases in which design was applied as a strategic competence for product innovation (see note 1). In order to compare extremes, half of the cases investigated the application of design in projects oriented towards developing products based on new and complex technologies, developed by corporations with operations in more than one country (global corporations). The other half investigated

5 Bourdieu, P *Outline of a theory of practice* Cambridge University Press, Cambridge (1977)

6 Foucault, M *Discipline & punish: the birth of the prison* Vintage Books, New York (1977)

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8 Mintzberg, H *The rise and fall of strategic planning: reconceiving roles for planning, plans, planners* Free Press, New York (1993)

9 Hamel, G and Prahalad, C K *Competing for the future: breakthrough strategies for seizing control of your industry and creating the markets of tomorrow* Harvard Business School Press, Boston (1994)

10 Reinmoeller, P 'Research & development. Design: innovation strategies for the knowledge economy', in *Design plus Research Proceedings*, Milan (2000) pp 102–110

11 Von Krogh, G, Ichijo, K and Nonaka, I *Enabling knowledge creation: how to unlock the mystery of tacit knowledge and release the power of innovation* Oxford University Press, London (2000)

the application of design in projects oriented towards the development of products based on mature technologies, by companies with only a local operation.

To investigate how design contributes to the process of business innovation, design activities described on the case studies were listed and then clustered according to their similarities and differences relating to aims, processes, and deliverables. First, design practices were mapped identifying all the activities performed by designers in the narrative of the 30 cases. Second, the activities were related to one of the three types of knowledge domains in order to verify the knowledge model assumed by this research. This was made with an aim to demonstrate the ‘real’ capacity of design in contributing to knowledge creation across the three domains. Then, the activities identified in the two groups of cases were compared with each other and, according to the similarities in their processes and output, clustered within common definitions. Creating a common language for identifying design practices was a fundamental part of this research. This provided in fact the base to compare different contexts using the same categories and concepts.

Table 1 provides the conclusion of this theoretical exercise. It presents the summary of clustering several practices performed by designers while working for local and global businesses. The clusters of activities are related to the three knowledge domains, providing a framework to describe how design accesses knowledge shared by users, organizations, and networks.

The conclusion demonstrates that design contributes to innovation, both in product and/or process, acting as a knowledge agent by collecting, analyzing, and synthesizing the knowledge contained in the three domains. Also the theoretical framework provided a roadmap to identify the differences between design strategies in the two different contexts: while acting as a knowledge agent design combines differently its activities, adapting to specific contexts.

1 Design strategies in distinctive contexts

In addition to identifying the activities through which design accesses knowledge possessed by users, organization, and network, the cases were also used as a resource to identify two distinctive ways through which different design activities can be combined to promote business innovation. In order to better explain this Table 2 compares the characteristics of the two contexts. Starting from the understanding of these differences the

Table 1 The activities applied through design to function as knowledge agents and access the knowledge possessed by users, organizations and networks

<i>Users' community knowledge</i>	<i>Organizational knowledge</i>	<i>Network knowledge</i>
<p>Human factors studies mapping, codifying and understanding the relationship between the properties, affordances, and functions of products and how they enable or constrain individuals and groups actions</p>	<p>Design management understanding of organizational routines, processes, practices and its strategic intent in order to plan and manage the application of design competencies inside and outside organizations</p>	<p>Encoded research appropriating codified knowledge publicly available through traditional communication channels</p>
<p>Behavioural studies understanding tangible and intangible constraints that establish criteria by which products are suitable for a working purpose according to users practices</p>	<p>Design concept representing abstract concepts and intuition through synthetic images, metaphors, and models that facilitates the communication of ideas</p>	<p>Technology brokering applying and combining technological solutions developed outside the organization such as other businesses, suppliers, and research institutions</p>
<p>Participatory observation identifying the tangible and intangible constraints by being a participant in the rituals: constraints are identified primarily through tacit knowledge</p>	<p>Design strategy identifying the core competencies of an organization and a plan to synthesize it into new products or vision</p>	<p>Expertise exchange generating new insights through formal and informal interaction among professionals from the same or distinctive areas of expertise</p>
<p>Behavioural prototype representing tacit knowledge embedded in users shared understanding and cultural values, envisioning better or new behaviours inside social groups</p>	<p>Design policy embedding design competencies, methods, and processes as a way of improving or innovating organizational routines oriented towards the development of innovation</p>	<p>Expert interaction staging events for promoting knowledge sharing and concept evaluation, facilitating the collection of feedback and promoting public acceptance of innovation</p>

present research underlines two different strategies applied by design to adapt successfully to the contexts.

