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Chapter

Design Affordance Does Matter: A Spotlight on Categorization and Evaluation of Hybrid Innovations by Consumers

Dhouha El Amri, Abdelmajid Amine and Madeleine Besson

Abstract

In the high-tech field, we are witnessing the proliferation of innovations combining different categories of products into a single one called new hybrid products (NHP). Given the inherent particularities to their hybrid nature, ensuring that the boundaries between their categories of belonging become blurred and making their allocation to a well-defined category difficult, thus increasing the risk perceived by consumers as to the uses and performance of these multifunction products. In this study, qualitative methods are used to gain a boarder understanding of how consumers categorize new hybrid products (NHP) by articulating theories of categorization and affordance. Our results show that product affordance drives the NHP's attribution to a category thereby reducing the uncertainty associated with the choice task. They point the relevance of the holistic perception of the NHP's design in identifying its potential uses and the decomposed view of the design in favoring its attribution to a host category. This chapter will give hints to companies about how the integration of affordance in the design will help de-risking innovation development as affordance is involved not only in their attribution to the appropriate product category but also in their right evaluation and adoption by consumers.

Keywords: design, affordance, new hybrid products, categorization, innovation, perceived risk

1. Introduction

Corporate innovation strategies function within increasingly complex environments marked by rapid product launches and challenges for defining and anticipating consumers' changing expectations. Even with extensive research into the adoption of innovations, both incremental and radical hybrid products call into question the findings' applicability of even relatively recent studies. The launch rate of new hybrid products has accelerated in the past decade such that designers need to be constantly challenging trade-offs and compromises in order to go beyond the optimization strategies. Innovation designers are continuously breaking categories, combining

them, and creating new ones, going from innovation as invention [1] to innovation as recombination [2]. These new hybrid products (NHPs) often incorporate the functionalities and usages of two (or more) original concepts or suggest new ways to use an existing product. These newly created objects appear mainly in the field of nomadic technology devices (e.g., smartphones, digital camera scanners), and their launches have been aided by technology convergence [3, 4].

These hybrids [5], combined [6] or ambiguous [7] products in turn widen the choice and use options available to consumers and grant more flexibility and latitude to producers and retailers in terms of positioning, such that they can redefine the contours of their markets. However, they also generate uncertainty and perceived risky arbitrations for consumers, which may lead to antagonistic consumer attitudes toward them, unexpected forms of appropriation, unanticipated or approximate estimates of performance, and unintended uses. Although we do not mean to discount the issues raised by NHPs for supply actors (producers and retailers), this study focuses on the issue of evaluation and categorization of new hybrid products from a consumer standpoint. Several recent studies in the marketing field have examined the effect of product knowledge, familiarity, and typicality on categorization of hybrid products [5, 6, 8, 9]. However, these studies have overlooked the role of design in the development and adoption of new hybrid products through their ability of differentiation and attractiveness [10] and suggested uses. Moreover, because of their multifunctional and complex nature, these hybrid products question the direct classification based on the concepts of existing products [5], and the design may be an important means for consumers to infer the product's uses and to predict their performance. Thus, according to reference [11], the authors call for further work to understand how design components might most effectively induce perceived similarity between the object and the target product category, an objective which is particularly relevant to multifaceted new hybrid products; we intend to bridge the gap between the design components and categorization of new hybrid products while highlighting the risky dimension in this process. Indeed, only few recent studies explore the categorization process of NHPs using the affordance concept [12, 13], we still do not know how consumers use knowledge derived from existing categories or generate new knowledge, to assign new hybrid products to a host category (existing one or one to be created). This research aims in particular to understand how consumers mobilize the design to make sense and categorize ambiguous NHPs, and how this process lowers or increases the risky dimension of choice.

To meet this goal, this chapter is structured around three points: the first section tends to show/question the relevance of theories of categorization and affordance as chunks of assessment and attribution of NHPs to host categories. The second section describes the methodological choices made to empirically investigate the categorization of a new hybrid electronic device (the Flip Phone). Finally, the third section discusses the main results and highlights the implications of this research both on theoretical and managerial levels.

2. Theoretical perspectives on the categorization of NHPs

2.1 Contribution of categorization theory to NHPs

Cognitive categorization offers a means to process information, such that a person evaluates an item or compares it against a reference item in a category; views the two as similar or equivalent on the basis of their family resemblance or

goal achievement; and then links the items together with information pertaining to them; and further transfers existing knowledge from the category to the item. Mainly three types of cognitive categories have been described in the literature: (a) structured and hierarchical sets of items that share common attributes (similarity-based categories), (b) sets of items that meet the same goals even if they share few (or no) physical features (goal-derived categories), and (c) categories built around naturally occurring relationships between objects and theirs features (taxonomic categories) [14–17].

