

Innovating The Shopping Mall Experience: The Mall-Sage Solution

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Abstract: - Stakeholders of the modern shopping mall industry are facing a critical challenge: competing against other malls to stay relevant and become the most appealing destination for customers. The most straight forward path to achieve this status is to provide its customers with exciting quality-of-life features such as ample parking, escalator access to all floors, diverse food options catering to a variety of budgets, and more. However, most malls have adopted these basic features over time, leaving little room for differentiation. As more malls incorporate these successful features, the pioneering mall's uniqueness and advantages dwindle. To stay competitive and aspire to the top, malls must constantly innovate by introducing new features. However, inventing entirely new and captivating services becomes increasingly challenging over time. The primary goal of this research is to investigate this situation and propose innovative, novel features that malls can implement to reclaim their position as industry leaders. This investigation makes an effort to study the latest trends using data from previous research articles, conducting surveys on focus groups, and gaining firsthand experience by visiting a few malls. This study will provide practical insights and recommendations for stakeholders, allowing them to not only maintain their relevance but also thrive in the ever-competitive landscape by shedding light on the evolving dynamics of mall features and consumer expectations. The final result of this research will be a web application Mall-Sage which implements the proposed features.

Keywords: *Shopping-mall, innovation, web-application, customer satisfaction, competition*

1. Introduction

A. Background

In today's modern world, in-store shopping remains a cherished and highly preferred shopping style for many, transcending mere necessity and often becoming a hobby that people eagerly anticipate. Businesses, too, continue to find profit in the allure of physical shopping experiences. With the resurgence of in-store shopping after the brief fall with Covid-19, shopping malls have once again become bustling centres of commerce, regaining their status as magnets for crowds.

B. Problem Statement

Shopping malls offer a broad spectrum of stores, an array of shopping experiences, and a suite of value-added services that transform a routine outing into a memorable event. As a result, they undeniably draw more foot traffic than standalone stores. Recognizing this trend, astute entrepreneurs have seized the opportunity, leading to the rapid growth of shopping complexes and heightened competition among them. To stay ahead in this competitive landscape, mall stakeholders are constantly innovating to provide customers with unique and exclusive features. However, as time goes by, introducing genuine novel features becomes increasingly challenging.

C. Significance

This research endeavours to address a critical issue within this competitive landscape. The challenge of introducing fresh, innovative concepts while enhancing the overall effectiveness of existing mall features is paramount. The significance of this problem lies in its impact on the retail industry, consumer experiences, and

the economic viability of shopping malls. Furthermore, it touches upon the evolving dynamics of consumer preferences.

D. Objectives

The following are discovered as the objectives of this research.

- Assess the current state of mall features.
- Identify areas for improvement.
- Propose innovative solutions.

These objectives are closely aligned with the need to maintain the relevance and appeal of shopping malls in an ever-evolving market.

E. Research questions

Central to this research are the following research questions.

- How effective are existing mall features in meeting consumer expectations?
- What areas require improvement to enhance the overall shopping experience?
- How can the Mall-Sage web application contribute to innovation in this context?

F. Summary of the Paper

In the subsequent sections, the methodology employed for the research, findings on the current state of shopping mall features, areas for enhancement and innovative solutions for a mall will be discussed and proposed through the Mall-Sage web application. Finally, this paper will be concluded by offering insights into the implications of this study for the retail industry and consumer experiences.

2. Literature review

The success of a shopping mall depends on its ability to attract customer traffic and then convince them to remain longer while making purchases within it. In this section, let's delve into the existing body of literature to gain a comprehensive understanding of different features employed by existing shopping malls to heighten their success rates.

A. Customers' motive in visiting malls

Dr. Rashmi BH conducted a survey on customer satisfaction based on Bangalore, India [1]. This survey showed that the behaviour and attitude of those shopping at the mall can be understood via factors like Accessibility, Location, Entertainment, Motive for shopping, Variety and quality of Product, Frequency of visit, Food and Value for money. This study has also been able to highlight five major characteristics of a mall that would attract a shopper to visit and shop. They are overall mall environment, Ambience & Facilities, Personnel, Shopping Ease and Convenience. The results of this study showed that focusing more on promotional measures, improvement in service and facilities and developing innovative methods to reward loyal consumers would help malls to create loyal customers.

B. Determinants affecting customers decision-making

To achieve success in any business, it's crucial to know the dynamics affecting customer decisions. The study by Muhammad Soban Badar and Muhammad Irfan [2] sheds light on how purchasing patterns are influenced by demographic factors such as age, gender, and income. Their research emphasizes the importance of comprehending customer preferences which in turn increases the customer patronage towards a shopping mall, and how these preferences vary with basic demographic factors.

