OPTIMIZING MARKETING STRATEGIES THROUGH OCCUPANCY PATTERN ANALYSIS IN SHOPPING MALLS

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ABSTRACT

This study examines the occupancy patterns within a suburban shopping center in Sri Lanka, with more attention to the evolving role of shopping malls as dynamic marketing hubs. It underscores the importance of comprehending customer behavior, optimizing store layouts, and deploying effective advertising strategies in the context of mall marketing. Using a data-driven approach spanning four weeks, we collected and analyzed customer traffic data. Our findings consistently highlight the prominence of entrances 1 and 2, with Fridays emerging as the peak day for customer engagement. Additionally, crowd density analysis uncovers the significant impact of store types and the time of day on mall traffic patterns. These actionable insights serve as valuable guidance for mall management, enabling the optimization of marketing strategies and an enhanced shopping experience. By effectively bridging the gap between theoretical knowledge and practical applications in shopping mall marketing, this research contributes to a deeper understanding of occupancy patterns within these multifaceted commercial spaces.

Keywords: Customer traffic and retention, Marketing optimization, Occupancy patterns

1. Introduction

When hearing the word "shopping malls," thoughts of shopping, entertainment, movies, food, and spending time with family come to mind. This shopping mall concept has become an integral part of daily life in our busy world. Mall culture in Sri Lanka, particularly in urban areas, has developed significantly, with people drawn to the overall shopping mall experience and the convenience of the "one-stop shop" concept for a wide range of brands, products, and services. Shopping malls play a major role in building socialization for Gen Z, providing them with a place to spend quality time with their families and hang out with friends (Debsena, 2022; Makgopa, 2016).

In response to shifting consumer preferences and the competition between shopping malls to attract more people, the shopping mall landscape is undergoing a transformation, with malls evolving into vibrant experience hubs. These malls now recreate a house of stores that offer unique and immersive interactions and captivating entertainment options to draw people in.

The study proves that consumers have specific motivations for visiting shopping malls, and the frequency of their visits varies depending on those reasons. Marketing communications and strategies can help to increase the frequency of customer visits and accentuate the uniqueness of each shopping mall experience.

Effective marketing is crucial in this context, as it drives customer engagement, fosters brand awareness, and ensures revenue growth (Hettiarachchi et al., n.d.). Understanding occupancy patterns and purchasing habits is essential, as it provides valuable insights that empower marketers to optimize store layouts and personalize marketing approaches, setting shopping malls apart from their competitors (Bitner et al., 1992; Fahy & Jobber, n.d.; Huang & Sarigöllü, 2012). Understanding factors that affect customer behaviour can be beneficial in terms of attracting and retaining more customers.

Yet, a research gap exists that existing research has not yet addressed. While previous research has explored customer behavior, branding, and pricing strategies independently, there's a lack of research that integrates these aspects through a quantitative analysis of occupancy patterns to identify and enhance marketing strategies within shopping malls. This study aims to fill this gap by closely examining occupancy patterns and occupancy patterns, uncovering how these impact marketing strategies.

The objective of this research is to fill the identified research gap by conducting an in-depth quantitative analysis of occupancy patterns within shopping malls. Through an exploration of customer traffic patterns, crowd density variations, and their implications, this research aims to contribute to a deeper understanding of occupancy patterns within shopping malls, ultimately facilitating the development of data-driven and effective marketing approaches for mall operators and stakeholders. To achieve this, we will conduct a study of occupancy patterns and occupancy patterns at a local shopping mall in the suburban area (Kzone, Katubadda). We will focus on understanding the relationship between key attractions within the mall and their influence on customer traffic and retention, including peak hours, popular amenities, and customer density variations. Through the application of various data visualization techniques, this research will provide actionable recommendations for marketing and store management decisions based on occupancy patterns.

This paper presents a contemporary assessment of shopping mall marketing practices, drawing upon insights from an extensive literature review that explores customer behavior, branding, and pricing strategies. It outlines our methodology, focusing on the collection and analysis of data in order to identify existing occupancy patterns, providing a comprehensive understanding of customer movements within shopping malls. Furthermore, in the results section, we delve into customer traffic patterns, crowd density variations, and their direct implications for marketing strategies.

In conclusion, our study underscores the potential for tailored marketing approaches in shopping malls, underscoring the importance of comprehending occupancy patterns for optimizing store layouts. These insights promise increased engagement, heightened brand awareness, and enhanced customer loyalty within shopping mall environments.

