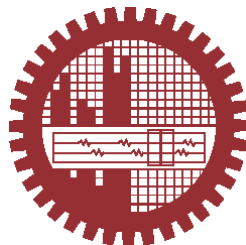


**A Study on the Impact of Tenant Mix on  
Consumer Movement Behaviour in A Shopping Mall at Dhaka**

by  
**Fahmida Nusrat**

A thesis submitted in partial fulfillment of the requirement for the degree of  
**MASTER OF ARCHITECTURE**

March, 2019

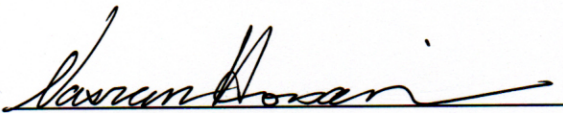
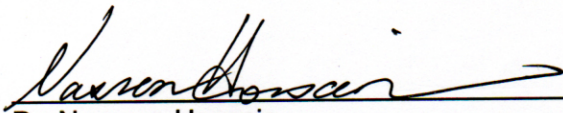
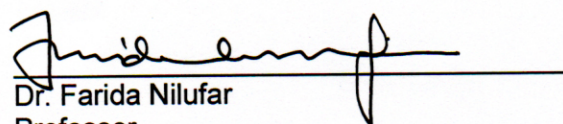
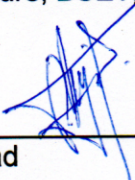
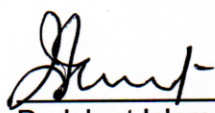


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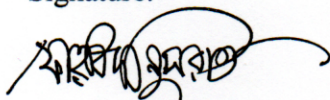
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27.03.2019

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Fahmida Nusrat



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## ABSTRACT

Large scale, multileveled shopping malls envisioned as westernized modern retail precinct has become an eminent feature in urban environment of Dhaka since last three decades. Its eye-flattering exterior form along with voluminous interior is certainly becoming an urban retail hub with diversified tenant agglomerations. But excessive deep space generated underneath such colossal forms creates challenge for architects and retail planner to channel sufficient movement flow of consumers in those spaces by effective spatial planning. *Tenant Mix*, a much known theoretical term in retail geography and retail planning, actually coined the conventional notion of typology of shops, their sizes and clustering pattern within a retail precinct. Strategic tenants mix can play a significant role in ensuring effective presence of consumer in every space; therefore enhancing economic feasibility of the mall by making it spatially sustainable.

The objective of this study lies in unveiling the impact of tenant mix on consumers' movement intensity and pattern within such planned shopping mall in the context of Dhaka, capital and the largest megalopolis of Bangladesh. The single case study based mixed method research is initiated by taking Bashundhara City Shopping Mall as it justifies maximum research rationales considering building scale, number of shops and operational time length. Methods of data collection included first hand field survey of existing shop typology, shop size, their clustering pattern and movement observation through gate count method in all floors followed by Visibility Graph Analysis using depth map software of 'Space Syntax'. Later on a structured questionnaire survey has been carried out through convenience sampling of the shoppers. The outcome of the study showed that tenant mix as a stand-alone aspect can have certain impact on vertical movement generation mostly acting as an attraction, but for enhancing horizontal movement distribution of consumer in all spaces of single levels, needs a dynamic duo of well-apprehended spatial configuration and strategic tenant mix. Further scope of research remains in understanding multiple attraction stimuli of shopping mall design from urban point of view and explore its sustainability factors of scalar module considering the contextual imagery of shopping culture of the consumers of urban Dhaka.

**Key Words:** Tenant Mix, Consumer Movement, Spatial configuration, Large scale Shopping Mall, Dhaka.



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## **ACCRONYMS**

TM	Tenant Mix
BCSM	Bashundhara City Shopping Mall
CBD	Central Business District
VGA	Visibility Graph Analysis
VI	Visual Integration
VMD	Visual Mean Depth
VC	Visual Connectivity
VCC	Visual Clustering Co-efficient
MV	Movement
MM	Moving Male
MF	Moving Female
FS	Festive Season
RS	Regular Season

## CHAPTER: 01

### INTRODUCTION

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#### 1.1. Background and Present State of the Problem

Large scale, multi-levelled, planned shopping malls have become a trend in Dhaka as an outcome of westernization since the last decade of twentieth century and stood out as landmark buildings in its urban retail environment. The spatial accomplishment of such malls in terms of **Tenant mix**<sup>1</sup> policy is a vital issue in attracting potential consumer and channelling their movement flow to each and every corner of mall floors. ‘Tenant mix’ generates the idea of effective spatial planning of shops and their clustering pattern within the mall to maximize the profit of the retailers. It ensures the successful functioning of the mall by attracting consumers of various demography and economy and from diverse socio-cultural sectors. This has been a significant stream of research in western countries for a long time. Even in the Asian countries, the aspects of shopping mall design in relation to tenant mix and consumer movement pattern are rigorously investigated. The extensive literature shows a lack in such studies in the context of Bangladesh.

Thus the present problem identifies the blind folded following trend of shopping mall design in the context of Dhaka by replicating western theory of mall design without further researching whether or not their pattern is going to be adaptable in our context. The theories that imply tenant mix in western malls might not be effective in the context of developing country with different socio-cultural attributes of its consumers. So far, most of the large scale, planned shopping malls have struggled with the issue of making the whole mall precinct functionally viable within a limited period. The issue of trial and error in settling the perfect tenant mix has considered a time squandering process where, the initial understanding of the aspect can make the design process of shopping mall more effective and less time consuming. A strategic tenant mix considering its targeted consumer influx within the mall can minimise the time-lapse for deciding the potent shop mix, clustering and their locational factors.

In order to understand how the modern days shopping malls are working in terms of their internal spatial significance of shop layouts and how volumetric masses are becoming successful in a sustainable approach by ensuring potential consumers inside them, this research has taken the case study based approach by selecting Bashundhara

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<sup>1</sup> The term ‘**tenant mix**’ refers to a combination of factors, including the proportion of space or number of units occupied by different retail/service types, as well as the relative placement of tenants in the centre (Kirkup & Rafiq, 1994)

city shopping mall<sup>2</sup>, one of the pioneers in trending the concept of multilevel, large scale, planned shopping mall in Dhaka. This enormous enclosed shopping entity in Dhaka, took almost a decade to be in a fully functional state with all shopping floors. The design provision of 2325 shops of different module distributed within its 8 retail floors has enabled in formulating the present tenant mix which gradually attained a certain attraction to the consumers. This mall is a mature one considering the operational time frame within an intense urban context with ample variations in shop types, their spatial distribution and clustering pattern along with movement dynamism of consumers.