The question of categorization is particularly relevant for hybrid products, which combine the characteristics and functionalities of several existing products [12, 18]. Such mixed or combined products may be linked to any of the basic categories around which they are designed or to none of them. Furthermore, evaluations of hybrid products likely involve consideration of the role of each reference category, to determine the assimilation of the innovation to one or the other basic category, or to none of them. In other words, it is a matter of discerning how and to what extent knowledge of the basic categories might be transferred to the hybrid product, with a view to evaluating the NHP and the perceived risk associated with deciding whether to acquire it or not.

Consumers also evaluate NHPs differently, depending on whether they allocate them to a single category or to two categories or more [9]. Not all hybrid products are perceived exactly as such some may be viewed as belonging more to a single category (one of the basic product families or a new one), whereas others seem to belong to the basic categories. Researcher [4] concurs that the evaluation of hybrid products differs according to the level of congruence or non-congruence of the combined elements. Consequently, studies pertaining to the categorization of traditional new products may not apply to hybrid products.

Moreover, the assimilation-contrast paradigm, a corollary of categorization theory, shows how people assess and use the structural similarity (homology or components match) or the functional similarity (analogy or holistic resemblance) between a new hybrid product and existing ones. On this basis, consumers may transfer their knowledge and affect from the original category that they view as closest to the NHP and therefore decide to adopt (or reject) it.

2.2 Relevance of affordance theory to NHPs

When the theory of affordances was introduced by the psychologist James Gibson [19], it referred to all possibilities of acting on an object, to describe the object's own capacity to suggest its own uses. A more restrictive view of affordance [20] implies that affordances refer only to action potentialities that the user can perceive directly from the object, without needing to read the product manual or test its functionalities, in the context of human-machine interactions.

In the field of marketing, few studies have raised the theory of affordances as a relevant framework to analyze product categorization. Scholars [21] analyzed the influence of product affordances on situated categories that emerge, evolve, and disappear in response to environmental changes. In the motorcycle industry, these authors showed that, as a categorization basis, product affordances are associated with greater category persistence. Moreover, the relevance of affordance theory as a means for consumers to identify and assess potential uses of NHPs is heightened by the ambiguity of these products, which gives rise to multiple interpretations. But this might be counterbalanced by the amount of perceived risk that these unclassified

products generate in terms of usability and performance. In this case, the design dimension can be advantageously deployed as a means of expressing and anticipating how products may be classified and used. Even with their complexity and induced uncertainty [5, 7], the design of NHPs can reveal their potential uses and thus support their categorization by consumers.

Design offers a means of differentiation or comparison insofar as it is an easily perceived external attribute that can be used as a diagnostic tool [7], capable of generating a set of associations related to perceived novelty, quality, and intended uses of the hybrid product. The more complex the hybridization (i.e. the more the core functionality of the basic product is altered), the more difficult it becomes for consumers to make sense of the innovation [6], and the more risky is the decision of product adoption. In such cases, design offers an effective aid to understanding by inspiring or suggesting the use(s) to which NHPs may be put [7].

2.3 The role of design in the categorization of NHPs

Design sends three types of messages related to the product and the brand [22]. First, it facilitates categorization; second, the features of the design transmit information about product functionalities and the way the user can interact with it; and third, an attractive design results in a positive evaluation of the item. Object recognition through components' parts or elements offers a consensus view among researchers who rely on the theory of visual perception [23]. That is, objects are spatial arrangements of primary volumetric components called "geometric icons". Individual knowledge in turn is organized according to a set of perceptual symbols that get activated during perception, and these symbols are more components' based rather than holistically anchored [24]. Perceptual symbols then get organized into mental frameworks, which enable consumers to develop mental simulations of new conceptual combinations derived from the components to design new configurations of nonexistent objects. As in Ref. [11] p. 242, "an object such as a laptop computer is not stored as a whole image but it is composed of several perceptual symbols that represent design parts (overall shape, monitor, keyboard, and touchpad, etc.). Perceptual symbols are further organized within mental frames or schemata, which explain the underlying stability and yet flexible organizational structure of knowledge". One of the main ways in which product design influences categorization is through perceptions of affordances. The properties of some products are so congruent with observable visual features (size and shape) that people's visual system can directly perceive the uses that the product allows, as well as the ways they can interact with that object. The form of a chair suggests that a person can sit on it; a handle expresses that we can use it to open a door. For other products though, affordances are less explicit and more ambiguous. For a computer or a mobile phone, the properties and functions are more abstract and less visually perceptible. Their uses and operations often require additional information from a textbook, testing, explanation by others, or prior experience.

