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CICLO XXXIV

Branding innovation:

brand voice and brand anthropomorphism in the voice assistants experiential context

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Nella ricerca scientifica né il grado di intelligenza né la capacità di eseguire e portare a termine il compito intrapreso sono fattori essenziali per la riuscita e per la soddisfazione personale. Nell'uno e nell'altro contano maggiormente la totale dedizione e il chiudere gli occhi davanti alle difficoltà: in tal modo possiamo affrontare problemi che altri, più critici e più acuti, non affronterebbero.

La scelta di un giovane dipende dalla sua inclinazione, ma anche dalla fortuna di incontrare un grande maestro

(Rita Levi-Montalcini)

Grazie.

ABSTRACT

The growing consumer adoption of voice-activated artificial intelligence (AI) technologies is stimulating the rise of a new line of research in the field of marketing, aimed at analysing the academic implications related to interactions with voice assistants (VAs). The early studies carried out in this innovative experiential context have begun to focus on technology providers' VAs (e.g., Alexa-Amazon, Cortana-Microsoft, Siri-Apple), highlighting the possibility to achieve relevant cognitive, attitudinal and behavioural outcomes (i.e., VA trust; VA attitude; VA engagement). Furthermore, the spread of so-called name-brand voice assistants (NBVAs) – voice assistants developed in-house by companies/brands (e.g., Google LLC, Mercedes-Benz), which speak with a specific voice and are activated by the user by pronouncing the brand name (e.g., "Hey, Google", "Hey, Mercedes!") – can open interesting opportunities in terms of branding innovation. From a conceptual point of view, NBVAs could help achieve the brand's conquest of the "agent" role, i.e., a human entity to which consumers can dialogue. Given the paucity of conceptual and empirical contributions on this topic, this dissertation intends to start filling this gap, focusing on the peculiar name-brand voice assistants context, first adopting the managerial perspective (essay 1 and essay 2) and then the consumer's point of view (essay 3). Following both qualitative and quantitative approaches, the results of the three studies reveal original branding implications, i.e., brand voice, brand experience, customer brand engagement, brand anthropomorphisation strategies and brand anthropomorphism. In light of the positioning of this dissertation that combines the nascent stream on VAs with the branding literature, the findings contribute to advancing knowledge in both fields while offering useful managerial implications.

ABSTRACT

Il crescente utilizzo da parte dei consumatori delle tecnologie dell'intelligenza artificiale (IA) attivate dalla voce sta stimolando lo sviluppo di un nuovo filone di ricerca nel campo del Marketing, volto ad analizzare le implicazioni accademiche legate all'interazione con gli assistenti vocali (AV). I primi studi svolti in questo innovativo contesto esperienziale hanno iniziato a focalizzare l'attenzione sugli AV sviluppati da provider tecnologici (es., Alexa-Amazon, Cortana-Microsoft, Siri-Apple), evidenziando la possibilità di raggiungere rilevanti risultati cognitivi, attitudinali e comportamentali (VA trust, VA attitude, VA engagement). D'altro canto, la diffusione dei cosiddetti assistenti vocali di marca – assistenti vocali sviluppati *in house* dalle imprese/brand (es., Google LLC, Mercedes-Benz), che parlano con una specifica voce e che sono attivati dall'utente pronunciando il nome della marca (es., "Hey, Google", "Hey, Mercedes!") – può offrire interessanti opportunità in termini di innovazione di branding. Da un punto di vista concettuale, i NBVA potrebbero contribuire alla conquista da parte della marca del ruolo di "agent", cioè di un'entità (quasi) umana con cui i consumatori possono dialogare. A fronte della carenza di contributi teorici ed empirici sul tema, la presente dissertazione intende contribuire a colmare questa lacuna, focalizzando l'attenzione sul peculiare contesto degli assistenti vocali di marca, adottando dapprima la prospettiva manageriale (essay 1 e essay 2) e, successivamente, il punto di vista del consumatore (essay 3). Seguendo sia un approccio qualitativo sia un approccio quantitativo, i risultati dei tre studi fanno emergere originali implicazioni di branding, legate ai seguenti costrutti: *brand voice*, *brand experience*, *customer brand engagement*, *brand anthropomorphisation strategies* e *brand anthropomorphism*. Dato il posizionamento di questa dissertazione, che combina i nascenti studi sugli AV con la letteratura di branding, i suoi risultati contribuiscono a far progredire la conoscenza in entrambi i campi, offrendo al contempo anche utili implicazioni sul piano manageriale.

Contents

INTRODUCTION

The digital revolution is the external factor that is currently exerting the most significant influence on the evolution of branding paths in terms of conceptualisation (i.e., the conceptualisation of the brand and the sources of its value), managerial approaches and organisational solutions (Vernuccio, 2017). The most recent studies of branding have begun to reflect on the need to rethink the brand in response to new managerial perspectives characterised by dynamism, decentralisation, multi-way interactivity, engagement, co-creation and artificial intelligence (Merz *et al.*, 2009; Mühlbacher & Hemetsberger, 2008; von Wallpach *et al.*, 2017; Wider *et al.*, 2018; Vernuccio, 2018). In this research stream, the brand has been reconceptualised as follows: an open brand (Pitt *et al.*, 2006); a complex ongoing social process (Merz *et al.*, 2009); a social platform with which stakeholders can openly engage (Ramaswamy & Oczan, 2016); a dynamic experiential entity (Veloutsou & Guzmàn, 2017); and a complex social entity "which is acted and acting simultaneously*"* (Vernuccio, 2018, p. 8). In the first phase, the digital revolution has made available open and hyperconnected technological platforms (Vernuccio & Ceccotti, 2015), which are necessary to enable widespread multi-way and decentralised brand-related communication processes. In the current digitisation phase, the rise of artificial intelligence technologies represents "the latest big game changer" (Wirth, 2018, p. 435). AI "refers to the ability of machines to mimic intelligent human behaviour, and specifically refers to cognitive functions that we associate with the human mind" (Syam & Sharma, 2018, p. 2). Currently, almost all AI applications fall into the "narrow or weak evolutionary stage", within which the focus of technologies is only on specific tasks (outperforming or equalling human intelligence). This specific focus is seen in AI voice-based applications or voice assistants (VA) – i.e., "conversational characters" (Gartner, 2018) that interact by means of a voice – that are embedded in smartphones, cars or stand-alone speakers (e.g., Amazon's Alexa, Apple's Siri and Google's

Assistant). Statista estimates that in 2020, almost 4.2 billion VAs being used around the world (Statista, 2021). Furthermore, according to recent forecasts, the global VA market is expected to reach nearly 8 billion US dollars by 2023 with a CAGR (2017-2023) of over 35% (Market Research Future, 2018). In the face of profound managerial transformations fuelled by voice-based artificial intelligence technologies, the academic literature is questioning the resulting opportunities and challenges for marketing. In particular, name-brand voice assistants (NBVAs) theoretically promise significant implications for brands and the evolution of the consumer-brand relationship. NBVAs are a particular type of VA that is developed in-house by a brand/company, equipped with a specific brand voice and activated by users by pronouncing the name of the brand (e.g., "Hey, Google!") (Vernuccio *et al*., 2019). From a conceptual point of view, NBVAs could help realise the brand's conquest of the role of "agent" (Kervyn *et al.*, 2012), an entity "full of life to which consumers can talk" (Veloutsou & Guzmàn, 2017, p. 7). Furthermore, Vernuccio (2018) conceptually highlights how the advent of voice-based artificial intelligence technologies enables the brand to become a social entity, opening new frontiers towards the brand's achievement of greater levels of "vitality" and increasing relational autonomy. To date, the implications of AI voice-based applications for the brand have not yet been addressed by marketing scholars. Therefore, the objective of this dissertation is to begin to fill this gap by conducting the following three studies.

Around the world, we are witnessing a rapid spread of NBVAs in the automotive sector (e.g., Mercedes MBUX). In the US alone, in 2020, these intelligent interfaces based on voice interaction were used in a car by 130 million users, concentrated in the over-30s generation with an upper-middle income (Voicebot, 2020). The functions performed by NBVAs are increasingly considered among the criteria for choosing a new car and are not only strictly utilitarian (e.g., making phone calls, showing directions), but also hedonic (e.g., playing music, helping to choose a movie to watch at the cinema). According to a recent study by

CELI (2021), Italian heavy users also belong to upper-middle social classes and seem to place full trust in these new conversational agents. Given the possibility for automotive brands to create an experience centred on their voice using NBVAs, the first essay aims to deepen how the strategic role of brand voice is conceived in the design of in-car NBVAs, how the brand experience based on NBVAs is designed, and how the NBVA brand experience might influence consumer brand engagement (CBE). By adopting a managerial perspective, a qualitative research approach with the analysis of a single in-depth case study is followed: the NBVA developed in-house by Mercedes, which was the first NBVA launched in the automotive market. Findings reveal that in the design of the NBVA, a key role was assigned to the brand voice in developing the brand's anthropomorphic profile. Driving safety, consistency with the corporate identity, human-like interaction, dynamic personalisation and connectivity emerged as the strategic criteria for designing the NBVA brand experience, which was oriented towards the pursuit of multiple CBE dimensions. In this way, the first essay makes a theoretical contribution to the nascent line of research on the implications of NBVAs for branding by proposing the first understanding of this phenomenon with reference to the in-car experiential context. In particular, this study offers the first empirical support for the key role of brand voice and name-brand voice assistant in developing the brand anthropomorphic profile (Belk & Kniazeva, 2018; Vernuccio *et al.*, 2019); advances the literature on customer experience marketing (e.g., Homburg *et al.*, 2017) by proposing an articulation of the criteria for designing the brand experience based on name-brand voice assistants; and, enriches the scarce empirical literature on the relationships between brand experience and brand engagement (Ahn & Back, 2018).

Given the emerging opportunities in terms of brand anthropomorphism and the scant literature on brand anthropomorphisation strategies, the second essay aims to investigate the pillars of these strategies (i.e., activities and branding outcomes) in the specific NBVA context by adopting a managerial perspective. Therefore, an exploratory qualitative

approach was followed, based on in-depth personal interviews with practitioners engaged in brand anthropomorphisation strategies in the automotive sector. The resulting cognitive map reveals the following three levels of strategic pillars: drivers (i.e., designing a human-like brand voice and human-like consumer-brand dialogue), intermediate outcomes (i.e., brand personality and the strength of consumer-brand relationships), and final outcomes (i.e., multidimensional brand loyalty). As this essay combines the nascent stream on NBVAs with the partial literature on brand anthropomorphisation strategies, the above descripted results contribute to jointly advancing knowledge in both fields. On the one hand, focusing on brand anthropomorphism in the under-researched context of NBVAs, this study enriches the rising strand of studies about VAs, shifting the focus from the humanity of the VA, which thus far has been almost exclusively adopted (e.g., Fernandes & Oliveira, 2021; Moriuchi, 2021). On the other hand, this article advances the poorly investigated brand anthropomorphisation strategy field (Portal *et al.*, 2018; Hosany *et al.*, 2013) by identifying the key pillars (i.e., drivers, intermediate and final outcomes) of this strategic approach in the innovative NBVA experiential context and highlighting how the objectives pursued by companies with these types of strategies can be hierarchically defined (i.e., intermediate and final outcomes).

Finally, by shifting from the managerial perspective to the consumers' point of view, the third essay aims to identify the antecedents of the brand anthropomorphism perception in the NBVAs field by testing a model outlining the causal relationships among a human-like brand voice, NBVA social presence and brand anthropomorphism, and the moderating effect of users' gender and expertise. This article considers dialogues on a smartphone, which is the device with the highest rates of use for talking with VAs (Voicebot, 2020). Moreover, in selecting the specific interaction context, the choice fell on the most popular NBVA, i.e., Google Assistant (Voicebot, 2020). The findings reveal that the relationship between a human-like brand voice and brand anthropomorphism is fully mediated by NBVA social presence. However, the direct positive impact of a human-like brand voice on brand

anthropomorphism is significant only for users with low expertise, while the mediating role of social presence is stronger for the group of users with high expertise. Finally, the social presence influence on brand anthropomorphism is significantly stronger among men than among women. Therefore, the third essay contributes to jointly advancing knowledge in both brand anthropomorphism and VAs fields by identifying the vocal antecedents of brand anthropomorphism (i.e., a human-like brand voice and social presence) in the under-researched NBVAs field. In this way, by proposing a conceptualisation of a human-like brand voice based on four items centred on specific voice characteristics (i.e., accent, pitch and quality), this article responds to the call by Guido and Peluso (2015), who prompted scholars to consider the role of vocal cues in the perception of brand humanity. Moreover, it extends marketing studies on VAs (e.g., McLean & Osei-Frimpong, 2019; Fernandes & Oliveira, 2021: Pitardi & Marriott, 2021), which have considered only social presence as an antecedent of perceptual and behavioural outcomes strictly related to the technological interface (i.e., VA attitude, VA trust, VA usage). In contrast, based on the user-brand interaction mediated by the NBVA, the causal relationship between the perception of the NBVA as a human interlocutor and the perception of brand humanity has been investigated here.

The three essays included in this dissertation are part of a broader research agenda developed throughout my PhD and aimed at investigating branding implications in the NBVAs context. In this sense, the works here included are related to and informed by two prior papers that I published this year and an article that is currently under review in a leading journal.

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ESSAY 1

Developing voice-based branding: Insights from the Mercedes case

1. Introduction

Voice assistants (VAs) are a virtual assistant category that "simulate intelligence through vocal interaction" (Fivesight Research, 2017, p. 5). According to recent studies, in the USA alone, these technologies are used by approximately 200 million people, and the global market is expected to reach 8 billion dollars by 2023 (Voicebot, 2019a). The main applications of VAs include smartphones, stand-alone smart speakers and in-car multimedia systems. In 2018, approximately 114 million users in the USA used a VA in their car at least once, while only 58 million have used a smart speaker (Voicebot, 2019a). In general, the car is becoming highly relevant as a context of use of VAs, and in particular, cars favour the development of so-called name-brand voice assistants (NBVAs), e.g., Mercedes' Mercedes-Benz User Experience (MBUX) and BMW's Intelligent Personal Assistant (IPA). Name-brand voice assistants are developed in-house and are activated by saying the brand name (e.g., "Hey, Mercedes!"). These user interfaces have the peculiarity of speaking with the voice of the brand (e.g., Mercedes) instead of with the voice of the technology provider's VA (e.g., Apple CarPlay) (Gollnhofer & Schüller, 2018).

Marketing scholars have begun to study the role of technology providers' VAs in advertising (Jones, 2018; Smith, 2020) and conversational commerce fields (Vassinen, 2018; Whang & Im, 2018). Moriuchi *et al.* (2019) have focused on VAs' perceived ease of use and perceived usefulness as well as their positive effects on engagement and loyalty. However, less attention has been paid to the branding implications related to the spread of VAs and, in particular, of name-brand voice assistants. In this regard, a first conceptual study was conducted by Vernuccio *et al.* (2019), who emphasise the role of the brand voice in the brand

anthropomorphisation process and highlight the potential relationships in the name-brand voice assistant experiential context among brand voice, brand personality formation and certain relevant cognitive, evaluative and relational branding outcomes (e.g., brand trust, brand loyalty, brand advocacy).

Despite the growing popularity of in-car VAs and the resulting possibility for automotive brands to create an experience centred on their own voice using name-brand voice assistants, no study has investigated the branding strategies that can leverage these innovative user interfaces. This study is aimed at deepening the understanding of the multiple managerial perspectives on developing voice-based branding through in-car name-brand voice assistants. First, the theoretical objective is to interpret the meanings assigned by managers to the role of the brand voice in the design of the in-car name-brand voice assistant and the criteria underlying the design of the related brand experience. Moreover, this study aims to investigate how customer brand engagement (CBE) might be influenced by the user experience with an in-car name-brand voice assistant.

Following an abductive research logic (Blaikie, 2009) based upon an extended interaction among empirical data (Van Maanen *et al.*, 2007), emerging concepts and the extant literature, the ultimate aim is to develop an interpretative theoretical framework of voice-based branding in the in-car name-brand voice assistant user experience context. To that end, a single in-depth case study (holistic) design, underpinned by moderate constructionist convictions, was conducted (Blaikie, 2009; Welch *et al.*, 2011; Welch *et al.*, 2013). The single in-depth case study presented the characteristic of uniqueness during the research period (Yin, 2017): the Mercedes MBUX, the first in-car name-brand voice assistant to be launched on the international market in 2018 (Voicebot, 2019a). This approach seems appropriate where the extant literature is limited and fragmented and the knowledge of a complex organisational phenomenon, e.g., voice-based branding, is slight.

The logical sequence of the investigation follows the Stimulus-Organism-Response

(SOR) Model, which was developed in the environmental psychology field by Mehrabian and Russel (1974) and then used by several marketing scholars to analyse how marketing stimuli affect consumers' multidimensional responses (e.g., Claffey & Brady, 2014; Teh *et al.*, 2014). In the SOR Model, the stimulus (S) is the independent variable, the organism (O) is the intermediate outcome, and the response (R) is the final result. Following the SOR Model's underlying logic, instead of the consumer viewpoint, this study focuses on the managerial perspectives related to the brand Mercedes in the in-car name-brand voice assistant experiential context. First, the study considers that the company strategically defines the brand voice stimulus (S) as the basis for the design of the name-brand voice assistant brand experience, which is interpreted as the intermediate outcome (O). Through the latter, the brand can pursue customer brand engagement, which is the multidimensional final outcome (R).

The essay is structured as follows. In the next section, a review of the relevant literature is presented, related to the main themes of this study following the SOR Model's logic: the voice variable related to branding (S), the design of the brand experience (O) and customer brand engagement (R). For each thematic area, a research question (RQ) is proposed. Next, the research methodology and main findings are illustrated, based on which an interpretative theoretical framework of managerial perspectives on developing voice-based branding through the in-car name-brand voice assistant is developed. Finally, the article ends with a discussion of the results, academic and managerial implications, limitations and future research lines.

2. Theoretical background and research questions

2.1. Name-brand voice assistants, branding and the "voice" variable (S)

2.1.1. Voice characteristics and branding outcomes

Following the SOR Model's logic, this study considers the voice variable related to

branding as the stimulus that is strategically defined by the company. In the marketing literature and in the sonic branding field, sound is composed of three different variables: music, voice and ambience (Jackson, 2003). Studies of sound stimuli mainly focus on analysing the role of music (e.g., Fraser, 2014; Taylor, 2015), while contributions on the specific role of voice are limited. In line with the objectives of this study, the attention here is focused on the voice variable. The majority of marketing studies on voice have been conducted in the advertising field and, to a lesser extent, in the context of political marketing. In this line of research, different vocal characteristics have been analysed to understand the influence exerted on multiple cognitive, attitudinal and behavioural individual responses and regarding the brand object of the advertising message. The voice characteristics and related effects on branding and marketing outcomes, as well as information about the context (media) and the sample, emerging from the marketing literature are summarised in Table 1.