The study therefore, selects the specific mall as it is comprised of all considerations for the research intention of revealing the impact of present tenant mix policy on consumer movement behavior. However there seems to have a justification of identifying tenant mix pattern in this mall [Field survey by author in 2016] as it is guided by the planning principles of ‘enclosed shopping centers’ of the west whereas general retail environment in Dhaka mostly bears the spontaneous character in spatial arrangements of shops (Hossain, 2000). Therefore this study can be helpful in design stream of shopping malls to focus on spatial layout of shops and its clustering pattern as outcome might suggest a necessity of place specific tenant policy rather than improvised from western influence of shopping mall design in Dhaka.

## **1.2. Aim, Objective and Possible Outcomes**

The research is aimed at exploring the multifarious aspects of tenant planning within a large scale, multilevel shopping malls to observe its influence on generating consumer movement influx within such hefty built form. Considering Bashundhara city Shopping mall at Panthapath, Dhaka for this case study based research; below are the formulated objectives.

### **Objectives:**

- To investigate the existing tenant mix pattern within the shopping mall in terms of shop size, clustering pattern, their locational and spatial significance.
- To identify consumer movement pattern and density and their relation to existing tenant mix pattern to understand the configurational attributes of the shopping mall to attract consumer penetration.

**Possible Outcomes:** An understanding of inner mall consumer movement behavior in response to spatial planning of tenant mix, distributed both horizontally and vertically within such mall will ascertain the significance to generate place specific tenant strategy for large scale multilevel shopping mall design in Dhaka.

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<sup>2</sup> Bashundhara City Shopping Mall is the second largest amongst these types of buildings in Dhaka. It started operating in 2004 with a gross floor area of 5,100,000 sq ft.( Source: [www.bashundhara-city.com](http://www.bashundhara-city.com))



### 1.3. Research Question

In order to achieve the research objectives, the questions shown in the table below will be addressed. While going through extensive literature review regarding the research topic, the targeted research question has been formulated in the following manner:

Research Objectives	Research questions
01. ● To investigate the existing tenant mix pattern within the shopping mall in terms of shop size, clustering pattern, their locational and spatial significance.	a) What are the spatial significances of shopping floor plans in terms of tenant mix in Bashundhara city shopping mall?
02. ● To identify consumer movement pattern and density and their relation to existing tenant mix pattern to understand the configurational attributes of the shopping mall to attract consumer penetration.	b) How the configurational properties of present tenant mix in the mall generates impact on consumer behaviour in terms of movement pattern and density?

### 1.4. Rationale of the Research

The specific research rationale lies in **two** broader contexts; *Firstly*, in general, the Retail-led built environment design has been considered as an emerging sector of scholarly research unlike other specialized design stream, where shopping malls are regarded as a significant retail hub with multiple attributes and complexities for their ultimate sustainability. But whereas global strata is highly enriched with diversified research approach in shopping mall and other retail precincts both for western and developing countries of various continents along with some countries form South-Asian region, Bangladesh comparatively lacks behind in this arena. Even though ‘shopping mall’ as a definitive and entitled retail land use has been into practice of building design since the blooming of modernity in Dhaka, the forbearer megalopolis and capital of the country. This particular building type in fact catalyzed the urbanization of the city. Thus the diverse ‘around the globe’ research issues and its implicit understanding on the contextual aspects of sustainable shopping center design for urban Dhaka surfaced as the primary initiator of the research.

According to Howell and Rogers (1981), ‘the shopping area has become a legitimate object of research both in its own right and in its effect on the stores of which it is comprised.’ By emphasizing retail design as a new discipline through its gained significance as a specialized stream in built environment, Christiaans and Almendra (2012) has further mentioned its importance in research and education area by stating,

‘The design of retail spaces being traditionally the area of architects and interior designers, has for a long time underestimated and downgraded as only being a superficial and commercial activity. However, retail design has nowadays regained its value and is recognized as a serious design discipline with its own identity. It is concerned with new ways of exploring and enhancing the experience of interaction with other individuals, with products and with the environment by blending design thinking, design techniques, together with an understanding of human behaviour and modern technology.’

*Secondly*, the multidimensional aspects of retail environment often deals with some specialized terminologies that popularly considered as business and marketing vocabulary but have significant link with the spatial planning of such retail hubs. Grasping these issues in light of architectural vocabulary is utmost important for the holistic perception of such building types for design practitioners and educators of Architecture. The notion of retail design, in our country still occupies its inclination to mostly marketing and business researcher. But in reality, the wider range of understanding of this specialized built environment is collaborated to the contemporary and popular perspective of consumer and consumerism, along with environmental behavior studies. Such researches have established a strong ground how retail design, can be stood out beyond marketing and business stream and can be a significant design strata that comes with ample in depth study for design practitioners and scholarly personnel. These studies can contribute in our contemporary context of an exaggerated urban phenomenon of sprawling shopping malls to make them more sustainable.

**Tenant mix** is a common terminology regarding these spatial arrangements of shops amongst the retail geographer, planner and architects. The concept is derived in western world since the flourishing of modernization in retail built environment. Later on the idea has penetrated in developing countries mostly in a theoretical format. The implementation of the notion of tenant mix to its true sense in designing is still way too far. Shopping malls are built to replicate the retail offer in established city centers, providing comparison shopping in a ‘continuous’ selling space on goods such as clothing, footwear, furnishing, and services such as restaurants and cinemas, all under one roof (Fong, 2003). These retail hubs for their own functional uniqueness generate spaces with variations. Spatial quality in terms of attaining physical and visual accessibility is a crucial issue in planning and designing a mall. Functionally it is resolved with intelligent shop layout having a dynamic mix of shop types. The objective is always to make the overall mall space functionally active and commercially successful leaving little or no negative spaces.

When discussing the social aspects of designing retail built environment, it is claimed that, ‘Retail mirrors society: social, economic, political and sustainable retailing that attempts also to be successful, calls for appreciation of the way in which the global and local shopping cultures both shape and are shaped by their respective societies’ (Christiaans and Almendra, 2012).

## 1.5. Limitations and Scope

The term ‘tenant mix’ comes with various attributes related to it while considering the internal spatial planning of shopping mall. Again ‘the mall has attributes which are not among those composing store image, much as special events or exhibits, recreational value, and commons-area atmosphere. Additionally, the contribution of the various store images to the overall image of the mall, and vice versa, is a question which begs further research’ (Howell and Rogers, 1981).

Apart from the mainstream spatial aspects of shop types, shop layouts, clustering or mixing of shops, it covers equal importance on shop rent category. Renting ability of retailers in terms of shop size and profit making policy plays a significant role in generating overall tenant mix pattern of a shopping mall. Scott (1970) argues that the spatial organization of retail activities within shopping districts can be explained by bid rent theory. In these regards the present study does not address the bid-rent theory of retail geography which is considered as a limitation of the study. Again in order to study the impact of tenant mix, the observation and interview is arranged focusing on the first hand user group; which is the consumers of the shopping mall but the other stake holders, the retailers are kept aside in overall research process as the study was designed to keep simpler and smaller due to time constrains.