2. Literature Review

Understanding occupancy patterns is crucial for shopping mall marketing, as it provides valuable insights into customer preferences and patterns, aiding in strategic decision-making. Researchers employ various methods to analyze customer behavior, including surveys, observations, and data analytics. Optimizing store layouts based on occupancy patterns enhances the shopping experience. Research by Hui et al. (2016) employs heat mapping technology to visualize customer density in a mall. Their findings indicate that adjusting store placements according to customer flow can lead to increased sales and improved customer engagement (Hui et al., 2008). Another aspect of store layout optimization relates to product placement. Vanhuele & Drèze, (2002) explore how pricing strategies and product placement within a store affect customer purchasing behavior. They find that strategic product placement can increase sales and impulse buying (Vanhuele & Drèze, 2002).

Effective marketing strategies are essential for attracting and retaining customers. A study by Huang and Huang & Sarigöllü, (2012) investigates the impact of advertising on customer retention in shopping malls. Their research emphasizes that strategically placed advertisements can positively influence customer brand awareness and loyalty (Huang & Sarigöllü, 2012). Moreover, despite the rise of online shopping, the physical shopping experience remains more popular, as hedonistic shoppers are motivated by feelings of happiness, stress relief, and the desire to keep up with trends (Evangelista et al., 2020). Furthermore, Palan & Mallalieu (2012) state that when customers spend more time at shopping malls, the event tends to generate increased purchasing (Palan & Mallalieu, 2012; T. P. Bandara et al., 2022).

Moreover, (Sadeghi & Bijandi, 2011) highlight the role of the shopping mall environment in maintaining positive relationships with customers. They demonstrate that a desirable and joyful shopping mall environment provides more practical benefits, even considering varying cognitions and values among buyers. The findings suggest that the shopping mall environment can be leveraged to encourage customer approach behavior, keeping visitors engaged for longer durations. Strategies include creating inviting spaces with colorful aesthetics, gardens, waterfalls, entertainment areas, and convenient facilities such as restaurants and banks. Notably, paying attention to diverse customer tastes and offering a comprehensive range of goods, known as A-to-Z shopping, is a prevailing trend in modern shopping malls. In line with this trend, this research recommends investments in building large shopping malls with diverse spaces, including sports clubs, entertainment areas, offices, and green spaces, alongside traditional stores. The emphasis is on creating attractive environments, complete with ample covered parking and easy transportation access via city systems.

While the existing literature provides valuable insights into various aspects of shopping mall marketing, a research gap emerges. The current body of knowledge focuses on customer behavior, branding, and pricing strategies individually. However, there is a lack of research that combines these aspects by quantitatively analyzing occupancy patterns and directly applying occupancy patterns to optimize marketing strategies in shopping malls. By comprehensively understanding how customers move within malls, shopping

malls can develop data-driven marketing approaches that are strategically aligned with customer behavior. Thus, our research aims to address this void by collecting and analyzing occupancy patterns to create actionable marketing strategies benefiting both shopping mall operators and customers. This study endeavors to bridge the research gap by quantitatively examining occupancy patterns and directly applying these insights to enhance marketing strategies within shopping malls.

3. Methodology

The methodology for the study comprises two phases; initial data collection followed by rigorous visualization analysis, leading to the derivation of strategic marketing insights.
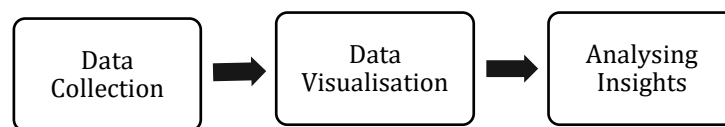
Data Collection → Data Visualisation → Analysing Insights

Figure 1. The flow of methodology.

The study was conducted at the shopping mall in Katubadda on weekdays from 2:15 p.m. to 5:30 p.m. The convenient sampling method was employed for location and observation period selection, as it ensured accessibility and practicality for the researchers within a manageable time frame.

The customer traffic approach was used to collect data, which enabled easy surveying and visualization of consumer movement within the mall premises. Additionally, customer retention data and environmental factors such as temperature and humidity were also gathered. The study spanned over four weeks of the period recording a total of 4,873 customer observations. This extensive data collection allowed us to gain comprehensive insights into customer behaviour within the mall.

