



# Importance and Impact of Market Segmentation in Electrification with Electric Vehicle Charging Stations for Commercial Market and Technological Innovations by Predictive Methodology



**Pravin Sankhwar\***

*Department of Electrical Engineering, Maryland, USA*

**Submission:** December 17, 2024; **Published:** January 06, 2025

**\*Corresponding author:** Pravin Sankhwar, Department of Electrical Engineering, Maryland, USA, Email: pravin1989vision@gmail.com

## Abstract

Market segmentation to understand the key customers for the electric vehicle charging stations is required to launch new products on all types of electric vehicle chargers such as level 1, 2, and DC fast chargers. The major focus of this paper is to understand the market segmentation and then apply it to the concerned industry for electrification. The types of market segments based on the market value were presented in the paper to allow specialized products targeted to given segments. When technology innovations and predictive methods were used to project the energy demand and type of electrical charging infrastructure required, an overall conceptual diagram with needs in electrical load calculations, energy demand calculations, and thus using market segmentation to meet the charging requirements was presented to enhance the use case of market segmentation and industry standard practices.

**Keywords:** Electric vehicle charging stations; Industry standards; Market segmentation

## Market Segmentation

In order to understand the target audiences and customers, it is important to perform a market segmentation study based on demographic, geographic, psychographic, and behavioral features of the customers and understand the right customer behavior in terms of their needs and choices [1]. There are improved chances of people being fascinated and engaged with an advertisement targeted to them [2]. For instance, a cartoon advertisement for candies and chocolates attracts children [3]. The colorful and visually appealing cartoon characters draw their attention and tempt them to buy [2]. However, a good portion of adults eat chocolates too, but these are not necessarily associated with

cartoons to attract them, but some nutritional benefits associated with them can allure them to buy them [4]. Hence, the concerned company would have a major revenue generation by targeting both age groups of customers separately with customized advertisements, packaging, and anime characters [5].

Psychographic segmentation is similar to demographic segmentation and geographic segmentation (a subset of demographic segmentation) [1]. However, it's more into the classification of the market-based on personality traits, values, lifestyle, and so on [6]. In my opinion, the importance of market segmentation to a company is not only related to improvement

in product reach but also involved in delighting customers with a product of their choice and creating a loyal customer group hence resulting in improved revenue generation, future growth, and create a brand image in people’s mind [1]. For instance, a fashion retail brand was able to increase its revenue generation by 20% by customer segmentation analysis [7].

The argument that a company can be successful with market segmentation is controversial to state because on one hand, companies like baby products may be segmented based of age group and type of use but on the other hand companies like whole milk and sugar that are essential commodities does not necessarily require a segmentation to propagate to its intended customer [8]. Moreover, sometimes a market segment could be too small to become profitable [8]. So, market segmentation would really depend on type of product and at least a larger size of market segment [8].

When we talk about demographic segmentation, based on gender, there are products in feminine care such as sanitary pads and cosmetics products whereas men’s care products are entirely different from feminine products [9]. Also, infants of different age group have variation in diaper size and absorption capacity [1]. The woollen clothes are quite popular and are needed in areas/ countries with cold weather whereas cotton/ linen clothes for warmer regions based on the geographic location [10]. Also, certain kinds of food such as spices and juices are well suited based on geography and have strong customer base only in those areas [11]. These are absolute examples of geographic segmentation.

Certain group of people prefer colours because of psychological reasons such as religious beliefs and traditions they practice [12]. Hence, products such as clothes with these colours are popular amongst a community [12]. Certain people tend to read online reviews of the products such as hotels and airlines before making a purchase whereas certain people like to talk to the agent about the product such as buying an auto insurance [13]. So, several

companies offer online chat option and a platform to showcase customer reviews in their advertisements for customer referral programs [13].

### Electric Vehicles Charging Stations (EVCS)

The type of EVCS infrastructure required at commercial facilities is heavily dependent on the use case. The use case is dependent on several factors, such as the preparedness of the commercial property owner for the electrification of their existing vehicles. The role of market segmentation based on the type of equipment to be utilized for the charging is key when utilization of the market segmentation principles is implemented. For example, some users may prefer a slow charging option via level 2 charging to improve their battery life whereas many may prefer a fast charging to reduce elongated charging times otherwise. Commercial properties may also be impacted by the government policies and incentives provided for the electrification of their fleet.

### Segmentation of the EVCS Market

(Figure 1) shows the breakdown of the real estate market by each type of sector based on total value in \$ trillions per Nareit. Each type of occupancy tends to follow a typical characteristic for the number of vehicles owned or operated on a daily basis. Accordingly, the type of the EVCS required by them varies. A typical methodology in obtaining electrical energy demand based on the per square feet footprint of the building becomes a starting point for estimation of the energy demand. The required energy demand will then be further analysed based on the individual needs of the commercial properties for the suitable charger (either slow or fast chargers). Additionally, for the design of new buildings, the electrical load calculations must account for electric vehicle charging loads. For example, a 120V, 1 phase outlet load for level 1, up to 19.2 kW for single level 2, and up to 350kW for a single DC fast charger.

