

Factors Affecting Brand Image Improvement in the Automotive Industry

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ABSTRACT

This study aimed to identify and examine the factors affecting brand image improvement in the automotive industry from the perspective of automobile customers in Tehran. This applied quantitative study was conducted using a descriptive-correlational, cross-sectional survey design. The statistical population consisted of automobile customers, owners, and potential buyers in Tehran who had experience with domestic or foreign automotive brands. The final sample included 384 participants selected through convenience sampling from automobile dealerships, after-sales service centers, automobile exhibitions, and online automotive customer communities. Data were collected using a structured researcher-made questionnaire consisting of demographic items and 48 items measuring product quality, safety and technical performance, design attractiveness, innovation and technology, price fairness, after-sales service quality, customer relationship management, advertising and communication effectiveness, social responsibility, brand trust, perceived value, customer satisfaction, and brand image improvement. The validity of the instrument was confirmed through expert review and pilot testing, and its reliability was supported by Cronbach's alpha coefficients. Data were analyzed using SPSS and AMOS through descriptive statistics, exploratory factor analysis, confirmatory factor analysis, and structural equation modeling. The inferential findings showed that the proposed measurement and structural models had acceptable fit indices. Exploratory factor analysis extracted 13 factors explaining 68.84% of the total variance. Confirmatory factor analysis confirmed the adequacy of the measurement model, with $\chi^2/df = 1.54$, GFI = 0.902, CFI = 0.953, TLI = 0.947, IFI = 0.955, RMSEA = 0.037, and SRMR = 0.041. Structural equation modeling showed that all examined factors had positive and significant effects on brand image improvement. The strongest predictors were brand trust, customer satisfaction, product quality, after-sales service quality, and safety and technical performance. The final model explained 74% of the variance in brand image improvement. The findings indicate that automotive brand image improvement is a multidimensional process shaped by trust, satisfaction, quality, technical reliability, service performance, perceived value, innovation, customer relationships, communication, design, price fairness, and social responsibility.

Keywords: Brand image; Automotive industry; Brand trust; Customer satisfaction; Product quality; After-sales service; Structural equation modeling.

Introduction

In contemporary competitive markets, brand image has become one of the most decisive intangible assets for organizations seeking sustainable differentiation, customer retention, and long-term market performance. Brand image refers to the set of perceptions, associations, beliefs, and evaluations that customers hold toward a brand,



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and these perceptions influence how customers interpret product quality, service value, corporate credibility, and purchase risk. In industries characterized by high financial involvement and extended product-use cycles, such as the automotive industry, brand image is particularly important because customers do not base their decisions solely on functional specifications or immediate price comparisons. Instead, they evaluate the symbolic, emotional, experiential, and reputational meanings attached to automotive brands. A favorable brand image can reduce perceived risk, enhance trust, strengthen loyalty, and create a competitive advantage that is difficult for competitors to imitate. Therefore, identifying the factors that contribute to brand image improvement is a critical issue for automotive companies operating in dynamic and competitive markets.

The automotive industry is one of the most complex sectors in which brand image plays a multidimensional role. Automobiles are high-involvement products that require considerable financial commitment and are closely connected to customers' personal identity, lifestyle, social status, safety expectations, and long-term satisfaction. Unlike many fast-moving consumer goods, automobile brands are evaluated over an extended period through purchase experience, driving performance, maintenance costs, after-sales services, spare parts availability, technological innovation, fuel efficiency, environmental responsibility, and customer support. Consequently, the image of an automotive brand is formed not only before purchase through advertising and communication, but also after purchase through ownership experience and service encounters. Recent studies in the automotive sector have emphasized that brand image directly shapes consumer buying behavior, particularly in markets where customers compare brands based on perceived prestige, quality, design, safety, and value (1). This confirms that automotive brand image is not a superficial marketing construct, but a strategic outcome of multiple organizational and customer-based factors.

Brand image is also closely connected to corporate reputation and product quality. In the automotive sector, customers often judge a brand by the perceived reliability of its vehicles, technical durability, safety performance, and the consistency between company promises and actual product experience. When customers believe that a company produces high-quality vehicles, they are more likely to form positive associations with the brand and recommend it to others. Recent evidence shows that corporate social responsibility can improve brand image in the automotive sector, particularly when corporate reputation and product quality strengthen the relationship between responsible corporate behavior and customer perception (2). This finding suggests that brand image improvement in the automotive industry requires both tangible and intangible investment. Automotive companies cannot rely only on promotional campaigns; rather, they must improve product performance, demonstrate social responsibility, and build reputational credibility through consistent organizational behavior.

Customer satisfaction is another central factor in brand image improvement. In automotive markets, satisfaction results from the comparison between customer expectations and actual experiences with the vehicle, dealership, service center, warranty support, and overall relationship with the company. When customers experience reliable performance, fair treatment, efficient maintenance services, and responsive communication, they are more likely to develop positive attitudes toward the brand. The relationship among service quality, customer satisfaction, customer value, customer relationship management quality, and loyalty has been highlighted in recent research, showing that brand image has a critical role in strengthening customer loyalty outcomes (3). Although such relationships may vary across industries, their implications are highly relevant to the automotive sector because customers' loyalty to automobile brands is often shaped by repeated satisfaction with product and service experiences. Therefore,

improving brand image requires companies to treat satisfaction not as a short-term transactional outcome, but as a strategic driver of customer-based brand equity.

The role of customer relationship management is also important in explaining how brand image develops over time. In industries where customers require long-term support, technical guidance, warranty services, and continuous interaction with dealerships and service centers, relationship management becomes a major determinant of brand perception. Effective customer relationship management allows companies to understand customer expectations, resolve complaints, personalize communication, and maintain trust after purchase. Research in service-oriented markets indicates that customer relationship management, knowledge management, organizational commitment, customer satisfaction, and customer loyalty are connected through complex pathways, and brand image can moderate or strengthen these relationships (4). These findings are relevant to automotive companies because customers' evaluations of the brand are shaped not only by the automobile itself, but also by how the company manages communication and responds to problems during the ownership period.