The collected data were subjected to visualization techniques to identify variations in occupant behaviour based on the observed day, time, and locations within the mall. This analysis aimed to provide actionable recommendations for marketing and store management decisions based on customer behaviour. Data visualization was achieved through a Power BI dashboard, chosen for its capability to provide dynamic and interactive visual representations of the data. This tool facilitated a deeper understanding of customer movement patterns and allowed for real-time updates in response to changing conditions. It displayed the total number of customers entering through all three entrances daily, main amenity retention rates by day, and total customer density over time.

The methodology employed in this study was designed to align with the research objectives. For instance, the use of customer traffic data and weather conditions recordings directly contributes to the objective of gaining valuable insights into customer behaviour within shopping malls. This data-driven approach aims to provide valuable

insights into customer behaviour that can be effectively used to optimize marketing strategies in shopping malls.

4. Results and Discussion

A study of the customer traffic data (Figure 2) of a shopping mall revealed that Entrances 1 and 2 are the busiest, with Entrance 1 being utilized by 57.12% of shoppers. The lowest customer traffic count was recorded at Entrance 3, which is primarily used by shoppers who want to enter the food stalls located there.

The study found that the customer traffic pattern varies with the day of the week. On Tuesdays, the majority of shoppers enter the mall through Entrance 1, followed by Entrance 2. Meanwhile, Entrance 3 has the lowest customer traffic on Tuesdays. On Mondays and Wednesdays, the sum of customer traffic is fairly distributed between Entrance 1 and Entrance 3, with Entrance 3 having the lowest customer traffic on Mondays.
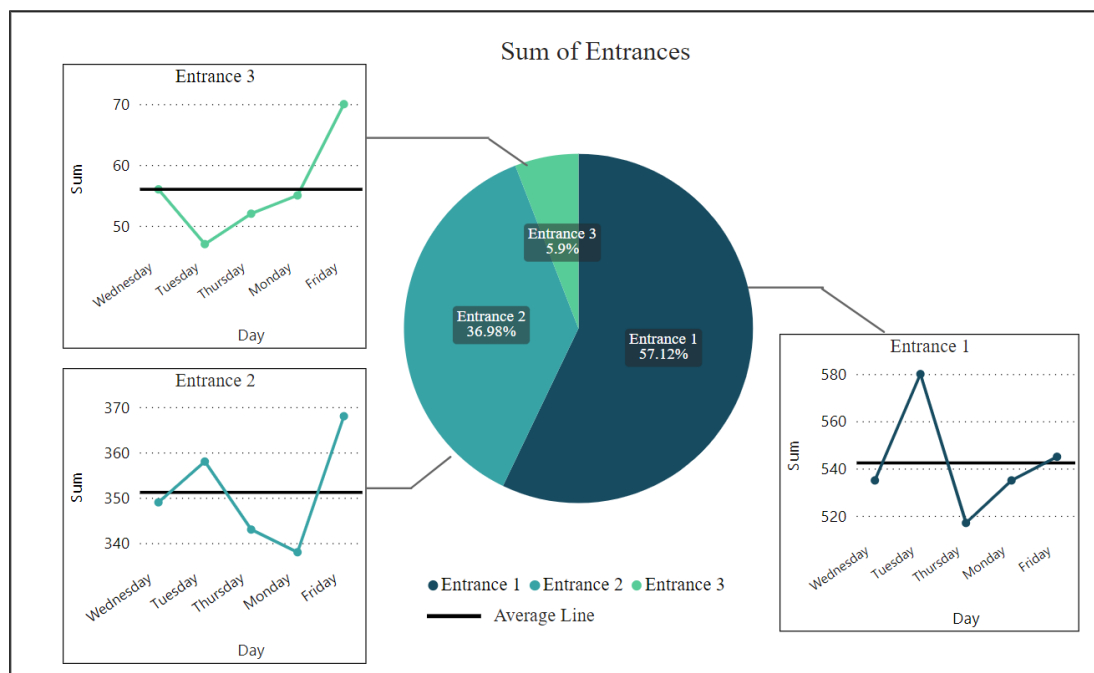

Figure 2. **The sum of the three entrances' footfall count.**

A sudden surge in the number of shoppers entering the mall through Entrances 2 and 3 indicates on Fridays. On the same day, Entrance 1 experienced a rise in customer traffic, although not as much as the other entries. This indicates that the shopping center is busiest on Fridays, as opposed to other weekdays.

A study of the crowd density (Figure 3) in a shopping mall found that the supermarket is the busiest on Mondays, followed by the Friday after Monday. The clothing store and food stalls are evenly crowded on weekdays, with the clothing store seeing a slight increase in crowd density on Tuesdays. On Fridays, the food stalls are the busiest, followed by the supermarket. The clothing store sees its lowest crowd density on Fridays.