Table 1: Voice characteristics, branding and marketing outcomes

Author(s)	Voice characteristics	Branding outcomes	Marketing outcomes	Context (Media)	Sample
MacLachlan, 1982	Time compression		Spokesperson warmth and competence	Commercial Adv (Radio)	Graduate students (U.S., N=64)
Moore *et al.*, 1986	Time compression		Attention toward the ad	Commercial Adv (Radio)	Undergraduate students (U.S., N=93)
	Time compression		Cognitive responses	Commercial Adv (Radio)	Undergraduate students (U.S., N=80)
	Time compression	Brand recall, brand attitude	Attitude toward the ad; copy recall; cognitive responses	Commercial Adv (Radio)	Undergraduate students (U.S., N=251)
Gelinas-Chebat & Chebat, 1992	Intensity and intonation		Attitude toward the ad	Commercial Adv	Students (Canada, N=221)
Whipple & McManamon, 2002	Gender		Attitude toward the ad; ad effectiveness	Commercial Adv	Undergraduate and graduate Students (U.S., N=472)
Chattonadyay *et al.*, 2003	Speed, interphrase pausation and pitch	Brand attitude	Attitude toward the ad; attention paid to the ad	Commercial Adv (Radio)	Undergraduate students (Canada, N=66)

Megehee *et al.*, 2003	Pause and time		Attitude toward the product, the message and the speaker; behavioural intentions; cognitive and affective responses	Commercial Adv	Students (U.S., N=240)
Morales *et al.*, 2012	Accent standardness	Brand evaluation, brand recall, competence		Commercial Adv (Radio)	Undergraduate students (U.S., N=260)
	Accent standardness and accent diagnosticity	Brand evaluation		Commercial Adv (Radio)	Undergraduate students (U.S., N=347)
	Accent standardness		Attitude toward the ad; message recall	Commercial Adv (Radio)	Undergraduate students (U.S., N=73)
Wiener & Chartrand, 2014	Quality (pitch, loudness and timbre) and gender	Warmth and competence		Commercial Adv (Radio)	Participants recruited by MTurk (U.S., N=300)
	Quality (pitch, loudness and timbre) and gender	Warmth and competence	Purchase intention	Commercial Adv (Radio)	Participants recruited by MTurk (U.S. N=473)
Zoghaib, 2017	Pitch and gender	Warmth and competence, brand recall	Attitude toward the voice	Commercial Adv (Radio)	Quota sample (France, N=521)
Zoghaib, 2019	Pitch, roughness and brightness	Warmth and competence	Attitude toward the speaker; behavioural intentions	Commercial Adv (Radio)	Quota sample recruited by Research Now (France, N=597)
		Warmth and competence	Attitude toward the political candidate; political candidate recognition; vote intentions	Political Adv (Radio)	Quota sample recruited by Research Now (France, N=505)

As shown in Table 1, the most commonly analysed voice characteristics are time compression and speed (MacLachlan, 1982; Moore *et al.*, 1986; Chattonadyay *et al.*, 2003; Megehee *et al.*, 2003), pitch (Chattonadyay *et al.*, 2003; Wiener & Chartrand, 2014; Zoghaib, 2017; Zoghaib, 2019), gender (Whipple & McManamon, 2002; Wiener & Chartrand, 2014; Zoghaib, 2017) and accent (Morales *et al.*, 2012). While these characteristics have mainly been studied in commercial advertising contexts focused on

traditional radio media, several interesting empirical results connected to branding outcomes have appeared, such as brand recall, brand attitude and brand evaluation as well as perceptions in terms of warmth and competence (W&C).

2.1.2. Voice, brand personality and brand anthropomorphism

In academic literature, the perception of warmth refers to the human personality traits of the brand, such as being friendly, sympathetic and reliable, while the perception of competence refers to traits such as ability, intelligence and skill (Malone & Fiske, 2013). Warmth and competence are constitutive elements of brand personality, defined as "the set of human characteristics associated with a brand" (Aaker, 1997, p. 347). The personality concept is linked to the anthropomorphism dimension (Epley *et al.*, 2008), that is, the tendency to imbue non-human agents with human-like characteristics (Epley *et al.*, 2007). A brand can be defined as anthropomorphic when it is perceived by consumers as a human being with cognitive and action abilities (Puzakova *et al.*, 2009; Golossenko *et al.*, 2020).

Shifting the focus from the traditional field of advertising – to date, nearly the only field analysed in the literature regarding vocal stimuli – to the VAs' innovative experiential context, it is possible to recognise a new strategic line for branding, that is, the creation and use of a specific brand voice. This strategy is an alternative to the use of vocal intermediation offered by the big-player devices (Gollnhofer & Schüller, 2018). Where this intermediation is renounced and an NBVA used, according to Vernuccio *et al.* (2019), the brand acquires for the first time the ability to interact directly with consumers by means of its own voice. An interesting managerial opportunity arises from this new strategic option because the brand now has the possibility to build its own personality in more direct and dynamic ways than before. Brand personality is formed by activating the psychological process called "animism" (Aaker, 1997), through which individuals attribute specific personality traits to a brand. In traditional consumer-brand relationship contexts (e.g., point of sale, mass media), the animism process is largely indirectly determined by the brand through the planned use

of different marketing variables (e.g., logo, advertising) and, to a lesser extent, directly through communication activities attributable to employees, testimonials or people associated with the brand as typical consumers (Aaker, 1997). In the relational contexts where NBVAs are used, it is possible to prefigure brand personality formation processes with greater levels of dynamism since interactions are based on continuous learning and ongoing adaptation processes (Fivesight Research, 2017).

It is theoretically possible to recognise important managerial implications for brand voice characteristics in the context of name-brand voice assistant. However, the effective strategic role that companies can assign to the brand voice in the context of brand strategies and, more specifically, in the design of the NBVA's vocal characteristics remain unknown. Thus, the following RQ is formulated:

RQ1 – How is the role of brand voice (S) in the design of an in-car name-brand voice assistant conceived?

2.2. Name-brand voice assistants and brand experience (O)

2.2.1. Brand experience

In the illustrated context, the brand voice enabled by name-brand voice assistants becomes a brand stimulus and a "brand experience driver" (Brakus *et al.*, 2009; Khan & Rahman, 2015). This study considers that the company strategically defines the brand voice stimulus (S) as the basis for the design of the name-brand voice assistant brand experience (O). Brand experience refers to "sensations, feelings, cognitions, and behavioural responses evoked by brand-related stimuli that are part of a brand's design and identity, packaging, communications, and environments" (Brakus *et al.*, 2009, p. 52). Sensory brand experience refers to visual, auditory, olfactory, gustatory and haptic perceptions (Andreini *et al.*, 2018). Affective brand experience is linked to positive or negative feelings aroused through the

experience with the brand (Zarantonello & Schmitt, 2010), while intellectual brand experience refers to the cognitive individual response (e.g., logical thinking) to brand activities. Finally, behavioural brand experience concerns the bodily experience stimulated by the consumer-brand interaction (e.g., physical actions) (Ahn & Back, 2018). Homburg *et al.* (2017) highlight that these multidimensional consumer experiential responses evolve "by living through a journey of touchpoints" (p. 384), which are verbal and non-verbal contact points through which consumers relate and consciously interact with a company or brand (Homburg *et al.*, 2017). The NBVA becomes a new touchpoint based on voice as well as an innovative brand-related stimulus (Gollnhofer & Schüller, 2018). A name-brand voice assistant can play a fundamental role in the design and generation of a customer brand experience characterised by high levels of interactivity and dynamism (Sotolongo & Copulsky, 2019).

2.2.2. Customer experience management

Customer experience design and management are activities related to the field of "customer experience management", a marketing management approach that focuses on designing and managing the customer experience to address new market challenges. In this field, a fundamental contribution has been provided by Homburg *et al.* (2017), who identify four "strategic directions" (criteria) for designing the customer experience: 1) the "thematic cohesion of touchpoints", which aims to extend the firm touchpoints along with a brand theme; 2) the "consistency of touchpoints", which refers to the consistency between the experience and the main corporate identity elements; 3) the "connectivity of touchpoints", which is related to an experience that integrates offline and online environments to allow a seamless transition from one touchpoint to another; and 4) the "context sensitivity of touchpoints", which refers to the personalisation of the experience offered to users. Concerning the latter, a recent study on the BMW's NBVA (Braun *et al.*, 2019) empirically explored the personalisation of the VA's character as a function of context-based aspects as

well as user characteristics showing positive consequences in terms of satisfaction, trust and usefulness.

Although name-brand voice assistants could be theoretically relevant in the design of interactive and dynamic brand experiences, to date, no studies have been carried out to define the strategic criteria that companies use in brand experience design based on NBVAs. Thus, the following RQ is formulated:

RQ2 – How is the brand experience (O) based on the in-car name-brand voice assistant designed?

2.3. Name-brand voice assistants and customer brand engagement (R)

2.3.1. Customer brand engagement

Following the SOR Model, in this study, the in-car name-brand voice assistant user experience is considered the intermediate outcome (O), which can be designed to pursue the customer brand engagement final outcome (R). The previous literature has analysed the important role of experiences in the creation of CBE (Bowden, 2009; Calder *et al.*, 2016, Ahn & Back, 2018; Alvarez-Milán, 2018; Prentice *et al.*, 2019; Algharabat *et al.*, 2020). According to Brodie *et al.* (2013), customer brand engagement is a "psychological state" that implies "specific interactive experiences between consumers and the brand" (p. 107). Likewise, Calder *et al.* (2016) emphasise that customer brand engagement "results from experiencing a brand" (p. 580). While brand experiences refer to cognitive, affective and behavioural responses to brand stimuli (Brakus *et al.*, 2009) without presuming any motivational state, customer brand engagement can be conceptualised as "the level of an individual customer's motivational, brand-related and context-dependent state of mind characterised by specific levels of cognitive, emotional and behavioural activity in direct brand interactions" (Hollebeek *et al.*, 2011, p. 790). The cognitive dimension of customer

brand engagement is linked to the level of concentration in, interest in and attention to the brand (e.g., paying substantial attention to the brand), the affective customer brand engagement dimension refers to the customer level of brand-related emotions (e.g., being passionate about the brand) and behavioural customer brand engagement represents the customer level of energy exerted in specific "interactions" with a focal brand (e.g., spending substantial time using the brand) (Ahn & Back, 2018).

2.3.2. Customer engagement marketing

Conceptualising brand experience and customer brand engagement as multidimensional constructs, some scholars have empirically analysed the relationship between each dimension. According to Ahn and Back (2018), the sensory, affective, behavioural and intellectual brand experience dimensions (Brakus *et al.*, 2009) exert an influence on the dimensions of customer brand engagement - cognitive, affective and behavioural. In particular, these authors empirically demonstrate the positive influence exerted by 1) the sensory brand experience on the cognitive, affective, and behavioural customer brand engagement; 2) the affective brand experience on the affective and behavioural customer brand engagement; 3) the behavioural brand experience on the behavioural customer brand engagement; and 4) the intellectual brand experience on the cognitive and affective customer brand engagement. A company can try to design and manage different dimensions of its brand experience to achieve different CBE dimensions by following a new managerial framework that Harmeling *et al.* (2017) define as "customer engagement marketing". This type of marketing is a "deliberate effort" by the company that aims to achieve the engagement through the implementation of two types of marketing initiatives, "task-based" and "experiential". Through "task-based engagement initiatives", the company encourages consumers to perform a specific task (e.g., write a comment, provide support to other consumers), while "experiential engagement initiatives" are based on experiential events (e.g., travel, brand events) that aim to build psychological and emotional bonds between the

consumer and the company, brand, or other consumers. Moreover, according to Alvarez-Milán *et al.* (2018), the company can stimulate customer engagement through the creation of relevant content, the generation of emotionally stimulating environments and the possibility of inviting consumers into conversations.

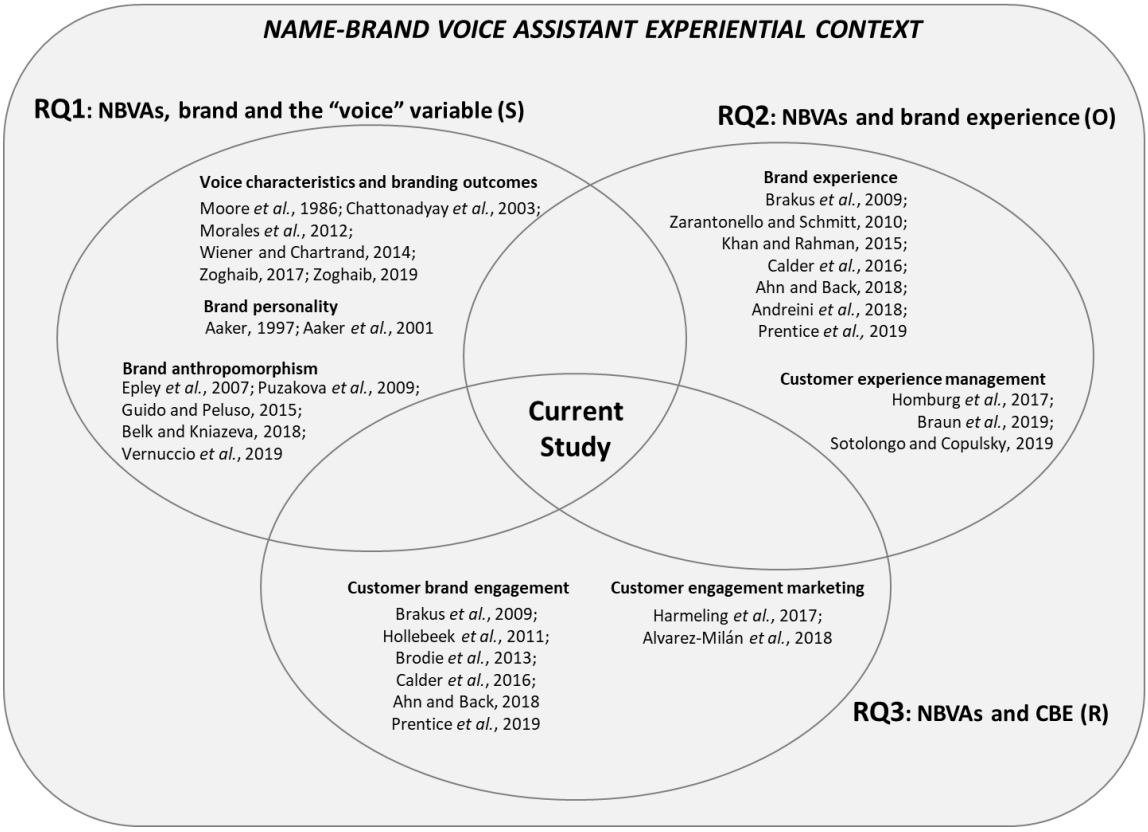
In light of the relationships that link brand experience to customer brand engagement and the importance of a managerial approach based on CBE, it is evident that even a brand experience design based on an NBVA could be appropriately oriented towards the final result of engagement with the brand. In the analysis of the academic literature on VAs, a single study was identified, which aims to understand the effect exerted by technology providers' VAs on engagement from a consumer perspective (Moriuchi, 2019). Specifically, the study reveals that the perceived usefulness of VAs has a positive effect on behavioural engagement.

Although the academic literature has recognised the role of brand experience as an antecedent of customer brand engagement (Bowden, 2009; Ahn & Back, 2018) and the importance of managing this relationship from a managerial perspective, no empirical studies have aimed to understand this relationship in the experiential context of name-brand voice assistants. It is necessary to shed light on the potential effects of the brand experience generated (and upstream designed) by NBVAs on the specific dimensions of CBE (Pagani *et al.*, 2019). Thus, the following RQ is formulated:

RQ3 – How might the brand experience based on the in-car name-brand voice assistant influence customer brand engagement (R)?

In conclusion, Figure 1 clarifies the contribution and positioning of this study by combining the fragmented literature on branding and voice variable (S) with the views of brand experience (O) and customer brand engagement (R) in the innovative name-brand voice assistant experiential context.

Figure 1. Research contribution and positioning



3. Methodology

To answer the RQs, the study followed a qualitative research approach with the analysis of a "single in-depth case study" (Dyer & Wilkins, 1991; Yin, 2017). This methodological choice was motivated first by the nature of the objective to understand in depth a complex and contemporary phenomenon in a real organisational context and second by the type of research questions (How?). In addition, the path of a "single in-depth case study" was followed, as this path was considered appropriate for the interpretation of the different perspectives expressed by the different managers. In particular, diverging from the traditional positivist approach (theory test), this study is "broadly situated within the interpretive approach" (Burghausen & Balmer, 2015, p. 31), which invites multiple understandings of "human experience" (Welch *et al.*, 2011), while theorising is based on

abductive reasoning that presents high levels of flexibility with a continuous and simultaneous interaction/evolution among theory, empirical detection and analysis (Van Maanen *et al.*, 2007). Finally, in light of the paucity and the fragmentation of the extant literature, this approach is appropriate for developing an interpretative theory (Burghausen & Balmer, 2015) of voice-based branding in the in-car name-brand voice assistant user experiential context.

Concerning sampling choices, the "criterion sampling strategy" was followed by applying "pre-determined criteria that are important to the study" (Fletcher *et al.*, 2018, p. 761). The automotive sector was selected as the study context since the car is becoming highly relevant as a context of use of VAs and favours the development of NBVAs (Voicebot, 2019a). The initial analysis of the available literature in this specific research area guided the selection of a case involving a VA activated by a user pronouncing the brand name and developed in-house. In the start-up phase of this study (October 2018), the name-brand voice assistant of the MBUX multimedia system was the only NBVA developed in-house in the automotive sector, as well as the first launched in the international market. Consequently, following the criterion of uniqueness (Yin, 2017), the selected case was the name-brand voice assistant of the MBUX multimedia system. Specifically, the Mercedes NBVA was developed through a strong collaboration between internal organisational areas (primarily R&S, Product and Marketing), and in some phases of NBVA development (i.e., creation of the voice, development and enabling of the functions, design of the experience), Mercedes also made use of the contributions of several highly specialised technology suppliers. A network of players with different perspectives was created around the Mercedes name-brand voice assistant project. This variety was due to the presence of internal and external players, heterogeneous functions and professional specialisations.