1.1 Design as a knowledge integrator

The first context relates to corporations oriented towards developing products based on new and complex technologies, with operations in more than one country (global corporations). One of their main strengths is the

Table 2 Comparison between the characteristics of the two contexts in which design strategies operate

<i>Contextual factors</i>	<i>Global corporations</i>	<i>Local companies</i>
Technology	New/complex technology base	Mature technology base
Innovation	Radical innovation	Incremental innovation
Product	Standardization and mass production	Differentiation and niche markets
Organizational model	Vertical integration	Networked organizations
Resources	Global production and resources	Local production and resources
Knowledge management	Global knowledge integration	Local knowledge sharing

capacity to develop unique products based on new and complex technologies. Such approaches require global corporations to train highly specialized professionals, develop knowledge of new technologies and make risky investments in research. These challenges are a problem for most small companies but, for global corporations, are major competitive advantages. The strength of these businesses is the development of unique and innovative products based on new and complex technologies, which can be transformed into new applications that foster demand for new products and create new markets. Because investment, resource allocation, and risk of failure are so big for developing new technologies, the return from investments must come from focusing on the development of standard products for global mass-markets. Electronics, medical equipment, computers and digital devices are some examples of these approaches.

For those corporations, a key factor in success is their capacity to protect and improve corporate knowledge as a source for continuous innovations. To constantly produce innovations, global corporations tend to standardize methods and processes, and adopt organizational models based on vertical structures with internal integration of processes and capabilities. This strategy enables them to take advantage of knowledge geographically dispersed across their internal corporate global network. However, the control of knowledge circulation for internal use only can isolate global corporations from interacting with knowledge contained on external and informal networks. To overcome this problem, global corporations tend to create institutional channels and formalized methodologies to interact with knowledge that circulates outside the organization.

In this context, design is usually integrated into the vertical and hierarchical structure as one of the competencies required for development of innov-

ative products. This is due to the complexity of technological innovation, in which development depends on the collaboration of many different areas of expertise. Therefore, design contributes as a 'knowledge integrator' by mediating through formal and structured methods, the knowledge contained in distinctive domains. Design promotes a flow of knowledge of technological capabilities developed inside global corporations for application outside the organization and intended to transform (desirably for the better) users' community knowledge.

In order to access users' knowledge, contained in the interaction between individuals and products, design competencies in global corporations tend to be a structured process that investigates individuals' values and behaviours and codifies its findings through reports, diagrams, sketches, and prototypes. These define the physical and functional attributes on which product innovation should be based. The knowledge accessed by design and structured as criteria provides development teams not only with an understanding of how new technologies can potentially be applied to better support individuals' values and behaviour, but also with insights about the forms and function through which new technology can be structured to become a product innovation. By codifying knowledge contained in the interaction between individuals and products, design plays a key role of communicating the criteria by which products are judged suitable for an intended working purpose, and promoting the negotiation of those criteria within members of the development team, as well as among the many different teams and departments inside the corporation.

Accessing organizational knowledge contained in routines and practice or implicitly owned by people, design competencies in global corporations are usually applied as the activity responsible for codifying into tangible material reality the ideas and abstract concepts defined and negotiated by many different areas of expertise. In this case design provides a formal representation of a concept by combining different ideas and insights. It is responsible for representing abstract concepts through synthetic images, metaphors, and models that facilitate the communication of ideas.

One of the main advantages of this mechanism is providing 'models' that are very effective in mediating the discussion of abstract concepts, which consequently facilitates building shared agreements about the attributes of new products. In order to make this happen, design management in global corporations plays an important role in planning and managing the application of internal and external design resources to support the development of innovative products. The effectiveness of design as a knowledge agent among distinctive functions has often pushed organizations to embed a

structured design policy to support the process of product innovation. However, design is generally a competency responsible for defining the form and shape of innovative products only during the synthesis phase of development. The consequence is that businesses do not take advantage of design competencies in the analysis phase during innovation development, in which most insights and criteria defining an innovation are generated. Therefore, in global corporations design is usually not associated with defining the scope of innovation through the development of corporate strategies and business vision, rather it is interpreted as one of the mechanisms for implementing it.

In order to access the network knowledge developed beyond the boundaries of organizations, in global corporations design competencies are usually structured as a combination of internal and external design resources. By developing a flexible design structure combining internal and external design resources, global corporations try to overcome the problem of relying only on knowledge developed internally (highly protected for proprietary reasons), and moreover from being isolated from knowledge developed locally through informal networks. Therefore, in order to enhance their internal knowledge and constantly innovate, as well as to protect its intellectual property, global corporations tend to find institutional channels and formalized methodologies to interact with the knowledge diffused through networks existing outside the organization. Even when organizations tend to primarily rely on their global internal network to promote innovation, they still tend to access external design consultants to bring new knowledge and experience inside the corporation.

