

# Product Development and Changing Cultural Landscapes— Is Our Future in “Snowboarding”?

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## Introduction

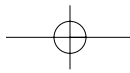
Thomas Alva Edison, “the Wizard of Menlo Park,” was famous for his inventing talents. Today, he is increasingly well-known for his lack of cultural sensitivity in inventing the “entertainment industry.”<sup>1</sup> Edison was ill prepared to imagine and create an industry of entertainment. He lost fortunes both in the record player business and the movie business. Edison’s prior experience was in sophisticated production technology and products’ use strictly for business. Therefore, for a long time, he believed that his phonograph would mainly fit the expanding markets for business machines such as typewriters and telephones.<sup>2</sup>

As Edison and his colleagues contemplated putting the new phonograph on the market, they used the sewing machine and typewriter business as their model.<sup>3</sup> Instructors were particularly important in introducing new technologies to the general public. As Edison noted: “Even so simple an instrument as an improved flat-iron involves a certain amount of explanation by an ‘expert’ before it can be intelligently introduced into domestic use.”<sup>4</sup>

In the entertainment business, the old virtues of work and sacrifice were attacked by a consumer culture of leisure and indulgence. Edison failed to recognize this cultural shift one hundred years ago. In this article, we maintain that both the successes and failures of companies in the third millennium might be understood in terms of the innovators’ ways of representing the end-users and the products they use. Current digital dreams originate from the seeds of telegraph and telephone technology.<sup>5</sup> However, today it is clearer than ever that business-to-business models are inapplicable as digital technology is entering the lives of ordinary people.

In Edison’s time, user representations were predominated by the adult masculine heroes of intellectually oriented business (“organization men”). Our educated guess is that, in the future, it is likely that young, androgynous heroes of adventure are replacing these well-organized businessmen. We use the term “snowboard kids” to refer to this new consumer ideal which is characterized by freedom, self-realization, and risk. In particular, we would argue that the self-experienced knowledge and ideals of business leaders and innovators, as well as the implicit user representations hidden

- 1 Bernard W. Carlsson, “Artifacts and Frames of Meaning: Thomas A. Edison, His Managers, and the Cultural Construction of Motion Pictures” in *Shaping Technology/Building Society: Studies in Sociotechnical Change*, Wiebe Bijker and John Law, eds. (Cambridge, MA: MIT Press, 1992).
- 2 Paul Israel, *Edison, A Life of Invention* (New York: John Wiley & Sons, 1998), 277–278.
- 3 *Ibid.*, 287.
- 4 *Ibid.*, 287.
- 5 Donald A. Norman, *Things That Make Us Smart: Defending Human Attributes in the Age of Machine* (Reading, PA: Addison-Wesley, 1993).



- 6 Victor Margolin, "The Product Milieu and Social Action" in *Discovering Design: Explorations in Design Studies*, Richard Buchanan and Victor Margolin, eds. (Chicago and London: The University Press of Chicago, 1995).
- 7 The concept of cultural landscape of a product resembles Victor Margolin's idea of product milieu: "...to represent the aggregate of objects, activities, services, and that fills the lifeworld." (Margolin, "The Product Milieu," 1995, 122). Margolin uses the concept in an article that tends to identify the user as a collaborator with the designer. A thorough theoretical discussion about representing consumers can be found in: Stuart Hall, ed., *Representation. Cultural Representations and Signifying Practices* (London: Sage, 1997); Barbara Stern, ed., *Representing Consumers: Voices, Views, and Visions* (London: Routledge, 1998). We use the term "representation" in two senses: first, to represent something is to describe it., and second, "to represent also means to symbolize, stand for, to be a specimen of, or to substitute for; as in the sentence, 'In Christianity, the cross represents the suffering and crucifixion of Christ.'" (Hall, *Representation*:1997, 16).
- 8 For a more complete set of data, see A. Ainamo and M. Pantzar, "Design for the Information Society: Learning from the Nokia Experience," *The Design Journal* 3/2 (2000): 15–26.
- 9 Paul Du Gay, Stuart Hall, Linda Janes, Hugh Mackay, and Keith Negus, *Doing Cultural Studies: The Story of Sony Walkman* (London: Sage, Open University, 1997); Paul Kunkel, *Digital Dreams: The Work of the Sony Design Center* (New York: Universe Publishing, 1999); Sony Corporation *Genyu. Sony's 50 Years* (Sony Corporation, Japan, 1996).
- 10 See, e.g., Bernd H. Schmitt, *Experiential Marketing* (New York: Free Press, 1999).

in pictures and images of, say, snowboard kids, are very important in reflecting—and possibly furthering—a more general change in culture.

Models and ideas travel from one "product milieu"<sup>6</sup> and consumer group to another. Products that, at first glance, seem to have nothing to do with each other are related at least in the concept generation phase. Edison viewed the future phonograph through the "lenses" of sewing machines and typewriters. Again, in the 1990s, the mobile phone industry imported its mental models from the car and watch industry (Nokia). At the same time, the developments in outdoor lifestyle products were very carefully monitored by the watch industry—and vice versa (Nike, Suunto). With "digital convergence," Sony's consumer electronics took its stimulation and allies increasingly from areas such as the cultural industries (Sony/CBS Records/Columbia Pictures), sports (Walkman), computers (Playstation), medicine (hearing aids), and professional instruments (camcorders).

However, we suggest that these interactions have a more general significance. We want to emphasize the role of mediators—persons, images and surrounding products—introducing new cultural landscapes into product development. By the "cultural landscape" of a product, we mean the totality of cultural interpretations and meanings that are related to a specific product.<sup>7</sup> These processes tend to stabilize new consumer images and product representations. When mediators such as consultants or media persons move a cultural landscape (through speech, text, and images) from one industry to another, they simultaneously simplify the existing representations. The following case stories may provide some food for thought.

