2-14-2024

Raising Public Awareness of Electric Vehicle Technology to Increase Sales

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2024

Abstract

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MSW, Rutgers University, 1979

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Abstract

In the United States, transportation is critical to economic viability and growth. Electric vehicle (EV) technology may provide an essential solution to rising environmental issues; however, public awareness of electric vehicle technology is low. Grounded in advantage theory, the purpose of this qualitative multiple-case study was to explore sales and marketing strategies used by business owners to educate the public on EV technology to expand sales and market share. Participants included 11 EV business owners who had been in business for at least 5 years in the Philadelphia metropolitan area; each company had a marketing budget and formulated approach to marketing resource utilization. Data were collected using semi-structured interviews, websites, and social media accounts. Using Yin's five-step data analysis process, four themes emerged: (a) marketing and advertising budgets, (b) manufacturers' assistance, (c) consumer awareness, and (d) government resources. A key recommendation is for EV business owners to use social media channels in their marketing strategies to share with existing and potential customers informative and visually appealing content about electric vehicles such as videos, images, and articles. The implications for positive social change include the potential for convenient and automated public transportation services, economic development opportunities from vehicle charging convenience, workforce expansion, and lower greenhouse gas emissions.

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Dedication

I dedicate this doctoral study to my wife, Dolores. As I traversed the various experiences of the doctoral journey, your patience and sacrifice proved to be an invaluable source of inspiration and strength. Without your unwavering support, this achievement would not have been possible. I am extremely fortunate and grateful to have your love and support throughout the vicissitudes of my doctoral journey.

Acknowledgments

I would like to thank my committee Chair, Dr. James Glenn, for his overall guidance and sharing of knowledge about the many potential challenges of the doctoral journey. His professional expertise, unwavering support, consistent encouragement, and mentorship inspired me and helped me surmount many of the challenges I experienced during my doctoral journey. I am also indebted to my second committee member, Dr. Janet Booker; she expanded my understanding of academic writing. Her persistence, patience, and meticulous feedback on my document drafts were inextricable and invaluable factors in my efforts to comply with doctoral writing requirements, which to help me make important transformative changes in my writing style. The entire doctoral team taught me a renewed respect and appreciation for academic writing and the academic culture and ethos. I am deeply grateful and indebted to my entire doctoral committee, as well as the readily accessible and informed teams in the library, writing center, and other important systems of support established by Walden University to assist and facilitate the development and emergence of future doctoral leadership.

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Section 1: Foundation of the Study

Background of the Problem

Transportation is a key factor in the energy consumption equation. For example, in the United States, 28% of the total energy produced is used to move people and goods. Further, personal transportation uses 60% of the 28% of energy consumed (Academies of Science-Engineering-Medicine, 2015). Given increasing air and water pollution, electric vehicles could be instrumental in facilitating a transition to sustainable forms of commercial and personal transportation. The first step is to convince the driving public of the reliability and practicality of EV technology, and its competitive parity with ICE technology. It seems fortuitous that the use of hybrid, plug-in hybrid, and battery electric vehicle sales have risen steadily over the past 14 years (U.S. Department of Transportation, 2013).

In a recent study, it was determined that electric and hybrid electric vehicles sustained relatively low market share over a decade of sales, suggesting that current EV, HEV, and PHEV products are not competitive with ICE (internal combustion engine) products, and hence they do not appeal to large segments of the driving public (Lia, 2013).

The fact that sales are increasing suggests a growing awareness and acceptance of EV technology; conversely, the lack of growth in market share seems to signal resistance to building toward full acceptance of the technology, which could be measured by a larger market share. New information obtained from EV business owners could provide

solutions for improved management of marketing, technical designs, manufacturing processes, customer service programs, and public infrastructure (Horn & Rick, 2010).

Problem and Purpose

From early 2011 up to 2023, electric vehicle (EV) sales in the United States have grown steadily, but with insignificant gain in market share (Rietmann et al., 2020). Electric vehicle sales for this period were flat at 2.2% or less of total U.S. auto sales (U.S. Energy Information Administration, 2018). The general business problem is that some EV retailers are experiencing low vehicle sales due to inadequate education about EV advantages and benefits, leading to lower market share and profitability (National Academies Press, 2010). The specific business problem is that some EV dealership owners lack sales strategies to educate and inform consumers about EV technology to improve profitability.

The purpose of this qualitative multiple-case study was to explore sales strategies EV dealership owners use to educate and inform consumers about EV technology to improve profitability. My case population consists of five EV retailers who manage successful EV businesses in the Philadelphia PA metropolitan area. The implications for social change include increased social mobility and independence in general for all classes of the driving public, and special-needs consumer groups experiencing physical or social disabilities could benefit from self-driving EV technology. Furthermore, expansion of sales may result in higher employment, providing more taxes to state and local communities and leading to a higher quality of life for all in those communities.

Nature of the Study

I used a qualitative method to explore successful sales strategies for making consumers aware of EV technologies. The rich and holistic character associated with qualitative research can support the discovery of multiple dimensions comprising sales strategies used by retail owners to make consumers aware of EV technology (Tight, 2017). By contrast, quantitative research focuses on the examination and testing of relationships among variables. For example, a quantitative approach could be used to predict whether a sale completed represents a new or repeat customer; however, addressing this outcome would not provide any information about sales strategies used to attract new customers. Furthermore, a mixed method approach may be time-consuming, present complexity, and require time and financial resources beyond those necessary to address the purpose of my study. A qualitative research approach is appropriate for exploring problems that can later become subject matter for quantitative or a mixed-method approach (Tight, 2017).

I selected a multiple-case study design. A multiple-case study design is suitable for in-depth exploration of a situation problem, process, or population (Denzin & Lincoln, 2000). A phenomenological design is not suitable for this study because it represents a detailed (contextual) explanation of the meanings of individuals' lived experiences (Gallegher & Francesconi, 2012). Similarly, a narrative approach is not suitable because the relevance of participants' stories is not relevant to addressing my study's focus (Escalas, 2007).

Research Question

What sales strategies do EV retail owners use to educate and inform consumers about EV technology to improve profitability?

Interview Questions

1. Please identify expenses in your sales budget that represent resources allocated to strategies used to make consumers aware of EV technologies.
2. What marketing channels does your company use to produce leads for consumers who may be interested in purchasing an electric vehicle?
3. How does your company respond to sales leads received?
4. Based on your experience, what advertising strategy (or strategies) have been responsible for most of your EV sales?
5. What, if any, strategies do you use to increase consumer awareness of EV technology to increase EV sales?
6. What EV technology changes have influenced you to update consumer education information for marketing and sales programs?
7. What sales strategies do you use to communicate EV technology changes to your target market for EV sales?
8. What EV education information is provided as a part of the sales program?
9. What information can you share that was not already covered about your sales strategies for EV consumer education?

Conceptual Framework

The conceptual framework for this study is resource advantage (RA) theory. Hunt (1994) identified RA theory as an evolutionary, disequilibrium-provoking, process theory of competition, where innovation and organization learning are endogenous characteristics. The central question of this study explores resources used by retail owners to educate consumers about EV technology and its benefits. Resource advantage theory defines resources to include customer relationships and knowledge from consumers and competitors.

According to Morgan and Hunt (1994), RA theory contains nine foundational premises: (a) demand is heterogeneous across and within industries, and it is dynamic; (b) consumer information is imperfect and has a cost; (c) human motivation is oriented to seeking self-interest; (d) the firm has maximum profit as its prime objective; (e) company information is imperfect and has a cost; (f) the firm's resources are multifaceted; (g) resources are heterogenous and imperfectly mobilized; (h) the function of management is to perfect and guide strategy development and implementation; and (i) competition is disequilibrium-provoking and dynamic, and innovation is integral.

In traditional discussions about the economics of markets, explanations about economic production means are delimited to tangible resources such as machines and labor (Makowski, 2001). In contrast, Hunt (2015) advocated using resource advantage theory to define resources as tangible and intangible, including intelligence a company may gain from competition and customers. Because of this difference in categorizing production resources, the resource advantage perspective can be applied to a wide range

of unique situations consistent with market conditions required to explore the comparative advantage or disadvantage of low consumer awareness of EV technology and products relative to marketplace positioning.

Operational Definitions

Consumer Attitudes: Resistance to new technologies is considered unproven (Egbue et al., 2012).

Consumer Awareness: Demonstrable behavioral awareness by persons who are environmentally conscious, and who exhibit awareness of how to use electric and hybrid vehicle technologies (Morgan, 2010).

Electric Vehicle Technology: Vehicle technology that has no emissions, and requires no gas, or oil changes (Segal, 1994).

Marketing Strategy: An overall approach used by a company to encourage electric vehicle (EV) sales (Xu, 2011).

RA Theory: An evolutionary, social, and economic process theory of competition that is interdisciplinary, as developed in the literature, and draws historically on numerous economic theories and research traditions (Hunt, 2010).

Tangible Resource: A traditional factor used in economic equations, and that can be differentiated (Hunt, 2015).

Intangible and Intangible Resources: In RA theory, tangible and intangible resources are entities used by a firm to produce a market offering. Such resources may be classified as legal, financial, organizational, human, and entrepreneurial (Hunt, 2015).

Assumptions, Limitations, and Delimitations

Assumptions, limitations, and delimitations are constraints on the project research process, methodological choices, ethical requirements, operating parameters, and other logistical, methodological, and administrative challenges that may impact the research project process and outcomes. Such potential obstacles must be presented to the audience as matters that may affect the research process as well as the outcome.

Assumptions

Assumptions are concepts believed to be true by the researcher without substantial proof (Bloomberg & Volpe, 2016). The first assumption is that retail owners participating in the study will answer honestly. The second assumption is that electric vehicle retailer partnerships with electric utilities and the government may diminish resistance by consumers to EV technology adoption. The third assumption is that public investment in recharging technology may increase consumer confidence in EV technology. The fourth and final assumption is that expanded public investment in the education of consumers about air pollution, and how internal combustion engine (ICE) technology contributes to reduced air quality, may positively impact electric vehicle sales.

Limitations

Limitations are a threat to the validity of a study beyond the control of the researcher (Tight, 2017). The sample size, 11 cases, is a key limitation of this multi-case study project. Another limitation is that participants may limit the ability to substantiate the effectiveness of strategies used to improve consumer awareness of electric vehicle

(EV) technology. Another limitation is that customer information is unavailable to confirm participant accounts about customer feedback.

Delimitations

Delimitations are parameters on the scope of the study that alert readers to what the research is not going to do (Bloomberg & Volpe, 2016). In this multi-case study, I cannot provide exact efficacy on participant strategies towards educating consumers about the benefits and shortcomings of EV technology. Data collected through the study, however, may be used to support future research efforts.

Significance of the Study

The significance of this study is to explore strategies used by retail owners to provide consumer information about EVs and to increase electric vehicle sales. The outcomes of this study may provide valuable information to be used in improving consumer education strategies to harness increased sales and profitability. The study may contribute to an expanded understanding of the role and function of consumer awareness in driving and expanding electrical vehicle sales.

Contribution to Business Practice

The findings of this study may provide new information about strategies used by EV dealerships to educate consumers on EV technology to improve sales. This current information can be used to improve sales strategies used to make consumers aware of EV technology that may lead to increased EV sales.

Implications for Social Change

The potential for a significant increase in EV sales could produce a corresponding decrease in air pollution contaminants while supporting the economic expansion of renewable transportation technologies and related supply-chain industries. Given the nature of EV technology (integrated functionality, self-driving units, etc.), expanded consumer sales could provide increased mobility for the disabled, elderly, and certain special needs groups, as well as expanded general convenience to all EV consumers (Rietmann et al., 2020). Since toxic emissions from electric vehicles are zero, increasing the use of electric vehicles should improve air quality for the public (Donikini, 2013). Moreover, the replacement of gasoline-powered vehicles with electric vehicles significantly reduces urban heat intensity (Kolbe, 2019). Healthcare cost savings could be another beneficial outcome of lower emissions of airborne pollutants (Becker & Sidhu, 2014).

A Review of the Professional and Academic Literature

My literature review starts with an examination of how consumer awareness informs the strategies used by business owners to influence and drive purchasing decisions about electric vehicles. I then perform a critical review of the extant literature on the conceptual framework. I subsequently discuss RA theory and its relevance to strategies used by retail owners to sell electric vehicles (Hunt, 2015). I also provide a review of contrasts with RA theory, Information used in my review centered on the research question: What sales strategies do EV retail owners use to educate and inform consumers about EV technology to improve profitability? Books, government studies,

and reports, along with peer-reviewed journals and important seminal references, were used to compile this literature review.

This review documents significant growth milestones of EV product offerings while exploring how consumer awareness has historically and continues to influence EV sales and the incremental growth of related market share, relative to how retail owners use organization resources in sales strategies. The review also includes an account of EV retail owners' market response to the development of the internal combustion engine (ICE), and how the growth of consumer preferences for the ICE vehicle determined historic growth paths for both transport technologies. I explore how owner strategies can be used to inform consumers, and how informing consumers about EV technologies may build interest and confidence in EV products and services.

Literature Review Search Strategy

I explored a range of sources on EV market development, major competition, consumer purchase behavior, and strategies used by retail owners to encourage sales and increase market share. Sources include Google Scholar, ProQuest, EBSCO Discovery Service, EBSCO eBooks, the Market Share Reporter, and Thoreau Multi-database, Walden University Library Database resources, such as Business Market Research Collection, Business Source Complete, Computers and Applied Sciences Complete, ERIC, IEEE Xplore Digital Library, and various article and journal sources, along with private company and industry trade websites. I have used the chronological baseline to explore the strategies EV owners used to influence consumer awareness that may influence and determine EV sales (U.S. Department of Transportation, 2014).

Discovery research activities are guided using keywords and terms including *electric vehicle sales and market share, electric vehicle history, electric vehicle range, electric vehicle mobility, electric vehicle competition, transportation technology, transportation history, transportation culture, and transport touring, the electric vehicle*, and the *internal combustion engine*. All keywords and terms are inspired by the research question: What sales strategies do EV retail owners use to educate and inform consumers about EV technology to improve profitability? Search terms used include descriptions and keywords like *electric vehicle sales strategy, consumer behavior, and electric vehicle sales, EV retail owner strategies to boost sales*, and *EV retail owner's consumer education strategies*.

University Program Compliance Information

As shown in Table 1, the literature review contains 169 research sources; most of the references are from peer-reviewed sources, 85%.; and 80% of sources fall within the 5-year compliance window stipulated by the university. Of the peer-reviewed sources included in the study, 27% were published between 2018 and 2023.

Table 1

Compliance Source Information

Reference Classification	Number	Percent
Overall	95	100%
Peer-Reviewed	81	85
5-Year compliance	76	80

Resource Advantage Theory

The central question of this study explores resources used by retail owners to educate consumers about EV technology and its benefits. Therefore, I selected RA theory

as the conceptual framework for this study. RA theory defines resources to include customer relationships, knowledge from consumers and competitors, and other key factors required to produce and sell services and products, along with resources needed to maintain and grow a customer base and market share, including innovation, management decisions, and information gathered by the company about customer self-interest, and how it drives and informs purchasing decisions (Hunt, 2002). RA theory incorporates nine (9) premises in the foundation. Moreover, the foundation characterizes the logic of the theory. It is a general theory of competition. As competition is a property of the marketing mix, Hunt (2015) argues that RA theory is a general theory of marketing.

The Foundational Premises of RA Theory

Heterogenous Demand Theory (P_1): The premise is that demand for a product or service is driven by a firm's ability to establish a relationship with a consumer market, and an ability to sustain and grow that relationship over time, and hence, to capitalize on that relationship by sustaining customers and maximizing market share.

Consumer information is imperfect, and it has a cost (P_2): Consumer information changes with market conditions and offerings. So, business owners must be acutely aware of consumer preferences to gain and sustain a competitive market position. Obtaining information on customers and potential customers requires the expenditure of financial and other organizational resources to be successful (Rae, 1955).