An example of design as a knowledge integrator is provided in Table 3.

1.2 Design as a knowledge broker

The second context relates to projects oriented towards the development of mature products created by companies with only a local operation, in this case chosen among Italian companies in fashion, furniture, and lighting sectors. The cases investigating the development of product innovation are based on mature and diffused technologies, which are locally well known, easily available, and often geographically concentrated in industrial districts. These products are characterized by continuous incremental innovation based on the cultural meaning that local communities attribute to artificial environments.

The organizational model of local companies is characterized by small and medium organizations with externalized processes integrated through formal and informal relationships. This fragmented but highly integrated

Table 3 Global corporation example—Philips case study, Platinum Ultrasound Scanner

The Ultrasound Scanner developed by Philips in 1984 is an example that illustrates some of the concepts previously presented about the contribution of design for innovation in global corporations. Philips found itself in 1984 with aging products in the medical system market whose needs and preferences were evolving in new directions. Confronted by a decreasing market share, Philips needed a new and innovative product in order to regain a position at the high-end market. As a response the Philips Ultrasound division located in Santa Ana, California, USA, developed a total reworking of design and technical capabilities, leading to the Platinum Ultrasound Scanner. The product combined state-of-the-art imaging and expanded capacity for data analysis with reduced size and greater mobility. The design contribution for this project involved access to user's community knowledge by observing and analyzing actual conditions of use of the existing equipment in a number of hospitals, which identified mobility as a crucial dimension. The design solution was a radically new concept composed by a floating console on which the controls and monitor could be easily manoeuvred over and around the patient. In addition, in order to enhance organizational knowledge the design team applied visual representations of abstract concepts as a key factor for expediting the development process and moving the project forward at every stage. The design team developed numerous iterations of sketches and 3D cardboard models to be used to communicate the new product concept and facilitate the negotiation inside the company with Philips engineers, as well as outside with end users such as ultrasonographers and doctors. The application of a monitor using new technology is an example of how the design team used networked knowledge to develop the product innovation. The new technology was a flat screen, 13" colour monitor with excellent black and white imaging that offered superior features at no greater cost than the conventional monitor, which has never been used in ultrasound applications. These contributions of the design team from Philips is an example of how design in global corporations acts primarily as a knowledge integrator to promote the negotiation and creation of knowledge among organizational functions and knowledge domains to support the development of innovation.

structure promotes an intense and decentralized flow and sharing of knowledge inside a local community of producers, and suppliers. This structure provides local companies with the possibility of relying on the tacit and informal knowledge generated inside the so-called 'industrial districts' in which local companies operate¹²⁻¹⁴. In this context knowledge circulates through informal partnerships, and resources are highly integrated though informal and decentralized connections.

12 Garofoli, G *Modelli locali di sviluppo* Angeli, Milano (1991)

13 Pike, F and Sengenberger, W *Industrial district and local economic regeneration* IIs, Geneva (1992)

14 Becattini, G *Distretti industriali e made in Italy* Bollati Boringhieri, Torino (1998)

In Italy, the same structure characterizing an industrial district can also refer to the professional service sector. The city of Milan, for example, provide a context that can be defined as a 'service district' because of its high concentration of services in a limited geographical area. This context is a flexible environment promoting an intense circulation of ideas and

information among professionals, enabling continuous generation and diffusion of new knowledge.

The relationship between industrial and service districts, which together create a so-called ‘systemic area’¹², has been a key factor in creating an environment that facilitates as well as promotes entrepreneurial initiatives. The small size of local companies, the flexibility of management structures, and the local availability of technological solutions and knowledge about mature products have historically provided the conditions for entrepreneurs to start new businesses. In a systemic area, outsourcing capabilities and informal knowledge circulation is the main competitive advantage for developing product and business innovation.

Local companies, whose products are based on mature technologies, tend to develop business strategies oriented to create product innovation based on attributing new meaning for existing products. In this case, design is responsible for capturing and representing the knowledge embedded outside the organization in ‘users’ communities’ and ‘local networks’ and then structuring the internal organizational knowledge to support the development of incremental innovation. In this context, design acts primarily as a ‘knowledge broker’ promoting knowledge flow from outside to inside organizations. The knowledge diffused outside is internalized as a strategic resource for developing incremental innovation on products meaning and functions, based on the social and cultural trends generated by users’ communities.