We chose three empirical cases—Suunto, Nokia, and Sony—which complement each other. The first of these, Suunto, currently is in its early stages of expansion into new product categories. The data on this company are primarily derived from interviews made in 1999–2001 (T. Kotro). Nokia, on the other hand, has a longer experience in international brand making. Our observations are based on interviews and the other author's analysis of various product development processes during 1995–2001 (M. Pantzar). Secondary data were taken from a number of Finnish academic projects related to the company.<sup>8</sup> The data on Sony—the most well-known of the three—are based mainly on secondary material.<sup>9</sup> Some interviews (to wipe out possible errors) were made at the company's Finnish branch office. The three cases complement each other in an interesting way. They are similar in their exceptionally obvious shift from technology drivenness to market orientation. And, in spite of their many differences, these firms increasingly have become models for imitation and benchmarking.<sup>10</sup>

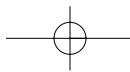




Figure 1

Suunto Advizor wrist computer was released in August 1999. It was the first wrist computer in the product line with heart rate monitor, which made it a success among sports people.

(Source: Suunto 1999. Suunto 2000. Suunto is registered trademark of Amer Group Plc).

11 [www.suunto.fi/wristop](http://www.suunto.fi/wristop).

12 "Suunto Blazes a Trail Towards New Market," *Bluewings*, March, 2001: 66–68.

## Case studies

### Suunto: From Technical Know-how to Maximum Pleasure

*"Suunto's Wrist-top Computers offer the outdoorsman all features necessary to get maximum pleasure out of the outdoor experience."*<sup>11</sup>

Until recently, the Finnish corporation Suunto was known mainly for field compasses and diving instruments. It is the world's biggest manufacturer of field compasses and a leading manufacturer of diving instrumentation.

In 1996, Suunto began to develop a new product category: a watch-size computer with altimeter, barometer, compass, and watch for demanding outdoor use. At first, the new product development process was driven by the company's know-how in making small equipment with numerous technical details and functions, gained through the manufacture of compasses and diving instruments.

Soon, however, the problems of emerging lifestyles arose, together with the more technical considerations. Today, Suunto's diving computers are market leaders, acclaimed by professionals and coveted by amateurs. As managing director, Dan W. Colliander points out,

Our largest product in the USA in terms of turnover is our top-of-the-range titanium dive computer, which costs \$1,400. Before we joined the market, the average price for the dive computer was \$250.... Many find it important to be not just divers, but titanium divers. Market growth is constrained only by a lack of components.<sup>12</sup>

Thus, in the final years of the 1990s, the product development process was converted quite rapidly from a technical-driven intention into a market-driven project. The meanings connected to the product became more and more important. The most significant of these, it turned out, had to do with the product environment of watches, on the one hand, and the needs and values of outdoor culture and the human being challenging him/herself in outdoor life and adventure. The image of the product became as important as its technical performance. Also, more than ten per cent of the product development cost was the design of the product.

At the same time, as Suunto was developing the outdoor computer, the sports gear manufacturer, Nike, launched its "Triax" collection of digital watches with an exceptional, diagonal form. An effective marketing campaign was initiated, and the Triax attracted a lot of attention at the Salt Lake City outdoor retail fair of 1997 and in trendy magazines. Even though the digital sports watch and the multifunctional computer for outdoor use were not considered to fall into the same product category, Suunto's management and marketing people noticed that a new market, the market for fash-

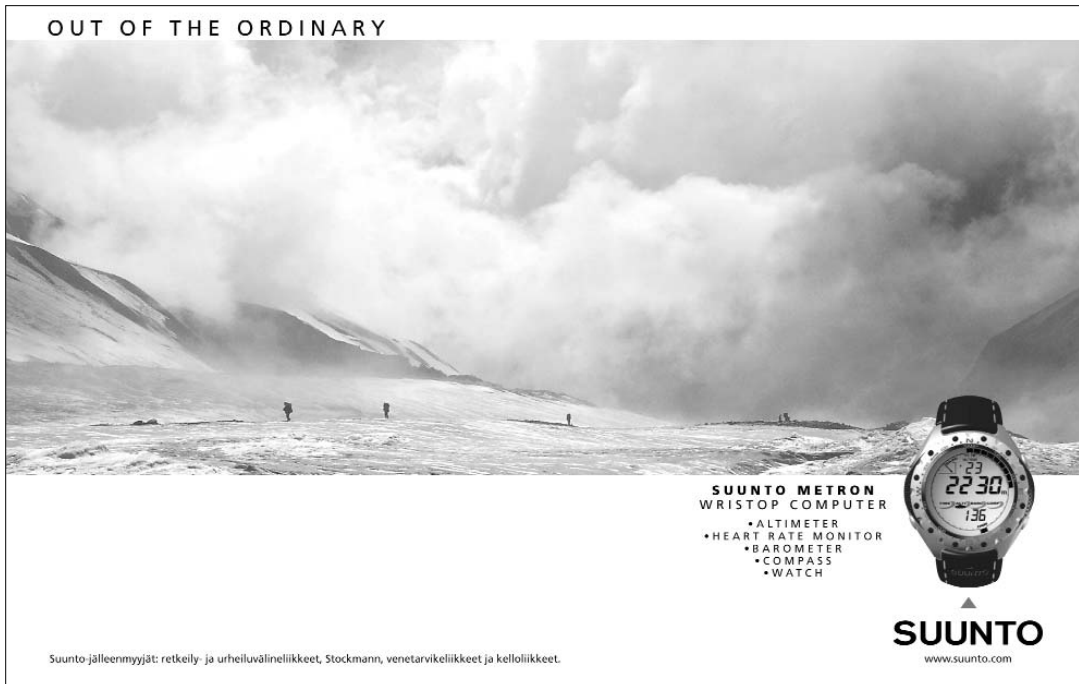
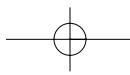


Figure 2

Metron is the latest model with heart rate monitor. Because of its aluminium casing, this model is widely used not only with sports clothes but also with suit. (Source: Suunto 2000. Suunto 2000. Suunto is registered trademark of Amer Group Plc).

ionable, comparatively expensive watches, was emerging among Western consumers—also for Suunto’s new product. Influenced by the launch of Nike’s Triax, the design concept of Suunto wrist-top computers was shifted to a more fashionable direction. The first outdoor computer, “Vector,” was launched in 1998. In the following year, Suunto’s Vector wrist-top computer received an award in the Pro Finnish Design competition for its innovative combination of technology, design and user friendliness.