The Mercedes name-brand voice assistant can be activated inside the car through the vocal command "Hey, Mercedes!", allowing users to call the brand by name and dialogue

with it. In this case, the brand acquires its voice and can interact directly with the user. The Mercedes NBVA, owing to natural language recognition, can take dialogue with the user to a higher level, recognising vocal commands concerning car operation and infotainment, even if indirectly formulated. Concerning its response ability, the Mercedes NBVA no longer expresses itself through stereotyped or standardised answers; rather, it can vary its modes of dialogue. The launch of the MBUX was used by Mercedes as a strategic lever in a project of brand identity renewal, target expansion to include younger age groups and consequent brand repositioning in the direction of a "rejuvenation". In addition to traditional brand values related to quality and elegance, Mercedes has begun to refer to new values such as innovation and humanity. In addition, the MBUX received an important recognition, the "Q Global Tech Award 2019", as the best technological innovation in the automotive sector.

This study was conducted between October 2018 and December 2020, guaranteeing the triangulation of primary and secondary data (Flick, 2008): semi-structured (face-to-face) interviews, online public documents and internal textual/video documents provided by the interviewees. The multiple sources of primary and secondary data reflect this research approach and ensure that no one source leads the analysis to be too focused on a particular perspective (Lohmeier, 2014), thereby enhancing the trustworthiness of the data and findings (Shenton, 2004). In the first phase, public textual and video documents (e.g., blog and website; advertising spots on the MBUX - https://www.youtube.com/watch?v=i6XG-226CBE; articles from external specialised web sites) were collected and analysed for their usefulness for the deepening of the project phases, the key players involved and the marketing strategy adopted for the launch on the market, as well as for the development of the interview guide. During the interviews, the participants provided additional secondary sources of a confidential nature, which were extremely useful for completing the list of suppliers and specific features of the name-brand voice assistant.

To analyse the variety of perspectives of the players involved, 12 interviews were

conducted, including seven with senior managers of Mercedes (Daimler AG company) who were involved in various ways in the development and launch of the MBUX and five with technology partners (TP) who were involved in phases of voice and software development and experience design (Table 2; the participants are classified as Interviewees 1 to 12 because they requested full anonymity, including non-disclosure of any demographic detail or company-related position). The first round of interviews involved one TP and four senior managers (at least 10 years of experience), who were identified following the key informant technique (Robson and Foster, 1989), in the following organisational areas: research and development (R&D), marketing, product and corporate communication. Then, a snowball sampling strategy (Robinson, 2014) was used to identify other interviewees: three senior managers and four TP. In addition to using different sources of data, the selection of a heterogeneous sample is consistent with the interpretive approach adopted, as it permits the capture of different perceptions and points of views and enhances trustworthiness.

Table 2: Overview of interviews conducted

ID Interviewee	Area of organisation	Company
1	Marketing	Daimler
2	Product	Daimler
3	Corporate Communication	Daimler
4	R&D	Daimler
5	R&D	TP
6	Corporate Communication	Daimler
7	Strategy	TP
8	Business Development	TP
9	R&D	TP
10	Marketing	Daimler
11	R&D	TP
12	R&D	Daimler

To design and conduct the interviews, the “reflexive pragmatic approach” (Alvesson, 2003) was followed. The interviews, which had an average duration of 60 minutes, took

place face to face and were based on an interview guide adapted according to the interviewee's reference area. The changes also affected the wording, probes and the order of the questions according to the individual interviewee and the flow of conversation ("orchestrated dialogue") that had been developing (Arsel, 2017). Moreover, using iteratively built theory from the data, it was possible to refine the interview protocol alongside the "theoretical story" (Arsel, 2017, p. 943). To elicit participants' accounts of their spontaneous points of view and experiences, broad open-ended questions were developed to understand subjective articulations of three key concepts (RQs): 1) the role of brand voice in the design of the in-car name-brand voice assistant; 2) the design of the brand experience based on the in-car name-brand voice assistant; 3) the influence of the brand experience based on the in-car name-brand voice assistant on customer brand engagement. The interviews were recorded, fully transcribed (approximately 70,000 words) and then analysed, adopting the abductive research logic (Blaikie, 2009), through an iterative and multiphase coding process that included thematic analysis (King & Horrocks, 2010) applied to the interviews and other internal and external documents. The text was divided into segments of content (one or more phrases) that were associated with thematic categories. To identify the themes, the methodological guidelines proposed by King and Horrocks (2010) were followed. First, the text was analysed line by line to define the "descriptive codes", i.e., precise codes describing specific portions of text. Starting from the latter, through a gradual logical path of abstraction and merging, themes of increasingly higher levels were identified: first the "interpretative themes" and last, the "overarching themes". Following an abductive reasoning (Van Maanen *et al.,* 2007), the emerging themes were constantly linked to the existing literature and compared with one another to follow an iterative process that allowed unexpected insights to emerge, i.e., "the 'surprise' that occurs when an observation does not fit prior conceptions or hypotheses" (Welch *et al.*, 2013). As a result of this prolonged interpretative process, 10 overarching themes or "building blocks" related to the three RQs

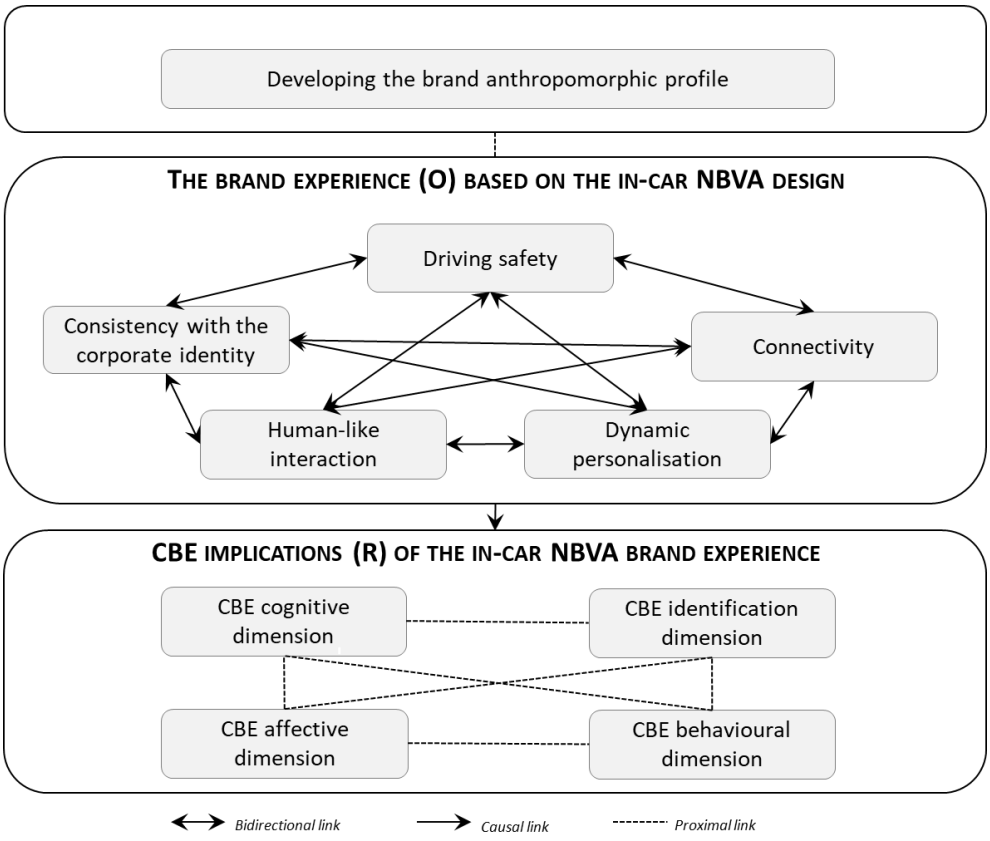
were identified and integrated into the theoretical interpretative framework (Figure 2).

To enhance the trustworthiness of this study, two members of the research team conducted the coding process separately and compared the results after each coding phase. Second, the so-called "code-confirming" strategy was adopted, involving two independent coders who were both trained experts in the subject matter. The coders were provided with the transcripts and related codes and were charged with confirming the associations. The interjudge reliability was calculated through the "agreement ratio", which proved satisfactory (86%). Then, the results were presented and discussed with the interviewees, who essentially validated the findings of this study.

4. Findings

Based upon the multistage analysis process and synthesis of the empirical data, this study proposes an interpretative theoretical framework of managerial perspectives on developing voice-based branding through an in-car name-brand voice assistant (Figure 2). The framework illuminates the heterogeneous relations (linear and non-linear) among the 10 overarching themes, diverging from the linear logic of the SOR Model, which represented the conceptual starting point (Welch *et al.*, 2013). In particular, the links that emerged were of four types: causal (A influences B), proximal (A is close to B), categorical (B is a sub-category of A) (Swan, 1997) and 4) bi-directional (A and B influence each other) (Burghausen & Balmer, 2015).

Figure 2. Theoretical framework of managerial perspectives on developing voice-based branding through the name-brand voice assistant



4.1. Strategic role of brand voice (S) in the design of the name-brand voice assistant

Related to the strategic role assigned to brand voice in the design of the in-car name-brand voice assistant (RQ1), the content analysis led to the interpretation of the overarching theme *developing the brand anthropomorphic profile.* The interviewees highlighted diffusely that the strategic role assigned to brand voice in the design of the Mercedes NBVA is ultimately to help develop the brand anthropomorphic profile by favouring the perception of the brand as a "human being". Consider, for example, the following quote:

"*We talk to the Mercedes VA not as if it were a car, a machine intended as a computer, but as if it were a person on board… precisely Mercedes!" […] "The concept behind our*

VA is artificial human intelligence, and the most extraordinary thing that an artificial intelligence can do for our brand is to look human" (Interviewee 4, R&D, Daimler).

Extant research indirectly supports the strategic objective of developing the brand anthropomorphic profile through name-brand voice assistants, stating that important anthropomorphic implications can be found "in the area of artificial intelligence that lacks anthropomorphic physical form, such as VAs" (Belk & Kniazeva, 2018, p. 243).

This overarching theme emerges from two interpretative themes through categorical links: *human-like brand personality traits* and *human-like brand voice*.

Human-like brand personality traits. The interviewees in the R&D and Marketing internal organisational areas stressed that the brand voice was strategically designed to favour the attribution of specific personality traits to the brand by the user in light of the Mercedes brand repositioning process (i.e., making the brand more youthful and innovative without giving up the valuable features that have always distinguished it). Daimler's management selected the final combination of the vocal characteristics, i.e., gender, accent, pitch and speed, by focusing on specific brand personality traits that the company wanted to convey to the user through vocal interaction. Thinking about the strategic choice to build the brand personality through the voice and emphasise both warmth and competence dimensions, a senior manager in R&D said:

"For the selection of the voice, we focused on characteristics of the brand 'character' that we wanted to represent in a direct way with our voice assistant: young, intelligent, attentive, reliable, brilliant, serious but not rigid, informal, elegant, conscientious, solution-oriented. The chosen female voice prevailed over other candidates, which, for example, seemed too naive (too many voice peaks…) or too boring (the pitch was too low). We chose a mid-pitch, a standard accent and a normal speed" (Interviewee 4, R&D, Daimler).

Previous studies adopting the consumer perspective indirectly confirm findings regarding the role of brand voice characteristics – gender (Wiener & Chartrand, 2014; Zoghaib, 2017),

pitch (Zoghaib, 2017; Zoghaib, 2019), accent (Morales *et al.*, 2012) and speed (MacLachlan, 1982) – in the perception of specific brand personality traits (e.g., W&C).

Human-like brand voice. Several internal and external interviewees, mostly in the R&D area, referred to the importance of designing a mix of specific vocal characteristics, i.e., quality, pitch and prosody, that overall should be perceived as similar as possible to human voice characteristics. Elaborating on the aim of humanity of the brand voice, an internal R&D manager who was involved in developing it said:

"*Mercedes Voice can be considered as rather human-like. This is mainly due to the progress of speech synthesis in recent years that allows for an improved perception on the user side. The voice is not only similar to a human voice, but also actually a human voice. Only the technical limitations make it sound not 100% human like. The aim is to mimic a human voice as close as possible*" (Interviewee 12, R&D, Daimler).

The strategic role of the human-like brand voice in developing the brand anthropomorphic profile is indirectly supported by Chérif and Lemoine (2019), who have shown that consumers who interact with a VA with a human voice (vs. a synthetic voice) have a stronger perception of the VA as a human interlocutor.

Specifically, quality, pitch and prosody are considered the key factors in making the brand voice as human as possible. As a technology partner explained:

"*To make the voice 'human', it is necessary to work a lot on the quality of the acoustic signal, on the pitch and on the prosody, eliminating intonation errors. Sometimes, technology has imperfections or the wrong prosody, maybe it has to make an interrogation and the tone doesn't rise as in the interrogation. I used to say that the voice is fine when the system knows what it says or gives the impression that it knows what it says!*" (Interviewee 11, R&D, TP).

Research in human-computer interaction and human-robot interaction fields indirectly reflects findings of quality (Janer *et al.*, 2006), pitch (Muralidharan *et al.*, 2014) and prosody

(Cowan *et al.*, 2015) as voice characteristics that can stimulate the perception of a human-like voice.

4.2. Strategic criteria for designing the brand experience (O) based on the name-brand voice assistant

Abundant evidence exists that the thematic macro-area of strategic criteria for designing the brand experience based on the name-brand voice assistant (RQ2) is related by a proximal link to the strategic role assigned to the brand voice in the design of the in-car name-brand voice assistant (RQ1). In fact, the design of the voice and the design of the brand experience are not considered sequential phases but contextual ones. The content analysis led to the identification of five fundamental design drivers (overarching themes) connected by bi-directional links (mutual influence): *driving safety*, *consistency with the corporate identity*, *human-like interaction*, *dynamic personalisation* and *connectivity* (Figure 2).

Driving safety. This concept refers to the overriding need to design the brand experience with the in-car NBVA in such a way as to reduce driving distractions and the chance of making errors. This is the priority design criterion for internal and external interviewees in all areas, as a Daimler Senior Manager of Corporate Communication said:

"*The MBUX project was created with the aim of reducing distractions for the driver. Driving safety is the fundamental requirement for us. For this reason, the functions and voice command features have been designed to make driving safer*" (Interviewee 6, Corporate Communication, Daimler).

The extant academic (Braun *et al.*, 2019) and managerial (Voicebot, 2019a) research echoes driving safety as a criterion for designing the experience with the in-car VA by stressing the importance of reducing visual and tactile interactions (e.g., watching and touching the on-board screen) to enable drivers to keep their eyes on the road and hands on the steering wheel.

Consistency with the corporate identity. The second criterion, highlighted by interviewees in the Marketing and Corporate communication areas, is the consistency of the experience with the corporate identity, which, in this specific case, has recently been redefined by the company based on new values, such as innovation and humanity. Elaborating on how the experience enabled by the voice was designed to favour the formation of the desired brand associations in the mind of the consumer (a youthful, innovative and more human brand), a Daimler Senior Manager of Marketing asserted:

"The experience with the voice assistant is a driver of renewal of the corporate identity… we have gone from a brand that you call 'Sir' to a brand to which you speak informally" (Interviewee 1, Marketing, Daimler).

Concerning the role of consistency with the corporate identity as a criterion for the experience design, only indirect evidence has been identified in previous research. In the field of customer experience management, Homburg *et al.* (2017) emphasise the importance of defining and maintaining the main elements of corporate identity across all touchpoints to ensure similar experiential responses along the customer touchpoint journey.

Human-like interaction. This overarching theme was emphasised above all by internal and external respondents from the R&D area and emerged from two interpretative themes through a categorical link: *naturalness* and *speed of interaction*. *Naturalness of interaction* is based on simplicity, fluidity and intuitiveness and allows users to interact with the NBVA as if they were conversing with a human in everyday life. As quoted by a technology partner: "*A key criterion is the intuitiveness of voice interaction, so you don't need to read instruction manuals. A natural interaction system proposes itself as a human interlocutor that, for a predetermined series of possibilities and for a given context, is able to understand any sentence*" (Interviewee 9, R&D, TP).

The naturalness concept is in accordance with Ferland *et al.* (2013), who highlight the importance of designing human-robot interaction using interaction "with the real world in

everyday life" (p. 118) as a reference model to elicit the humanoid robot perception.

The theme of the *speed of interaction* refers to the VA's capability of approximating the velocity of dialogue between humans. Speed is conceived both in terms of quick reaction time (maximum reduction of latency times) and essential dialogue, which must be brief and concise. Referring to the latter criterion, an R&D senior manager explains how it is motivated by user needs:

"*We mainly want to stay short, concise and essential. In the recent iterations, we have shortened the length of the dialogue, as we have learned that, particularly in cases where users want to quickly reach a task, they are annoyed by lengthy prompts. Most interactions can be accomplished by so-called one-shots*" (Interviewee 12, R&D, Daimler).

Concerning the speed criterion, while no support is identified for the quick reaction time concept, the managerial literature echoes the findings regarding essentiality, revealing the consumers' preferences for a short and non-elusive dialogue with the VA (Voicebot, 2019b).

Dynamic personalisation. Above all, the internal interviewees from the Marketing and Corporate Communication areas focus on this strategic criterion, which refers to the achievement of more dynamic and intimate experience personalisation methods compared to traditional modalities. *Dynamic personalisation* emerges from two interpretative themes through categorical links: *dynamic learning* and *dynamic sensitiveness*. The former refers to the ongoing learning due to continued use over time. A senior marketing manager emphasises the continuous adaptation of the NBVA to the driver by explaining how the device learns the user's habits and linguistic style over time:

"[The voice assistant] is a technology that evolves and adapts to the driver… it is like with human relationships: as you get to know each other better, you understand each other better, and the same thing is true with the MBUX, in the sense that the relationship is being refined over time. The relationship [with MBUX] when the car is taken from the dealer is not the same relationship after two months, and it is not the same relationship after two years

because the MBUX learns to read the driver's language codes and becomes more efficient, faster…" (Interviewee 1, Marketing, Daimler).

Moreover, the personalisation must be based on the *dynamic sensitiveness*, which according to interviewees concerns the NBVA's ability to adapt over time both to context factors (e.g., traffic or weather conditions) and factors related to the driver's psycho-physical conditions. In this regard, a senior manager of Corporate Communication argues:

"*I get onboard, and I have a clock that measures the heartbeat ... I speak with the MBUX, and it records that maybe I have slightly high parameters... then, it will put on a piece of calm music, a relaxing-coloured light ... So, it interprets my state of mind and gives me a response*" (Interviewee 6, Corporate Communication, Daimler).

The dynamic personalisation criterion finds evidence in academic and managerial literature. The theorisation of Sotolongo and Copulsky (2019) reflects finding of the VA's role in the creation of dynamic personalisation. Moreover, Accenture (2017) stresses the role of AI technologies in creating a tailored experience based on the continuous processing of user data. Finally, the VA's dynamic sensitiveness is in accordance with the study of Braun *et al.* (2019), which emphasises in-car VAs' ability to offer an experience that dynamically adapts to contextual aspects.