Human motivation is oriented to seeking self-interest (P_3): RA theory purports to explain why consumers display loyalty to certain brands. Satisfaction is tied to perceptions of quality, dependability, and reliability, as well as purchasing habits It was

reported in a recent study that consumers focus more on the brand messaging and product functionality in purchasing behavior (Hung & Shih, 2019).

The firm has maximum profit as its prime objective (P_4): In an academic discussion of business organizations, Hunt (1978) purports that the primary purpose for the existence of a profit entity is to achieve a state of maximum profit.

- Company information is imperfect and has a price (P_5): Economic determinism is a theory that represents thinking about what drives a company to produce and thrive. Like consumer information, company information is a scarce resource, it is very often process-dependent, and it must be aligned with customer demand for products to facilitate the proper use of information in competition planning (Sicilia, 1993).
- The firm's resources are multi-faceted (P_6): According to Hunt (2015), organization resources available for competition are financial, legal, human, organization, information, and relational. Unlike the theory of perfect competition, resources include both tangible and non-tangible assets, all of which are used in the formulation and execution of competitive strategy (Hunt, 2002).
- Resources are heterogeneous and imperfectly mobile (P_7): Preferences tastes, and resources are imperfectly mobile and must be aligned selectively in competition to manufacture products that match identified consumer tastes and preferences.
- The function of management is to perfect and guide strategy, development, and related implementation (P_8): The responsibility of management is to recognize

the companies' position in the marketplace and to use that knowledge to position the company for market dominance and maximum profitability. This position is expanded from traditional thinking about management under a perfect competition scenario, where management is perceived in a more limited capacity, where resources being deployed are fixed assets, and production is determined by a calculus defined within those physical parameters (Hunt, 2015).

- Competition is disequilibrium-provoking, and innovation is integral (P_9): Markets are volatile environments that are always dynamic. Therefore, leadership must be engaged and learn about the impact of constant changes in the marketplace. Consequently, the motivation to obtain maximum profit is not sufficient to calibrate a winning strategy. Innovation through entrepreneurial acts and thinking is the connector strand that stabilizes another superior market position company pursuing maximum profit and market dominance (Hunt, 2002).

These nine premises represent a basis for the systemization of RA theory. According to Hunt (2015), theories must contain generalizable statements that are empirically testable. General theories are different from other ordinary theories in that they explain and predict more phenomena, they accommodate other theories and generalizations or theoretical frameworks, and general theories are characterized by a high degree of abstraction.

The Evolution of RA Theory

RA theory is an outgrowth of the historical controversies engaged around the definition of marketing. What is marketing? Is marketing an art or science? These

questions have been explored from the perspective of whether marketing is an art, science, or both (Robertson, 1974). The controversy raged for several decades after an article published by the American Marketing Association (AMA) in 1945 purporting marketing as a science. Early discussions suggested that marketing has evolved from economics, scientific management, and psychology. RA theory is a blend and outcome of these discussions and reflects the required consistency of a general theory of marketing (Hunt, 2015).

The Nature of Marketing

Some early definitions of the marketing profession did not include all organizations as legitimate purveyors of economic activities, while others outright excluded non-business organizations from marketing definitions (Kotler & Levy, 1971) Claims were eclectic and far-reaching, including ideas that marketing principles were practiced in ancient times (Robertson, 1974). Kotler and Levy (1971) also observed that non-business organizations use the normal tools of the marketing mix, which focuses on the formulation of a strategy designed to sell a service or product.

Early discussions and controversy focused on determining whether marketing is an art or science. A study conducted by Paul Converse (1945) explored the opinions of early practitioners who were tasked with the challenges of selling products and services, before 1925. In this early work, the focus and discussion explored questions of marketing as an art or science (Converse, 1945). Converse used a survey approach to explore the topic. The purpose of the survey was to gather information on the opinions of professionals who entered the discipline as teachers or researchers. Specialization

selection was broad and included participants from government, agriculture, and social institutions. Participants were selected from diverse geographic regions, and selection was limited to scholars who entered the field before 1925. Survey results contributed to the understanding of fields from which participants came before working in marketing. Responses included prior professional endeavors in economics, management, psychology, economic history, accounting, and other disciplines to a lesser extent. As a general theory of competition, RA theory incorporates characteristics from all the fields in its foundation premises, which includes the use of knowledge and methods as appropriate for the development of selling strategies (Hunt, 2002).

Social Responsibility, Consumers, and Groups. Kotler and Zaltman (1971) advanced the notion that nonprofits could use marketing to do fundraising. Farley and Leavitt (1971) argued that marketing should be used to resolve population problems. Dawson (1971) purported that the social ramifications of marketing activities further broaden the concept to include the social impacts of marketing on specific groups and individual consumers. Nickels (1974) performed a survey to obtain information from educators on the social responsibility of marketing. Survey findings documented that 95% of educators believed social responsibility should be broad to include non-business organizations and purposes. The survey supports the heterogeneous demand principle, and the principle of human self-interest-seeking orientation in marketing; that is the nature and scope of marketing covers a wide and diverse area of social activities and groups, who market and mix selling strategies in different ways (Hunt, 1976).

Macro and Micro Marketing Perspectives. As a general theory of marketing, RA theory includes Macro and micro marketing perspectives. Introduced by Loves and Kelly (1962), these perspectives broaden the mission, scope, and processes used in determining marketing transactions, and related marketing processes. This incremental advancement in the evolution of the marketing tradition is supported by the heterogeneous demand principle of RA theory.

The Eclecticism of Marketing. As mentioned, marketing was viewed as an eclectic discipline, and any definition should include terminology from psychology, sociology, and anthropology (Robertson, 1974). Hunt (2002) further proliferated the discussion by exploring the nature and scope of marketing and developing a model that would explore many of the earlier central issues about the nature of marketing, in an attempt to further explore unanswered questions about whether or not marketing is a science or an art form (Hunt, 1976). The assemblage of multiple disciplines included in Hunt's (1976) explanation is consistent with and contained in subsequent works on marketing theory, culminating in the comprehensive work represented in RA theory principles (Hunt, 2015). To date, only a few scholars who have attempted to establish a general theory of marketing have been vigorously studied. These include Bartel (1968), EI-Ansary (1979), and Alderson (1965).

Formal Attempts at the Development of Marketing Theory

Bartels General Theory of Marketing

Bartels purported that a general theory of marketing consisted of seven (7) sub-theories: (a) The theory of social initiatives, (b) the theory of economic separation, (c) the

theory of market roles, expectations, and interactions; (d) the theory of flows and systems, (e) the theory of behavior constraints, (f) the theory of social change and marketing evolution, (g) the theory of social control of marketing. Bartel's contribution provides a pillar of development for resource advantage theory in that it explains some important aspects of marketing theory, especially the role of innovation in gaining marketing share, as well as the heterogeneous nature of demand across sectors. Companies must make decisions about how to utilize scarce organization resources to inform consumers about company products or services.

EI-Ansary's General Theory of Marketing

EI-Ansary (1981) purported that any theory of marketing established must be an all-encompassing theory that explains marketing phenomena completely and exhaustively (Hunt et al., 1981). According to Hunt et al. (1981), EI-Ansary did not develop a general theory. He established an outline and suggested that if a theory were developed from the outline, it would contain sub-theories involving consumer behavior; organizational buyer behavior; inter-organizational management; channel member behavior; channel system behavior; channel institutions; micromarketing; micromarketing; and strategic marketing. EI-Ansary's outline adds interoperability of organization purview on how marketing is planned, executed, and managed within an organization system. According to Kaufman (2007), EI-Ansary's work provides a framework for integrating economic and social dimensions of human behavior in marketing. This premise relates to the self-interest-seeking behavior of all consumers in a quest for satisfactory purchases (Hunt, 2002).

Wroe Alderson's General Theory of Marketing

From a scholarly perspective, Wroe Alderson is best known for establishing an integrated theoretical perspective within a logical framework (Nicosia, 1962). Alderson's approach transcends and includes commodity, institutional, and functional approaches that establish marketing as a dynamic system. The fundamentals of functionalism are subdivided into two separate systems: the organized behavior system, and the marketing process (Nicosia, 1962). Alderson's work has stirred considerable controversy in the academic community. Yet, he is credited with an important contribution that is considered by many as the complete conceptualization of a general theory of marketing before Hunt's work on RA theory. Alderson's work represents a milestone in scholarly efforts to establish a general theory of marketing (Hunt, 2013). As a result, Alderson is commonly known as the father of modern marketing thought (Hunt, 2015).

Marketing Definitions

In 1985, the American Marketing Association (AMA) defined marketing as "the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives" (Hunt, 2015, p. 60). RA theory reflects a comprehensive analysis of what constitutes economic activity in the context of marketing transactions. It covers the full range of activities and transactions conducted across and within various industries, including both business and non-business organizations, in a definition of marketing (Hunt, 2015).

From Marketing Thought to Marketing Theory

As a general theory of marketing, RA theory, directly and indirectly, reflected the historic discussion of marketing thought as a necessary underpinning, forerunner, and precursory step toward the development of a general theory of marketing. The incremental step taken from defining the professional province of marketing, as a practice, as experience, and as a discipline, to establishing marketing as a scientific paradigm, progresses along a dialectic path involving the understanding of definitions, and the relationships of definitions to experiences, and the subsequent relating of the history of marketing as experience to the development of marketing theory (Shaw, 2011). Luck (1969) suggested limiting marketing to business processes and activities that result in a marketing transaction. Lavidge (1970) believed that marketing functions should be broadened to include societal benefits, as well as buying and selling. Robert Ferber (1970) purported a dual role for marketing: production and societal. Ferber (1970) believed that businesses have a responsibility to produce socially beneficial products. Luck (1969) introduced the idea of exchange versus market transaction. These ideas represent processes and activities that result in market transactions. Consequently, these dialectical stages in the development of marketing theory resulted in significant contributions to the development of RA theory, a general theory of marketing, which includes economic production, disequilibrium of market forces, and the balancing of successful organization approaches with information about self-interesting behavior of proposed consumers (Kaufman, 2007). Moreover, the literature provides significant Evidence that marketing thought, and theory are intertwined (Shaw, 2011).

Evolutionary Economics. Resource advantage theory borrows concepts from Hodgson's Taxonomy (1993). Hodgson suggests that organizational learning and innovation are Indigenous characteristics of competition and that both companies and consumers are working with imperfect information - as companies strive to compete for superior market positioning. Hodgson (1997) espoused evolutionary economics, although he rejected the use of biological metaphors in economic theory since economics does not include any processes involving natural selection, or survival of the fittest.

Heterogeneous Demand Theory. The central tenant of RA theory uses heterogeneous demand theory with organization-based resource theory to explain business responses to consumer preferences. One aspect of this concept evolves relationship marketing. Heterogeneous demand is predicated on making things that are in demand and establishing and maintaining relationships that will support the sustainment of processes, products, or services demanded by consumers (Morgan & Hunt, 1994). The premise is that demand for a product or service is driven by a firm's ability to establish a relationship with a consumer market, and an ability to sustain and grow that relationship over time, and hence, to capitalize on that relationship by sustaining customers, and maximizing market share. According to Morgan and Hunt (1994), the latter fact requires a commitment from the company to dedicate scarce resources to customer-centric selling strategies, as well as concurrent trust from company customers.

The authors purported that the presence or absence of trust is essential for service or product viability, as well as for the pragmatic survival, of any social group. For example, for a brief time, during the infancy of the automobile industry, it is worth noting

that the electric vehicle dominated transportation business production and organization (Gardner, 2010). The historic survival of the electric vehicle industry is evidence of sustainability and cultural persistence within the context of industrial and postindustrial societies (Mom, 2003). Therefore, the sustainment and improvement of electric vehicle technology, albeit without market dominance for most of that time, suggests sustained consumer attachment and the presence of historic trust for the value and convenience of electric vehicle technology.

Alternative Theories

General Theories of Business Marketing. ISBM Framework and IMP theoretical structure. The Institute for the Study of Business Markets (ISBM) represents a school of thought that was founded at Penn State University in 1983. The Journal of Business and Industrial Marketing in 1983, and the Journal of Business-to-Business Marketing in 1991 were publications derived from the ISMB market value delivery framework. The ISBM marketing concept is a Business-to-Business (B2B) management framework, which defines market value and management using five (5) specific steps. Industrial Marketing and Purchasing (IMP) is the second business marketing framework. IMP is the result of a collaboration of scholars from five (5) European countries. The IMP structure is a descriptive theoretical structure based on a specific set of foundational premises. The approach focuses on how buyers and sellers interact in the processes of market transactions. The approach is used in the analysis and formulation of marketing and purchasing strategies. The IMP journal was founded in 2004 and promotes research using the IMP interactive approach (Hunt, 2015).

Institutional Economics. Institutional economics emphasizes bounded rationality, property rights, working rules, institutions, transactions, and incomplete contracts. Moreover, markets are shaped by and evolved from these complexities. As an alternative economic theory, institutional economics provides a framework for understanding social and economic dimensions of human behavior (Kaufman, 2007).

Neoclassic Economic Theory. Neoclassic economic theory is antithetical to RA-Theory in the depiction of retailer selling behavior and consumer taste and preferences for EV products. Neoclassic economic theory purports to explain fundamental differences between social and capitalist economic systems, and thereby illustrate the behavior of markets. The idea of "bounded rationality" is central to the concept of market transactions in neoclassic economic theory, which eliminates comparative properties of information decentralization, which characterizes market activity (Murrell, 1991). While this contrast is important as a demarcation in the evolution of theories about competition, it is an aspect, stage, or type of competition occurring under certain conditions (Hodgson, 1993).

By contrast, RA-Theory is a general theory of market competition because it is Evolutionary and includes the role of entrepreneurs, and the role of public policy in shaping competition, as well as including explanations for organization responses to disequilibrium-provoking market processes (Hodgson, 1993). By comparison, perfect competition theory explains fewer phenomena does not include entrepreneurial and public policy factors, and assumes perfectly mobile factors of production (Hunt, 2015).

RA Theory and Business Practice

Organization Learning and Selling Strategy

Organization Learning and Imperfect Information. The electrical vehicle market took root in 1890 and represented about a third of all vehicles sold in the U.S. by 1900 (Penton Media Inc., 2018). During this period, three types of transportation existed – ICE, steam engine, and EV. The electric vehicle was marginalized during the first decade of the 20th century. Although EV technology has been socially sustained for over one hundred years, it ceased to be commercially dominant after 1930 and up to contemporary times (Gardner, 2010). Contemporary and future suitability will require new efforts at organization learning, which will include the use of internet technology to gather, organize, and analyze market data about consumer buying preferences (Luo, 2021). The world seems headed towards the adoption of electric cars as a primary means of transport; however, many changes remain to be surmounted regarding consumer preferences in electric vehicle technology (Haider et al., 2021).rarely are mass market adoptions of technology without long-term challenges and vastitudes related to growth. Adaptive change to market preferences eventually drives new technology preferences forward toward market dominance (Keller et al., 2021).

Long-term, some predict that environment-friendly EV technology and government subsidies will prevail in both market share and profitability over fuel vehicle models (Bao et al., 2020). As we move forward into the twenty-first century, machine learning is being used progressively to predict consumer preferences in deciding personal transportation choices (Hendricks, 2018; Hsu et al., 2013). The Internet platform is a new

and growing arena for promoting the sale and operation of electric vehicles (Shen et al., 2020).