The specific desirability of Suunto wrist-top computers is related to the context of adventure sports. In the U.S., where outdoor culture is not merely a hobby but more a lifestyle, this means that the product environment includes such things as clothes with special features for difficult weather conditions, and unique devices such as knives and tiny, powerful flashlights. The outdoor lifestyle is covered by strong brands such as North Face, and manifested in movies such as *Vertical Limit* (released in the U.S. in December, 2000), in which a group of mountain climbers falls into a gap on K2, the second tallest mountain in the world. Suunto, for its part, has created a strong brand by appealing to the market through professional climbers—for example, a Finnish mountain climber who has climbed many of the 8000-meter summits of the world, including K2. During his expeditions, this climber tested the wrist-top computers, and presented his feedback to Suunto’s research and development people. Together with the test results, his appearance in the media gives visibility and credibility to the product. Recent advertisements of the outdoor wrist-top computer product line carry



images of cliffs and climbers, bringing Suunto closer to the current fashion trend also in watches, clothes, mountain bikes, and rucksacks at a more general level.

Let us next look at another example of transforming cultural landscapes—Nokia.

### **The Nokia Phenomenon: From Technical Devices Towards Fashionable Items<sup>13</sup>**

In a crisis situation, companies typically seek to redefine their goals as well as their products. At the beginning of the 1990s, the Finnish company, Nokia, was facing a deep financial crisis. Under Jorma Ollila, the new CEO (hired from Citibank in 1984, and made President of Nokia in 1992), Nokia began shredding its television and computer divisions to evade almost imminent bankruptcy, and focused on mobile phones. Ollila voiced two slogans for a new business policy: “benefit-orientation,” and “telecom-orientation, focus, global, value-added.”

Nokia began to distance itself from the dominance of technical issues and the image of a sophisticated, and thus “demanding,” technology. The new market-driven strategy was legitimized by the crisis situation. In 1991, Nokia hired a young 3M marketing executive, Anssi Vanjoki, to identify the marketing principles in rapidly growing industries, and make Nokia a household name. Through his background at 3M, Vanjoki had learned the art and science of continuous innovation.<sup>14</sup> After joining the Nokia team, Vanjoki studied the histories of companies that had developed successful brands—not only 3M, but also Daimler-Benz, Philip Morris, and Nike.

Anssi Vanjoki and the Nokia management team realized that the time needed to create a “megabrand” had to be measured in decades rather than days, weeks, months, or years.<sup>15</sup> To speed up the process, there was a need to transform Nokia’s policy of multiple brands into a monolithic one-brand policy. This insight of his would remain unchanged, even though the market evolved much faster than anticipated and the products sold in excess of expectations.

In 1993, Nokia introduced its Mobile Phone 2100 series, for which the sales target had been set at 400,000—it sold 20 million.<sup>16</sup> One reason why the sales forecast failed was the fact that (especially with what is now the classic 2110 model) Nokia stumbled upon a new market segment. The company realized that mobile phones were diffusing extremely fast into the lives of “ordinary people.” Consumers were using the phones for different ends than business users. For example, things such as fun and fashion were important attributes of the consumer experience.

The success and the insights gained with the 2100 made this series “the blueprint for how to get things done”<sup>17</sup> for Nokia. In 1994, Nokia’s designers gained a critical lead over Ericsson and Motorola by introducing styling and fashion in their products.

13 This section rests on the ongoing research: Ainamo and Pantzar, Nokia—The Surprising Success of Textbook Wisdom, (2001) submitted *International Journal of Marketing*.

14 Stefan Thomke and Ashok Nimgade, Innovation at 3M Corporation: Harvard Business School Cases 9-699-012, 1998.

15 c.f., David A. Aaker, *Building Strong Brands* (New York: Free Press, 1996); Jack Trout, *Differentiate or Die: Survival in Our Era of Killer Competition* (New York: John Wiley & Sons, 2000).

16 “NOKIA’s Secret Code,” *Fortune* May 1, 2000: 31–38.

17 *Ibid.*

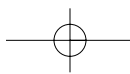


Figure 3

Model 2110 has been one of the most successful product in Nokia's history. Still today it represents the basic model of mobile phones.

(Source: Nokia, 1995. Nokia is registered trademark of Nokia Corporation).



Nokia allowed its customers to “customize” their mobile phones with accessories such as removable and exchangeable color “skins.” Rather than paying attention only to price and function, Nokia’s designers experimented with ways to insert new meanings into Nokia’s existing products. Jorma Ollila introduced a new management philosophy: “Leadership in the most attractive business segments.”

By the mid-1990s, Nokia people had realized that the miniaturization of the mobile phone did not suffice any longer. There was an evident need for more detailed product segmentation and new concepts related to the mobile phone such as business, classic, fashion, and “My first Nokia.” Corporate-level scenario projects focused on novel consumer groups and user contexts. Contextual design was used, for instance, to take into account the diverse information challenges of everyday life. Through an ongoing organizational learning process, the people responsible for future scanning carefully studied two industries in particular: the automotive and the watch industries.

New product representations—e.g., fashion goods, cultural goods, and experience goods—and new cultural landscapes were introduced to the Nokia R&D and marketing people, who shared these views with each other. Future views converged as a result of numerous meetings and workshops. In 1998, a set of scenarios was presented to the top corporate administration. The slogan “A mobile information society” was one manifestation of this profound developmental process.

