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Exploring the Impact of Anthropomorphic Logo Upgradation in Automobile Brands: A Systematic Literature Review and Bibliometric Analysis

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KEYWORDS

Logo upgradation, Anthropomorphism, Automobile, Systematic literature review, Bibliometric analysis.

ABSTRACT

In today's era, marketers use different strategies to attract customers and make them loyal. Anthropomorphic appearance is a strategic way to portray a brand by giving human characteristics to non-human elements. Many companies upgrade their logo with an anthropomorphic appearance either by logo upgrade or logo change to foster emotional relationships with customers. In line with this phenomenon, the present research aims to understand the effect of logo change or logo upgrades on brand loyalty in the automobile industry. The review identifies past, present, and future logo change or upgrade methods. The present investigation was conducted for a systematic literature review on logo upgradation (Evolutionary branding) or logo changes (Revolutionary branding) in the automobile industry using the PRISMA model based on 25 papers from the database of 2011 to 2024. The study evaluates how anthropomorphic appearance has been conceptualized and operationalized in the automobile context, and from thematic analysis, it identifies research gaps and suggests future explorations. A bibliometric analysis with a network diagram provides a conceptual framework for examining the relationship between anthropomorphic appearance and its underlying causes and consequences.

1. INTRODUCTION

Anthropomorphism can be defined as the attribution of human characteristics to non-human elements by giving human characteristics or features (Biel, 2000). The term anthropomorphism was first coined by Greek philosopher Xenophanes, who critically examined anthropomorphism in God through a set of prepared questions (Aaker, 1997; Fournier, 1998; Sharma & Rahman, 2022). Later stage came into the picture from academicians and researchers to explore the nature and consequences of anthropomorphism to examine the cognitive processes and motivations behind attributing human characteristics to non-human entities (Agrawal & Mcgill, 2007; Han et al., 2020; Payen et al., 2013). In today's era, marketers use it as a tactical tool to influence customers through logo upgrades or logo redesigns (Jeong & Kim, 2021). A brand logo is a fundamental component of marketers to trigger customers as the initial visual manifestation that customers encounter when interacting with a brand (Cian et al., 2014) not only to create awareness among customers but also act as a communication tool to interact with customers on different levels (Yuan & Dennis, 2019; Ghosh et al., 2022). It acts as a catalyst to influence customer inclination toward a respective brand (Huang et al., 2020; Yang et al., 2020; Zhang et al.,

2020), fostering connections and communicating the brand's core vision. Beyond being a visual attribute, a logo is a communication tool that conveys a message to the customer (Rahinel & Nelson, 2016; Luffarelli et al., 2019). The foremost important visual representation for any brand can be considered as logo design and its core value (Zhu et al., 2017) that directly or indirectly acts as reinforcement to create awareness and influence brand value through different kinds of elements such as typography, shape, and color combination (Trehan & Kalro, 2024). According to past research, it is closely observed that a well-designed logo with a proper color combination that is visible from a reasonable distance enhances brand visibility in the market, ultimately leading to enhanced market share (Ju et al., 2015; Shao et al., 2020). If talking on account of financial performance, it directly or indirectly enhances sales quantity (Park et al., 2013), and that is why most companies invest vast amounts of time and money to design a logo that establishes a strong brand presence and cultivates positive perceptions in the mind of customers (Cesar et al., 2020).

Brand logos have diverse design ranges (typographies to pictorials), and it mainly depends on the vision and mission of every organization. In previous research, it was observed that pictorial logos typically offer an ample amount of attention from the customer rather than wordmarks. It can easily convey a brand message and transform the language barrier compared to wordmarks (Ferrand et al., 1994; Henderson et al., 2003; Park et al., 2013; Jun & Lee, 2020) because image processing is a result of the brain's intricate interplay between visual perception, memory, emotion, and cognition (Johnson, & MacKay, 2018). Hence, logo upgradation or logo change is a strategy to enhance the visibility of products in the market and educate customers through product upgradation by upgrading their logo (Epley et al., 2007). However, physical appearance, emotional states, inner mental states, or motivation fall under the umbrella of attributes of logo design to make their customers loyal (Epley et al., 2008; Portal et al., 2018).

Thus, it can impact the relationship between people and objects by shifting people's emotional and cognitive responses toward objects (Demirbilek & Sener, 2003). When a consumer starts interacting with brands, it develops a strong emotional attachment to the respective brand and acts as a brand defender (Becerra & Badrinarayanan, 2013). Consumers recognize and communicate with the brand like an interpersonal relationship or partner (Watanuki, 2022). For this stated reason, the consumers' desire for logo upgrades or changes is important to facilitate their interest in the brand and give new birth to it (Dan & Trong, 2023).

Research Gap

Consumers' attitudes towards automobile logo upgradation have led to various positive and negative responses to understand demand patterns and develop marketing strategies to retain their customers (Hartoyo et al., 2023). Therefore, an emerging stream of researchers examining the effects of logo upgradation or logo change on consumer behavior (Simonson & Schmitt, 1997; Peres et al., 2010) in different aspects such as either like or dislike of consumer emotions, evaluations, and purchase intentions are explored for the automobile industry (Sharma et al., 2020; Goyal & Kumar, 2021; Jebarajakirthy et al., 2021; Behl et al., 2022). However, adverse effects and emotional attachment to logos in the automobile industry are still understudied areas to explore more and more opportunities. Moreover, the influence of individual differences on logo change or logo upgradation and, hence, understanding customer attitudes towards logo change requires further research. Therefore, this research aims to fill the gap by studying the favorable and adverse effects of logo upgradation on consumer behavior in the automobile industry. This aligns with the research question formulation based on Bhattacharjee et al., (2022). Therefore, this study aims to understand how anthropomorphic appearance has been conceptualized and operationalized in the automobile context. In addition, it provides thematic analysis to understand research problems and identifies research gaps based on them that suggest future explorations.

Problem Statement and Purpose of the Study

In line with the previous research question formulation (Bhattacharjee et al., 2022) the three research questions were developed:

RQ1: What is the current trend for bibliometrics of anthropomorphic logo design?

RQ2: What is the existing underlying anthropomorphic logo research in brand loyalty?

RQ3: What kind of branding strategies are made by the automobile industry to enhance brand visibility in the market?

2. RESEARCH METHODOLOGY

The present research methodology is based on recommendations made by (Paul et al., 2021) and Lim (2022) to incorporate a review protocol, a procedure, and a framework to minimize errors. This research approach involved a systematic literature review with bibliometric analysis to understand the evaluation, trend, and strategy behind anthropomorphic logo design.

Database and Keyword Clustering

Initially, researchers concentrated their search efforts on specific terms with the help of clusters throughout the study phase. These clusters were designed in such a way that they cover a wide range of automobile sectors in the context of logo change and logo upgradation. The formation of clusters included "logo" OR "anthropomorphic logo" OR "Brand" OR "branding" OR "brand management" AND "anthropomorphism" OR " humanlike" AND "human" OR "person" OR "logo upgradation"

OR "logo familiarity" OR "logo redesign" OR "brand as a person" OR "living brand" OR " brand AND emotion." These clusters served as the foundation for our search strategy, helping us cast a wide net across the relevant literature.

Search Criteria

To ensure that the researcher creates a diverse range of content and combines the main clusters with extra terms like "Marketing strategy," "Font style," and "Logo shape." These additional keywords were selected to draw attention to significant and recent advancements in the sector. The asterisk (*) wildcard character allowed us to uncover variations of these terms, which broadened the scope of our search results. Thus, our final cluster for the search is ("logo" OR "anthropomorphic logo" OR "brand" OR "branding" OR "brand management" AND "anthropomorphism" OR " humanlike" AND "human" OR "person" OR "logo upgradation" OR "logo familiarity" OR "logo redesign" OR "brand as a person" OR "living brand" OR " brand AND emotion").

Volume of Results

In total, 113 papers met our search criteria, indicating substantial results from our search strategy. This extensive collection of materials comprises research papers, books, articles, and conference papers from various publishers. In addition, we assessed the ABDC journal quality list (2022) and the Scopus journal list (2022) to figure out source quality. Scopus was chosen because it includes roughly around 44, 000 journals, making it more comprehensive and extensive than any other literature database (Baas et al., 2020; Kumar et al., 2021). Although it has been claimed by researchers to be the most widely used journal ranking list in business research, ABDC-JQL (2022) (Hao et al., 2019; Paul et al., 2021).

