

Proposal of a marketing model to promote the acceptance of electric vehicles in Ocuilzapotlán, Tabasco

Propuesta de modelo de mercadotecnia para impulsar la aceptación de vehículos eléctricos en Ocuilzapotlán, Tabasco

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Abstract

This study proposes a marketing model aimed at promoting the acceptance of electric vehicles in Ocuilzapotlán, Tabasco, a suburban community characterized by short travel distances and growing environmental awareness. The research is based on a situational diagnosis that combines quantitative data obtained through surveys and qualitative analysis of local socioeconomic conditions. The methodology includes descriptive statistics, market perception analysis, and the design of a marketing mix focused on product characteristics, pricing strategies, distribution channels, and promotional actions adapted to the local context. The results identify cost, lack of information, and limited charging infrastructure as the main barriers to adoption. The proposed model integrates affordable financing schemes, strategic alliances, and educational campaigns to improve consumer acceptance. This research contributes to the development of localized marketing strategies that support sustainable mobility and the transition toward cleaner transportation systems in emerging urban contexts.

Resumen

El presente estudio propone un modelo de mercadotecnia orientado a impulsar la aceptación de los vehículos eléctricos en la comunidad suburbana de Ocuilzapotlán, Tabasco, caracterizada por trayectos cortos y un creciente interés por alternativas sostenibles. La investigación se sustenta en un diagnóstico situacional que integra datos cuantitativos obtenidos mediante encuestas y un análisis cualitativo del contexto socioeconómico local. La metodología contempla el análisis descriptivo de percepciones del mercado y el diseño de una mezcla de mercadotecnia enfocada en producto, precio, plaza y promoción, adaptada a las condiciones de la comunidad. Los resultados identifican el costo, la falta de información y la escasa infraestructura de recarga como las principales barreras para la adopción. El modelo propuesto incorpora esquemas de financiamiento accesible, alianzas estratégicas y campañas de sensibilización, contribuyendo al impulso de la movilidad sostenible a nivel local.

Proposal of a Marketing Model to Promote the Acceptance of Electric Vehicles in Ocuilzapotlán, Tabasco		
Objectives	Methodology	Contribución
— Analyze local market perception of electric vehicles	— Survey-based diagnosis	— Estrategia local de aceptación tecnológica
— Identify barriers to adoption	— Descriptive statistical analysis	— Impulso a la movilidad sostenible
— Design a marketing-based acceptance model	— Marketing mix (4P) design	— Modelo replicable en contextos suburbanos

Propuesta de Modelo de Mercadotecnia para Impulsar la Aceptación de Vehículos Eléctricos en Ocuilzapotlán, Tabasco		
Objetivos	Metodología	Contribución
— Analizar la percepción del mercado local sobre los vehículos eléctricos.	— Diagnóstico situacional mediante encuestas a la población.	— Propuesta de una estrategia de mercadotecnia localizada.
— Identificar las principales barreras para su adopción.	— Análisis estadístico descriptivo de las respuestas obtenidas.	— Impulso a la aceptación social de los vehículos eléctricos.
— Diseñar un modelo de mercadotecnia adaptado al contexto comunitario.	— Diseño de la mezcla de mercadotecnia (producto, precio, plaza y promoción).	— Aporte al desarrollo de la movilidad sostenible en comunidades suburbanas

Electric vehicles; Marketing model; Sustainable mobility

Vehículos eléctricos, Modelo de mercadotecnia, Movilidad sostenible

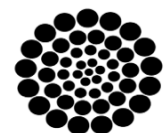
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Introduction

The rapid growth of urban mobility systems has created significant environmental, economic and social challenges, particularly in suburban contexts and developing regions. Typically, transport systems based on internal combustion engines contribute significantly to greenhouse gas emissions, intensive fossil fuel consumption and air quality deterioration (IPCC, 2021). In contrast, electric vehicles have positioned themselves as a viable technological alternative to drive the transition towards sustainable mobility schemes, in line with global climate change mitigation objectives (International Energy Agency, 2023).

However, despite technological advances and widely documented environmental benefits, the adoption of electric vehicles remains limited in many regions. In Mexico, and specifically in suburban communities such as Ocuilzapotlán, Tabasco, structural deficiencies persist related to the cost of acquisition, the lack of recharging infrastructure, and the limited information available to consumers. Although there are initiatives aimed at promoting electric mobility, these often lack a contextualised approach that considers the socio-economic and cultural characteristics of the local market.