Nokia started the purposeful promotion of its mobile phones in order to build symbolic value and to win over the hearts of consumers. Nokia was among the first companies to visualize third-generation mobile terminals in 1997. The 3D pictures made by Nokia Design were distributed very quickly all over the world through various magazines and publications. Media coverage strengthened the symbolic dimension in Nokia’s interaction with its customers and other interest groups, elevated its cultural status, and raised the value of its brand. Nokia now is the undisputed market leader in the mobile phone business, making it globally the fifth most valued brand across industries.<sup>18</sup> From 1999 onwards, Nokia began to present itself as the “world’s leading *design house* for mobile communication.” Accordingly, it launched its model 8210 during the 1999 Paris fashion week at the thirtieth anniversary celebration of Kenzo design. Its latest models are advertised in fashion journals including *Vogue*. We will address the logic of the fashion house promotion later. But first let us take another example of product transformation: Sony.

### Sony: From Mechanical Devices to Digital Dreams

Sony experienced a severe crisis at the end of the 1980s. In 1988, Sony’s designers agreed that something was not right: “We were supposed to be enjoying our work. We wanted to do great work, but lost our spirit. We were tired, for sure.”<sup>19</sup> Sony was threatened by a worldwide economic decline and heavy competition from companies copying ideas that Sony had originally generated—e.g., the Walkman. The Walkman, when introduced in July 1979, was the first “lifestyle product,” well before the concept had even been born.<sup>20</sup> Technological evolution also seemed to be slowing down, or at least development in the field of digital computer technology was much faster than in consumer electronics.

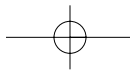
The people at the Sony Design Center recognized that their work “no longer lived up to the Sony ideal.” This made them break from their normal routine during the winter of 1988–1989 to spend several weeks creating a series of concepts code-named Spirit: “... these concepts are not only profound in themselves, they contain the genetic code on which most of Sony’s current designs are based, providing seeds that would root in the early 1990s and reach full flower in today’s product line.”<sup>21</sup> The giant corporation took its conceptual stimulation at that time from a variety of sources: “Im-

18 According to one estimate, its brand value is US \$38,500 million. The brand values of Motorola (US \$4,400 million) and Ericsson (US \$7,800 million), its main rivals, lag far behind. For more information on the brand valuations of Nokia, Motorola, and Ericsson, see “The World’s Most Valuable Brands 2000: Interbrand’s Annual Survey” [[www.interbrand.com/league\\_chart.html](http://www.interbrand.com/league_chart.html)], September 2000. According to the same source, the values of the three brands are closely related to the total market capitalizations of the three companies. Nokia’s total market capitalization is US\$ 239,800 million, Motorola’s is US\$ 62,500 million, and Ericsson’s is US\$ 165,700 million.

19 Kunkel, *Digital Dreams*, 17.

20 Du Gay, et al., *Doing Cultural Studies*; and Kunkel, *Digital Dreams*.

21 Kunkel, *Digital Dreams*, 17.



ages of French restaurants, high-priced leather goods, Mercedes-Benz cars, and English country houses were photographed for the portfolio that the Design Center later created to showcase the work. The motto was: ‘to appeal not only to the factory but also to humanity.’ Here we see the genetic blueprint on which all later Sony designs are based.”<sup>22</sup> Indeed—it was the genetic blueprint.

It is evident that cross-fertilization in the engineering phase is different than that in the design phase. Sony’s published documents emphasize two major influences which guided the engineers: professional use (e.g., camcorders) and health technology (e.g., early headphones taking their ideas from hearing instruments and high-tech prosthetic devices). Sony designers today appear to take their starting point from various lifestyle and fashion products. Even more interesting and important, the designers see themselves as the “ultimate consumers:”

We can often make educated guesses that result in products that remain ahead of the curve and, thus, pull the market in our direction.<sup>23</sup>

Tetsu Kateoka, who gave shape to the Sports Walkman and Discman at the end of the 1990s, shared the hobby of snowboarding with the younger generation. This influenced the ways in which intuition worked behind Sony’s new products:

The original inspiration was sports but, as I designed them, I found myself appealing to a younger audience that wasn’t interested in the old sports clichés. The users I was trying to reach belonged to a new tribe. They loved skateboards and snowboards.... They span all socio-economic groups, include boys, girls and everything in between, speak their own language and have style to match. As a result, they relate to each other in ways that outsiders didn’t understand.<sup>24</sup>

“Digital convergence,” “creativity,” (go and create) and “dreaming” dominate Sony’s vocabulary in the new millennium. *Sony Style* magazine tells us about the digital dream:

We help dreamers dream. Sony is a company devoted to the celebration of life. We create things for every kind of imagination.... We’re here to pursue infinite possibilities. We allow the brightest minds to interact freely so the unexpected can emerge.<sup>25</sup>

From the company’s point of view, the making of a market for new products is as important as is technical inventiveness. This is the message Akio Morita, one of Sony’s founders, has delivered in several connections concerning the success of Sony.

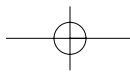
One of the factors shared by the above three companies was their ability to “culturally reinvent” the products and consumers

22 Ibid., 17.

23 Ibid., 136.

24 Ibid., 153.

25 *Sony Style* Spring, 2000: 3–4.





they focused on. Their company slogans and advertising were gradually changing from technology-oriented goals toward the rhetorics of benefits, segmenting, and brands. Making a luxury item seems to be one of their ultimate goals. However, the meanings and substance of these luxury products vary. At the beginning of the product life cycle, the preferred attributes are different than towards the end of the cycle.

### Cultural Reinvention of a Product

The above cases speak for the necessity of continuous product renewal. In the course of a product's life cycle, the original motivation behind buying the product changes. Quite generally, the product life cycles of technological devices seem to follow a domestication metamorphosis: e.g., from "toys" to "instruments," from "luxuries" to "necessities," from "pleasure" to "comfort," or from "sensation" to "routine."<sup>26</sup> The motives and needs behind buying and using technology are transformed in use. Products either become self-evident—and thus "invisible"—elements of everyday life, or they disappear from the context of consumption.

A reinvention of the product is needed to start the metamorphosis anew, for example, from a useful tool to an entertaining toy. This is exactly what General Motors did to cars in the 1920s.<sup>27</sup> In the 1990s, Nokia succeeded in transforming the mobile phone, which emphasized utilitarian user motives, to an object of pleasure and feelings. Reinventing and redefining the product brought the excitement and the "snob effect" back. Technical details and price sensitivity, in particular, withdrew into the background.

