Design-Driven Innovation

An Introduction

EXCERPTED FROM

Design-Driven Innovation:
Changing the Rules of Competition by Radically Innovating What Things Mean

BY

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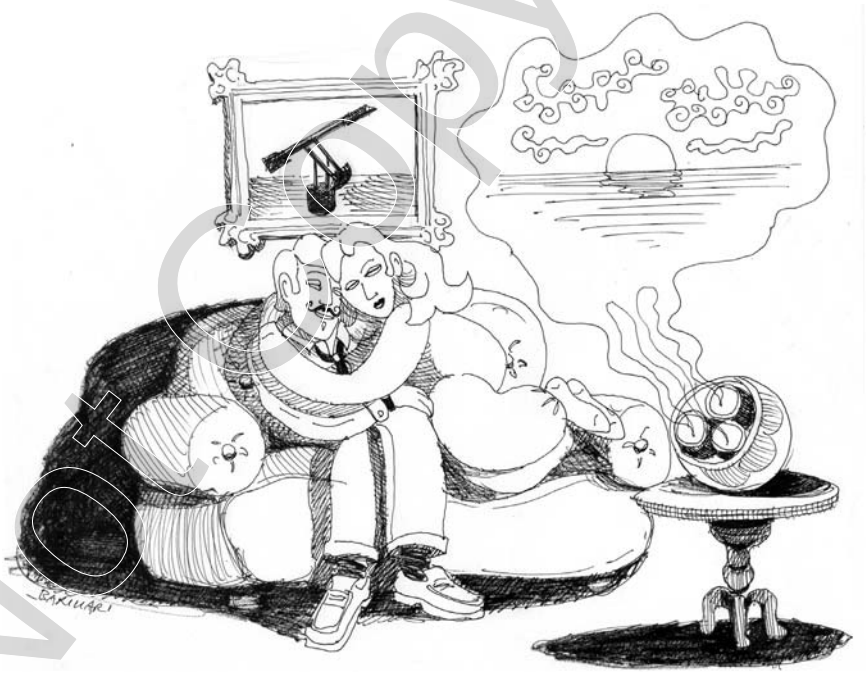
DESIGN-DRIVEN INNOVATION

[An Introduction]



With Metamorfosi, Artemide had completely overturned the reason why people would buy a lamp. Not another beautiful lamp, but a light that makes you feel better. It had radically changed its meaning. [IN THE ILLUSTRATION On the table: Artemide's Yang lamp (of the Metamorfosi family); in the painting: Artemide's Tizio "task luminaire."]

Market? What market! We do not look at market needs. We make proposals to people."

Without another word, Ernesto Gismondi, chairman of Artemide, stared at the professor to see his reaction. A strong personality and a brilliant mind, Gismondi was not the kind of person to be in awe of a major scholar, even one from a well-respected U.S. business school. We were enjoying a steamy risotto alla milanese at the restaurant Da Bice right in the center of Milan. The dinner followed a late afternoon visit to Artemide, a leading manufacturer of lamps, where I had taken a group of professors interested in the innovation process of design-intensive Italian manufacturers. Gismondi, who had a bad case of flu, had invited us to continue the discussion over dinner. At a certain moment one of the professors, a leading scholar in the management of innovation, asked him how the company had analyzed market needs to come up with a product we had seen earlier during the visit: Metamorfosi.

Metamorfosi, released in 1998, was a unique product that one would hardly call a lamp. The lighting industry typically conceives of lamps as modern sculptures. People usually choose them according to how beautiful they are and how well they fit into their living rooms. Taking for granted that lamps illuminate, competition concentrates on style. And Artemide had been a main protagonist, having created beautiful icons, such as Tizio in 1972.

Metamorfosi, however, was completely different. It was a sophisticated system that emitted an atmosphere created by colored light, which could be controlled and adapted according to the owner's mood and need. Artemide's vision was that ambient light—especially its color and nuances—has a significant influence on people's psychological state and social interaction. The company therefore created a system that could emit a "human" light, a light that made people feel better and socialize better. The object itself was not even meant to be

seen. Artemide had overturned the reason people bought a lamp. It had radically changed its meaning.

The interest of the American professor in this unique product was therefore legitimate, and the way he framed his question inevitable. In the business community worldwide, and especially in the United States, the imperative for success is user-driven or user-centered innovation. According to these approaches, companies should begin an innovation project by analyzing market needs, looking closely at users. Executives, MBA students, and designers are told repeatedly that the first thing they must do is take photos of how customers use products, to understand their unsatisfied needs. No one would dare question user-centered innovation.

Ernesto Gismondi's answer, hence, was unexpected. It did not fall within the spectrum of answers the professor was contemplating (such as "Yes, we did some ethnographic analysis of people using lamps in their apartments and changing bulbs . . ."). It was so startling that the professor thought he had misunderstood because of the noise in the restaurant. Luckily, he did not ask the second question in his quiver ("Did you use brainstorming or other creativity-enhancing techniques?"), which would have provoked a similar answer. Instead he turned to another topic. Perhaps he thought Gismondi's temperature was getting too high.