Connectivity. The interviewees in the R&D and Product areas especially stressed the relevance of the strategic criterion of connectivity inside and outside the car and among multiple touchpoints (e.g., smartphone, smartwatch) to allow a continuous transition from one touchpoint to another, placing the user and his or her interaction with the NBVA at the centre of this connective system. As a senior product manager noted, the brand experience has been designed to allow online and offline environment integration:

"The MBUX surely bridges to the IoT [Internet of Things]; therefore, there is a connection not only with infrastructures and with other cars but also with home automation. In fact, through our MBUX, you can talk to Alexa and Google Home, and you can control your car

from home, and vice versa, you can control your house. So, you can say, 'Hey, Mercedes, I'm coming home, turn on the heat!'... all without ever forgetting customer centricity" (Interviewee 2, Product, Daimler).

In the field of customer experience management, Homburg *et al.* (2017) support the connectivity criterion by underlining the importance of online/offline integration, multichannel experience and seamless transition from one touchpoint to another.

4.3. Customer brand engagement implications (R) of the in-car name-brand voice assistant brand experience

The content analysis led us to propose that the design of the experience can be oriented towards the development of particular dimensions of customer brand experience (unidirectional arrow in Figure 2). In particular, thanks to the words of Daimler Marketing and Corporate Communication managers, four customer brand engagement dimensions (overarching themes) connected by proximal links have been ascertained: *cognitive*, *affective*, *behavioural* and *identification*.

Cognitive dimension. Results suggest that the brand experience has been designed first to affect the CBE cognitive dimension by stimulating attention to as well as interest and curiosity in the brand (interpretative themes). Considering the new customer target and the brand-repositioning objective, a Corporate Communication senior manager pointed out: *"The VA is the instrument to access those services that are an element of attraction and curiosity for a younger public. The initial attention paid to this new technology then becomes attention towards the Mercedes brand"* (Interviewee 3, Corporate Communication, Daimler).

Affective dimension. In these field data, strong evidence emerges that the brand experience with the in-car NBVA has been designed to stimulate a variety of emotions such as surprise, amazement, fun and joy. In this regard, a Marketing senior manager affirms:

"There is certainly the theme of hedonism, where to surprise your friends, you ask for something in the car, and Mercedes answers you… In hedonism, there is also a certain aspect of entertainment. Here, I repeat, you are in the car with some friends, and you start joking, playing, rehearsing" (Interviewee 1, Marketing, Daimler).

Behavioural dimension. Finally, this dimension refers to the one-to-one interaction between the user and the brand. The NBVA touchpoint allows the user to establish a verbal, direct and dynamic dialogue with the brand by redefining the human-machine interaction. A senior marketing manager outlines how this dialogue is based on more evolved (natural) verbal forms compared to previous modalities based on rigid schemes:

"The MBUX redefines human-machine interaction, and this is a very important step towards brand engagement because from manual control, with a button or a knob or the touchscreen, we have gone to verbal communication […] Just say 'I'm hot! Hey, Mercedes, I'm hot!', and the car will ask you if you want to lower the temperature, and therefore, you don't have to directly ask it, as well as many other things. Here, it is a relationship dynamic that is grafted onto different and more evolved verbal forms compared to before" (Interviewee 1, Marketing, Daimler).

Considering the cognitive, affective and behavioural dimensions of the customer brand engagement, only some indirect evidence has been identified in previous research adopting the consumer point of view. Specifically, some studies have investigated the influence exerted on these CBE dimensions by a specific brand experience dimension, such as sensory, affective and behavioural dimensions (Ahn & Back, 2018; Prentice *et al.*, 2019).

Identification dimension. This overarching theme refers to the reduction in the distance between the values of the brand identity and the values of the user until they overlap. Elaborating on this type of CBE, a senior marketing manager outlined:

"'Hey, Mercedes!' It completely disrupts the traditional relationship with the brand because it brings the brand very close to the person, who recognises himself in the brand values, such

as the value of digital innovation" (Interviewee 1, Marketing, Daimler).

Among the CBE dimensions that emerged from the content analysis, the dimension of identification has received less attention in the literature. For example, identification has been investigated in terms of employee identification in the "organisational brand" (Kumar & Pansari, 2016) and in terms of brand engagement in self-concept, i.e., "a generalised view of brands in relation to the self" (Sprott *et al.*, 2009, p. 92).

5. Discussion

This study makes a theoretical contribution to the nascent line of research on the implications of NBVAs for branding by proposing a first understanding of this phenomenon from the managerial perspective with reference to the in-car experiential context. This study introduces 10 overarching themes as the result of multiple and heterogeneous points of view and develops an interpretative theoretical framework that represents the linear and non-linear relations among these themes.

With reference to the strategic role of the brand voice in the design of the NBVA (RQ 1), this study found that the voice was designed to develop an anthropomorphic brand profile, which is considered an important strategic objective, especially by Daimler managers (R&D and Marketing). The brand anthropomorphic profile is developed through the creation of an ad hoc voice. On the one hand, a mix of specific vocal characteristics emerged, i.e., gender, accent, pitch and speed, favouring the perception of specific human-like brand personality traits (e.g., young, intelligent) in line with the new brand positioning. On the other hand, an additional combination of vocal characteristics has been configured, i.e., quality, pitch and prosody, that is responsible for making the voice as human-like as possible.

Regarding academic implications, this study offers the first empirical support for the key role of brand voice and name-brand voice assistant in developing the brand anthropomorphic

profile; this role which has only been theorised in previous studies (Belk & Kniazeva, 2018; Vernuccio *et al.,* 2019). Moreover, results contribute to the vocal stimuli literature (e.g., Wiener & Chartrand, 2014; Zoghaib, 2017) by shifting the focus from a consumer perspective to a managerial one and studying a new experiential context (NBVA). In this regard, this study introduces two mixtures of vocal characteristics underlying the strategy of developing the brand anthropomorphic profile through the brand voice. The first mix, which is more articulated, allows the company to modulate specific brand personality traits, while the second is designed to induce the perception of a human-like voice. Finally, the conceptualisation of the "human-like brand voice" represents a theoretical and empirical advancement in the brand anthropomorphism literature, which until now had not considered the voice as a driver of the brand anthropomorphisation process (Guido & Peluso, 2015; Golossenko *et al.,* 2020).

Concerning the strategic criteria for designing the brand experience based on the name-brand voice assistant (RQ 2), five fundamental strategic criteria emerged from the analysis, linked by relationships of mutual influence. Marketing and Corporate communication managers focused their attention on consistency with the corporate identity and the dynamic personalisation. First, the experience was designed to favour the formation of brand associations in the consumer's mind in line with the new objective of corporate brand positioning. This business-centred approach is envisaged as necessary to ensure consistency with the internally defined corporate identity, especially in an experiential context based on intense interaction guided by the initiative and needs of the user (Braun *et al.*, 2019). Second, the dynamic personalisation criterion is viewed as strategic for the achievement of a more intimate and dynamic experience that can be refined over time since the VA is able to adapt to the user's specific habits and linguistic style (dynamic learning) as well as to context factors and driver's psycho-physical conditions (dynamic sensitiveness).

R&D managers and partners focused more attention on human-like interaction and

connectivity criteria. The former was achieved through the design of an interaction based on the emerging themes of naturalness and speed. The latter refers to the connectivity among multiple touchpoints inside and outside the car, thereby making the brand experience seamless. Finally, the criterion considered a priority by all interviewees was driving safety, which was configured as the prerequisite and ultimate goal of name-brand voice assistant development.

From an academic perspective, this study contributes to the literature on customer experience marketing by proposing an articulation of the key criteria for designing the brand experience based on name-brand voice assistants. Findings of this research not only confirm two strategic criteria outlined by Homburg *et al.* (2017), i.e., consistency and connectivity, but also conceptualise additional ones, i.e., driving safety, human-like interaction and dynamic personalisation. Moreover, results provide empirical support for the theorisation by Sotolongo and Copulsky (2019) with regard to the relevance of NBVAs in the design of an interactive and dynamic brand experience.

Finally, results indicate some implications of the in-car name-brand voice assistant brand experience in terms of the customer brand engagement (RQ 3). The analysis highlights how the company can orient the design of the brand experience generated by the in-car name-brand voice assistant to stimulate a variety of CBE dimensions, both behavioural and non-behavioural (cognitive, identification, affective) in nature. The behavioural dimension refers to the intense one-to-one interaction between the user and the brand, which becomes vocal and direct. The cognitive dimension refers to the stimulation of attention to, curiosity regarding and interest in the brand. The affective dimension refers to the stimulation of emotional responses, such as amazement and joy. Finally, the identification dimension refers to a reduction in the distances between the brand identity values and the user values since the NBVA allows the user to verbally communicate with the brand in an increasingly intimate way.

This study suggests how the experience with the name-brand voice assistant can affect consumer engagement with the brand, whereas the extant literature has focused on engagement with the VA (Moriuchi, 2019). In addition, this study contributes to enriching and advancing the scarce empirical literature on the relationships between brand experience and brand engagement (Ahn & Back, 2018) by articulating from managerial points of view the main dimensions of the CBE that can be positioned as objectives of the NBVA brand experience and identifying a new objective dimension, i.e., the identification dimension.

5.1. Managerial implications

The interpretative theoretical framework of managerial perspectives on developing voice-based branding through the name-brand voice assistant has the potential to represent a useful and integrative conceptual reference for managers' understanding of the strategic variables engaged in the design of the voice of in-car NBVAs, as well as of the relationships between those variables. Practitioners involved in branding strategies in the automotive sector can be aware that the design of an NBVA experience is strictly related, on the one hand, to the design of the brand's anthropomorphic profile and, on the other hand, with the development of heterogeneous dimensions of the customer brand engagement.

Managers should be able to stimulate the perception of the brand as a "human being", in line with the brand positioning, through the design and deployment of specific combinations of vocal characteristics to foster the user's perception of particular personality traits and a human-like voice. In this sense, findings provide immediate guidance to practitioners by identifying these specific vocal mixes.

The design of the voice is flanked by the strategic design of the overall experience with the name-brand voice assistant. In this regard, findings can guide managers on how to articulate interrelated strategic design criteria, i.e., driving safety, consistency with the corporate brand identity, human-like interaction, dynamic personalisation and connectivity

from a customer-centric perspective. Moreover, in light of the experience of Daimler, managers are provided guidance on recognising the variety of professional perspectives involved in this type of project, in which a complex network of internal and external players and heterogeneous functions (i.e., R&S, Strategy, Product, Marketing, Corporate communication) should be engaged in an integrated way while expressing the plurality of points of view.

Finally, this study suggests to managers the specific customer brand engagement objectives towards which the company might orient the design of the name-brand voice assistant experience: high levels of attention to and interest in the brand, a relevant emotional activation by the stimulation of amazement and fun associated with the brand, and an intense verbal, direct and dynamic dialogue between the consumer and the brand.

5.2. Limitations and future research

This essay is not exempt from limitations since the field of investigation is limited to a single case study within a rapidly changing international competitive scenario (e.g., in March 2019, BMW launched its name-brand voice assistant, the IPA). Notwithstanding the impossibility of statistical generalisation of the results, the conceptualisation presented in the interpretative theoretical framework adopted can provide useful stimuli for future theoretical and empirical research – qualitative and quantitative – on voice-based branding.

Adopting the managerial perspective, future research lines can not only follow the evolution of the Mercedes name-brand voice assistant over time and its implications for branding through a longitudinal study but also investigate new cases of in-car NBVAs subsequently launched on the market. This research could also be extended to other industries. Moreover, future studies might also analyse in-depth voice-based branding in the experiential context of the in-car VAs of technology providers (e.g., Google), where the brand has less control over the design process. With specific reference to the present case

study, despite repeated solicitations, no particular issues and pitfalls emerged, other than small hints (e.g., the voice is not yet completely similar to a human voice). The reasons for this situation likely relate to participants' close involvement in the development project. For this reason, any possible critical managerial issues in the development of voice-based branding should be investigated in a future study by interviewing experts who were not directly involved in the project.

By adopting the consumer point of view, it might be interesting to attempt to operationalise, through quantitative research designs, the themes of the proposed framework and test relevant antecedents and consequences. First, an opportunity for future research is the development of a scale of brand anthropomorphism that includes voice characteristics, since extant research has validated measurement scales referring only to physical design elements (Guido & Peluso, 2015; Gossolenko *et al.*, 2020). Second, future empirical works may analyse how specific mixes of vocal characteristics impact brand personality. Third, the effects that the dimensions of the name-brand voice assistant experience have on the customer-brand engagement dimensions in this innovative experiential context may be analysed. In this regard, it should be noted that a factor that could moderate the causal relationship between brand experience and customer brand engagement may be the user perception of privacy risk, a factor on which the academic literature on VAs has begun to concentrate attention (McLean and Osei-Frimpong, 2019). This study suggests that it is important to analyse the different customer brand engagement responses depending on whether the interaction is with the name-brand voice assistant or the VA of a technology provider. Finally, it should be noted that in the automotive sector, the particular engine noise is an important identifying element of the brand personality. Electric cars will likely all sound the same, and this could lead to a loss in terms of personality of the car brand. In this scenario, a study may be conducted to understand how the brand voice enabled by the name-brand voice assistant could contribute to replacing the role of engine sound.

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ESSAY 2

Delving into brand anthropomorphisation strategies in the experiential context of name-brand voice assistants

1. Introduction

The previous marketing literature concerning voice assistants (VAs) highlighted the opportunities offered by these interfaces in terms of anthropomorphism (Belk & Kniazeva, 2018) and branding (Vernuccio *et al.*, 2021). The initial studies investigated technology providers' VA anthropomorphism consumer perception (e.g., Moriuchi, 2021; Cho, Molina, & Wang, 2019), whereas to the best of knowledge, only Vernuccio *et al.* (2021) focused on the implications of brand anthropomorphism in the NBVA context. Analysing the case of MBUX by Mercedes, these authors outlined how the brand voice can be designed by managers to build an anthropomorphic brand profile. Regarding the brand anthropomorphism research stream, several studies adopted the consumers' perspective but paid scant attention to the managerial perspective in the design of the brand anthropomorphisation strategy (i.e., Portal, Abratt, & Bendixen, 2018; Hosany, Prayag, Martin, & Lee, 2013), which rely on managerial design activities aimed at developing a specific anthropomorphic brand perception in consumers' minds with the ultimate objective of achieving relevant branding outcomes. However, the managerial practice in the automotive industry is showing remarkable business cases of these branding strategies, which are intended to shape the perception of brands as human entities by including NBVAs in cars. Therefore, this article aims to investigate the key pillars, i.e., activities and objectives pursued by companies, of brand anthropomorphisation strategies in the NBVA experiential context by adopting the managerial perspective. Thus, this essay responds to the calls by

Belk and Kniazeva (2018) for research on anthropomorphism in the field of VAs and by Hosany *et al.* (2013) for further studies concerning brand anthropomorphisation strategies and, thus, contribute to the brand anthropomorphism literature by adopting a managerial perspective. Moreover, this study can provide managers with innovative guidelines for the design of brand anthropomorphisation strategies developed through NBVAs. Therefore, this essay adopted an exploratory qualitative approach based on 13 in-depth interviews with practitioners (from the automotive sector) who were involved in brand anthropomorphisation strategies in the NBVA context.

The essay is structured as follows. In the following section, a literature review of brand anthropomorphism and the VA field focused on anthropomorphism are presented. Then, the methodology and findings are outlined. Finally, the results, theoretical and managerial implications, future research lines and limitations are discussed.

2. Theoretical background and research questions

2.1. Brand anthropomorphism

In the marketing literature, anthropomorphism is defined as consumer perception based on the tendency of imbuing human characteristics, intentions and emotions to non-human objects and agents (e.g., brand) (Epley, Waytz, Akalis, & Cacioppo, 2008). Specifically, anthropomorphic brands are "perceived by consumers as actual human beings with various emotional states, mind, soul and conscious behaviours" (Puzakova, Kwak, & Rocereto, 2009, p. 413). The perception of brand anthropomorphism arising in the consumer's mind is based on upstream managerial design activities, which are aimed at giving a specific human-like shape to the brand (e.g., physical and cognitive elements) and orienting consistently consumer perceptions to achieve relevant branding outcomes (i.e., cognitive, attitudinal and behavioural). Thus far, the concept of brand anthropomorphism has been connected mainly

to physical attributes (Golossenko, Pillai, & Aroean, 2020; Guido & Peluso, 2015) and some cognitive aspects, such as the mind (Epley *et al.*, 2008), free will (Kim & McGill, 2011), intentions (Kim & McGill, 2011) and personality (Epley *et al.*, 2008). Amid "the set of human characteristics associated with a brand" (Aaker, 1997, p. 347) that constitute brand personality, the warmth and competence (W&C) dimensions are of great relevance. The first dimension refers to traits, such as being amicable, kind and trustworthy, while the latter dimension refers to capability, intelligence and ability (Malone & Fiske, 2013).

Research concerning brand anthropomorphism has almost exclusively assumed consumers' perspective (e.g., Ali *et al.*, 2021; Golossenko *et al.*, 2020; Puzakova & Kwak, 2017; Guido & Peluso, 2015), and to the best of knowledge, only two studies have adopted the managerial perspective to understand the brand anthropomorphisation strategies implemented by companies. As marketing strategies are based on some key pillars – i.e., activities designed by the company and specific objectives to be pursued (Greenley, 1989) – brand anthropomorphisation strategies can be defined as a set of managerial activities that aim to achieve specific branding outcomes by favouring the perception of brand anthropomorphism in consumers' mind. The first study on brand anthropomorphisation strategies was the empirical contribution by Hosany *et al.* (2013), who analysed a specific anthropomorphic character's brand (i.e., Hello Kitty) and identified eight key strategic cornerstones, such as simplicity in design. These authors underlined the importance of orienting the strategy towards the support of consumers' interest in the brand to inspire an emotional consumer-brand relationship. In the second conceptual study, Portal *et al.* (2018) proposed the "human brand model", which defines the following four strategic activities for building a brand perceived as a human: designing brand traits, brand attributes, brand authenticity and brand benefits. In particular, six types of brand attributes that should be developed were proposed, i.e., original, ethical, genuine, warmth, competence, and trust, i.e., original, ethical, genuine, warmth, competence, and trust. The brand anthropomorphisation

strategy should be oriented towards building a good reputation, thereby strengthening the consumer-brand relationship and behavioural brand loyalty.

Although the extant literature provides indications about some activities (e.g., designing brand traits) and outcomes (e.g., the strength of consumer-brand relationships, brand loyalty) of brand anthropomorphisation strategies implemented by companies, the knowledge appears partial since, on the one hand, the results shown by Hosany *et al.* (2013) refer to the design activities of brand visual elements (i.e., Hello Kitty character traits) and, on the other hand, Portal *et al.* (2018) provide conceptual guidelines for practitioners that have not been empirically proved.

