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When products speak differently: Designing new languages for established products

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Innovating product language has been proven to be an effective measure to change what products mean to customers and create new product categories. However, how to embed a new language into a product characterized by an established design has not been addressed in the past. Thus, we discuss a single case study of Videndum, a company producing premium branded tools and accessories for content creation (i.e., photography supports and accessories) that is redefining their product language and seeking to incorporate new narratives into their existing line-up of products. Our case study is based on 18 interviews across all levels of the organization, analysis of archival data and observations to explore the actions the company is taking to change product language for their established products. Our findings show that designers can work at the level of the design principles to inform how new meanings can be embedded into signs at the product level, to build a new coherent product language. We identify two layers of design principles, value-principles and solution-principles, and show their different impact on product language. By doing so, we contribute to understand how companies design new product languages for established products in practice, providing managers with practical knowledge on how to perform the translation from abstract values to product features.

KEYWORDS
design principles, innovation, meaning, product design, product language

1 | INTRODUCTION

The ever-evolving socio-technological landscape often requires companies to rethink the language that surrounds their products and the meaning they hold for customers (Arnould & Thompson, 2005). Product language can be defined as 'the combination of signs (e.g., form, colors, materials) that gives meaning to a product' (Dell'Era & Verganti, 2007) and is crucial to direct customers' meaning-making activities and their perception of a product's meaning (Dell'Era et al., 2011). To stay relevant in the marketplace, it is essential for companies to innovate product languages by changing products', as it can result in change of

the meaning people attribute to them (Verganti, 2017). To do so, companies often attempt at creating new product meanings by embedding new signs to constitute new product languages (Kazmierczak, 2003). In this context, a sign refers to any tangible characteristics that people can sense: visual or acoustic stimula, tactile feedback, smell (Eco, 1979). A prime example of this is the Yankee Candle attempt to switch from viewing candles as sources of light, to candles as sources for cozyness (Verganti, 2017). To propose this change of meaning, the company changed the traditional candle language by coordinating different signs: pastel colors in the label, organic and highly scended wax, sometimes the opaque glass that partially hides the candle light.

Prior research has extensively examined how companies can conceive new meanings for their offering (Artusi & Bellini, 2020; Verganti, 2017) and how product signs can be shaped to adopt a language coherent with the new intended meaning (Kazmierczak, 2003). However, extant research has mainly focused on developing *new* products with a different language. How product language can change for *established* products, already possessing a clearly defined dominant design, is still left unexplored. Unlike new solutions, established product categories tend to generate dominant designs over time (Suarez & Utterback, 1995). Within a dominant design, products rely on the same architecture, technology, and similar product languages that tend to uniform within the frames of a design (Dell'Era & Verganti, 2007). Designers may find themselves constrained by such frames to the point that it limits their creativity (Perry-Smith & Mannucci, 2017), while companies may be hesitant to adopt a new language for fear of misinterpretations by customers (Artusi & Bellini, 2020).

In this article, we focus on how product language can be redesigned in established products according to new meanings conceived for such products. Following the literature on innovation of meaning (Verganti, 2008) and product language (Krippendorff & Butter, 1984), we position our study as complementary to Gasparin and Green (2018), who explored how established products can be communicated differently in different cultural settings. We focus on how new meanings are embedded into signs at the product level, and how this affects product language. Thus, we define our research question: *How do companies design new product languages for established products?*

To this end, we present a single case study of Videndum, a company producing premium branded tools and accessories for content creation (i.e., tripods and accessories) that is redesigning product language for their existing products, seeking to incorporate new narratives that are more aligned with shifting customer preferences. The photography industry has experienced significant disruption in recent years due to new technologies and a widely diffused cultural shift, with pictures and videos becoming a key form of self-expression (e.g., through social media). With smartphones allowing anyone to capture high-quality photographs, accessories such as tripods or stabilizers are often regarded as redundant. In this context, it is essential for the company to reassess the relevance of its products and articulate why photographers and content creators should invest in them. This case study is ideal as tripods and accessories represent established products with a clear dominant design. Understanding how to adapt their language to fit the evolving cultural landscape while preserving their essence and recognition within the frames of the dominant design patterns is critical and yet not explored in the extant literature.

We conducted a single case study based on 18 interviews across all levels of the organization, including strategic decision-makers, product designers, and communication departments, among others, and complemented with the analysis of archival data, based on internal documentation and publicly available reports and articles, and observations. Leveraging this dataset, we explore the actions the company is taking to redesign their product language. Our findings were analysed inductively (Gioia et al., 2013) to identify how language is redesigned in practice.

Our study contributes to the ongoing discourse concerning design-driven innovation strategies (i.e., Verganti, 2017), and their linkage to product language design (i.e., Cautela et al., 2018). We advance the understanding of product language design by highlighting the role of the design principles as a bridge between strategic and design choices. Adopting this internal view, we take a complementary view to the studies focusing on meaning-making at the customer level (i.e., Grace, 2021) by illuminating how designers work to change language to existing products.

To managers and practitioners, we offer suggestions about how to manage the transitioning from abstract intended meanings to practical product language design. Our approach introduces new methods for redesigning language within established product categories, emphasizing that radical product innovation is not the sole strategy for creating new product languages and meanings.

2 | LITERATURE BACKGROUND

2.1 | A semantic perspective on product language

Complementary to a more technological view of products, a semantic perspective on products is concerned with the user-product relationship, and the importance of such relationship within a social context (Demirbilek & Sener, 2003). Such a relationship often goes further than the practical value of products as intended to serve a particular use, and embraces symbolic, emotional, and identity-related aspects (Csikszentmihalyi & Rochberg-Halton, 1981; Verganti, 2008). In fact, the practical use value can often represent a limited part of the overall value given to a product—take a luxury car or a piece of furniture as an example, both often associated with signalling a status or an identity. In this article, we use the term value as referring to the more intangible and symbolic elements of an offering, in line with Csikszentmihalyi and Rochberg-Halton (1981), who reflect on the relationship between products and one's identity, and Verganti (2008), who defines meanings—symbolic reasons why people love certain products/services—as guiding forces for consumption.