In order to access the knowledge possessed by users’ communities, design is used to externalize the implicit knowledge shared among a community of users of ‘everyday life’ products such as furniture, home fixtures, clothes and accessories. These goods are part of a specific group of products that traditionally have expressed the care of Italian culture for the quality of artificial spaces. In these products, innovation has historically migrated from functionality and technological capabilities—attributes that have turned into commodities—to cultural and social affordances based on the symbolism of artificial spaces and social interaction. In this context designers create innovative concepts accessing the implicit understanding about products’ functions and meaning, shared inside their cultural community. They apply what can be called an implicit process of ‘participatory observation’, experiencing the product from the user point-of-view and interacting with it in a social context. In other words, they envision new cultural and symbolic attributes for existing products based on ‘prototyping’ potentially different or new social behaviours. This implicit capacity of designers to access knowledge relating to users’ community and mature products,

can also explain the lack of formalized user studies methodologies in local companies.

In local companies the role of design in accessing organizational knowledge is unique. That is because in Italy, historically, many designers have been also entrepreneurs, which explains the tradition of applying design competencies for managing resources and driving strategic business decisions. However, the small dimension of local companies, their simple functional structure and the 'natural' involvement of design inside processes have prevented the development of structured and replicable methodologies and formal design policies inside local companies. In this context, design acts 'naturally' and informally as a broker of knowledge in users' communities and networks for organizing and adapting business processes to support the development of innovative product concepts based on potential or emerging social and cultural changes. Therefore, in local companies design can be defined as the driving force that structures organizational knowledge in order to promote innovation.

In local companies, network knowledge is a main source for design innovation. In the last 30 years Milan has become well known as a 'design service centre' because of its high concentration of professional design services. These are often connected through informal relationships and create networked design organizations that cooperate and compete at the same time. Moreover the relationship between industrial production and professional services is an important informal channel of knowledge exchange, in which design consultants play a major role of generating and diffusing knowledge among many companies. In fact design uses this informal arena of information exchange to capture and diffuse new knowledge such as technological solutions, professional expertise, new processes and suppliers.

In addition, designers take advantage of the local design 'set' to test and evaluate new concepts and products, attracting through formalized events a larger community of experts. Specialized fairs and exhibitions are opportunities that designers and businesses use to interact with the whole community involved in the general process of studying, developing, communicating, validating and commercializing new products. The benefit of these events, besides their media and commercial purposes, is the interaction between many different design expertises and the consequent generation of new insights through informal knowledge exchange. For example, the annual Milan furniture fair attracts producers, suppliers, designers, distributors, architects, and media from around the world to promote formal and informal connections and cultural debates. In this scenario, design acts as

a director, staging new concepts and visions of product evolution and creating an arena to evaluate, challenge, and diffuse potential innovations. An example of design as a knowledge broker is provided in Table 4.

2 Conclusion

Analysis of the 30 cases supports the proposition that design is a multi-functional activity, that can be combined in many different ways in order to adapt to distinctive corporate strategies, organizational structures, and 'contextual infrastructures'.

Table 5 illustrates that in global corporations design activities are concentrated in accessing organizational knowledge. As knowledge integrator

Table 4 Local company example—Artemide case study, Metamorfofi

Metamorfofi is a lighting fixture developed by Artemide starting from 1995. It is not a traditional light appliance but a kit composed by four halogen lights which through coloured filters and an electronic modulation of energetic flows that can be integrated to create different lighting atmospheres, recorded by an 'intelligent mechanism' of control. The first concept of this product started from an intuition by Ernesto Gismondi, a designer and Artemide entrepreneur. He detected a shifting of users attention from lighting appliances to the perceptive attributes that they can provide to artificial environments. The perceptive quality of environment is detected as a users' value, which overcame the qualities of the 'object', which provide the light. From this implicit insight about social trends a team composed by design professionals close to Gismondi created the final concept of the product. The goal was to develop a system able to reproduce the natural characteristics of light, including its changing nature, giving users the power of controlling and changing it, according to their psychological conditions. Starting from his insight, Gismondi selected and managed design resources to transform the product concept provided by the design team into a design and business strategy: from the idea of the new product emerged the vision of 'Human light'. The new products required technical solutions that the business did not have. Thanks to the collaboration with two local companies, which were part of the suppliers network, Artemide developed a new electronic system that was able to control energetic flows and provide a memory to record lighting atmospheres. For the first time Artemide used electronic components in its products, but this new technological knowledge has also been used in the last years to improve many other products of the catalogue. The vision Human light that originally drove the organizational goals for the development of Metamorfofi, was lately also applied to reorient the whole business strategy of the company. This new vision became the guideline for the development of the new products since 1998. The development of Metamorfofi is an example of a non-linear product innovation process. The product innovation was the result of continuous exchange between designers close to Gismondi that changed and improved the initial concept. The first prototype of Metamorfofi was presented at the Furniture fair in 1996. After the first presentation an intense cultural debate challenged Artemide's new strategy involving designers, experts from different disciplines, media, giving fundamental feedback for the final products. The product was available in the market only in 1998¹⁵.