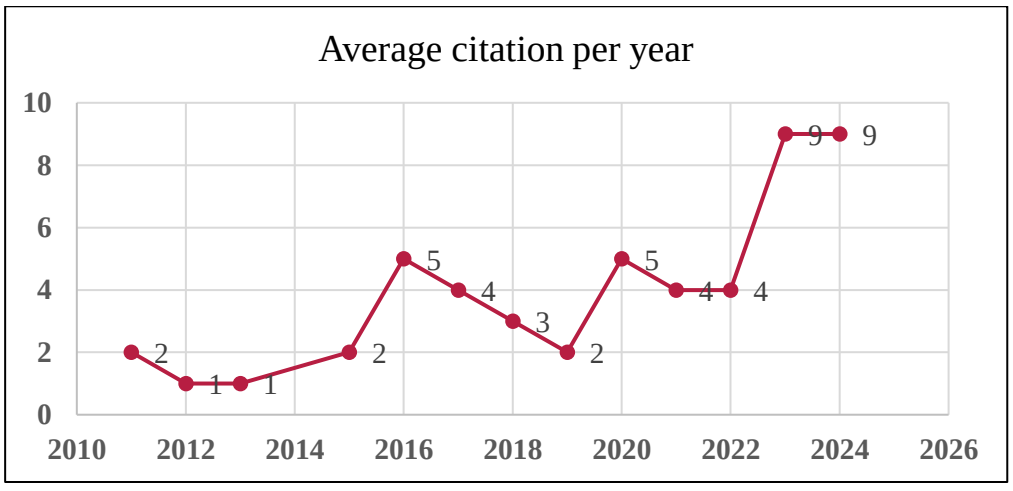
Defining Inclusion and Exclusion Criteria

An inclusive search was performed to obtain research articles from 2011 to 2024, ranging from published journals to book chapters and conferences, along with peer-reviewed articles. The result of 113 documents was reported from a Scopus database. To refine the focus based on the research theme, exclusion criteria were applied to limit the selection to studies related explicitly to management sciences. This step ensured the relevance of the articles to the research topic, and the resulting pool of papers was reduced to 25.

Literature Review Selection

The content had to be carefully chosen for an exhaustive and insightful literature review. Out of the 113 articles in the original pool, we chose 25 after a thorough and laborious review process. Figure 1 shows that the lowest citations were observed in 2012, 2013, and 2019, with a value of 1. On the other hand, the highest citation was claimed in 2024, with a value of 9. Hence, we can infer from this variation that there will be an increasing trend in citations from 2021 to 2024. Their contributions to the topic, content quality, and relevance to our research objectives all played a role in this selection, as seen in Figure 1. It is closely observed that the value of total citation varies over the period, and it was observed that in recent years, the progress of research has kept on increasing. However, it has decreased during specific periods (2017-2019). Every consideration of the count of cited reference results reflects that there will be a unique reference cited in the paper for every individual year. From this result, we can infer that a higher count may suggest that papers in the present year drew upon a broader set of references.

Figure 1: Average citation per year

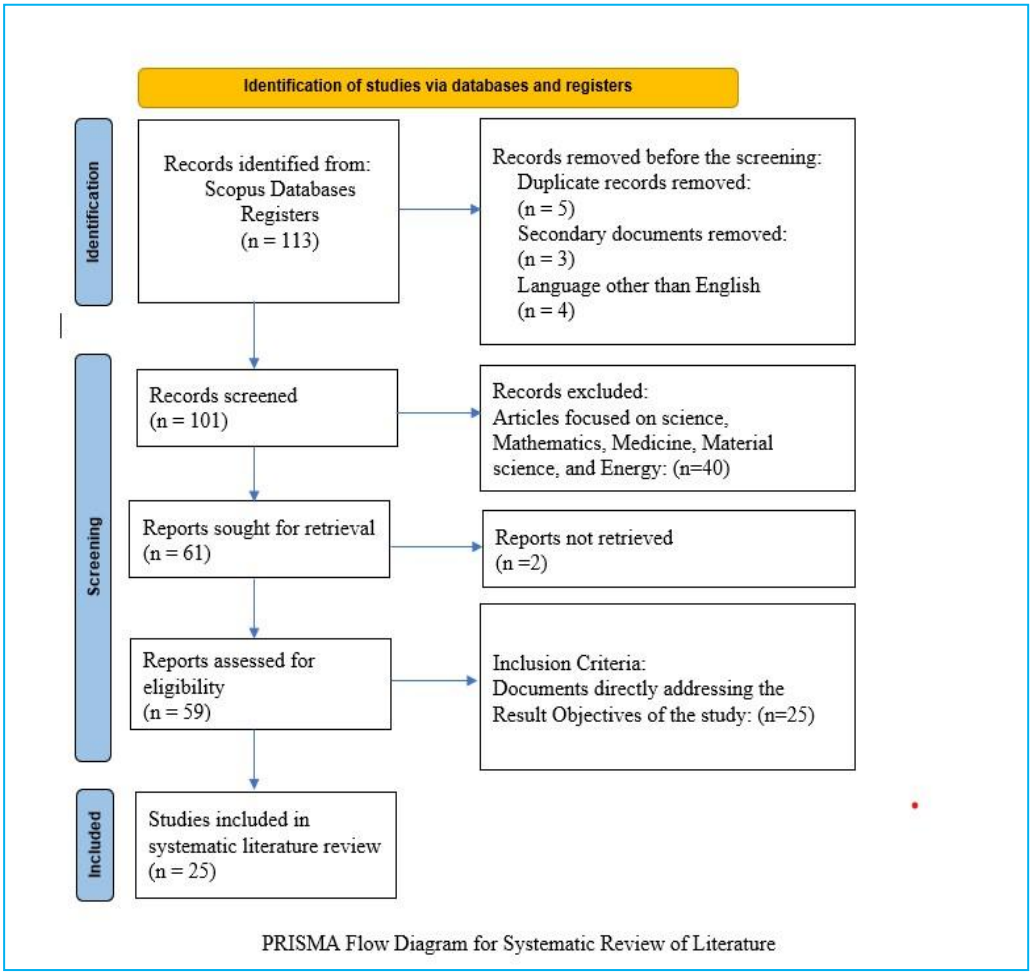


Significance

An important phase in the research process has been reached by selecting 25 articles based on exclusion and inclusion criteria. The exclusion criteria followed the following way: non-academic articles such as book chapters, book reviews, erratum,

notes, extended abstracts, conference papers, and papers other than those in English were eliminated. These papers have been carefully selected to enhance the caliber and scope of our study, allowing us to provide valuable insights into my research, which is displayed through the PRISMA model in Figure 2.

Figure 2: PRISMA Model



PRISMA Flow Diagram for Systematic Review of Literature

Bibliometric Analysis

The combination of VOSviewer and R-Studio (Version: 2024.12.1+563) was employed to perform bibliometric analysis and network visualization of 25 research articles. Bibliometric analysis was conducted to explore different research themes and future research scopes from the database. In addition, thematic analysis was also performed to identify keywords.

Stage 1: Database searches such as Scopus, for the selection of keywords and database.

Stage2: Inclusion and exclusion criteria; Inclusion of articles based on subjects:

Google Scholar, Scopus & Science Direct: ("logo" OR "anthropomorphic logo" OR "brand" OR "branding" OR "brand management" AND "anthropomorphism" OR " humanlike" AND "human" OR "person" OR "logo upgradation" OR "logo familiarity" OR "logo redesign" OR "brand as a person" OR "living brand" OR " brand AND emotion").

- Citation is also a key consideration for the selection of papers.

Stage 3: Finalizing the research articles:

We did not consider research articles that were not based on logo upgradation or change, anthropomorphic logo, humanlike, logo familiarity, logo redesign, brand as a person, brand loyalty, or marketing strategy from the perspective of the automobile industry.

Initially, our search efforts focused on particular term clusters throughout the study phase. These clusters were selected to cover a variety of automobile industry and anthropomorphic appearance-related subjects, “Logo,” “Logo upgradation," "Logo change," "Rebranding," “Logo familiarity,” “Logo appropriateness,” and “Logo visibility.” This search method was based on these clusters, which enabled us to cover a large area of the relevant literature.

One hundred thirteen papers that met our search criteria were found using our search approach. The study area was carefully chosen to perform an exhaustive and meaningful literature review among 113 items in the original pool. We chose only 25 after a thorough and lengthy assessment procedure. This selection was made based on their relevance to our research objectives, the quality of their content, and their contributions to the topic shown in Figure 4. It depicts the publication trend of research papers in the last two decades about integrating logo change or upgrade with an anthropomorphic appearance context of the automobile industry. The visual representation in the figure illustrates the evolution and growth of literature in this field over the specified timeframe. Unfortunately, very few research articles in the automobile domain focus on logo change or are integrated as a marketing strategy for the automobile industry. Inductive approaches are followed to conduct bibliometric analysis shown in Figure 3 (Seuring & Muller, 2008; Fahimnia et al., 2015; Lim et al., 2022) through a series of data obtained from existing data. The analysis is classified into two forms: 1). Science mapping and 2). Performance Mapping by (Noyons et al., 1999; Moed et al., 2005; Cobo et al., 2011). Science mapping is performed to understand the quality and impact of research, while performance mapping is performed to understand the contributions and patterns of ongoing research (Donthu et al., 2021; Ohlan & Ohlan, 2022; Lim et al., 2022) proposed using Microsoft Excel to do descriptive analysis.