The study generates the scope of identifying the existing tenant mix pattern in a magnanimously operating shopping mall which has become a land mark of retail hub in present Dhaka. The theoretical construct of tenant mix and the empirical investigation in the study area combined the broader perspective of understanding the key content of the research. Therefore it might help further studies in shopping mall design and planning. The research aspects of consumer movement will reveal the urgency of user responsive spatial planning in retail sectors rather than initiation of any prototyped or utopian idea.

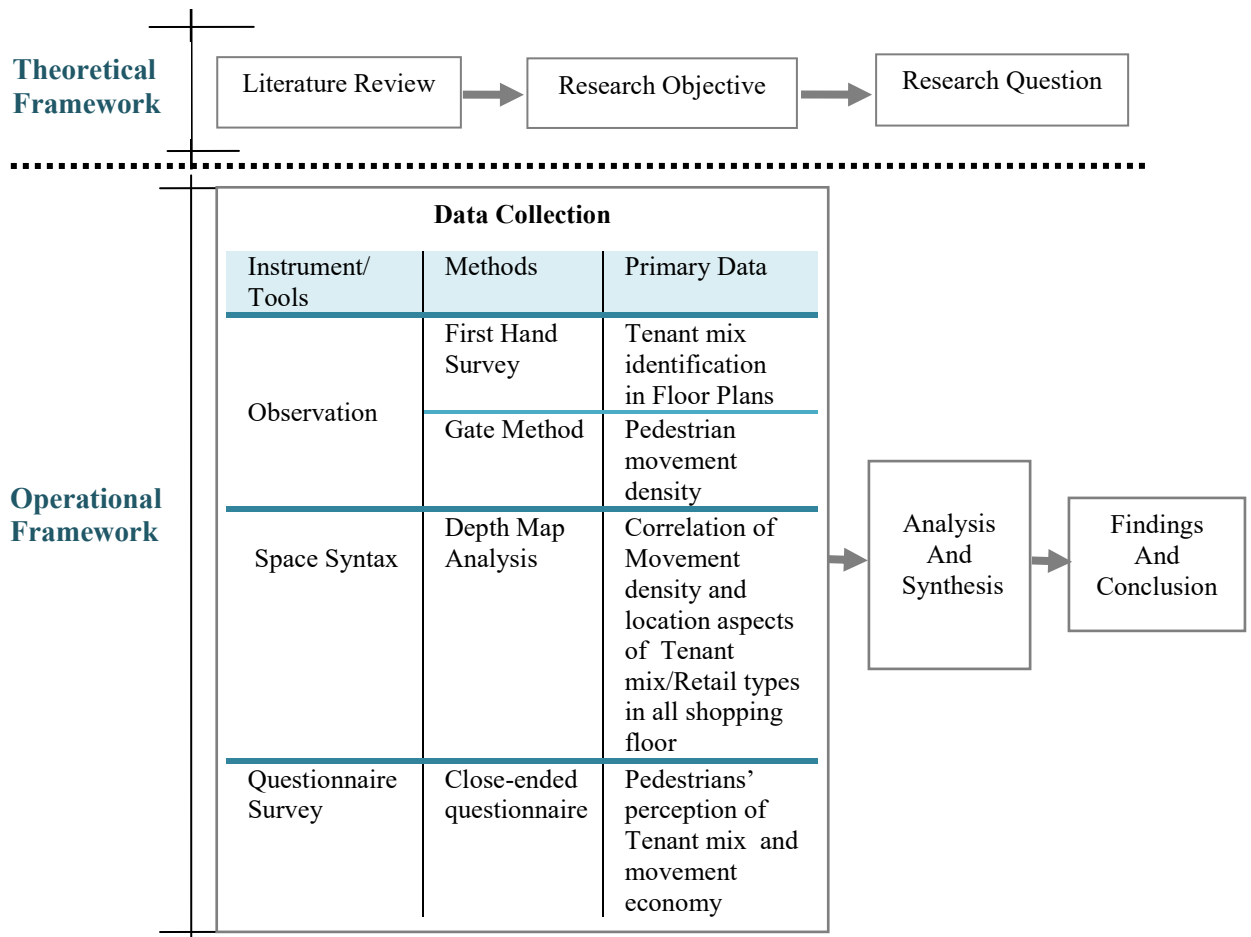
## 1.6. Brief Outline of Methodology

The study is organized as a mixed method approach. The research is broadly qualitative associated with simulation and analytical data interpretation.

**Literature Review:** Extensive literature has been reviewed to understand the theoretical notion of ‘Tenant Mix’ and the research gap in its contextual intervention of designing multilevel mega scale Shopping Mall. Previous and contemporary research articles, books, journals and authentic documents in websites are thoroughly studied to generate research objectives. A proper set of methodological parameters are also revealed from literature review to ensure research validities while attaining the aim of the study.

**Data Collection through Empirical Survey:** To identify the existing tenant mix in the shopping mall, the floor plans are investigated through a detail field survey to reveal the shops spatial layout and their clustering patterns in relation to the spatial configuration of every individual floor.

To study Consumer movement behavior, an observation through ‘Gate Method’<sup>3</sup> has been conducted. The count is conducted at a time to avoid data repetition. To collect reliable movement data, each floor with 25 gates had a count of 3 minutes in each gate. A 3.75 hour counts (noon, afternoon, evening) has been conducted in every floor for a total of 6 days (2 week days+1 weekend in regular season and same for festive season). An elaborate calculation of this counting procedure is explained in chapter three of research methodology. Further a structured close-ended questionnaire survey has been carried out through random sampling among the shoppers within the mall to identify the consumers’ perception about present tenant mix and spatial configuration of the mall.



**Fig.1.1:** Methodological Framework of the Research

<sup>3</sup> ‘The Gate method is suitable for recording observations of moving people or vehicles only. It is normally used in urban situations, but can be applied to the interior spaces of buildings’ -Space Syntax Observation Procedures Manual, www.jiscmail.ac.uk.

**Syntactic Analysis:** To reveal the present tenant mix pattern in relation to the shopping mall's spatial configuration, all level floor plans are analyzed through Visibility Graph Analysis using Depth Map. Thus spatial logic of tenant mix and its clustering pattern is tried to reveal to understand how it is affecting the movement intensity and pattern of the consumers within various levels of the mall. The relation of spatial configuration, Tenant mix and consumers' movement behavior might explore the overall sustainability of the shopping mall.