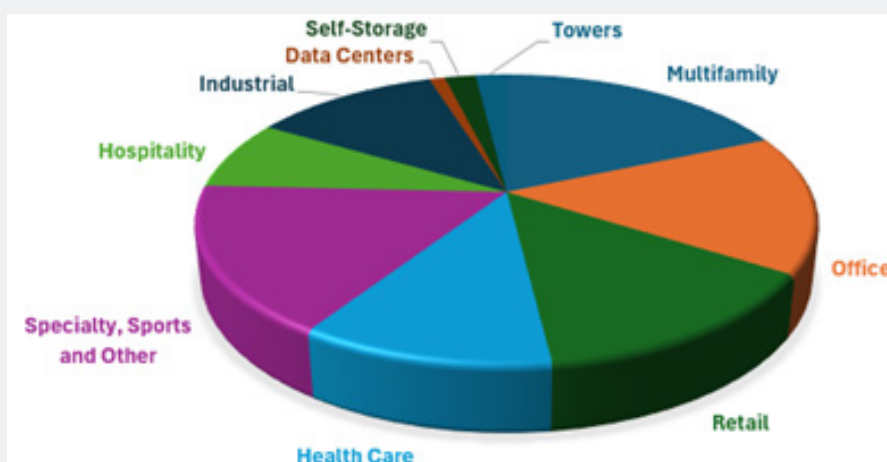


Figure 1: Market Segments by Market Value.

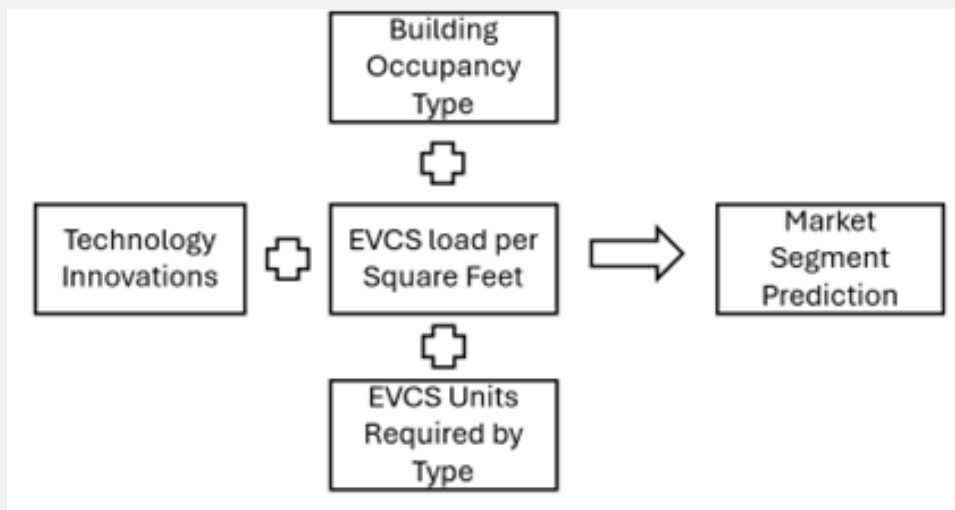


Figure 2: Use of Technology in Market Segmentation.

### Technology Innovations and Predictive Methodology

The industry standards govern the type of electrical load for all types, such as lighting, power, HVAC, water heater, and so on, by each type of building occupancy. For example, the National Electrical Code recommends a lighting load of 3.5 Volt-Amperes per Square foot. Similarly, based on existing installations of EVCS at each property type, the total number of expected chargers for other facilities can be predicted. Additionally, technology innovations alter the transition both from electric vehicle manufacturing and EVCS design. A factoring in of technology innovations can further improve the predictive modeling for the market segment for the EVCS. (Figure 2) presents the holistic picture of the market segmentation in an EVCS industry based on necessary aspects to consider, from electrical demand calculations to incorporating the consistently evolving EVCS market.

### Conclusion

The impact and importance of market segmentation in company's marketing decision making were discussed. Limitations in segmentation and examples of each type of segmentation were shared with practices followed by companies in improving revenues. The concept of Electrical Vehicle Charging Stations and respective energy demand usage for market segmentation were presented. Individual sectors required detailed assessment to identify the customer needs and equivalent electric vehicles demand.

### References

1. Iacobucci D (2018) Marketing Management Market Segmentation Cengage Learning.

2. AP News (2019) Customer Segmentation Analysis Improves Marketing Results for a Fashion Retail Brand | Read Infiniti's Latest Success Story to Know How AP News.

3. Qualtrics (2020) Market segmentation: Types, benefits and best practices Qualtrics.

4. UKEssays (2018) Target Market Segments Profile Marketing Essay UKEssays.

5. Townsend A, Tjang S (2015) Targetting Chocolate. Marketing Management Blog T1.

6. Mack S (2020) Weakness of Market Segmentation. Small Business Chron.

7. AP News (2019) The Global Feminine Hygiene Products Market is Projected to Reach \$52 Billion by 2023 - ResearchAndMarkets.com AP News.

8. Thomas S (2020) Geographic Segmentation Explained With 5 Examples. Yeildify.

9. McCarthy E (2020) Consumer Segmentation in the Food Industry: A New Approach. Kerry.

10. Marthas D (2016) Understanding the Effects of Religion on Consumer Behaviour. Northeastern University.

11. Bloem C (2020) 84 Percent of People Trust Online Reviews as Much as Friends. Here's How to Manage What They See. INC.

12. Myres A (2019) Confectionary firms using cartoon characters to encourage 'pester powers' to sell sweets. Confectionary News.

13. Vijayakrishnan V, Harikrishnan D, Babu SD (2018) Marketing strategy in advertisements using animated characters. IJPAM 119(12): 2841-2851.



This work is licensed under Creative Commons Attribution 4.0 License  
DOI: 10.19080/NFSIJ.2025.13.555870

**Your next submission with Juniper Publishers  
will reach you the below assets**

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats  
**( Pdf, E-pub, Full Text, Audio)**
- Unceasing customer service

**Track the below URL for one-step submission**  
<https://juniperpublishers.com/online-submission.php>