2.2. Voice assistants and anthropomorphism

In light of the growing tendency of consumers to infuse voice-based artificial intelligence technologies with human characteristics (Puntoni, Reczek, Giesler, & Botti, 2021), marketing scholars have mostly adopted the consumer perspective to investigate the perception of the VA as a human interlocutor (e.g., Fernandes & Oliveira, 2021; McLean, Osei-Frimpong, & Barhorst, 2021; Patrizi, Vernuccio, & Pastore, 2021). These studies have been conducted in several experiential contexts (e.g., smartphones, smart speakers) and by adopting different theoretical perspectives (e.g., the service robot acceptance model, para-social relationship theory). In this nascent stream of research, some experimental contributions have highlighted the role of vocal stimuli as determinants of VA human likeness, contrasting voice vs. text (Cho, 2019; Cho *et al.*, 2019) and a human-like voice vs. a synthetic voice (Chérif & Lemoine, 2019). Table 1 provides an overview of studies on perceived VA human likeness, summarising the extant literature in terms of the context, theoretical perspective, methodology, main findings and sample.

Table 1. Overview of studies on perceived VA human likeness

Author(s)	VA context	Theoretical perspective	Main findings	Sample
Chérif & Lemoine (2019)	Prosper (website)	N/A	A human-like (vs. synthetic) voice increases the perception of the VA as a human interlocutor.	Internet users
Cho (2019)	Google Assistant (smartphones vs. smart speakers)	N/A	Voice (vs. text) improves the perception of the VA as a human interlocutor.	Students
Cho *et al.* (2019)	Cortana (laptops vs. smartphones)	N/A	Voice (vs. text) enhances perceived VA human likeness. Laptops (vs. smartphones) enhance perceived VA human likeness.	Students
Fernandes & Oliveira (2021)	N/A	Service robot acceptance model	VA humanness does not impact VA acceptance.	Millennials
McLean *et al.* (2021)	Alexa (smart speakers)	Social response theory and the technology acceptance model	The perception of the VA as a human interlocutor positively affects consumer brand engagement.	Market research firm panel
Moriuchi (2021)	Google Assistant and Alexa (smart speakers)	Realism maximisation theory and the unified theory of acceptance and use of technology	VA anthropomorphism has a positive impact on VA engagement.	Prolific respondents
Patrizi *et al.* (2021)	(smartphone)	N/A	Users perceive in an integrated way the VA human-like voice and the VA social presence.	Millennials
Pitardi & Marriott (2021)	Alexa (smart speakers)	Human–computer interaction theories and para-social relationship theory	The perception of the VA as a human interlocutor positively influences trust in technology.	mTurk respondents

Considering the specific NBVA field, interesting opportunities in terms of human-like brand arise, as the brand acquires for the first time a property typical of humans, the voice, with which it dialogues directly and dynamically with the consumer (Vernuccio *et al.*, 2021).

In this innovative context, only one study has been found (Vernuccio *et al.*, 2021) that aimed to understand the role of brand voice in NBVA design by analysing the Mercedes MBUX case through a managerial perspective. This single case study outlines the relevance of specific voice characteristics for building a human-like voice and the human-like brand personality traits of warmth and competence, with the ultimate aim of developing an anthropomorphic brand profile. Although the design of vocal features has already been shown to be a fundamental activity of the brand anthropomorphisation strategy, it is unclear whether this result could be extended beyond the Mercedes MBUX case. Moreover, further activities and outcomes of brand anthropomorphisation strategies in the NBVA context remain unknown. In light of these considerations, as well as the previously highlighted gap in the brand anthropomorphisation literature, this work aims to identify the key pillars, i.e., activities and branding outcomes, of brand anthropomorphisation strategies in the NBVA experiential context by adopting the managerial perspective. Figure 1 shows the contribution and positioning of this study by combining the partial literature on brand anthropomorphisation strategies with the nascent research stream on NBVAs.

Figure 1. Study contribution and positioning

3. Methodology

Given the aim and the paucity of previous studies, this essay adopted a qualitative exploratory approach based on in-depth personal interviews (N=13) with practitioners engaged in brand anthropomorphisation strategies in the NBVA experiential context (Creswell, 1998). A brief interview guide based on open-ended questions (in addition to the fixed data) was used to minimise conditioning due to the researchers' knowledge and elicit spontaneous answers and reasoning based on the perceived key pillars in the development of the brand anthropomorphisation strategy. To understand the concepts that practitioners consider important with respect to this research topic and how these concepts are interconnected, the cognitive mapping technique was used (Vernuccio & Ceccotti, 2015; Chaney, 2010; Swan, 1997; Huff, 1990; Axelrod, 1976; Wrightson, 1976).

Given the relevance of NBVAs in the automotive sector, this study focused on two international automaker companies (hereinafter referred to as "Company 1" and "Company 2") that were the first to develop in-house NBVAs with the support of highly specialised text-to-speech (TTS) providers, who were involved in the design and development of the speed software and who served as voice command and data suppliers. As reported in Table 2, three waves of data collection were conducted.

During the first phase (September-November 2019), six interviewees (four managers and two TTS providers) were selected following the key informant technique (Robson & Foster, 1989). During the second phase (June-July 2020), four additional interviewees (three managers and one TTS provider) were selected using the snowball sampling strategy (Robinson, 2014). During the final phase (December 2020-January 2021), to satisfy the criterion of data saturation (Guest, Bunce, & Johnson, 2006), the third phase was conducted with three further interviews. The respondents, who were from the US and Europe (i.e., Germany and Italy), were classified as Interviewees 1 to 13, as they requested full anonymity and no disclosure regarding their companies or job titles. However, the area of organisation,

company, years of experience (at least 16 years) and gender of each respondent are reported in Table 2.

Table 2. Overview of the interviewees

Interviewee ID	Area of organisation	Company	Years of experience	Gender
1	Marketing	Company 1	21	Male
2	Marketing	Company 1	16	Female
3	External Relations	Company 1	25	Male
4	R&D	Company 1	20	Female
5	R&D	TTS provider	26	Male
6	R&D	TTS provider	21	Female
7	Corporate Communication	Company 2	24	Female
8	Marketing	Company 2	22	Female
9	R&D	Company 2	18	Male
10	Strategy	TTS provider	25	Male
11	Marketing	Company 2	17	Male
12	Strategy	TTS provider	28	Male
13	Business Development	TTS provider	20	Female

The interviews, which lasted approximately 90 minutes on average, were recorded and transcribed in full. To identify and favour a cross-reading of the key pillars of brand anthropomorphisation strategies in the NBVA context, the practitioners' most frequently shared subjective thoughts were systematised in a "collective cognitive map" (Vernuccio & Ceccotti, 2015; Swan, 1997). The data analysis followed the four stages of the documentary coding method (Wrightson, 1976) as follows (Figure 2):

1) *Text encoding of each interview*. Qualitative content analysis adopting the theme as a criterion for identifying the units of analysis was performed during the encoding phase (King & Horrocks, 2010). After careful and repeated reading of each interview, the so-called descriptive codes were defined, i.e., very short codes descriptive of specific portions of text. Based on these descriptive codes, more general interpretative codes (themes) were defined, which were identified by a process of abstraction (King & Horrocks, 2010). To ensure the

adequate reliability of the results, following the code-confirming approach (King & Horrocks, 2010), two independent coders, who were marketing experts and specifically methodologically trained, were charged with confirming the associations. The interjudge reliability, which was calculated as the so-called agreement ratio, was 88%, which is above the minimum expected level (Powell, 2007).

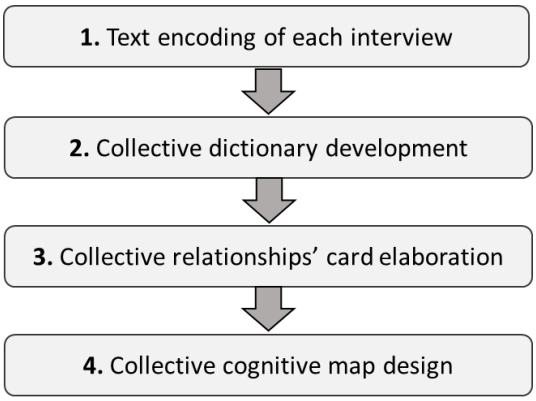
2) *Collective dictionary development*. A list of all concepts emerging from the previous phase and the related verbalisations was prepared. All statements with the same meaning were identified and unified (merging). This procedure allowed us to define the main themes that were the most shared concepts across the 13 interviews ("those beliefs that were shared by more than half of the sample", Swan & Newell, 1994, p. 193).

3) *Collective relationships' card elaboration*. Based on the most shared concepts, the relationships among these nodes were identified. To simplify the analysis based on the objectives, only the following three types of relationships have been considered (Swan, 1997): causal (A influences/causes B); category (A is a part of B/is included in B); contiguity (B follows A).

4) *Collective cognitive map design*. The final collective cognitive map emerged from a systematisation of the main thoughts among the 13 practitioners. The map represents the key pillars of brand anthropomorphisation strategies to develop through NBVAs, i.e., drivers, intermediate outcomes and final outcomes. The cognitive map was designed using Decision Explorer© software (Eden *et al.*, 1992).

To enhance the credibility of the results, the collective map was presented to and discussed with six interviewees, who validated the obtained findings.

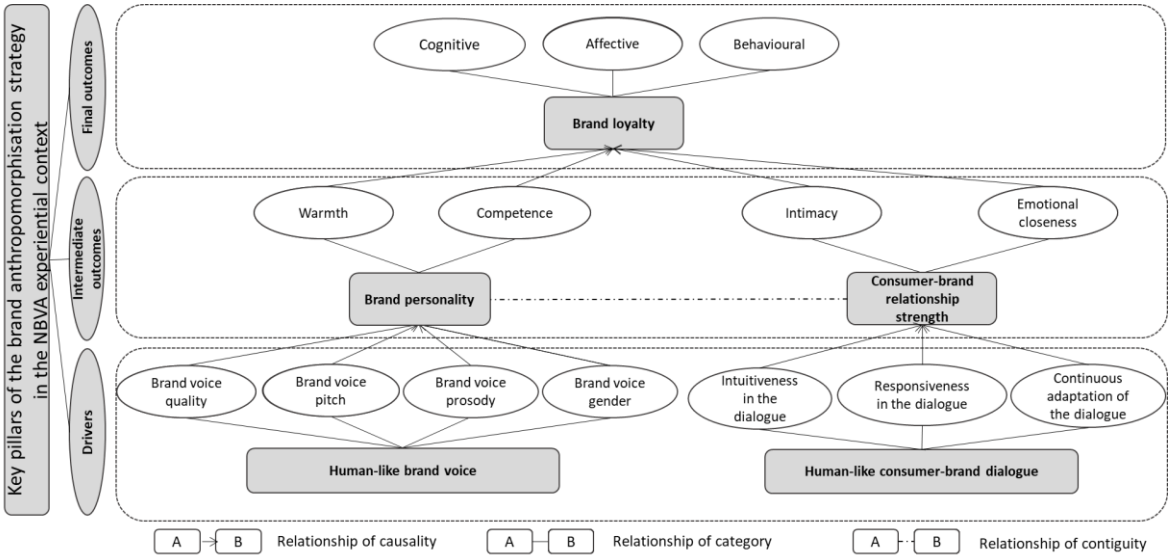
Figure 2. The data analysis process



4. Findings

The map emerging from the analysis (Figure 3) represents the collective cognitive structure shared among the respondents in terms of the most shared concepts and the logic linking these concepts. Specifically, the following three types of relationships emerged (Swan, 1997; Swan & Newell, 1994): causal (A influences B), category (B is a subset of A) and contiguity (B follows A). Figure 3 illustrates the collective map representing the following key pillars of the brand anthropomorphisation strategies developed through NBVAs: drivers, intermediate outcomes, and final outcomes. The arrows represent causal relationships between the concepts, while lines indicate relationships of category, and dotted lines refer to relationships of contiguity. In the following sections, the different components of the collective cognitive map are presented.

Figure 3. The key pillars of the brand anthropomorphisation strategies in the NBVA experiential context



4.1. Drivers

There was widespread consensus among the interviewees regarding two fundamental drivers, i.e., activities carried out by companies to favour the brand anthropomorphism perception, in the brand anthropomorphisation strategies developed through the NBVA: designing a *human-like brand voice* and *human-like consumer-brand dialogue*.

Human-like brand voice. The meanings associated with the concept of the humanity of voice appear to be linked to the following four sub-themes (category type relationships): *1) brand voice quality; 2) brand voice pitch; 3) brand voice prosody;* and *4) brand voice gender.*

1) The *brand voice quality* is considered by the interviewees one of the main brand voice characteristics and is based on concatenation through algorithms of whole sentences recorded by human speakers with short synthetic speech pieces that are stored in a database. Specifically, the quality increases by improving the recorded phrases, and as a result, the brand voice becomes closer to a human voice.

"In this context, the voice quality is related to the number of recorded sentences from a human speaker compared to sentences generated with a voice synthesiser. To achieve a human-like voice, it is necessary to increase the quality and, therefore, the number of recorded sentences. The managers asked us this" (Interviewee 12, Strategy, TTS provider).

2) The second sub-theme is the *brand voice pitch*, which is the melodic height with which a syllable is pronounced. Although the participants felt that some aspects of artificiality remain, the objective is to make the brand voice pitch as similar as possible to a human pitch by creating variations (up and down) during speech.

   "The brand voice pitch should be very close to a human pitch" […] "For me, you still feel that it [the brand voice] is artificial; you feel that it does not have the tone of the voice that we can have, but surely, you feel that it has made great strides compared to previous technologies" (Interviewee 1, Marketing, Company 1).

3) The respondents diffusely considered the *brand voice prosody*, i.e., intonation, rhythm and accent, and the consequent melodic movement in each type of sentence (e.g., interrogative) essential vocal attributes favouring the perception of the brand voice as a human voice.

   "We had to work a lot on prosody to create a human voice. For example, in an interrogative sentence, the intonation must rise. In this case, we have some correction tools that we have used to correct all prosody defects" (Interviewee 6, R&D, TTS provider).

4) According to the opinion of the interviewees, the development of a human-like brand voice cannot ignore the strategic choice of the *brand voice gender*, which is conditioned mainly by cultural factors. In this regard, the marketing manager of Company 2 asserts the following:

"The voices are similar but not the same in every country; the main difference is gender. In the United States and Europe, users tend to prefer female voices, while in some markets, such as Russia and Saudi Arabia, for specific cultural reasons, consumers prefer a male voice as a guide" (Interviewee 8, Marketing, Company 2).

Human-like consumer-brand dialogue. According to the interviewees, users should be able to interact with the brand through the NBVA as if they were interacting with a human. The concept of the humanity of the dialogue emerges from the following three sub-themes connected by category type relationships: *1) intuitiveness in the dialogue; 2) NBVA responsiveness in the dialogue;* and *3) continuous adaptation of the dialogue.*

1) To make the consumer-brand dialogue as close as possible to human interaction, the participants outlined the importance of *intuitiveness in the dialogue*, which is conceived as simplicity and fluidity. Due to natural language understanding technology, the respondents believed that an NBVA could become a human-like interlocutor able to understand any type of sentence.

   "Company 1 wanted an intuitive vocal interaction that did not require reading manuals to use it. For this reason, they used the Natural Language Understanding, which, unlike grammar recognition, allows the VA to understand any type of sentence even if it is indirectly formulated" (Interviewee 6, R&D, TTS provider).

2) *NBVA responsiveness in the dialogue* was regarded by the participants as a feature necessary to develop human-like consumer-brand interaction. In this regard, the interviewees emphasised how the NBVA reaction time was reduced to simulate pauses in human dialogue and ensure that the user does not have to wait longer than he/she would expect when talking to a person after vocally formulating his/her request.

   "The interface has to be responsive, very responsive, fast with a maximum of two seconds of delays in any type of interaction. [...] So, we had to work to optimise the algorithms

and make sure that the user does not have to wait any longer than he would expect by talking to a human" (Interviewee 6, R&D, TTS provider).

3) According to the managers' conceptualisation, the *continuous adaptation of the dialogue* is based on both the user's habits and context and individual factors. Regarding the first criterion of adaptation, an NBVA can learn a user's language expressions and behavioural habits (e.g., frequently used routes or people called) and establish a dialogue based on these factors.

   "*If you frequently call a person when you leave the office, if she is your girlfriend, [the voice assistant] asks you, 'Do you want to call your girlfriend?*'" (Interviewee 10, Strategy, TTS provider).

   Concerning the continuous adaptation to the context and individual factors, the participants outlined the importance of an NBVA's ability to capture information regarding both external conditions (e.g., weather and traffic) and the driver (e.g., how long he/she has been driving).

   "*The algorithm also takes in information about context-based factors. For example, if you've been driving a lot, it's raining and there's a lot of traffic, the algorithm processes all these data and deduces that you might be stressed; so, it asks you if you want a regenerating program that involves changing the colour of the lights inside the driver's cab and cheerful songs*" (Interviewee 8, Marketing, Company 2).

4.2. Intermediate outcomes

In the context of NBVAs, the respondents argued that the drivers of brand anthropomorphisation strategies should aim to achieve the following two intermediate outcomes (contiguity type relationship): developing the perception of a *brand personality* and improving the strength of *consumer-brand relationships*.

1) The widespread opinion that the human-like brand voice's characteristics (i.e., quality, pitch, prosody and gender) have to favour the perception of a *brand personality* (causal relationships) emerged. The brand personality refers to a multiplicity of human traits that are associated with both the *warmth dimension* and the *competence dimension* (category type relationships). For example, the informal, friendly and trustworthy traits are related to the warmth dimension, while intelligent, brilliant and solution-oriented are related to the competence dimension.

   "Vocal characteristics have to be chosen to enable the perception of specific brand personality traits in the consumer's mind, such as informal, intelligent, brilliant, solution-oriented…" (Interviewee 1, Marketing, Company 1).

   "The choice of vocal characteristics was guided by a very precise objective – our voice assistant had to be perceived by users as friends but, at the same time, trusting and not naive" (Interviewee 7, Corporate Communication, Company 2).

2) Moreover, the participants underlined how the human-like consumer-brand dialogue features have to be designed to improve the *consumer-brand relationship strength* in terms of *intimacy* and *emotional closeness* (category type relationships). According to the conceptualisation provided by the respondents, the ability to understand the consumer's habits and needs enables a more intimate and personal consumer-brand relationship (intimacy). In addition, when the driver's emotions are known, the brand becomes a travel companion that leads the user to perceive the brand as a friend and enjoy a unique feeling. As stated by the Marketing manager of Company 2,

   "*Thanks to the dialogue established between the brand and the user through the VA, a stronger relationship is created. Stronger in the sense of more intimate because the brand demonstrates daily that it knows what you need and when you need it. To go back to the example of before, the brand, through the VA, knows that at a specific time you always call the same person, and then, it proposes you to call him/her; so,*

it knows your habits and your needs, and consequently, the relationship that is created is more personal. All this is accompanied by an emotional closeness because the brand feels that you are stressed and offers you songs to relax. Inevitably, the brand becomes your travel companion, your friend, and as it happens with your friends, you start to have special feelings for him/her [the brand]" (Interviewee 8, Marketing, Company 2).