Gismondi, however, was of sound mind and his answer was loud and clear. And it could not have been different, because it perfectly suited the innovation strategy he was pursuing with Metamorfosi: a radical innovation of meaning.

The Strategy of Design-Driven Innovation

Two major findings have characterized management literature in the past decades.

The first is that radical innovation, albeit risky, is one of the major sources of long-term competitive advantage. For many authors, however, the phrase *radical innovation* is an ellipsis for a longer construction that spells radical *technological* innovation. Indeed, investigators of innovation have focused mainly on the disruptive effect of novel technologies on industries.

The second finding is that people do not buy products but *meanings*. People use things for profound emotional, psychological, and sociocultural reasons as well as utilitarian ones. Analysts have shown that every product and service in consumer as well as industrial markets has a meaning. Firms should therefore look beyond features, functions, and performance and understand the real meanings users give to things.

The common assumption, however, is that meanings are not a subject for innovation: they are a given. One must understand them but cannot innovate them. Meanings have indeed intensively populated the literature on marketing and branding. And user-centered perspectives have recently provided powerful methods for understanding how users (currently) give meaning to (existing) things. But in studies on radical innovation, an examination of meanings has been largely absent. They are not considered a subject of R&D.

Innovation has therefore focused on two strategies: quantum leaps in product performance enabled by breakthrough technologies, and improved product solutions enabled by better analysis of users' needs. The former is the domain of radical innovation pushed by technology, and the latter of incremental innovation pulled by the market (see figure 1-1).

Artemide has followed a third strategy: *design-driven innovation*—that is, radical innovation of meaning. It has not provided people with an improved interpretation of what they already mean by, and expect from, a lamp: a more beautiful object. Rather, the company has proposed a different and unexpected meaning: a light that makes you feel better. This meaning, unsolicited, was what people were actually waiting for.

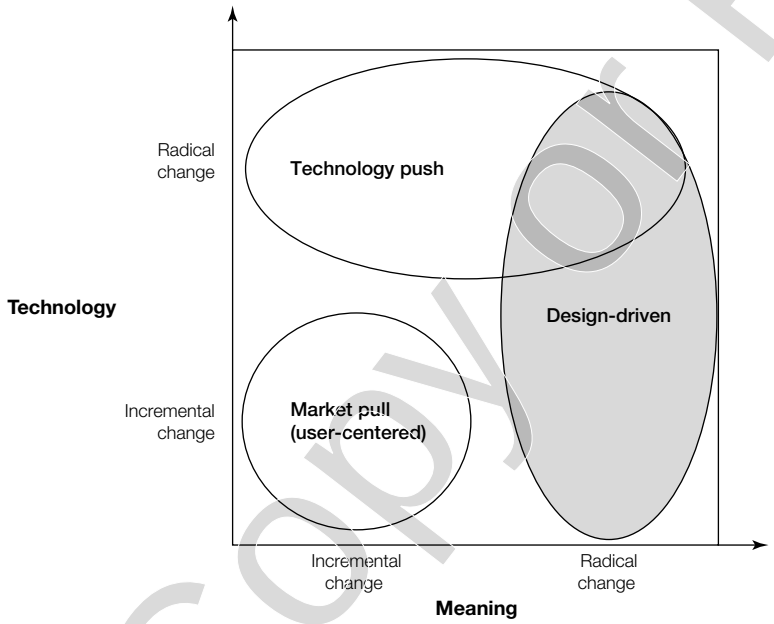
Competing Through Radical Innovation of Meanings

Artemide is by no means alone in this strategy. Design-driven innovation is at the heart of numerous success stories of products and firms.

In November 2006, Nintendo launched the Wii, a game console with motion-sensitive controllers that allows people to play games by moving their bodies. For example, they might serve tennis balls by

FIGURE 1-1

The strategy of design-driven innovation as the radical change of meanings



circling their arms overhead or play golf by swinging their arms. Up to the moment the Wii was introduced, game consoles were considered entertainment gadgets for children who were great at moving their thumbs; they offered a passive immersion in a virtual world. And indeed, Sony and Microsoft further reinforced this meaning by developing the PlayStation 3 and the Xbox 360, consoles with more-powerful graphics and performance. The Wii overturned this meaning: it stimulated active physical entertainment, in the real world, through socialization. The intuitiveness of its controllers made it easy for everyone to play. The Wii transformed consoles from an immersion in a virtual world approachable only by niche experts into an active workout for everyone. People did not ask for that meaning, but they loved it once they saw it. Six months after the Wii's release, sales in the U.S. market were double those of the Xbox 360 and quadruple those of the

PlayStation 3. And even though the Wii was much cheaper than its competitors, its profitability was much higher.

The late 1990s witnessed the birth of the first MP3 players: MPMan and Rio PMP300. They were meant as portable music players: more-powerful substitutes for the popular Walkman, which used old technology—cassettes and CDs—to carry tunes. These MP3 players changed the technology but left its meaning untouched: listening to songs away from home. Market response was lukewarm. Apple, in contrast, proposed a completely different vision: enabling people to produce their own music. Between 2001 and 2003 it released a *system* of products, applications, and services that supported a seamless experience of discovering, tasting, and buying music (through the iTunes Store); storing and organizing music collections in personal playlists (through the iTunes software); and listening to it through the iPod (which became simply *the* player, even in homes). The business that Apple built on this proposal was stunning.