Figure 3: Bibliometric analysis framework

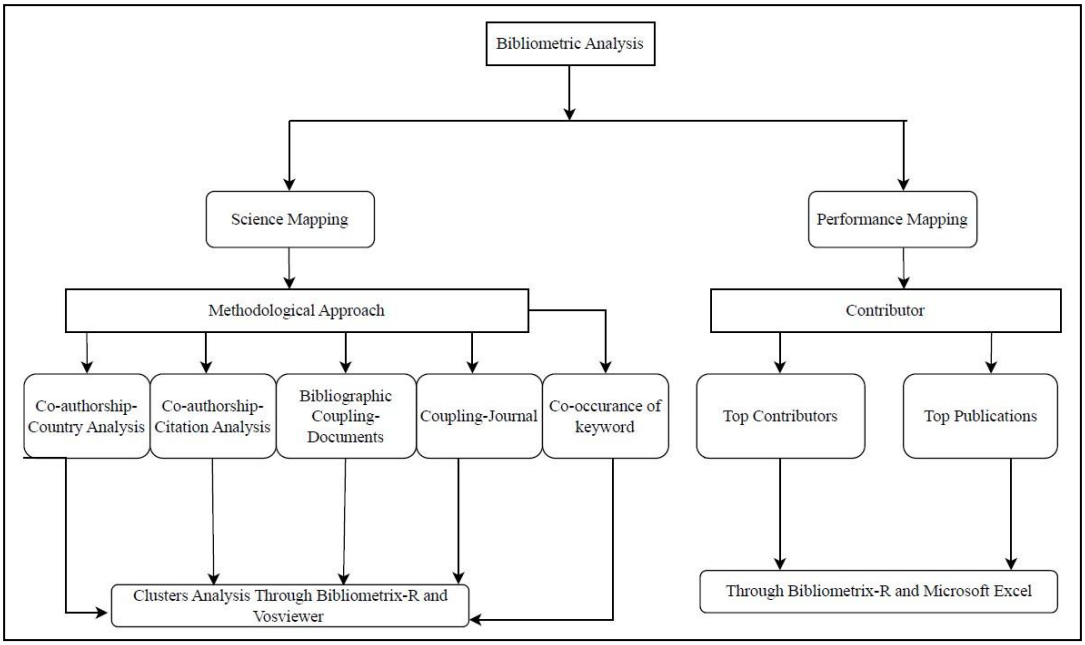


Figure 4: Annual scientific production

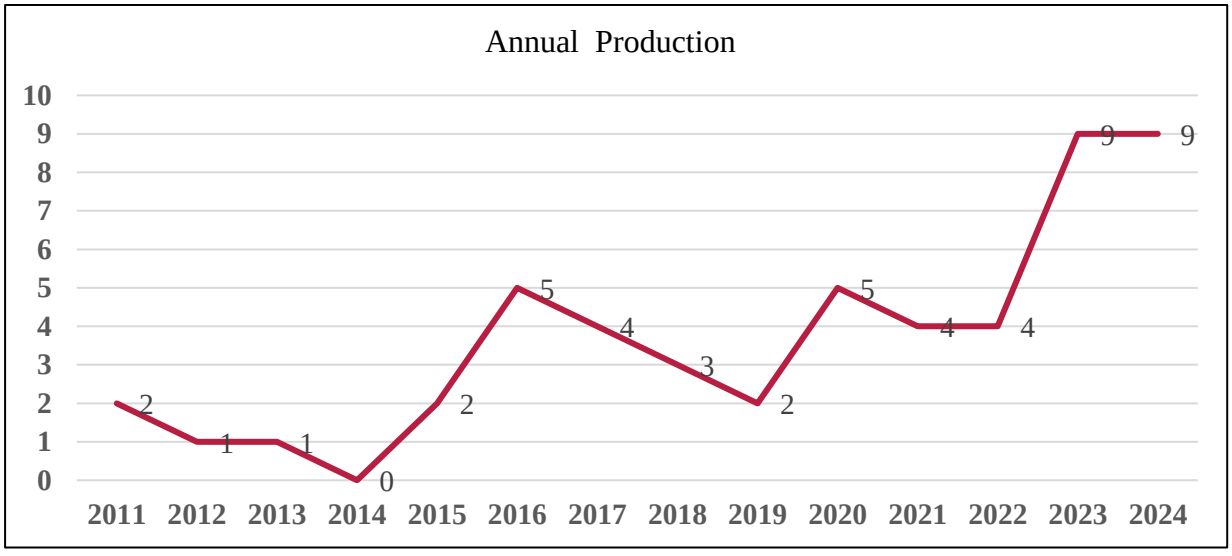


Figure 5 represents the citation counts for various authors. The highest citation is 354, which is shared by two authors, McGill

and Abratt, and the lowest citation count by Lakshmidewi. The citation range for most authors lies between 7 and 46, except for the above three. The mean citation per author is near about 85.92, and the median citation per author is around 19, suggesting that half of the authors have 19 citations while the other half have more. In addition, data shows a positive skew as few authors have very high citation values. Hence, we can infer that high standard deviation and right-skewed distribution indicate a significant disparity in citation impact among authors (Table 1).

Figure 5: Author production per year

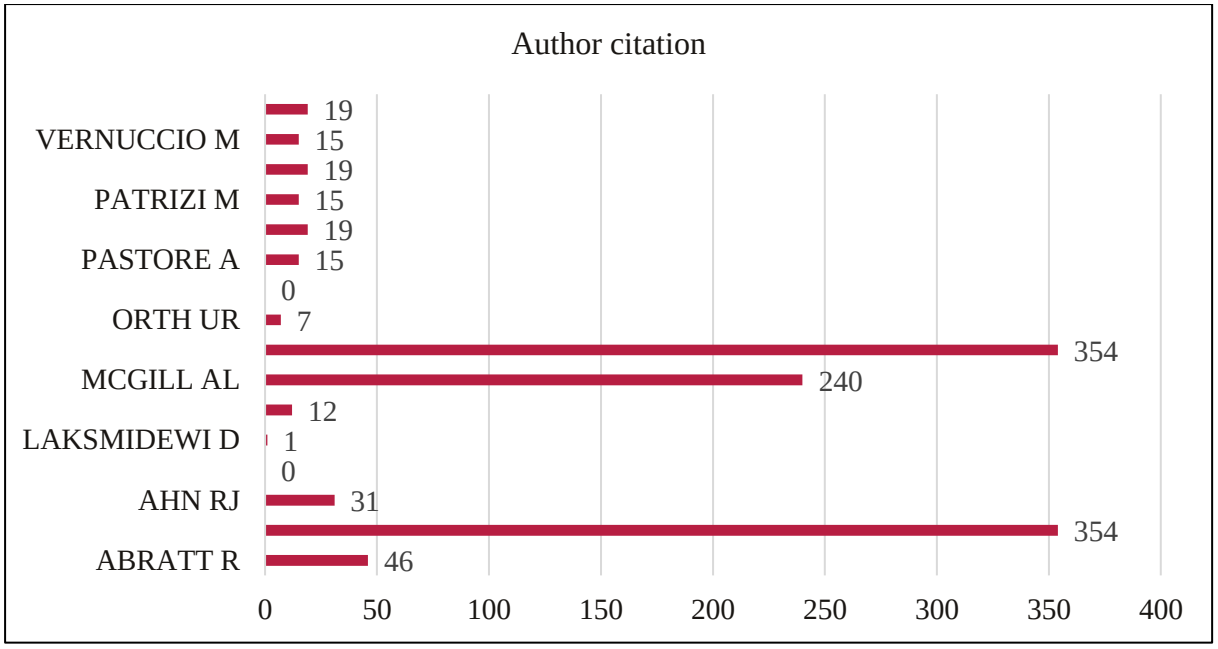


Table 1: Author production per year

Author	Year	Total Citation	Total Citation Per Year
Abratt R	2018	46	6.571
Aggarwal P	2012	354	27.231
Ahn Rj	2022	31	10.333
Albert Bh	2024	2	0.186
Laksmidewi D	2016	1	0.111
Laksmidewi D	2019	12	2
Mcgill Al	2011	240	17.143
Mcgill Al	2012	354	27.231
Orth Ur	2017	7	0.875
Orth Ur	2024	0	0

From Figure 6, it was closely observed that the USA has the highest number of citations, i.e., 961, while China shows the lowest, i.e., 37. The USA citation number is much higher than the next country (Canada with 356). This data report shows a high degree of skewness, as indicated by the large standard deviation. Hence, it is suggested that a higher total citation count is evidence of a greater quality of work.