Consumer Choices. Historically, Competitive purchase options were offered between steam, electric, and gasoline engines (Gardner, 2010); strong and growing demand for personal transportation established distinct market paths for the development of private vehicles (Rae, 1955). Low range was not seen as an issue early on, primarily because road networks were undeveloped. Other functional advantages included immediate startup for electric vehicles, while the internal combustion engine required 5 minutes of cranking to start. However, that advantage was eliminated with the development of the electric starter, around 1912. Hence, refined petroleum produces high energy density, while a lead acid battery has low energy density. Consequently, gasoline cars had better range and were received as more reliable for personal travel and touring (Mom, 2003). Conversely, in contemporary society, the rate of new technology diffusion is still closely tied to consumer choice preferences and the environment. Decades of ICE technology diffusion adversely impacted air quality and other important healthful environmental factors. EV technology discussion has happened parallel to the market growth and dominance of gas-powered vehicles. Consumer purchasing choices supporting market growth include reliable performance, and fuel efficiency (Mandys, 2021). Furthermore, environmental factors and consumer charging behavior have emerged as important design/development and economic matters for supporting the growth and diffusion of electrical vehicle technology (Beak et al., 2020). Contemporary electric vehicle technology has improved dramatically (Karthikeyan et al., 2021); yet

global sales in 2019 were 2.6%, (Bridi, et al., 2021). Diversification of charging infrastructure could impact battery and plug-in electric sales significantly (Brückmann et al., 2021).

RA theory applies to this study because EV business owners need to confront the challenge of presenting a clear message of product parity to the consuming public. This challenge focuses on the selling strategies used by EV dealership owners to educate and inform consumers about EV technology to improve profitability. A review of the literature confirms a historic pattern in EV selling practices, where sales increase, without a corresponding increase in market share. The pattern is consistent from the early decades of the century to the present time (Hadley, 1994). Although there appears to be support for electric vehicles, beyond greater awareness, within group demographics do not present any clear propensities of significance. (Gabriela et al., 2019). Business selling strategies shift and transform under organizational learning and related use of strategy, with both business owners and consumers always subject to information asymmetry (Hunt, 2015). Historically, the inability of the electric vehicle companies to use experience as lessons learned diminished the capacity and ability of the industry to successfully compete for market dominance. Consequently, this organizational behavior established a milestone in the evolution of the personal motor car and paved the way for the development of the gasoline engine as the dominant form of transportation for the foreseeable future (Rae, 1955). In the contemporary economy, decades of market dominance by ICE manufacturers have resulted in growing environmental hazards caused by toxic emissions from ICE vehicle exhausts. This shift in air quality provides a new

circumstance and factor that contributes to growing consumer preferences for electric-powered vehicles (Xu et al., 2020; Zhao, 2022). Moving towards sustainable purchase behavior: examining the determinants of consumers' intentions to adopt electric vehicles. Consumers preferring electric vehicles also support government policies that subsidize purchasing and convenience for charging (Qian et al., 2019). There is also evidence to suggest that convenience and subsidies are preferred over aesthetics (Jung, 20210).

Customer Lifetime Value. Customer lifetime value is a strategic resource used in a company's selling strategy. In managing market share, companies assume the importance of transcending simple purchase behavior as the exclusive strategic component used to understand the value of customers in determining building, and shaping customer relationships, and the use of customer information as a resource of the firm, which can and should be integrated into marketing and selling strategy. As a case in point, monopolistic competition epitomized the early business approach adopted by electric vehicle manufacturing companies, the lifetime value of customers was essential in the industry sustaining market viability to the present time. Sustainable electric products and Services included taxicabs, cable cars, leased vehicles, and a variety of group offerings directed at suppliers and employees (Rae, 1955). The EV monopolies competed with individually owned companies selling and promoting gasoline-powered vehicles that emphasized freedom of movement, as well as speed and power. As disequilibrium occurred in competition, the shift of EV monopolies from market dominance to a subordinate market position did not result in the extinction of the technology. The forces of customer lifetime value, ironically, contributed to the market

ascendance of gas-powered transportation, while simultaneously contributing to EV competitive market subordination; and at once, provided EV market sustainability and simultaneous competitive disadvantage to the present time (Mom, 2003).

Group Membership Selling Strategies. Novotny et al. (2022) have linked national culture to individual purchasing behavior and suggested that it influences the rate and direction of adoption of electric vehicles. EV Selling strategies also included association membership, supply-chain businesses, and urban transportation service companies (Hugill, 2002). Early EV trade associations are also responsible for a standard charging plug, and bulk vehicle purchasing by central station electric generation hubs, and electric utility companies (Kirsch, 1997). Other selling and marketing strategies included the collection of royalties from patents and selling through syndication (Rae, 1955).

Informing Consumers about EV Technology. The purpose of this qualitative multiple-case study is to explore sales strategies EV dealership owners use to educate and inform consumers about EV technology to improve profitability. My case population will consist of 11 EV retailers who manage successful EV businesses in the Philadelphia, PA metropolitan area. The implications for social change include increased social mobility and independence in general for all classes of the driving public, and special-needs consumer groups experiencing physical or social disabilities may benefit from self-driving EV technology. Furthermore, expansion of sales may result in higher employment providing more taxes to state and local communities leading to a higher quality of life for all in those communities.

Consumer Education. Consumer awareness in purchasing is growing in importance as a factor in determining company selling strategies (Carrington et al., 2010). Although companies are increasing the promotion of environmentally friendly products (including EVs), the increase in market share remains low (Barbarossa & Patrick , 2014). Consumer awareness may be an important factor in achieving a significant uptick in EV sales (Bera & Maitra, 2021; Pramajaya, & Haryanto, 2021). Further, recent research suggested that increased fuel efficiency of ICE vehicles, along with design innovations, including the production of EV and hybrid designs by ICE manufacturers, diminishes the challenge of selling EVs. Contemporary data projects a significant increase in EV market share to 10%, by 2040 (Lynes, 2017). However, the path to increased sales still appears to be an improved understanding of consumer habits, routines, and purchasing preferences by EV owners and potential owners (Butters, 2022; Rezvani et al., 2015). The introduction of a diverse range of EV types into American, European, and Asian markets has increased the need for a better understanding of consumer behavior towards EV technology (Block & Harrison, 2014). The challenge of understanding what drives consumer interest in purchasing EVs is complex and multi-dimensional (Bailey et al., 2015; He & Hu, 2022; Shetty et al., 2020).

Electric vehicle technological advances require changes in consumer behavior that are different from established norms with ICE technology (Yang et al., 2018). Psycho-social conformity is an important decision factor frequently overlooked in EV market competition (Rezvani et al., 2018; Wenbo et al., 2022). An important example is the need to plan for the next driving trip by plugging a vehicle into an outlet. Some

consumers reported fear about the limits of EVs relative to the range needed for daily travel. Also, the lack of charging infrastructure compared to gasoline stations is a concern (Santos et al., 2021; Maeng et al., 2020). More research is needed to better understand how we may surmount this problem to remove this EV sales barrier (Han et al., 2021), often identified as "range anxiety" (Rezvani et al., 2015). These required behavioral changes are disruptive to current driving norms, and future research into a better understanding of the selling strategies is needed to encourage changes in consumer behavior that may result in an expansion of EV market share (Rezvani et al., 2015). Other researchers have observed that consumer purchasing is driven primarily by a desire to satisfy self-interest (Hung & Shih, 2019). EV sales growth, therefore, remains closely associated with consumer awareness (Jenn et al., 2018; Zhao, 2022).

EV Market Disequilibrium and Competition for Market Share

Technology Improvements. For a short time, in the 19th century, the electric vehicle was a preferred choice of public and private transportation (Hugill, 2002). Early 19th-century uses of planned sales and advertising strategies often included measuring the power output of a product against the power of a horse (hp). For example, electric power was 50% efficient, while gas power was 15%, and steam was less efficient at 10%. Improvements in lead-acid battery technology were also the focus of selling strategies and contributed to early market dominance by electric transportation. Battery technology continues to be a critical factor in EV sales and marketing information used by consumers in purchasing decisions to the present (Gardner, 2010). Research to improve battery reliability continues to improve, focusing on different converter devices, and charging

system designs for batteries as well as last charging devices (Nageswari et al., 2021). In addition, current battery research also includes an exploration of reuse, optimal chemistry applications, and wireless battery management systems (McCrossan & Shankaravelu, 2021). Early in the 19th century transformative innovations in ICE technology adaptations included an electric starter, and lead-acid battery technology, which effectively eliminated hand cranking of the ICE vehicle, and allowed the ICE manufacturers to promote reliability and convenience in marketing and selling promotions (Kirsch & Mom, 2002). And, because of ICE technology, the United States auto market expanded very quickly to become a worldwide market. Such that, by the late 1920s, three in four cars worldwide were American-made (Bladh, 2019). Hence, the internal combustion engine became the propulsion system of choice worldwide, dominating markets in Europe and the U.S. between 1930 and the mid-20th century. However, the introduction of contemporary EV technology into the transportation market has disrupted market dynamics and has simultaneously caused significant interest in the new technology. Ironically, improvements in electric motor technology advance both EV and ICE technology (Chernenko et al., 2021). Yet current data on consumer EV purchasing show a reluctance by many consumers to purchase EV transportation products (Han et al., 2021).

The early competition involved the use of transportation enterprises as a means of connecting consumers to social development and daily life experiences. Electric vehicle market strategies provided convenience for travel around central cities using electric cabs, and other commercial services (Kirsch & Mom, 2002). However, the underlying

premises of the business model did not address a potential consumer passion and interest in tourism and the flexibility of social mobility, a practice introduced with private touring, and private vehicle ownership. Speed, range, mobility, and better control of individual time and schedules were the consumer benefits associated with ICE vehicles (Rae, 1955). Selling strategies for both EV and ICE technologies were predicated on unique organizational approaches, design, and development of associations to expand business influence, and the use of legal strategies by owners of both standards (EV and ICE) to position, and advance the collective interest of respective technologies (Sicilia, 1993). However, it was the ICE technology that catered best to consumer appetites for touring and recreation, and hence freedom of movement or mobility (Mom, 2003). The future of ICE technology will increasingly include electrification features, which will be designed to abate carbon emissions as well as add consumer conveniences and functionality (Brand et al., 2017). Ironically, the progressive electrification of ICE technology will contribute to wider public adoption of electric vehicle technology (Stephen et al., 2021; Xie & Lin, 2017).

From early 2011 through 2013, EV sales in the United States tripled but with no significant gain in market share (Zhou et al., 2015). EV sales for this period were flat at 2.2% or less of total U.S. auto sales (U.S. Energy Information Administration, 2018). For the same period worldwide, EV sales were only .06% of the fifty-one million light-duty vehicles sold (Rezvani et al., 2015). Yet this measure reflects a significant expansion in the purchase of EVs from the previous century. One factor noted by researchers is that consumer perceptions about EV reliability as a technology are influencing purchasing

behaviors (Han et al., 2021); although perceptions are not aligned with technology reliability factors (Yang et al., 2018). Since EV sales are consistently increasing, although slightly, the increases reflect the broad adoption of new technology as diffusion progresses (Soltani-Sobh et al., 2017). With EV integration into the electric grid, the tempo of growth is expected to expand even more (Brezovec & Hampl, 2021; Rawdah et al., 2021). Consequently, a lack of consumer awareness of EV technology benefits may be influencing purchasing attitudes, and hence the expansion of market share (Bennett & Vijaygopal, 2018). Charging reliability may also impact sales (Spano et al., 2021); fast and wireless charging show considerable promise towards sustainability of optimal requirements for consistent daily transport (Li et al., 2021); improvement in the ability to determine when repairs are needed is also important for greater consumer confidence about EV reliability (Yang et al., 2021); energy management advancement may greatly improve EV competitiveness (Sun et al., 2021). Improvements are happening in this area as well; using alt-energy and battery technologies, along with scientific management strategies to improve reliability (Gantayet et al., 2021). Also, the Chinese government is currently experimenting with battery recycling to further align its eco-friendly approach (Li et al., 2020). Further, current research reveals that power drive train failure may occur under various operating temperatures (Adnan et al., 2021). Also, work on power train dynamic portends further improvement in how electric vehicles use energy for locomotion (Nugraha et al., 2021), and for on-board vehicle systems Bello et al., 2019). How energy is used is also tied to acceptable sustainable thermal temperature parameters (Chen et al., 2021), which is a critical issue in continuous vehicle operation on a routine

basis. Other research strategies focus on optimizing the economy while reducing battery aging (Bai et al., 2020). Remanufacturing and charging replacement services provide yet another prolific outgrowth of EV sustainability (Wang et al., 2021). As these issues are engaged and resolved, additional incremental sales growth can be anticipated (Boulakhbar et al., 2022). In any event, technology development is presently outpacing consumer adoption (Yang et al., 2018).

Changing Opinions About EV Technology. Worldwide, electric vehicle technology is expected to drive transformative change in the transportation industry (Veza et al., 2022); governments in the United States, China, Europe, and Africa have made the development of electric vehicle technology a top priority (Isaac, 2020; Zhang et al., 2021). In Australia, the government backs a program to subsidize charging at home (*Mena Report*, November 19, 2020,). For EV technology to work as the primary transportation technology certain improvements are needed in fuel efficiency, charging time, and vehicle range (Husain et al., 2021). From an economic perspective, a new credit system may also be needed to facilitate and manage economic transformation (Qiu, & Peng, 2021). Low carbon awareness is having an impact on EV sales, and the trend is expected to grow (Gong et al., 2020; Shankar & Kumari, 2019); growth in EV sales will require a critical analysis of supportive public policy, and concomitant understanding of EV preferable characteristics and consumer decisions to purchase in the immediate and long term (Liu & Cirillo, 2018). A recent study in Hefei, China, indicates a positive attitude shift in consumer perceptions about EV technology value as a purchase preference. Another recent study conducted in China showed that price and charging are

key issues in purchasing electric vehicles (Lo, 2013). A recent study in Korea divulged the overarching importance of battery reliability to consumers as a critical preference to purchasing; yet Korean consumers seem committed to supporting the advance of electric vehicles as an alternative to gas-powered vehicles (Naan et al., 2021). New information may influence retail owner selling strategies, as well as concomitant public policy development, and entrepreneurial innovations (Han et al., 2021; Xing et al., 2020). At a recent public policy conference sponsored by the U.S. Department of Energy (2017), it was divulged that public policy is an important factor in public acceptance of EV technology (Lynes, 2017). Public financing of charging station infrastructure, subsidies for consumer purchases, tax credits, and the like are important factors in expanding EV sales (Block & Harrison, 2014). Charging infrastructure development, and related power demand management is seen as a critical challenge to a growing demand for electric vehicles (Mezzarobba et al., 2021; Visakh & Selvan, 2022). Home charging is seen as more important than public charging (Wolinetz & Axsen, 2017).

A review of EV technological development in a historical context provides an understanding of EV technology evolution the concomitant EV market experience of consumers, and the selling strategies of retail owners, who strive to develop products to satisfy and sustain market share. Hunt (2010) advocated using RA theory to define resources as tangible and intangible, including intelligence a company may gain from competition and customers.

RA theory perspective can apply to a wide range of unique situations consistent with market conditions required to explore the comparative advantage or disadvantage of

low consumer awareness of EV technology and products relative to marketplace positioning. For a short period at the end of the 19th century, electric vehicles dominated the roadways and personal vehicle market in the United States (Kirsch & Mom, 2002). To understand why sales strategies have come to be used, my review includes a critical assessment of historical circumstances by which electric and gasoline vehicles evolved along different technological paths.

Changing EV selling approaches. To the present, and in general, there is a lack of reliable information about consumer preferences regarding EV products, including gender differences in preferences (Sovacool et al., 2019; Wicki, 2022; Xingjun et al., 2021). Psychological insights are infrequently used in selling approaches (Brase, 2019; Nguyen & Schumann, 2020). There is also a lack of available information on the horizontal movement of EV and PEV sales and market share (Kirsch & Mom, 2002). A portion of the literature review is focused on retail owners' use of organization resources to shape and reshape strategies designed to promote consumer awareness about electric vehicle technology. Historically, electric vehicle companies have not used available organization resources as effectively as necessary to achieve market dominance and maximum profitability (Hunt, 2015). Moreover, new selling approaches have emerged using internet-based marketing resources which extend selling possibilities beyond current standard approaches (Ha et al., 2020; Xiao, 2018). Consumer adoption of electric vehicle sales is trending in a positive direction; diffusion could accelerate with proper advertising and infrastructure deployment (Singh et al., 2020). Also, the expanded use of demographic, psychological, and socio-economic information illuminates consumer preferences

according to preponderant measures of these characteristics within groups, showing predilections for vehicle types, power trains, and degrees of luxury (Higgins et al., 2017).