In 1980 a team of visionary lovers of good-tasting, healthy food opened a store destined to change the future of food retailing: Whole Foods Market. These visionaries focused on organic and natural food. When you entered other organic food stores, you felt as though you were an ascetic in a small sect doing penance, but Whole Foods Market celebrated pleasure. Not only did labels and posters educate consumers about the virtues of natural and organic foods, health, nutrition, and sustainable agriculture, but also produce was arranged as if on a stage: an irresistible party of colors and smells. Whole Foods Market has radically changed the meaning of healthy nutrition from a severe, self-denying choice to a hedonic one, and shopping from a chore to a reinvigorating experience. (New services even allow people to get a massage while a grocery valet takes care of the shopping list.) Whole Foods Market is the fastest-growing company in the competitive grocery business.

Everyone knows that corkscrews are meant to pull corks and that citrus squeezers are meant to squeeze lemons. These are tools; thus innovation has always aimed at making them more functional or more beautiful. In 1993 Alessi, a manufacturer of household items, released a new family of products that were not necessarily more functional and did not comply with existing standards of beauty. This family included

a series of playful plastic objects, most with an anthropomorphic or metaphoric shape, such as Mandarin, a citrus squeezer stylized as a Chinese mandarin in a conical hat, and Nutty the Cracker, a nutcracker in the shape of a squirrel whose teeth crack the shells. Shallow observers labeled the family a fanciful, crazy idea—the output of extemporaneous and useless creativity. But that wasn't the case. The product line was the result of years of serious research aimed at proposing a radical new meaning: household items as objects of affection, as substitutes for teddy bears for adults. Rather than talk to the little engineer or the little stylist inside each of us, Alessi was talking to our inner child. This unsolicited meaning turned out to be exactly what people were looking for. During the past fifteen years this vision has inspired many companies beyond the kitchenware industry to pursue now-popular *emotional design*. Meanwhile Alessi has enjoyed double-digit annual growth.

Companies such as Artemide, Nintendo, Apple, Whole Foods Market, Alessi, and many others I discuss in this book show that meanings do change—and that they can change radically. The design-driven innovations introduced by these firms have not come from the market but have created huge markets. They have generated products, services, and systems with long lives, significant and sustainable profit margins, and brand value, and they have spurred company growth.

An Unexplored Conundrum

The reason Gismondi's "proposals to people" assertion sounds surprising to many practitioners and scholars is simply that we know little about how design-driven innovation occurs. Years of research have yielded several compelling explanations for technological breakthroughs, but no theory about how to manage radical innovation when it comes to meanings. It's a conundrum enshrouded in mystery.

In 1998, returning to Politecnico di Milano after a period at Harvard Business School investigating the management of breakthrough innovations in Internet software, I had the chance to become involved in two major projects. One was Sistema Design Italia (Italian Design System), a first-ever research project on the economics and organization of

design processes in Italy.[1] The other project was the creation, at Politecnico di Milano, of a graduate school of industrial design, the first ever in Italy. I seized both opportunities enthusiastically. Italy was quite weak in software but an acknowledged worldwide leader in design, especially in industries such as furniture, lighting, and food.

I was especially attracted by the fact that the success of Italian design is rooted in manufacturers rather than designers. (Indeed, foreign designers actually perform much of so-called Italian design: innovative Italian furniture manufacturers hire about 50 percent of their designers from abroad.) The secret of Italian design was concealed in the hands of entrepreneurs and executives, making this empirical ground particularly interesting for management studies.

The most distinctive and advanced firms in this regard are concentrated in northern Italy, in industries that deal with domestic lifestyle. Many of these companies, such as Artemide, Alessi, Kartell, B&B Italia, Cassina, Flos, and Snaidero, are industry leaders despite their small size (only the latter has more than five hundred employees). They have built their leadership on innovation, and not on complementary assets such as distribution, market penetration, and low labor costs. Between 1994 and 2003, in an industry where other Western companies considered themselves lucky if they had any growth (EU furniture manufacturers grew 11 percent over that decade), the revenues of these companies grew between 54 percent (B&B Italia) and 211 percent (Kartell).

Even more interesting, these firms had a unique innovation strategy. Contrary to common wisdom, their success was not related simply to their capacity to create beautiful objects. Rather, they often moved against the dominant aesthetic standards, as the Artemide and Alessi examples clearly show. What made these firms different from many others that use design for styling or user-centered innovation was that they were leaders in the radical innovation of meanings.

The Italian design system therefore proved to be a unique empirical setting for investigating the management of design-driven innovation. I was lucky. However, the research proved much more painful than I had expected, revealing why design-driven innovation had remained unexplored.

First, companies that are very successful at design-driven innovation are not really open to someone who wants to investigate their process, especially if he is a management scholar. As you will see, their model is based on elite circles, which admit novices only if they bring interesting knowledge. Unfortunately, existing management theories are so far removed from the strategies of these firms that they see almost no utility in them. It took me literally years to gain their trust, to be admitted into the circle and gain access to their processes. Luckily, the two projects in which I was initially involved provided a wealth of contacts and networking.