Understanding products from a semantic perspective means focusing on the meanings incorporated into the products and how the products intend to signal them to users (Wikström, 1996). To understand how products intend to communicate meanings, we adopt a perspective on language and meaning-making in line with Pierce's theory of signs (Pierce, 1980). According to this view, any form of communication and meaning exchange requires an object, a referent—the form that a sign takes—and an interpretant to make sense of the sign. Following Krippendorff and Butter (1984), we posit that the relationship between the object and the referent is non-significant when studying product semantics, being the product made by the sum of its referent signs. Rather, we elaborate on this view to establish the relationship between signs, the product language, and the user/interpretant when looking at products from a semantic perspective and acknowledging the multiplicity of signs that is usually existing (Figure 1).
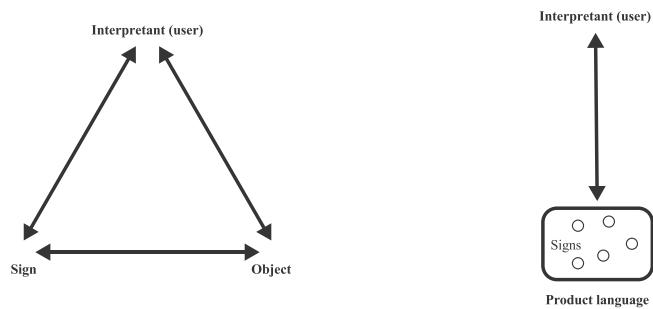
FIGURE 1   A classical representation of the semiotic triangle (left), and our conceptualization of product language from a semantic perspective.

From a semantic perspective, the product is embedded with signs that, if assembled into a coherent product language, point towards a certain message to be conveyed (Dell'Era et al., 2011; Van Onck, 2000). According to Monö (1997), product language absolves four main semantic functions when communicating with users. In particular, description—which informs how to use it; expression—which informs how to handle it; exhortation—which refers to any action that the product requires to the user for a proper use; identification—which refers to its belonging to a category. In line with a more emotional understanding of product design (Demirbilek et al., 2004), Crilly et al. (2004), further elaborate on the Monö's conceptualization of product language by acknowledging the presence of less utilitarian functions. Thus, a product can be seen as an entity that aims at conveying three main types of messages: aesthetic preferences, utilitarian properties and symbolic associations.

While product language can be design with a meaning in mind (Dell'Era et al., 2011), how people interpret it during interaction depends on user characteristics and contextual elements (Grace, 2021). The same product language can be interpreted differently based on such contextual characteristics, leading to different meanings perceived by users (Grace, 2021; Kazmierczak, 2003). While we acknowledge this contextual dimension in users meaning making, in this article we take a design perspective on how product language can be shaped to point towards a defined meaning. Thus, we work at the *intended* and *constructed* meaning level (Kazmierczak, 2003), namely, what designers aim at communicating through the product, and how such meaning is embedded into product language working on product signs.

2.2 | A design perspective on product language

The term design has been used with different perspective in the literature: either pointing at a creative mindset (Dosi et al., 2018; Kelley & Kelley, 2012), a development process for new products/services (Purcell & Gero, 1998), and the output of such creative processes (Suarez & Utterback, 1995). Following the work of Krippendorff (1989), in this article we refer to design as the set of activities that allow to purposely give meaning to something. This is in line with

the original etymology of the word: the latin word 'de-signare', which literally means signifying something (signare) in relation to something else (de). Accordingly, at the most basic level, a designer's job is that of giving meaning to objects, in a way that such meanings are understandable by users (Kazmierczak, 2003; Verganti, 2017).

Designers can work at the product language by assembling the system of signs at the product level: forms, colors, shapes, technical properties are all design decision that contribute to the formation of product language (Demirbilek and Sener, 2006). Thus, designers work by communicating meanings to users through products and their language (Verganti, 2008). Designing a coherent system of signs in a product allows designer to shape that product grammar and how it is likely to be interpreted by customer (Kazmierczak, 2003; a concept similar to the brand grammar in McCormack et al., 2004). Adopting a design perspective on product language implies understanding that product meanings can be shaped, to some extent, before the product-user interaction. In other words, designers have some levers to design what they *intend* a product should mean (Artusi & Bellini, 2020; Kazmierczak, 2003) by reflecting on how their key audience is likely to interpret their language. For example, using a green colour might points towards a feeling of an organic/sustainable offering in the current western societies. However, if other signs and performances are not aligned, it might be interpreted as greenwashing. We thus position our article along the extant views regarding design activities as able to direct what products mean and thus customer perception (Baranauskas & Bonacin, 2008; Kazmierczak, 2003; Verganti, 2008), rejecting a pure constructivist view of meaning perception as almost solely built during a product interaction with users and a cultural system (Arnould & Thompson, 2005; Grace, 2021). Although we recognize the influence of contextual and individual factors in attributing product meanings, acknowledging that designers can reflect upon those factors and act accordingly allows for generating more actionable design theories.

In practical terms, designers often define sets of principles that work as a guide on how to develop the product language. Design principles (Blair-Early & Zender, 2008)—sometimes also referred to as design imperatives (Beckman & Barry, 2007)—work as simple propositions that give a general guidance of how to translate a design idea into practical terms. Following such design principles, designers shape signs at the product level to be coherent with the intended meaning. However, additionally to possible meaning-making deviations caused by different cultural contexts, designers need to acknowledge the emergence of dominant designs over time (Srinivasan et al., 2006): within a certain product category, products tend to assume similar architectures, technologies and language to be easily recognized by a wide audience (Koski & Kretschmer, 2007). Such dominant designs can result in interpretive frames to both users and designers, making both technological and design-driven innovation hard to achieve (Brem et al., 2016). For this reason, we position our research at the intersection between an agentic perspective on design on product language, and a semantic perspective on products as carrier of meaning-embedded languages.

