The Hidden Side of Design: 
The Relevance of Artisanship
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Design Mysteries Become No Mysteries
The concept of “industrial atmosphere,” elaborated by Alfred Marshall,1 plays a crucial role in explaining the link between geography and innovation.2 Clusters and industrial districts benefit from the access to a common pool of skilled workers and to new ideas that easily circulate among the firms and the professionals who share the same local context and socio-cultural background. Indeed, Marshall affirms that “mysteries of the trade become no mysteries, but are, as it were, in the air, and children learn many of them, unconsciously.”3 Knowledge, although tacit and socially embedded, is in the air, freely available to professionals and firms within clusters and industrial districts. Interactions among local actors are facilitated by physical proximity and shared local culture. “Being there” (located in a cluster or industrial district) is a necessary, although not sufficient, condition for absorbing and exploiting tacit knowledge.

“Industrial atmosphere” has been used to interpret the diffusion of tacit knowledge among small and medium firms. The flexible specialization in traditional industries,4 such as textile, fashion, machineries, and furniture, and the peculiar organization of Italian firms into industrial districts (at least in the center-north of the country) were an important counterpart of the work of the most important Maestri of Italian design. Not by chance, designers such as Achille Castiglioni, Michele De Lucchi, Vico Magistretti, Marcello Nizzoli, Aldo Rossi, Richard Sapper, and Marco Zanuso (just to name a few) worked closely with firms that were based within these industrial districts. The extraordinary creativity of Italian designers met the flexibility and sensitivity of local entrepreneurs who were keen to differentiate their products through the lenses of quality and esthetics. The Milan area was the epicenter of this phenomenon, where a specific mix of designers, based in the city center, came together with firms located in the suburbs of Brianza (where an important furniture district is located). Tacit knowledge ran fluidly in the relations among the designers and entrepreneurs, as well as among firms within the district.

3 Marshall, Principles of Economics.

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Marshall, we could say that the “design in the air” is deeply rooted in the socio-cultural context and supported by physical proximity. Although the concept of industrial atmosphere seems fascinating and able to explain the richness of relationships among designers, product developers, and industrialists, more than simply the “air” is at the base of how design was and is developed. We argue here that a misunderstood and poorly studied role of artsanship is crucial in explaining the quality of design. Making things as artisans do is a fundamental phase of the design process: This is what we define the hidden side of design. We explain our concept by describing the unknown experience of the bottega (workshop) of Giovanni Sacchi.

The “Unknown” Story of the Bottega of Giovanni Sacchi

Giovanni Sacchi was an artisan. He was trained as a specialized mold-maker and worked for several years in the steel industry. After World War II, he opened a workshop in Milan and focused his work on the development of models, mainly—but not exclusively—in wood. His workshop became a point of reference among the most remarkable designers of his time, who worked closely with Sacchi to develop their projects and ideas. In fact, Sacchi was not a blue-collar worker but an artisan who was able to transform the ideas of designers into three-dimensional prototypes with his hands. In doing so, he put all his mastery and his knowledge of materials and industrial processes into the work, developing and refining models for the designers not just as a simple executor, building something following external directions. Instead, as several Maestri of Italian design witnessed, Giovanni Sacchi had the capabilities of understanding the essence of a creative project and using all his practical experience to improve it. Developing a prototype with Sacchi was an iterative process that required several interactions between the designers and the artisan. Producing the final prototype that was used by the designer to present her work to the company usually took a long time. This time was used to change, adjust, and refine not only the project but even the original idea. The final design was a synthesis of the invention of the designer and the artisanship of Sacchi.

Sacchi’s bottega is now closed but has become a museum. Visiting it is a journey into the history of modern design. For example, you may see the Cupola coffee maker designed by Rossi, just next to the wooden model created by Sacchi or the prototypes of the Brionvega television designed by Sapper and Zanuso. The wooden models collected in Sesto San Giovanni, where the museum is located, are there to remind us of an important lesson: Much of the success of Italian design has its roots in

6 Ibid., 104-08.
the original combination of the designer's creativity and the artisan's know-how. Both contributions display creativity and knowledge in their own respect, even though they belong to different epistemic realms.