The added value of this research lies in the proposal of a marketing model based on a situational diagnosis of the market, which allows for the identification of acceptance gaps, misperceptions, and economic limitations. Unlike other approaches focused exclusively on technological or energy aspects, this study incorporates a methodological framework from industrial management, integrating the marketing mix as an enabling mechanism for technological adoption. In this way, a strategy is proposed that aligns economic, informational, and social variables to strengthen the acceptance of electric vehicles.

The central problem addressed in this article is the low acceptance of electric vehicles in suburban communities, despite their potential to improve energy efficiency and reduce environmental impacts. The central hypothesis posits that a contextualised marketing model, based on market analysis and validated strategic criteria, can effectively contribute to increasing the acceptance and adoption of this technology.

Consequently, the aim is to demonstrate that marketing plays a key role in closing the gap between technological availability and social adoption. The article is structured as follows: the first section presents the contextual framework of sustainable mobility and the adoption of electric vehicles; the second section describes the methodology used and the variables analysed; the third section presents the results of the market diagnosis; the fourth section develops the proposed marketing model; and finally, the conclusions and possibilities for improvement are presented, as well as future lines of research.

1. Contextual framework of electric mobility

1.1 Global context of electric mobility

Globally, electric mobility has established itself as a key strategy for addressing the challenges associated with climate change, environmental pollution, and energy dependence on fossil fuels. The transport sector is commonly identified as one of the main generators of greenhouse gas emissions, which has prompted international organisations and national governments to promote cleaner and more efficient transport technologies. In this scenario, electric vehicles represent a technological alternative that contributes to reducing emissions and strengthening sustainable mobility systems.

Several countries have implemented public policies, tax incentives, and regulatory frameworks aimed at accelerating the adoption of electric vehicles. However, although these experiences have shown positive results in developed economies, their implementation has not been uniform. Significant gaps persist between regions, particularly in terms of charging infrastructure, economic accessibility, and social acceptance. Consequently, the success of electric mobility at the global level depends not only on technological advances, but also on the ability of markets to assimilate and adopt these innovations effectively.

1.2 National context of electric mobility in Mexico

In the national context, Mexico is in a transition phase towards more sustainable mobility schemes. Although progress has been made in the commercialisation of electric and hybrid vehicles, their share of the automotive market remains limited.

Ordinarily, the adoption of these technologies is concentrated in large metropolitan areas, where there are higher income levels, incipient recharging infrastructure and local incentive policies (INEGI, 2024).

However, at the country level, structural deficiencies persist in relation to the cost of purchasing electric vehicles, the limited network of charging stations and widespread ignorance of their economic and environmental benefits. Although institutional discourse promotes sustainable mobility, the absence of market strategies adapted to specific contexts limits the scope of these initiatives. Therefore, it is necessary to develop models that integrate economic, social, and consumer perception variables to strengthen technological acceptance in different regions of the country.

1.3 Local context of electric mobility in Ocuilzapotlán, Tabasco

From a local perspective, the community of Ocuilzapotlán, Tabasco, has particular characteristics that influence the adoption of electric vehicles. It is a suburban community with mobility patterns defined by short journeys, high local interaction, and a growing concern for more sustainable transport alternatives. However, although there is interest in electric mobility, significant gaps have been identified in terms of knowledge, cost perception and infrastructure availability.

According to the diagnosis carried out in the thesis, the acceptance of electric vehicles in Ocuilzapotlán is conditioned by economic, informational and cultural factors. The high initial cost is perceived as the main barrier, followed by the lack of clear information on the operation and maintenance of this technology. Additionally, the visible absence of charging stations generates uncertainty and mistrust among potential users. However, these limitations coexist with relevant opportunities, such as the adaptation of daily routes to the range of electric vehicles and the interest in reducing long-term expenses.

In this sense, the local context highlights the need for approaches that go beyond the technological offer and consider marketing strategies aimed at closing gaps in information, perception, and economic accessibility.

The analysis of Ocuilzapotlán provides the basis for a proposal for a contextualised marketing model, designed to align technological innovation with the real needs and expectations of the community.

2. Methodology

This research was developed using a descriptive and applied methodological approach, aimed at analysing the acceptance of electric vehicles in the community of Ocuilzapotlán, Tabasco. The methodological design is based on a diagnosis of the local market, which identified gaps in perception, knowledge and economic viability associated with this technology. Although there are previous studies on electric mobility, the approach adopted in this work focuses on market and marketing variables specific to the field of industrial management.

First, a situational diagnosis was carried out by applying structured surveys to community residents, with the aim of collecting quantitative information on mobility habits, level of knowledge, perception of costs and willingness to adopt electric vehicles. In general terms, these variables provide an understanding of the factors that influence consumer decision-making. However, to strengthen the validity of the analysis, the results were supplemented with a documentary review of national and international experiences related to the adoption of electric vehicles.