The shopping mall's density of shoppers (Figure4) normally increases after 3:00 PM and reaches its maximum capacity after 4:00 PM. This is attributable to a variety of circumstances, including the end of the workday, the beginning of the supper hour, and the release of schoolchildren.

The ending of the workday contributes significantly to the increase in shopping centre traffic. Many people who work in the city or suburbs stop at the mall on their way home from work. They could want to go shopping, eat something, or simply relax and decompress before returning home. Another element that can influence shopping mall traffic is the release of schoolchildren. Many parents take their children to the mall after school to buy or simply let them run around and play. The combination of these elements can result in a large rise in afternoon and early evening shopping mall traffic.
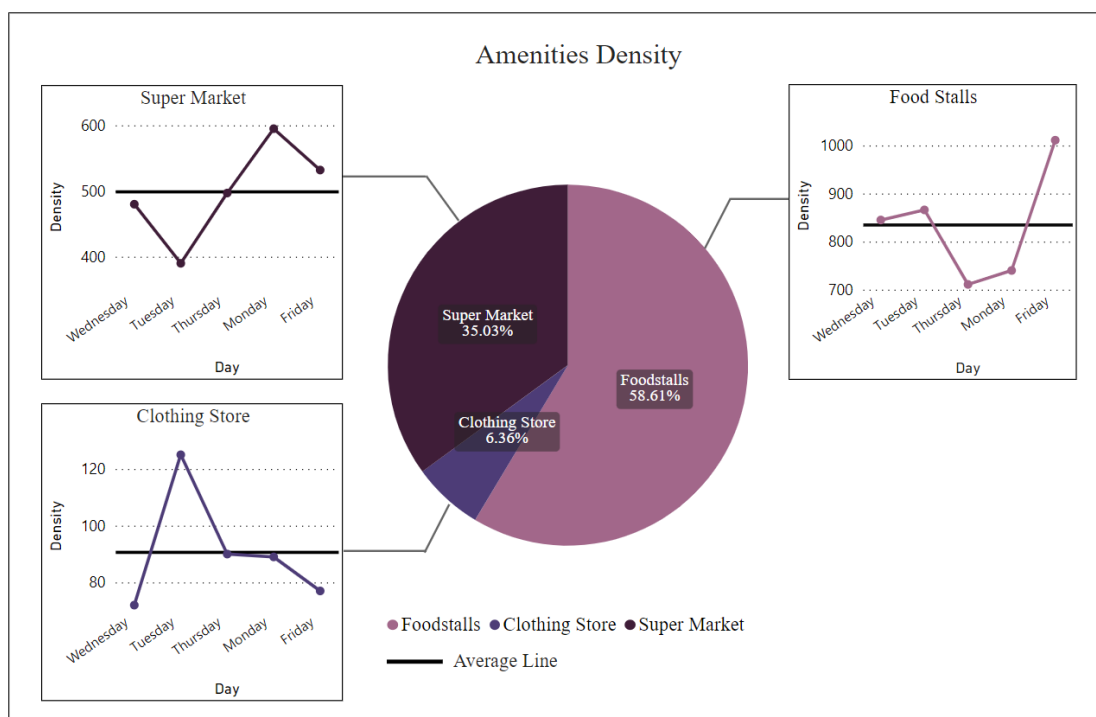

Figure 3. The sum of the supermarket, clothing store, and food stalls density by the weekdays.