Integrated marketing communication is another factor that contributes to brand image improvement. In automotive markets, customers receive brand information from advertisements, social media, online reviews, dealership interactions, product comparisons, public relations activities, and word-of-mouth communication. When communication is consistent, credible, and aligned with the actual quality of the product, it can strengthen the clarity and favorability of brand associations. Research on integrated marketing communications in the automotive industry, particularly in relation to Zamyad Automobile Company, has shown that coordinated communication models can affect brand image and company financial performance (5). This indicates that communication strategies should not be isolated promotional tools, but integrated managerial systems that connect brand identity, customer expectations, market positioning, and performance outcomes. In the automotive industry, inconsistent communication or exaggerated promotional claims may damage brand credibility, while transparent and coherent communication can improve customer trust and brand preference.

Electronic word of mouth has become increasingly influential in shaping brand image, especially because automobile customers often search for online reviews, owner experiences, expert evaluations, and social media discussions before making purchase decisions. Since automobiles are costly and involve perceived financial and performance risks, customers frequently rely on the experiences of others to reduce uncertainty. Positive electronic word of mouth can strengthen brand image and purchase intention, whereas negative online comments about poor quality, weak service, or unreliable performance can rapidly damage brand reputation. The effect of electronic word of mouth on brand image and purchase intention has been confirmed in marketing research, demonstrating that customer-generated communication is a powerful source of brand perception (6). Therefore, automotive companies must recognize that brand image is no longer controlled only by formal advertising; it is also shaped by customer voices, online communities, and digital reputation.

Sustainable marketing and environmental considerations also affect brand image in modern markets. Automotive companies face increasing pressure to respond to environmental concerns, fuel consumption issues, emissions reduction, resource efficiency, and social expectations regarding sustainable production. Sustainable marketing practices can enhance brand image by signaling that the company is responsible, future-oriented, and aligned with broader societal values. Research has shown that sustainable marketing practices can influence customer loyalty through the mediating role of brand image (7). Although this relationship has been examined in different industrial contexts, it is especially relevant to the automotive sector because customers increasingly evaluate automobile

brands based on environmental responsibility, hybrid and electric technologies, fuel efficiency, and compliance with sustainability expectations. Thus, brand image improvement in the automotive industry requires attention not only to immediate product benefits but also to the company's long-term social and environmental positioning.

Corporate social responsibility is closely related to sustainable marketing and has become an important dimension of brand image. Customers are more likely to trust companies that demonstrate responsibility toward society, employees, customers, the environment, and local communities. In automotive markets, corporate social responsibility may include road safety campaigns, environmental protection, recycling programs, ethical supply chains, transparent pricing, consumer rights protection, and investment in cleaner technologies. Studies have shown that social responsibility and corporate image can influence brand equity, suggesting that responsible corporate behavior strengthens the value and perception of the brand (8). Similarly, research in the automotive industry has emphasized that corporate social responsibility perception can affect brand equity through the mediating influence of brand image (9). These findings suggest that automotive companies seeking to improve brand image should incorporate responsibility into their core strategy rather than treating it as a symbolic or peripheral activity.

Green marketing and environmentally oriented branding are also relevant to brand image improvement. As environmental awareness grows, customers increasingly evaluate whether brands are compatible with ecological values and sustainable consumption. Although green brand image has been studied in different sectors, its implications are important for the automotive industry because vehicles are directly associated with energy use, pollution, emissions, and environmental policy. Research on green export marketing strategy has shown that green marketing practices can contribute to the creation of green brand image (10). In automotive markets, this means that companies can improve brand image by communicating and implementing environmentally responsible strategies, such as improving fuel efficiency, developing low-emission vehicles, using recyclable materials, and supporting cleaner mobility. However, such strategies must be authentic and supported by actual product performance; otherwise, customers may perceive them as greenwashing, which can weaken rather than improve brand image.

Innovation and open innovation are additional factors that shape brand image in competitive industrial markets. Customers often associate innovative brands with modernity, technological superiority, adaptability, and future readiness. In the automotive industry, innovation may appear in vehicle design, safety systems, digital dashboards, smart connectivity, electric powertrains, autonomous technologies, production systems, and customer service platforms. Open innovation can also empower brands by allowing companies to use external knowledge, customer feedback, technological partnerships, and collaborative development processes to improve products and services. Research on empowering Iranian brands with an emphasis on the open innovation approach has shown that innovation-oriented models can strengthen brand development and competitiveness (11). This perspective is important for automotive companies because traditional manufacturing capability alone is no longer sufficient; customers increasingly expect brands to demonstrate technological responsiveness, design creativity, and continuous improvement.

The symbolic and cultural dimensions of brand image should also be considered. Brand image is not limited to product attributes or service quality; it also includes meanings related to identity, social representation, prestige, lifestyle, and cultural narratives. Studies on national and cultural branding have shown that constructed images can influence economic diplomacy and broader perceptions of value, identity, and market attractiveness (12). Although

the automotive industry is primarily product-based, automobiles often function as cultural and symbolic objects through which customers express status, personality, achievement, and lifestyle orientation. Therefore, improving brand image in the automotive sector requires attention to both functional excellence and symbolic positioning. A brand that is technically reliable but culturally unattractive may struggle to build emotional attachment, while a brand that communicates prestige without reliable performance may fail to sustain long-term trust.

Brand equity, brand attitude, and brand performance also provide a useful conceptual foundation for understanding brand image improvement. Brand image is often viewed as a core component of customer-based brand equity because it reflects the associations that make a brand meaningful and differentiated in the customer's mind. Research on luxury tourism has shown that brand equity, brand attitude, and brand performance can influence customer behavior and visit intention (13). Although the context differs from the automotive industry, the theoretical implication is relevant: customers respond not only to objective performance but also to their overall attitude toward the brand and the value they associate with it. In automotive markets, brand image can therefore be strengthened when customers perceive that the brand performs well, offers desirable benefits, and maintains a distinct and favorable position compared with competitors.