To summarize, the definition of a new product language depends on the construction of the system of signs at the product level. Such system of design defines how the product speaks to user and how it intends to convey the utilitarian, aesthetic and symbolic meanings associated. Design is the set of activities intended at shaping the product language in such a way that users are more likely to interpret the desired (for the designer) meaning. This work implies considering design constraints imposed by already existing signs in the case of established products. In this article, we build on this understanding to investigate how product language for established products is designed in practice.

3 | METHOD

To investigate the stated research question empirically, we conducted a single, in-depth case study. We gathered data through multiple data sources (semistructured interviews, archivial data and observations among others) (Eisenhardt, 1989), leveraging primary and secondary sources in a retrospective approach (Yin, 1998). We opted for a single case study for two main reasons. On the one hand, due to the exploratory nature of our research, case study was deemed as the most appropriate methodology as it enables in-depth exploration of the phenomenon of interest. Besides this methodology allows for the exploration of the phenomenon under investigation within real-life context (Eisenhardt, 1989). On the other hand, we had the chance to engage with a company, which was in the process under investigation, representing a unique opportunity for exploring the phenomenon of interest. The chosen case was actively undergoing a language redesign in its products without deviating from dominant design patterns, providing valuable real-time data. Therefore, the case study approach allowed for comprehensive analysis, deep immersion and exploration (Siggelkow, 2007). In the following sections, the case study is presented with details on data collection and analysis.

3.1 | Research setting

[1]Videndum is a company that develops and supplies premium branded tools and accessories for the fast-evolving market of content creation, that is, photography supports and accessories. The company includes different brands, serving a wide range of different users (i.e., both photographers and video makers), including both B2B and B2C clientele all over the world.

The case selected is interesting for different reasons. First, it is an interesting case of product language redesign for an established product. Videndum is a company that has been developing tripods and accessories for content creation since long. As with products from competitors, such accessories were produced within the frames of a dominant design with standardized forms and shapes (e.g., a tripod will always have three legs). Second, Videndum is pursuing his objective successfully, by keeping the market leadership.

In early 2020, the company initiated a strategic transformation due to the rapidly changing market dynamics. The digital revolution had already rendered traditional SLR cameras obsolete in the professional photography market. While smartphones with high-quality cameras disrupted the consumer market, leading people to prefer smaller and lighter devices, which not only made obsolete traditional cameras accessories but also opened the doors to a completely new array of possibilities (e.g., the Tik Tok's content creators, who besides a support need a mic and a lighting system easy and ready to use). Therefore, the company was aware that, despite their leadership in the market, they had to completely redefine their strategy. The strategy was defined by the end of 2020 and publicly presented at mid-2021. From early 2021, they embarked on a radical product redesign to align with the new strategy.

The first step was a redefinition of the branding strategy, shifting from representing market segments to specific purposes such as studio content creation, wildlife and outdoor content creation, and digital content creation. This strategic shift required significant organizational adjustments, with the entire team working on product redesign. Our investigation for this study started here. Precisely, we consider the strategy as given and representing the intended and constructed meaning the company wanted to convey to its products. Thus, we focus our investigation on the product language redesign starting from intended meaning as formulated by the company. In approaching the product language transformation, the company was engaging the whole organization from product design to operations and sales department with the main intend to ensure the development of a product language that align with the abovementioned strategy (the intended meaning) and across all the main departments.

In pursuing its journey in designing the new product language, Videndum was proceeding independently. We acted as external researchers with no active involvement within the process. Nevertheless, two of the authors were involved as external consultants in the former stages of strategy definition starting from early 2020, allowing them to familiarize themselves with the company's culture and environment. This preliminary involvement facilitated the activities of data gathering for the purpose of this study, being the two authors already familiar with the company environment and the key actors to be involved for interviews and further data collection. In the following section, we detail our data collection and analysis methods.

3.2 | Data gathering

We gathered data from both primary and secondary sources, as summarized in Table 1. Our primary data collection involved conducting semi-structured interviews from June to November 2022, involving 18 individuals from various company departments (e.g., marketing, operations and sales) spanning all three major brands. To ensure diversity, we selected respondents based on their hierarchical levels, decision-making authority and nationality (60% from Italy, 20% from the United Kingdom, 10% from the United States and 10% from New Zealand). We included individuals who had been with the

TABLE 1 Detail of primary and secondary data sources and their use in the analysis.

Data source	Type of data	Time frame of data gathering	Use in the analysis
Archivial data	Company website Company social media (Linkedin) pages Managers social media (Linkedin) pages Ambassador social media (Linkedin and Instagram) pages Internal documents: Company materials and presentations related to the state of the art concerning the products and how they are evolving Video and communication material (four videos): Video concerning the presentation of the new products embedding the new meaning	From mid-2021 (strategy launch) to November 2022 (end of the data gathering)	Familiarize with the organizational context, values and languages. Support, integrate and triangulate evidence from interviews recordings. Monitor product development.
Observation	Field notes from interviews' meetings: Researchers notes from interviews Informal conversations: Informal talk with managers, before and after interviews	From March 2022 (preliminary conversation about the research and evaluation of case relevance for the purpose of the study) to December 2022 (follow up on the data gathered and preliminary insights)	Familiarize with the organizational context, gain trust of informants, discuss insights from observation, clarify uncertainties regarding product-related decisions, and support emerging interpretations.Keep record of the outcome of practices that members engaged in during the interviews (e.g., specific jargon, sketching) and share it with the other authors.
Recordings	Managers interviews (18 interviews, +950 min of recordings): Interviews done to have first-hand data about how the new meaning was inserted into the new product from a practical perspective.	From June 2022 to November 2022	The interviews covered topics such as brief introduction on the overall understanding of the new strategy and new intended meaning, how the new product language was developed and the connected design choices. Interviews provided a broad understanding of the process followed the design choices taken to shape the new product language.

organization since before 2020 and those who joined later and focused exclusively on product-related work. A slight overlap of data analysis and data collection enables adjustments to data collection instruments (Harris & Sutton, 1986; Eisenhardt, 1989). For example, the interview protocol was slightly modified to take advantage of specific respondent's expertise and experiences. Each interview lasted 60 to 120 min, resulting in over 950 min of recorded content. Two of the authors conducted the interviews, with the other author and an external investigator reviewing the gathered data for completeness and relevance.