In Sony's context, the phenomenon could be seen in the changing balance between engineering and design: "Just as engineering overshadows design in the morning of a product's life, at the end of the day the design is king."<sup>28</sup> At the end of a product life cycle, it is imagery, fashion, symbolism, and storytelling that become more apparent than technology:

Visual fireworks, eye-candy designs, humor, functional gymnastic, and sophistication bordering on absurdity are all possible when a product nears the end of its life cycle.<sup>29</sup>

For instance, the first phase of the Sony voice recorder, the reel-to-reel period, was engineering-driven. The company focused on perfecting the mechanism and providing the best possible sound. The goal of the second, design-driven phase was to create an icon (model TC-50). And finally, "the third phase of design evolution involves giving the icon a statement ... a range of images that are infused with narrative, lifestyle references, and the strongest pull a design can exert: pure desire."<sup>30</sup> Pure desire! Or pure design?

Pure desire, we argue, requires an articulation of the corresponding needs and user ideals: "The Nokia 2110 has become an icon, a symbol for all cell phones."<sup>31</sup> One might claim that high-tech

- 26 Mika Pantzar, "Domestication of Everyday Life Technology: Dynamic Views on the Social Histories of Artifacts," *Design Issues* 13:3 (1997) Autumn: 52–65; Mika Pantzar, *Tulevaisuuden kotiarakisten tarpeiden keksimisestä (Inventing the Needs For the Future Home—On the History of Future Needs, in Finnish)* (Helsinki: Otava, 2000).
- 27 Pantzar, Ainamo, 2000.
- 28 Kunkel, *Digital Dreams*, 28.
- 29 *Ibid.*, 33.
- 30 Kunkel, *Digital Dreams*, 35.
- 31 Nokia 2110 advertising campaign, 1995.



companies are truly approaching the fashion industry. Media coverage is becoming more and more important. Formerly, Suunto used to be known for field compasses and diving instruments, but mainly among retailers. It was not a well-known brand among ordinary consumers. Launching the wrist-top computer product line improved its visibility in lifestyle magazines, and increased its familiarity among the trendsetter consumers interested in design items.

The same happened, although on a different scale, in the mid-1990s when Nokia mobile phones increasingly began to appear in a new light in newspapers and magazines, as well as on TV and on the Web. Wide media coverage reified Nokia phones as cultural artifacts. Ever since its surprise hit with the 2100 series, Nokia has actively sought to “medialize”<sup>32</sup> its products by using visualization and media exposure to build its brand value.

Towards the end of the 1990s, both Sony and Nokia started to introduce themselves as design/fashion houses. Sony established the *Sony Style* magazine to “help people dream.” Nokia’s head designer goes on to say:

We at Nokia do not follow trends. We try to set them. Being at forefront means that you really have to be in tune with what’s happening in fashion, architecture, etc.”<sup>33</sup>

But what does the ideal of a design/fashion house imply in practice? (We will come back later to the more general consequences.) But both Sony’s and Nokia’s published documents—Websites, advertising, press releases, etc.—emphasize the fact that digital technology does not develop as a one-way process from the designer’s desk into the hands of the consumer. Instead, these documents indicate that interacting with potential users and co-creating a use for the product are central elements in the invention process—not merely the final end. Influencing and interaction thus are essential in the creation of high-tech fashion.<sup>34</sup> The Nokia Club for the users of the phone, for instance, serves both of these functions.

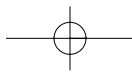
Certainly, there are many routes along which the influence of general trends and fashions travel. One reason for the similarities found in quite different products discussed here may be that companies tend to benchmark their products against same success stories. Turkka Keinonen, a designer in Nokia’s usability group, describes very openly (and boldly) the way in which concept generation takes place in the company:

Copying of ideas is a method rarely discussed in design literature. It is not considered very honorable and sportsmanlike...In the ‘Condition’ project, however, [solutions made by other designers/Kotro & Pantzar] were carefully and systematically studied.... In the project, several other products were bought and tested: portable CD and cassette players, their remote controls, radios worn around the neck

32 Juhani Salovaara, “The Forces Behind Design,” *Muoto* 1:25–26 (2000).

33 Frank Nuovo, ‘Design: Frank Nuovo,’ [www.nokia.com/phones/8850/frank.html](http://www.nokia.com/phones/8850/frank.html) February 10, 2000.

34 Ainamo and Pantzar, 2001.



or wrist... heart rate monitors, radiophones, hearing protectors, goggles, meters for swimming, pocket knives, key rings, watches, etc. Compared to design based purely on user needs, there is one undefeatable advantage in copying of ideas. Ideas already are expressed in the language of solutions, as opposed to user needs, which are abstract and have to be translated into design solutions—a task that is anything but simple.<sup>35</sup>

Suunto's wrist-top computer is a luxury article in two senses. If used where it is designed to be used, in difficult conditions in adventure sports, it is a luxury because the hobby, in itself, is expensive and therefore exclusionary, requiring travel, free time, and costly equipment. If used in everyday life, for which it is not primarily designed, it is comparable with watches, but the price of the product makes it a luxury compared to ordinary digital watches. These categories also are seen in magazines: Suunto wrist-top computers, mainly the Vector, are presented either together with items such as snowboarding clothes, other compasses and altimeters, backpacks, knives, and sailing equipment, or with expensive watches and award-winning designs. Without highlighting the functional details, the product environment and reference is, therefore, one of expensive watches, often used as symbols of style and status. These wrist-top computers are made for "challengers" and "forerunners."<sup>36</sup>

At Suunto, the cultural landscape for the high-tech computer was found not only in computing or outdoor sports, but also in watches. Digital sports watches are mainly made by large companies manufacturing a wide range of fashionable sports equipment, from running shoes to backpacks. Even in watches, there are several categories that have to be understood to place a wrist-top computer among them. Obviously, fitness products, digital sports watches, jewel-like watches, and wrist-top computers all have different cultural landscapes.