The broader literature on branding also emphasizes that brand image is shaped by customer experience, service environment, product assortment, communication, pricing, and value perception. Retail branding research has highlighted that brand meaning is built through multiple customer touchpoints and that organizations must manage these touchpoints strategically to create coherent and favorable brand associations (14). This insight is highly relevant to the automotive industry because customers encounter automotive brands through dealerships, sales personnel, showrooms, websites, advertisements, financing procedures, delivery processes, service centers, warranty systems, and post-purchase support. Each of these touchpoints can either strengthen or weaken brand image. Therefore, automotive brand image improvement should be viewed as an integrated process involving product design, service management, communication strategy, customer relationship management, and corporate behavior.

Despite the importance of brand image, many automotive companies still focus mainly on short-term sales, price competition, or promotional campaigns, while paying less attention to the deeper drivers of customer perception. In markets such as Tehran, where customers may face concerns about product quality, price fairness, after-sales service, spare parts availability, technological lag, and trust in corporate promises, brand image becomes a strategic issue. A strong automotive brand image can help companies differentiate themselves in a competitive environment, increase customer confidence, improve customer satisfaction, and support long-term loyalty. However, brand image improvement requires a comprehensive understanding of the factors that customers consider important. These factors may include product quality, safety and technical performance, design attractiveness, innovation and technology, price fairness, after-sales service quality, customer relationship management, advertising and communication effectiveness, social responsibility, brand trust, perceived value, and customer satisfaction.

Accordingly, the present study aimed to identify and examine the factors affecting brand image improvement in the automotive industry from the perspective of automobile customers in Tehran.

Methods and Materials

This study was conducted using an applied, quantitative, descriptive-correlational research design. The purpose of the study was to identify and examine the factors contributing to the improvement of brand image in the

automotive industry from the perspective of customers in Tehran. Since the research objective focused on explaining relationships among brand-related factors rather than manipulating variables, a cross-sectional survey method was considered appropriate. The statistical population consisted of automobile customers, owners, and potential buyers in Tehran who had experience with domestic or foreign automotive brands, including experience in purchasing, using, comparing, or receiving after-sales services from automobile companies. The study population was considered large and heterogeneous because Tehran represents one of the most important automotive markets in Iran, with diverse consumer groups in terms of income level, brand preference, purchasing power, and experience with different automotive companies.

The final sample consisted of 384 participants selected from automobile customers in Tehran. This sample size was determined based on the requirements of survey-based quantitative research and was considered adequate for factor analysis and structural modeling procedures. Participants were selected using a non-random convenience sampling method from automobile dealerships, after-sales service centers, automobile exhibitions, and online customer communities related to automotive brands in Tehran. Inclusion criteria were being at least 18 years old, residing in Tehran, having direct experience with at least one automotive brand, and willingness to participate in the study. Participants who provided incomplete questionnaires or gave uniform and unreliable responses were excluded from the final analysis. Before data collection, the purpose of the study was explained to all participants, and they were assured that their responses would remain confidential and would be used only for academic research purposes. Participation was voluntary, and informed consent was obtained from all respondents.

Data were collected using a structured questionnaire consisting of two main sections. The first section included demographic and background information, such as age, gender, education level, occupation, income level, type of automobile ownership, preferred automotive brand, and previous experience with automotive products and services. These questions were included to provide a clear profile of the respondents and to describe the characteristics of the sample. The second section consisted of a researcher-made questionnaire designed to measure the factors affecting brand image improvement in the automotive industry. The questionnaire was developed based on theoretical concepts related to brand image, customer perception, perceived quality, brand trust, customer satisfaction, after-sales service, innovation, price fairness, corporate reputation, and customer experience in the automotive market.

The Brand Image Improvement Factors Questionnaire included 48 items measured on a five-point Likert scale ranging from "strongly disagree" to "strongly agree." The questionnaire assessed several dimensions considered important in improving automotive brand image, including product quality, safety and technical performance, design attractiveness, innovation and technology, price fairness, after-sales service quality, customer relationship management, advertising and communication effectiveness, social responsibility, brand trust, perceived value, and customer satisfaction. Higher scores indicated a stronger perceived role of these factors in improving the brand image of automotive companies. The items were written in clear and direct language to ensure that respondents with different educational and occupational backgrounds could answer them accurately.

To evaluate the validity of the questionnaire, content validity was examined by a panel of experts in marketing management, brand management, automotive industry studies, and research methodology. The experts reviewed the questionnaire in terms of clarity, relevance, comprehensiveness, wording, and alignment with the research objectives. Based on their comments, several items were revised, merged, or removed before the final version was administered. Face validity was also assessed through a pilot implementation with 30 automobile customers in

Tehran to determine whether the items were understandable and appropriate for the target population. Reliability was assessed using Cronbach's alpha coefficient. The overall reliability coefficient of the questionnaire was 0.91, indicating excellent internal consistency. The reliability coefficients of the subscales were also acceptable, confirming that the instrument was suitable for measuring the main constructs of the study.

The collected data were analyzed using descriptive and inferential statistical methods. First, the questionnaires were reviewed, incomplete responses were removed, and the data were coded and entered into statistical software. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize the demographic characteristics of the participants and the main research variables. The normality of the data was examined using skewness and kurtosis indices, and the adequacy of the data for factor analysis was assessed through the Kaiser-Meyer-Olkin index and Bartlett's test of sphericity.

Exploratory factor analysis was used to identify the underlying dimensions of brand image improvement factors in the automotive industry. Factor extraction was conducted to determine the main components influencing brand image, and factor loadings were examined to retain items with acceptable statistical strength. Items with weak or cross-loaded values were removed from the model to improve the clarity and interpretability of the factor structure. After identifying the major dimensions, confirmatory factor analysis was performed to assess the measurement model and examine whether the extracted factors adequately represented the observed data. Model fit was evaluated using standard fit indices, including chi-square divided by degrees of freedom, comparative fit index, goodness-of-fit index, Tucker-Lewis index, root mean square error of approximation, and standardized root mean square residual.