**Result Analysis and Synthesis:** The data obtained from field survey and syntactic study later on analyzed to come up with qualitative understanding of the study by revealing how and to which extent movement is oriented as an impact of tenant mix for large scale enclosed shopping mall in Dhaka.

### 1.7. Thesis Structure

The thesis has been structured into seven chapters. Throughout the study the research questions have been trying to answer methodically with several empirical investigations designed in a scientific way.

The **First chapter** (*Introduction*) gives a background of the thesis and states the research problems, objectives, research rationale, scope and brief methodology to study the impact of tenant mix on consumer movement behaviour in selected study area which is Bashundhara City Shopping Mall at Panthapath in Dhaka.

The **Second chapter** (*Literature Review*) overviews the relevant literatures on the theoretical construct of tenant mix, consumer movement behaviour in enclosed shopping mall and the contextual imagery of shopping mall development in Dhaka. This chapter extensively narrates the diverse perspective of key notions of the study; tenant mix and consumer movement behaviour, in light of substantial body of recent research works and scholarly publications around the globe.

The **Third chapter** (*Research Methodology*) elaborately describes the methodological stand point of the research and its rationality for adopting of multiple subsets of survey methods. Justification of case study selection and overall data analysis procedure has been outlined orderly to keep the empirical investigations systematic and relevant with the objective of the study.

The **Fourth chapter** (*Empirical Investigations on existing Tenant Mix patterns*) initiates the analytical journey emphasizing the first objective of the research by exploring the present extent of tenant placement strategy within the shopping mall. Compilation of multiple graphical data charts, colour-coded representations of categorical tenant juxtapositions in all floor plans along with their depth map induced



visual analytics of spatial configuration have amplified the precision level for attaining the chapters goal.

The **Fifth chapter** (*Movement Observation*) investigates on second objective of the study through a tenacious field survey of recording movement data of consumers within the mall. By narrowing the ample data into multiple charts and diagrams, the observation chalks out further assessment by relating these data with multiple visibility graphs of all shopping floors and a close-ended questionnaire survey to the consumers to extract the qualitative findings and magnify it flawlessly.

The **Sixth chapter** (*Analysis and Discussion*) thoroughly analysis the overall outcome from the empirical studies and narrates with an intertwining pattern where tenant mix, spatial configuration of the mall and consumer movement behaviour show multiple magnitudes of inter-relationship. The findings are coherently explained keeping the sequential clarity of the initial research objectives.

The **Seventh chapter** (*Conclusion and Recommendations*) gives a precise summary of the elaborate discussions from previous chapter. Upon concluding the research findings, the chapter is winded up with general recommendations as an aftermath of the overall understanding of the study. By summarizing the analysis and discussions, this segment also denotes a formal inference along with the urgency of further continuation of such researches.

## CHAPTER: 02

### LITERATURE REVIEW & THEORETICAL FRAMEWORK

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#### 2.1. Introduction

Planning configurations and spatial properties of shopping mall are way too complex as multifaceted aspects are interconnected to the ultimate accomplishments for a successful retail environment. A broader range of compartmentalized factors varying from fundamental economics to modern day consumer based market economy, human geography to retail geography and urban morphology to building morphology play significant role in a manner of as and when required. Therefore a scope of constant research by permutation and combination of various factors from above mention strata generated extensive scholarly ideas in unbound literatures for overall retail led generations. Shopping mall design and the study of its morphological properties in relation to various components as a research stream has also undergone through numerous studies around the globe.

Designing retail precincts deals with so many crucial aspects that a single factor statement for determining sustainable and feasible shopping mall is almost impossible to separate. The core aspects of this research „Tenant Mix“ and „Consumer Movement Behaviour“ thus imply to multiple notions of interpretations. To get a clear understanding of these terminologies, a brief discussion has been conducted encompassing extensive literature both from western and developing world of retail design research. Hence, this chapter has been organised in **Two** broader categories as per the posed research questions;

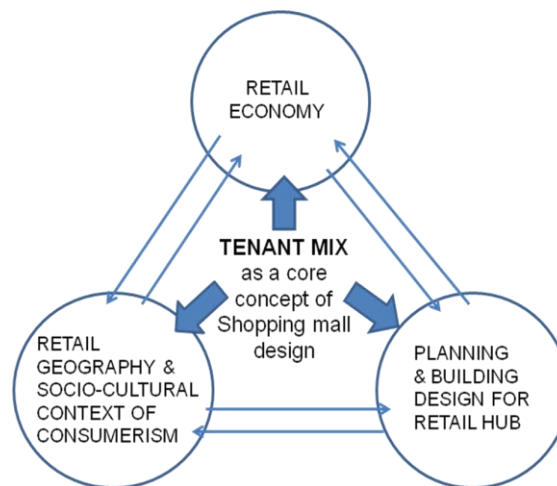
*Firstly*, the theoretical notion of „tenant mix“ has been elaborated along with its typology, clustering pattern, locational aspects and accessibility in relation to contemporary scholarly works,

*Secondly*, consumers“ „movement behaviour“ as a significant guiding principle for shopping mall research is discussed in light of various retail behaviour theories. Later on „Space Syntax“ theory has been overviewed for its substantial interpretation in apprising the relation of movement, spatial configuration and attraction for a given built environment.

Thus above mentioned structure of literature review in this chapter has enabled to summarize the specific research rationale and develop the methodology for investigation in the selected study area of Bashundhara City Shopping Mall of Dhaka.

## 2.2. Theoretical Construct of Tenant Mix

The term „Tenant mix“ is a common one in the vocabulary amongst the architects, planners and retail geographers since the concept of planned Shopping malls generated in western world in the middle of twentieth century. As economic profitability of such buildings are a fundamental and crucial consideration, studies have identified multiple pressure points in various parameters ranging from planning and design consideration to marketing strategy, consumer movement behavior to their buying behavior to make these mega malls a sustainable one. Amongst these, tenant mix occupies a central gravitational role as wide-ranging scholarly works have demonstrated it as an important characteristics and most important determinant of shopping mall (Wittig, 2010, Abratt & Fourie et al. 1985, Brown, 1993, Kirkup and Rafiq, 1994 and Greenspan, 1987). Yet this notion is extremely context specific where different consumer assemblage can posits diverse nature to it due to their varied socio-cultural identity and economic traits.