Additionally, we collected information from various secondary sources serving different purposes. Firstly, following the launch of the new strategy in mid-2021, we monitored the company's activities through media, including newspaper and magazine articles, as well as video interviews. This allowed us to track the company's post-strategy launch progress and gain additional background information. Then, from mid-2021 onward, we closely monitored the company's social media pages (e.g., LinkedIn and Instagram), those of active managers, and some major ambassadors to keep abreast of new product launches and communication efforts. These secondary data gathering and analyses were performed mainly up-front engaging managers in interviews and provided initial insights about the case under

observation and helped us in streamlining our interviews by focusing on key areas of interest. Secondly, internal documents shared by managers complemented the interview data. Finally, secondary sources facilitated product development tracking, enhanced the robustness and reliability of our findings, and provided historical context for the company's evolution over time. All authors, along with external support, participated in collecting secondary data.

Once the data gathering was completed, interviewees and fellow researchers who were not part of the primary data collection reviewed and validated all the data gathered to avoid bias and misinterpretation.

3.3 | Data analysis

Aligned with our research goals, we primarily focused on analysing interview data, utilizing transcripts as the primary source. Field notes and archival materials complemented the analysis, aiding the interpretation of emerging categories and the creation of an overarching framework. Initially, one author engaged in open coding of interview transcripts, identifying pertinent text segments related to the translation of new meanings in products. These segments were labelled with
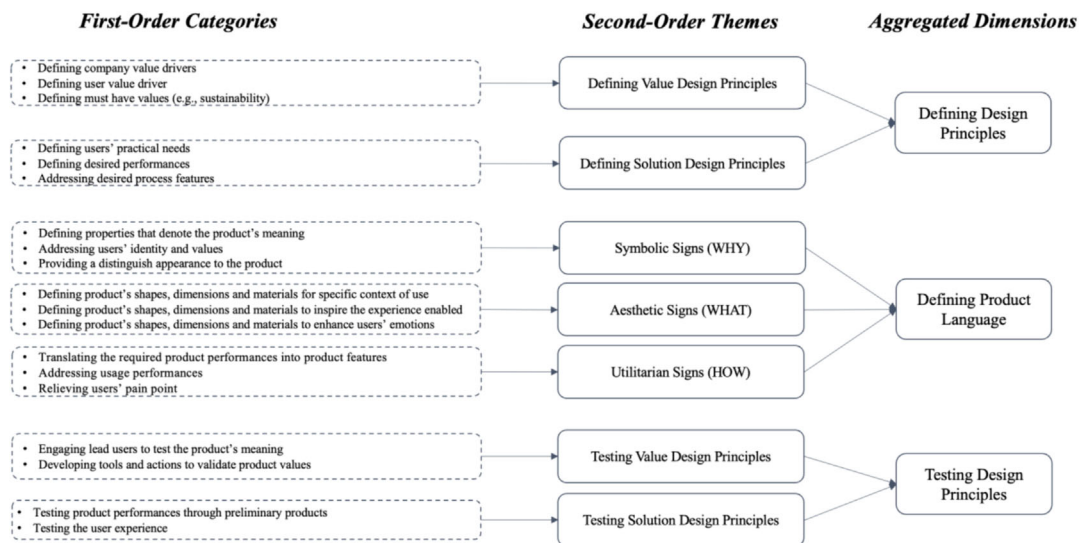
FIGURE 2 Coding tree highlighting the main phases for language redesign in established products. [Colour figure can be viewed at wileyonlinelibrary.com]

'in vivo' terms used by the interviewed managers, resulting in a substantial dataset of codes. Subsequently, through multiple data readings, these codes were gradually grouped into first-order categories that exhibited similar dynamics or behaviours (Locke, 2002). All authors reviewed this coding process, resolving discrepancies through discussion and occasional recoding. We then compared first-order categories and organized them into second-order themes related to how companies can change language for established products (e.g., value design principles, solution design principles, symbolic and aesthetic signs) (Gioia et al., 2013). In defining second-order themes, we followed an iteration process with the literature supporting our coding scheme, such as Blair-Early & Zender, 2008 design principles. Similarly, we drew upon studies about signs and languages (e.g., Crilly et al., 2004), focusing on how different signs (symbolic, aesthetic and utilitarian) are considered. In a subsequent round of open coding, we formulated aggregated dimensions, ensuring internal validity through pattern matching. An external researcher validated the codebook to enhance research process reliability. Figure 2 illustrates the coding tree.

4 | RESULTS

In exploring how Videndum design new product language for established products, we observed the relevance of different kind of design principles (value and solution design principles) and different Product Language signs (symbolic, aesthetic and utilitarian). We next present our findings for each dimension emerged, highlighting the implications related to the process under investigation. Then, in the discussion, we explain how the different dimensions combine and help understand how new product languages for established products are designed.

4.1 | Defining design principles: Setting the guidelines for a new language

Design principles work as simple propositions that give a general guidance of how to translate an intended meaning into practical terms (Blair-Early & Zender, 2008). In this way, they constitute the bridge between the company's intentions at a strategic level and the signs embedded into products. In our data, we observe how, in defining Design Principles, two categories of emerged: value design principles and solution design principles.

Value design principles appear as those design principles aimed to transfer and convey to the product the values' hierarchy defined within the intended meaning (Csikszentmihalyi & Rochberg-Halton, 1981; Verganti, 2008). Precisely, we observed how the company focused in defining three set of values drivers aimed to guide the design of the new product language. First, the managers interviewed highlighted the relevance to define those value design principles that are crucial for the company as emerge in the following quote:

> We also defined a product purpose, which could clearly communicate with audiences both on the product communication level, and also on the product value level.

In a way, defining value design principles at a company level is crucial to preserve the company identity and purpose in offering the product.

Second, it emerged the necessity to consider even the users' value driver aside of those of the company: they are fundamental to align company's value with user's value and be sure to address both. This emerges clearly in the following quote:

We decided to set up a strategy that did not just start from the technical need of the user, but instead went to study what are the values of our target audience.