A New Epistemology for Design

A simplified view of the design process could distinguish between a creative phase (which should take place “in the head of the designer”) and an implementation phase (which relies on the manual and technical skills of the artisan). Sacchi’s story offers a richer perspective. The video interviews and the documents available at the museum point to the artisan’s active role in shaping the final output, thanks to an original contribution based on a mix of heterogeneous forms of knowledge. His profound expertise about material, his ability to anticipate technical issues regarding the scaling up of the production, his competence in understanding consumer behavior, and his obsessive attention to detail—are all traits of his outstanding professional profile that have been widely recognized and appreciated. The fil rouge, or common thread, that links all these aspects of Sacchi’s expertise emerges in the process of making: Translating a two-dimensional project into a three-dimensional prototype requires the mastery of a complex practice that combines the elements mentioned.

Academic research has already highlighted the complexity of human knowledge, distinguishing between abstract, embodied, and distributed knowledge. In the field of cognitive sciences and artificial intelligence, the well-established concept of human cognition as a fully rational process based on codified knowledge (symbols) and a formal set of rules (models, heuristics, routines) is under question. As Michael Anderson pointed out in the journal, *Artificial Intelligence*, an increasing number of scholars and researchers focus on a different approach of human cognition.\(^7\) From this perspective, cognition is strictly related to the physical experience and the structure of human senses and perceptions. The result of several experiments of artificial intelligence, where robots failed to deal with a dynamic and context-sensitive environment, led to the elaboration of a new idea of cognition that takes into account the physical action and not just abstract symbols. Embodied cognition “focuses attention on the fact that most real-world thinking occurs in very particular (and often very complex) environments, is employed for very practical ends, and exploits the possibility of interaction with and manipulation of external props.”\(^8\) The consequence of this approach is that the separation between the rational mind (based on abstract representations and a formal set of rules) and the irrational body (based on

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senses and experiences) that characterizes the cognitivist theory is declining. As Lakoff and Johnson pointed out about the features of embodied cognition:

This is not just the innocuous and obvious claim that we need a body to reason: Rather, it is the striking claim that the very structure of reason itself comes from the details of our embodiment [...]. Thus, to understand reason, we must understand the detail of our visual system, our motor system, and the general mechanism of neural binding.9

The concept of embodied cognition overlaps with situated cognition elaborated in the social sciences. In fact, situated cognition points-out the substantial inseparability between the act of knowing and doing. In particular, the work of Jean Lave clarifies that knowledge is contextualized within physical, social, and cultural activity. From this perspective, the focus shifts from the individual brain to dynamic interactions among brains within the complexity of social and cultural relations.10 Cognition is not an abstract process but is a practical one in the sense that it happens in the interaction with the real world and with other people and is grounded in social and cultural contexts. Therefore, learning is not an isolated and individual process but is social and based on practice. Lave and Wenger point out the relevance of a community of practice in sustaining the production and diffusion of knowledge.11 Legitimate peripheral participation (LPP) is the process that characterizes the level of involvement of the members in the community and represents their progress in learning. The position of the member (moving from the periphery to the core) represents the community’s recognition of the member (modified) in terms of practice and knowledge. What in fact triggers the learning process is the need to belong to the community.

John Seely Brown and Paul Duguid studied communities of practice in the context of large corporations.12 In their research they discovered that the professional profiles of the best performers in the firm included a practice of sharing information and knowledge with other colleagues. In particular, they discovered how photocopier technicians interacted and talked about their experiences and the problems they faced in their daily job with other technicians through informal and unplanned (from the corporation perspective) meetings. This finding led to a review of training within the company to consider how doing and knowing are closely related in practice. As Brown and Duguid summarized, “[k]nowledge runs on the rails laid by practice”—meaning that abstract learning is far more difficult and less effective than learning through practice.13

Design as a discipline has dealt with this issue in more recent times. Paola Antonelli focuses on the idea of thinkering, originally proposed by John Seely Brown, as a new perspective for

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Thinkering “… is, of course, brought to life by the act of tinkering productively, experimenting, testing, retesting, and adjusting, and all the while enjoying it, with many like-minded spirits and engaging with the world in an open, constructive collaboration with colleagues and other specialists.”