The variables analysed were defined in a linear and operational manner. The dependent variable corresponds to the acceptance of electric vehicles, understood as the consumer's willingness to consider their adoption. The independent variables include perceived cost, level of information, charging infrastructure, and perception of environmental and economic benefits. These variables were selected based on comparative criteria derived from previous studies and corroborated by the diagnosis applied in the local context. Subsequently, descriptive statistical analysis was used to interpret the data obtained, which allowed for the identification of patterns, trends, and deficiencies in market acceptance. Based on these results, a methodological framework was developed for the design of the proposed marketing model, integrating the marketing mix (product, price, place, and promotion) as an enabling system to improve technology adoption (Kotler & Armstrong, 2018).

Finally, the methodology adopted made it possible to link the results of the diagnosis with the proposed model, ensuring consistency between the data obtained and the strategies proposed. This guarantees that the proposed model is aligned with the actual conditions of the context analysed and contributes effectively to improving the acceptance of electric vehicles in the community studied.

3. Results

3.1 Perception and knowledge of electric vehicles

The results of the diagnosis show that the level of knowledge about electric vehicles in the community of Ocuilzapotlán is limited. Respondents commonly associate this type of technology with environmental benefits; however, they have gaps in their understanding of how it works, its actual maintenance costs, and its useful life. Although there is a generally positive perception of sustainable mobility, this does not directly translate into a clear intention to adopt it.

Additionally, it was identified that a significant portion of the population obtains its information through informal sources, which contributes to the persistence of misperceptions. In this sense, the results confirm the existence of information gaps that negatively influence the acceptance of electric vehicles, affecting the validity of purchasing decisions based on incomplete information.

3.2 Economic barriers and perceived accessibility

In relation to economic factors, the results show that the initial purchase cost is perceived as the main barrier to the adoption of electric vehicles (Lutsey & Nicholas, 2019). Although some respondents recognise the long-term economic benefits, such as savings on fuel and maintenance, the initial investment continues to be a determining factor in decision-making.

On the other hand, it is observed that the lack of accessible financing options limits the perceived viability of this technology. These findings identify structural deficiencies in the local market, where the absence of flexible economic schemes reduces product acceptance.

Consequently, the results corroborate that financial accessibility is a critical element in improving adoption outcomes.

3.3 Charging infrastructure and conditions of use

With regard to infrastructure, the results indicate that the perception of an insufficient network of charging stations generates uncertainty among potential users. Although most daily trips in the community are short distances and compatible with the range of electric vehicles, the visible absence of infrastructure reinforces the perception of risk associated with their use.

However, the data also show that there is a significant opportunity for the development of basic infrastructure at the local level, particularly in strategic locations. This result highlights a gap between actual conditions of use and consumer perception, which can be addressed through appropriate information and planning strategies.

3.4 Willingness to adopt and acceptance factors

In terms of willingness to adopt, the results reflect a cautious attitude on the part of respondents. Although there is interest in more sustainable transport alternatives, most participants expressed doubts related to cost, infrastructure and technological reliability. However, it was found that acceptance increases when scenarios with economic incentives, accessible financing and more information available are presented. These results confirm that the acceptance of electric vehicles does not depend exclusively on technology, but on a set of economic, informational, and contextual factors (Rogers, 2003). In this sense, the data obtained allow us to identify areas of opportunity for the design of marketing strategies aimed at improving adoption.

3.5 Summary of results and gaps identified

In general, the results of the diagnosis allow us to identify clear gaps in the local market related to knowledge, economic accessibility, and perception of infrastructure. Although the community has favourable conditions for electric mobility, such as short journeys and a growing willingness to adopt sustainable alternatives, these advantages have not been effectively capitalised on.

Consequently, the results corroborate the need for a marketing model that functions as an enabling system, capable of aligning product characteristics, price, distribution, and promotion with the real expectations and needs of the market. This synthesis serves as the basis for the development of the proposal presented in the following section.

Box 1

Table 1

Results of the diagnosis on the acceptance of electric vehicles in Ocuilzapotlán, Tabasco

Dimension analysed	Key findings	Implications for acceptance
Knowledge about electric vehicles	There is limited knowledge about the operation, actual costs, and maintenance of electric vehicles.	Information gaps that reduce consumer confidence and affect decision-making.
Environmental awareness	The environmental benefits of electric vehicles are generally recognised.	There is a favourable basis for environmental awareness campaigns.
Economic barriers	The initial cost is perceived as the main barrier to adoption.	Need for affordable financing schemes and pricing strategies.
Recharging infrastructure	Perceived as insufficient or non-existent at the local level.	It generates uncertainty and mistrust regarding the everyday use of electric vehicles.
Readiness for adoption	Moderate interest conditional on economic incentives and clear information.	Opportunity for marketing strategies focused on promotion and education.