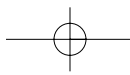
The purpose of fitness products such as heart rate monitors is to help people improve their condition, and these products carry the image of health and comfort rather than of risk and adventure. It is not only simple technical details, product features, or design principles which are transmitted by these products. We can imagine that they contain whole philosophies of life to be exported or imported. In spring 2001, Suunto was taken as an example of Finnish internationalization and branding in *Bluewings*, Finnair's magazine for business travelers. The view given of the function of Suunto's products is interesting:

As the world... becomes more globalized and mobilized, people have more of a need and desire for data on their environment at each moment, even in everyday life.<sup>37</sup>

35 Turkka Keinonen, "Off-line Wearability as a Design Driver," (in Finnish) in *How to Design Usability*, T. Keinonen, ed., (in Finnish) (University of Art and Design Helsinki, B61, Helsinki, 2000), 201.

36 *Suunto News*, 1999-2000, outdoor edition.

37 *Bluewings*, 2001: 67.



In the words of Suunto's managing director: "Knowledge increases control and a feeling of security in an ever-changing situation."<sup>38</sup> What is notable is the fact that it is not only environmental pressures but also the evolving perspective of self-control that generates market potential: "In the States today, people love competing to see who can ski most in a day—vertically, that is, going down the slope and back up again. Skiers have noticed that Suunto's Altimax wrist-top computer, originally designed for climbers, is exactly the instrument everyone needs to record proof of their own achievement."<sup>39</sup> Changing the cultural landscape of the product promotes new kinds of consumers, too. One might talk about self-fulfilling user representations and prophecies. Reality follows representations.<sup>40</sup>

What could be learned from the observations made above? First, the user representations hidden in, say, advertising clichés and images of pioneer consumers are, by no means, "innocent." Whenever a company invents a new good, it simultaneously constructs a consumer—as well as constrains him or her. This future consumer is represented, for example, in image boards, statistical graphs, journal articles, and images, both explicitly and implicitly. The representations necessarily originate from somewhere: from the product's history, from market research, and from the cultural landscapes in which the members of the product development team live. Second, these representations tend to move from one place to another through different carriers, or mediators. Third, it appears that companies such as Suunto, Nokia, and Sony probably are paving the way for a more general cultural shift in a direction in which the characteristic heroes are taken more and more from youth culture and from images of ultimate survivors.<sup>41</sup> The lives of businessmen seem to be held less often as the ideal. Thus, the fashion houses of technology evidently are approaching the realm of the cultural industries. Let us now focus on some general, although still very preliminary, conclusions that can be drawn from the above observations.

## Discussion

### User Representations Are Not Innocent

Dunne argues that, in user-friendly design, we as the users adopt the roles actually created by the human factors specialists of large corporations. User-friendliness has helped to naturalize the electronic objects and also the values they embody.<sup>42</sup>

Future consumers, of course, exist only in the imagination. Company people recognize that, "if you ask the public what they think they will need, you will always be behind in this world. You will never catch up unless you think one to ten years in advance, and create a market for the items you think the public will accept at that time."<sup>43</sup> Suunto's wrist-top computer design consultant expresses this same idea:

38 Ibid., 67.

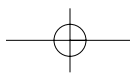
39 Ibid., 67.

40 Mika Pantzar, "Consumption as Work, Play and Art-Representation of Consumer in Future Scenarios," *Design Issues* 16:3 (2000) Fall, 1–20.

41 Most technology documents of today could still be characterized as old-fashioned technological determinism and a lack of user orientation, e.g., Motorola documents: "Bluetooth Makes Our Vision a Reality" (<http://www.motorola.com/bluetooth/vision/vision.html>), "Find Out How Technology Will Change Your Life!" ([http://www.sx2.net/www/mya\\_flash.html](http://www.sx2.net/www/mya_flash.html)) [April 5, 2000].

42 Anthony Dunne, *Hertzian Tales: Electronic Products, Aesthetic Experience, and Critical Design* (London: Royal College of Art, Computer Related Design, Research Studio, 1999), 30.

43 One of the founders of Sony Corporation, according to Kunkel, *Digital Dreams*, 14. The latest market-oriented views avoid, with good reason, giving too much weight to current consumers at the cost of future consumers, as is typical of purely consumer-led thinking. See, e.g., Pierre, James Hulbert, and Leyland Pitt, "To Serve or Create? Strategic Orientations Toward Customer and Innovation," *California Management Review* 42:1 (1999): 37–58; Stanley Slater and John Narver, "Customer-led and Market-oriented: Let's Not Confuse the Two," *Strategic Management Journal* 19 (1998): 1001–06.



It is difficult to go out there and ask how things should be. Take a thousand people and ask what they feel the next Opel Astra model should be like. If you ask it that way, it does not work, they do not know (unprinted interview).

According to a senior manager at Sony, the greatest successes of Sony's Design Center have come from products for which there was no proven demand. A classic example is the Walkman that many people greeted with skepticism when the idea was floated in 1979.<sup>44</sup>

Clearly, when a novel product is being imaged and planned, there is no such thing as a group of future consumers, only fictional ones. However, when imaging a future product, one can hardly avoid thinking up a user and a context of use for the new product. The consumer and user context are represented—either explicitly or implicitly—by an image, a sort of cultural landscape.

Madeleine Akrich has made a useful distinction between implicit and explicit techniques of representing the user.<sup>45</sup> Textbooks dealing with innovation focus mainly on explicit techniques, such as systematic market surveys, consumer testing, and feedback on experience. According to Akrich, in reality, it is the implicit techniques that dominate.<sup>46</sup> First, it is typical for one to represent the future consumer based on self-experience. Another related possibility is to count on the expertise of other specialists. And third, one can study the history of related products, and learn from the similarities and differences.<sup>47</sup>

At Sony, for example, the designers themselves claim to be the “ultimate consumers.” At Suunto, the design consultant of the wrist-top computer product line is a rock climber—although by sheer coincidence, as he himself explains. Many of the Suunto personnel have outdoor sports as their hobby: sailing, snowboarding, diving, and triathlon, to name a few. What we argue here is that personal experience in a certain field and a feel for its culture can form an important basis both for creating and conceiving the right consumer image, and for successful product development. This is because personal experience in a field not only helps to understand the cognitive elements of the cultural landscape in question, but also develops intuitiveness and sensitivity towards that field, its values, and its product environment.