Figure 6: Most cited countries

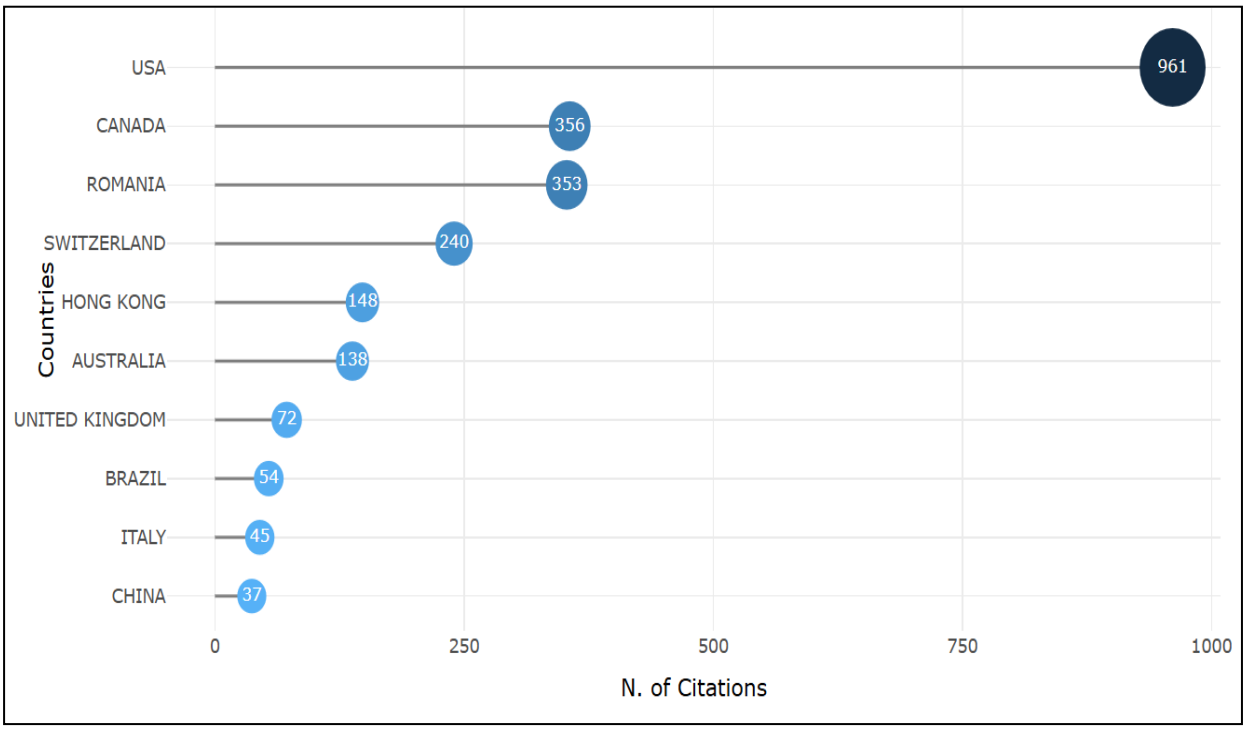
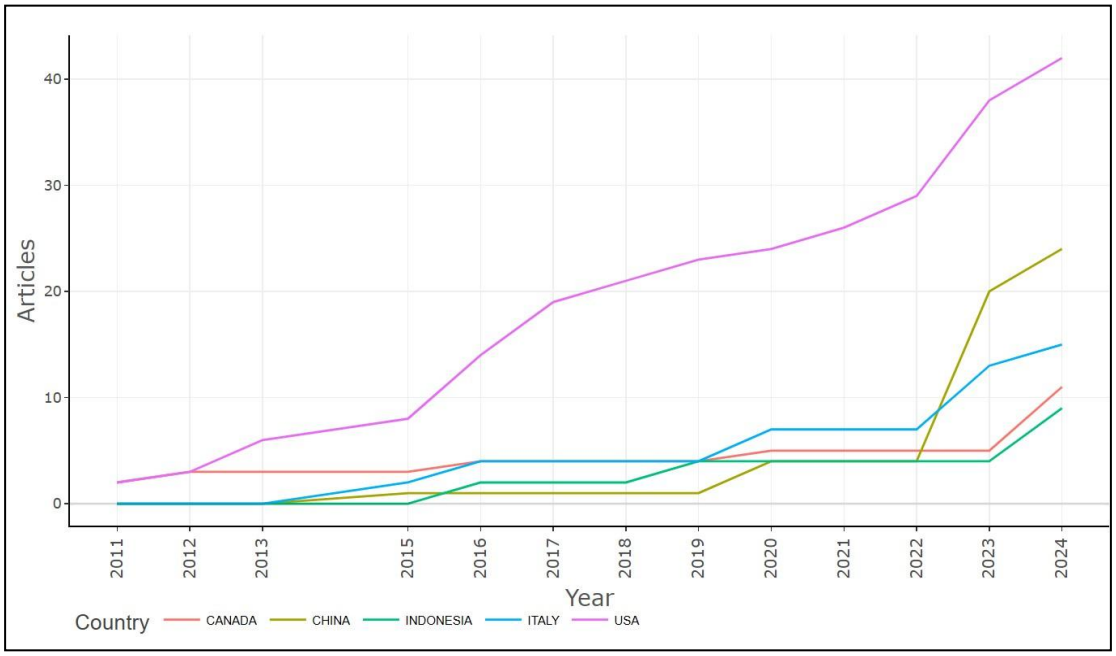


Figure 7 depicts the publication trend of research papers about logo change or logo upgradation in the context of the automobile industry till the year 2024. The study encompasses the entire publication period without any restrictions and considers the seminal paper that explores the adaptation of logo change or logo upgradation in automobile contexts (Blain et al., 2022). The visual representation in Figure 7 illustrates the evolution and growth of literature in this field over the specified timeframe, but during the literature survey, there was not even a single paper that focused on logo upgradation or logo change for rebranding contextualizing the automobile industry.

Figure 7: Publication over the year



Factor analysis

Figure 8 demonstrates the principal component analysis (PCA) or corresponding analysis (CA) biplot in which the x-axis (Dim 1) claims 52.99% of the variance in the data but the y-axis (Dim 2) reports 22.36 % variance. If we combine both data,

there would be a variability of around 75.35% of data. Dim 1(x-axis, 52.99%) presents fundamental trends such as the distinction between general AI-related and behavioral science. Dim 2 (y-axis, 22.36) represents orthogonal dimensions, such as human interaction or anthropomorphic appearance, either through product appearance or technological advancement. Hence, we can infer from this graph that human-like appearance through non-human elements has a positive impact on consumer attitude. It might be because of the interconnectedness between confusion in decision-making, specified advertising, and consumer attention. Hence, behavioral and human-type appearance are closely associated.

Figure 8: Factor analysis

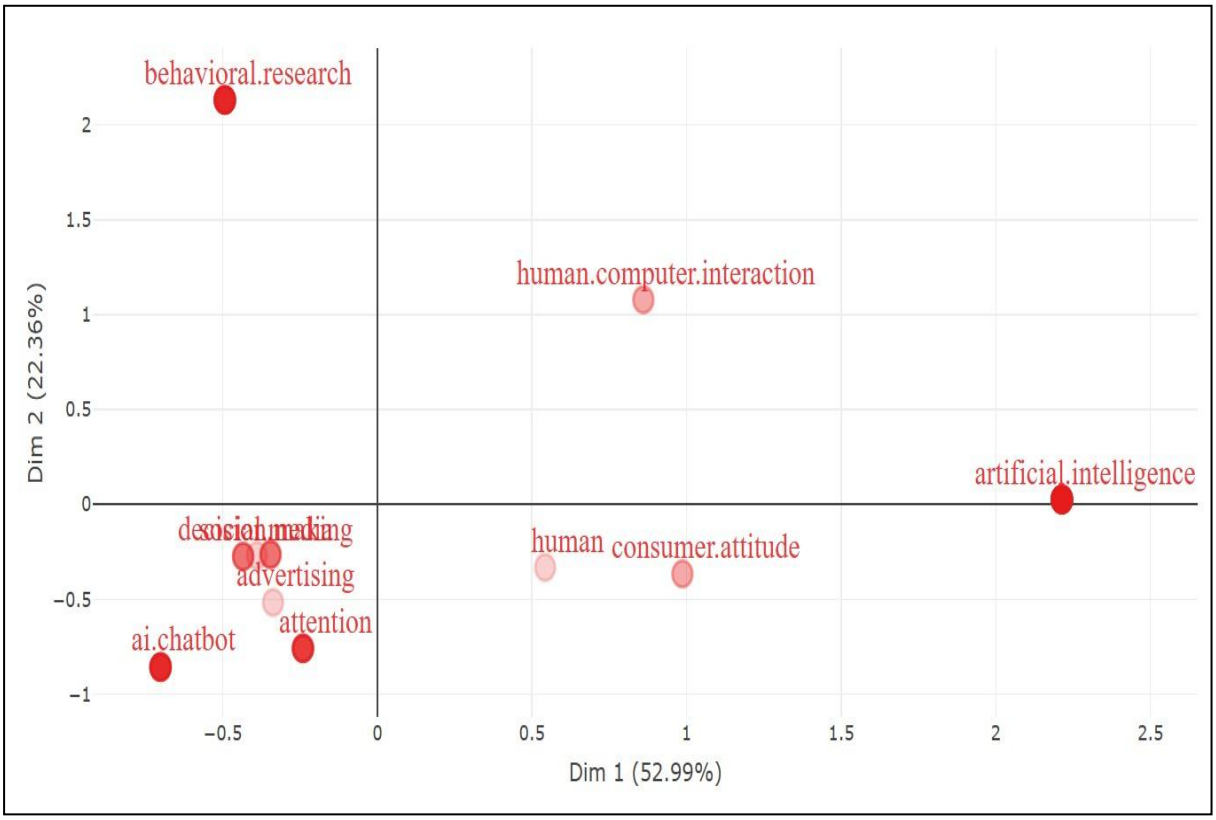


Figure 9 shows the three field plots for research in the anthropomorphic appearance of logos or products related to keywords (Left), abstract (Middle), and authors' country (Right). The analysis was done on the keywords coupled with the literature on the aforesaid concepts used by different authors across countries. It helps us visualize and understand which country is working more on a certain type of literature and what ideas and themes are being undertaken by the authors of those countries. As discussed in this discourse, Figure 9 also shows the relevance of the USA's authors in this literature on anthropomorphic appearance in decision-making strategies. In the middle plot, the prominent blocks contribute to both the inflow from the Keywords and the outflow to the countries. It depicts their multicountry collaborations on various allied concepts and creates a network to understand their directions of work. In Figure 9, the left column synchronizes with major themes such as anthropomorphism, consumer behavior, advertising, and brand personality, while the middle column is associated with brand anthropomorphism, consumers, marketing, and trust. Hence, the frequency of words, i.e., anthropomorphism, consumer behavior, brand personality, and advertising have been observed to be maximum based on the relationship between major inflows and outflows.