Although the brand familiarity can be generated by the combination of product design constituents and past knowledge, some design elements may be more relevant than others. Some authors [11] call for further work to understand how design components might induce more perceived similarity between the object and the product category. Moreover, they point out a lack of knowledge about the interaction between design innovativeness (more or less at odds with the existing models) and categorization processes of NHPs.

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When new versions of products emerge, consumers likely make a trade-off between maintaining a certain level of familiarity (favoring known design attributes) and seeking out originality, stimulation, and curiosity (encouraging new design elements). On the one hand, including too many familiar elements may alter the perceived novelty of the product. On the other hand, introducing too many new components (or new combinations) creates the risk of making the product unrecognizable or unacceptable as a member of a known category. Researchers, in [25], suggest that even if new technologies provide an unlimited range of possibilities, few of them meet with success, conditional on their being designed to be consistent with users' needs and shaped to be understood, even if they integrate novel features (technology translation). This emerging option, which is different from the trade-off and/or the search for an optimal equilibrium, consists in looking for an item that responds to two paradoxical injunctions combining a high level of familiarity and a high level of originality.

3. Methodology

Using a qualitative study, we sought to understand how consumers categorize a new hybrid electronic device on the basis of its affordances and how the latters affect the level of perceived risk. The product under study was a new concept of smartphones designed by Kristian Larsen Ulrich, called the "Flip Phone." This original concept of smartphone has three touch screens with a foldable keyboard and a camera (see **Figure 1**). This concept was chosen as it illustrates a hybrid product combining diverse base categories (telephone, camera, tablet, and netbook, etc.) with particular form and design. The fact that it is not yet commercialized ensures that there is no prior categorization in the mind of our research sample.

3.1 Data collection

Twenty-four semi-structured and thematically focused interviews were conducted until theoretical saturation was reached. Each interview lasting approximately

Figure 1.
The Flip phone concept.

45 minutes was recorded and transcribed. The sample aimed to cover the largest variety of consumer profiles. As we were studying evaluation and categorization processes based on a high-technology product, the selection criteria were based on age, gender, and revenue, as well as the possession (or not) of some specific electronic devices (e.g., smartphone and tablets). The final sample consisted of thirteen men and eleven women with an average age of thirty-nine years ranging from eighteen to seventy-eight years old (see the respondents' profiles in **Table 1**) and a wide range of occupations to cover the different social positions that can promote or constrain the acquisition of this type of electronic device.

The study was conducted in two phases: first, photos of the Flip Phone, without any additional written information, extracted from the designer's website were shown to respondents who were asked then to guess what this item might represent, identify its potential uses and try to evaluate its performance derived from its sole ergonomy and design. In a second step, subjects were asked to attribute it freely to a product category either existing one or imagined/to be created one and to explain in few

	Gender	Age	Profession	Marital status
Interview 1	Male	22	Student	Single
Interview 2	Male	49	Searching for a job	Married
Interview 3	Male	21	Student	Single
Interview 4	Male	78	Retired (physiotherapist)	Married
Interview 5	Female	28	Car rental agent	Single
Interview 6	Female	62	Doctor	Married
Interview 7	Female	64	Retired (Education)	Divorced
Interview 8	Male	31	Computer specialist	Married
Interview 9	Male	32	Searching for a job	Single
Interview10	Male	28	Computer engineer	Single
Interview11	Female	24	Searching for a job	Single
Interview12	Female	24	Cleaner	Single
Interview13	Female	64	Retired	Divorced
Interview14	Male	36	Educational secretary	Single
Interview15	Female	34	State employee	Single
Interview16	Female	18	Student	Single
Interview 17	Female	21	Student	Single
Interview 18	Female	40	Secretary	Married
Interview19	Male	48	Financial analyst	Married
Interview 20	Male	25	Engineer	Single
Interview 21	Male	52	Mason	Married
Interview 22	Male	43	Lecturer	Married
Interview 23	Female	60	Retired	Widow
Interview 24	Male	46	Aeronautical engineer	Single

Table 1.
Informant information.

sentences the process they adopted to associate it with that particular category. The categorization was inferred using a behavioral indicator suggested in [5], namely, the intention of the respondent to "look for the NHP device at a store or a website within a department corresponding to one or the other of its basic categories, or in another department — to be defined (if affected to none of them)."