This new perspective aims at taking into account a new model of innovation proposed by the world of open-source software and, more generally, communities of practice. Design is not just the result of lonely genius but of the work of several subjects who share common practice and interest. On the basis of Antonelli’s proposal, design is an act of making within a community of practice; here, the traditional borders between the designer and the user are blurred to the extent that the user potentially becomes the designer of her own products through (online) collaboration and continuous experimentation in practice.

For Tim Brown, CEO and president of IDEO and globally acclaimed designer, design thinking “… is inherently a prototyping process. Once you spot a promising idea, you build it. In a sense, we build to think.” Making is a form of thinking; only by making can designers clarify (even to themselves) their ideas and put them to the test, generate feedback, and improve their project. Jonathan Ive, commenting on Apple’s approach to design, says that:

The best design explicitly acknowledges that you cannot disconnect the form from the material—the material informs the form. It is the polar opposite of working virtually in CAD to create an arbitrary form that you then render as a particular material, annotating a part and saying “that’s wood” and so on. Because when an object’s materials, the materials’ processes, and the form are all perfectly aligned, that object has a very real resonance on lots of levels. People recognize that object as authentic and real in a very particular way.

As Ive proposes, the authenticity of the product comes from an intimate knowledge of the materials from which it is composed—a kind of knowledge that is tacit and requires embodiment. The work of Sacchi did anticipate the request of quality and authenticity that excellent design needs.

More Than an Exception
As suggested, Sacchi was far from being an exception. In the Brianza district—one of the most important Italian furniture districts, situated close to Milan—a number of similar artisans have played a crucial role in determining the success of many well-established Italian design brands. Similar examinations can be made of other industries generating the so-called Made in Italy products. For example, an equivalent effort in translating the ideas of the designer into physical products transformed can easily be...
identified in the fashion business. Tommaso Acquilano and Roberto Raimondi, designers of the maison Ferré from 2008 to 2011, described in a public discussion on the heritage of the brand their astonishment at the differences between the drawings of Gianfranco Ferré (that are now stored in the archive of Fondazione Gianfranco Ferré) and the final dresses presented on the runway. The difference between the dress on paper and the dress in practice is the result of the translation conducted by the tailors of the maison. In fact, the interaction between Ferré’s original ideas and the artisanal work of tailors was a very important component of the creative process. As Acquilano and Raimondi make clear, these tailors not only are extraordinary artisans but are the memory and the living soul of the brand because of their incredible work with Ferré in the past.

In the machinery business, similar profiles have generated an original mix of technical expertise and a peculiar problem-solving approach. In Italy, the term “tecnici” (“technicians” in English) has largely replaced the term “artisan” in many of these businesses. This newer term overshadows the constant effort these crucial “technicians” put forth in the dialogue with artifacts and the material they are dealing with. The anthropologist Claude Lévi-Strauss has summarized this peculiar ability to interact with the world, picturing the “bricoleur” as “someone who works with his hands and uses devious means compared to those of craftsman.” In The Savage Mind, Levi-Strauss introduces the figure of the bricoleur to point out the relevance of magical thought as a form of reasoning and knowledge acquisition that is different from (although complementary to) scientific thought. Comparing the engineer (as representative of science) and the bricoleur (as representative of magical thought), Lévi-Strauss affirms that “the engineer is always trying to make his way out of and go beyond the constraints imposed by a particular state of civilization, while the ‘bricoleur’ by inclination or necessity always remains within them.” Literally, bricoleur uses pre-existing tools and materials that they have at hand in ways and for purposes they are not necessarily designed for. She reorganizes and re-uses the artifacts that are around her without following a step-by-step process but by adapting to the limitations of the context. The engineer is the expression of the objectivity of science; the bricoleur is the expression of subjectivity:

The ‘bricoleur’ also, and indeed principally, derives his poetry from the fact that he does not confine himself to accomplishment and execution: He ‘speaks’ not only with things, as we have already seen, but also through the medium of things: giving an account of his personality and life by the choices he makes between the limited

18 Ibid., 19.
possibilities. The ‘bricoleur’ may not ever complete his purpose but he always puts something of himself into it.\(^\text{19}\)

Artisans working in industrial districts can be represented as communities of practices, rooted locally, where people know each other and chat about their work in mundane or occasional events. Julian Orr, anthropologist working at Xerox, described chats among practitioners at restaurants and bars not as a waste of time but as part of the crucial process of social interaction and knowledge building.\(^\text{20}\) The informality of the meetings and the storytelling led to a form of narration that helps professionals to share past experiences (and to have a collective memory) and to elaborate new ideas.

From this perspective, the community of practice plays an import role: replicating and transforming a body of knowledge that formal training, including the type of training provided by universities and local colleges, has largely underestimated. Learning takes place trough “legitimate peripheral participation” (LPP), the process defined by Lave and Wenger in which the novice is at the periphery of the community,\(^\text{21}\) and at the core are the experts. Identity is the engine that drives the learning process: The more you can handle a given practice, the more you are recognized as a legitimate member of the community.

The Evolution of the Relationship between Italian Design and Artisanship

How can we benefit from the artisanship that is embedded in Italian industrial districts?

The answer to this question is not a simple one. It varies over time. We argue that three phases can be distinguished in the evolution of the relationship between design and artisanship in Italy. In the emerging phase of the early 1970s, the most frequently formed relationship combined a generation of entrepreneurial artisans who had a talent for running small businesses with a pool of gifted designers who had a critical approach to mass production and capitalism. The ability to run a small-scale production system (as is well documented by Piore and Sabel in the book, *The Second Industrial Divide*) was complemented by a new sensibility for products that had to stand out from the homogeneity of the mass market.

An archetypal example of this combination of entrepreneurial artisans and designers is Artemide, a world-renowned brand in lighting. Ernesto Gismondi, although an engineer, usually defines himself as a “metalmeccanico,” a blue collar worker, for his knowledge of how to use materials (e.g., plastic, steel, and aluminum) and how to put his hands on the mechanical part of the lighting.

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19 Ibid., 21.
In an interview for “Lezioni di Design,” a television program produced by Radio Televisione Italiana (RAI), the publicly owned Italian Broadcaster, Gismondi discusses his point of view on design: “We do want to design for the well-being of (humans); this is the only thing that we have clearly in mind. It is very easy to produce lighting machines; it is harder to achieve (human) welfare. Not just at home, where (people) can turn lights off or watch TV, but during daily life, in the office, at work, the hardest conditions ever. And this is where we think welfare is needed.” www.educational.rai.it/lezionididesign/designers/GISMONDI.htm (accessed June, 2012). For a more general perspective on entrepreneurship in Italian small and medium enterprises (SMEs), see Marco Bettiol, Eleonora Di Maria, and Vladi Finotto, “Marketing in SMEs: The Role of Entrepreneurial Sensemaking,” International Entrepreneurship and Management Journal 8 (2012): 223-48.