Thus, this study shows that a mall can increase their traffic by innovating and implementing unique features catered to a specific customer group and subsequently stand out from its competitors as 'themed' malls. Else, innovate features common to all customer groups and attract traffic as a common hub.

C. Layout of the mall structure

Building Structure of a mall plays a significant role in sustaining its customers. The commonly accepted layout evolves with time to meet the demands of different times and residential areas. As highlighted in study [3], the User-space relationship is very important for shopping malls with complex functional structure. This study underscores the significance of spatial configurations in designing effective shopping mall spaces.

This study brings forward that the 'Dumbbell' structure serves as a successful structure in the modern era. Utilizing this structure, focus can be applied on the possibility to provide customers with some unique experiences on the ends of the dumbbell structure displayed in Fig. 1 below. This may be used as an open terrace, a spacious arcade, or any visually pleasing venue.



Fig. 1. Dumbbell Structure

Some of the other structures considered within the study [3] are Clustered Structure (Fig. 2.) & Branch Structure (Fig. 3). These were concluded to be less effective in producing a better combination of user-space relationship than the dumbbell structure.

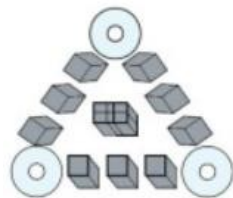


Fig. 1. Clustered Structure



Fig. 3. Branch Structure

D. Generational Shifts, Consumer Preferences and Customer Satisfaction

According to Wendy Bryce Wilhelm and Sandra Mottner's research [4], teens aged 12 – 17 is known as a user group who tends to be heavy users of enclosed shopping malls. This research also underscores that teenagers are inclined toward fashion and gravitate towards the concept of "cool" products. Moreover, malls serve as social hubs where teenagers like to "hang out."

Understanding the preferences of the teen group and creating engaging mall experiences for younger generations can be beneficial as it's been proved to hold more traffic. With the idea of 'cool' changing with each generation, this calls for mall administration to actively be alert of teenage customer preferences as the generations shift. As mentioned in the study [5] by Dr. Rashmi BH based on the various. Study conducted to identify customer satisfaction. In the study [6] conducted by Rajagopal it shows othe behaviour of urban shoppers and how it impacts in growing shopping malls.

E. Integration of Findings

To develop the application Mall-Sage effectively, this research integrates insights from the above studies and much more. The need to cater to the evolving nature of consumer behavior and to the different demographic groups within shopping mall environments has been acknowledged. The importance of aligning the application with the changing expectations of consumers and the spatial requirements of modern shopping malls will also be under strict consideration.

F. Building a web application

By reading through (Karunaratna, et al., 2014) it was seen that building a web application can easily address multiple issues faced within a mall under a same platform. This helped in deciding that building a web application as the result of this research is ideal. Building a web application is the best solution because all the needed solutions can be implemented there. Further, this can be used as a prototype to interact with when any mall decides to implement these solutions.

3. Methodology

This research adopts a mixed-method approach to investigate customer experience and satisfaction within shopping malls in Sri Lanka. This was achieved by effectively combining dynamic analysis of secondary data gathered through past research papers, conducting quantitative research through customer surveys, and performing qualitative analysis through on-site customer investigations at malls.

As shown by the study [6] secondary data is more useful as the starting point for research. Therefore, before embarking on this academic journey, a selection of recent scholarly literature was carefully reviewed. Only trustworthy publications listed in recognized indexing databases were chosen due to their verified and reliable content. A thorough examination of these academic sources yielded invaluable information that contributed to the advancement of this study. Each paper explored various aspects of enhancing customer experience and suggested new avenues for exploration. This effort was not solely about gathering information; it was about building upon past research. A meticulous study of these articles laid the foundation for a deeper understanding and enriched the research. Some of the insights gained in this way are included in the 'Literature Review' section above.

After carefully reviewing these publications and gaining knowledge on customer behavior and requirements, a few unique or extremely rare features were brainstormed to bring towards customers. These features are as follows.

- Providing easy identification & navigation between shops.
- Resting location availability tracking.
- Luggage handling within the mall.
- Facilitating shops with a blog platform for self-promotion.
- Parking space availability tracking.

It was collectively decided to move forwards with the research centralized around these ideas. To make sure that these are not redundant services that are already available in local or foreign malls, some of the most popular malls were investigated using their official websites.