Figure 9: Three-Field plot (Abstract-Keyword-Countries)

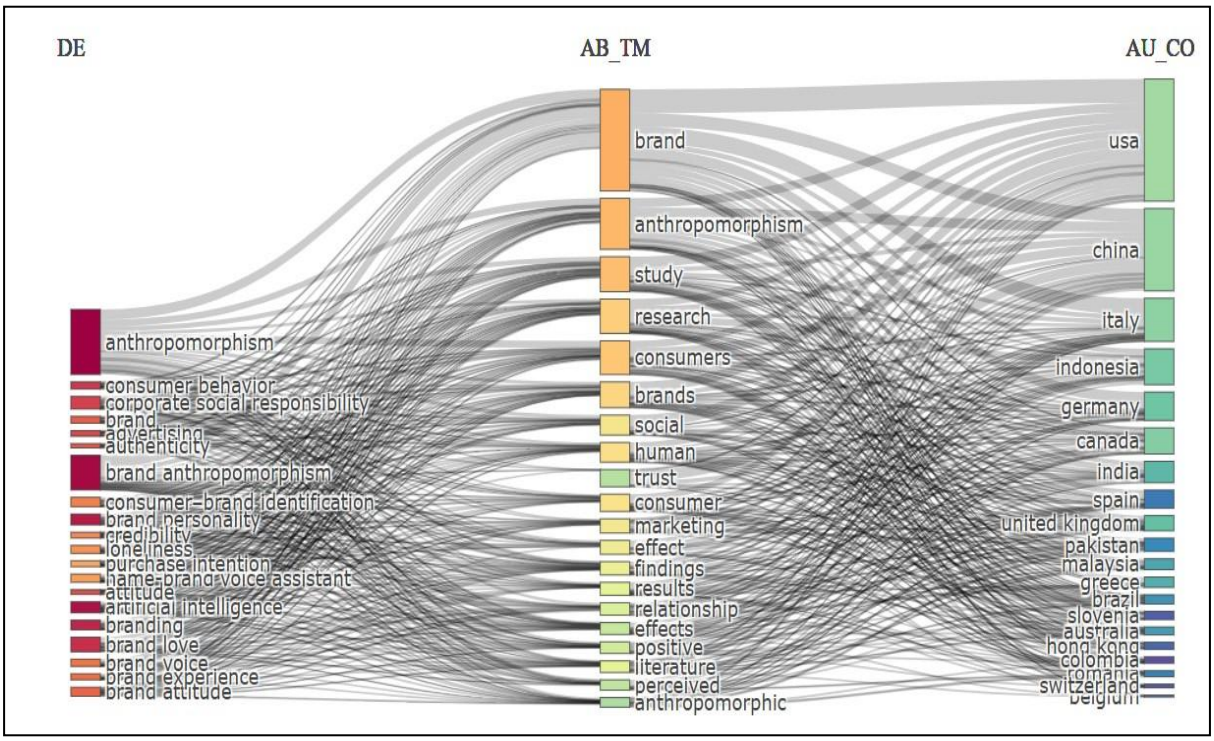
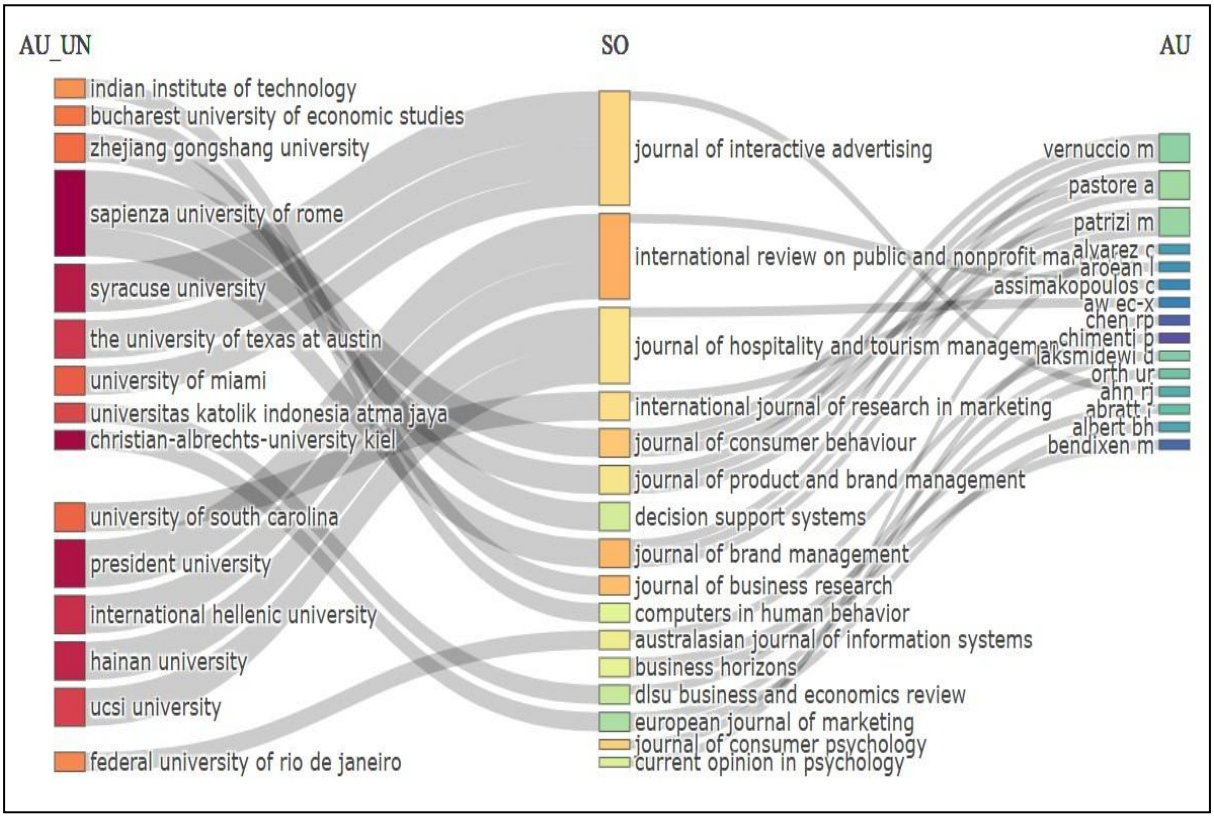


Figure 10 shows affiliations on the left, authors on the right, and source at the middle. This has a deeper understanding of reflecting on the specific technology or concept of anthropomorphic appearance on which the present authors are working and using the kinds of keywords for their discussions. It provided a wide range of research areas connected to marketing, business strategy, consumer behavior, and possibly, virtual influencers with their impact.

Figure 10: Three-Field plot (Sources-Affiliations-Authors)



Bibliographic and Network Analysis

Co-authorship-Country Analysis

Table 2 clarifies that the USA takes the lead with 20 documents with 33.3% of the total research output, while China, Canada, and Italy contribute 6 apiece (10%) of total research. In addition, countries like Brazil, Malaysia, Pakistan, Spain, and Australia contribute 3.3%, while India solely contributes 6.7%, which is slightly behind the top contributors.

Table 2: Country-wise contribution analysis

Country	Documents	Citations	Total link strength
Australia	2	145	2
Brazil	2	60	1
Canada	6	637	2
China	6	37	6
Germany	3	7	3
India	4	99	5
Indonesia	3	13	0
Italy	6	152	2
Malaysia	2	5	4
Pakistan	2	3	4
Spain	2	20	1
Taiwan	3	71	5
United Kingdom	3	220	2
United States	20	1911	9

Table 3 showcases that Canada demonstrates the highest citations per document, CPD (106.17) indicating high research impact followed by the USA with 95.55 CPD which reflects a strong research presence.

Table 3: Country-Citation-Documents-Citation Per Documents

Country	Citation	Documents	Citations Per Documents (CPD)
United State	1911	20	95.55
Canada	637	6	106.17
Italy	152	6	25.33
Australia	145	2	72.5
India	99	4	24.75
Taiwan	71	3	23.67
Brazil	60	2	30
United Kingdom	220	3	73.33
Germany	7	3	2.33
Indonesia	13	3	4.33

China	37	6	6.17
Malaysia	5	2	2.5
Pakistan	3	2	1.5

Accordingly, the first proposition is given below:

Proposition 1: There is a lack of comprehensive methodologies to understand customers' attitudes toward logo redesign or logo upgradation.