Public Policy Support. A portion of the literature review is focused on retail owners' use of organization resources to shape and reshape strategies designed to promote consumer awareness about electrical vehicle technology. Over concern for multiple problems related to climate change, at a recent public policy conference sponsored by the U.S. Department of Energy (2017), it was divulged that public policy is an important factor and driver in public acceptance of EV technology (Lynes, 2017). Prominent measures include building infrastructure at a faster rate (Rommel & Sagebiel, 2021; Sujitha et al., 2021) and increasing subsidies for electric consumer purchases (Rezvani, 2015; Xie et al., 2019). Infrastructure development increases penetration (Watabe et al., 2019), and is often seen as a critical and complex barrier to the diffusion of EV technology (Abdullah-Al-Nahid et al., 2020; Globisch et al., 2019). Also, policies should reflect the social and psychological preferences of potential electrical vehicle customers (Du et al., 2018). There is also evidence to support a better distribution of subsidies across income groups, as current policy approaches tend to favor upper-income groups (Lim et al.,2022). The government is increasingly promoting electric vehicle use as a primary transportation technology of choice (Letmathe & Suares, 2020). Also, the increased use of wireless technology in power management is a promising development for expanding reliability and increasing sales (Kester et al., 2018; Qian et al., 2021). However, public subsidy measures are particularly straining government budgets and should be viewed as a transitory means towards sustainable electric vehicle technology

(Tianwei et al., 2020). Also, expanded public support for charging at home is seen as significant in influencing expanded EV sales (Bailey et al., 2015). Public policy is an essential driver of expanding EV market sales and related consumer acceptance of EV technology by the driving public (Sun et al., 2019).

The government needs to grasp consumer needs when introducing new technology (Ouyang et al., 2018). Worldwide, the relative impact of public policy, as well as the focus on the application of resources to support EV adoption is determined by electricity generation mix, and battery charging technology (Beak et al., 2020; Kester et al., 2018). This expansion of market dynamics creates an uptick in CO2 emission short-term, although public policy adoption and support for EV technology anticipates improvement in air quality, and an overall reduction in the presence of harmful air particulates (Milley et al., 2020). Lim et al. (2022) collected data on EV policies in five major markets worldwide (China, France, Germany, India, Japan, and the United States). They discovered that interlinked policies are more effective in growing sales, than are the individual actions of a given country.

Owners of Electric Vehicle Retail Businesses

It will be important for EV business owners in the Philadelphia Metro area to have access to new research information that may provide the basis for thinking about competition from the perspective of current market conditions and opportunities for sales (Wang et al., 2018; Huang et al., 2021), including the expansion of interest within the automotive industry to manufacture hybrid and all-electric vehicles, consumer awareness and acceptance of product offerings and consumer preferences, as well as expanding

public support, and the transformation of electric power industry strategies to include EV charging (Lopes et al., 2011; Nordlund et al., 2021). EV rental services may be another sparsely used technique that could provide practical public exposure to PEV technology (Hardman et al., 2018). Aside from the convenience of the rental experience, the added awareness of PEV technology will further broaden public acceptance and substantiality of EV technology (Guo et al., 2021). There is also evidence that market diffusion of EV technology would benefit from accelerated development of charging infrastructure (Lane et al., 2018; Miele, 2020); some are even suggesting the use of solar panels to assist with meeting the demand for EV power by 2030 (Patil et al., 2020). The media, print and electronic, can be used to both promote brands and to combat misinformation about EV technology (Broadbent et al., 2021; Wang et al., 2021). Business models adopted by owners are often the key determinant of accelerated diffusion or path to EV acceptance and sales (Liao et al., 2019)

My multiple-case study focuses attention on the sales strategies of EV business owners that may provide answers to questions about how best to use available organization resources (as defined in RA theory) to expand consumer knowledge of EV technology, and to improve the market position of EVs as an accepted form of personal and mass transportation. Public policy resources are being used increasingly to educate the public on the benefits of EV technology. Consequently, as provided in RA-Theory, human motivation is oriented to seeking self-interest.

The purpose of this qualitative multiple-case study is to explore sales strategies EV dealership owners use to educate and inform consumers about EV technology to

improve profitability. My case population will consist of 11 EV retailers who manage successful EV businesses in the Philadelphia, PA, metropolitan area. Unfortunately, there is a lack of available information which can be used to explain the horizontal movement of EV sales and market share, as an alternative to the internal combustion engine (ICE) vehicles. In part, this aspect of marketing is to assess generational differences in preferences (Huang et al., 2021). For example, available data collection is focused on quantitative factors such as the number of vehicles produced and sold, the trend in sales growth over time, and the comparative measure of electric vehicle sales to ICE sales, and by location. Given the current data-intensive environment, owners should collect better data to further inform selling approaches (Taylor-West et al., 2020). Moreover, socio-demographic data is often concentrated in specific segments of the purchasing population (Farkas et al., 2018). Also, more recently, ICE has become more competitive with EVs, given its penetration into electric vehicle products marketing, and the expansion of electrification as a convenience in the design of ICE products. This could suggest an inevitable expansion of EVs into the market, although the circumstances require a better understanding of what may be required for a successful market expansion of EV technology (Kieckhaefer et al., 2014). Available information suggests that increased EV sales and competitiveness remain tied to business owners developing a better understanding of consumer habits, preferences, and buying behavior (Rezvani et al., 2015). Other issues debated in the literature discuss the impact of standard approaches across markets or developing sub-strategies within geographic areas which may warrant selective customized approaches (Szymanski et al., 1993). A common barrier to sales

expansions also includes the lack of knowledge possessed by owners and employees about EV technology in comparison to their knowledge of ICE technology (De Rubens et al., 2018). Other available research suggests policy exemptions from emissions taxation for electric vehicles as another way to take normalization of the technology (Hu et al., 2021). The lack of available information on EV business owners' marketing strategies and sales practices may enhance the practical value of findings from my multiple-case study. EV retail businesses in the Philadelphia metropolitan area may prove to be a rich additional source of information on competition outside the current market niche of all-electric vehicles. Moreover, a better understanding of EV business owners selling strategies may be critical to the successful introduction of EV technology to a broad market segment (Axsen et al., 2018). Younger generations are receptive to EV technology. Financial incentives and better advertising may increase sales with younger consumers (Ghasri et al., 2019)

Literature Review Summary

RA theory is a marketing theory that has evolved concurrently with the development of marketing practice and experience. RA theory operates under nine principles which determine how a company establishes its strategy to compete for market share (Hunt, 2002). The application of these principles causes organizational disequilibrium and is not evenly applied in the development and implementation of marketing strategy. However, since competition is a de-stabilizing force in the development of marketing strategy, and simultaneously drives the process that results in the application of scarce resources to compete for market share, RA theory is an effective tool for sorting the approaches used by EV business owners to allocate scare resources

towards the implementation of a marketing strategy to attain or sustain market dominance (Hunt, 2013). Moreover, RA theory promotes the use of consumer information as a primary means of determining the best approaches to use in obtaining new customers, and hence the development of a dominant market share (Hunt, 2015). By contrast, many alternative approaches exclude the use of consumer information, and consumer awareness as critical factors in determining the best strategies for attaining market dominance (Han et al., 2021). Such strategies include business-to-business marketing, neo-classic approaches, and institutional economic approaches (Roberto & Fiorenzo, 2016). In these alternative approaches property rights, corporate entity rights, and existing market position are critical to the use of resources to sustain or advance market share. Without better and more information about consumer purchasing for people who have never purchased an EV, producing better strategies may be more challenging (Axsen et al., 2018). Unlike RA theory, none of the alternatives mentioned use consumer information and awareness as a fundamental aspect of strategic planning and development for market competition (Kaufman, 2007).

There is an abundance of information on the history of the electric car, as well as the key proponents of EV transport. The literature also provides information that demonstrates a complementary impact on the market (Kumar et al., 2021). However, there is an information gap that may explain the reluctance of consumers to embrace EV technology in greater numbers, and the types of strategies that may be used by owners of EV businesses to encourage greater consumer interest and sales (Hunt, 2015). As measured by increasing market share, a greater acceptance of EV technology by the

driving public will result in marked improvement in air quality, since electric vehicles have zero emissions of air pollutants (Stone, 2018). However, innovation in EV technology is often confusing and may work at cross-purposes with marketing intentions (Axsen et al., 2018).

Salari and Mabey (2018) established that environmental brand awareness is an important factor in consumer EV purchasing decisions. Consumer environmental brand awareness is valuable in retail owners' efforts to formulate EV sales strategies Shareeda et al., 2021). The capture of information by dealership owners from consumers and competitors may be used to gain sales advantages when applied to market conditions required to explore comparative advantages or disadvantages of consumer awareness about electric vehicle technology (Hunt, 2015). Moreover, public policy support for EV transportation has expanded to include the development of charging stations, payment of subsidies to consumers, and information campaigns to promote clean energy (Stone, 2018). Improvement in battery technology and services may also enhance the expansion of EV market sales (Shao et al., 2018). As previously mentioned, since electric vehicles have zero emissions, an immediate benefit of expanded purchasing of electric vehicles is improved air quality (Zhou et al., 2015).

Transition

In Section 1, I identified a specific business problem some EV retail owners lack sales strategies to educate and inform consumers about EV technology to improve sales and profitability. The purpose of this qualitative multiple-case study is to explore sales strategies EV retailers use to educate and inform consumers about EV technology to

increase sales and profitability. The research question is: What sales strategies do EV retail owners use to educate and inform consumers about EV technology to improve sales and profitability? From early 2011 through 2013, electric vehicle sales in the United States tripled (Zhou et al., 2015). However, EV sales represent a meager 2.2% of all auto sales in the United States.

The conceptual framework of the study is RA theory. Robert Morgan and Shelby Hunt (1995) identified RA theory as an evolutionary, disequilibrium provoking, process theory of competition, where innovation and organization learning are endogenous characteristics. Unlike traditional economic theory, RA theory defines resources in a broad context – including traditional elements (labor, land, and capital), trade and customer relationships, and knowledge from consumers and competitors. This study contains vital information about the strategies used by EV retailers to inform and educate consumers about EV technology used to increase sales and profitability.

Section 2 includes information on the role of the researcher, a description of the participants, and the reaffirmations justifying the research approach of the study. The sections also include a description of the study population and sample, required information on conducting ethical research, discussions on data collection and analysis methods, as well as a discussion on the reliability and validity of results. Section 3 will contain findings, and how findings may be used in professional practice. Section 3 will also include information on the implications for social change, recommendations for acting on findings, and recommendations for additional research. In addition, the section contains a conclusion and appendices.

Section 2: The Project

Introduction

The project section of this study includes details regarding my research methodology as well as a discussion on data collection and analysis. I also discuss ethical requirements and related compliance with Walden University procedures, including my obligation as a researcher to ensure the confidentiality, safety, and security of the research participants. This section also includes a discussion about approaches to be used to confirm the validity and reliability of the study results, as well as a discussion on the ethical requirements of the research.

Purpose Statement

The purpose of this qualitative multiple-case study was to explore the sales strategies EV dealership owners use to improve profitability and educate consumers about EV technology. My case population consisted of five EV retailers who manage successful EV businesses in the Philadelphia, PA, metropolitan area. The implications for social change include increased social mobility and independence in general for all classes of the driving public. Special-needs consumer groups experiencing physical or social disabilities could particularly benefit from self-driving EV technology. Furthermore, expansion of sales may result in higher employment, providing more taxes to state and local communities, leading to a higher quality of life for all in those communities.

Role of the Researcher

As the researcher, I am solely responsible for data collection and the determination of the types of data to be collected. I am also responsible for the design and development of a research instrument using open-ended questions to explore the problem. I must also disclose any bias about the problem resulting from my ideological position, cultural propensity, and other social and demographic characteristics that could influence the outcome of my work. I am also responsible for obtaining consent to protect participants from any ethical issues involving potential harm and/or matters related to confidentiality (Roberts, 2010). To the university Institutional Review Board (IRB) ethical rules governing the approval of research projects involving the protection of participants, I am responsible for adopting procedures that are designed to protect participants from invasions of privacy or potential threats to their reputation (Bloomberg & Volpe, 2016; Roberts, 2010). Furthermore, I am obligated to treat participants with respect and dignity and to gain their confidence to promote trustworthiness in the research study process and the purposes for which the research is being conducted.

As a researcher, I am guided by the principles outlined in *The Belmont Report* (The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979), which has served as an underpinning in the development of ethical standards of research in the United States. I am further guided by the Walden Office of Research Ethics and Compliance (OREC), which treats each project as a unique instance of ethical consideration and employs rigorous reviews to ensure participants'

rights to privacy, protection, and security for all deleterious instances that may be anticipated during the study.

Participants

In this multiple-case study, I am concerned with selecting EV retail establishments that accurately reflect the business culture, individuals who have experience with electric vehicle sales, and entities that reflect the location and historical context of the technology. Therefore, I selected 11 electric vehicle business owners as participants in my qualitative multi-case study. Participant selection was based on the following study criteria: (a) owner of a retail dealership in the Philadelphia Metro area for five years; (b) has a defined and documented marketing and sales approach; and (c) has an advertising and sales budget.

To obtain access to participants for this proposed study and to learn more about the phenomenon under study, I obtained information from several EV associations and state chambers of commerce in the Philadelphia metro area (Philadelphia, PA, Southern New Jersey, and the state of Delaware). The owners' contact information is readily available from public sources; consequently, no special permissions for access to participants were necessary. Further, Chamber of Commerce databases are available to the public and include business names, addresses, cities, counties, and phone numbers, and access to these sources is free.

To ensure that the participants' assumed characteristics were aligned with my study intent, I sent an email requesting a video conference to familiarize myself with the interviewees and to introduce them to the study's purpose, requirements, and participant

criteria. During each conference, I introduced myself, stated the research question, and provided a summary of the research project. I intended to establish trust and confidence among participants to facilitate an acceptable level of comfort and improve the data collection process.

I attempted to create an atmosphere of introspection by explaining the structure of the interview process, the rights of the participants, and the process for responding to open-ended questions. This process was designed to encourage reciprocal learning through the interviews. Participants who met the criteria were asked to sign a consent form (Rubin & Rubin, 2012).

Research Method

I chose a qualitative methodology as my research approach. Although the literature is replete with futuristic anecdotes about the environmentally friendly and cost-effective nature of EV vehicles, little is known about their reasons for the slow growth rate and anemic market share in the transport sector. A qualitative approach can provide an appropriate perspective and theoretical lens from which to explore the questions about consumer behavior as it relates to electric vehicle purchase decisions (Yin, 2016). The theoretical lens provides a transformative perspective by which to establish questions and data collection methods and determine the need for action or change regarding the problem. Qualitative research methods offer several approaches for collecting and analyzing empirical data, including interviews and observations, the analysis of documents and cultural items, and the use of audio-visual materials and personal experiences (Denzin & Lincoln, 2000).

Research Design

I chose a case study design to carry out this research. Case studies are well suited to research where there is a need to define a problem or situation through an in-depth analysis of a specific issue (Tight, 2017). A multiple-case study design was used to collect and analyze data on the issue. Such a design supports the exploration of the problem and is favored for its propensity to gather rich data as the exploratory process advances (Noel et al., 2020). For example, I can use secondary data and expert interviews to facilitate the gathering of new information (Polonsky & Waller, 2015). Yin (2014) asserted that some theory development as a part of the design phase is highly desirable. With a tight focus and limited resources, this approach may prove most cost-effective in arriving at fundamental results or answers that can justify further exploration.