Therefore, based on these results, the following tenets are proposed:

Tenet 1: In brand anthropomorphisation strategies developed through NBVAs, the design of human-like brand voice characteristics (i.e., quality, pitch, prosody and gender) aims to enable the perception of the brand personality.

Tenet 2: In brand anthropomorphisation strategies developed through NBVAs, the design of consumer-brand dialogue features (i.e., intuitiveness, responsiveness and continuous adaptation) is finalised to strengthen the consumer-brand relationship.

4.3. Final outcomes

According to the interviewees, the perception of a brand personality (i.e., warmth and competence traits) and the development of a stronger consumer-brand relationship (i.e., intimacy and emotional closeness) should be geared towards increasing *brand loyalty* (causal relationships), which is recognised as the final outcome of brand anthropomorphisation strategies in the NBVA context. According to the respondents' answers, brand loyalty comprises the following three dimensions (category type relationships): 1) *cognitive*; 2) *affective*; and 3) *behavioural*.

1) First, the *cognitive* dimension is interpreted as consumers' positive beliefs and thoughts regarding the brand's dynamic ability to perform better and provide more benefits than other brands.

"*If the brand is perceived as trustworthy and competent and if thanks to the daily voice dialogue, the relationship becomes intimate because the brand learns your habits and, therefore, always satisfies your needs better, the user becomes loyal in the sense that he/she automatically recognises the brand's superior benefits*" (Interviewee 7, Corporate Communication, Company 2).

2) Second, the respondents conceived the *affective* dimension of brand loyalty as an emotional attachment to and positive feelings towards the brand.

   "When a strong relationship is created and you see every day that the brand proves to be both friendly and intelligent through the VA, you also become more emotionally loyal to the brand because it makes you feel good. For us, this is an important goal" (Interviewee 8, Marketing, Company 2).

3) Third, the interviewees emphasised that another ultimate goal is to stimulate the *behavioural* dimension of brand loyalty, i.e., encouraging repeated purchases of the brand.

   "*The final achievement is the reconfirmation of the brand choice in the long run. This is the real point of arrival and departure!*" (Interviewee 3, External Relations, Company 1).

Consequently, according to these findings, the following tenets are outlined:

Tenet 3: In brand anthropomorphisation strategies developed through NBVAs, the brand personality traits (i.e., warmth and competence) aim to increase brand loyalty.

Tenet 4: In brand anthropomorphisation strategies developed through NBVAs, the consumer-brand relationship dimensions (i.e., intimacy and emotional closeness) are intended to increase brand loyalty.

5. Discussion

Cognitive mapping allowed us to conceptualise three levels of the key strategic pillars of brand anthropomorphisation strategies in the NBVA experiential context: 1) drivers (i.e., designing a human-like brand voice and human-like consumer-brand dialogue), 2) intermediate outcomes (i.e., developing the perception of brand personality traits and strengthening consumer-brand relationships), and 3) final outcomes (increasing brand loyalty). Moreover, this essay identified three types of relationships (i.e., category, causal and contiguity) among the aforementioned concepts and formulated four final tenets.

In light of the positioning of this research that combines the nascent stream on NBVAs with the partial literature on brand anthropomorphisation strategies, the results contribute to jointly advancing knowledge in both fields. On the one hand, focusing on brand anthropomorphism from a managerial perspective in the under-researched context of NBVAs, this study enriches the rising strand of studies about VAs, shifting the focus from the consumer perspective, which thus far has been almost exclusively adopted (e.g., Fernandes & Oliveira, 2021; Moriuchi, 2021), to the perspective of practitioners engaged in the management of voice-based branding. Moreover, this work shifted the focus from the humanity of the VA to the humanity of the brand speaking through the in-car NBVA, extending the results of Vernuccio *et al.* (2021). On the other hand, this research contributes to the poorly investigated brand anthropomorphisation strategy field (Portal *et al.*, 2018; Hosany *et al.*, 2013) by identifying the key pillars (i.e., drivers, intermediate and final outcomes) of this strategic approach in the NBVA experiential context and highlighting how the objectives pursued by companies with these types of strategies can be hierarchically defined (i.e., intermediate and final outcomes).

With respect to the conceptualisation of the strategic "drivers", i.e., a human-like brand voice and human-like consumer-brand dialogue, this study broadens the potential activities aimed at fostering the brand anthropomorphism perception, which thus far were related only

to the manipulation of the traditional elements of brand design, i.e., facial or physical elements (e.g., Hosany *et al.*, 2013). In particular, the results show that a human-like voice can be built based on specific vocal characteristics (i.e., quality, pitch, prosody and gender), while human-like consumer-brand dialogue can be developed by relying on specific features such as intuitiveness, responsiveness and continuous adaptation. In this way, this study extends the previous knowledge in the field of NBVAs (Vernuccio *et al.*, 2021) by completing the range of drivers to be activated to favour the brand anthropomorphism perception.

Regarding the intermediate outcomes (i.e., developing the perception of brand personality traits and strengthening consumer-brand relationships), the central role of W&C brand personality traits in the building of an anthropomorphic brand has been confirmed (Vernuccio *et al.*, 2021). In addition, if the extant literature has indirectly indicated that the strength of consumer-brand relationships is an outcome of the brand anthropomorphisation strategy (Portal *et al.*, 2018; Hosany *et al.*, 2013), the findings of this study reveal a new driver that allows this objective to be achieved, i.e., designing human-like consumer-brand dialogue features.

Finally, although the existing literature has already theorised behavioural brand loyalty as an outcome of the brand anthropomorphisation strategy (Portal *et al.*, 2018), results both empirically confirm this tenet and highlight that the cognitive and affective dimensions of brand loyalty can also be addressed.

5.1. Managerial implications

From the managerial perspective, this study provides a useful conceptual guideline for planning a brand anthropomorphisation strategy via NBVAs in the automotive sector. Managers need to design a brand voice with specific characteristics (quality, pitch, prosody and gender) and characterise the consumer-brand dialogue with intuitiveness, rapid NBVA

responsiveness and continuous adaptation to individual and contextual factors. Moreover, based on the conceptual map, the following three complementary strategic directions to managers can be recommended: 1) designing a human-like brand voice to favour the perception of warmth and competence; 2) developing a human-like consumer-brand dialogue to strengthen the consumer-brand relationship in terms of intimacy and emotional closeness; and 3) leveraging the perception of specific brand personality traits and the strength of the consumer-brand relationship to improve the cognitive, affective and behavioural dimensions of brand loyalty.

5.2. Limitations and future research lines

This study is not exempt from limitations. The first limitation concerns the specific voice experiential context investigated (i.e., in-car NBVA), which opens new extensions to other interaction fields (e.g., smartphones and/or smart speakers), brands/companies and product categories.

Second, the qualitative nature of this study, which was based on in-depth interviews with managers, does not permit the generalisation of the results and needs confirmation from the consumer side. Moreover, this essay derived tenets to advance the literature concerning the domains and planning of branding anthropomorphisation strategies in the NBVA field. Empirical tests of each tenet are beyond the purpose of this work. To overcome this limitation, future research might test the causal relationships identified in the cognitive map and tenets via experimental research designs by shifting the focus from managers to consumers. In this way, further studies can investigate the antecedents and consequences of the consumer's brand anthropomorphism perception in this innovative experiential context.

Furthermore, unlike the existing literature (e.g., Becheur, Bayarassou & Ghrib, 2017; Sung & Kim, 2010), the results of this study do not reveal a causal link between brand

personality and the strength of consumer-brand relationships. Therefore, this research calls for further research to investigate this relationship in the NBVA context.

Finally, this study focused on the strategic role of brand voices in brand anthropomorphisation strategies. However, since the empirically validated measurement scales of brand anthropomorphism refer only to physical and cognitive elements (Golossenko *et al.*, 2020; Guido & Peluso, 2015), this essay calls for research to develop a new scale based on the brand voice.

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ESSAY 3

Google, are you human? The antecedents of brand anthropomorphism in the name-brand voice assistant context

1. Introduction

Voice assistants (VAs) are rapidly entering the daily lives of consumers, with 8.4 billion VAs projected to be in use worldwide by 2024 (Statista, 2021). Smartphones are the device most used to interact with VAs (Voicebot, 2020), and young adults constitute the heavy user segment (Capgemini Research Institute, 2018).

In this context, marketing scholars (e.g., Hasan *et al.*, 2021; Moriuchi 2021; Patrizi *et al.*, 2021; Poushneh, 2021; Tassiello *et al.*, 2021; Whang & Im, 2021) are producing a new strand of studies that aim to grasp user perceptions related to interactions with VAs, such as the perceived social presence (SP) of these new technologies. Social presence refers to the perception of the VA as a human interlocutor (e.g., McLean *et al.*, 2021; Fernandes & Oliveira, 2021), which is strengthened when the VA speaks with a human-like voice compared to a synthetic voice (Chérif & Lemoine, 2019). In a recent study, Puntoni *et al.* (2021) emphasised the increased tendency of consumers to attribute human characteristics to non-human objects in the VA environment. Focusing on the experiential context of NBVAs, the qualitative study by Vernuccio *et al.* (2021) highlighted the strategic path of designing a human-like brand voice (HLBV) to elicit the perception of brand anthropomorphism (BA), i.e., the perception of the brand as a human entity. To date, however, brand anthropomorphism has been linked only to the use of visual cues (e.g., Ali *et al.*, 2021; Chen & Lin, 2021), and to the best of knowledge, only the conceptual

contribution by Pukazova *et al.* (2009) has identified the individual's self-image and brand image as antecedents of the perceived humanity of the brand. A recent contribution by Agrawal *et al.* (2020) underlined the importance of understanding the factors that lead consumers to view the brand as a human-like entity to achieve relevant branding outcomes. Furthermore, Guido and Peluso (2015) invited scholars to investigate the role of vocal cues in the brand anthropomorphism perception, as brands become entities "full of life to which consumers can talk" (Veloutsou & Guzmàn, 2017, p. 7). In addition, Belk and Kniazeva (2018) solicited research on anthropomorphism in the voice-based AI field. However, vocal stimuli have not yet been considered drivers of brand anthropomorphism, and to date, no study has been conducted on the vocal antecedents of the anthropomorphism perception of the brand (e.g., Google) with which users interact through NBVAs (e.g., Google Assistant). Moreover, as the NBVA becomes the medium that enables direct dialogues between the user and the brand, the perception of the NBVA as a human interlocutor could induce brand anthropomorphism. However, this causal relationship remains unexplored.

In light of these considerations, by combining the literature on brand anthropomorphism with emerging studies on VAs, this essay aims to understand the antecedents of brand anthropomorphism in the NBVA experiential context, analysing the cause-effect relationships among a human-like brand voice, NBVA social presence and brand anthropomorphism. Moreover, this article investigates whether these relationships change based on the respondents' gender and expertise, as these variables have been found to influence consumer perceptions (e.g., Schermerhorn *et al.*, 2008; Ogara *et al.*, 2014). In this way, this study contributes to jointly advancing knowledge in both the VA and brand anthropomorphism fields by focusing on under-researched branding perceptions in the context of NBVAs and by identifying the vocal antecedents of brand anthropomorphism. Additionally, findings of this essay provide managers with a useful reference in the design

of variables that enable the perception of brand anthropomorphism in the NBVA experiential environment.

To achieve the posited objectives, this essay conducted a survey involving young adult users, i.e., those with the highest adoption rates of VAs on smartphones, which use these technologies in an advanced way (i.e., utilitarian and entertainment requests) (Capgemini Research Institute, 2018). In addition, in selecting the specific interaction context, this article focused on the most popular NBVA, i.e., Google Assistant (Voicebot, 2020).

This essay is organised as follows. In the next section, the conceptual model and specify the research hypotheses are presented. Then, the methodology, data analysis and empirical findings are described. Finally, this article proposes theoretical and managerial implications, notes the limitations of this study, and suggests future research lines.

2. Theoretical background and hypothesis development

2.1. Brand anthropomorphism[1]

In the marketing literature, the perception of the brand as a human being has been induced through visual and graphic expedients, i.e., by endowing the brand with a physique or a face with human characteristics (Guido & Peluso, 2015; Hur *et al.*, 2015; Romero & Craig, 2017; Golossenko *et al.*, 2020; Ali *et al.*, 2021; Chen & Lin, 2021), by using mascots (Brown, 2010) or by depicting the brand in typical human actions (e.g., sunbathing) (Puzakova *et al.*, 2013). Textual tricks have also been applied, such as the use of the first-person singular in brand descriptions (Aggarwal & McGill, 2007; Golossenko *et al.*, 2020) or the first-person plural in brand communications (Sela *et al.*, 2012). To date, only the conceptual study by Puzakova *et al.* (2009) has attempted to understand the antecedents of brand

[1] A complete review of studies on brand anthropomorphism is reported in the previous chapters.

anthropomorphism, focusing on the consistency between the individual's self-image and the brand image.

In the current rapidly evolving technological environment, Agrawal *et al.* (2020) recognise potential interesting opportunities in terms of brand anthropomorphism enabled by voice-based AI technologies. In this regard, considering the specific NBVA experiential context, Vernuccio *et al.* (2021) highlight the strategic path of designing and creating a human-like brand voice to build an anthropomorphic brand from a managerial perspective.

2.2. Human-like voice

The construct of the "human-like voice", which originated in the strand of research on human-computer interaction, has been studied in contrast to a synthetic/robotic voice. The latter is produced through sophisticated computer software known as voice synthesisers (e.g., AT and Elan Sayso Speech), whereas the human voice is pre-recorded (Chérif & Lemoine, 2019; Vernuccio *et al.*, 2021). On the one hand, a synthetic voice offers advantages in terms of flexibility and lower design costs but has limitations related to tone and prosody that, in the user's mind, induce the perception of an unnatural voice (Nass & Brave, 2005). On the other hand, a human-like voice manages to overcome these constraints by showing a greater expressive and persuasive capacity (Stern *et al.*, 2006); however, it requires high investments in the design and creation phases.

The extant literature has emphasised how consumers are more prone to infuse an agent with human characteristics when it has a human-like voice (e.g., Schroeder & Epley, 2016). Similarly, concerning user-VA interactions, Chérif and Lemoine (2019) show an increase in the perception of VA social presence when VAs are equipped with a human-like (vs. synthetic) voice.

However, in the experimental studies mentioned above, the human voice was treated as a stimulus, and consequently, no conceptualisation or measures indicating the dimensions of this construct were obtained.

2.3. Social presence

Social presence originated in social psychology applied to the telecommunications field, and it was initially defined as the degree of salience of the interlocutor in technology-mediated communication and, consequently, as the salience of interpersonal interaction (Short *et al.*, 1976). Owing to the digital revolution, in addition to interaction through the medium (i.e., mediated by a technological interface), interaction with the medium (i.e., between a subject and the medium itself) is increasingly developing. In the latter interaction context, social response theory posits that individuals tend to interact with technologies similarly to how they interact with other human beings (Nass & Moon, 2000). The social presence concept has been used by scholars in the human-computer interaction field to denote the human perceptions of different media, such as robots (Lee *et al.*, 2006), e-commerce websites (Hassanein & Head, 2007), e-learning websites (Tung & Deng, 2007) and social media (Shen & Khalifa, 2009).

The tendency of consumers to attribute human characteristics to non-human objects and agents has been amplified by AI in general and by the widespread use of VAs in particular (Puntoni *et al.*, 2021). Concerning VAs, social presence has been conceived as the perception of a real entity that is able to interact as a human interlocutor (e.g., McLean & Osei-Frimpong, 2019; Fernandes & Oliveira, 2021). To date, studies have mainly analysed the effect of VA social presence on attitudinal and behavioural outcomes. For example, Cho (2019) investigated the positive causal relationship between social presence and VA attitude, and McLean and Osei-Frimpong (2019) considered social presence as an antecedent of the usage of in-home VAs. Moreover, Fernandes and Oliveira (2021) demonstrated the positive

effect of social presence on the acceptance of digital VAs, while Pitardi and Marriott (2021) investigated the positive causal relationships between social presence, VA attitude and VA trust in the smart speaker environment.

Shifting the focus to the "through the medium" interaction context, this article note that the NBVA has become the medium that enables dialogue between two subjects: the user and the brand. From this perspective, VA humanity could induce brand anthropomorphism perception, although this effect has not yet been tested.

2.4. Human-like voice, social presence and brand anthropomorphism

In the human-robot interaction field, a human-like (vs. synthetic) robot voice has been identified as an enabler of perceived robot anthropomorphism (e.g., Eyssel *et al.*, 2012). However, the specific voice characteristics that induce such perception have not been clarified.

In the advertising literature, some studies have investigated the effect of various voice characteristics on the human personality traits of the brand, i.e., warmth and competence (W&C), which are associated with the anthropomorphism concept (Epley *et al.*, 2008b). The dimension of warmth is related to traits such as being friendly, reliable and trustworthy; in contrast, competence perception refers to capability, skill and intelligence (Malone & Fiske, 2013). In particular, extant research has emphasised how consumers' perception of W&C traits can be enhanced by pitch, accent and quality. Regarding the first, a low-pitched voice is related to competence and maturity, while a high-pitched voice is associated with joy and youth (Zoghaib, 2019). Furthermore, a standard (vs. nonstandard) accent leads to a perception of superior brand competence in terms of intelligence and success (Morales *et al.*, 2012). Finally, Wiener and Chartrand (2014) identified six types of voice quality: breathy, creaky, nasal, tense, whispery and harsh. A creaky voice is judged as being less warm and less competent, breathy and whispery voices are perceived as being warmer, and

a tense voice is evaluated as being more competent than the other voice types. Therefore, in the context of user-brand interaction mediated by NBVAs, the brand acquires its voice. If designed and created with specific human characteristics (i.e., pitch, accent and quality), the brand voice can induce in the consumer's mind the perception of an anthropomorphic brand. In light of these considerations, the following hypothesis is formulated:

H1: In the NBVA experiential context, a human-like brand voice positively influences brand anthropomorphism.

The perception of a human-like voice "conveys a sense of social presence – that is, the idea that someone is speaking directly to you" (Mayer, 2005, p. 240). The causal relationship between the "human-like voice" and "social presence" constructs has been tested in different strands of studies (i.e., human-robot interaction and marketing) and diverse experiential contexts.