Following this lookup, efforts to gain a better understanding were furthered by engaging with actual users of the anticipated Mall-Sage ecosystem through a well-crafted survey. This study aimed to collect comments and updated insights from a diverse range of consumers of various ages to create a comprehensive understanding of the mall-going experience in comparison to online and local retail. The survey was thoughtfully designed with the goal of gathering real, up-to-date opinions regarding the chosen facilities. Customers were also asked to share their overall opinions of shopping in malls, online shopping, and local establishments. However, the survey did not stop there; it delved deeper into the specific expectations of customers, encouraging them to express both positive and negative experiences. The objective was to understand customer satisfaction with the current shopping systems and how they would react to the idea of improving the shopping experience by implementing the proposed facilities. This survey marked significant progress toward customer-centric thinking and served as the initial step in bringing that goal to fruition. With the aim of developing a shopping ecosystem that genuinely resonated with its customers, it acted as a call to action, collecting insights and suggestions.

Well-known shopping malls in Sri Lanka were visited after conducting extensive research through relevant literature reviews and consumer surveys. This was done because first-hand experience of customer behaviour is valued more than simply reading about it. The importance of primary data than simply relying on secondary data

has also been discussed within the article of “Methods of data collection” [7]. The mall visits allowed for the observation of customer interactions up close while fully immersed in the mall setting. To observe customers' active reactions within malls, informal discussions with them were conducted. This also broadened the understanding of their preferences, problems, and expectations. The mall visits significantly enhanced and complemented the earlier quantitative and qualitative data collected. This hands-on experience underscored the complexity of customer interactions and highlighted that they cannot be fully understood through data alone. The deeper understanding of consumer behaviour and their satisfaction requirements gained from the mall visits was invaluable.

The inclusive strategy employed for this research is based on the synergy between mall observations and the information obtained from research publications and surveys. This method provides a comprehensive view of the intricate world of customer experiences in malls. These observations enable to offer insightful suggestions to improve the mall-going experience in Sri Lanka.

4. Results

Based on the data collected in the above-mentioned methods, a set of facilities were identified which will grasp the attention of customers. An investigation was then conducted on both local and global malls to find whether they already do provide these facilities. Table 1 shows a brief for this investigation. This short investigation helped to identify some unique features that customers would like to have but are not yet implemented in most malls. This analysis revealed that none of the surveyed malls, including the Dubai Mall, considered one of the world's best, offered facilities such as resting location availability tracking or internal baggage storage & delivery. Among the malls under scrutiny, only Taj Lifestyle in Jordan employed promotional blogs to promote their establishment. It was also realized that malls in fact do provide means of finding and navigating between the shops. Most of the time, this was done via a map of the mall on display. Since this feature is already implemented, it was removed from further investigation as its value as a unique feature is failed.

TABLE I. SUMMARY OF MALL FACILITY ANALYSIS

Facilities	MALLS TAKEN TO STUDY				
	<i>One Galle Face</i>	<i>Taj Lifestyle</i>	<i>Colombo City Center</i>	<i>Marino Mall</i>	<i>Dubai Mall</i>
Navigation Between Shops	✓	✓	✓	✓	✓
Resting location availability tracking	✗	✗	✗	✗	✗
Internal baggage counters	✗	✗	✗	✗	✗
Promotional blogs	✗	✓	✗	✗	✗
Parking availability tracking	✗	✗	✗	✗	✓

The following hereby will be an analysis of the results of the survey.

The survey revealed that approximately 78% of respondents would prefer to visit shopping malls, while only 22% responded otherwise. Subsequently, the survey participants were probed for their opinions on the identified features.

A. Luggage Management

In a question of whether customers would prefer to complete their outing within a mall even after being loaded with bought items, 34% expressed that they would rather leave, ending their plans for the day. And another 34% claimed that they would remain to complete their outing but would be unhappy about the experience. Only 32% of customers would happily complete their day once they have several items to carry around. This showed that overall, approximately $\frac{2}{3}$ of customers will be taking back a negative experience after their mall visit once they have gone through a few shops. A solution for this issue can be implemented via the Mall-Sage application as an internal luggage management system. (Quite like the exterior luggage management systems already implemented due to security reasons.)

B. Resting Locations

The questions aimed to gain insight on the features of resting locations showed that 86% of respondents have experienced the need for a rest or pause in a comfortable location during their mall visits. The survey strived to delve into the frustration of customers which they face upon finding out that the resting locations has been fully exhausted once arriving at the place. According to the results, it shows that out of every 100 customers, 6 of them would leave immediately being extremely dissatisfied and end their plans for the day. This behavior will have a very negative impact on the growth of the mall. A solution for this will be introduced in the Mall-Sage application as a resting location availability tracking system.