To examine the relationships among the identified factors and brand image improvement, structural equation modeling was applied. This method was used because it allows the simultaneous assessment of direct and indirect relationships among multiple latent variables. Path coefficients, critical ratios, significance levels, and standardized estimates were used to determine the strength and significance of the effects of each factor on brand image improvement. The significance level for all statistical tests was set at 0.05. Data analysis was performed using SPSS and AMOS software. The results of the analysis provided the basis for identifying the most important factors contributing to the improvement of brand image in the automotive industry and for developing practical recommendations for automotive companies operating in Tehran.

Findings and Results

The final analysis was conducted on data obtained from 384 automobile customers and potential buyers in Tehran. Among the participants, 214 respondents were male (55.7%) and 170 were female (44.3%). The age of participants ranged from 18 to 65 years, with a mean age of 36.42 years and a standard deviation of 9.84. In terms of age distribution, 102 participants (26.6%) were between 18 and 30 years old, 139 participants (36.2%) were between 31 and 40 years old, 91 participants (23.7%) were between 41 and 50 years old, and 52 participants (13.5%) were older than 50 years. Regarding educational level, 74 respondents (19.3%) had a diploma or associate degree, 168 respondents (43.8%) had a bachelor's degree, 117 respondents (30.5%) had a master's degree, and 25 respondents (6.5%) had a doctoral degree. In terms of automobile-related experience, 246 participants (64.1%) owned a domestic automobile brand, 88 participants (22.9%) owned a foreign automobile brand, and 50 participants (13.0%) were potential buyers who were actively comparing automotive brands at the time of data collection. Moreover, 273 respondents (71.1%) had used after-sales services at least once during the previous year, while 111

respondents (28.9%) reported no recent use of after-sales services. These characteristics indicate that the sample included a diverse group of customers with different levels of automotive ownership, brand experience, and exposure to automotive products and services in Tehran.

Table 1. Descriptive Statistics and Reliability of the Main Research Variables

Variable	Number of Items	Mean	Standard Deviation	Skewness	Kurtosis	Cronbach's Alpha
Product quality	4	3.91	0.67	-0.42	0.31	0.86
Safety and technical performance	4	4.08	0.62	-0.51	0.47	0.84
Design attractiveness	3	3.72	0.73	-0.28	-0.19	0.82
Innovation and technology	4	3.84	0.70	-0.36	0.12	0.85
Price fairness	3	3.21	0.81	-0.11	-0.52	0.80
After-sales service quality	5	3.38	0.79	-0.18	-0.43	0.87
Customer relationship management	4	3.47	0.76	-0.22	-0.31	0.84
Advertising and communication effectiveness	3	3.55	0.74	-0.25	-0.16	0.81
Social responsibility	3	3.29	0.82	-0.09	-0.48	0.79
Brand trust	5	3.66	0.71	-0.33	0.05	0.88
Perceived value	4	3.61	0.69	-0.30	0.08	0.85
Customer satisfaction	3	3.58	0.72	-0.27	-0.12	0.86
Brand image improvement	3	3.74	0.68	-0.39	0.24	0.89
Total questionnaire	48	3.62	0.59	-0.34	0.18	0.93

As shown in Table 1, the mean scores of the main research variables were above the midpoint of the five-point Likert scale, indicating that respondents generally evaluated the proposed factors as important contributors to automotive brand image improvement. The highest mean score was related to safety and technical performance ($M = 4.08$, $SD = 0.62$), showing that respondents considered technical reliability, driving safety, and performance-related characteristics as highly influential in shaping the image of automotive brands. Product quality also received a high mean score ($M = 3.91$, $SD = 0.67$), suggesting that customers strongly associated brand image with durability, manufacturing quality, mechanical reliability, and the overall quality of the automobile. Among the studied factors, price fairness had the lowest mean score ($M = 3.21$, $SD = 0.81$), although it remained above the theoretical midpoint, indicating that price-related perceptions were still relevant but were evaluated less favorably than quality, safety, innovation, and trust-related factors. After-sales service quality ($M = 3.38$, $SD = 0.79$) and social responsibility ($M = 3.29$, $SD = 0.82$) also showed relatively moderate scores, suggesting that these areas may represent important improvement opportunities for automotive companies. The skewness and kurtosis values of all variables were within the acceptable range, supporting the assumption of approximate normality. In addition, Cronbach's alpha coefficients ranged from 0.79 to 0.89 for the subscales, and the overall reliability coefficient of the questionnaire was 0.93, confirming that the measurement instrument had strong internal consistency.

Table 2. Exploratory Factor Analysis of Brand Image Improvement Factors

Extracted Factor	Number of Retained Items	Eigenvalue	Explained Variance (%)	Cumulative Variance (%)	Factor Loading Range
Brand trust	5	8.64	10.82	10.82	0.68–0.86
Product quality	4	5.12	8.36	19.18	0.64–0.83
Customer satisfaction	3	4.21	6.87	26.05	0.66–0.84
After-sales service quality	5	3.75	5.91	31.96	0.61–0.82
Safety and technical performance	4	3.12	5.34	37.30	0.63–0.81
Perceived value	4	2.89	5.02	42.32	0.60–0.79
Innovation and technology	4	2.47	4.83	47.15	0.62–0.80

Customer relationship management	4	2.21	4.57	51.72	0.59–0.78
Design attractiveness	3	1.96	4.23	55.95	0.61–0.77
Advertising and communication effectiveness	3	1.72	3.91	59.86	0.58–0.76
Price fairness	3	1.48	3.58	63.44	0.60–0.75
Social responsibility	3	1.31	2.91	66.35	0.57–0.74
Brand image improvement	3	1.17	2.49	68.84	0.65–0.83