Second, once I got there, I found it a major challenge to understand what was going on. The innovation process of these firms was tacit, invisible—no methods, no tools, no steps. Instead, it was based mainly on networks of uncodified interactions among various agents of innovation and was directly led by top executives. The only pursuable empirical method was immersion and close contact with these participants.

This effort eventually paid off. This book opens a window to a unique set of firms that provides valuable insights on how radical innovation of meanings occurs.

In ten years of research I progressively enlarged the sample to include firms of various sizes in various industries, countries, and markets (consumer and industrial, niche and high volume), in products and in services.[2] (Appendix A provides a glimpse of the variety of companies discussed in this book.) Given that one of the major benefits of design-driven innovation is the development of products having long lives, in many cases I focused on projects conducted a number of years earlier. But these are not old examples. Most of these products are still successful in the market and appear to be younger than their recent counterparts.

The final step was to move from exploration to implementation. With a team of colleagues at my consulting firm, PROject Science, I worked with companies to enable them to realize radical innovation of meanings by establishing the process and building the related capabilities. This even deeper immersion provided further insight into the dynamics of design-driven innovation, especially in large corporations.

Proposals

Apple is building a scenario of life in which people rent or buy movies at the iTunes stores, download songs from this online store and listen to them through the iPod, and back up data and upload applications wirelessly. In this scenario there is no room for CDs and DVDs. Apple has therefore released its newest notebook, the MacBook Air, without an optical drive—a surprising and unsolicited bold move. Apple's approach to innovation shines through the words of Steve Jobs at the 2008 Macworld Conference in San Francisco: "You know what? *We* do not think most users will miss the optical drive. *We* do not think they will need an optical drive."[3]

This statement perfectly mirrors Ernesto Gismondi's. Jobs is telling people what he believes they will need and won't miss. Both statements are in contrast to a huge array of studies on innovation that piled on our desks in the past decade.

And indeed, the first finding from my investigation is that radical innovation of meanings doesn't come from user-centered approaches. If Nintendo had closely observed teenagers using existing game consoles, it probably would have improved traditional game controllers, enabling users to better immerse themselves in a virtual world, rather than redefining what a game console is. If Alessi had visited users in their homes to scrutinize how they pulled corks from a bottle, it would have created more-efficient tools, not objects of affection that a person buys twice—once for herself and once for her best friend. User-centered innovation does not question existing meanings but rather reinforces them, thanks to its powerful methods.

These companies are instead making *proposals*, putting forward a vision. That is why I call this strategy design-driven: like radical innovation of technologies, it is a push strategy. These proposals, however, are not dreams without a foundation. They end up being what people were waiting for, once they see them. They often love them much more than products that companies have developed by scrutinizing users' needs. These proposals are wellsprings for the creation of sustainable profit.

How do you develop a successful design-driven innovation? How do you propose a vision that people have not solicited—one that perhaps

initially confounds them but that eventually converts them into enthusiastic users?

When a company proposes a radical change in meaning, analysts often reject it as crazy or outlandish. That is not a surprise. A design-driven innovation, by definition, differs substantially from the dominant meaning in the industry. When analysts eventually acknowledge that a proposal has become a success, they call it a fluke. Or they think that the executive or designer who proposed it had a sudden spark of creativity or has some magical capability. I described this conundrum to a professor during the centennial celebrations of Harvard Business School in April 2008, and he told me, "There should be some kind of 'guru' process." My ten years of research shows instead that these radical proposals come from a very precise process and concrete capabilities.

Interpreters

Firms that develop design-driven innovations step back from users and take a broader perspective. They explore how the context in which people live is evolving, both in sociocultural terms (how the reason people buy things is changing) and in technical terms (how technologies, products, and services are shaping that context). Most of all, these firms envision how this context of life could change for the better. The word *could* is not incidental. These firms are not simply following existing trends. They are making proposals with which they will modify the context. They are building scenarios that would perhaps never occur (or that would occur more slowly) if the firms did not deliver their unsolicited proposals. Their question, therefore, is, "How could people give meaning to things in this evolving life context?"