C. Promotional Blogs

Regarding the Promotional Blogs feature, 64% of respondents reported that they would prefer to actively research available stores and promotions before arriving at the mall. But only 12% confirmed their ability to find these details. 34% of the survey respondents answered that they do believe that the information they look for exists but are unable to find it. The rest of the respondents expressed that they either do not believe that the stores would publish this information online, or if they do publish, they are mostly unreachable by a general search. The survey also revealed that it could be possible that customers would find it hard to recommend a mall to others if they cannot find relevant information easily. This underscores the significance of promotional blogs and consumer awareness. Notably, 94% of respondents rated more than 5 on a scale of 1-10 that they prefer to have a site for promotional blogs of the stores within the mall.

D. Parking availability tracking

Concerning the Parking Availability feature, the survey sought to gather statistical data on the use of private transport. 58% percent of total respondents indicated that they prefer to arrive at the mall via their private transport. On the next question, only 42% agreed that finding parking space is relatively easy, although some expressed a level of uncertainty. The survey also revealed that many customers may be convinced to skip the mall visit if they do not find an available parking space. This fact has been backed by the research [8] where the relation between parking space and customer traffic has been deeply studied. But, apart from the issue of no space, what frustrated the customers most was the fact that they must drive all the way into the parking lot to find out that they would have to turn back. This bad experience affects their plans for any future visits to the mall too. If the customers can be made aware that the parking space has been exhausted before entering the driveway, it could at least console them and will hold any future visits acceptable.

As a solution for this, the survey presented the idea of availability of tracking parking space availability in real-time via the mall web site. This proposal yielded extremely satisfactory results as more than 70% rated this feature above 7 out of 10.

These findings provide valuable insights into customer preferences and expectations regarding mall facilities, indicating potential areas for improvement and innovation in the mall enhancement sector. The results helped the research to identify areas to improve within a mall to win back its uniqueness and customer appeal.

5. DISCUSSION

As seen in the study of "Growing shopping malls and behaviour of urban shoppers" by Rajagopal [8] shopping malls are not only a convergence point for customers but is a common convergence point for both supply and demand equally. This study has proved that "ambience of shopping malls, assortment of stores, sales promotions and comparative economic gains in the malls attract higher customer traffic". The study by Govind Kumar, "Development and Importance of Shopping Malls and Customer Perceptions towards it" reveals that shopping malls not only create a centralized hub for shopping, but also influences its residing city/ town to develop past its existing standards [9].

Customers being tired and frustrated for having to carry around the bought items while trying to enjoy the different entertainment options within a mall is quite a frequent sight. The facility of luggage management shall allow the customers to place their luggage in counters located within the mall and retrieve it later. The recommended method to implement this feature is to create a method where the customers can buy the items and leave them in the shop itself without carrying them out with them. For any luggage that has been stored in this way, the user will receive a digital token on their Mall-Sage account. Details such as the number of items, the specifics of the item, the location, date, and time of accepting the items can be stored and displayed for the user. Once the customer is ready to leave the mall, after enjoying the mall to its fullest, they can request their luggage to be delivered to them at the exit of their choice. (If the mall features multiple exits) This request will be sent as an alert to all the shops that hold the user's luggage. Then an authorized personal (of the individual shops or an employee organized by the mall) will deliver them to the requested exit. The token can be used for user validation upon handing over the items. By this facility, users can shop & enjoy the mall to its fullest while being worry-free about handling their luggage around with them. The implementation of this system in Mall-Sage will be very similar to an online version of the outdoor luggage handling facility, which is very popular in many stores, primarily for security reasons.

The other main issue that requires attention is the customers' inability to find a place to rest within the mall. It is very common for customers to rest occasionally during a mall visit. But it has been noticed that customers move around the mall looking for such a place without finding one. This means that customers waste their time and energy looking for a resting space without either resting or enjoying the mall. This issue is caused not by the lack of resting space, but the inability to find which places are available/ not crowded. The proposal to solve this issue is to provide an online platform for users to view all the dedicated resting places in the mall and their crowd status. This solution may also feature a list of other available facilities available within these resting locations. i.e., food bars, free Wi-Fi, kids' areas, etc. It would further be beneficial if a person count in a location can be taken. Then, when a person arrives or leaves, this count can be updated. This can give a clear idea about the crowd within a space. The mode of updating this count could be attained by an algorithm with a camera or a real person updating it at the access points. As an added feature, it is possible to allow customers to pre-book a space in one of the venues. If the customer does not arrive at the location within a given time, then it can be freed to be used by another person. This can be configured as a privileged facility where only customers with an account can access.