I presented a welcome orientation video to all qualified participants to emphasize the value of the information sought and how the technology will benefit our future by transforming the transportation industry away from gasoline engines and fossil fuel technologies. The video made comparisons in performance, cost, and maintenance to give participants a broader perspective. Also, participants received copies of the final reports, presented graphically in PowerPoint format. This approach was used to satisfy access and rapport requirements when using a case study design.

Population and Sampling

Population Definition

A standard number of cases in a case study approach is four to five. As mentioned in the participant section above, I used 11 cases as my basis for data collection and

analysis to provide sufficient opportunity to identify themes and conduct cross-case theme analysis (Saldana, 2013). Unlike quantitative sampling, the sample size does not represent a larger population; therefore, size is not relevant when determining an appropriate number of units for analysis. In qualitative research, the objective is to maximize the information obtained from a given unit. A unit can be defined as broad or narrow and can range from a single organization, policy document, or other ambient setting to more than 50 instances at the narrow level of data collection and analysis (Yin, 2016).

Population Sampling

Purposive sampling was used to select participants for the study as it provides a practical approach for selecting information-rich cases while minimizing the time and financial cost required to answer the research question (Tight, 2017). This sampling technique offers optimal opportunities to divulge various perspectives on the problem and to ensure data saturation. Data collection was discontinued only after the latest information gathered no longer produced new insights or properties (Denzin & Lincoln, 2000). My criteria for the selection of participants included retail owners who promote awareness of EV technologies, who have defined market sales strategies for educating consumers, who have sales budgets used to promote EV technology, and who have been in business for at least five years.

In a purposeful sample, each criterion provides additional purpose to the sample and, concomitantly, additional opportunities for information-rich data collection (Patton, 2002). Participant selection criteria provide the best opportunity for appropriate and

sufficient data collection. The number of cases selected is designed to provide adequate, rich descriptions to ensure and detail the documentation of participant accounts. This approach renders valuable details necessary to present a fully developed depiction of a participant's experiences with electric vehicle sales, with the EV transportation experience, and with the EV technology experience related to social consciousness (Noel et al., 2020).

Data Saturation

Unlike quantitative research, there is no direct correlation in qualitative research between the size of a sample and the degree of validity of the results. That is, in quantitative research, the size of a sample is designed to reflect a representative sample of a larger population. The sample, in turn, can be measured using inferential statistics for statistical significance and hypothesis testing. By contrast, in a qualitative sample, saturation can be achieved with a single case, 11 cases, or more. In this study, saturation was determined by data collection from all 11 participants included in the analysis. The purposive sample includes information collected according to predetermined participant criteria and from multiple sources. Saturation was achieved when the additional collected data became redundant, that is when additional units of data did not yield any new or useful information (Patton, 2002).

Ethical Research

I have reviewed several articles on ethical research, including the video prepared by the Walden Office of Research Ethics and Compliance. Ethical research has evolved based on the development and maturity of moral evolution in society and the scientific

community, which guides the performance of formally administered research projects. Internally, criteria used by universities (IRB procedures), governments (laws), and private research organizations (protocols and policies) have evolved from research practice, including documentation about malfeasance, mistreatment, and disrespect toward individuals and entire cultural and racial groups (Zucker, 2013).

International rules and principles governing contemporary research have emerged following social atrocities (e.g., The Nuremberg Trials, The Tuskegee Syphilis Study; Sachs, 2011). As such, ethical rules have been adopted in the *Nuremberg Report*, The Declaration of Helsinki, and *The Belmont Report* (Sachs, 2011). In the United States, *The Belmont Report* led to the passage of the National Research Act of 1974, a law designed to facilitate the advancement of knowledge while protecting the dignity, privacy, and freedom of the individuals being studied (Adashi et al., 2018). To ensure the protection and safety of the participants, I followed the protocols established in *The Belmont Report*, including informed consent. The institutional review board (IRB) procedures provided an imperative guide to fulfilling the mandate for required protections. However, these procedures do not serve as absolute guidelines for a given situation (Walden University, 2021).

The IRB application establishes important questions about informed consent, confidentiality, security, research data collection procedures, and storage and retention procedures, which I was required to answer to gain approval to move forward with my project. After receiving IRB approval, I distributed an informed consent document to each participant stating the purpose of the study, the role of the participant, and my

obligations to keep participants safe and secure and to manage their information confidentially and securely (Walden University, 2021). As a researcher, I adhered to the principles governing informed consent requirements, including the right to withdraw from the study at any time, the rights of a subject to privacy, and protection from harm that may arise out of participation in a research study (Zucker, 2013). Upon completion, I will share a synopsis of the study findings with all participants.

I explained the use of a semi-structured interview instrument and provided a copy in Appendix A. I also used certain approaches, such as member checking, to enhance the reliability and trustworthiness of the study findings. Confidentiality was a priority in all participant interactions. To protect participant confidentiality, all data will be stored in a secure and weather-resistant file cabinet for five years. Electronic data will be transferred to flash drives, CDs, or tape media and stored in similar secure and weather-resistant filing cabinets. Managing these matters in an ethical context assists with ensuring trustworthiness, as well as my integrity as a researcher.

Reflexivity and Research Ethics

The ethical compliance of a research project is inextricably linked to the researcher (Walden University, 2021). Denzin and Lincoln (2000) discuss how the researcher should represent the "Other" in interpreting a story. As a researcher, my morality is manifested in how I manage my study. Researchers often struggle with how to locate themselves and their stakeholders in the text, including disclosures about stories and details that may not reflect favorably on study participants and determining various types of participant compensation (Denzin & Lincoln, 2000). This aspect of the ethical

requirement is equally as important for the assurance of participant protection as the institutional review board's (IRB's) research participant procedures (Denzin & Lincoln, 2000). Research ethics are an important and required undertaking, as well as an integral aspect of the project design. *The Belmont Report* gave rise to the development of rigorous standards protecting individual rights to personal security and defense against exposure to deleterious actions and intrusions against the best interest of the individuals or groups being studied (Adashi et al., 2018). University IRB procedures are a specific manifestation of collective social efforts to balance scientific discovery involving human subjects with the rights of participants (Roberts, 2010).

Data Collection

Instrument

Consistent with qualitative methodology, I was the primary data collection instrument for the study. In qualitative research, the researcher is the primary data collection instrument because the researcher uses procedures and techniques to collect data that assume documentation of the data collection by observation, interpretation, and recordings (Denzin & Lincoln, 2000). Documentation includes the use of an interview protocol, a semi-structured interview schedule, planning sales documents, checking member data and participant transcripts, interview notes, audio records, and various website contents. I used methodological triangulation to corroborate the validity of the data collected (Yin, 2016), wherein each piece or item of data collected can serve multiple purposes to ensure the advancement of the analysis toward a better understanding of the object of investigation (Saldana, 2013). I used a semistructured

interview schedule (Rubin & Rubin, 2012) to focus on discussing the specific topics related to the project problem. In doing so, I prepared a specific and limited number of questions in advance and planned to ask two follow-up questions (Rubin & Rubin, 2012). Interviews were conducted online using video technology. Among the advantages of this approach is that it offers the opportunity to calibrate information with note-taking. It also allows the interviewer to make visual observations (Yin, 2016) and to follow up with questions that add clarity to the experience (Rubin & Rubin, 2012).

Per IRB rules for COVID-19 interviewing, I conducted online interviews using audio conferencing technology. Online interviewing provides the advantage of inserting the researcher into the interviewee's contextual environment (Rubin & Rubin, 2012). Semi-structured interviews are an effective way for a researcher to focus on the details that answer the research question (Tight, 2017). The online interview protocol ensures consistency throughout the process of capturing small business leaders' experiences and perceptions relative to the research study themes as well as participant selection criteria. An interview protocol provides an important guide for the interviewer, with a step-by-step approach for navigating the process (see appendix for the interview protocol) that is designed to maximize the amount of information obtained from the participants (Rubin & Rubin, 2012).

The case study approach is widely used in research by diverse disciplines. Information is gathered from several sources during data collection. In my data collection process, I gathered information from semistructured interviews, company documents, company marketing materials, and public information regarding participant businesses

and consumer education. As this approach represents data triangulation, I anticipate a broader understanding of the phenomenon of interest as a result of this data collection (Tight, 2017). Data triangulation enhances the reliability and validity of the data collection process. According to Yin (2016), this is achieved by testing the evidence for consistency across multiple sources, including an intensive effort towards the discovery of contrary information. The outcome should support the enhanced trustworthiness of the information included in the study.

Research reliability and validity of the instruments can be achieved using member checking after semistructured interviews and the triangulation of multiple data collection methods (Ammenwerth et al., 2003). I performed member checking and triangulation of multiple sources of data by recording what a participant said during the interview, restating the data with the participant for accuracy, and validating the emerging themes, which had to be consistent with the participant's intended description of events (Tight, 2017). Data triangulation validates outcomes when the same conclusions are reached by different sources (Ammenwerth et al., 2003).

Data Collection Technique

Given the use of the case study approach and the related complexities of the research problem being studied, multiple sources of data were required to thoroughly explore the problem (Yin, 2016). Having an array of sources provides the best opportunity for explaining the various facets of a phenomenon (Denzin & Lincoln; Yin et al., 2017). Therefore, I included planning documents from company archives, online interview transcripts, and interview notes as sources for my research.

I chose a semi-structured interview approach because of its primary advantages. Since participants were likely to have opinions about EV technology, a semi-structured interview provided excellent opportunities for obtaining specific responses. Given the conversational mode of the semi-structured interview, participants were able to use their own words and frameworks to discuss how they think about, experience, and value electric vehicle technology (Heffner et al., 2007; Rubin & Rubin, 2012).

Other sources which could be used with a case study approach include pilot testing, focus groups, and unstructured interviews. These approaches all require more resources to administer, including time, financial, and logistical considerations. For example, an unstructured interview evolves with new questions as the interview discussion progresses. In such an approach, the conversation is less focused than in a structured or semi-structured interview, hence requiring more time and effort without any assurance of capturing additional rich data (Rubin & Rubin, 2012). With the semi-structured approach, the researcher can focus on a specific topic, along with planned follow-up questions.

Because I needed to know more about a specific topic, the semi-structured style was more suitable for obtaining information about the project research question (Hancock & Algozzine, 2017). The interviews were audio recorded. I also reviewed documents from participant organization archives about selling plans, along with organization resources on selling electric vehicles. Website images and content from social media feeds were included in the data sources. Note-taking was used to capture additional participant responses and follow-up questions. I also used note-taking while

reviewing selling plans and budget resources allocated to support selling. As a common practice, I refer to the research question often to guide decisions about what notes or recordings to take.

I documented all communications with participants, including the conveyance of specific assurances of confidentiality and protections from potential threats, under IRB requirements and approvals. The selected data collection approach increases the chances of obtaining rich and detailed data (Yin, 2016). Member checking and triangulation were used to ensure dependability and credibility in data collection efforts (Denzin & Lincoln, 2000; Yin, 2016). Data saturation was achieved when no additional interviewing from subsequent participants yielded any new information (Tight, 2017). To guide and facilitate data collection, an interview protocol was developed and used to guide the discussions, given the complexity and stress related to conducting an interview. Administering a protocol ensured focus, consistency in asking follow-up questions, and strict adherence to IRB requirements (Rubin & Rubin, 2012). The protocol is listed in Appendix A, which also includes a sample interview document.

In documenting procedures, I described the type of instrument and how it was used to collect information for my research study. I also documented that my literature review preceded data collection and that the review informed the study but did not data. Aside from the descriptions and sequential steps required in data gathering, I documented examples of the protocols used for the study, the examples of which can be found in specific appendices. In addition, I have documented how and when data was collected using a specific data collection timeline, follow-up procedures, computer support, and

other details. To demonstrate a critical review of the literature, I have documented the strengths and weaknesses of all data collection techniques utilized (Bloomberg & Volpe, 2016).

Data Collection Procedure

Organizing for Interviews

I identified data collection sources using publicly available information. Phone calls were made to obtain the contact information required to communicate project information to potential participants (e.g., email, mobile number, direct line, or extension). A flier was sent, and follow-up calls were placed with each dealership owner, inviting them to participate in my study. A summary presentation of the study's purpose was provided during each call. Interested owners were sent a consent form for review, and an interview schedule was established during the initial call. Interviews were conducted as scheduled. Participants were informed that they were being recorded, and verbal consent was obtained before the start of each interview. Secondary participant information such as financial documents, market strategies or plans, sales information, and statistics are stored on company websites.

Inclusion Criteria

To be included in the study, each owner must have been in business for five years or more and be located in the Philadelphia Metropolitan area, including Eastern PA, Delaware, and Southern New Jersey.

Conducting Interviews

Online meeting technology, including scheduling, recording, and actual interview performance, was used to conduct and manage interviews. Online services provided an integrated platform for conducting interviews. Notes of each interview were taken using MS Word dictation, and the interview protocol was used to guide and advance the interviewing process.

Organizing Study Data

Initial interview data was captured in audio files. The files were imported into NVivo transcription for transformation from audio to text form. Next, all data collected from interviews, websites, social media accounts, RSS feeds, and researcher notes were imported into QDA Miner for basic organization and analysis. Several of the initial interviews were used as a pilot test to facilitate basic decision-making on generic coding choices (Saldana, 2013). This process involves the use of software to identify patterns, which can result in categorization upon sufficient accumulation or redundancy of patterns in data. Attribute and descriptive codes were used to facilitate content analysis and the development of themes.

Member Checking Procedure

Interview summaries were sent to participants for review and comment. Each participant was asked to comment on the accuracy of initial responses to interview questions. All responses were transcribed using NVivo Transcription, added to interview data files, and subsequently imported into QDA Miner for analysis, coding, and categorization.

Developing Themes

According to Saldana (2013), themes are an outcome of coding and categorization. Each unique datum is coded to assign a label according to the context of the content described. Thematic content is derived from the content labels but is more subtle and referent of underlying processes, such as the following.

1. Member Checking
    a. Send interview summaries to participants for review and comments on accuracy.
2. Add any additional comments for each interview question to the interview data.
3. Store additional data in a computer program.
    a. Password-protect electronic data files, and lock data storage cabinets.
    b. Researcher will have exclusive access to files during the project data collection phase.
    c. Conduct data coding for analysis using the QDA Miner software program.
    d. Create a QDA Miner project and establish a folder for each data type.
    e. Import transcripts into QDA Miner for organization and coding.
    f. Code data for thematic development and enter it into the computer program.
4. Collect documents and assess usable content.
    a. Record the results of the assessment.
    b. Code usable content and enter it into the computer program.
    c. Review participant transcripts and interview notes.

5. Store all data on the computer system.
    a. Password protects stored data and destroys all data after five years.
6. Restrict access to project data files to the researcher only.

Data Organization Technique

Proper data management is critical to ensure the reliability of information, participant privacy, and data storage security (Polonsky & Waller, 2015). Several types of data were collected and stored. The data collected included responses to a.) interviews, b.) organization documents, d.) participant interviews, e.) transcript summaries, f.) interviews, and g.) observation notes, as well as the data analysis and organization performed with NVivo Transcription and QDA Miner software. An interview protocol (Appendix A) was also developed. Although data is traditionally stored in paper format, computer-centered management is more efficient, less time-consuming, and more secure (Gerring, 2017).

Data collection and analysis were primarily managed with the QDA Miner and Wordstat software program. Computer programs facilitate the storage and organization of information and its subsequent querying (manipulation) and retrieval using themes and codes. Where feasible, project information was stored electronically; otherwise, physical records were stored in security files and storage cabinets as appropriate. All records will be maintained for five years and then destroyed (Walden University, 2020).