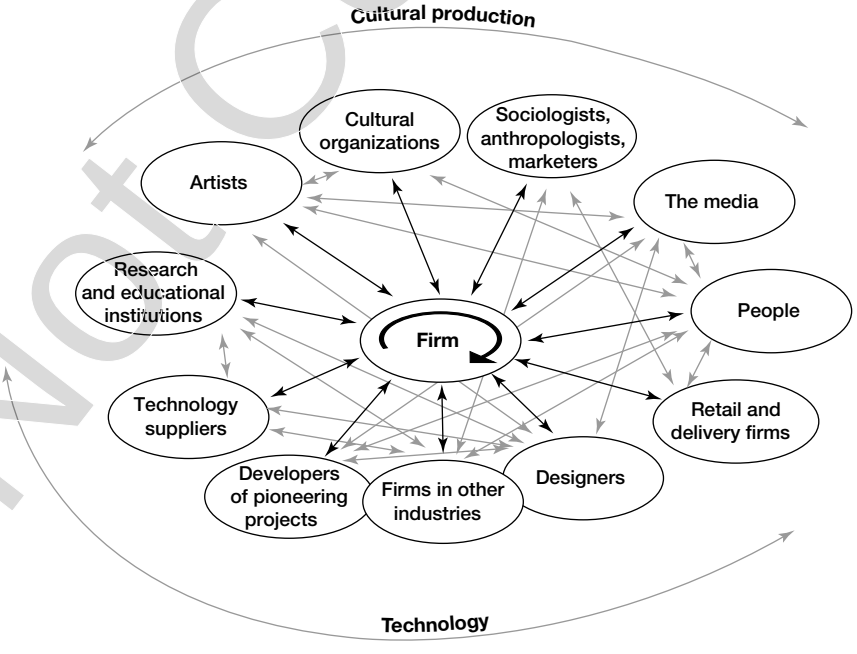
When a company takes this broader perspective, it discovers that it is not alone in asking that question. Every company is surrounded by several agents (firms in other industries that target the same users, suppliers of new technologies, researchers, designers, and artists) who share its interests. Consider, for example, a food company that, instead of closely looking with a magnifying lens at how a person cuts cheese, asks, "What meanings could family members search for when they are

home and are going to have dinner?" Other actors are investigating this same question: kitchen manufacturers, manufacturers of white goods, TV broadcasters, architects who design home interiors, food journalists, and food retailers. All are looking at the same people in the same life context: dinner with family at home at night. And all are conducting research on how those people could give meaning to things. They are, in other words, *interpreters*.

Companies that produce design-driven innovations highly value their interactions with these interpreters. With them they exchange information on scenarios, test the robustness of their assumptions, and discuss their own visions. These companies understand that knowledge about meanings is diffused throughout their external environment; that they are immersed in a collective research laboratory where interpreters pursue their own investigations and are engaged in a continuous mutual dialogue (see figure 1-2).

FIGURE 1-2

Interpreters in a collective research laboratory



The process of design-driven innovation therefore entails getting close to interpreters. It leverages their ability to understand and influence how people could give meaning to things. This process, described in detail in this book, consists of three actions.

The first one is *listening*. It is the action of gaining access to knowledge about possible new product meanings by interacting with interpreters. Firms that listen better are those that develop privileged relationships with a distinguished group of key interpreters. These are not necessarily the most famous in the industry. Rather, successful firms first identify overlooked interpreters, usually in fields where competitors are not searching. Key interpreters are forward-looking researchers who are developing, often for their own purposes, unique visions about how meanings could evolve in the life context we want to investigate. Firms that realize design-driven innovations are better than their competitors at detecting, attracting, and interacting with key interpreters.

The second action is *interpreting*. Its purpose is to allow a company to develop its unique proposal. It is the internal process through which the firm assesses the knowledge it gains by interacting with interpreters and then recombines and integrates this knowledge with its own proprietary insights, technologies, and assets. This process reflects the profound and precise dynamics of research rather than the speed of brainstorming. It implies sharing knowledge through exploratory experiments rather than extemporaneous creativity. It resembles the process of science and engineering (although it targets meanings rather than technologies) more than that of a creative agency. Its outcome is the development of a breakthrough meaning for a product family.

The third action is *addressing*. Radical innovations of meanings, being unexpected, sometimes initially confuse people. To prepare the ground for groundbreaking proposals, firms leverage the seductive power of interpreters. By discussing and internalizing a firm's novel vision, these interpreters inevitably change the life context (through the technologies they develop, the products and services they design, the artworks they create) in a way that makes the company's proposal more meaningful and attractive when people see it.

The Unharnessed Power of Relational Assets

Managers are attracted by codified approaches to innovation. They love methods, tools, step-by-step processes. They hope that innovation systems can be bought and replicated immediately. Highly codified approaches, however, have a downside: competitors can easily replicate them.

The process of design-driven innovation is not codified into steps. Rather, it is interwoven into relational assets with a network of key interpreters. These relationships are an engine of innovation—a core capability—that competitors can seldom replicate.

It is crucial to notice that the firms that pursue this approach do not source thousands of ideas from hordes of anonymous inventors, as touted by popular models of open innovation. Rather, they carefully search, select, and attract the most promising interpreters and work jointly with them. Collaboration is closed and not open. Not everyone is invited, and the capability to invite the right interpreters—thereby keeping them from competitors—is what makes the difference. These firms invest in relationships. Solutions will follow.[4]

Where are these relational assets located? First, they reside in your entire organization. Often firms, especially large corporations, already have numerous interactions with potential key interpreters. However, they do not have a picture of this multitude of personal relationships, do not nurture them, and have no process for converting them into radical innovators of meanings. This book provides a framework for harnessing this often-untapped treasure.

Second, this process has, as its main protagonists, top executives. Design-driven innovation is not about being creative. Rather, it is about setting a direction and investing in relational assets. And this is definitely a job for executives.