Crowd density at a shopping mall is determined by various factors, including the day of the week, the time of day, and the type of store, according to the study's findings. Retailers can use this information to strengthen their marketing plan and ensure that they engage the correct customers at the right time.
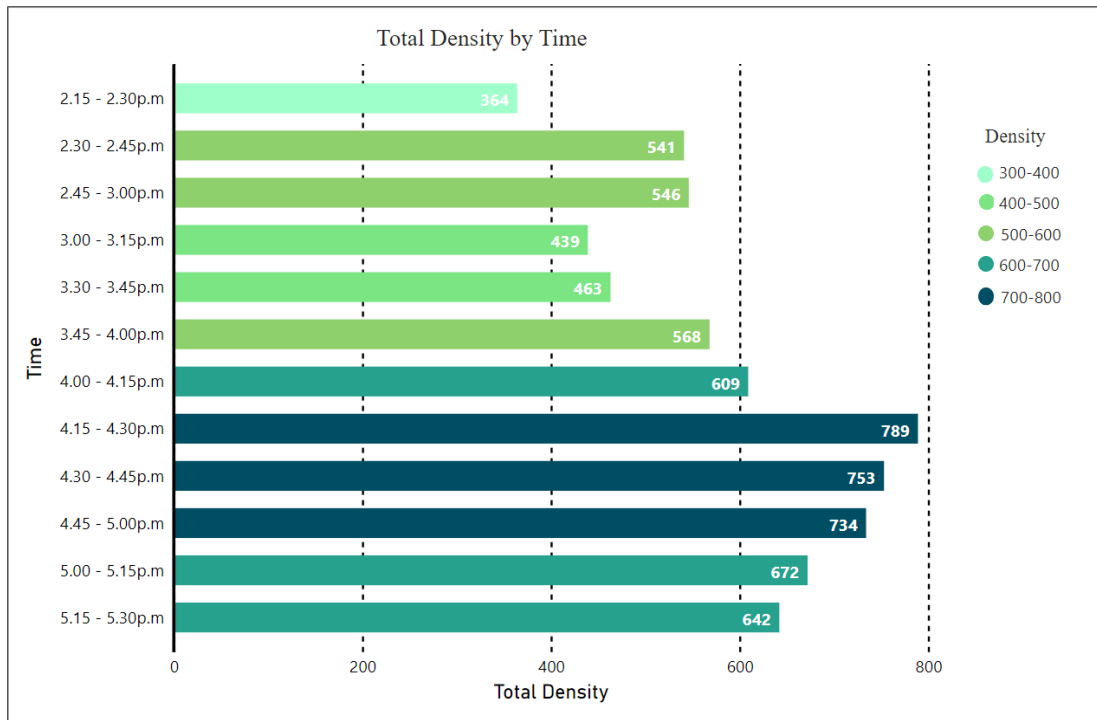
Figure 4. Total density of shopping by time.

5. Conclusion and Implications

In the realm of consumer buying decisions and their corresponding attitudes toward shopping malls, the influence of marketing strategies and the quality of store services plays a pivotal role. Remarkable advancements in technological applications to marketing have contributed to an enhanced perception of the physical shopping experience, subsequently enticing customers to actively partake in it. Notably, Entrance 1 (as depicted in Figure 2) consistently serves as the preferred entry point for most customers, a preference substantiated in the preceding results section. Given this scenario, the strategic utilization of billboard marketing emerges as a highly effective approach to rapidly engage this customer base. Employing eye-catching posters and signs within close proximity to store entrances serves the dual purpose of promoting specific products or services while indirectly augmenting awareness of the shopping mall itself and its array of stores, thereby luring potential visitors and accentuating the mall's distinctive features. Furthermore, the content displayed on these billboards should be acutely relevant to the prevailing target audience. It is important to acknowledge that the composition of mall visitors varies significantly according to the time and date. For instance, during screenings of youth-oriented films at the mall's movie theatre, the predominant demographic is young individuals. Conversely, when family-friendly movies are shown, families with children constitute the majority of attendees. Consequently, billboard content should be tailored to mirror the demographic composition of the crowd at any given moment. To illustrate, during evening hours, teenagers and young adults dominate the shopper profile, making it a prime opportunity for stores to focus their marketing efforts on the presentation of current trends and themes that typically captivate this demographic. Moreover, on weekday evenings, office workers form a substantial portion

of the passerby traffic, rendering it a favorable occasion for clothing and grocery stores to channel their marketing strategies toward this particular audience.

Distinguishing between task-oriented or rational shopping and leisurely, relaxation-driven shopping experiences represents a fundamental dichotomy in shopping behaviors. To cater to the latter category of shoppers, contemporary marketing approaches must be both engaging and expansive, transcending conventional methods. Augmented reality (AR) and virtual reality (VR) marketing, by enabling customers to virtually interact with products and services, represent transformative tools in this context. Notably, clothing and accessory brands can seamlessly integrate these technologies into their marketing campaigns, captivating consumer attention and fostering meaningful engagement.

Finally, the deliberate organization of events tailored to the specific interests and preferences of the target audience can foster excitement surrounding the mall, motivating increased visits while simultaneously elevating its indirect promotion. For instance, hosting family-oriented events during weekends can attract families with children, creating a vibrant and welcoming ambience. Similarly, scheduling Friday night gatherings geared towards office workers can provide them with opportunities to unwind and shop post-work, thus indirectly bolstering the mall's visibility and appeal.

Acknowledgement

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