3.2 Reliability and validity of data analysis

We applied several criteria of research trustworthiness (such as integrity, confirmability, and transferability) as a means of ensuring the quality of the research methodology [26]. The integrity of interpretations was taken into account avoiding any misinformation or evasions by participants. Interviews were conducted in a nonthreatening way. No participant stopped the interviews or expressed any concern about the line of questioning. The confirmability of the interpretation was assessed as the coding process was conducted by two different researchers. Intra- and inter-coder reliability were undertaken: (1) After the initial coding of the data, one of the authors repeated a month later the coding of the same discourse material attaining 95% of intra-coder reliability. (2) Another subset of interviews (20% of the whole material) was double-coded by two coders trained in qualitative data analysis. This subset size can be considered, according to [27], as highly sufficient in a double coding procedure, especially when the part of interviews under scrutiny is quite varied and rich. Differences between coders were discussed until agreement was reached as outlined by [28]. We achieved an inter-coders agreement rate of 83% by counting the number of agreements and dividing it by the sum of agreements and disagreements, which attests to the sufficient reliability of our analysis.

Coding was iterative; during the process, we complemented the initial inductive codes with those derived from literature then we refined them as we collected more data [28]. The coding of the transcripts and thematic content analysis was conducted using manual analysis and then NVivo software in a validity perspective. Furthermore, the transferability of the findings may be ensured to other hybrid products combining the same electronic base categories.

4. Findings and discussion

Our main results, derived from the content thematic analysis, underline (i) the perceived ambiguity of the Flip Phone and the difficulties in categorizing it, raising so a high perceived risk associated with its acquisition; (ii) the role of affordances and perceived similarity in assigning this new product to existing (or new) categories; and (iii) the role of design components in predicting/assessing the uses and performance of the Flip Phone. In detailing these results, we include some representative comments from the respondents to highlight the nodes or categories of meaning.

4.1 Role of Flip phone design complexity in the difficulties of its categorization and in nurturing uncertainty

Most of the interviewees recognized the hybrid character of the Flip Phone, as the following quotes reveal: 'I think it's a multifunctional electronic device that has multiple uses. We can use it as a phone, for music, video, and as a computer'. 'This is an All-in-One product' (male, 31 years), 'There are several objects grouped into one'

(male, 32 y.). 'There are a lot of things actually… We cannot know if it's a phone or a computer' (female, 18 y.), 'They are condensed [things] in a single product' (male, 52 y.), 'It looks ambivalent…There is frankly both laptop and phone' (female, 60 y.).

This hybrid character gives rise to many difficulties in categorizing this NHP, as the following respondents noted: 'I don't know. I'm making assumptions, I don't know the object. It is not written on it if it is a phone or a computer' (male, 49 y.). 'What could it be? I am annoyed because I have no clear idea' (female, 62 y.). 'I frankly do not see what it is' (female, 64 y.). 'Till now, I do not know what it is' (male, 36 y., n° 14). 'I see a mobile phone or an MP3 or… I have no idea… I can put it anywhere so I do not know at all" (female, 21 y.). 'It can be a keyboard; it can be a speaker… It is very difficult to say… I do not know what it is' (female, 60 y.).

Doubts about the categorization of the Flip Phone persist due to the product's design complexity and the interviewees' inability to infer its usage through any evident connection with known electronic devices. The following quotes illustrate this confusion and underline the perceived risk associated with its evaluation and its potential uses: 'There are two screens. I am no longer sure. There is a small part I'm missing' (male, 78 y.), 'I'm not sure at all, I'm not sure; I don't know… A computer or some kind of TV' (female, 24 y.), 'Maybe a phone…I'm not sure at all' (male, 36 y.). 'It looks like a mini TV… a computer. It looks like my clock radio actually…It is confusing' (female, 34 y.). 'Here we think half phone half computer but I am not sure, frankly' (female, 40 y.), 'I'm not sure that it is a computer, I even have some doubt' (male, 25 y.), 'I didn't understand, it is too technical… I'm afraid of not being able to use it properly because it's a little bit sophisticated' (male, 31 y.), 'Finally, it looks more complex… It looks very complicated to me… too many options. It will take a long time to learn to use it (male, 32 y.).