The product development process almost without exception starts with a market analysis and an analysis of the competing products. As in the case of Nokia mentioned above, other similar examples from the past sometimes are examined. What is not so widely recognized is that different mediators play an important role in the course of product development.

Magazines, music videos, and movies can play an important role as a stage for goods, and as a source of inspiration and meeting-place for designers, journalists, advertisers, and readers. These ac-

44 Kunkel, *Digital Dreams*, 15.

45 Madeleine Akrich, “User Representations: Practices, Methods, and Sociology,” in *Managing Technology in Society: The Approach of Constructive Technology Assessment*, ed. Arie Rip, Thomas Misa, and Johan Schot, eds. (London: Pinter Publisher, 1995).

46 Richard Ohmann has found skeptical statements related to the use of explicit techniques, especially consumer surveys: research is but one tool and a very limited one, research for the most part is useless and based on self-fulfilling prophecies, and it is the “agreed-upon fiction of our industry” [Richard Ohmann, “Knowing/Creating Wants” in *Making & Selling Culture*, Richard Ohmann, ed. (Hanover: Wesleyan University Press, 1996)].

47 A fourth implicit technique is to use metaphors: e.g., users are a simple, adaptive part of machinery. According to one study, this is exactly the way most Finnish computer system people see the end user.

tors have one thing in common: every one of them follows the latest developments, the newest trends. What is “up-to-date” is created in the pages of magazines when these actors speak to each other, create, and exchange their worlds.<sup>48</sup>

### Mediators—High Tech Enters Fashion

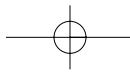
We suggest that an important part of the designers’ and users’ collaboration takes place as an interaction between different mediators, research institutes, consultants, the media and the user representations created by the product development team. In a company context, the view of a product’s end-users and its cultural landscape, as we call it, also is based to a great extent on mediators such as magazines, exhibitions, TV, movies, and research institutes, as well as on random discussions with friends and colleagues. This transits high-tech products toward becoming cultural goods themselves. This can be clearly seen in movies including *The Matrix*, *Charlie’s Angels*, or *The Saint*, where Nokia phones act as an icon of a new era. We believe that a great deal of research is needed in this area, and we realize that our project is only a modest start.

When, in Suunto’s case, the idea of the wrist-top computer product line was conceived, there was no clear intention of making a fashionable product for the consumer market. The question was more about reaching new areas—climbing, mountain biking, and snowboarding—making use of the knowledge to manufacture small-sized technical devices for use under demanding conditions. The resources for a new product development process thus arose from the facilities and technical know-how for making watch-size equipment with an electronic compass, altimeter, barometer, and watch. The existing markets were studied by interviewing retailers, experts, end-users, and test groups, which was formed from adventure sports enthusiasts from Europe and the U.S. Very similar stories might be told about the R&D projects at Sony and Nokia. To become a fashion house, a company should learn to simultaneously manage the market and sense it. This argument follows the logic—or should we say illogic—of fashion itself: the act of simultaneous following and creating.<sup>49</sup>

A fashion house certainly has to deal with many different and probably contradicting phenomena. Right timing is one of the most important parameters. According to an article published in the *Harvard Business Review*, we are witnessing a period of “time pacing.”<sup>50</sup> The rhythm of business is no longer dictated by events and inventions, but by the logic of fashion cycles. What is needed is “promiseware” and tools for continuous interaction with the alternating rhythm of such trends.<sup>51</sup>

It is not by chance that many companies such as Intel or Philips, for example, are actively involved in the debate about our future: “So to stay in rhythm, Intel must create ‘New Uses and New Users’—which is, in fact, the company’s slogan for keeping the

- 48 Tanja Kotro, “Media and Mediators in the Product Development Process,” paper presented in *Media Usage and the Transformations of Everyday Experience* seminar, University of Turku, 31.11.2000. Available at <http://www.uiah.fi/~tkotro/>.
- 49 Gilles Lipovetsky, *The Empire of Fashion. Dressing Modern Democracy* (Princeton: Princeton University Press, 1994); and Georg Simmel, *Muodin Filosofia (The Philosophy of Fashion)*, (Helsinki: Odessa, 1986). Originally published as *Die Mode* in 1905.
- 50 Kathleen Eisenhardt and Shona Brown, “Time Pacing: Competing in Markets That Won’t Stand Still,” *Harvard Business Review*, March-April, (1998): 59–69.
- 51 Ruby Dholakia, Norbert Mundorf, and Nikhilesh Dholakia, *New Infotainment Technologies in the Home. Demand-Side Perspectives* (Mahwah, New Jersey: LEA, Publishers, 1996); Pantzar, “Consumption as Work, Play, and Art”; Solveig, Wikström, “The Customer as Co-producer,” *European Journal of Marketing* 30:4 (1996): 6–19.



market in sync with its own pace.”<sup>52</sup> In a film on design futures, Philips people say: “We know there is no need for any of this [i.e., new products, Kotro & Pantzar]. Our job is now to create the need, so that we have the reason to make the products—and sell them.”<sup>53</sup>

If anything, the logic of fashion implies cross-fertilization between very different cultural landscapes. Companies need interpretative flexibility and cultural understanding today more than ever. Trends and concepts travel from one industry to another. Think, for instance, of transparent materials: Nike had transparent airbags in training shoes in the late 1980s, Apple launched the eMac, Philips and Rowenta and many others made household appliances with transparent parts, transparent tableware and clothes came, as did transparent architecture, houses with window-walls, etc.<sup>54</sup> Nokia introduced transparent covers to mobile phones in spring 2001.