Table 4 and its graphical representation (Figure 11) show the ranking of the top 16 countries in terms of scientific contributions aimed at the area of marketing strategy in the automobile industry. The table presents data on the number of publications in each country, the aggregate number of citations obtained by these articles, and the general pertinence of the correlated linkages. Based on the number of articles published, the countries are arranged in descending order. The USA displays the maximum number of contributions (42.86.3%) of the total research output followed by France (16.07%), Australia (14.29), China (10.7%). With the help of data claimed by VOSviewer, the nine countries with the highest number of citations were the USA (2334), the United Kingdom (645), China (278), Australia (260), France (233), the Netherlands (222), Spain (217), and India (122).

Table 4: Relevant publication data in the top 16 Countries

Country	Documents	Citations	Total link strength
Australia	8	260	8
China	80	278	6
France	10	233	9
Germany	10	48	0
India	11	122	0
Indonesia	6	17	0
Italy	6	40	2
Malaysia	6	8	1
Netherlands	13	222	0
Portugal	8	102	0
South Korea	10	9	0
Spain	9	217	4
Taiwan	15	46	0
Thailand	5	6	2
United Kingdom	26	645	0
United States	63	2334	24

Figure 11: Country wise publication

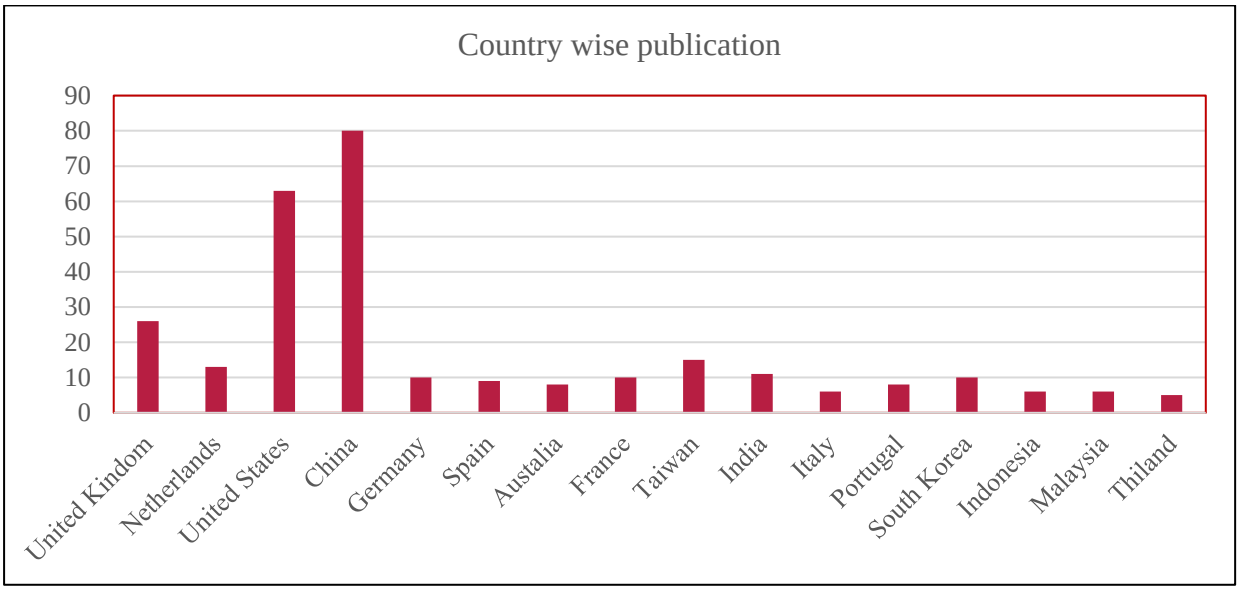


Figure 12 and Table 5 present a co-citation analysis of the 77 most influential authors and their interconnectedness in the field of logo change or logo upgradation in the area of the automobile industry. The data covers publications between 2011 to 2024 and is sourced from the dimensions database. Prominent researchers, such as Henderson P.W.; Cote J.A.; Melewar T.C.; and Leong S.M.; emerged as the most influential contributors based on their citation impact. Authors have a minimum 10 numbers of citations that have been selected in an attempt to remove the complexity in the connection diagram.

However, the analysis reveals that American and Northern country scholars wield greater influence in this domain than their productivity levels. This observation can be attributed to their publications being frequently featured in top-tier journals, garnering heightened attention from the scientific community. This finding aligns logically with the notion that having a higher citation impact is often associated with publications in esteemed academic outlets.

The analyzed co-citation network reveals four distinct clusters: the first (Red), second (Green), third (Blue), and fourth (Yellow) clusters. Within each cluster, prominent authors and their respective strength links, denoting the intensity of connections, are observed.

In the first cluster, Henderson P.W emerges as the most influential author with a remarkable strength link of 4706, and his works have been cited 109 times. In the second cluster, Cote J.A was observed as the most influential author, with a significant strength link of 3833, and his publications have been cited 89 times (Table 9). In the third cluster, Melewar T.C demonstrates substantial influence, boasting a robust strength link of 3550, and its works have garnered 80 citations (Table 9).

Finally, within the fourth cluster, Leong S.M. was identified as the most influential author, with a strength link of 3099, and his contributions have been cited 63 times (Table 9).

These findings underscore the impact and recognition these authors have received within their respective clusters, highlighting their scholarly influence and citation impact in the field of logo change or logo upgradation in the context of the automobile industry.

Table 5: Author link strength and total citation

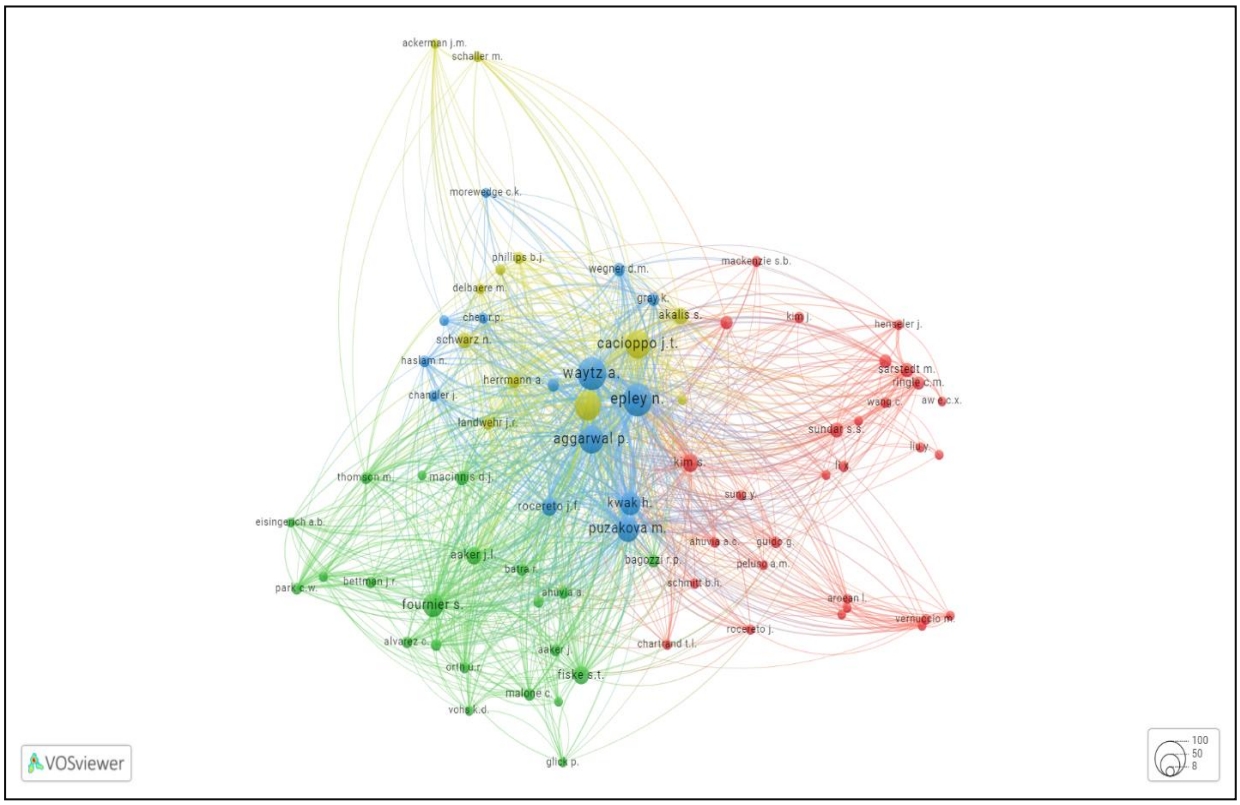
SL No	Author	Citations	Total link strength
1	aaker j.	14	576
2	aaker j.l.	31	1327
3	ackerman j.m.	10	368