Data Analysis

Data Analysis Techniques

Because my research project is a case study design, I used methodological triangulation to analyze the data. Triangulation involves the use of multiple sources in data analysis. There are four types of triangulation: (a) data, (b) investigatory, (c) theoretical, and (d) methodological (Patton, 2002). Triangulation is a practice borrowed from land surveying. Using a known position, by adding two additional positions to form a triangle, measurements can be taken in two directions, with the original known position at the intersection of the other two points (Denzin & Lincoln, 2000). Methodical triangulation includes the use of interviews, organization documents, and audio and video recordings (Gerring, 2017). When used with the case study approach, triangulation is helpful in illuminating answers to a research question (Patton, 2002). Triangulation is intended to provide an improved understanding of a phenomenon using multiple sources of data. This convergence of increased phenomenal comprehension adds to the validity of the approach (Patton, 2002).

Data analysis techniques are unique in their design and require the separation and compilation of data. This process is frequently redundant, and the cycles will normally depend on the rich content of the data being analyzed (Yin, 2016). Accordingly, I planned to review the primary data several times until subsequent reviews yielded no new information that would facilitate further processing. Data analysis in qualitative research projects is particularly complex and very often starts without a clear predilection of

desired outcomes (Tight, 2017). In addition, this phase of qualitative research receives the least attention in the literature (Thorne, 2000).

The case study approach is considered especially useful and adaptive for obtaining rich information from a variety of sources. This reliability approach is frequently corroborated by a technique called pattern matching (Almutairi et al., 2014). Yin (2016) discussed five analytical approaches: pattern-matching, explanation building, time-series analysis, logic models, and cross-case synthesis. Pattern-matching encompasses important aspects of the other four methods. Several of the other methods are unique to specific disciplines, as are the qualificative approaches. Moreover, pattern-matching facilitates the use of other identified approaches, which may lead to the use of other techniques by pattern-matching outcome logic.

In generating research materials, holistic techniques assume two bases: consideration of the object and the open mind of the researcher. Both conditions are well satisfied if the researcher maintains a diachronic disposition, which maintains a focus on process and analysis (Verschuren, 2003).

The goal of case study analysis is to answer broad questions about social processes. In an article on Swanborns' philosophy of case study research, Miskovic (2011) suggested that most processes follow casual models involving experiments and quasi-experiments. However, most qualitative analysis assumes the researcher is looking for patterns in the data (Yin, 2016). Consequently, I will use pattern matching as a basis for my analytical approach.

Themes establishing an initial perspective on the path to discovery will require the organization of notes and other materials in advance. Good data organization is an important underpinning for effective data analysis (Yin, 2016). To establish thematic content, I will summarize interviews, documents, and other materials, look for themes and trends, and identify patterns and explanations—a process known as thematic data analysis. Aside from important groupings of data, thematic analysis will provide a basis for member checking later in the analysis process, thereby enhancing the reliability and validity of the study (Tight, 2017).

Data Analysis Steps and Stages

The data analysis process begins with a thorough assessment of interviews, documents, and electronic-based materials from computer files and websites. This initial review of materials is essential, as it tends to shape subsequent analytic behavior in the study and will facilitate coding for further analysis. As a researcher, I cannot review the data too many times. Accurate familiarity with primary data sources will assist with analytical refinement later in the research process (Yin, 2019) using qualitative software analysis methods. Computer-assisted qualitative data analysis (CAQDAS) was used to perform the basic steps of the classic analysis process. I utilized pre-analysis of common software in matrix configuration, listing, and starting units for categorization of a thematic database (e.g., Access, Excel, and Word) and used QDA Miner and Wordstat software to assist in my analysis of the data. QDA Miner and Wordstat are designed to facilitate the management of ideas and content, in general, to assist with query activities, facilitate data visualization, and provide reports (Bazeley & Jackson, 2013).

After initial analysis, I used a four-step procedure to further analyze and categorize data using computer software: (a) I prepared data (documents, images, recordings, interviews, etc.) for analysis using QDA Miner and Wordstat, (b) I checked the data for redundancy, (c) I performed initial coding for data entry using themes derived from the primary assessment of data, and (d) I input data and refined themes using QDA Miner and Wordstat software. The process was repeated to refine outputs and to eliminate redundancy in the data (Bazeley & Jackson, Qualitative Data Analysis with NVIvo, 2014). Results will be presented as discussions of trends or themes, using words and less statistical forms (Pan, 2013).

Classic data analysis. Using pattern-matching as a central interpretive activity, I used Yin's 5-step process to analyze the data: (a) compilation, (b) initial data reassignment, (c) thematic reorganization, (d) reassembled thematic organization, and (e) interpretation of step four by concluding. Using this classic data analysis approach, data analysis and serendipitous influences facilitate rethinking aspects of a phase or the outcome altogether (Yin, 2016). Together, the five steps represent the analytic process used to separate and group data to ultimately prepare findings and produce final documentation. The first step, compilation, relates to the range and types of data collected and involves organizing Everything into a database for further processing. The second step, initial data reassignment, involves the establishment of a new label for sub-areas of previously categorized data. This process can be repeated as often as necessary using thematic categories to reorganize data into new associations consistent with the analytic framework and established themes. The third step involves a review of the graphic forms

of the data according to the thematic framework established. By repeating this analysis step several times, I further derived the important content from tangential data that formed outlier positions within the database. The fourth step, reassembling thematic organization, also relies on a graphic review of the data. During this step, data is reassembled to create a new narrative, which should include charts and graphs to provide context for discussions of the findings. The fifth step involved the interpretation of step four to arrive at the study conclusions and connect the findings from the previous steps.

The conceptual framework provides an omnipresent guide for the project and the underpinning for the connection between themes, the extant literature, project methods, and the findings of the study (Anfara & Mertz, 2015). The mathematical results of the study provide additional insights into decisions that underlie expenditures and other resource utilization needed to drive electric vehicle sales activities. I will correlate themes with the existing literature and the conceptual framework to shape and produce a conclusion for the study outcome. Arguments that answer the research question and the process will be achieved in three stages: data assembly, data synthesis, and analysis of data patterns. These stages correspond to specific tasks required to form evidence supporting the findings that emerge from the research (Tight, 2017).

Reliability and Validity of the Study

All research studies are reviewed for trustworthiness. This means that the results obtained are a reasonable reflection of the discovery process and are dependable, valid, and generalizable. Generalizability in qualitative research suggests that findings are credible, confirmable, and transferable to new contexts (Miskovic, 2011). In qualitative

research, the concepts of reliability and validity are different from those applied in quantitative research. The analogous criteria for qualitative studies are dependability, credibility, transferability, and confirmability. Since these criteria are not measurable, they need to be established using qualitative methods such as member checking and triangulation (Denzin & Lincoln, 2000).

Dependability

In qualitative research, reliability in data means that data sources are dependable, and hence, the data are accurate within the context of the study. To illustrate reliability, I will depict the details of my research process and design, providing explanations on how data were gathered and repeating the provision of explanatory confirmation throughout the study process (Bazeley, 2013). I will use member checking to confirm the accuracy of the interview interpretation. Moreover, obtaining data saturation enhances confidence in the research findings. As a result, ensuring reliability will facilitate the use of my study in future research.

Validity

The purpose of my research is to understand the use of resources in selling electric vehicles. Validity in qualitative research involves a process whereby a researcher must explore whether study findings are credible, transferable, and confirmable. To ensure validity, I used triangulation and member checking to confirm the value of the results. Confirmation will be assumed when I achieve data saturation using a methodological triangulation approach (Tight, 2017). This will reflect both completeness

in the data collection process and corroboration of the study phenomena by participants (Yin, 2016).

Credibility

My study is believable when my audience is convinced of its credibility. Credibility is confirmed when the experiences of the audience are similar and affirmative within the context of the findings (Tight, 2017). This may be achieved by (a) collecting data, taking every opportunity to revisit observations and interviews; (b) ensuring thorough exploration of rich data items for completeness; (c) using member checking among participants; identifying contrary evidence to illustrate competing perspectives; (d) ranking occurrences using numbers; and (d) making comparisons within and between groups, situations, and events (Yin, 2016).

Confirmability

I used member checking to improve the accuracy of data collection. I will also use follow-up questions during interviews, as this process allows for participant feedback after initial interviews, thereby confirming the accuracy of the previously obtained descriptions. I will use triangulation to enhance the reliability and validity of the project data collection process. Obtaining similar results from different sources corroborates the credibility of the results. My results were confirmable when the semi-structured interview findings strongly reflected the participants interviewed in a consistent pattern. This achievement will minimize suggestions of research bias. Confirmability describes the process whereby results can be confirmed or supported by other researchers (Patton, 2002).

Transferability

Data saturation is important for illustrating transparency and enhancing the credibility of the study. I will build on the credibility of the study by ensuring consistency and sustainability in adhering to research design standards and data analysis methods, including the use of an interview protocol to enhance transparency and achieve data saturation, which is critical in qualitative research. When no new information is obtained after successive iterations of collection and analysis, data saturation is achieved. Achieving data saturation is an important milestone in the process of illustrating that a research approach is credible and transferable.

Transition and Summary

The purpose of this qualitative multiple-case study was to explore techniques used by retail owners to educate consumers about electric vehicles. This study is divided into three parts: the background underpinning, the project, and the applications to practice, along with the implications for social change. This current section reflects and reports on topics that may positively impact electric vehicle sales.

In Section 2, I have outlined my approach to the study, which included my role as researcher, the role of the participants, the sampling approach, information about research ethics, and my methodology for performing the research and subsequently documenting my findings. Last but not least, I discussed the trustworthiness of my findings.

In Section 3, I present the findings of the study. The findings present the themes identified by business owners as important strategies for educating consumers and increasing EV sales profitability. Section 3 includes a discussion of the implications of

the study towards social changes, recommendations for action, suggestions for future research, and my reflections on the study and the research process.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative multiple-case study was to explore sales strategies that EV dealership owners use to educate and inform consumers about EV technology to improve profitability. Data was collected from semi-structured interviews of owners, company websites, select social media pages, and professional literature sources. The business entities included in this study are all located in the Philadelphia metropolitan area. They have been in business for at least 5 years and use marketing budgets in a variety of strategies to make consumers aware of electric vehicle (EV) products and technology to make sales and sustain profitability. Four themes were identified: (a) marketing and advertising budgets, (b) original equipment manufacturers assistance, (c) EV awareness among consumers, and (d) government policies on clean energy and EV purchase subsidies.

Findings from interviews suggest that owners use a variety of marketing resources to inform consumers about EV technology and to subsequently complete EV sales. Raising consumer awareness about EV products and technology is central to the allocation and use of marketing resources to promote and complete EV sales to achieve profitability (see Table 2). Topics included in my presentation of findings are applications for professional practice, implications for social change, recommendations for actions, recommendations for future research, my reflections, and conclusions.

Table 2

Participant Responses Related to Themes

Themes	Participants	Responses
Marketing & Advertising Budgets	11	101
Original Equipment Manufacturer Assistances	9	80
Consumers EV Awareness	11	65
Government Policy on EV Purchasing Subsidies	8	15
Totals	39	261

Presentation of Findings

The study's objective was to answer the research question: What sales strategies do EV retail owners use to educate and inform consumers about EV technology to improve profitability? Existing research has substantiated the significance of consumer awareness as a factor in completing EV sales (Lashari et al., 2021). Few studies have explored how and what market resources are used to make consumers aware of EV products and to pursue profitability. This study has produced four themes that explore how marketing resources are used by owners to complete EV sales and pursue profitability.

Eleven owners of dealerships in the Philadelphia Metropolitan Area were interviewed. Semistructured interviews were conducted over several weeks. Other data sources included company website marketing and advertising content, social media accounts, and professional literature. Data were coded, analyzed, and conducted using a QDA miner. The assignment of codes during the analysis of interview transcripts was achieved using a technique known as "pattern-matching," a process and means used to identify thematic patterns (Yin, 2016). The thematic patterns that emerged included (a) the allocation of sales resources as likely drivers for the expansion of EV technology as a

competitive form of personal transportation; b) the marketing and development efforts of EV manufacturers are important drivers of local sales and profitability; c) consumer awareness of EV technology influences sales; and d) government subsidies and clean energy promotions are contributing to EV sales and profitability.

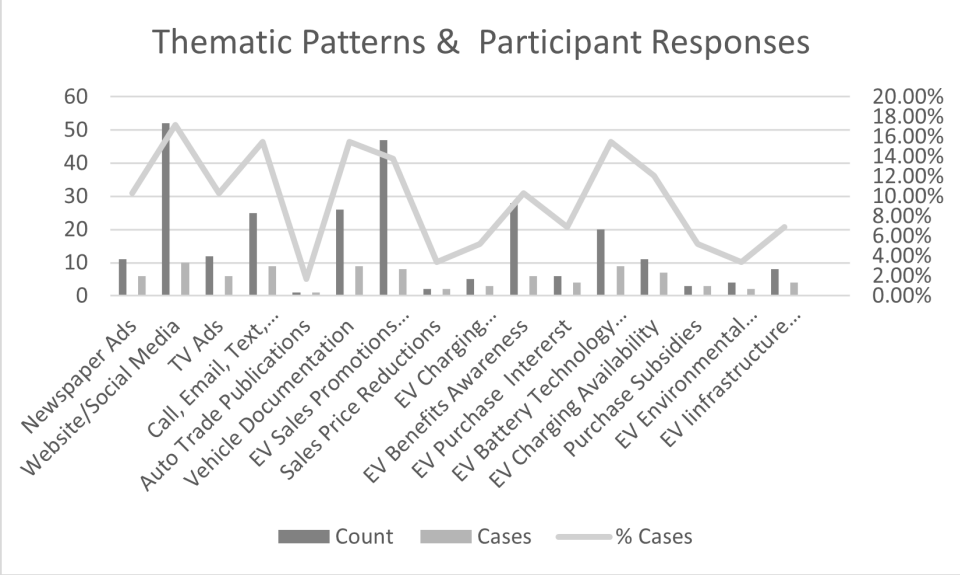
Research advantage is the conceptual framework of the study and has been used to explore the research question. Moreover, RA theory correlates with the literature and the themes identified. The new knowledge obtained from this study was determined by comparing data and themes with the literature and the conceptual framework.

Four themes and sixteen sub-themes were identified among the collected data (see Figure 1). Emergent themes included (a) marketing and advertising budget resource strategies to influence EV sales and profitability; (b) original equipment manufacturers assisting with efforts to inform consumers about EV technology to encourage sales; (c) consumer awareness influences inquiries about EV products and sales; and (d) government policies on clean energy promotions and EV purchase subsidies support EV sales and profitability.

RA theory correlates with the literature and themes. My contribution to the literature on this topic has been achieved by examining the findings of the literature as well as the conceptual framework of the study. Thematic patterns illustrate what and how resources are used by business owners to achieve EV sales.

Figure 1

Thematic Patterns & Participant Responses



Theme 1: Marketing and Advertising Budgets

Marketing and sales budget resources use strategies to influence sales and profitability (Cahill et al., 2014). All participants applied sales budget resources to achieve new customer sales and profitability (see Figure 2). Participants 1 and 2 stressed the use of social media and test drives as important budget strategies for making EV sales. Participant 1 stated, “Social media is a godsend! It makes people comfortable, and it is easier for me to explain things. The time and effort our people spend managing our accounts is well worth it!” According to Participant 2, “The money we spend on test drives is irreplaceable. After a test drive, everything is different, and frequently, we get the sale!” The allocation of limited budget resources is tied to micro-environmental factors that determine the reliance on one approach over another (Sipho, 2016). Participant 3 pointed out the following:

> Our company receives a high volume of chat messages. We sort through everything and build leads to sales. Sometimes, the chat seems unrelated, but we stick with it. I'm amazed at how we arrive at a sale using our chat. I'm not sure I understand the behavior, but we get there; we communicate and make sales. The volume has marketing value.

Participant 4 stated the following.

> The social media accounts provide a starting point for sharing information with our customers about electric vehicles. We learn a lot about what people know and don't know, or what they think they know about electric vehicles. We get a lot of surprises, positive and negative. People are all over the place with their opinions about electric vehicles.