15 Zurlo, F, Cagliano, R, Simonelli, G and Verganti, R *'L'innovazione 'design driven': la specificità italiana. Il caso del settore dell'illuminazione,'* Sole 24 Ore, Milano (2001)

Table 5 Mapping design activities accessing the three knowledge domains in the case studies

	<i>Global corporations</i>															<i>Local companies</i>														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Users' community																■														
Behavioural prototype																														
Participatory observation																■														
Behavioural studies																														
Human factors studies																														
Design concept																														
Design management																														
Design strategy																														
Design policy																														
Encoded research																														
Technology brokering																														
Expertise exchange																														
Expert interaction																														

design mediates the knowledge created and negotiated among different functions promoting knowledge flows from inside the organization to outside, as a process of negotiating solutions between the company and users. In local companies design activities are concentrated in accessing users' and network knowledge. In this case, design acts as a knowledge broker, promoting an inverse knowledge flow from outside to inside organizations. Through design, companies access the knowledge needed to structure its business processes in order to develop products according to social and cultural incremental changes.

The main purpose of this study is to challenge the limited and univocal understanding of 'the design process'. From this study it is possible to promote a different vision of design as a knowledge process capable of adapting to specific contextual factors. Through this perspective the main challenge for designers and managers is to be able to apply design strategically to access the knowledge embedded in users, organizations, and networks in an effective process to promote and support innovation in any given context. The present study analyzed just two among the many different contexts in which design, as a knowledge agent, can potentially contribute to developing product and business innovation. An interesting research activity would analyze other contexts and successful strategies identifying other ways of applying design activities to promote innovation. Studies about Asian or Silicon Valley companies would probably highlight different combinations of contextual factors and design strategies which might be worth investigating.

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Notes

¹ The case studies compared in this research were developed by two main institutions in design research, the Design Management Institute in Boston and the Polytechnic University—SDI Agency in Milan. Below the list of the cases. Design Management Institute (DMI), Executive Summary Case Study. Boston: Design Management Institute Press, 1990–1997. The executive summary case study comes from the case study program at the Design Management Institute's Centre for Research. The Centre conducts research and develops educational materials on the role of design and design management in business success. The 15 case studies analyzed here are: (1) AB Bahco: The Ergo Screwdriver; (2) Black & Decker: The Spacemaker Plus; (3) Braun: The KF40 Line of Automatic Coffeemakers; (4) Canon: The EOS 35 mm Camera; (5) CKD: The Selex C4000 Pneumatic FRL (Filter, Regulator, Lubricator); (6) Dictaphone: Exec Picocassette portable Dictation Recorder; (7) Digital Equipment Corporation: The VT320 Video Text Terminal; (8) Erco Leuchten GmbH: The Axis and Gantry lighting Systems; (9) Nautech: The Autohelm SeaTalk Tridata Navigational System; (10) Philips: Platinum Ultrasound System; (11) Sharp: Fashion Calculators; (12) Sony Corporation: The Walkman WM-109; (13) Texas Instruments: The Voyager; (14) Yamaha: The WX-7 Wind MIDI Controller; (15) The Black & Decker Corporation: Compact Power—Innovation in the Cordless Professional Drill and Driver Market. Sistema Design Italia (SDI), Rapporto finale di ricerca. Milano, 1998–2000. The Rapporto

finale di ricerca come from the Research "Il ruolo del disegno industriale per l'innovazione di prodotto. Sviluppo delle risorse progettuali del Sistema-Italia tra risorse locali e mercati globali" founded by the Italian Ministry of University and Scientific and Technologic Research. The research has been developed by Sistema Design Italia (SDI), a Research Agency for promoting and developing Italian Design System, supported by Polidesign, Politecnico di Milano University. The 15 case studies analyzed here are: (1) Piaggio: Vespa; (2) Slam: Giacca Classic; (3) Kappa: Basic Net; (4) North Sail: North Boat Sandal; (5) Magis: Air chair; (6) Heron Parigi: Quarto; (7) Fiam: Gost; (8) Abet: Abet laminati; (9) Flos: Lastra; (10) Castaldi: Minisolia; (11) Nemo: Leo; (12) Artemide: Metamorfosi; (13) Cini&Nils: Tenso. (14) Luceplan: Titania; (15) Artista Visitatore: Luxor.