This job is not based on codified techniques but on two capabilities that are typical of management: judgment and the ability to build social capital. That is why the process of design-driven innovation seems invisible and magical. However, notwithstanding its apparent impalpability, it is based on a clear set of principles and practices. They are different from typical innovation processes—less visible, perhaps, but not less systematic. This book makes those principles and practices accessible.

The Plan of This Book

This book is organized into three parts. Part 1, The Strategy of Design-Driven Innovation, elaborates on the concept of design-driven innovation. It explains its specific nature and, most of all, its crucial role in a firm's overall innovation strategy. It clarifies this strategy's value in creating a sustainable competitive advantage—and its challenges. It focuses especially on the interplay between radical innovation of meanings and radical innovation of technologies: the domain where technology-push and design-driven innovation overlap (the upper-right corner of figure 1-1). Contrary to the common assumption that meanings and design become relevant only when an industry matures, I show instead that design-driven innovation may overturn industries in the emerging phases of breakthrough technologies.

Part 2, The Process of Design-Driven Innovation, shows how companies can realize successful radical innovations of meanings: how they can make unsolicited proposals that turn out to be what people love. Chapter 6 discusses the basic principle underlying the process: leveraging the knowledge of key interpreters to envision and influence how people could give meaning to things. Chapters 7 through 9 dig into the three main actions of design-driven innovation: listening, interpreting, and addressing.

Part 3, Building Design-Driven Capabilities, shows how to start. It explains how to activate a dynamic that can allow a company to become a leader in design-driven innovation. It shows how to recognize and value the relational assets that a company already has, and how to nurture and expand them. In particular, it shows the key role that top executives play in this process.

You will not find photos of products in this book. In fact, this is everything but a book on the form of products. Rather, it is about meanings and management. Given, however, that many of the cases, especially those of the Italian manufacturers, are less well known than those typically presented by the business press, I asked a young architect-artist, Daniele Barillari, to help me visualize some of the proposals—focusing, of course, on their meanings rather than their forms.

A related Web site (www.designdriveninnovation.com) has links to company pages where you can find photos of the examples I discuss here.

The site also has colored versions of Daniele's wonderful illustrations (and I must say that it is definitely worth a visit). The site acts as a supporting platform for this book, where readers can, among other things, suggest and upload more examples of radical innovation of meanings.

The variety of cases and examples discussed in this book is in any event so broad as to show that design-driven innovation is a suitable strategy for every firm, whether large or small, and whether it offers products or services, addresses consumer or business markets, and makes durable or fast-moving goods (see the list in appendix A). Although I base a number of my cases on Italian manufacturers, that is simply because they have pioneered this approach intensively for decades, and it has remained largely undiscovered. However, firms in every country and industry have applied this strategy.

Even more important, the discussion shows that design-driven innovation is not simply an option. It happens always and everywhere. Like technologies, which evolve through periods of incremental and radical change, product meanings also alternate between marginal and radical transitions. Sooner or later a radical change in meanings inevitably occurs. And when it does, it is because a firm has introduced it. Do you want to master the process for giving birth to a radical change, or witness a competitor proposing such a change and leading the market?

In the mid-1980s, with the invention of quartz movements, incumbents in the watch industry such as Seiko and Casio believed that people viewed watches as technical instruments, and therefore they focused on how to add new features. What happened, however, was that people started to see watches as fashion accessories: regardless of their features and precision, people were more interested in collecting several watches, matching them to various clothing styles, and changing them every other season, just like shoes and hats. An innovative product triggered this radical market shift: a watch introduced by Swatch, a Swiss company, in 1986. Seiko and Casio were closely observing users and existing meanings, and they observed Swatch creating new ones.

[Appendix A]

COMPANIES, INDUSTRIES, AND MARKETS DISCUSSED IN THIS BOOK

Company	Industry	Country	Product (P) Service (S)	Consumer (C) Business (B)	Niche market (N) Mass market (M)	Small firm (SM) Large firm (L)	Chapter
Alessi	Household objects	Italy	P	C	N	SM	1, 3, 6, 7, 8, 11
Apple	Information technology	U.S.	P, S	C	M	L	1, 3, 4, 7, 11
Aprilia	Motorcycles	Italy	P	C	M	L	7
Artemide	Lighting	Italy	P	C, B	N	SM	1, 2, 3, 6, 7, 8, 9
Arthur Bonnet	Kitchen furniture	France	P	C	M	SM	8
Barilla	Food	Italy	P	C	M	L	7, 8, 10
Bayer Material Science	Materials	Germany	P	B	M	L	4, 6
Bang & Olufsen	Consumer electronics	Denmark	P	C	N	L	3, 5, 7, 8
Brembo	Brakes	Italy	P	B	N	L	4
B&B Italia	Furniture	Italy	P	C	N	SM	6, 7