Participants 3 and 4 noted the relevance of social media content in shaping sales strategy and approach. These participants, in turn, shared that resource use is related to the sales history data of their respective organizations, which is an important factor in making decisions on how to allocate marketing and sales resources to educate potential EV customers. Participant 4 shared the following:

> TV and newspaper advertising has always been an important driver for our monthly sales, and current electric vehicle promotions are no different. We get a high volume of calls after every ad. People have a lot of questions. It's like our ads prompt them to ask questions they've been thinking about, to find out what electric vehicles are all about.

Results from this study confirmed the role of management in developing innovative and calibrated approaches to using limited budget resources to maximize EV sales and profitability. Participants 1 through 10 relied on social media to answer customer questions about EV technology. Participant 3 stated that

> Sales personnel rotate responsibility for the daily review of social media accounts to answer questions and to do what they can to encourage people to take test drives. Test drives are a critical step towards making a sale. It's like building momentum.

According to Participant 6:

> Our social media accounts are like a mining operation. We get precious leads that often result in new customers for electric vehicles and, more importantly, customers for life! Website changes to improve the ability to attract more customers are frequent and are a priority for the business.

Participant 7 pointed out the following.

> We put a lot of time and effort into managing and customizing our websites. It's involved and requires tactics and strategy. You can't just put up a website and expect to get customers and finish sales. There is a whole process of deciding which platforms to use, how much to pay for a position on the internet, whom to hire to produce ads and graphics, and which analytics recommendations we use in planning and management of strategy and content.

Participant 9 shared

> Our partnerships with manufacturers give us access to a huge amount of important information that we can make available to potential customers and existing customers looking to switch to electric vehicles. Much of the technical stuff we need to do with our websites to push and pull sales leads, the manufacturers have already done. That saves us a lot of time and money, and we can get to the chase and make sales.

Results from the study indicate that participants rely on TV ads to generate and make EV sales. TV media is important in managing sales strategies and determining resource allocations for advertising and sales promotions. Since TV ads are important, additional measures of precision are necessary to ensure accuracy in what is being communicated to potential customers. The costs are measured in personnel time spent organizing and placing ads as well as the impact in terms of inquiries and, ultimately, sales made per ad. According to Participant 1,

> TV ads are the bread and butter of our advertising efforts. I'm not certain what would happen to our sales quota outcomes if we could not plan and place ads. You know, the sustained budget to pay for ads, as well as the internal and external manpower to plan, design, and otherwise manage the process.

Participant 6 added the following:

> Yes. We still rely on newspaper ads as our primary means of generating monthly sales. Many of my business associates tell me that newspaper ads are still very important to their local sales efforts. I feel fortunate with the ads we can place.

> I'm grateful and feel lucky because we probably wouldn't be able to use TV ads at all. For now, we are dependent on the printed word for most of our sales.

Participant 4 stated the following.

> We use email for just about everything. I mean, it is critical to cultivating, processing, and finalizing electric vehicle sales. The good thing is that it isn't expensive, and we have a lot of control over how to use it as a resource, unlike some other advertising approaches. Test drives are easy to manage and schedule with email.

All participants shared available government information promoting clean energy and purchase subsidies. Moreover, they mentioned that the auto industry's efforts to improve and expand charging availability and battery reliability are important drivers in making sales. Participant 3 stated the following.

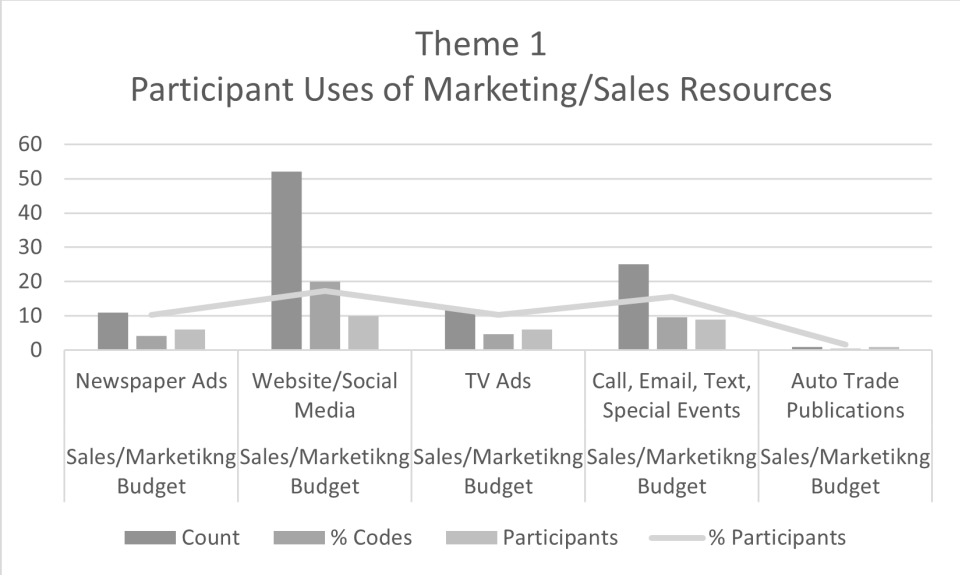
> We tap government websites a lot to answer questions from customers about electric vehicles. There are so many angles to look at, and a private car dealership like ours simply does not have the financial resources to keep up. So we find the government website very helpful in giving us good information to use in explaining electric vehicle technology, the greater expense to purchase a vehicle, and new ways to justify the cost when compared with gas-powered vehicles.

Participants 1, 3, and 5 shared sales experiences recalling instances where government subsidies and clean energy promotions were factors in finalizing EV sales. Participant 1 characterized subsidies as "vital," while Participant 3 suggested that government involvement in the promotion of clean energy is "critical" to expanding

awareness of EV technology. Participant 5 pointed out that sales increases would be "impossible" without the use of available government information on clean energy and EV technology.

Figure 2

Participant Uses of Marketing/Sales Resources



Correlation with the Literature

The literature reviewed supports the above findings, which suggest the importance of micro-environmental assessment by managers and the use of available manufacturer and government support in deciding how to best deploy limited budget resources to maximize customer exposure to products and potential sales (Garling & Thøgersen, 2001). Successful EV sales depend on the calibrated use of manufacturer and government resources in the marketing mix to ensure future growth and profitability (Higueras et al., 2021). Because of the small market share, EV dealership owners universally access information from industry manufacturers, the government, and clean

energy advocates to enlighten consumers and ultimately close EV sales (Lingzhi et al., 2017).

Theme 2: Manufacturers' Assistance

All participants acknowledged the extensive involvement of manufacturer representation in EV promotions and efforts focused on consumer awareness (see Figure 3). According to a majority of participants (nine out of 11), technical assistance and marketing support of local EV sales efforts should be a top priority in manufacturers' activities related to marketing and sales. Owners' lack of knowledge about EV technology presents a disadvantage in market competition. Therefore, manufacturer technical assistance and marketing support are necessary to achieve relative parity in the sale of electric vehicles with gas-power competitors (Harrison & Theil, 2016). Participants 1, 2, 3, and 6 emphasized reliance on manufacturers' resources to inform potential customers about EV products. Participant 6 stated the following:

> My background and experience have been primarily in selling gas-powered vehicles for decades. Without technical information from manufacturers, many sales would simply not happen. Manufacturers' assistance is critical to our efforts to complete electric vehicle sales.

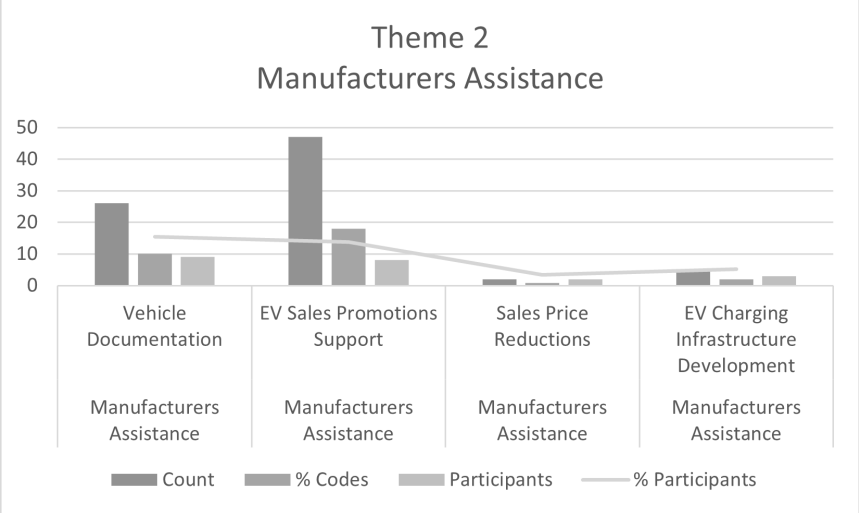
Manufacturers are important partners to local electric vehicle dealership owners. Participant 1 noted that "selling electric vehicles can be complicated." Moreover, Participant 3 commented that "being able to go to the manufacturer's website and gather information which I can share with customers is a game-changer for me in making sales." According to Participant 2, "Being able to pick up the phone and speak with a

manufacturers' representative about a problem being experienced during sales has proven effective."

Determining where to place electric vehicle charging stations is a task primarily carried out by electric vehicle manufacturers. Participant 9 mentioned that charging stations are "more visible." Partnerships with supermarkets, convenience stores, apartment complexes, and others are contributing to a reduction in the phenomenon of range anxiety (PEVec et al., 2020). Improvements in battery technology have also diminished concerns about range anxiety among existing and potential EV customers. Nevertheless, range anxiety is a key factor in dealership efforts to make electric vehicle sales, and manufacturers' involvement in the management of this issue has proven to be important in sales transactions. All participants agree that existing electric vehicle owners are less concerned than potential EV buyers.

Figure 3

Manufacturers Assistance



Correlation to the Literature

The production and sale of EV products are increasingly symbiotic and dependent on manufacturers' support of sales efforts in local dealerships (Reshetko et al., 2021). The use of technical manufacturing knowledge influences the uptake of EV sales and the social transition to low-carbon transportation technology (Harrison & Thiel, 2017). Therefore, manufacturers can be seen as full partners in all sales efforts and promotions. They are better positioned within the market environment to both absorb losses and stimulate and facilitate growth in EV sales. For example, early on, public and fleet sales have sustained the market viability of electric vehicles, compensating for the much slower acceptance of EV technology by direct consumers. A lack of technological awareness, higher prices, and the unlikely encouragement of long-term social benefits confirm the importance of EV manufacturers' roles in marketing to consumers (Gärling & Thøgersen, 2001). Electric vehicle manufacturers, directly and indirectly, affect

consumer awareness by committing resources to the expanded construction of charging stations, coordinating with local dealerships to lower prices and enhance competitiveness with ICE vehicle sales, and coordinating technology integration strategies with public utility companies and the government to energize marketing innovation in pursuit of expanding market share and profitability. The role of EV manufacturers also includes the development and expansion of logistics and supply industry companies as EV sustainability takes hold in the market. This phenomenon has an additive impact on EV sales expansion as consumers become more aware of immediate EV technology benefits and historic risk aversion is diminished (Rui et al., 2015).

Theme 3: Consumer Awareness

The expansion of consumer awareness influences purchase behavior and increases sales and profitability (See Figure 4). Six participants mentioned the significance of expanding consumer awareness as an important factor in increasing EV sales. Six participants also acknowledged that increasing consumer awareness of EV technology positively influences sales efforts. Nine participants mentioned the importance of battery reliability in making sales, while 7 participants mentioned that charging availability was an important factor in selling EVs. Electric vehicle market growth is inextricably linked to consumer awareness of EV technology benefits (Jenn, 2018). Participants 5, 6, 7, and 8 noted that a test drive was instrumental in closing all sales. Participant 7 stated the following: “We have used the test drive since the early days of the dealership. It was important then and is equally important now in closing sales on electric vehicles. Using the senses helps to complete sales – touching, feeling, smelling, directly experiencing the

vehicle." Participant 5 noted "There is no substitute for touching and smelling the vehicle! It raises confidence and helps to close the sale. According to Participant 2:

> When we communicate with potential customers by phone, text, or email, they usually ask questions about the technology, stuff related to conveniences and reliability – such as how far a vehicle can travel on a full charge, or how to best find recharging stations. Positive discussions about reliability and conveniences often help us to schedule a visit to our showroom, which frequently leads to a sale.

Participant 6 noted the following:

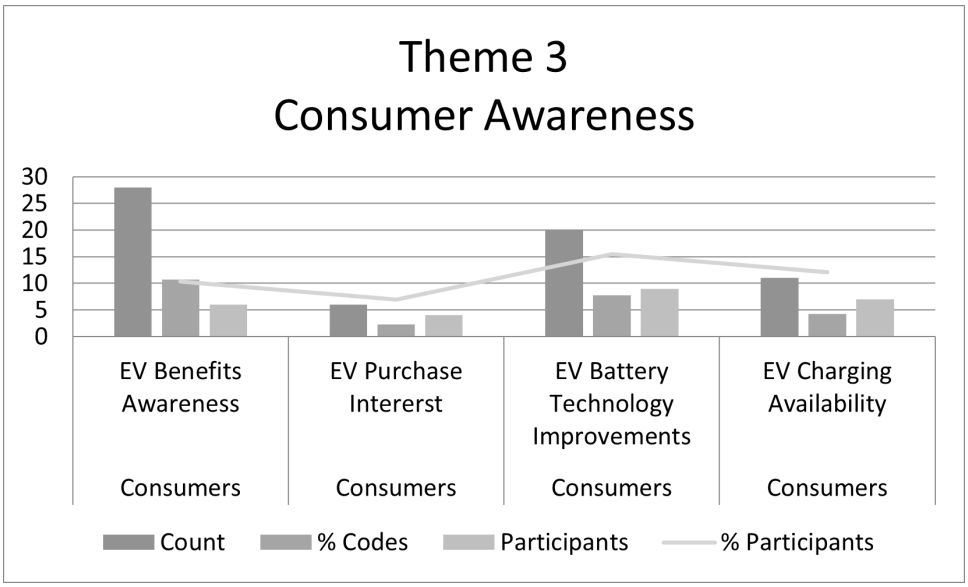
> I am surprised at the number of people who mention the environmental benefits of purchasing electric vehicles. Something must be working. Customers are increasingly discussing the zero-emissions benefits of electric vehicles. This awareness can be positive for future electric vehicle sales.

According to Lashari et al., (2021), perceptions about EV characteristics contribute to our awareness of their environmental and economic benefits. Becoming aware of EVs' comparable or better reliability and convenience compared to ICE technology can have a positive effect on EV sales and increase their market share. Price is also a challenge for EV dealerships since EV price points are usually higher than those of ICE competitors, and awareness of EV vehicle long-term maintenance benefits can often facilitate sales since vehicle maintenance is much lower than that of comparable ICE products. Ultimately, greater consumer awareness seems to be correlated to diminished risk aversion, increased consumer confidence in the reliability and

convenience of EV products, the development and availability of recharging stations, and other benefits associated with purchasing electric vehicles (Lashari et al., 2021).

Figure 4

Consumer Awareness



Correlation to the Literature

Understanding EV technology is a precondition to overcoming barriers to the full realization of the environmental, social, and economic benefits of electric vehicle transportation. Internationally, a wide range of public and private communications efforts are focused on the challenge of removing barriers to consumer awareness of electric vehicle benefits (Lingzhi and Slowik, 2017). Local sales are integrally tied to the extent to which consumers are aware of EV technology at the time of purchase (Han, et al 2023).

At present, electric vehicles are 40% more efficient at utilizing electric energy than ICE vehicles. This improved use of power is directly tied to industry expansion

strategies. Market research conducted by Rui et al. (2015) has identified education and environmental awareness as drivers of current and future EV sales. However, the lack of comprehension and integration in the use of marketing information hinders the delivery of acceptable product choices to potential customers. Rethinking how market resources are used to elevate consumer awareness is an important challenge for the industry and may test the limits of creativity and innovation in marketing strategy and implementation. This idea correlates with the literature in that management is responsible for committing limited market resources to the selling process, encouraging innovative strategies in competition, and considering the requirements of discreet choices, which are likely to result in higher and more frequent EV sales (Hunt, 2002).