How are fashion and high-tech appliances actually linked? What follows from that link? And what kind of implications for product planning follow from the seemingly strong position of extreme-sports professionals both in piloting and in branding the products?

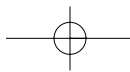
Our preliminary analysis suggests that different cultural landscapes find their way into R&D through various mediators (e.g. consultants) in speech, text, images and objects. Their references often are taken from lifestyle magazines, television series, movies, and advertisements, which embody fashion, the “what is in the air,” into product development. This can be either intuitive or an explicit strategy of product and brand creation.

For high-tech appliances, however, fashion is a problematic strategy, because the rhythm of fashion is better suited for the traditional fashion business (e.g., clothing) than for high tech, which is based on demanding research and development. Fashion leads to the need for constant product renewal, but mainly at the level of product image. Thus, even though the images of extreme-sports professionals are becoming more and more important, this is happening only at the level of images. Nobody is seriously suggesting nor believes that, by using a certain high-tech appliance, one will become a pro in extreme sports. However, an essential part of the pleasure of a product comes from playing with the image—as long as it is fun. Another question is what will follow if the images and daydream representations of the users are embodied not only to branding but also into actual product development, and mixed with function and usability. Snowboarding as an image serves dreaming perfectly, but it also easily becomes a restricting model for the user.

52 Eisenhardt and Brown, “Time Pacing,” 65.

53 Peter Butenshon, “Design, Youth, Consumption,” ICSID Information March, 1998.

54 Transparency has been an exceptionally long-lasting and efficient trend, with its crossing of product categories. Another crossing trend has been the diagonal form which has found expression, for example, in Nike’s “Triax” watch product line, Sony’s md-player (remote control), and rucksacks with only one strap.



- 55 Today, more than ever, business literature claims that firms should sell fun, fashion, and excitement, instead of selling products or services. See, e.g., Rolf Jensen, *The Dream Society* (New York: McGraw-Hill, 1999); and Joseph Pine II and James Gilmore, *The Experience Economy* (Boston: Harvard Business School Press; Schmitt, 1999). Accordingly, the focus in technology research also is increasingly dealing with cultural representations of individual users and households (e.g., Dholakia, *New Infotainment Technologies in the Home. Demand-Side Perspectives*; Arie Rip, Thomas Misa, and Johan Schot, *Managing Technology in Society. The Approach of Constructive Technology Assessment* (London: Pinter Publishers, 1995). We are told that future technology is shaped by visions Auguste Tepper, "Controlling Technology by Shaping Visions," *Policy Sciences*, 29 (1996): 29–44, co-dreaming, Pantzar, *Inventing the Needs for Future Home—On the History of Future Needs* (in Finnish) and "Consumption as Work, Play, and Art—Representation of Consumer in Future Scenarios"); and expectation management, Carl Shapiro and Hal Varian, *Information Rules: A Strategic Guide to the Network Economy* (Cambridge, MA: Harvard Business School Press, 1999). Even though the trend towards experience goods, in our view, is exaggerated and does not sufficiently differentiate various consumer groups, the cases of Suunto, Nokia, and Sony, to the extent that they are discussed here, are apparently associated with the experience economy.
- 56 Paul Hirsch, "Processing Fads and Fashions: An Organization-Set Analysis of Cultural Industry Systems," *American Journal of Sociology* 77:4 (1972): 639–59.
- 57 Ezio Manzini, "The Company as a Cultural Operator," *ICSID News* 5 (1992) August: 1-2; Juhani Salovaara, "In Search of a Direction for Emerging Research in Industrial Design," *ICSID News* 4 (August, 1999): 6-7.
- 58 Bruno Latour, *Science in Action. How to Follow Scientists and Engineers Through Society* (Cambridge, MA: Harvard University Press, 1987).

### Preliminary Conclusions

The most successful high-tech companies succeed in continuously reinventing their products. We would suggest that there are, indeed, many reasons behind these processes of cultural redefinitions and borrowings. Two typical cases are evident in our data: first, changes that were forced and facilitated by an economic crisis (Nokia and Sony) at the company level and, second by changes in the product life cycle. In addition, we argue that one might witness a genuine shift in the practices of consumer electronics and digital appliances. By manifestations such as "A Leading Fashion House in Mobile Communication," companies are, in fact, describing the narrowing gap between high-tech goods and the cultural industry.<sup>55</sup>

In a well-known article, Paul Hirsch<sup>56</sup> defined cultural goods as "'nonmaterial' goods directed at a public of consumers for whom they generally serve an aesthetic or expressive, rather than a clearly utilitarian, function." The unpredictability of market reactions, the extensive risk sharing and the outsourcing of numerous players in production, marketing, promotion, and distribution; and, finally, the focus on symbols and images seem to dominate the sphere of cultural products. Our article suggests that these attributes increasingly characterize high-tech goods as well. Companies such as Sony, Nokia, and Suunto, at least, have met these new challenges.

The designer's profession as an interpreter of cultural landscapes is expanding, because designers are taking part not only in the design process of new products, but also of concepts and corporate strategies.<sup>57</sup> The mediators plays a key role is in this process of traversing cultural landscapes. One could refer to them as "obligatory passage points,"<sup>58</sup> since it is through the product development team, the designers, and the marketing people that the outside world enters the company. We noted that mediators, when they move a cultural landscape from one industry to another, simultaneously reify the existing representations. Snowboarding is this kind of a powerful simplification—it represents a free and self-realizing consumer with an impressive manner. Snowboarding as simplification works as a representation for new consumers, even with different kinds of products and companies. Nokia, Sony, and Suunto all are connected to the brave new consumer rather than the worn-out conception of a businessman.

What we have argued here is that the self-experienced knowledge of designers and marketing people has an important role in product development. Together with such knowledge, the cultural landscapes that influence the meaning of an object are assembled during the development process through various mediators. The users, even in user-centered design, actually are mere representations of users, ensembles of the cultural images, values, and visions that are part of the product. Following these images and visions, we will all be snowboard kids, at least for a day.