In the human-robot interaction field, several scholars have highlighted how a human-like voice positively influences the perception of robot SP in informative and hedonic interactions (Lee *et al.*, 2015), as well as transactional interactions (Edwards *et al.*, 2019).

In the marketing strand, Cho (2019) and Cho *et al.* (2019) showed how the use of vocal vs. textual stimuli increases the perception of VA social presence. In addition, Chérif and Lemoine (2019) emphasised how users perceive greater SP when talking to a virtual assistant with a human voice compared to the same virtual assistant with a synthetic voice. Although no studies have investigated the causal relationship between a human-like voice and social presence in the experiential context of NBVAs, this evidence might be reflected in this field. Thus, the following hypothesis is proposed:

H2: In the NBVA experiential context, a human-like brand voice positively influences NBVA social presence.

Social presence has also attracted the attention of branding scholars, who have shown the effect of this perception on several branding outcomes (i.e., brand trust, brand loyalty and

consumer-brand engagement). In particular, Ogonowski *et al.* (2014) highlight the positive effect of e-commerce website social presence on brand trust, while Pongpaew *et al.* (2016) emphasise how the social presence of corporate Facebook pages (i.e., smart IT device companies) positively affects both brand trust and brand loyalty. Moreover, Pongpaew *et al.* (2017) and Algharabat *et al.* (2018) propose that consumer-brand engagement is a key consequence of the SP of Facebook brand pages (i.e., smart device companies and non-profit organisations, respectively). Similarly, in the VA context, McLean *et al.* (2021) analyse the positive effect of VA social presence on consumer-brand engagement. Since brand trust, brand loyalty and consumer-brand engagement are considered consequences of brand anthropomorphism (Guido & Peluso, 2015; Ferreira, 2020; Golossenko, 2021), it is reasonable to hypothesise that social presence also has a positive effect on brand anthropomorphism. Therefore, the following hypothesis is posited:

H3: In the NBVA experiential context, NBVA social presence positively influences brand anthropomorphism.

Given that, on the one hand, a human-like brand voice has a positive effect on social presence (H2) and that, on the other hand, social presence positively impacts brand anthropomorphism (H3), it is possible to expect that social presence will play a key role in the process hypothesised in H1. Hence, the following mediation hypothesis is proposed:

H4: In the NBVA experiential context, the positive effect of a human-like brand voice on brand anthropomorphism is mediated – at least partially – by NBVA social presence.

2.5. The role of gender

Extant research has suggested that gender differences have a role in the perceptions of vocal stimuli (e.g., Zoghaib, 2017), social presence (e.g., Schermerhorn *et al.*, 2008) and brand anthropomorphism (e.g., Puzakova & Aggarwal, 2015).

Regarding human-like voice perception, no evidence in studies on VAs has emerged. However, considering the related field of human-robot interaction, Eyssel *et al.* (2012) emphasised how women prefer robots with a human-like female voice over robots with a human-like male voice. Similarly, male respondents show marginally greater acceptance of a human-like male voice compared to a robot with a female voice. These findings are in contrast to sexual orientation theory, according to which recipients are more sensitive to voices of the opposite sex (Re *et al.*, 2012; Zhang, 2016). Concerning specific voice characteristics (i.e., pitch, accent and quality), in the marketing field, Zoghaib (2017) highlighted how female subjects prefer low-pitched voices, while men had a greater preference for high-pitched voices. Moreover, compared to male respondents, women perceive low-pitched voices as having less warmth. In addition, male listeners have a more favourable attitude towards female voices than female listeners in the advertising context, while in the political field, women and men have the same attitude towards a speaker's voice characteristics (Zoghaib, 2019). Wiener and Chartrand (2014) examined the effect of voice quality on W&C perception. They showed that female and male listeners evaluate voice quality in the same way. Finally, to the best of knowledge, no study has examined gender differences in accent perceptions.

Regarding social presence, Schermerhorn *et al.* (2008) found that women saw a robot as more machine-like, while men tend to perceive a robot as more human-like. Furthermore, Siegel *et al.* (2009) showed that subjects have a greater tendency to attribute human characteristics to robots of the opposite gender.

Finally, concerning the tendency to anthropomorphise non-human agents or objects, Chin *et al.* (2004) discovered that females anthropomorphised animals more than males, but no gender differences were observed in the anthropomorphising of artefacts (e.g., cars or brands). In contrast, Pukazova *et al.* (2015) found gender differences in the evaluation of an

anthropomorphised brand. In particular, compared to male respondents, women view an anthropomorphised brand as being more sophisticated.

These partial and mixed findings regarding the role of gender suggest that the empirical evidence is not strong enough to formulate hypotheses. In their recent studies, previous researchers in marketing have made the same assumption (e.g., Okumuset *et al.*, 2018; Šerić & Vernuccio, 2020). Therefore, to understand the effects of gender on the posited hypotheses, the following research question is proposed:

Q1: Does gender moderate the causal relationships of the model?

2.6. The role of expertise

Expertise is defined as the ability to carry out specific tasks efficiently and effectively (Alba & Hutchinson, 1987). Levels of expertise could have an impact on the relationships investigated in this study since novices and experts differ in their abilities to perceive and interpret information (Carter *et al.*, 1988). These differences have mainly been investigated in regard to visual/textual data and, to a lesser extent, in the field of sound and vocal stimuli. In particular, Chartrand *et al.* (2008) highlighted the superior ability of experts to perceive and recognise human voice characteristics.

Expertise also affects social presence perceptions of the technological interface with which users interact; for example, compared to novices, users with a high degree of expertise perceive an instant messaging app as more human-like (Ogara *et al.*, 2014).

Although no contribution has investigated the role of expertise in brand anthropomorphism perception, extant research has shown how this variable positively influences several branding outcomes in consumer-brand relationships, such as brand attitude (Mangleburg *et al.*, 1988; Muthukrishnan *et al.*, 1991), brand preference and brand satisfaction (Jamal *et al.*, 2007) and consumer-based brand equity (Mishra & Dash, 2014). However, these studies were conducted from specific theoretical (i.e., consumption value

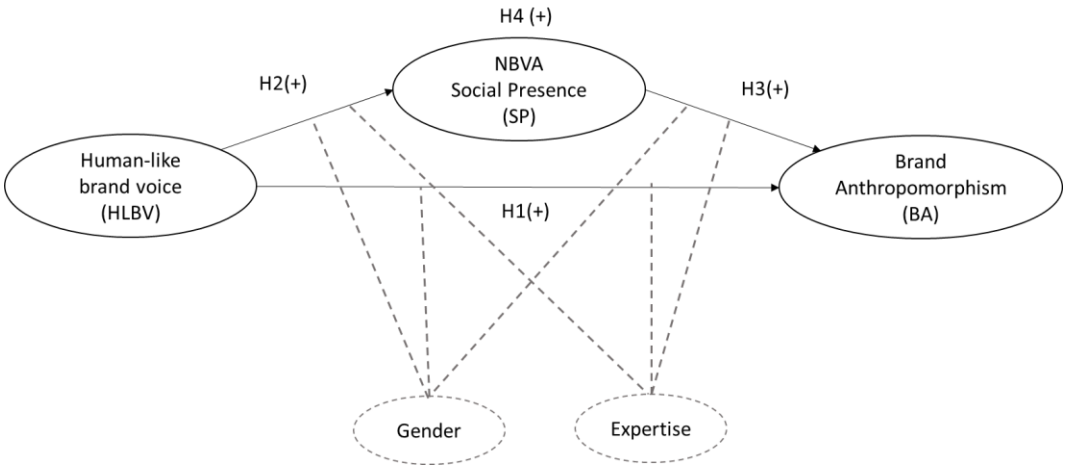
theory, the theory of brand experience and brand equity theory) and empirical perspectives (i.e., the automotive, sportswear and travel sectors).

This fragmented and partial evidence does not allow us to develop research hypotheses regarding expertise. Therefore, to understand the influence of expertise on the formulated hypotheses, the following research question is proposed:

Q2: Does expertise moderate the causal relationships of the model?

The research questions are included together with the research hypotheses in the proposed research model (Figure 1).

Figure 1. Research model



3. Methodology

3.1. Respondents and sampling

To test the research hypotheses and provide answers to the research questions, empirical research in 2020 was conducted. This essay surveyed Italian young adults, i.e., 18-36 years old (Fernandes & Oliveira, 2021; Whang & Im, 2021), who are both early adopters (Fernandes & Oliveira, 2021) and heavy users of VAs (Capgemini Research Institute, 2018). Furthermore, young adults are a segment prone to innovation (Rašković *et al.*, 2016) and use

VAs in a more advanced way, performing both utilitarian (e.g., asking about the weather, making a call) and playful actions (e.g., playing music) (Capgemini Research Institute, 2018; Voicebot, 2020). In addition, this research considered interactions on a smartphone, which is the device with the highest rates of use for talking with VAs (Voicebot, 2020).

This essay applied the purposive sampling strategy (Malhotra *et al.*, 2017) to recruit respondents, targeting only subjects aged between 18 and 36 years who have dialogued with VAs at least once on a smartphone. The final sample was composed of 324 subjects, 58% of whom were women with an average age of 23.7 years (SD = 2.19). In terms of educational levels, 70.1% of the respondents had a bachelor's degree, 15.1% had a master's degree, and 13.9% had a high school education. Some others (0.9%) had only a primary school education or held a Ph.D.

3.2. Procedure of the interaction with the NBVA

After giving his/her consent, each respondent was invited to interact with a Google Assistant equipped with a female voice (i.e., the default voice); Google Assistant is the most popular NBVA on smartphones (Voicebot, 2020). He/she received a sheet containing 30 queries divided into two categories: informative requests (e.g., "Okay, Google, set an alarm clock for 5.30 pm", "Okay, Google. what are my plans for Monday?") and ludic requests (e.g., "Okay, Google, tell me a fairy tale", "Okay, Google, sing me a song"). These stimuli were selected based on the queries most frequently asked to VAs on smartphones by users (Voicebot, 2020). The respondents were requested to choose seven queries in each category, and to avoid bias, the queries were presented in random order.

At the end of the interactions with Google Assistant, which lasted approximately 8 minutes on average, the questionnaire was administered through the SurveyMonkey® online tool.

3.3. Questionnaire

The questionnaire was composed of five sections. First, an HLBV was detected by using the dimensions of pitch, accent and quality, which were drawn from the contributions of Wiener and Chartrand (2014), Morales *et al.* (2012) and Zoghaib (2017; 2019) and inspired by the Human Facial Physiognomy Scale of Guido and Peluso (2015). Consequently, four new items were used (see Table 1).

SP was measured in the second section by fitting to the smartphone interaction context McLean and Osei-Frimpong's (2019) four-item scale.

In the third part, BA perception was detected by adjusting to the experiential field of this research the 7-item scale proposed by Waytz *et al.* (2010). All items were assessed on a 7-point Likert scale (1=strongly disagree; 7=strongly agree).

Moreover, the level of expertise was measured in the fourth section by using a 7-point scale (from 1=decidedly not expert to 7=decidedly expert).

Finally, fixed data were requested (i.e., gender, age and educational qualifications).

4. Data analysis and findings

Structural equation modelling-partial least squares (SEM-PLS) was employed for data analysis using SmartPLS 3 software. PLS is an appropriate analytical technique for theory building (Ali *et al.*, 2018) and, therefore, for this research, which tested new concepts and new relationships. In addition, it is a good option for data with small sample sizes (Chin, 1998). This was also the case of this study, which further divided the total sample into different subsamples for multi-group analysis.

Data processing consisted of four stages. First, the outer model with the purpose of assessing the quality of the measurement tool employed was examined. Second, the inner model, looking at the casual relationships examined and path significance (Hair *et al.*, 2017)

was validated. Third, prior to testing the moderating effects of gender and expertise, this essay checked for measurement invariance to assess whether looking at moderating effects is actually meaningful and valid (Henseler *et al.*, 2016). Once partial measurement invariance was ensured through the measurement invariance of composite models (MICOM) process (Henseler *et al.*, 2016), this article performed multi-group analysis to compare the path coefficients between the established groups, i.e., women vs. men, on the one hand, and people with low vs. high expertise, on the other hand.

4.1. Outer model

The reliability of the measurement model was assessed by Cronbach's alpha (α) and the composite reliability (CR) scores. High internal consistency was confirmed for all the constructs, as both the α and CR values were higher than the recommended threshold of 0.7 (Hair *et al.*, 2017) (see Table 1). Convergent validity was tested through analysis of the factor loadings and the average variance extracted (AVE). Almost all loadings were higher than 0.7, except for one brand anthropomorphism item, which equalled 0.671; however, this item was retained for further analysis, as this value was higher than 0.6 (Bagozzi & Yi, 1988) and highly significant. The AVE of each construct exceeded the threshold of 0.5 (Fornell & Larcker, 1981), thus confirming the convergent validity of the outer model (see Table 1).

Table 1. Summary of the results for the outer model

Constructs/Items	Loadings	α	CR	AVE
Brand anthropomorphism (BA)		0.915	0.914	0.605
Google appears to have a mind of its own	0.747***			
Google appears to have intentions	0.8690***			
Google appears to have free will	0.718***			

Google appears to have consciousness	0.817***			
Google appears to have desires	0.671***			
Google appears to have beliefs	0.790***			
Google appears to have the ability to experience emotions	0.818***			
Human-like brand voice (HLBV)		0.866	0.867	0.620
Google seems to have a human voice	0.703			
Google seems to have a human pitch	0.823			
Google seems to have a human accent	0.779			
Google seems to have a human voice quality	0.837			
Social presence (SP)		0.883	0.883	0.654
When I interact with Google Assistant, it feels like someone is present in the room	0.837			
My interactions with Google Assistant are similar to those with a human	0.818			
During my communication with Google Assistant, I feel like I am dealing with a real person	0.832			
I communicate with Google Assistant in a way similar to how I communicate with humans	0.743			

Note: *** $p < 0.001$.

Regarding discriminant validity, the measurement model showed satisfactory results in terms of the Fornell and Larcker criterion (i.e., the square root of the AVE of each construct was greater than its correlations with other constructs) and the heterotrait–monotrait (HTMT) ratio of correlations criterion (with HTMT values lower than 0.9) (Hair *et al.*, 2017) (see Table 2). Moreover, cross-loading analysis showed that the loading of each item on its

own construct was greater than its cross-loadings on the other constructs. Therefore, the discriminant validity of the measurement model was also ensured.

Table 2. Discriminant validity

Constructs	BA	HLBV	SP
Brand anthropomorphism (BA)	**0.778**	0.277	0.525
Human-like brand voice (HLBV)	0.280	**0.787**	0.531
Social presence (SP)	0.526	0.532	**0.809**

Note: Diagonal bolded data represent the square root of AVE, under the diagonal estimated correlations and below the diagonal HTMT values

4.2. Inner model

The predictive relevance of the inner model was corroborated through the R^2 and Q^2 values, which exceeded the recommended level of 0.10 in the first case (Falk & Miller, 1992) and were positive in the second case (Chin, 1998) (see Table 3). Upon performing 5000 bootstrapping runs, this essay looked at the path coefficients and their significance. Support was found for three out of four hypotheses. More specifically, the first hypothesis, i.e., an HLBV positively influences brand anthropomorphism, is not confirmed (β=-0.000 p=0.999; H1). The human-like brand voice is found to influence NBVA social presence (β = 0.532, p=0.000; H2), thus supporting H2. The HLBV-SP relationship is the strongest in the model. A strong relationship is also found between SP and brand anthropomorphism (β = 0.526, p=0.000; H3), meaning that H3 is supported. Finally, observing the indirect effect of an HLBV on brand anthropomorphism, this article find that the obtained path is highly significant (β=0.280, p=0.000; H4). Considering that the direct impact of an HLBV on brand anthropomorphism is not confirmed, this result suggests that the relationship between these

two variables is fully mediated by NBVA social presence, thus providing support for H4 (see Table 3).

Table 3. Results summary for the inner model

Hypotheses	Total Sample (N= 324)			
	β	**T**	**p**	**Support**
H1: HLBV → BA (DE)	-0.000	0.002	0.999	No
H2: HLBV → SP (DE)	0.532	10.708	0.000	Yes
H3: SP → BA (DE)	0.526	7.959	0.000	Yes
H4: HLBV→ BA (IE)	0.280	5.873	0.000	Yes

Notes: HLBV=Human-like brand voice, BA=Brand anthropomorphism (Q^2=0.144, R^2=0.272), SP=Social presence (Q^2=0.152, R^2=0.281), DE=Direct effect, IE=Indirect effect, BA: Q^2=0.197, R^2=0.351

4.3. Measurement invariance

Before performing the multi-group analysis, the measurement invariance of the constructs was assessed through the three-step MICOM process (Henseler *et al.*, 2016). During the first step, configural invariance was ensured, as equal items were used for measurement of the constructs across different groups, with identical data treatment and identical algorithm settings. During the second step, compositional invariance was evaluated by testing the correlations of the construct scores through a permutation non-parametric test. Compositional invariance was confirmed, as the obtained correlations were not significantly lower than one and were all higher than the five percent quantile. During the third step, this research assessed composite equality by looking at the differences in the mean values and variances across groups. While no significant differences were found for variances, one

significant difference was found between the means of one construct (i.e., HLBV), thus suggesting partial measurement invariance. The same results were obtained when considering gender and expertise (see Tables 4 and 5). Once the partial measurement was ensured, the data analysis proceeded with the multi-group analysis to answer the research questions.

Table 4. Measurement invariance for gender

Constructs	Step 1	Step 2				Step 3							
	Conf. inv.	C	5% quantile of Cu	P	Comp. inv.	Mean diff.	CI 95%	p	Equal mean	Variance diff.	CI 95%	p	Equal variance
BA	Yes	0.999	0.995	0.650	Yes	-0.114	[-0.211; 0.218]	0.291	Yes	-0.139	[-0.316; 0.293]	0.375	Yes
HLBV	Yes	0.999	0.994	0.696	Yes	0.288	[-0.231; 0.218]	0.010	No	-0.232	[-0.278; 0.278]	0.101	Yes
SP	Yes	1.000	0.998	0.929	Yes	0.150	[-0.235; 0.215]	0.170	Yes	0.148	[-0.316; 0.301]	0.331	Yes

Notes: BA=Brand anthropomorphism, HLBV=Human-like brand voice, SP=Social presence, Conf. inv. = Configural invariance; C = Correlation; Comp. inv. = Compositional invariance; CI 95% = 95% Confidence interval.