The results of the exploratory factor analysis presented in Table 2 indicate that the data were suitable for factor extraction and construct identification. The Kaiser-Meyer-Olkin index was 0.914, which confirmed the adequacy of the sample size for factor analysis. Bartlett's test of sphericity was statistically significant ($\chi^2 = 6438.27$, $df = 1128$, $p < 0.001$), showing that the correlation matrix was appropriate for identifying latent factors. Based on eigenvalues greater than one, factor loadings, and conceptual interpretability, 13 factors were extracted from the questionnaire items. These factors together explained 68.84% of the total variance, which indicates a satisfactory level of explanatory power for the measurement structure. Brand trust explained the largest proportion of variance, followed by product quality, customer satisfaction, after-sales service quality, and safety and technical performance. This result suggests that customers' perception of automotive brand image is not formed by a single attribute, but rather through a combination of functional, emotional, relational, and experiential factors. All retained items had acceptable factor loadings, ranging from 0.57 to 0.86, and no item with a weak or ambiguous loading was retained in the final factor structure. Therefore, the exploratory analysis supported the multidimensional nature of brand image improvement in the automotive industry.

Table 3. Confirmatory Factor Analysis and Measurement Model Fit Indices

Fit Index	Obtained Value	Acceptable Criterion	Interpretation
Chi-square	1426.38	—	Significant but acceptable considering sample size
Degrees of freedom	929	—	—
χ^2/df	1.54	Less than 3.00	Good fit
Goodness-of-Fit Index	0.902	0.90 or higher	Acceptable fit
Adjusted Goodness-of-Fit Index	0.887	Close to 0.90	Acceptable fit
Comparative Fit Index	0.953	0.90 or higher	Good fit
Tucker-Lewis Index	0.947	0.90 or higher	Good fit
Incremental Fit Index	0.955	0.90 or higher	Good fit
Root Mean Square Error of Approximation	0.037	Less than 0.08	Good fit
Standardized Root Mean Square Residual	0.041	Less than 0.08	Good fit

As presented in Table 3, confirmatory factor analysis was used to evaluate the adequacy of the measurement model after the extraction of the main factors. The results showed that the measurement model had an acceptable and statistically defensible fit with the observed data. Although the chi-square statistic was significant, this result is common in models with relatively large samples and multiple observed variables; therefore, the ratio of chi-square to degrees of freedom was considered a more appropriate indicator of model fit. The obtained χ^2/df value was 1.54, which is below the recommended threshold of 3.00 and indicates good model fit. The comparative fit index, Tucker-Lewis index, and incremental fit index were all above 0.94, confirming that the proposed measurement model was superior to the independence model and adequately represented the covariance structure of the data. The goodness-of-fit index was 0.902, and the adjusted goodness-of-fit index was 0.887, both indicating an acceptable

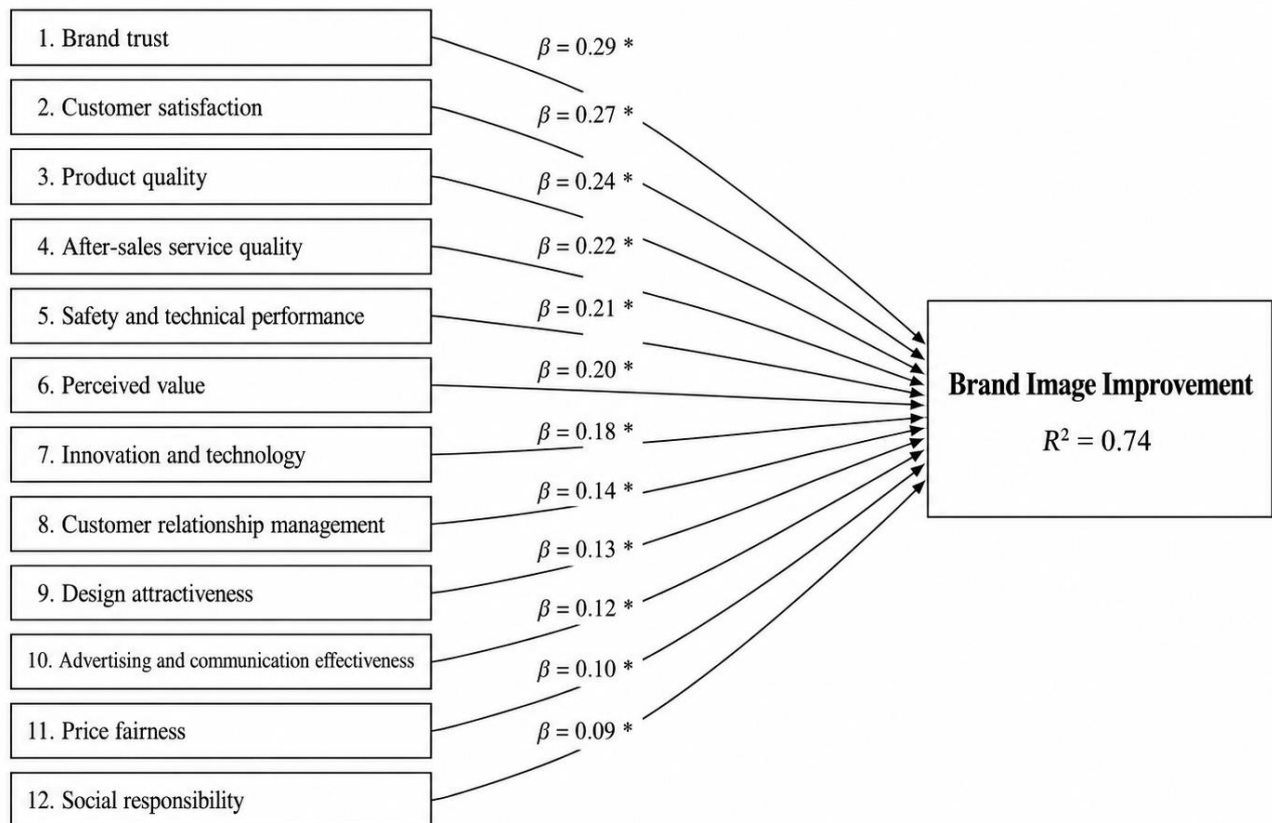
fit. In addition, the root mean square error of approximation was 0.037 and the standardized root mean square residual was 0.041, both of which were clearly below the acceptable threshold of 0.08. These findings confirm that the observed items were appropriate indicators of their respective latent constructs and that the measurement model provided a reliable basis for testing the structural relationships among the variables.