Source: Vidal Reyes 2025

4. Proposed Marketing Model for the Acceptance of Electric Vehicles

The proposed marketing model is based on the results of the diagnosis carried out in the community of Ocuilzapotlán, Tabasco, which identified gaps related to product knowledge, economic accessibility and infrastructure perception. Based on these findings, a strategic framework is proposed that integrates the marketing mix (product, price, place, and promotion) as an enabling system to improve the acceptance and adoption of electric vehicles in a suburban context.

4.1 Product strategy

From a product perspective, the model proposes emphasising the functional characteristics and tangible benefits of electric vehicles that are relevant to the local context. Consumers typically associate this type of technology with high costs and technical complexity; however, the diagnosis identifies the need to clearly communicate aspects such as adequate range for short journeys, low maintenance costs and system reliability.

It also proposes that the product be presented as an everyday mobility solution, aligned with the actual conditions of use in the community. This strategy seeks to reduce the perception of risk and strengthen the product's validity as a viable alternative to internal combustion vehicles.

4.2 Pricing strategy

In relation to price, the model identifies the initial cost as the main economic barrier to adoption. Therefore, it is proposed to implement affordable pricing schemes through alternatives such as leasing, cooperative purchasing, and medium-term financing (Gaytán Cortés, 2020). Although the purchase price represents an immediate obstacle, these mechanisms allow for the redistribution of costs and improve the perception of accessibility.

Complementarily, it is proposed to highlight the long-term economic benefits associated with the use of electric vehicles, such as savings in fuel and maintenance. This pricing strategy seeks to align the consumer's economic perception with the real benefits of the product, contributing to improved acceptance outcomes.

4.3 Place strategy (distribution)

The placement strategy aims to facilitate access to the product and reduce barriers associated with availability. In this regard, the model proposes the use of local points of sale, alliances with regional distributors, and the implementation of community demonstration schemes. Although the charging infrastructure is limited, the diagnosis shows that local mobility patterns allow for the initiation of domestic or semi-public charging solutions.

In addition, the strategic location of charging points in high-traffic areas is proposed, which would help improve the perception of the system's availability and reliability. In this way, the distribution strategy acts as an enabler for technological adoption.

4.4 Promotion strategy

Finally, the promotion strategy is conceived as a key component in closing the identified information gaps. The model proposes information and awareness campaigns aimed at explaining the operation, economic and environmental benefits, and actual conditions of use of electric vehicles. Although there is interest in sustainable alternatives, the lack of clear information limits acceptance. The use of local media, community workshops, and practical demonstrations is suggested as promotional tools. These actions strengthen consumer confidence and improve the information literacy necessary for decision-making. Consequently, promotion becomes a central mechanism for improving social acceptance and validating the proposed model.

Box 2

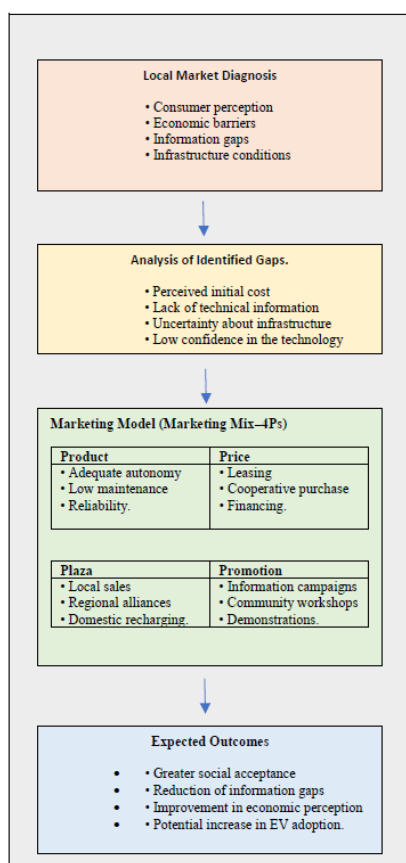


Figure 1

Diagnosis of the local market and the proposed marketing model

Source: Vidal Reyes 2025

5. Conclusions

This research demonstrated that the acceptance of electric vehicles in the community of Ocuilzapotlán, Tabasco, does not depend exclusively on technological availability, but rather on a set of economic, informational, and contextual factors that influence consumer decision-making. Based on the diagnosis, significant gaps were identified in terms of knowledge, perception of initial cost and uncertainty regarding charging infrastructure, which limit the adoption of this technology in suburban contexts.