Company	Industry	Country	Product (P) Service (S)	Consumer (C) Business (B)	Niche market (N) Mass market (M)	Small firm (SM) Large firm (L)	Chapter
Casio	Consumer electronics	Japan	P	C	M	L	1, 4
Color Kinetics	LED lighting	U.S.	P	B	M	SM	10
Corning	Materials	U.S.	P	B	M	L	4, 7
Creative Technology	Multimedia	Singapore	P	C	M	L	4
Diamond Multimedia	Multimedia	U.S.	P	C, B	M	L	4
Driade	Furniture	Italy	P	C	N	SM	11
Dupont	Materials	U.S.	P	B	M	L	9
Endemol	Broadcasting	The Netherlands	S	B	M	L	3
Ferrari	Automotive	Italy	P	C	N	L	8, 10
FIAT	Automotive	Italy	P	C	M	L	5
Filati Maclodio	Textile	Italy	P	B	M	SM	10
Flos	Lighting	Italy	P	C	N	SM	6, 7
Henkel	Cosmetics, home care	Germany	P	C	M	L	10
Herman Miller	Furniture	U.S.	P	B	N	L	3, 7, 11
IBM	Information technology	U.S.	P, S	B	M	L	10
Indesit Co.	White goods	Italy	P	C	M	L	10
Intuit	Software	U.S.	P, S	C, B	M	L	2, 11
Kartell	Furniture	Italy	P	C, B	M	SM	2, 6, 7
LSI Corp.	Information technology	U.S.	P, S	B	M	L	4
Lucesco	Lighting	U.S.	P	C	N	S	7
McDonald's	Food services	U.S.	S	C	M	L	2
Material ConneXion	Materials	U.S.	S	B	M	SM	6, 7

Company	Industry	Country	Product (P) Service (S)	Consumer (C) Business (B)	Niche market (N) Mass market (M)	Small firm (SM) Large firm (L)	Chapter
Microsoft	Information technology	U.S.	P	C, B	M	L	4
Molteni	Furniture	Italy	P	C	N	SM	6, 7, 11
New Halls Wheelchairs	Wheelchairs	U.S.	P	C	N	SM	6
Nintendo	Game consoles	Japan	P	C	M	L	1, 3, 4
Nokia	Telecommunications	Finland	P	C, B	M	L	4, 6
Philips	Consumer electronics	The Netherlands	P	C, B	M	L	2, 6, 9, 10
Safaricom	Telecommunications	Kenya	S	C	M	L	2
Sahean Information Systems	Information technology	Korea	P, S	C, B	M	L	4
Samsung	Consumer electronics	Korea	P	C	M	L	6
Snaidero	Kitchen furniture	Italy	P	C	M	L	2, 7
Sony	Consumer electronics	Japan	P	C	M	L	4
Starbucks	Food services	U.S.	S	C	M	L	2
STMicroelectronics	Semiconductors	France, Italy	P	B	M	L	4, 7
Swatch Group	Watches	Switzerland	P	C	M	L	1, 4
Texas Instruments	Information technology	U.S.	P	C, B	M	L	3
Whole Foods Market	Retailing	U.S.	S	C	M	L	1
Xerox	Imaging	U.S.	P	C, B	M	L	7
Zucchi Group	Textiles	Italy	P	C	M	L	10

[Appendix B]

IMPLICATIONS FOR EDUCATION AND DESIGN POLICIES

Many governments have launched policies to support greater use of design in diverse arenas, acknowledging its value and its impact on a country's economic growth. One of the earliest was the United Kingdom, which created a Design Council in 1944 and has since promoted pioneering policies, including a recent strong focus on applying design to service industries and even public services. (For example, the Design Council has launched a new program called Public Services by Design, which has tackled problems such as reducing crime levels in hospital emergency rooms and improving government-owned postal services.)

Other countries have joined the United Kingdom in recent years, beginning with the Scandinavian countries of Denmark, Norway, and especially Finland. The latter developed its first National Design Strategy in 2000, which then became a key element of its National Innovation Strategy in 2008. Although European countries are in the forefront in this field, design policies have taken root all over the world, from Hong Kong to Brazil, from South Korea to India, from Thailand to New Zealand.

TABLE A-1

The typical approach to design policies (left) and the different perspective called for by design-driven innovation (right)

Design policies supporting incremental innovation of meanings	Design policies supporting radical innovation of meanings
Center on collaborations—the more the better	Center on *how* to collaborate and *with whom*
Encourage local collaborations	Encourage global collaborations
Focus on collaborations between firms and designers	Focus on collaborations between firms and multiple interpreters
Educate designers on business	Educate business leaders on design

Most design policies are still in their infancy, with governments experimenting in different directions. Yet these policies usually share four common traits (see the left side of table A-1).

First, design policies often promote collaboration between manufacturers and designers. The underlying hypothesis is that several skilled designers reside in any given local territory and that governments simply need to facilitate local manufacturers' access to this wealth of talent, and innovation will occur. Several government officials have told me that they would like to replicate the miracle of Italian design, where collaboration between manufacturers and designers is amazingly strong. This, however, is an incomplete interpretation of what happens in Italy and of the dynamics of design-driven innovation.

As chapter 7 shows, successful as well as unsuccessful Italian firms have intense collaborations with designers. What differentiates the former from the latter is not whether they collaborate but with *whom* they collaborate and *how*. Collaborating with a generic designer does not make any difference. Or, even worse, collaboration with a generic designer may even be detrimental for a firm, because not all designers are likely to be talented (as in any profession, such as management or engineering). Public policies should instead focus on helping firms develop the capabilities to spot, meet, select, and attract the unidentified, talented designers that best fit their needs.