Finally, we found how in defining value design principles, the company should consider to address all those values that in the current society are considered as 'must have' and, therefore, are essential for the product to be considered by the user. For example, in the following quote clearly emerge the need to ensure a product that is sustainable:

One issue that is essential for us today is that of sustainability [...] In this regard, in fact, we have moved to accelerate both the communication of initiatives that were already underway with a view to sustainability and the design of more sustainable products.

Therefore, defining Value Design Principle aims to ensure that the entire value system (company's values, users' value and 'must have' values) is considered. This emerge as crucial to ensure the design of a product that is meaningful both to the user and the company that is providing it.

Besides value design principles, we observe how solution design principles are defined and are fundamental to set the guideline for further product design (e.g., Beckman & Barry, 2007). Whether value design principles are aimed to set values guidelines for product design, solution design principles emerge as crucial to identify the scope of action in terms of feasibility, viability and users' practical needs.

First, we found as crucial defining the practical users' needs while using the product, this is crucial to later address the product usability and all the utilitarian aspect of the product. An example of this emerges from the following quote:

We decided to set up a strategy that did not only start from user values, but instead also studied what are the practical, and operational needs of people.

Second, our data show that solution design principles are fundamental to define the desired performances the new product will have to satisfy. In the following quote, this concept is expressed clearly:

We demand quality as much as we demand performance functionality and product performance.

Interestingly, sometimes, the required performances address specific value drivers, as in the case of sustainability already mentioned as a must have among the value design principles:

We are focusing on recycled material and on the reduction of the environmental impact as a key performance.

Finally, defining solution design principles is critical to set the boundaries between what is feasible and desirable and what is not in terms of technology and process. A manger clearly explained this to us through the following quote talking about supports such as tripods:

The goal is to define new products from new tube sections that allow us to work in a scalable way.

Design Principles give a general guidance about how to translate a strategy into practical terms. In this way, they constitute the bridge between the designers' intentions and the signs embedded into products. Our data show how these bridges have to be created both in terms of value hierarchies and in terms of solution features and performances. Besides, we found how value and solution design principles work in tandem setting the key guidelines for further product development, the former in terms of desirability, the latter in terms of viability and feasibility, in both cases for the company and the user. Table 2 provide additional quote for both second-order themes.

4.2 | Defining product language: Designing symbolic, aesthetic and utilitarian signs of a product

Product languages are considered as enablers of communication between the product and the user (Venkatesh et al., 2014; Artusi

TABLE 2 Design principles, selected quotes.

Aggregate dimension: Defining design principles	
Second-order themes	Selected evidence of first-order categories
Defining value design principles	Defining company value drivers
	Having a new product strategy and defining the brands accordingly, helped us to concentrate on defining our primary values.
	Defining user value drivers
	We're looking at customers values and that have changed in the last couple of years.
	Defining must have values
	One of the purposes of this project is that it obviously has to be a sustainable product.
Defining solution design principles	Defining users' practical needs
	It is essential to pass information, which also concerns the more technical requirements [...], which relate to the customer's needs.
	Defining desired performances
	Also, at the level of technology, a study has been done and we are now just defining what the performance should be.
	Addressing desired process features
	We are trying to create a platform that can develop products that have commonalities, so as to optimize both from the point of view of market proposition and from the point of view of production, logistics costs and after service.

et al., 2022). In our data, we found how this communication can be enabled by defining different signs to be included in the product: symbolic, aesthetic and utilitarian.

Precisely we identified as symbolic properties, those properties and signs that connect the product meaning with the user's inner identity (Csikszentmihalyi & Rochberg-Halton, 1981; Margolin & Buchanan, 1995). We found how the connection happens by working simultaneously on three main directories. First, it is crucial to define properties that denote the product's meaning and that, therefore, connect to the strategy's values. An example is the following quote:

> The product for indoor content creators is intended to mean, more than image composition, the set composition.

Further, it is crucial to embed in the product properties that address users' identity and values, meaning what is meaningful to them, as in the following quotes:

> The product for outdoor content creators embeds a message of status symbol.

> Our outdoor product cannot pose as a product that teaches and educates a particular audience because a professional does not want to be educated and does not want to receive inspiration from a product and its brand.

Finally, symbolic properties regard even the search for a distinguish appearance to the product, that reflects both users' and product's meaning. An example emerges in the following quote:

> Outdoor content creators reward and tell the beauty of the world we live in, so our product must respect and reflect this beauty.

Besides symbolic signs, we found how the product language has to act also at an aesthetic level, meaning on shapes, dimensions and materials.

We found how product's shapes, dimensions and materials should be different according to the context of use. By referring to products for indoor content creators, a manager told us:

> The product is a little larger in size and has characteristics at the level of accuracy, of support for the shot, that are superior.

Further, aesthetic signs are crucial in inspiring the experience enabled by the product. This emerges clearly in the following quotes:

> Our outdoor product inspires the idea of travel. We therefore worked on the size. We want this product to be under 45 cm so that you can carry it in a carry-on.

Besides, aesthetic signs are fundamental even to transfer in the product the user's emotions while using it, as explained by a company manager in the following quote:

> Users are happy when they can enjoy the creation process. So, the product should give them a fun experience of using, of course the key words should be also flexibility and ease of use. In this sense, we would propose new shapes, no longer round but perhaps octagonal and even open profiles.

The last categories of signs that need to be considered when defining the product language are the utilitarian. Meaning those properties that relate to how the product should be used and which performances it should guarantee to the user. We found how this happens in three ways. First, it is crucial to be sure that the product addresses the main usage performances. Regarding this, a manger, referring to the products for indoor content creators, told us that:

> We have to create a product that can support the shot, providing features that allow you to make a very precise machine setup, make sure that, once the shot is made, the same machine setup can be repeated.

Second, these same performances, which are required by the user, need to be translated into real product features. Continuing the example of the products for indoor content creators, the above-mentioned performances are translated as follow in product features:

> Key product features are reliability and design, thus, recognizability, aesthetics, but most importantly [...] solidity and stability.