**Fig. 2.1:** Significance of Tenant mix and its multi-disciplinary inter-relationship  
(Developed by author)

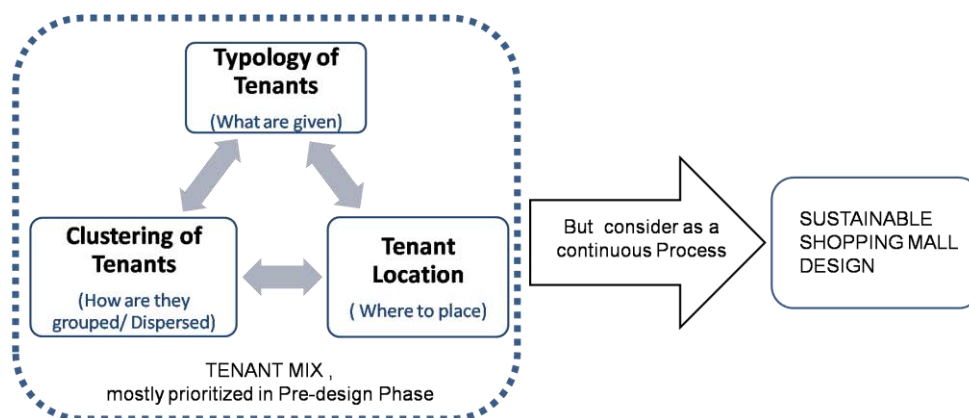
In revealing the fundamental notion of „Tenant mix“, a further elaboration of its subset domains; **tenant typology**, **clustering pattern** and **spatial and locational significance** are briefly anthologized to get an inclusive understanding about its role in planning and designing shopping mall.

Scholarly discussion usually starts defining the term „Tenant Mix“ by articulating multiple retail theories as eminent thriving factors for it. Yan (2013) has summarized significant theories behind the formulation process of tenant mix in general which includes; (1) Central Place Theory, (2) Retailer Agglomeration, (3) Store Choice Model, (4) Retail Demand Externalities and (5) Bid-Rent Theory. Thus in simplifying it, he has mentioned, „The cluster of different tenants refers to tenant mix. It is the variety, the size and the relative placement of tenants in a shopping center.“ Kim et al. (2007) mentioned „Tenant mix“ as an important element to determine the success and failure of commercial facility where it is considered as a technique for a facility

developer for choosing the optimized mix of store type, product category and tenants and arranges them according to size and location. Fong (2005) stated, „tenant mix or the space allocation of the retail stores is an essential characteristic of the shopping mall“. The idea of tenant mix and store location is an obvious pre design calculation for ensuring the profit maximization in relation to utmost internal space utilization and pedestrian movement inside these planned shopping malls. Fong (2005) cited Guy (1994) and Beyard and O'Mara (1999) by stating, „Concerns of tenant mix, as distinct from retail mix, encompass three related aspects: the selection and compositional structure of tenants for centre, the space allocation for each store category type and the location of tenants within the centre. All of these aspects are increasingly being considered as equally important subjects, and should be tackled together as a merchandising operation that begins at a very early stage of Shopping Centre design“.

The necessity of a successful tenant mix for ensuring a sustainable shopping mall has been mentioned in numerous researches. „Developers, occupiers and investors claim that the economic success of a shopping center relies heavily on the tenant mix“ (Wittig, 2010). The success of individual tenants and the success of a centre as a whole are interdependent and enhanced by the cumulative synergy generated by the mix of stores (Kirkup and Rafiq, 1994).

As the specific research question posed to understand building performance on basis of tenant mix and its impact on generating consumer movements within the building precinct, the literary works related to this arena defined tenant mix more as determining factors for spatial configuration, factor of attraction and more precisely, in architectural design vocabulary it is synonymous to detail functional components of a building. Commonly it indicates the combination of shop types, shop sizes, their clustering pattern, locational significance and spatial arrangement. This is indeed a complex web while designing the shopping mall, as, the whole aspect is a continuous to-and-fro process that even doesn't stop with the finishing of the design; rather continue to evolve to make a shopping mall a sustainable one.



**Fig. 2.2:** Tenant mix (Typology, Clustering and Location of Tenants) as a continuous process (Developed by author)

### 2.2.1. Typology and Clustering of Tenants

„**Typology of Tenants**“ is more dependent on the type of shopping malls or retail centers; that is tenant mix is not a „one size fits all“ concept, rather it varies according to the mall size, its location on the community and with many other economic externalities (Prinsloo, 2010). This has been also supported by Urban Land Institute (1985) that „tenants can be classified into various types according to their common occurrence in a particular type of center. However, it has been pointed out that a „universally“ applicable standard to tenant mix cannot be established“. Rather it is suggested that „tenants should be selected from the specific demand (consumer view point) and supply (retailer power) conditions of a specific urban retail environment [Al-Otaibi (1990) cited by Hossain (2000)].

Tenant typology or categorization has been stated by Kong and Kim (2013) according to the changed consumption mode of the consumers demand. As previous commercial facilities provided with one-stop shopping arena used to be filled with retailers and dining services, whereas, at present, they are inviting more entertainment facilities that have a strong power to attract customers. It was said that as a commercial facility is compounded with 3 synergic elements (entertainment, food and beverage, retail facility) in pedestrian movements, tenants come to react independently but complementarily, attracting visitors into the market (Shin, 2009). Those three types of tenants are always and necessarily accommodated in a commercial facility in order to induce users to stay longer and to create economic synergy effect (Kim et al, 2007).

A major study on the complex web of retail development in Dhaka by Hossain (1999) has observed three distinct functional tenant classification or typology to fall into the category of Generative, Sharaed and Suscipient which was early suggested by Nelson (1958). This was proven as a driving factor behind the socio-spatial logic of shopping behavior of the consumers of Dhaka.

Wittig’s (2010) suggestion for „an attractive and quality-focused tenant mix“ is a more generalized statement where an extensive study in South Arica showed that tenant mix has varied according to classification and hierarchy of retail facilities types (Prinsloo 2010). That is the type of shopping centre being built plays an important role in deciding the tenant mix. A few more researches have suggested some plausible tenant mix according to mall size or retail center classifications in their research contexts. Many countries have also developed some guidelines accordingly. As typology of tenants is broadly a context specific issue (e.g. socio-economic aspects of the context, consumer culture of the society etc), scope remains in developing that classification which meets the overall criteria of the context and fits in it. But „with a wide range of tenants, shopper will have the tendency to visit the shopping centre at a higher frequency level.“(Ojuok, 2010)



Many studies have developed elaborate classifications of tenant mix based on these different aspects. Regardless shopping centre types or classification of retail agglomerations, tenant typologies derived from numerous researches are summarized in the following table to have an overall idea on this issue.