4	aggarwal p.	80	3500
5	ahuvia a.	14	584
6	ahuvia a.c.	12	594
7	akalis s.	29	1290
8	alvarez c.	14	744
9	aroean l.	10	386
10	aw e.c.x.	10	184
11	bagozzi r.p.	17	727
12	batra r.	15	657
13	bettman j.r.	14	660
14	burton s.	10	401
15	cacioppo j.	17	774
16	cacioppo j.t.	82	3297
17	chandler j.	13	693
18	chartrand t.l.	11	514
19	chen r.p.	12	708
20	delbaere m.	12	616
21	eisingerich a.b.	10	583
22	epley n.	110	4657
23	escalas j.e.	11	659
24	fiske s.t.	33	1417
25	fournier s.	56	2459
26	glick p.	10	333
27	golossenko a.	10	386
28	gray k.	18	930
29	grewal d.	10	359
30	guido g.	14	638
31	gursoy d.	10	221
32	hair j.f.	19	687
33	haslam n.	14	883
34	hayes a.f.	19	647
35	henseler j.	11	555
36	herrmann a.	21	1154
37	keller k.l.	13	477

38	kervyn n.	14	712
39	kim j.	13	405
40	kim s.	33	1302
41	kwak h.	55	2734
42	landwehr j.r.	17	872
43	li x.	13	306
44	li y.	10	249
45	liu y.	11	223
46	macinnis d.j.	21	1193
47	mackenzie s.b.	12	396
48	malone c.	16	796
49	mcgill a.l.	89	3833
50	mcquarrie e.f.	13	611
51	morewedge c.k.	10	431
52	orth u.r.	12	743
53	park c.w.	14	878
54	pastore a.	10	398
55	patrizi m.	10	363
56	peluso a.m.	10	461
57	phillips b.j.	15	668
58	pillai k.g.	10	386
59	puzakova m.	63	3099
60	ringle c.m.	18	773
61	rocereto j.	11	523
62	rocereto j.f.	32	1648
63	rose g.m.	10	464
64	sarstedt m.	21	841
65	schaller m.	11	422
66	schmitt b.h.	11	332
67	schwarz n.	25	1109
68	sundar s.s.	23	611
69	sung y.	11	373
70	thomson m.	15	953
71	vernuccio m.	12	449

72	vohs k.d.	10	485
73	wan e.w.	12	623
74	wang c.	12	327
75	waytz a.	109	4706
76	wegner d.m.	18	910
77	yoon c.	10	437

Figure 12: Co-citation Cited author cluster visualization



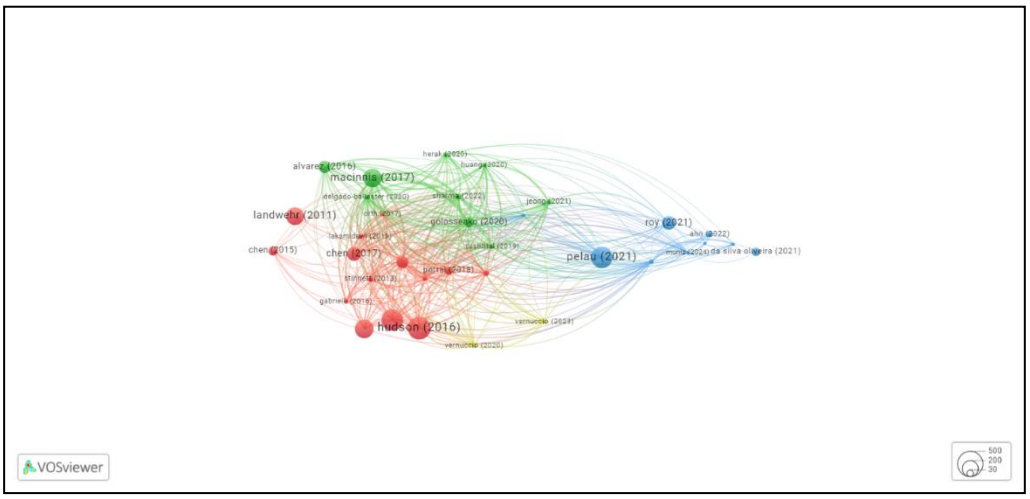
***Proposition* 2:** Limited understanding of how anthropomorphic logos align with marketing strategy.

Figure 13 presents a co-citation analysis of the 25 most influential authors and their interconnectedness in the field of logo change or logo upgradation as a tool of rebranding. The data covers publications between 2003 and 2024 and is sourced from the Scopus database. The visualization comes up with six different clusters shown in Figure 13.

In the first cluster (Red in Figure 11) the most important contribution by Kim & Lim (2019), majorly focused on the role of logo change or logo upgradation in the automobile industry to establish an emotional connection with customers and products that directly or indirectly act as brand defenders. Therefore, it has a good strength link (284), and it is also cited in (24) documents.

In the second cluster (Green in Figure 11) the most important contribution by Cesar Machado j.; Fonseca b.; Martins c. (2021) which discussed the role of logos in branding strategy in area of automobile sector and propose the implementation of logo upgradation or logo change or logo font style to get the perfect marketing strategy tool to create brand awareness among the customers. Therefore, it produced the second-highest total link strength in cluster 2 with a citation score of 16 and a strength link of 186.

Figure 13: Bibliographic Coupling- Documents



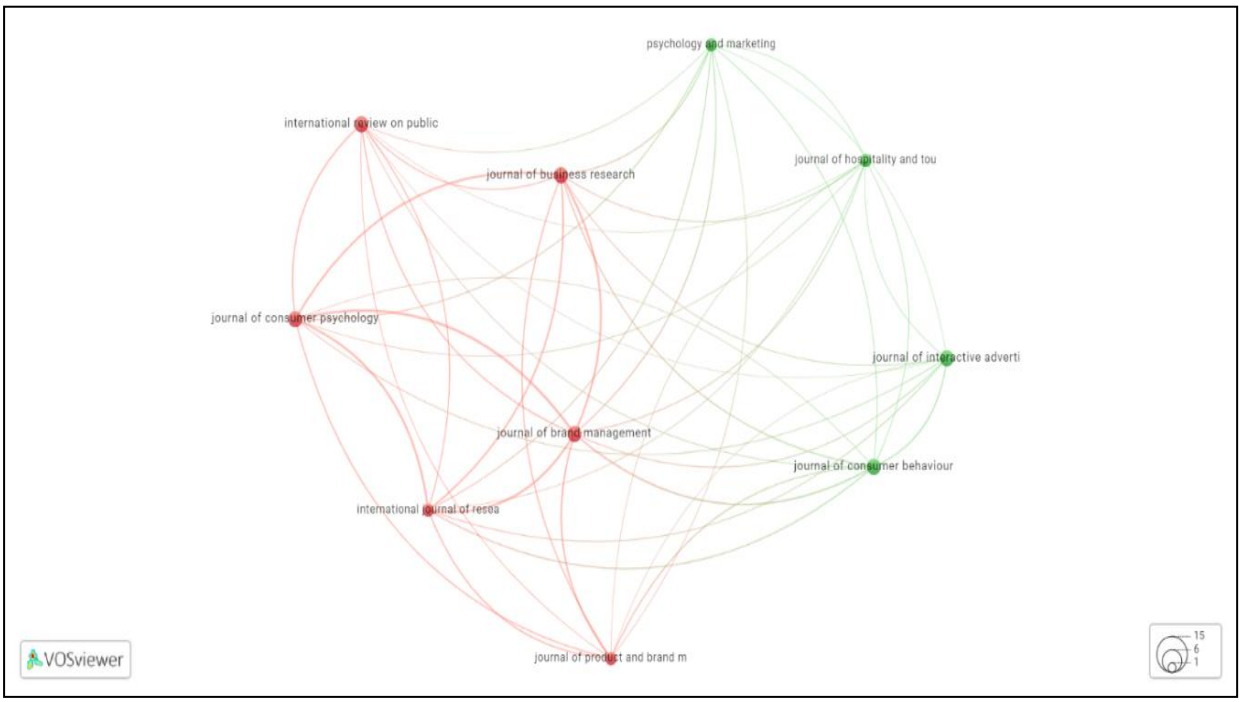
Our analysis focused on scholarly publications and books that explore the integration of logo change or logo upgradation up to the year 2024 and the minimum number of documents of a source is 2. Among the journals studied, the Journal of product and brand management exhibited the most robust link strength, boasting a value of 326. In comparison, the journal of brand management displayed the second strongest link strength with a score of 306. Similarly, the journal of business research presented a strong link strength of 151 with citations of 191, 248, and 144 respectively.

From Figure 14 and Table 6, it was closely observed that the International Journal of Research in Marketing has the highest CPD (237). The second highest CPD value was observed in The Journal of Consumer Psychology (CPD=141.67). Hence, we can say that the higher the value of CPD, the most impactful research will be per article. If we closely observe the value of total link strength (TLS), Journal of Brand Management claims highest collaboration (TLS=344), and Journal of Consumer Psychology (TLS=283) and The International Journal of Research in Marketing (TLS=268) are highly influential.