Table 5. Measurement invariance for expertise

Constructs	Step 1	Step 2				Step 3							
	Conf. inv.	C	5% quantile of Cu	P	Comp. inv.	Mean diff.	CI 95%	p	Equal mean	Variance diff.	CI 95%	p	Equal variance
BA	Yes	0.999	0.996	0.747	Yes	0.005	[-0.219; 0.212]	0.973	Yes	-0.029	[-0.316; 0.309]	0.846	Yes
HLBV	Yes	0.997	0.994	0.273	Yes	-0.363	[-0.215; 0.221]	0.000	No	-0.152	[-0.300; 0.283]	0.295	Yes
SP	Yes	0.999	0.998	0.158	Yes	-0.197	[-0.213; 0.216]	0.073	Yes	-0.219	[-0.309; 0.288]	0.171	Yes

Notes: BA=Brand anthropomorphism, HLBV=Human-like brand voice, SP=Social presence, Conf. inv. = Configural invariance; C = Correlation; Comp. inv. = Compositional invariance; CI 95% = 95% Confidence interval.

4.4. Multi-group analysis

Once the partial measurement invariance was corroborated, this research first ensured the measurement model quality for each subsample examined, and then, it performed partial least squares-multi-group analysis (PLS-MGA) on the basis of 5000 bootstrapping runs (Hair *et al.*, 2018).

As depicted in Table 6, when the moderating role of gender is considered, the results show that there are significant differences between women and men only regarding the third hypothesis. More specifically, the impact of SP on brand anthropomorphism is significantly stronger among men than among women (p=0.041). The impact of an HLBV on brand anthropomorphism remains non-significant among both groups, with no significant differences between the two (p=0.534). Finally, gender does not seem to moderate the direct impact of a human-like brand voice on NBVA social presence (p=0.742) or the indirect impact of a human-like voice on brand anthropomorphism (p=0.206).

Table 6. Multi-group analysis: gender differences

Hypotheses	Gender						
	Women (N=188)		Men (N=136)		β diff.	p	Sig
	B	P	β	p			
H1: HLBV → BA (DE)	0.062	0.420	0.052	0.551	0.010	0.534	No
H2: HLBV → SP (DE)	0.490	0.000	0.430	0.000	0.060	0.742	No
H3: SP → BA (DE)	0.376	0.000	0.566	0.000	0.190	0.041	Yes
H4: HLBV→ BA (IE)	0.184	0.000	0.243	0.000	0.059	0.206	No

Notes: HLBV=Human-like brand voice, BA=Brand anthropomorphism, SP=Social presence

More differences are obtained when the impact of expertise is assessed, as the moderating effect of this variable is confirmed for H1, H2, and H4 (see Table 7). In particular, regarding H1, the influence of a human-like voice on brand anthropomorphism is not confirmed for high expertise, but it is found to be positive and significant (although with a lower significance level) for low expertise. The path differences between the two groups are significant (p=0.018), which confirms the moderating effect of expertise on this relationship. In addition, significant path differences are obtained for H2, with the impact of a human-like brand voice on NBVA social presence being significantly stronger for the group with high expertise (p=0.997). For H4, the mediating role of social presence on the relationship between a human-like brand voice and brand anthropomorphism is found to be stronger for high expertise than for low expertise, and the difference is statistically significant (p=0.998). Finally, expertise does not seem to moderate H3, as the difference in the parameter estimates between the two groups is not significant (p=0.942).

Table 7. Multi-group analysis: expertise differences

Hypotheses	Expertise						
	Low (N=141)		High (N=183)		β diff.	p	Sig
	B	P	β	p			
H1: HLBV → BA (DE)	0.169	0.032	-0.068	0.393	0.237	0.018	Yes
H2: HLBV → SP (DE)	0.312	0.000	0.560	0.000	0.248	0.997	Yes
H3: SP → BA (DE)	0.380	0.000	0.547	0.000	0.167	0.942	No
H4: HLBV→ BA (IE)	0.119	0.004	0.306	0.000	0.187	0.998	Yes

Notes: HLBV=Human-like brand voice, BA=Brand anthropomorphism, SP=Social presence

5. Discussion

The findings highlight that an HLBV has a positive influence on NBVA social presence, and the latter positively affects brand anthropomorphism, thus confirming H2 and H3, respectively. Moreover, the direct impact of an HLBV on brand anthropomorphism is not confirmed (H1), while its positive indirect effect is found to be highly significant. This result suggests that the relationship between these two variables is fully mediated by NBVA social presence (H4). Concerning H2, Chérif and Lemoine (2019) indirectly echo the role of an HLBV as an enabler of NBVA social presence by emphasising how the human voice (vs. a synthetic voice) enhances the perception of the technological provider's VA (i.e., Alexa) as a human interlocutor. In addition, while the extant literature has shown the positive effect of VA social presence on customer-brand engagement (i.e., McLean *et al.*, 2021), this article finds its positive influence on a new branding result, i.e., brand anthropomorphism (H3). Finally, jointly considering H1 and H4, results that support and extend the qualitative managerial insights of Vernuccio *et al.* (2021), who indicated the strategic path of designing

and creating an HLBV to build an anthropomorphic brand by introducing the key role of NBVA social presence in triggering the perception of brand humanity.

Regarding the moderating role of gender in the causal relationships investigated, the results show how most of the hypotheses do not significantly differ between women and men. Only the positive effect of NBVA social presence on brand anthropomorphism is stronger for men than women (H3). In this regard, Schermerhorn *et al.* (2008) point out that, compared to women, men have a greater tendency to perceive a robot as more human-like, which might clarify why NBVA social presence is more important for male participants than for their female counterparts. In contrast, regarding H1, H2 and H4, the non-significant differences between the two groups could be explained by the same tendency that women and men have in anthropomorphising artefacts (e.g., brands) (Chin *et al.*, 2004).

In terms of expertise, path differences between the two groups (i.e., respondents with low expertise vs. high expertise) are found for H1, H2 and H4. In particular, the positive direct influence of an HLBV on brand anthropomorphism is significant only for users with low expertise (H1). Therefore, novices do not take into account the technological interface; rather, they focus only on the humanity of the voice, which is transferred directly to the brand. This scarce relevance of the role of NBVA social presence role might indirectly support the lower propensity of less experienced users to perceive technologies as human beings (Ogara *et al.*, 2014). In contrast, the positive impact of a human-like brand voice on NBVA social presence is stronger for the group with high expertise (H2), as well as the positive causal relationships between a human-like brand voice and brand anthropomorphism mediated by NBVA social presence (H4). The central role of both a human-like brand voice and NBVA social presence for experts could be understood based on their superior ability (vs. novices) to recognise the human characteristics of the voice (Chartrand *et al.*, 2008), as well as their greater tendency to imbue technological interfaces with humanity (Ogara *et al.*, 2014).

This study proposes a model aimed at investigating the cause-effect relationships among an HLBV, NBVA social presence and brand anthropomorphism in the NBVA experiential context. It also examines the importance of users' gender and expertise in altering these relationships.

Given the positioning of this study, which combines the emerging research on VAs with the literature on brand anthropomorphism, the findings described above contribute to both fields. On the one hand, this article goes beyond the only study on branding implications in the NBVA experiential context (Vernuccio *et al.*, 2021) by focusing on the consumer perspective rather than the managerial perspective. Moreover, this essay extends marketing studies on VAs (e.g., Cho, 2019; McLean & Osei-Frimpong, 2019; Fernandes & Oliveira, 2021: Pitardi & Marriott, 2021), which have considered only social presence as an antecedent of perceptual and behavioural outcomes strictly related to the technological interface (i.e., VA attitude, VA trust, VA usage). In contrast, based on the user-brand interaction mediated by the NBVA, this research investigates the causal relationship between the perception of the NBVA as a human interlocutor and the perception of brand humanity. On the other hand, this research contributes to advancing knowledge on brand anthropomorphism (e.g., Puzakova *et al.*, 2009; Guido & Peluso, 2015; Golossenko *et al.*, 2020) by empirically identifying the antecedents of brand anthropomorphism perception (i.e., a human-like brand voice and NBVA social presence) in an innovative experiential context. In this way, this essay has responded to the call by Guido and Peluso (2015), who prompted scholars to consider the role of vocal cues (i.e., a human-like voice) in the perception of brand humanity. In particular, this study proposes a conceptualisation of an HLBV based on four items centred on specific voice characteristics (i.e., accent, pitch and quality). Finally, since the results on gender and expertise differences are still fragmented and partial, respectively, in both the VA and anthropomorphism fields, this research has

begun to clarify the role of these two variables in altering the relationships among a human-like brand voice, NBVA social presence and brand anthropomorphism.

5.1. Managerial implications

In terms of managerial implications, this research provides managers with useful guidelines for activating in the consumer's mind the perception of an anthropomorphic brand in the NBVA context. As findings reveal that the relationship between a human-like brand voice and brand anthropomorphism is fully mediated by NBVA social presence, practitioners need to jointly design and develop both of these antecedents. Concerning the voice, managers involved in designing NBVAs need to define a specific mix of vocal features (i.e., accent, pitch and voice quality) to favour the perception of an HLBV. At the same time, marketers should be aware that they need to design user-NBVA dialogues to make them as similar as possible to human interactions, thus fostering the perceived social presence of a NBVA.

Furthermore, results show how the relationships among brand anthropomorphism and its antecedents vary based on the respondents' gender and expertise. Concerning the first characteristic, as men have a greater propensity to transfer the humanity of the technological interface to the brand (H3), brand anthropomorphisation strategies through NBVAs should leverage men's tendency to be more sensitive to human-like interactions (SP), ensuring, for example, that the NBVA reacts promptly and dynamically to user requests. In terms of expertise, the direct positive effect of an HLBV on brand anthropomorphism is significant only for novices (H1). This finding suggests that for users with low expertise, users the NBVA social presence is not relevant; therefore, managers need to focus on the design of human-like voice characteristics to foster brand anthropomorphism perception. In contrast, the effect of a human-like brand voice on social presence is stronger among users with high expertise than among novices (H2). The same holds true for the, as well as its indirect effect

of a HLBV on brand anthropomorphism (H4). Consequently, for this target, marketers involved in brand anthropomorphisation strategies have to jointly design and develop an HLBV and NBVA social presence, as their central role has emerged.

5.2. Limitations and future research lines

This study has some limitations that open interesting future lines of research. First, this research focused only on Italian young adults who interact with Google Assistant through smartphones. Future research should consider other countries, user segments (e.g., older respondents), NBVAs (e.g., the Mercedes NBVA) and devices (e.g., smart speakers and in-car multimedia systems). Moreover, as this article analysed only a human-like brand voice and social presence as antecedents of brand anthropomorphism, it neglects multisensorial inputs such as voice plus touch and device design, which should be considered in further works. Concerning vocal features, this research has chosen to let users interact with the Google Assistant's female voice (i.e., the default voice). According to the literature on vocal stimuli in the advertising field (e.g., Wiener & Chartrand, 2014; Zoghaib, 2017; Zoghaib, 2019), gender could affect respondents' perceptions (e.g., W&C); therefore, future experimental research should test the effect of brand voice gender (female vs. male) on both social presence and brand anthropomorphism in the NBVA field. In addition, since the proposed model did not consider the consequences of brand anthropomorphism and the area of branding implications related to NBVAs still remains under-researched, further studies should analyse the effect of brand anthropomorphism on cognitive, affective and behavioural branding outcomes (e.g., brand trust, brand loyalty and/or customer-brand engagement). Among these consequences, in line with emerging contributions in the human-robot interaction strand of research (e.g., Huang *et al.*, 2021), this essay call for research that focuses on critical issues related to the perception of an over-humanisation of the brand in the NBVA interaction field.

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CONCLUSION

In the current phase of the digital revolution, AI and NBVAs make possible the brand's acquisition of two important properties: voice and humanity. With the above-described three essays, this dissertation contributes to the broader line of studies on the evolution of the brand in the age of the digital revolution (e.g., Merz *et al.*, 2009; Mühlbacher & Hemetsberger, 2008; Vernuccio, 2017, 2018; Wider *et al.*, 2018) by proposing significant branding implications in the under-researched field of NBVAs given the current evolutionary phase of AI ("narrow AI").

In particular, the first essay proposes a first understanding of this phenomenon from the managerial perspective with reference to the in-car experiential context. In line with the RQs, the results of the qualitative content analysis are divided into three main thematic areas: 1) the strategic role assigned to the brand voice in the design of the in-car NBVA (RQ1); 2) the strategic criteria for designing the brand experience based on the in-car NBVA (RQ2); and 3) the CBE objectives achievable through the brand experience based on the in-car NBVA (RQ3). Concerning the RQ1, in the design of the NBVA, a key role was assigned to the human-like brand voice in developing the brand anthropomorphic profile and representing the brand personality traits. Furthermore, consistency with the corporate identity, brand experience personalisation, and connectivity emerged as the strategic criteria for designing in-car NBVA's brand experience (RQ2), which was oriented towards the pursuit of multiple CBE objectives (i.e., cognitive, affective, identification and behavioural). In this way, the first essay makes a theoretical contribution to the nascent line of research on the implications of NBVAs for branding by offering the first empirical support for the key role of brand voice and name-brand voice assistant in developing the brand anthropomorphic profile; this role which has only been theorised in previous studies (Belk & Kniazeva, 2018; Vernuccio *et al.*,

2019). Moreover, this research contributes to the literature on customer experience marketing (e.g., Homburg *et al.*, 2017) by proposing an articulation of the key criteria for designing the brand experience based on name-brand voice assistants. Finally, it enriches and advances the scarce empirical literature on the relationships between brand experience and brand engagement (Ahn & Back, 2018) by articulating from managerial points of view the main dimensions of the CBE that can be positioned as objectives of the NBVA brand experience.

Given the opportunity to develop the brand anthropomorphic profile through the activity of designing the brand voice arising in the first study, the second essay wants to deepen the activities and branding outcomes (i.e., pillars) of the brand anthropomorphisation strategies adopted by companies/brands in the NBVAs field. In particular, this study follows an exploratory qualitative approach based on in-depth personal interviews with practitioners engaged in these strategies in the automotive sector. Three levels of the key strategic pillars are conceptualised: 1) drivers (i.e., designing a human-like brand voice and human-like consumer-brand dialogue), 2) intermediate outcomes (i.e., developing the perception of brand personality traits and strengthening consumer-brand relationships), and 3) final outcomes (increasing brand loyalty). The above descripted results contribute to the scant literature on NBVAs and the poorly investigated brand anthropomorphisation strategy field (Portal *et al.*, 2018; Hosany *et al.*, 2013) by identifying the key pillars (i.e., drivers, intermediate and final outcomes) of this strategic approach in the innovative NBVA experiential context. In particular, this study broadens the potential activities aimed at fostering the brand anthropomorphism perception, which thus far were related only to the manipulation of the traditional elements of brand design, i.e., facial or physical elements (e.g., Hosany *et al.*, 2013). In addition, if the extant literature has indirectly indicated that the strength of consumer-brand relationships is an outcome of the brand anthropomorphisation strategy (Portal *et al.*, 2018; Hosany *et al.*, 2013), the above-reported

findings reveal a new driver that allows this objective to be achieved, i.e., designing human-like consumer-brand dialogue features. Finally, although the existing literature has already theorised behavioural brand loyalty as an outcome of the brand anthropomorphisation strategy (Portal *et al.*, 2018), results of this essay both empirically confirm this tenet and highlight that the cognitive and affective dimensions of brand loyalty can also be addressed.

After conducting two studies aimed at examining the managerial point of view, the third essay aims at investigating the antecedents of brand anthropomorphism in the NBVAs field by adopting the consumers perspective. In particular, this study proposes a model based on the cause-effect relationships among a human-like brand voice, NBVA social presence and brand anthropomorphism related to users-brand interactions through NBVAs on smartphones. It also examines the importance of users' gender and expertise in altering these relationships. Findings reveal the central role of both a human-like brand voice and NBVA social presence as antecedents of brand anthropomorphism, as the relationship between a human-like brand voice and brand anthropomorphism is fully mediated by NBVA social presence. Furthermore, a human-like brand voice has a positive influence on NBVA social presence, and the latter positively affects brand anthropomorphism. Regarding the moderating role of gender in the causal relationships investigated, the results show how the positive effect of NBVA social presence on brand anthropomorphism is stronger for men than women. Finally, in terms of expertise, the positive direct influence of a human-like brand voice on brand anthropomorphism is significant only for users with low expertise, while the positive impact of a human-like brand voice on NBVA social presence is stronger for the group with high expertise, as well as the positive causal relationships between a human-like brand voice and brand anthropomorphism mediated by NBVA social presence. Given the positioning of this study, which combines the emerging research on VAs with the literature on brand anthropomorphism, the findings described above contribute to both fields. On the one hand, this article goes beyond the studies on VAs (e.g., Cho, 2019; McLean &

Osei-Frimpong, 2019; Fernandes & Oliveira, 2021: Pitardi & Marriott, 2021), which have considered only social presence as an antecedent of perceptual and behavioural outcomes strictly related to the technological interface (i.e., VA attitude, VA trust, VA usage). In contrast, based on the user-brand interaction mediated by the NBVA, this essay investigates the causal relationship between the perception of the NBVA as a human interlocutor and the perception of brand humanity. On the other hand, this research contributes to advancing knowledge on brand anthropomorphism (e.g., Puzakova *et al.*, 2009; Guido & Peluso, 2015; Golossenko *et al.*, 2020) by empirically identifying the antecedents of brand anthropomorphism perception (i.e., a human-like brand voice and NBVA social presence) in an innovative experiential context. In this way, it responds to the call by Guido and Peluso (2015), who prompted scholars to consider the role of vocal cues (i.e., a human-like voice) in the perception of brand humanity. Finally, since the results on gender and expertise differences are still fragmented and partial, respectively, in both the VA and anthropomorphism fields, this research has begun to clarify the role of these two variables in altering the relationships among a human-like brand voice, NBVA social presence and brand anthropomorphism.

Therefore, the presented results are obtained analysing the phenomenon from different perspectives (i.e., managers and consumers) in diverse interaction contexts, such as cars (essays 1 and 2) and smartphones (essay 3). Moreover, several research designs are employed, such as the qualitative interpretative approach with the analysis of a single in-depth case study (essays 1), the qualitative exploratory approach based on in-depth personal interviews (essay 2) and the quantitative causal approach with a survey (essay 3). Finally, a variety of data analysis techniques are adopted, as thematic content analysis (essay 1), cognitive mapping (essay 2) and the Structural equation modelling-partial least squares (SEM-PLS) (essay 3).

In conclusion, the present dissertation offers marketers a useful perspective from which to develop greater awareness of the new branding reality and opportunities enabled by NBVAs. The brand is no longer manageable with traditional mindsets and branding approaches, which do not recognise the dynamic vision of the brand as an interacting agent. With reference to the new NBVA context, further theoretical and empirical studies are needed to shed light on other antecedents of brand anthropomorphism, as well as its consequences (essay 3). Moreover, future research might operationalise the themes of the proposed framework (essay 1) and test the causal relationships identified in the cognitive map and tenets (essay 2).

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