**Table 2.1:** Tenant Typology Based On Various Aspects

TENANT TYPOLOGY			
A	B	C	D
Based on attraction factor of tenants; location and size is highly a significant consideration	Based on Business Operational patterns	Based on Merchandizing and Product varieties; (Considered more as synergic elements in commercial hub)	Based on Inter-business dependency
<ul style="list-style-type: none"> <li>● Anchor Tenants (Bigger store; acts as magnet)</li> <li>● Non-anchor Tenants (Comparatively smaller sized stores)               <ul style="list-style-type: none"> <li>• in line tenants</li> <li>• food court tenants/ Restaurants and eateries</li> <li>• kiosk /stand-alone tenants</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● National chain store</li> <li>● Local chain Store</li> <li>● Individual Retailer</li> </ul>	<ul style="list-style-type: none"> <li>● Retail facilities:               <ul style="list-style-type: none"> <li>• General merchandising store</li> <li>• Clothing stores</li> <li>• Departmental Stores</li> <li>• Convenience stores</li> <li>• Specialized retail facilities</li> <li>• Service tenants</li> </ul> </li> <li>● Food and Food service stores</li> <li>● Entertainment</li> </ul>	<ul style="list-style-type: none"> <li>● Generative Business</li> <li>● Shared Business</li> <li>● Suscipient Business</li> </ul>

Types of tenant is not a specific pick from above consideration, rather it's an intertwining idea from all sorts to make the best out of malls' functional sustainability. Considering the definition of anchor tenant (*large scale departmental store, national or local chain store/brands of specialty goods, national/international food chain*), we get a glimpse of how the typology acts as an overlapping phenomena.

**„Clustering of Tenants“** is more about which shops are grouped together in a specific retail hub. After defining, tenant types, the clustering becomes crucial to make the inner mall planning successful. Though Wittig (2010) stated, „An optimal combination of tenants was proven to maximize turnover, retailers' gains and consequently also total net rentals“, it might not always abide by theories or preceding studies. According to Ojuok (2010), „During the implementation of tenant mix, the correct grouping of shops and the decision on their specific locations in the centre are very important, but also highly complex. Although in theory, all locations in the centre should be equally valuable; in practice this ideal is seldom achieved.“

Tenant clustering, most often, simply thought as to place anchor and non-anchor tenants initially. While planning tenant mix, Bayerd (1999) has argued that generally developer decides first the anchor tenants and then the other tenants. In stating the significance of anchor tenants, Nicholls (1997) and Narver (1996) mentioned its emotional and functional influence on shoppers' image and thereby the frequency of

mall patronage. Dawson (1983) recommends that the following non-anchor stores; jewelry, record, and hardware stores should not be clustered but dispersed throughout the mall, where Ojuok (2010) states, „The composition, the number, and type of retail and non-retail tenants such as bars, eateries, entertainment facilities, within agglomerations represent the range of possibilities to satisfy consumers“ wants and needs“.

Regarding the importance of anchor tenants, „Downie et al. (2002) claimed that anchor tenants would affect the selection and placement of other non-anchor tenants, and thus the overall customer movement inside the shopping centres, thus tenant selection turnout as a crucial issue. Chan and Kwan (2006) mentioned that anchor tenants“ potential of creating glamour can benefit to other small shops. The tenant mix is a combination of more than one anchor tenants, different kinds of fashion, food and beverage retail stores. The function of each category plays a critical role to the shopping centre“s entire environment. The anchor tenants would create customer flow to the shopping mall and the nearby non-anchor tenants could benefit from the pedestrian (Yan, 2013). Small tenants depend on the strong customer drawing power generated by anchor stores and the “spill-over” of their customers to these smaller tenants (Benjamin, et al. 1992; Brueckner 1993; Gatzlaff, et al. 1994; Miceli, et al. 1998; Pashigian and Gould 1998). At the same time, the mixture of small tenants provides variety and supportive services for the whole centre (Wakefield and Baker 1998).

Tenant clustering observed and suggested in many studies; apart from anchor and non-anchor category, a brief summary of few selected suggestions of clustering are as follows:

Tenant clustering has been suggested by Yan (2013) considering the goods the tenants will sell. He has mentioned three kinds of goods: (1) durable goods (jewellery, watches, fashion, and electrical equipments), (2) convenience goods (food and beverage) and (3) service goods (bank, medical). CALUS (1974) proposed tenant mix usually combines the above three types of goods. In terms of generating high sales turn over usually bigger proportions on durable goods, especially on jewellery and watch categories are preferred.

Regarding tenant clustering and its management issue, Northern and Leonard (1977) includes two initial concepts of (1) Comparison goods shopping and (2) Convenience goods shopping in their research. Comparison goods refer to fashion, watch, jewellery and shoes etc. These goods are bought in irregular pattern and based on the criteria of price, quality, and suitability. Reidenbach et al (1984) mentioned the motivation of shoppers for visiting are most likely due to comparison goods. That is tenants containing these goods can be clustered. Meanwhile, convenience goods refer to food category. Shoppers would buy them frequently.

While Beyard (1999) preferred „to include tenants from the same category so that there can be ranges in price and merchandise“, Prinsloo (2010) has emphasized the concept of „comparative shopping in clothing and household items.“ Maitland (1985) and Beyard & Omara (1999) have also agreed particularly on clothing and clothing accessories stores, should be grouped together.

Sim and Way (1989) in their correlation study between the tenant placement and consumer movement patronage has come with a suggestion of placing Fashion retailers in prime location and food and beverage to be grouped together as to create synergy effect.

Yan (2013) mentions about two methods of locating different kinds of shops which are suggested in other studies; these are, (1) Clustering and (2) Separating. By clustering similar trades within an area, it could create a magnet effect and easy access for shoppers. By separating compatible retailers, landlord could maximize the shoppers’ movement within the mall. According to Ojuok (2010), „Tenant grouping should follow “mix” or “match” principles in order to sustain the interest of shoppers; ensuring that they are drawn throughout the entire centre.“ Dawson Studies indicated that a match approach to tenant placement is applied rather than a mix method.“ Co-tenancy (Ojuok, 2010) is often a used term to initiate the policy of effective clustering. It’s the tenants’ preference of location with other tenants. Few specific suggestions from above literature on tenant clustering are compiled below:

**Table 2.2:** Various Tenant Clustering

<b>Suggested Tenant Cluster</b>	
(1) Durable goods (jewellery, watches, fashion, and electrical equipments),	Bigger proportions on durable goods, especially on jewellery and watch categories are preferred.
(2) Convenience goods (food and beverage)	
(3) Service goods (bank, medical).	
Clothing and Household items.	For comparative shopping
Clothing and Clothing accessories	
Food and Beverage to be grouped together	

Tenant typology and clustering thus can broadly vary from mall to mall depending upon variety of factors; supply and demand of the adjacent neighborhoods, competition with other nearby malls, decentralizing the national chain stores of various retailers etc. A good tenant mix should have variety kinds of trades with homogenous and heterogeneous agglomerations (Yan, 2013). Generally the design process of volumetric mega malls incorporates the idea of „Tenant Mix“ in its elementary phase to get an overall understanding of retail diversity which certainly acts as a design stimuli. Evidences are in researches to determine such issues even before planning and designing a shopping mall (Garg and Steyn, 2015).