Artisanal excellence was a key factor in translating very preliminary projects—often just sketches—into products ready for the final market. Starting in the mid-1990s, this model changed. The diffusion of a more industrialized process, the necessity of increased quality in production, and the respect of international standards changed the relationship between design and artisanship. Although Italian companies rarely compete in the mass market, the production scaled up and went beyond the production of unique pieces. Firms started to grow in terms of both turnover and personnel; managerial functions acquired more relevance, contributing to a new idea of quality and value. Design has reached a more industrial dimension and is more structured within the companies, as well as in all the phases of the innovation process. Product innovation is far more complex than in the early, heroic days of Italian design, and companies need to address different requests from the market: Aesthetics is important but is not enough per se; consumers are looking for meanings and communication. Marketing and branding become the means to defining the identity of a product and influence the design process.

In this new context, the relationship between designers and artisans is more mediated. Artisans are still present in the product development process, even though their contribution is limited to specific phases (e.g., first prototyping and size development). Their skills have gone through an important “upgrading” process as they have had to deal with new technologies like CAD and 3D...
Design and artisanship in a mass customization scenario.

Printers with rapid prototyping. The designers also have changed their role in the value chain: They exercise their creativity not in isolation but among a team of other professionals that includes engineers, product managers, and marketing managers, where the ideas are analyzed and enriched.

This description applies to several medium-sized Italian firms that have reached an international dimension. Companies like Geox (shoes), Dainese (suits for motorbikes), and Tecnica (ski equipment), just to name a few, were able to incorporate the quality of the artisan and the ideas of the designer into products that are manufactured globally on a large scale and sold through an international distribution network via owned shops or franchising.

Although much of the artisanal competence of traditional industrial districts has been integrated into the multidimensional innovation process and embedded within the boundaries of these new mid-size organizations, artisans still play a crucial role in a variety of other different situations. The problem of combining the requests for personalization from the final user with the necessity of scaling up the production process is solved with the contribution of artisans specialized in product modification. Artisanship, in fact, is now a crucial resource in modifying and adapting standardized products according to customer needs. The role of artisans is not antagonistic to industrialized production processes, but—instead, is complementary to them. They create value by filling the gap between end-of-pipe products and customers’ expectations. Many well-known kitchen brands, such as Valcucine or SCIC, are now allowing their final customers to ask for specific customizations, which are guaranteed by qualified artisans who work in strict cooperation with the firm. Their contribution is more than a simple recombination of already existing modules. They translate into practice what emerges from a rich interaction process between customers, architects, and the people in charge of operations.

More recently, a new generation of designers has become increasingly involved in the process of making limited series (“autoproduzione” in Italian). In Italy as well in many other European countries and in the United States, these “makers” have been fascinated by the new mix of traditional and innovative production techniques available on the market and have been
attracted by the opportunity to establish a new dialogue with the final customers through the Web. A series of new e-commerce platforms and dedicated portals now allow independent designers/producers to present and sell their product without investing significant resources in the creation of a distribution network. For many niche products, such as single-speed bikes or accessories, this emerging production model is becoming more and more popular. An example in this perspective is Italia Veloce, a new venture that was founded in 2009 by Christian Grande, a car designer by training, and two partners. Their idea was to produce an old-fashioned bicycle with a strong character and unique style. They recycle used bicycle frames and refurbish them into new models, adding distinguished and handmade details (e.g., a handlebar covered with an old-looking rope). Clients can customize their own bicycle in every single element (from the saddle to the crankset) via the website, for which a product configurator was developed.

Quite differently from the first generation of Italian designers, great attention is put on branding and communication. This new generation is more aware of the requests of the consumer in terms of meanings and is invested in storytelling and brand identity as a central part of the design processes. From this perspective, artisanship is clearly stated as an added value and the soul of the product. In very general terms, such changes represent the evolution of both design and artisanship in the Italian scenario.

Not Just for Italians: Design and Artisanship in the Contemporary Economy

The relationship between design and artisanship is not just an Italian phenomenon but is a more horizontal and broader process in the contemporary economy. In his book, *The Craftsman*, Richard Sennett reflects on the renewed importance of artisanship in our society. In fact, Sennett describes craft as “the desire to do a job well for its own sake.” He argues that this concept is broader than skilled manual labor; it could be applied, for example, to a computer programmer who spends time and effort improving the source code of the software, not only for a practical output but also to fulfill an esthetic imperative in terms of the quality of the job she is doing. Passion and love for details are the key elements of a new approach to work that encompasses contemporary design.