Theme: 4: Government Policy

Three participants mentioned that government subsidies are important to sales. However, government promotion of charging infrastructure development was mentioned as being more important to sales than subsidies (see Figure 5). Several participants also mentioned that government promotion of clean energy transportation was important to sales. The promotion of clean energy policies and the provision of purchase subsidies influence EV sales and profitability (Bitencourt, et al 2021). A majority of participants acknowledged the important role government policy plays in expanding awareness of EV technology as well as covering price gaps with subsidies supporting consumer purchases of electric vehicles.

Participant 9 praised government efforts to promote clean energy and the public adoption of EV transportation in particular.

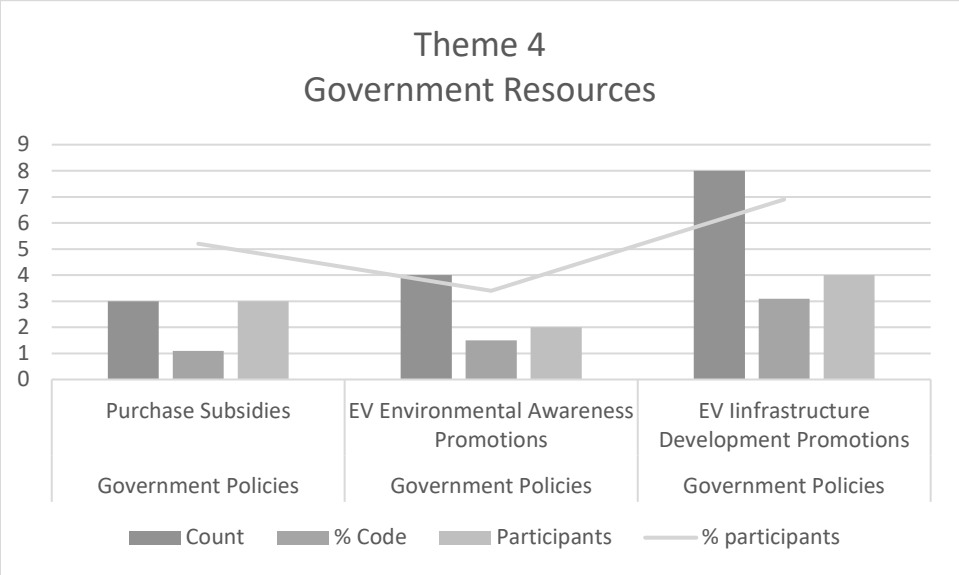
> Using information from government websites, our salespeople have been able to explain away many of the concerns potential buyers had about electric vehicles. Doing market research can be very expensive and beyond our capacity. Having access to such information virtually free of charge is a godsend and a great use of taxpayer dollars.

Participant 11 suggested that consumer awareness, in combination with clean energy promotions, was important to the successful completion of most EV sales. Many times, potential customers come to the table ready to discuss the benefits of electric vehicles and ask us for confirmation of what they have learned by visiting government websites. Government subsidies are seen as an added benefit, one more good reason to buy an EV. It seems to be working!

Government financial subsidies, electric vehicle promotions, and pro-electric social policy adaptations are facilitating the expansion of the EV market. These practices are intertwined with consumer awareness in that the expansion of government support for EV adoption supports an increase in consumer awareness of positive EV benefits, both social and personal (Jenn et al., 2018).

Figure 5

Government Resources



Correlation to the Literature

Government-sponsored purchase incentives, regulatory involvement in the development of charging infrastructure, and requirements for manufacturer compliance with clean air standards provide an underpinning for the normalization and broad adoption of electric vehicle transportation (Chen et al., 2020). Consumer purchase experiences that result from government emission reduction control policy development initiatives can have a positive impact on expanding the use of electric vehicle technologies (Vidhi & Shrivastava, 2018). Government policies supporting the use and purchase of electric vehicles can be positive for expanded EV use and increased EV sales and profitability (Fulan, 2022).

Government policies and research are also affecting inter-industry coordination between electric vehicle manufacturers, utility industries, and others, such as construction

industries. Greater interoperability between various industries further expands sales and adoption of EV technologies by the public. These propensities are consistently moving in a positive direction, building market growth momentum over shorter periods (Jenn et al., 2018).

Correlation to the Conceptual Framework

The RA theory of resource advantage provides the conceptual framework for this study. Business owners who used resource advantage in marketing to make consumers aware of EV technology were more likely to make EV sales (Plananska, 2020). The majority of participants shared that multiple and creative uses of resources in marketing activities were more likely to result in successful EV sales (Hunt, 2015). A majority of participants (82%) shared that they allocated market resources in various ways to complete individual EV sales transactions. The creative application of market resources frequently supports increased sales and profitability (Hiong, Ferdinand et al 2020). Multiple market channels and sales techniques are used to make consumers aware of EV technology (Racela, 2014). Management decision-making to use limited organization resources in particular market channels and with calculated frequency is central to making new EV sales and ultimately to supporting growth and profitability (Gao et al., 2023).

Participant interview responses revealed the importance of using a variety of sales and marketing approaches to inform consumers about EV technology. Six participants (55%) relied on both internet and newspaper channels to inform consumers about EV technology. The reactive use of marketing channels and resources supports sustainable

competitive marketing and increased EV market share (Phi Ho et al., 2017), as business owners learn how to effectively share information with consumers by using market resources in unique ways.

The RA theory of resource advantage emphasizes the heterogeneous application of marketing resources from multiple economic sectors throughout the marketing and selling process. The participation of multiple industries in the EV marketing and sales process is disequilibrium-provoking and spurs innovation, which leads to increased EV sales and profitability (Jenn et al., 2018). Competition disrupts market stability and provides opportunities for the use of innovation by local dealerships to expand sales and profitability (Yang et al., 2021).

Applications to Professional Practice

The findings from this research provide insightful and creative ways to use marketing resources to make consumers aware of EV technologies and benefits during the EV selling process. The data suggests that a precondition to expanding EV purchasing is greater awareness of the technology among both repeat and new customers. Study participants were all owners and managers of auto dealerships in the Philadelphia metro area, which includes northern Delaware, Southern New Jersey, and the Eastern portion of Pennsylvania, where all participants have been in business for at least five years.

All participants used formal budgeted resources to drive annual marketing and sales strategies. All owners have been in business for 5 years or more and have made creative and effective use of limited marketing budget resources to expand consumer awareness of EV technology and complete EV sales transactions. These study results

may be used more broadly by auto dealerships to promote EV awareness and sales to expand market share: (a) in strategy planning, using multiple channels of communication to make new and repeat customers aware of EV technology; (b) making maximum use of government, manufacturing, and utility company resources to support EV sales strategies; (c) encouraging new and expanded financing options for the lease and purchase of EV products; (d) including customer satisfaction statements and opinions about technology reliability in advertising and promotions, and pushing statements to multiple communications channels.

Implications for Social Change

According to the RA theory of resource advantage, the findings from this study could provide new and innovative ways to deploy market resources to make consumers aware of EV technology, leading to increased EV sales (Racela, 2014). RA theory purports that an organization's use of marketing and sales resources should be unconventional, broad, and disequilibrium-provoking (Lieven and Hugler, 2021). The effective and unique deployment of marketing and sales resources by local EV dealerships may contribute to public awareness about the benefits of clean energy technology and may, therefore, result in expanded EV sales and profitability (Thanwadee, 2022). Another impact of social change may include further progress in the removal of barriers to the adoption of electric vehicles as a new standard of personal and commercial transportation (Higueras-Castillo et al., 2021). Greater use of EV technology will lead to improved air quality, the more efficient use of limited social and economic resources, and, ultimately, an improved quality of life (Oliver & Rosen, 2010).

The results of this study may also contribute to a positive transformation in awareness among local consumers and dealership owners about EV technology that will lead to broader changes in transportation preferences, with expanded implications for energy independence, improved economies, and greater independence of consumers in general and special needs groups in particular (Fontaine, 2008).

Recommendations for Action

In this case study, I explored how business owners use market resources to facilitate EV technology awareness and ultimately increase EV sales and profitability. Electric vehicle business owners confront multiple challenges in marketing and selling electric vehicles (Baumgartner & Gross, 2000). The results of this study may be useful to small and mid-size electric vehicle dealerships, local construction companies interested in pursuing market opportunities to develop charging infrastructure, and local and regional profit and non-profit financing sources exploring investment opportunities in electric utility and electric vehicle marketing expansion. I plan to use a website to make an educational video on this topic available to the public. The website will also link to channels designed to facilitate sharing information with consumers about EV technology and market expansion as a viable alternative to ICE I will also organize plans to design and develop a podcast to further stimulate local discussion about EV technology benefits and challenges.

The recommendations for actions derived from this study are as follows: (a) design and develop a marketing strategy in the context of the marketing budget; (b) identify all government and manufacturer resources that may be used to enhance the

marketing and sales plan and establish steps to engage implementation partnerships; (c) develop and use sales analytics to calibrate marketing strategies to expand and improve approaches for increasing consumer awareness of EV technologies and product promotion strategy; (d) plan and conduct consumer seminars online to expand awareness about EV technology and products and the environmental, economic, and social impacts of broader EV technology usage.

The first recommendation is designed to establish detailed uses for marketing resources within the context of the budget and to build timing and activities around the deployment resource allocations. The second recommendation builds upon the basic marketing budget by identifying resources outside of the organization that can be used to further the organization's marketing and sales objectives. The third recommendation transforms data captured on the website and uses analytic software and services to explore performance and potentially useful insights.

Recommendations for Future Research

The limitations of this study included the case study design, time restraints, and the sample size. Data collection was also limited to a single geographic area, and the businesses I interviewed were at least 5 years old. Future research could expand on the design of this research by using other approaches to explore various aspects of EV marketing, barriers to greater acceptance and sales, and improvements in marketing budget resource utilization and deployment. Additional geographic locations could be explored, along with different business age groups. A mixed-use study could add the dimension of quantifying marketing activities by evaluating operational performance in

the context of the results obtained from the market resources used in making EV sales. A larger sample size, along with the inclusion of a quantitative methodology, may provide opportunities for expanding insights into operations and opportunities in the context of the marketing mix of an electric vehicle retail sales plan. Online interview capabilities will expand opportunities to collect more information faster and at a reduced cost. Moreover, additional research could build on the findings and knowledge obtained in my study.

Reflections

At the start of this project, I experienced an intense curiosity to better understand the industrial and economic phenomenon of electric vehicle transportation. My desire to understand this contemporary social phenomenon has burgeoned into a strong desire to understand how organizations apply resources to make consumers aware of electric vehicle technology, complete EV sales, and expand the EV market. My original thinking about EV technology was unilateral and focused on efforts to develop a social tool to eradicate carbon-based air pollution. That singular focus has evolved to include a cogent presentation of EV growth as a market force and a social response to the challenges of producing and using clean energy for consumer transportation. Consequently, some of my comments to participants may have exhibited a lens of social thought that exceeded the parameters of objective research. By filling a small yet valuable gap in the literature, I am hopeful that my overly zealous initial approach has evolved toward one of social responsibility. The findings of my research have supported my personal and professional

growth regarding the impact of consumer awareness on the adoption, expansion, and profitability of EV technology.

Conclusions

In this case study, I explored the strategies used by business owners to make consumers aware of EV technology to encourage EV sales and profitability. The study involved online, semi-structured interviews with business owners who have been in operation for at least 5 years. Four themes emerged during the analysis: (a) marketing and advertising budget resource strategies to influence EV sales and profitability, (b) original equipment manufacturers are assisting with efforts to inform consumers about EV technology to encourage sales, (c) consumer awareness influences inquiries about EV products and sales, and (d) government policies on clean energy promotions and EV purchase subsidies support EV sales and profitability. Participants discussed the importance of various uses of marketing resources to educate consumers about EV technology. The use of creative and innovative marketing has proven effective at sustaining and growing sales and market share. Sustainability and growth are intertwined with consumer awareness of technology, and businesses are more competitive when market resources are used innovatively to increase sales and profitability. Flexible approaches in the deployment of market resources designed to make consumers aware of EV technology are an essential and central objective for market planning and resource allocation. In summary, the case study documented techniques and channels used by dealerships to make consumers aware of EV technology to close sales and increase profitability. The study results suggest that organized, innovative, and integrated sales

approaches are useful in dealership efforts to complete sales and that such approaches disrupt competition and facilitate market share expansion.

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Appendix A: Interview Protocol

This interview is focused on EV business owners who promote and sell electric vehicles, and who have been in business for at least five years. All participants are from the Philadelphia Metropolitan area. The area is diverse and includes three states: Northern Delaware, Eastern Pennsylvania, and Southern New Jersey. All participants will answer the same questions. I will contact dealerships by phone, introduce myself to owners, and provide an overview of the study's purpose.

1. I will give each owner a copy of the consent form via fax transmission, and address any concerns before starting to interview. Consent will be obtained at initial contact and before scheduling the interview session.
2. I will inform each participant that the interview will be recorded and ask permission to start the audio recording.
3. I will begin the interview by introducing the participant with a coded ID (Names will not be used in the data collection process) and provide date and time notations for the start of the interview.
4. All interviews will be conducted chronologically.
5. Where necessary, I will use follow-up questions to clarify responses.
6. I will thank each participant for their time and effort at the close of the interview.
7. As an alternative, if during the interview a participant exhibits contrary behavior or sentiment, the researcher will politely decline to include the participant in the study. Further, the researcher will inform the participant that nothing shared during the session will be disclosed to anyone for any reason.

1. The researcher will wish the participants well and thank them for their time and interest in the project.

Member checking Procedure:

1. Review and interpret each transcript.
2. Write each question, and synthesize the response, about a paragraph.
3. Share a copy of the summary of the meaning of each answer provided.
4. If scheduled, I will introduce the follow-up interview and set the stage for discussion.
5. I will ask probing questions about other information found without compromising IRB protocol requirements.
6. I will go over each question with participants and ask whether it is an accurate interpretation of their answer. I will follow up and ask if they have anything to add.
7. I will continue the member-checking procedure until there is no new data to collect.

Appendix B: Interview Document

Research Question

What sales strategies do EV retail owners use to educate and inform consumers about EV technology to improve profitability?

Interview Questions

1. Please identify expenses in your sales budget that represent resources allocated to strategies used to make consumers aware of EV technologies.
2. What marketing channels does your company use to produce leads for consumers who may be interested in purchasing an electric vehicle?
3. How does your company respond to sales leads received?
4. Based on your experience, what advertising strategy (or strategies) have been responsible for most of your EV sales?
5. What, if any, strategies do you use to increase consumer awareness of EV technology to increase EV sales?
6. What EV technology changes have influenced you to update consumer education information for marketing and sales programs?
7. What sales strategies do you use to communicate EV technology changes to your target market for EV sales?
8. What EV education information is provided as a part of the sales program?

Wrap-Up Question

What information can you share that was not already covered about your sales strategies for EV consumer education?

Appendix C: Promotional Flyer

Interview Study seeks volunteers who own an electric vehicle dealership in the Philadelphia Metro Area

Raising Public Awareness of Electric Vehicle Technology to Increase Sales

There is a new study about electric vehicle dealership owners that explores how they use resources to educate consumers about electric vehicle technology to increase sales.

About the study

- ✓ Interviews will be conducted in November and December 2022.
- ✓ Interviews will be online and audio recorded.

- ✓ Names will not be used in the study.
- ✓ A link will be provided to volunteers to a secure site where results will be available for review.

Volunteer requirements:

- ✓ The volunteer has been an owner of a retail dealership in the Philadelphia metropolitan area for five years.
- ✓ The volunteer has a defined and documented marketing and sales approach.
- ✓ The volunteer has an advertising and sales budget.

This interview is part of the doctoral study for Robert English, a DBA student at Walden University.
Interviews will be conducted in November and December 2022.

To volunteer, contact the researcher:
Robert English