### 2.2.2. Locational Aspects and Accessibility of Tenants

Location of tenants along with their clustering within a mall requires a very analytical understanding of the overall spatial properties of the retail precinct. „Location“ and „space“ are two distinct significant terms in various streams of architecture, planning and geography. For the specific study in a shopping mall these two terms are clarified in light of retail geography and planning.

„Location theory“ looks at socioeconomic space from the special perspective of trying to determine optimal locations for specific services, facilities or functions. In socioeconomic space, optimal means lowest-cost, least time, least-effort, least-risk-generally speaking, least of something undesirable (Couclelis, 1992). Hence „**Locational significance**“ of individual shop or cluster of shops within a shopping mall refers to *‘the importance of physical positioning of shop/shops in consideration to the maximum visibility and optimum travel distance in relation to the point of entrances and primary circulation aisles.’* Its like fulfilling all the physical criteria that are quantifiable or measurable, to be considered as a desired spot.

But when comes to „Spatial significance“ of shops, the notion of „space“ encompasses greater aspects mere than just locational significance (close proximity to circulation and entrance points) of shops. Spatial significance of the same location can be varied due to functional change, time variations and experiential perspective of the users and their behavioural patterns in varied context of individual state of mind. Hence „**Spatial Significance**“ of shop/cluster of shops might refer to *‘a vast range of relative parameters associated with the space around those shops’*.

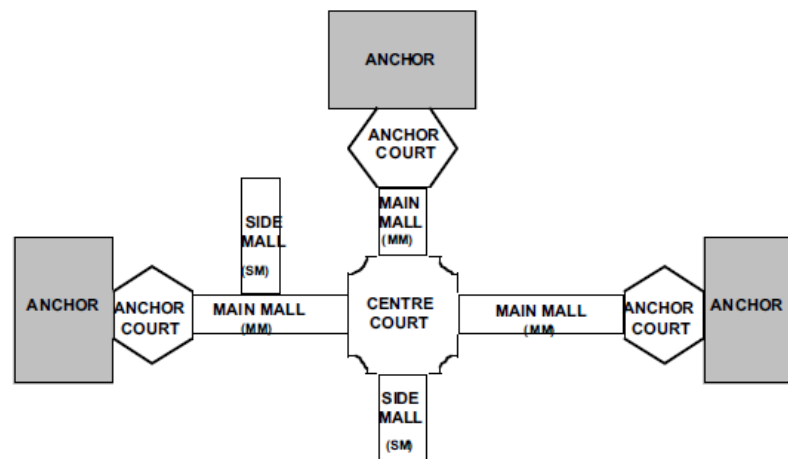
Most of the cases locational significance is considered in terms of optimal travel distance and quick visual recognition. Locational significance may tie to some spatial significance. Locational significance might shift due to the changes in functions still having the spatial significance intact. In shopping malls, the locational significance of shops can be enhanced by spatial significance and vice versa. Brown (1993) emphasized tenant placement most likely as the guidelines for tenant mix. Krugell (2010), on a more serious note opted for „a location in a certain shopping centre that will generate enough feet to create the shoppers that can possibly buy at the tenant“.

Moreover considering tenants“ location and accessibility, Multi-level mall deals with great complexity. Many recent studies have acclaimed that these types of enclosed malls are geared with complicated engineering which also creates ample merchandising opportunities and problems. Several vertical transportation systems employed for consumers ease of movement for comparison shopping make such buildings a labyrinthine. Suggestions are given for a minutely engineered grouping of tenants to assure relatively even customer drawing power in the various corridors and mall locations. The merchandising of the center is asserted as a more complicated web because a greater variety of tenants may be located within these unusually large malls.

These multi - level malls need not necessarily involve substantial square footage of retail space, but usually does.

As location consideration of tenants according to its typology was (and still is) a preferable solution to the retail designer and planners, the reality of site location; hence form constrains, often do not comply with the prescribed building morphology (which is more practiced in western countries) of shopping mall. Locational and spatial significance of individual shop is critical to consumers' movement behavior along other multiple variants within a mall or shopping center, spatial planning with different types of retailers under each major category of tenants are important to consider for an overall functional ambiance of these retail hubs.

Generally locational and spatial significance of single or clusters of shops in a mall is closely tied to its categorical classification of being within Anchor or Non-Anchor tenants' typology. Fong (2003) developed the basic schematic illustration of the constituents and nomenclature of the anatomical parts within the common areas of a super regional/ Regional Shopping Center (Fig. 2.3) which shows Anchor tenants are placed in the critical location to act as a magnet for dragging more consumers to those points. Non-anchor tenants (or in this case side malls) take privilege of this movement flow between the anchor stores.



**Fig. 2.3:** Schematic Illustration of Basic Building Morphology of Shopping Mall  
(Source: Urban Land Institute, 2002)

Though there is no „One policy fits to all“ for tenant mix, its locational strategy might be a bit universal when considering the location of Anchor tenants and Non-Anchor tenants. Regarding their spatial location, it is suggested that anchor tenants would be placed at the end of a mall or at upper floor. They are not suggested to be put in the middle of the shopping centre. Since the anchor tenants have drawing power and it helps to diversify customer to other shops in the mall after shopping in their shops. The micro shopping environment would be better after this arrangement [Mejia and Benjamin (2002) cited by Yan (2013)]. When the characteristics of the market for the centre are known the developer can decide firstly on the Anchor tenants and then the other tenants (Beyard, 1999).

Brown (1993) suggested that the anchor tenants should be placed far away from the main entrance so as to pull shoppers movement. Since a dead end space would block the smooth movement for retailers, magnet shops might be placed at opposite end thus smaller retailers could benefit from the movement. Meanwhile, placement of different varieties of trades is recommended. The food and beverage shops should be located away from retail services. Those retail and service stores should be placed near the entrance and the exit. In order to facilitate a smoother pedestrian flow, even distributions of retailers in different levels are required so as to attract customers to go upstairs and downstairs. Therefore, landlord should pay more attention to asset enhancement on escalators, eating and playing facilities arrangement as they are important issues.

Maitland (1985) described more about anchor stores, such as department stores, are in themselves incompatible because they are in direct competition with each other; hence they are most commonly located at the extremities of the layout or furthest from each other. The location of the second tier of retail units (junior anchors or sub-anchors) are considered largely in relation to the placing of major anchor tenants and so on. These large space users are placed in such a way to draw movement throughout the centre so that all standard unit tenants are passed on the way to and from the anchors.