The results confirm that, although there is a positive perception of the environmental benefits of electric vehicles, this does not directly translate into a clear intention to adopt them. However, it was found that willingness to consider this technology increases when accessible financing schemes, clear information strategies, and distribution alternatives adapted to the local context are proposed. In this sense, marketing is consolidated as an enabling element to close the gap between technological innovation and social acceptance.

The proposed marketing model coherently integrates the variables identified in the diagnosis and articulates the marketing mix as a strategic system aimed at improving acceptance results. Unlike approaches focused solely on technical or energy aspects, this proposal emphasises the importance of aligning the product, price, place and promotion with the real needs of the local market, strengthening the validity of the model and its applicability in communities with similar characteristics.

In terms of possibilities for improvement, there is a recognised need for further longitudinal studies to evaluate the impact of the proposed model in the medium and long term. It is also relevant to extend the analysis to other suburban contexts in southeastern Mexico in order to corroborate the replicability of the model and adjust its components according to the particularities of each region. Similarly, the incorporation of local public policies and institutional alliances could enhance the effects of the model and contribute to the consolidation of more sustainable mobility systems.

Finally, it is concluded that electric mobility can become a driver of change in suburban communities if it is promoted through contextualised, inclusive marketing strategies that are aligned with the socio-economic conditions of the environment. The proposed approach offers a methodological and strategic basis for strengthening the adoption of electric vehicles and contributing to the development of more efficient and sustainable transport systems.

Annexes

Operational definition of the study variables

This annex provides an operational description of the variables considered in the research, with the aim of strengthening the methodological validity of the study and facilitating understanding of the marketing model proposed for the acceptance of electric vehicles in the community of Ocuilzapotlán, Tabasco.

Box 3

Table 2

Operational definition of study variables

Variable	Variable type	Operational definition	Measurement scale
Acceptance of electric vehicles	Shop assistant	Degree of consumer willingness to consider adopting an electric vehicle as an alternative for everyday mobility.	Ordinal scale (Low, Medium, High)
Knowledge about electric vehicles	Independent	Level of information possessed by consumers regarding the operation, maintenance, and benefits of electric vehicles.	Ordinal scale
Perceived cost	Independent	Consumer perception of the purchase price and costs associated with using an electric vehicle.	Ordinal scale
Perceived charging infrastructure	Independent	Consumer perception of the availability and accessibility of charging stations in their environment.	Ordinal scale
Perception of environmental benefits	Independent	Consumer assessment of the positive impact of electric vehicles on the environment.	Ordinal scale
Willingness to finance	Independent	Level of consumer openness to using financing, leasing or cooperative purchase schemes to acquire an electric vehicle.	Ordinal scale
Influence of promotional information	Independent	Degree to which information received through campaigns or media influences the intention to adopt electric vehicles.	Ordinal scale

Source: Vidal Reyes 2025

Disclosures

Conflict of interest

The authors declare that they have no conflicts of interest. They have no known competing financial interests or personal relationships that could have appeared to influence the article reported in this paper.

Contribution of authors

Vidal-Reyes, Laura: Contributes with the project idea and research development.

Javier Gerónimo, Zinath: Contributes with research development and data analysis.

Reyes-Osorio, Yaitla Aitza: Contributed to the review and editing of the manuscript.

Villanueva Guzman, Jorge Cein: Contributed to the research method and data analysis.

Availability of data and materials

The datasets used or analysed during the present study are available from the corresponding author upon reasonable request.

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Abbreviations

INEGI National Institute of Statistics and Geography

ODS Sustainable Development Goals

References

Background

International Energy Agency. (2023). [Global EV Outlook 2023: Catching up with climate ambitions.](#)

Intergovernmental Panel on Climate Change. (2021). [Climate Change 2021: Mitigation of Climate Change](#) (AR6 Working Group III).

Basics

Instituto Nacional de Estadística y Geografía. (2024). [Registro administrativo de la industria automotriz de vehículos ligeros](#). INEGI.

Kotler, P., & Armstrong, G. (2018). [Principles of marketing](#) (17th ed.). Pearson Education.

Rogers, E. M. (2003). [Diffusion of innovations](#) (5th ed.). Free Press.

Support

Gaytán Cortés, J. (2020). [Indicadores financieros y económicos: El plan de negocios y la rentabilidad](#). *Mercados y Negocios*, 21(42), 1–18.

Discussion

Lutsey, N., & Nicholas, M. (2019). [Update on electric vehicle costs in the United States through 2030](#). International Council on Clean Transportation.