The variety of attributions of the Flip Phone to different categories reveals the great difficulty most of the respondents encountered in trying to make sense of this ambiguous hybrid product. This finding confirms the conclusions of past research [6, 7, 12, 29], which underline the complex, equivocal, and confusing character of such combined products because they can be categorized in several ways and hence give rise to struggle and uncertainty in the categorization process and output. Moreover, the role of the product design in producing such uncertainty and ambiguity can be derived from the respondents' answers when they attribute their confusion to the physical aspects of the product design contradicting the conclusion of the studies given in Refs. [22, 30, 31], which suggests that one main function of new product design is to facilitate membership categorization.

4.2 Role of design affordance in the Flip phone attribution to a category

At this stage, we identify two mechanisms that can lead to the categorization of new hybrid products and bridge design affordance and similarity-based categorization frameworks. In the following, we highlight and illustrate the mechanisms connecting affordance and similarity on one hand, and the underlying design holistic or components-based approaches that lead to the categorization on the other hand.

First, respondents mobilize analogical mechanisms (functional similarity), which relates to the overall family resemblance, to categorize the NHP on a holistic basis, as expressed in the following quotes: 'We have the latest iPad it could be closer to it because it looks like it; there are a lot of resemblance' (female, 28 y.), 'It makes me think of a radio because of the design' (male, 31 y.), 'It looks like a book' (female, 64 y.), 'It really

looks like a phone' (female, 24 y.), 'It also looks like a laptop' (male, 43 y.), 'Apparently it looks like a computer' (male, 46 y.).

Furthermore, many interviewees mobilized a global perception of the design to infer the uses of the Flip Phone. Quotes illustrating this holistic perception include: 'I think it is an object that allows better communication of course… It records and stores information, I suppose' (male 78 y.), 'It is a multifunctional device that allows us apparently to connect to Internet' (male, 31 y.), 'This is the kind of schedule that rotates so we can turn it around' (female, 64 y.), 'I would say that this is something that allows us to enlarge the image or close it' (male, 43 y.), 'It might be another medium like an iPad or something like that… being able to expand and to add a part that is roughly similar in size will expand the object's vision possibilities' (male, 21 y.), 'It's a triangular digital device; I think we can hide things inside' (female, 24 y.), 'This is the kind of device that rotates' (male, 31 y.).

Affordance thus seems tightly linked to consumers' perceptions of NHP usages, based on the general product design, when the new product's similarity is founded on a holistic resemblance with existing products (analogy-based categorization). This result is congruent with Normans' position [20], which implies that affordance refers to action potentialities that the user can perceive directly from the object (design).

Second, subjects mobilize homological process (analytic categorization) using design components-based similarity, to assign the Flip Phone to a product category. At this level, affordance process appears as based on a decomposed view of the design components of the NHP to suggest potential usages of the Flip Phone. Quotes illustrating this decomposed view of the design components include: 'As there is the keyboard that can make me think of a smartphone' (male 21 y.), 'Hence in this picture you can see that this is a keyboard and a screen, it is conceivable that it may be a computer' (female, 28 y.), 'What comprises a screen? There are televisions, computer screens; there are displays of children's games' (female, 62 y.), 'I can see the little dial and the touch screen face here, it is may be a directory' (female, 64 y.), 'It makes me think immediately of the Nintendo DS as it has two screens' (male 28 y.), 'It reminds me of a laptop as we can see a keyboard and a screen' (female, 24 y.), 'Because first there is a keyboard that immediately suggests something like a computer' (male 48 y.). Other excerpts reveal that respondents mobilize other decomposed perceptual indicators such as size, thickness, layout or structure to predict the uses of the Flip Phone: 'It's too small to do a professional job except for reading emails quickly' (male, 22 y.), 'The recognition criterion of iPad is the thickness… Given the way the product is presented in the picture, one can think of the iPad' (female, 28 y.), 'I feel that there are several layers so you can either turn pages, actually there are different positions' (female, 64 y.), 'Given the inclination of the screen compared to what I believe to be the wall. It seems to be intended to have a larger visual impact than for one person; several people could see it' (male 78 y.), 'The disposition (is interesting), precisely this story of screen and keyboard at the bottom' (female, 62 y.), 'Eventually everyone can participate with a keyboard that allows him/her to intervene or possibly to save or to edit data that have already been entered in it' (male 78 y.).

This result shows that affordance also plays a role when the new product's uses can be derived from some design components or properties (screen size, keyboard, thickness, inclination, and flexibility, etc.), such that the categorization of the NHP device is homology-based [11, 24] because it was driven from the constituents level of this new product.