Table 4. Structural Equation Modeling Results for the Effects of Identified Factors on Brand Image Improvement

Predictor Variable	Unstandardized Coefficient	Standard Error	Standardized Coefficient	Critical Ratio	p-value	Result
Brand trust → Brand image improvement	0.34	0.052	0.29	6.54	<0.001	Significant
Customer satisfaction → Brand image improvement	0.31	0.055	0.27	5.64	<0.001	Significant
Product quality → Brand image improvement	0.28	0.056	0.24	5.00	<0.001	Significant
After-sales service quality → Brand image improvement	0.25	0.054	0.22	4.63	<0.001	Significant
Safety and technical performance → Brand image improvement	0.23	0.053	0.21	4.34	<0.001	Significant
Perceived value → Brand image improvement	0.22	0.058	0.20	3.79	<0.001	Significant
Innovation and technology → Brand image improvement	0.20	0.056	0.18	3.57	<0.001	Significant
Customer relationship management → Brand image improvement	0.16	0.060	0.14	2.67	0.008	Significant
Design attractiveness → Brand image improvement	0.15	0.058	0.13	2.59	0.010	Significant
Advertising and communication effectiveness → Brand image improvement	0.14	0.060	0.12	2.33	0.020	Significant
Price fairness → Brand image improvement	0.12	0.051	0.10	2.35	0.018	Significant
Social responsibility → Brand image improvement	0.10	0.047	0.09	2.13	0.032	Significant

The structural equation modeling results shown in Table 4 indicate that all identified factors had positive and statistically significant effects on brand image improvement in the automotive industry. Among the predictors, brand trust had the strongest direct effect on brand image improvement ($\beta = 0.29$, $p < 0.001$), demonstrating that customers' confidence in the credibility, honesty, reliability, and consistency of an automotive brand plays a central role in improving its image. Customer satisfaction was the second strongest predictor ($\beta = 0.27$, $p < 0.001$), indicating that positive customer experiences with products, services, and brand interactions substantially enhance the overall image of automotive companies. Product quality also had a strong and significant effect ($\beta = 0.24$, $p < 0.001$), confirming that customers evaluate automotive brand image largely through perceptions of durability, manufacturing standards, reliability, and long-term product performance. After-sales service quality ($\beta = 0.22$, $p < 0.001$) and safety and technical performance ($\beta = 0.21$, $p < 0.001$) were also among the most influential factors, showing that brand image is strengthened when customers perceive that companies provide dependable technical support, accessible services, safe vehicles, and satisfactory performance. Perceived value, innovation and technology, customer relationship management, design attractiveness, advertising and communication effectiveness, price fairness, and social responsibility also showed significant positive effects, although their standardized coefficients were relatively smaller. These findings suggest that automotive brand image improvement

depends on a coordinated combination of trust-building, product excellence, service quality, customer satisfaction, and value creation.



All displayed paths are statistically significant ($p < .05$). Standardized coefficients are shown.

Figure 1. Final Structural Model of Factors Affecting Brand Image Improvement in the Automotive Industry

The final structural model indicated that brand image improvement was directly explained by 12 major factors, including brand trust, customer satisfaction, product quality, after-sales service quality, safety and technical performance, perceived value, innovation and technology, customer relationship management, design attractiveness, advertising and communication effectiveness, price fairness, and social responsibility. The coefficient of determination showed that these factors collectively explained 74% of the variance in brand image improvement. This level of explained variance indicates strong predictive power and demonstrates that the proposed model provides a comprehensive explanation of how customers form and improve their perceptions of automotive brands. In the final model, brand trust, customer satisfaction, product quality, after-sales service quality, and safety and technical performance formed the strongest predictive cluster, suggesting that customers primarily improve their perception of an automotive brand when they experience reliability, technical confidence, satisfaction, and dependable service. The remaining factors, including innovation, perceived value, communication, design, price fairness, customer relationship management, and social responsibility, complemented the model by explaining additional cognitive, emotional, and social dimensions of brand image. Overall, the final model confirmed that brand image improvement in the automotive industry is a multidimensional process shaped by both tangible product-related characteristics and intangible relational and perceptual factors.

Discussion and Conclusion

The purpose of the present study was to identify and examine the factors affecting brand image improvement in the automotive industry from the perspective of automobile customers in Tehran. The findings showed that the proposed model had strong explanatory power and that the identified factors collectively explained 74% of the variance in brand image improvement. This result indicates that automotive brand image is not shaped by one isolated factor, but by a coherent set of product-related, service-related, relational, communicational, and social factors. In the final structural model, all proposed paths were positive and statistically significant, confirming that brand image improvement in the automotive industry is a multidimensional process. Among the examined predictors, brand trust, customer satisfaction, product quality, after-sales service quality, safety and technical performance, perceived value, innovation and technology, customer relationship management, design attractiveness, advertising and communication effectiveness, price fairness, and social responsibility all had significant effects on brand image improvement. Therefore, the results support the assumption that automotive companies must manage brand image through an integrated strategic approach rather than relying only on advertising, pricing, or product promotion.

The strongest predictor of brand image improvement was brand trust. This finding means that when customers believe an automotive brand is reliable, honest, consistent, and capable of fulfilling its promises, their perception of the brand improves significantly. In the automotive industry, trust is particularly important because automobiles are expensive, technically complex, and associated with long-term use, safety, maintenance, and financial risk. Customers usually cannot fully evaluate all technical aspects of a car before purchase; therefore, they depend heavily on the trustworthiness of the brand, the reputation of the manufacturer, and the credibility of previous customer experiences. This finding is consistent with the broader branding literature, which emphasizes that favorable brand associations and confidence in the brand strengthen customer-based brand value and create a more stable market position (14). It also aligns with research showing that electronic word of mouth affects brand image and purchase intention because customers rely on the experiences and judgments of others when evaluating brand credibility (6). In the automotive sector, customer trust is not built only by promotional messages; it is created through repeated evidence of product quality, technical reliability, honest communication, and effective post-purchase support.