While, referring to outdoors product, they said:

> To allow speed in use, the opening and closing will be a single mechanism. So, with a single lever.

Finally, experiential properties are conveyed through making sure the product can relieve users' pain point, removing all those burdens that can hinder the overall experience. An example emerges in the following quote:

> Indoor content creators need [...] to have products that improve his compositional quality, [...] but most importantly improve his personal quality, and accuracy.

To define the right product language (Table 3) is crucial to enable the product to establish a conversation with the user. Our data show how this conversation need to happen on three levels simultaneously. First, a symbolic one, which ensure that the product is desirable and meaningful not only for the company but also for the user and that both sides are considered. Somehow, symbolic signs are aimed to

TABLE 3 Product language, selected quotes.

Aggregate dimension: Defining product language	
Second-order themes	Selected evidence of first-order categories
Symbolic signs	Defining properties that denote the product's meaning.
	The indoor product has always been seen as a reliable Lego-style product therefore multifunctional, versatile.
	Addressing users' identity and values.
	Our outdoor product is 'I am an artist' and 'I need maximum performance because I can't lose that split second where beauty is realized.'
	Providing a distinguish appearance to the product.
	For our users, having an identifying style is the most important thing to stand out. To have an identifying style, photographers usually do a lot of research, a lot of innovation, and so on and so forth. To position our products, they must stand out in the same way.
Aesthetic signs	Defining product's shapes, dimensions and materials for specific context of use.
	The primary focus for outdoor products was to have recycled material in the products.
	Defining product's shapes, dimensions and materials to inspire the experience enabled.
	We decided to remove aluminium and use carbon to inspire lightness and adaptability.
	Defining product's shapes, dimensions and materials to enhance users' emotions.
	We worked on the materials so that they create that stimulus and that curiosity that also leads you to put a different passion into it and then to be curious.
Utilitarian signs	Translating the required product performances into product features.
	A lighter and more portable tripod.
	Addressing usage performances.
	Talking to users, we found that it is extremely important for them to have a modular product.
	Relieving users' pain point.
	The product was developed on the must-have of the user, considering the need to have to change immediately, to be dynamic, to be always on the move.

convey the '*reason why*' of a product, sustaining both company's and user's values. Second, an aesthetic one, that is crucial to address '*what*' the product convey in terms of experience while using it. This is enabled by enhancing the emotions the user is looking for while using the product. Finally, through functional signs, which focus on '*how*' the product has to be used and relieving the pain points the user wants to avoid. It focuses on the more technical aspect of the product, still it is fundamental to sustain even the other two dimensions.

4.3 | Testing design principles: Ensuring coherence between the product language and the design principles

From our data, it emerged clearly how in redefining a product language, it is not sufficient to redesign the symbolic aesthetic and utilitarian signs, but it is crucial to test into the market to gather quick feedback, coherently with any modern NPD process (Leenders et al., 2007). Interestingly, when it comes to language renovation, what is tested is not simply the product in the hand of the user, but its coherence with the design principles, both value and solution ones (e.g., Beckman & Barry, 2007; Blair-Early & Zender, 2008).

Concerning the testing of value design principles, two main actions are taken. On the one hand, engaging the lead users to test the intended meaning. Somehow, the company wants to see whether the user comprehend the intended meaning and if the product addresses the user's values. It clearly emerges in the following quote:

> We tried to interview our ambassadors, our users, the ones we thought were most relevant with respect to both the outdoor world and the indoor world. By comparing ourselves and interviewing them, we tried to see if the values were passing.

On the other hand, the company developed specific tools (e.g., mockup) and actions (e.g., storytelling campaign) to validate product values, as explained in the following quote:

> We went to the users with two mockups, albeit not working, saying: "Guys, this is the direction we have, does it work? Does it not work?" and consequently, we made the changes.

For what concern the testing of the solution design principles, it happens through performances and experience testing. On the one hand, the company tested product performances through preliminary products:

> We want to have a tentative drawing that not only has a shape but also has some more data such as thicknesses, diameters, tolerances, and a few mechanical features that we could start sharing with suppliers and users.

On the other hand, the user experience is tested by looking directly at the user using the product and understanding not only the product functionality and usability but also, and above all, the emotions experienced. Table 4 provide additional quotes.

> The user experience is usually tackled in the very early stages of the ideation phase and then it's validated throughout. In those early stages we're looking at user interaction, how someone actually uses the product,
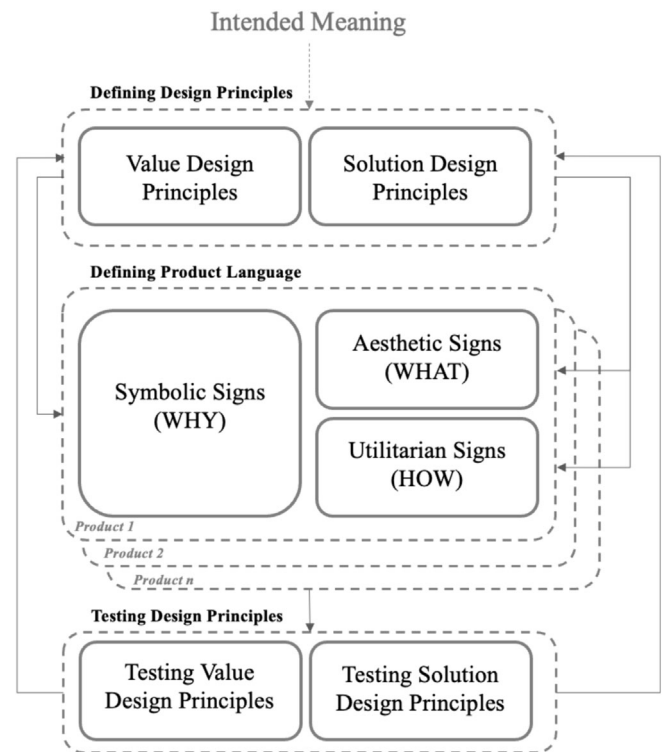
TABLE 4 Product development, selected quotes.