Finally, affordance seems to act alongside similarity, at either a holistic or a decomposed level, to reduce ambiguity and to facilitate Flip Phone categorization through

its resemblance and inferred uses. Therefore, affordance provides a significant contribution, besides the similarity mechanism, to the evaluation and categorization of NHPs, especially when consumers perceive high complexity, ambiguity, or uncertainty in product use. Our results suggest that considered alone, similarity-based categorization theory is insufficient to explain how respondents evaluate, classify, and anticipate the uses of really new hybrid products.

This finding confirms and goes beyond the conclusion of [3, 12], who stress that the assessment and categorization of NHPs do not obey the same rules as the categorization of new conventional products. Instead of a simple transfer of knowledge from basic categories to hybrid products to assign meaning and assess performance (categorization theory), we show that consumers infer the nature and uses of a NHP from its form, structure, morphology, and ergonomics (affordance theory) and mix simultaneously holistic and constituents-based approaches to categorize, assess, and anticipate potential usages of the NHPs.

The conjunction of the similarity approach and the holistic and decomposed design affordance path used by respondents to categorize the new hybrid product and assess its potentialities contribute seemingly to lower initially perceived uncertainty and to make the intention to acquire and use of the Flip Phone less risky.

5. Conclusion and research implications

According to our findings, the role of design in categorizing new hybrid products raises both theoretical and managerial concerns. At a theoretical level, affordance theory (less used in marketing) complements categorization theory in clarifying how consumers evaluate unfamiliar hybrid products and reduce the perceived risk associated with high-tech devices. Thus, affordance highlights the role of design in helping consumers classify, evaluate and infer the uses of the Flip Phone, on both holistic and component levels. This result goes far beyond the theses advanced by [11, 24] explaining that new product's uses can be derived from some design components or properties. Indeed, our results show that individuals do not fit into a single paradigm of categorization of unfamiliar NHPs, but tinker singular ways of doing that combine holistic and decomposed approaches of design to cope with this problem and to contain the perceived risk associated with its acquisition and use. In addition, on one hand, we show that the holistic perception of the NHP's design allows users to establish its categorization, as well as its potential uses; on another hand, consumers are shown to extract cues from the constituent level of the NHP's design in order to assess the performance of the new product.

The articulation of affordance and categorization theories in the evaluation of NHPs also has implications for companies. Facilitating perceptions of the NHPs' uses helps reduce the complexity associated with that product by making it easier for consumers to interpret and categorize this kind of innovation. Several possibilities are available to companies to position and promote this type of hybrid products according to their prioritized objectives: A first strategy would consist of firms in anchoring the launched NHPs in the most profitable basic (or new) category. Such anchoring can mainly occur at the design stage, according to the similarity of the product as a whole or of some of its salient components, along with their ability to suggest the new product's uses. Another option for suggesting the host category of the new product would be to devise a communication strategy that increases the frequency of instantiation of the NHP in the target category to make it naturally associated with a category, even

if this means restricting its possible uses. These first two strategies are more likely to be deployed in stores where the spatial constraint forces the allocation of a multifunctional product to a particular category. An alternative strategy, which reduces the perceived risk for the consumer, would be to open up the possibility of finding the new hybrid product in all the product categories to which it can be linked. This strategy is more feasible in online offers where the constraint of location is absent and allows to reduce the uncertainty surrounding the purchase of this type of ambiguous product and to make the intention of acquisition non-risky.

Lastly, a much riskier strategy than the previous ones, but which could allow the company to open a new market and to be a precursor, might be the use of design and affordances to increase the contrast of the NHPs with existing products (on the level of similarity and suggested uses) and thereby differentiate their offering from basic categories. The ability of design to suggest the potential uses of the new product, as well as link it to existing product on the basis of their similarity, grants companies a key method to emphasize the degree of distinctiveness of their NHP. This differentiation potential assigns the product an original status (e.g., elitism and expertise) related to specific symbolic and sophisticated uses, where design (at both holistic and component levels) acts as a facilitator in NHP adoption.

As a limitation opening a research avenue, this study focused exclusively on the assessment and categorization achieved by consumers, on the basis of information conveyed by the product itself (external design), prior to any actual interaction with the product or social interaction referring to that product. Further, research would benefit from exploring the categorization process resulting from consumers' actual handling and interaction with the product (vs. showing the product's image) and the effect this has on the assessment of the perceived risk associated with the product's use and performance and should analyze the categorization changes that might arise when consumers gain knowledge about and/or experience with the functionalities of a NHP.

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