Customer satisfaction was the second strongest predictor of brand image improvement. This finding shows that positive customer experiences with the vehicle, the dealership, the service process, and the company's response to customer needs can substantially enhance the image of an automotive brand. Satisfaction functions as a psychological confirmation that the customer made a correct choice, and this confirmation strengthens favorable brand associations. The result is consistent with studies indicating that service quality, customer value, customer satisfaction, customer relationship management quality, and brand image are closely connected to customer loyalty (3). It is also compatible with evidence from service-based industries showing that customer satisfaction mediates important relationships between organizational practices and customer loyalty, while brand image strengthens the overall effect of customer-oriented systems (4). In the automotive industry, satisfaction is not limited to the moment of purchase; rather, it emerges over time through driving experience, fuel consumption, technical performance, warranty support, repair costs, spare parts availability, and the quality of interaction with service centers. Therefore, companies that aim to improve brand image must treat customer satisfaction as a continuous strategic outcome.

Product quality also had a strong and significant effect on brand image improvement. This finding confirms that customers consider durability, mechanical reliability, manufacturing standards, material quality, performance stability, and low defect rates as central components of automotive brand image. In high-involvement markets, product quality becomes one of the most visible signals of brand competence. If customers experience frequent technical problems, high maintenance costs, or inconsistency between advertised quality and actual performance, the brand image is likely to decline. The finding is strongly supported by research in the automotive sector indicating that product quality plays an important role in the relationship between corporate social responsibility, corporate reputation, and brand image (2). In other words, even socially responsible or well-promoted brands cannot maintain a strong image if customers perceive their products as unreliable. The result also aligns with research on luxury automobile buying behavior, which suggests that brand image affects consumer decisions in the automobile market and that customers evaluate automotive brands through perceived quality, prestige, and performance-related meanings (1). Thus, improving brand image requires continuous attention to engineering quality, safety standards, manufacturing control, and consistency in product performance.

After-sales service quality was another significant predictor of brand image improvement. This result is highly meaningful in the automotive industry because the customer-brand relationship continues long after purchase. A vehicle requires maintenance, repairs, warranty services, parts replacement, technical inspection, and periodic support. Therefore, customers' perception of brand image is strongly affected by how the company manages post-purchase service encounters. If customers encounter delayed service, unavailable spare parts, high repair costs, poor complaint handling, or unprofessional service staff, their image of the brand may deteriorate even if the vehicle itself is acceptable. This result is consistent with the customer relationship and service quality literature, which emphasizes that service encounters and relationship quality influence satisfaction, loyalty, and brand-related evaluations (3, 4). It also supports the idea that brand image is produced through multiple customer touchpoints rather than only through product attributes or advertising messages (14). In automotive markets, after-sales service can become a decisive source of competitive advantage because it reduces ownership anxiety and strengthens long-term trust.

Safety and technical performance had a positive and significant effect on brand image improvement. This finding suggests that customers evaluate automotive brands not only through appearance and price, but also through the technical confidence they provide. Safety systems, braking performance, road stability, engine reliability, accident protection, fuel efficiency, and driving comfort contribute to the perception that a brand is professional, responsible, and technologically competent. This finding is compatible with the automotive branding literature, where brand image is strongly tied to functional and technical expectations (1). It also aligns with findings emphasizing that product quality and corporate reputation are important mechanisms in the formation of brand image in the automotive sector (2). In this regard, safety and technical performance are not merely engineering indicators; they are also symbolic indicators of brand responsibility. Customers often interpret technical reliability as evidence that the company respects consumer welfare and prioritizes long-term value over short-term sales.

Perceived value was also found to significantly improve brand image. This means that customers are more likely to evaluate an automotive brand positively when they believe that the benefits received from the product and services are appropriate in relation to the price paid, maintenance costs, quality level, and ownership experience. Perceived value is particularly important in markets where purchasing power, inflation, financing conditions, and repair costs influence customer decision-making. This result is consistent with research showing that customer

value is related to satisfaction and loyalty through customer relationship management quality and brand image (3). It is also supported by studies on brand equity and brand performance, which indicate that perceived performance and value-related judgments influence customer attitudes and behavioral intentions (13). In the automotive industry, perceived value does not necessarily mean low price; rather, it means a balanced perception that the vehicle, services, warranty, durability, and brand prestige justify the customer's investment.

Innovation and technology had a significant positive effect on brand image improvement. This finding shows that customers associate innovative automotive brands with modernity, competitiveness, technical capability, and future orientation. In today's automotive market, innovation is visible in areas such as smart features, digital platforms, safety technologies, hybrid and electric systems, improved fuel efficiency, design engineering, and customer-service technologies. This result is consistent with research on brand empowerment through open innovation, which indicates that innovation-oriented approaches can strengthen brand development and competitiveness (11). It also aligns with sustainable marketing research, because many technological innovations in the automotive sector are linked to environmental improvement, energy efficiency, and cleaner mobility (7). Therefore, innovation contributes to brand image by signaling that the company is not static, outdated, or reactive, but is actively improving its products and adapting to market and technological changes.

Customer relationship management had a significant effect on brand image improvement, indicating that systematic interaction with customers, proper complaint handling, personalized communication, follow-up services, and respectful treatment can strengthen brand perception. This result is consistent with evidence showing that customer relationship management and knowledge management are connected to customer satisfaction and loyalty, with brand image playing an important role in the relationship (4). It also aligns with studies emphasizing the connection between CRM quality, customer value, satisfaction, loyalty, and brand image (3). In the automotive industry, customer relationship management is especially important because purchase decisions are complex and ownership relationships are long-term. Customers expect companies to provide accurate information, transparent support, fast responses, and respectful service. When these expectations are met, the brand becomes associated with professionalism and reliability.