Aggregate dimension: Testing design principles	
Second-order themes	Selected evidence of first-order categories
Testing value design principles	Engaging lead users to test the product meaning
	We re-interviewed our ambassadors and other people who work with us to find out if the product is meaningful or if it does not make sense.
	Developing tools and actions to validate product values
	We did a storytelling campaign going to tell what the vision of the product and the brand was.
Testing solution design principles	Testing product performances through preliminary products
	We develop the finished product 100% from the very early stages, so we need a prototyping function that supports us in making the first prototypes and then they are immediately tested.
	Testing the user experience
	We were standing there seeing how much time one loses to open the lever, the girls had a harder time opening the lever because it takes more force anyway.

FIGURE 3 Framework describing how design principles enables the redefinition of a new product language.

whether it is achieving whatever goals they look for. Do they enjoy it? All of that stuff is built into the backlog of user stories that we're designing to solve.'

5 | DISCUSSION

Our findings are summarized in Figure 3, which illustrate how a new product language is embodied into established products. In particular, the new product language is defined based on the intended meaning developed by the company. To inform product language design, the intended meaning is translated into short, actionable statements, the design principles. Thus, design principles are the reflection of more strategic choices and define what products need to communicate to customers. Later during the process, the design principles guide the definition of product language for each of the different products in the existing line-up. Our case company develops both indoor and outdoor products. Still, the product languages are built starting from the same set of design principles. For example, one key value design principle is the need to address user's value drivers: aligning to what users believe in and value the most. These values are then declined in different ways in terms of symbolic signs according to the product. On the one hand, target users for the outdoor products value the beauty and respect of the world. On the other hand, target users of indoor products value the consistency and reliability of products to be used within the overall setting of the studio. Thus, product

languages are built through using different sings. For example, outdoor products are smaller (aesthetic sign) and allow speed (utilitarian sign). On the contrary, indoor products are larger (aesthetic sign) and allow accuracy (utilitarian sign). This example is further elaborated in Table 5.

Our findings show the key role of the design principles as an intermediate layer bridging strategic choices—often intangible and abstract—and product design—which works on concrete and physical elements. Although widely used in prior research (Beckman & Barry, 2007; Blair-Early & Zender, 2008), the design principles are generally vaguely defined as propositions that guide design activities towards a desired outcome. Our study builds on such a general understanding of the design principles by detailing their role as key guidelines for how a new product language can be designed. In other words, when pursuing product language change, the design principles work as the grammar for the new language: symbolic, aesthetic and utilitarian properties are orchestrated through the development of simple design principles that guide the design of the new product language. The use of such an intermediate level aligns with the need of not losing focus on the intended meaning (Kazmierczak, 2003) when doing innovation, and the related need to fix a few elements as key for the intended meaning to be correctly embodied into products (Artusi & Bellini, 2020). As in a natural language, grammar is needed to ensure a proper assemblage of words, when working on product language, design principles define the grammar upon which signs can be assembled.

TABLE 5 An example of product language redesign.

Defining design principles	Value design principles: propositions aimed to convey to the product the values' hierarchy defined within the intended meaning.	Solution design principles: propositions aimed to identify the scope of action in terms of feasibility, viability and users' practical needs.
	'We decided to set up a strategy that did not just start from the technical need of the user, but instead went to study what are the values of our target audience'.	'We are trying to create a platform that can develop products that have commonalities, so as to optimize both from the point of view of market proposition and from the point of view of production, logistics costs and after service.'
	'One issue that is essential for us today is that of sustainability [...] In this regard, in fact, we have moved to accelerate both the communication of initiatives that were already underway with a view to sustainability and the design of more sustainable products'.	
Defining product language	Symbolic signs: Signs to connect the product meaning with the user's inner identity.	Aesthetic signs: Signs to convey the product meaning on product's shapes, dimensions and materials.
	Outdoor products 'Outdoor content creators reward and tell the beauty of the world we live in, so our product must respect and reflect this beauty'.	*Outdoor products* 'Our outdoor product inspires the idea of travel. We therefore worked on the size. We want this product to be under 45 cm so that you can carry it in a carry-on.'
	Indoor products 'The product for indoor content creators is intended to mean, more than image composition, the set composition'.	*Indoor products* 'The product is a little larger in size and has characteristics at the level of accuracy, of support for the shot, that are superior'.
		Utilitarian signs: Signs to address product's usage and performances.
		Outdoor products 'To allow speed in use, the opening and closing will be a single mechanism. So, with a single lever.'
		Indoor products 'We have to create a product that can support the shot, providing features that allow you to make a very precise machine setup, make sure that, once the shot is made, the same machine setup can be repeated'.
Testing design principles	Testing value design principles	Testing solution design principles
	'We tried to interview our ambassadors, our users, the ones we thought were most relevant with respect to both the outdoor world and the indoor world. By comparing ourselves and interviewing them, we tried to see if the values were passing'	We were standing there seeing how much time one loses to open the lever, the girls had a harder time opening the lever because it takes more force anyway.

Moreover, our study acknowledges the dual nature of design principles: value design principles and solution design principles. Such a dual nature is coherent with understanding products both from a utilitarian perspective (Crilly et al., 2004), based on their intended use and advantage for the user, and a more symbolic and emotional perspective (Demirbilek and Sener, 2006), where products can be understood based on the symbolic associations they trigger in customers (Csikszentmihalyi & Rochberg-Halton, 1981). The design principles reflect this dual nature, and companies might find useful to differentiate among guidelines that are intended towards embodying the different functions in products. Although value and solution design principles are strictly intertwined and need to evolve at the same time, they can be tackled individually when addressing the more symbolic or utilitarian properties of product language. From a semantic perspective, working on two sets of design principles allows to ensure that product language allows both to identify the product within some

dominant design boundaries, and to give it their own voice and meaning. Additionally, working at the design principles allows companies to early test their intended meaning (Kazmierczak, 2003) as formulated in the design principles rather than waiting for a functioning prototype. Involving key stakeholders at this phase makes early testing a useful mechanism to fine tune product language before switching to product design activities.