Table 6: Journal performance with CPD

SL No.	Documents	Documents	Citation	Total link strength	Citation Per Documents
1	International Journal of Research in Marketing	2	474	268	237
2	International Review on Public and Nonprofit Marketing	3	23	128	237
3	Journal of Brand Management	3	126	344	42
4	Journal of Business Research	3	165	262	55
5	Journal of Consumer Behaviour	3	24	152	8
6	Journal of Consumer Psychology	3	425	283	141.67
7	Journal of Hospitality and Tourism Management	2	9	77	4.5
8	Journal of Interactive Advertising	3	58	91	19.33
9	Journal of Product and Brand Management	2	30	164	15
10	Psychology and Marketing	2	0	103	0

Figure 14: Bibliographic coupling – journals



Our analysis focused on scholarly publications and books that explore the integration of logo change or logo upgradation up to the year 2024 and the minimum number of documents of a source is 2. Among the journals studied, the Journal of product and brand management exhibited the most robust link strength, boasting a value of 326. In comparison, the Journal of Brand Management displayed the second strongest link strength with a score of 306. Similarly, the Journal of Business Research presented a strong link strength of 151 with citations of 191, 248, and 144 respectively.

Thematic Cluster and Analysis

In the present study, the Vosviewer tool was also employed to construct a thematic map utilizing co-occurrence keywords. The keywords were searched in the dimension database and both the title and abstract fields were utilized to extract these keywords and delineate emerging themes. To ensure robustness, our criteria dictated a minimum occurrence of 10 terms per keyword, yielding a total of 128 key terms. To refine the selection, we assigned relevance scores to each term. Subsequently, we opted for a default approach, choosing the topmost relevant terms, resulting in a final set of 40 terms. Table 7 and Figure 15 reflect all the 47 key terms.

Figure 15: Map based on co-occurrence of keywords: thematic analysis

From Table 7 we can conclude that high frequency and high impact categories are logo design, consumer, image, perception, and process whereas high frequency and low impact terms are brand personality and design. Hence, we can infer that high-frequency terms reflect the primary research focus whereas low occurrences are underexplored. In the very next stage, chosen terms were refined. This involved a rigorous evaluation process to filter out any less pertinent terms, allowing us to retain those with the most significant relevance scores. Table 7 reflects the analyzed themes or key terms identified.

Table 7*:* Most frequent words

Sl No	Term	Occurrences	Relevance Score
1	application	42	1.6017
2	article	40	0.8612
3	association	22	0.4497
4	attitude	27	1.3874
5	author	21	0.7059
6	brand equity	11	0.2727

7	brand logo	43	1.5843
8	brand logo design	20	1.8546
9	brand personality	11	0.9448
10	branding	27	0.8006
11	combination	15	1.0654
12	concept	34	0.7197
13	consumer	75	0.6078
14	contrast	11	0.171
15	creativity	11	1.301
16	customer	23	0.5604
17	design methodology approach	32	2.7043
18	designer	39	0.4972
19	development	37	1.4761
20	example	24	1.3305
21	experiment	47	0.4642
22	form	34	0.9664
23	future	11	1.9217
24	group	24	0.4046
25	image	74	0.4574
26	impact	41	0.4798
27	implication	29	0.7463
28	individual	11	0.5848
29	influence	30	0.5625
30	logo design	152	0.6333
31	name	27	0.3956
32	need	17	0.6154
33	new logo	15	0.2111
34	originality value	32	2.7043
35	perception	53	0.6405
36	performance	26	0.5437
37	personality	16	0.4278
38	practical implication	26	2.7809
39	practice	25	1.2533
40	preference	23	0.9039

41	problem	16	0.7149
42	process	56	0.6175
43	quality	20	0.9769
44	rebranding	24	0.4414
45	research limitations implication	16	3.6347
46	researcher	10	0.2251
47	technology	34	2.0273

This assessment took into account the existing body of research as well as the frequency of appearance of each term. The meticulous nature of this procedure underscores the meticulous scholarly approach we adopted in delineating our research themes. The maximum number of re-occurrences of words found is “logo design” (152 times) in the literature, followed by “consumer” (75 times), “image” (54 times), and “brand logo” (43 times) demonstrating that these are the major key words developed through Vosviewer and analysis (Figure 15).

In the beginning, a thorough analysis of the existing literature was done followed by the identification of several common themes that appeared across various research papers related to logo upgradation, or logo change, or consumer behavior at different stages. We also examined the role of logo design or logo upgradation in the automobile industry. To assist in this process, we utilized Vosviewer software to analyze how frequently certain words appeared in the available literature. We especially focused on words that appeared at least 10 times. After a detailed review of these keywords, we identified significant themes that were not extensively explored, but effective for empirical evidence.

Therefore, integrating logo design, logo upgradation, or logo change into the automobile sector has a significant impact on branding and customer purchase patterns that are directly or indirectly related to customer loyalty. However, challenges like customer loyalty, branding, and customer retention must be addressed to sustain in a highly volatile market.

3. MANAGERIAL IMPLICATIONS

The study offers significant implications for professionals, automobile industry brand managers, and scholars actively engaged in the advancement of technology to cope with marketing strategy within the realm of logo upgradation or logo change in the automobile sector. These implications can be summarized as follows:

a) The study provides valuable insights by identifying limitations and gaps within automobiles consumers prospectives. It suggests that addressing these gaps can be achieved through the development of tactical marketing strategies that support an effective blending of both ATL (Above the line) and BTL (Below the line) strategies, which would be highly beneficial for automobile branding.

b) The present investigation provides specific benefits for practical purposes for marketers as well as researchers. If we discuss it on behalf of *Avatar* forms like chatbots, and helpdesk agents, it has a proven record of efficient performance and effective customer service as well as satisfaction (Miao et al., 2022). If we discuss it from the front-line service point of view in restaurants, railway stations, and home appliances, it enhances customer engagement (Holthower & Van Doorn, 2022).

c) Anthropomorphism acts as a medium to enhance brand visibility in the market either by giving an anthropomorphic appearance to their product or their logo or the tagline used (Lee & Oh, 2021). In line with previous research, we recommend brand managers enhance brand visibility, awareness, and brand recall (Sreejesh & Anusree, 2017). In addition, managers should adopt anthropomorphic advertising to encourage customers (Lee & Oh, 2021).

d) This research serves as a valuable insight for organizational leaders, decision-makers, brand managers, and policymakers, facilitating the development of proficient marketing strategies and policies for the integration of customer retention. It emphasizes the required timeframes, infrastructure deficiencies, and the necessity for knowledge and training services to ensure the successful adoption of these brand identity modifications or changes.

e) Furthermore, the findings of the study, which include an extensive evaluation of earlier studies, an examination of prominent researchers and major publications, and a discussion of potential directions for further research in this area, provide significant insights to the academic community.

4. CONCLUSION AND SCOPE FOR FURTHER RESEARCH

The present research article offers the nuances of how brand loyalty and consumer perceptions are affected by logo changes or logo upgrades. The authors give more emphasis on anthropomorphic appearance that might help customers to attach to

brands emotionally. Customers may establish intimate connections with brands when their logo design or product design appearance is humanlike. This observation aligns with previous literature where emotional connections are crucial in consumer behavior (Becerra & Badrinarayanan, 2013; Watanuki, 2022). This study provides insight into the Anthropomorphic literature from 2011 to 2024, based on facts available on the Scopus database. It provides two important outcomes as a decisive assessment of the development of the relatively nascent field of anthropomorphic design in automobiles. First, through descriptive study, it claims that the increase in research articles reflects that anthropomorphism keeps on growing stage. To understand scientific outcomes, network visualization is performed with different combinations based on research demand. Most of the top-cited anthropomorphic documents have a human-chatbot theme as their primary conceptual focus in the service industry to satisfy customers. This is possibly due to the main class of documents and journals that discuss virtual humans. In addition, the study conducted a systematic literature review to gain insights into the significant advancements in the field of the automobile industry with the support of Kapferer's Brand Identity Prism. Additionally, bibliometric analysis helps us understand the major contributions of countries and authors in this field. Our research revealed that the UK has the forefront in terms of generating substantial contributions, closely followed by Denmark, China, Australia, France, Netherlands, Spain, and India.

In terms of citations of the articles, the USA and Denmark (2334), UK (645), China (278), Australia (260), France (233), Netherlands (222), Spain (217) citations, and India (122) citations. Through co-citation analysis of the 124 most influential authors and their interconnectedness in this field, it became evident that the work by Kim and Lim (2019) made a substantial contribution. Their research predominantly focuses on logo change and the role of logo upgradation in enhancing customer satisfaction but unfortunately, the automobile sector is still understudied. However, it is important to note that the role of anthropomorphic appearance in branding aspects was not yet discussed in the automobile sector.

In light of the available literature, our analysis highlights a notable gap and future research themes through thematic analysis. While there has been significant attention on improving branding strategy through logo change or logo upgradation. This gap presents a promising avenue for future research endeavors in this field.

This study focused exclusively on essential factors, utilizing data inputs spanning from 2011 to 2024. To enhance the credibility of the findings, it is recommended to undertake an empirical investigation with a more extensive sample size. Future research efforts may focus on logo upgradation or logo change in the automobile industry with a greater emphasis on the creation of customer retention and satisfaction for long periods.

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