Design attractiveness also significantly improved brand image. This finding indicates that the visual, aesthetic, and symbolic dimensions of automobiles influence customer perception. Vehicle design communicates modernity, prestige, sportiness, elegance, practicality, or technological advancement. Even when customers value technical performance, they also respond to exterior design, interior comfort, dashboard layout, color options, and overall aesthetic harmony. This result is consistent with the view that brand image includes symbolic and cultural meanings, not merely functional attributes (12). It also aligns with research on luxury automobile consumers, where brand image is related to prestige, emotional appeal, and buying behavior (1). Therefore, design attractiveness should be understood as a strategic branding factor because it helps translate technical products into emotional and symbolic customer experiences.

Advertising and communication effectiveness had a positive and significant effect on brand image improvement. This finding indicates that clear, credible, consistent, and integrated communication can improve customer perceptions of automotive brands. The result supports previous research on integrated marketing communications in the automotive industry, which showed that integrated communication models can affect brand image and company financial performance (5). It is also consistent with the finding that electronic word of mouth affects brand image and purchase intention (6). In contemporary markets, automotive communication does not occur only through

formal advertising; it also includes social media, customer reviews, expert evaluations, dealership communication, and public relations. Therefore, brand image improvement requires consistency between what the company says and what customers actually experience.

Price fairness was also a significant predictor of brand image improvement. Although its effect was weaker than trust, satisfaction, and quality, it remained statistically meaningful. This finding indicates that customers evaluate automotive brands more positively when they believe pricing is reasonable, transparent, and consistent with quality and market conditions. Price fairness is especially important in markets where customers are sensitive to inflation, price fluctuations, financing conditions, and perceived imbalance between price and quality. The finding is compatible with research emphasizing perceived value and customer value as important components of customer loyalty and brand-related evaluation (3, 13). In automotive markets, unfair pricing can weaken trust and damage brand image, while transparent and value-based pricing can support customer confidence.

Social responsibility had a positive and significant effect on brand image improvement. This finding shows that customers increasingly consider corporate responsibility, environmental concern, ethical behavior, and social contribution when evaluating automotive brands. Previous studies have shown that corporate social responsibility and corporate image affect brand equity (8), and that corporate social responsibility perception influences brand equity through brand image in the automotive industry (9). The result also aligns with evidence that corporate social responsibility affects brand image in the automotive sector through corporate reputation and product quality (2). Furthermore, sustainable marketing practices have been found to influence loyalty through brand image (7), and green marketing strategy has been linked to the creation of green brand image (10). These findings suggest that automotive companies can no longer separate brand image from responsibility. Customers expect brands to show concern for safety, environmental protection, consumer rights, and social welfare.

Overall, the findings of this study demonstrate that improving brand image in the automotive industry requires a comprehensive and integrated managerial approach. The strongest factors were brand trust, customer satisfaction, product quality, after-sales service quality, and safety and technical performance, indicating that customers primarily improve their perception of automotive brands through direct evidence of reliability, satisfaction, quality, and service support. However, the significance of innovation, communication, design, price fairness, customer relationship management, perceived value, and social responsibility shows that brand image also depends on emotional, relational, symbolic, and social dimensions. Therefore, automotive companies should understand brand image as the cumulative result of all customer experiences and organizational signals. The findings are consistent with prior studies showing that brand image is influenced by quality, communication, social responsibility, sustainability, innovation, customer satisfaction, and customer value across different industrial and service contexts.

This study had several limitations that should be considered when interpreting the findings. First, the study was conducted only among automobile customers and potential buyers in Tehran, and the results may not fully represent the perceptions of customers in other cities or regions with different economic, cultural, and market conditions. Second, the study used a cross-sectional survey design, which means that the relationships among variables were examined at one point in time and causal interpretations should be made with caution. Third, the data were collected through self-report questionnaires, and respondents' answers may have been influenced by personal attitudes, recent experiences, social desirability, or temporary satisfaction and dissatisfaction with automotive brands. Fourth, the study focused on general automotive brand image improvement factors and did not compare domestic and foreign brands separately. Finally, although the model explained a substantial proportion of variance in brand image

improvement, other factors such as macroeconomic conditions, government policies, import restrictions, production capacity, media crises, and competitive market dynamics were not directly examined.

Future researchers are encouraged to examine the proposed model in other cities and provinces in order to compare customer perceptions across different geographic and socioeconomic contexts. It is also suggested that future studies use longitudinal designs to evaluate how brand image changes over time as customers gain more ownership experience with automotive brands. Comparative studies between domestic and foreign automotive brands can provide a deeper understanding of how customers evaluate quality, price fairness, trust, service, and innovation in different brand categories. Future research may also examine the mediating roles of brand loyalty, customer engagement, perceived risk, customer experience, and emotional attachment in the relationship between brand image improvement factors and customer behavioral intentions. In addition, qualitative studies using interviews with customers, dealership managers, marketing experts, and automotive industry specialists can help identify deeper contextual factors that may not be fully captured through questionnaires.

Automotive companies should improve brand image through an integrated strategy that combines product quality, customer trust, satisfaction management, technical performance, and after-sales service. Managers should prioritize reliable manufacturing, transparent warranty policies, accessible service centers, timely supply of spare parts, fair pricing, and effective complaint handling because these factors directly influence customer perceptions. Marketing departments should ensure that advertising messages are realistic, consistent, and aligned with actual customer experience, since exaggerated claims can weaken trust. Companies should also invest in innovation, modern design, digital customer services, environmental responsibility, and social responsibility programs to strengthen both functional and symbolic aspects of brand image. Finally, automotive companies should monitor customer feedback continuously through surveys, online reviews, service records, and social media analysis so that weaknesses in customer experience can be identified and corrected before they damage the brand image.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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