The issue of parking space availability is a similar one to the above-mentioned resting area issue. It was initially considered to allow users to pre-book parking slots via the online platform too. But later this idea was scratched as there can be instances where users pre-book a parking slot, but ultimately does not show up. In such situations the booked slot will become a lost space for another potential customer. Instead, this issue can be addressed by allowing customers to view the availability of parking via the online platform. As the main issue is not unavailability of space (This issue cannot be solved unless new parking space is introduced) but the frustration of customers when they are already in the driveway and then are told to move along as the parking space is exhausted. These frustrations can be minimized and removed when the customers can view the availability by themselves. Security personnel can be placed at the access points of the car park to issue a ticket for a vehicle when it arrives. This ticket will hold information on the time it's been issued, and the parking slot appointed for the vehicle. Then when the customer leaves again, the arrived entry can be easily found using a code on the ticket and the occupied slot can be freed. This system can also be used to calculate a fare for parking. The following equation in Fig. 4 can be used to calculate this fare.

$$(dt - at) * R * \theta$$

dt – Departure Time
at – Arrival Time
R – Fixed Hourly Fare Rate
 θ – vehicle type coefficient
 (A value assigned to different types of vehicles)

Fig. 2: Parking fare calculation equation

The final issue to be addressed by Mall-Sage is the customers' inability to find enough information on the stores available within the mall and any promotions and sale events hosted by them. This issue can be easily covered by allowing the stores to post their own blogs and event statuses on a site hosted by the mall itself. Providing such a feature can eventually lead to creating a friendly ecosystem between the mall's stores and its frequent customers. These blog posts and updates will attract more customers and make them familiar with the new products available and the shops in the mall. Thereby creating a win-win situation for both the shop as well as the mall in achieving a wide scope of audience.

Fig. 5 below gives a basic overview of how interactions will be created among the different users of the Mall-Sage system.

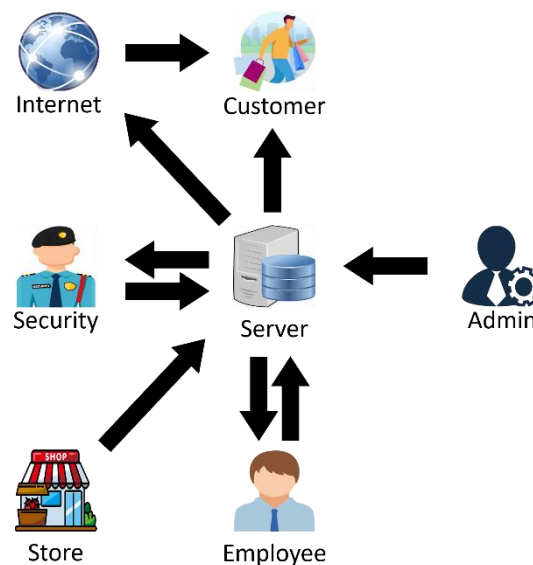


Fig. 3. Sketch of System Interaction

6. Conclusion

This research study delved into the ever-evolving landscape of shopping malls, recognizing their enduring appeal in the modern world and the need for continuous innovation to stay competitive. The Mall-Sage web application was conceived as a solution to enhance the overall shopping experience and address the changing expectations of consumers. Through a comprehensive methodology that combined insights from existing literature, customer surveys, and firsthand mall visits, the study revealed key findings and proposed innovative features for shopping malls.

The findings from this research have illuminated several critical aspects of customer preferences and expectations within shopping malls. **Baggage Tracking System:** The introduction of a baggage tracking system alleviates the burden of carrying purchased goods throughout the mall, enabling customers to fully enjoy the mall's facilities and entertainment options.

Resting Location Availability: By allowing customers to reserve resting spots in advance and check the availability of seats, this feature enhances convenience and reduces customer frustration overcrowded resting areas.

Promotional Blogs: Enabling shops to upload promotional blogs not only attracts customers but also fosters a sense of community within the mall. It provides an effective means of showcasing new products and services.

Real-time Parking Availability: Offering real-time parking space visibility through the application ensures a smoother parking experience for customers, reducing congestion and making their visit more enjoyable.

In conclusion, the Mall-Sage web application represents a proactive response to the challenges faced by shopping malls in an increasingly competitive environment. By integrating these innovative features, mall administrators can enhance customer satisfaction, increase foot traffic, and ultimately ensure the continued success and relevance of shopping malls in the retail industry.

This research not only offers valuable insights into the needs and preferences of mallgoers but also provides practical solutions to address these needs. It underscores the importance of adapting to changing consumer behaviour and leveraging technology to create a more immersive and enjoyable shopping experience. As shopping malls continue to evolve, the Mall-Sage application serves as a powerful tool to propel them into the future, ensuring they remain vibrant hubs of commerce and social interaction in the years to come.

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