The Norwegian Design Council is experimenting with interesting measures in this regard. When approaching a manufacturer, the council

identifies challenges and opportunities for innovation and introduces the manufacturer to a selection of designers that fit its profile. The designers then illustrate how they would address those challenges and opportunities, and the manufacturer selects the most promising among them.

Second, most public design policies have a narrow, local scope. Governments promote collaborations only among local firms and local designers. The design discourse, however, is global. Talent is internationally distributed, and the best interpreter for a firm is not likely to live a hundred miles from its headquarters. You have seen that 46 percent of the collaborations of innovative Italian furniture manufacturers occur with foreign designers, versus 16 percent of those of unsuccessful manufacturers. What's more, local designers can better profit from selling their services and their insights on the local culture and market to international firms rather than to local ones. Policies should therefore aim to strengthen local participation in global design networks. That approach would strengthen both local manufacturers and the local design industry, regardless of the extent of local links.

Third, public policies often focus on encouraging firms to collaborate only with designers. However, although designers play an important role in design-driven innovation, firms should not have to trust a single designer, no matter how talented she is. You have seen that a firm envisions new scenarios and radical new meanings by combining insights from several interpreters from a variety of categories (designers, firms in other industries, suppliers, retailers, artists, sociologists, and so on).

To support that process, my team at PROject Science and I have helped governments create programs that foster deeper and multifaceted insights into innovation. These programs bring together local firms that offer complementary products and services in a given context, such as nutrition, mobility, or domestic lifestyle. Those firms—which do not compete with each other—collaborate with multiple international interpreters to build common scenarios that each company, individually, could not create because of a lack of contacts or resources. Each single firm then leverages this scenario to create its own radical products.

Finally, many design policies aim to increase the business skills of designers through educational programs. The assumption is that designers

who are more business aware can better interact with managers and propose concepts with sound business value. Design schools have targeted this assumption in two ways: by including a variety of courses on business administration in their core programs on industrial design, and by creating new programs that focus specifically on design management, targeted to designers who want to become more business literate. This education strategy closes the gap between designers and managers by bringing the former closer to the latter and by making designers more pragmatic. However, this approach also has a downside: it makes designers more aware of the constraints of business dynamics and less prone to explore radical patterns not yet demanded by markets.

Again, my research (see chapter 7) shows that design-driven innovation follows the opposite path. It often comes from forward-looking researchers who may be business unaware and who have been tapped by business leaders who are significantly design aware. The gap is therefore closed by bringing *managers closer to designers*. These managers said, "Feel free to explore radical new scenarios of how people give meaning to things. Do not worry about the business implications—I'll take care of them. Just think about possible new meanings for users."

Design-driven innovation therefore has profound implications for the education of designers and managers. On the one hand, it requires the support of circles of radical researchers who can perform experiments still not requested by users. On the other hand, as a balancing mechanism, it asks managers to become more design literate. Unfortunately, business schools still neglect the importance of design, apart from a few exceptions, such as the Rotman Business School at the University of Toronto, Copenhagen Business School, and the School of Management at the Politecnico di Milano.

Design-driven innovation, therefore, requires unique policies that move in an opposite although complementary direction compared with traditional design policies. The latter—with their focus on generic collaborations between local firms and local designers who are business aware—tend to promote the diffused use of design, resulting mainly in incremental innovation. Such policies can suit countries where the use of design is still in its infancy, and they can spur an industry to upgrade. But as these traditional policies take effect and countries become more design literate, they are hardly a source of differentiation.

Policies targeted to design-driven innovation then become more interesting and effective. These policies—which could coexist with more-traditional approaches—increase the design awareness of business leaders and encourage them to participate in elite global networks of interpreters. The radical innovations of meaning promoted by these policies increase the chances that local manufacturers and designers—along with their regions and even entire nations—will reap sustainable competitive advantage.

[Notes]

Chapter 1

1. Funded by the Italian Ministry of University and Scientific and Technological Research with a 1.5 million budget, Sistema Design Italia involved seventeen research teams all over Italy. The project's unit of analysis was not products or designers but innovation processes, manufacturers, and economic systems. The project yielded seventy-four in-depth case studies and received the 2001 Compasso d'Oro, the most prestigious design award in Italy—the first time a research project won the prize.

2. Where possible I pursued the approach of case immersion and close contact with the senior executives who led the innovation process. Otherwise, especially for firms that limit the amount of information they disclose (Apple is a well-known example), I relied on secondary sources, in which case I provide the references.

3. Steve Jobs, keynote speech at the Macworld Conference & Expo, San Francisco, January 15, 2008, emphasis added.

4. For a deeper analysis of differences between open and closed modes of collaboration with external parties see Gary P. Pisano and Roberto Verganti, "Which Kind of

Collaboration Is Right for You? The new leaders in innovation will be those who figure out the best way to leverage a network of outsiders," *Harvard Business Review* 86, no. 12 (December 2008): 78–86.