Moving beyond the role of the design principles, our findings suggest that coordinating a product language change does not necessary imply a radical redesign of the current offering. On the contrary, it is a work of balancing new signs pointing towards the new meaning with existing signs keeping the product familiar to users. Adding to Krippendorff's (1989) definition of design, we argue that design is concerned not only with giving meanings to products, but also to keep elements of previous meanings and solve the potential conflicts between the different meanings. Thus, we extend the strategic

understanding of design as the activity to propose new product languages (Dell'Era & Verganti, 2007), by stating that design is the act of balancing new and previously existing meanings in a product's language. In practice, coordinating value and solution design principles at the same time allows for understanding which signs to change and which to keep during the transition. This maintenance work facilitates users' recognition of the product (Belboula et al., 2019). Thus, while the language changes, the dominant architectural design might remain the same, allowing for a smooth evolution without becoming unfamiliar to the market (Koskela-Huotari et al., 2016). Thus, we extend the notion of dominant designs from a linguistic perspective, which has been previously applied to the language of stylistic products (fashion products, Cappetta et al., 2006). Authors have found that languages also tend to converge towards the definition of dominant styles and often evolve simultaneously to the architectural/technological frames (Cautela et al., 2018). Our study makes a step further in understanding that language can evolve independently from a change in the dominant design architectural dimensions.

6 | CONCLUSIONS

Our study focuses on how companies design new product languages for established products. We advance the understanding of product language design by highlighting the role of the design principles as a bridge between strategic and design choices (Cautela et al., 2018; Verganti, 2017). The article shows that product language change is a two-steps process where the underlying rules—the design principles—can be changed first and can direct the adoption of new signs at the product level. Designers need to work on the utilitarian, aesthetic and symbolic dimensions of products by embedded the related signs into the product's features. Doing so requires balancing new signs with existing signs to keep the product recognizable.

6.1 | Contribution to theory

With our article, we contribute to better define the concept of the design principles (Beckman & Barry, 2007) by identifying their dual nature and their key role within the redefinition of product language. This way, we extend our understanding relative to how to work with design principles by individuating the value and the solution layer as two different dimensions, although strictly interrelated.

Moreover, we contribute to the ongoing debate on the semantic approaches to innovation and product design (Demirbilek & Sener, 2003; Grace, 2021; Krippendorff & Butter, 1984; Verganti, 2008), where the focus lying in being to align products meanings with customers values and aspirations. In particular, we contribute to the design-driven innovation literature (Verganti, 2017), understanding of how new languages may be designed to express new meanings in practice (Artusi & Bellini, 2020; Kazmierczak, 2003). Thus, we highlight the role of the design principles as enablers of product language change and directing towards a new product meaning. This view is complementary to the existing studies, which point out that the transition towards new meanings can happen through the proposal of radically new products to the market (Verganti, 2017).

Last, we contribute to the literature on product language by understanding language as a dimension of dominant designs aside to the more established, technology-focused, dimension (Tushman & Murmann, 1998). Such distinction has long been advocated in the literature (Ravasi & Stigliani, 2012) and it's in line with the product design studies which see technology and language as two partially different layers (Cautela et al., 2018; Dell'Era & Verganti, 2007). In our article, we do not only corroborate this view, but we also provide knowledge on the process that leads to changing a product language within the frames of a technological dominant design.

6.2 | Contribution to practice

In practical terms, we offer managers and designers fresh insights into transitioning from abstract intended meanings to practical product language design. Our approach introduces new methods for redesigning language within established product categories, emphasizing that radical product innovation is not the sole strategy for creating new product languages and meanings. For instance, in our study's case, although the company's tripod remains structurally the same, it successfully revamped its symbolic, experiential properties, and functionality to align with evolving user values.

In practical terms, we suggest managers who intend to redesign the product language of their products to discern value design principle to solution design principle. It is crucial to later better focus on the different kind of signs to embed in the new product as expression of the new language: value design principle will support the development of symbolic signs, while solution design principles will support the development of aesthetic and utilitarian signs. Besides, our findings show how symbolic, aesthetic and utilitarian signs are clearly distinguishable and thus can be designed individually albeit in a coordinated manner.

Finally, we suggest managers to test these signs. By testing signs, the company can test the message users perceive and see if it aligned with the design principles of the company. Even in this case, we recommend discerning the test of value design principles and the one of solution design principle to have a better understanding of how messages are interpreted, leading to better language refinements that align with both the company's DNA and evolving customer preferences.

6.3 | Study limitations and avenue for future studies

Given its exploratory nature and the single case study adopted, our study provides a valuable and in-depth exploration of the phenomenon under investigation. However, the method adopted brings some limitations, opening doors for future explorations. First, our reliance on a single case study allowed for in-depth exploration but may limit

generalizability to other contexts or populations given the uniqueness of the context addressed. Future studies should examine the applicability of our findings in various industries and contexts: our study focused on physical products where languages and signs are tangible and visible, future study might consider even not tangible offering such as service-based offerings.

Second, while our study offers an initial framework for distinguishing between various design principles, specifically those classified as Value and Solution principles, it is essential to recognize that this categorization may not encompass all possible design principles. The landscape of design is vast and multifaceted, and other principles may exist that are equally or even more relevant to certain contexts (Beckman & Barry, 2007; Blair-Early & Zender, 2008). Therefore, future research is encouraged to delve deeper into this area, aiming to identify and articulate additional categories of design principles. An expanded categorization could significantly enhance our understanding and application of design principles, thereby broadening their practical utility in driving product innovation and development. By exploring and integrating a wider array of design principles, researchers and practitioners can develop more robust and versatile product languages that better address the complexities and dynamic nature of our current world.

Additionally, our findings indicate potential directions for future investigation. Although our primary focus was on the language change process, we did not explore the impact of the revamped product language on performance. Future research could delve into consumer perceptions of products with redesigned languages, exploring how these changes affect their views and behaviours. Besides evaluating the market performance of new products, a qualitative study could examine the correspondence between customer interpretations and the company's objectives. Meanwhile, quantitative research could measure customer perceptions regarding the novelty, desirability, and meaningfulness of products that have adopted a new language.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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ENDNOTES

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