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Attention to details and the pursuit of esthetic quality characterized Steve Jobs’ approach to design and innovation in the creation of best-selling products like the iPhone and iPad. In the biography by Walter Isaacson, Jobs points out the features of the Apple design process and the work done with Jonathan Ive: the continuous production of prototypes and the review of the products, even up until the last few hours before the launch, to achieve the perfection Jobs had in mind. This obsession applied also to the parts of the product that are not visible to the final consumer. In fact, Jobs wanted Apple’s engineers to design beautiful and not only technically sound products, even as far as the disposition of the microprocessors on the motherboard of the digital device. This perspective is synthesized by the famous statement: “Finish the back of the drawer.”

Michael Gladwell, in his review of Isaacson’s biography in The New Yorker magazine, defines Steve Jobs as a tweaker and not a proper inventor. On the basis of the work of economists Ralf Meisenzahl and Joel Mokyr (2011) on the development of the first industrial revolution, Gladwell emphasizes this artisanal approach that characterized Jobs as an entrepreneur and designer. He compares Jobs to the historical figure of Richard Roberts, “a master of precision machine tooling—and the tweaker’s tweaker,” who re-adapted and re-adjusted the invention of the spinning mule invented in 1779 by Samuel Crompton and created the “automatic” spinning mule. Artisans like Richard Roberts, as Meisenzahl and Mokyr argue in their paper, developed the “micro inventions necessary to make macro inventions highly productive and remunerative.” This definition of tweaker and of Jobs resembles with the words of Levi-Strauss on the bricoleur as a figure who plays a crucial role even in the case of mass production.

Beyond mass production, the emerging phenomenon of “makers” is now emphasizing the combination of design and artisanship. Based on the convergence of both the diffusion of digital technology and the decreasing costs of 3D printers, making products is easier and more affordable, at the level of a single person. Chris Anderson writes in Wired magazine of seeing in this convergence the sunrise of the next industrial revolution. The final consumer, through collaboration with peers and the use of digital technologies, can access the knowledge and the technical expertise needed for designing and producing customized objects to suit her needs. Far from mass production, the phenomenon of the “makers” emphasizes personalization and involvement in the development and even in the realization of the product, via online collaboration as well as the availability of 3D printers. Design and artisanship are not specialized roles and do not involve defined professional figures but are distributed across the web of interactions among people interested in the production of a specific item.

29 Jonathan Ive, in a recent interview in the English newspaper, The Telegraph, affirms that “[o]ne of the concerns was that there would somehow be, inherent with mass production and industrialization, a godlessness and a lack of care. ... We’re keenly aware that when we develop and make something and bring it to market that it really does speak to a set of values. And what preoccupies us is that sense of care, and what our products will not speak to is a schedule, what our products will not speak to is trying to respond to some corporate or competitive agenda. We’re very genuinely designing the best products that we can for people.” (www.telegraph.co.uk/technology/apple/9283486/Jonathan-Ive-interview-Apples-design-genius-is-British-to-the-core.html). The care Ive is talking about is the passion and love of an artisan for his work, which is “the desire to do a job well for its own sake” to which Sennett refers (ibid. 9).
In large corporations such as Apple, as well as in small manufacturers like Local Motors, the independent car maker Anderson gives as an example of indie capitalism we are entering, artisanship still represents a key factor in strengthening the quality of design processes. From this perspective, the Italian lesson can contribute to a deeper understanding of design management and its implications.

**Future Research**

Our paper is mainly theoretical and is based on the experience of Italian design, and we recognize that our approach has limitations. Further research needs to be done to analyze empirically the concepts that we engage in the paper. In addition, a comparison of the Italian scenario with other international experiences based on the role of artisanship in industrial design should be carried out.