Independent siting of smaller standard units is usually approached in a mainly negative way i.e. that is they should not occupy potential „dead“ space of the main malls or should not be any such „incompatible“ retailers (Brown, 1991). Standard service units include the post office, banks and a few personal service shops; most of which enjoy monopoly or near-monopolistic trading conditions. As Maitland (1985) points out that these units are the kinds of units that shoppers are prepared to seek out regardless their inconvenient locations. Beyard and O'Mara (1999) concurred by stating that „banks, travel agencies, and other services and restaurants are suited to side malls... or other locations that would be undesirable for stores selling, say, impulse goods.“ Furthermore, standard units selling durable goods are said to not generate traffic by themselves and would benefit from central locations, in particular goods that are likely to be bought on impulse.

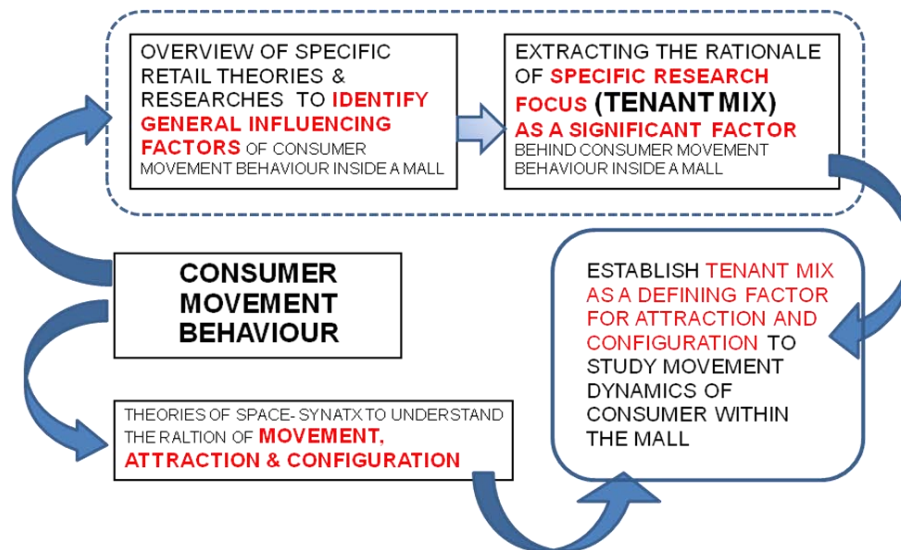
However, it is not clear which store types or retailers are not considered compatible, although according to Dawson, (1983) jewelry and record stores should be dispersed. The weakness of these rules of location is that they are based on generalized assumptions about the way people supposedly go about shopping. While the rules regarding placement, clustering or dispersal of stores are abundant, there is also a genuine lack of evidence that they are adhered. The countries which are facing extreme growth of complex commercial facilities or large scale shopping malls are more intended to carry out researches on these specific issues of such building types.

### 2.3. Dynamics of „Consumer Movement Behaviour“ in Shopping Mall

Consumer movement behavior within a mall is primarily concerned with the consumers shopping behavior; who buys what, where and why. But there are ample factors within a mall that initiate, influence and guide the movement behavior of the consumers. In this section of literature,

**firstly**, the general factors of influences (of consumer movement) have been summarized in light of various contemporary researches and retail theories; from where the specific research focus has been extracted to establish a methodical standpoint of selecting Tenant mix as a prime influencing criteria,

**Secondly**, the relation of movement, configuration and attraction has been briefly summarized in reference to Space-Syntax theory to **finally** consider the tenant mix as a strong determinant of consumer movement inside the large scale shopping mall.



**Fig. 2.4:** Theoretical linkage of Consumer Movement Behaviour & Tenant Mix  
(Developed by author)

Movement behavior might not always relate to the shopping behavior, though it is closely and firstly related to the identification of the desired shops that one might seek in a shopping mall. There are extensive factors in modern day shopping malls to roam around rather than the conventional idea of simple purchase. Even infrastructure services within shopping centers such as the provision of public toilets, cash dispensers and recreational areas to meet the expectations and demand of consumers, support the fulfillment of the defined (shopping) tasks (Bellenger, 1977, Baker et al., 2002, Teller, 2008). Moving within a shopping mall might initially related to finding a store and exploring the retail varieties, but gradually and unknowingly it is being in the maze of attraction factor of the mall and its spatial configuration. Therefore, it is necessary to have a clear view to understand the term „Consumer Behaviour“ and „Consumer Movement Behaviour“. As movement in shopping mall is generally initiated by the

elementary urge of buying necessity, majority research in this sector has termed/ portrayed the consumer behavior as generally their buying behavior. „Studies of customer behavior in re-tail stores usually deal with (i) identification of customers and (2) their buying behavior patterns. The aim of such studies is to ascertain who buys where, what, when and how“ (Applebaum, 1951).

Since this research is aimed to understand the impact of tenant mix (spatial configuration of the shopping mall in relation to its tenant distribution, attraction and configurational factor of tenants) on movement of consumer to various places of the mall to understand the overall spatial success of the mall design, the study is refrained from further investigation of consumers buying behavior or retailers perspective of profit generation.

### 2.3.1. Influencing factors for Consumer Movement Behaviour

Consumer Movement Behaviour is influenced by various factors; both *external* (and macro level consideration of planning) and *internal* (or shopping mall design parameters). As this study is focused on the movement inside the mall, the external effects on movement drag is not considered for reviewing literature. Again internal consumer movement criteria are influenced with lot more details from detail design factors of individual shops to understanding consumers“ psychological traits for shopping or visiting the mall. Atmospheric stimuli (including smell, music, decoration, or shopping mall layout and temperature) have an effect on consumers“ perception of the shopping center“s attractiveness as well as their shopping behavior and provide enrichment and consequently an extension of the retention period of consumers. (Michon et al, 2005; Bellenger, 1977; Baker et al., 2002; Teller, 2008).

In understanding consumers shopping perception, researchers work considered various theories; as theory of consumer utility maximization, retail agglomeration theory, theory of transaction utility maximization. All these works inherently include the movement consideration within the mall. From the summary of contemporary research findings, the more relatable issues for enhancing movement in a shopping mall is skimmed out with these two significant criteria of consumers“ overall shopping trait: a) **Shopping Type** and b) **Shopping Trip Pattern** which are centered within the core idea of **Tenant mix** of a mall. The intensity of research has clearly considered the internal tenant related aspects as one of the major indicator for consumer movement within the mall.

The *shopping type* and *trip patterns* can initiate various movement criteria among consumers. Either way the central idea of success is an effective tenant mix. Reikli (2012) in his research work has modified Levy and Weitz“s (2008) proposed shopping types after analyzing Kramer et al. (2008) work. His final suggestions on **shopping**



**types** are: *convenience shopping*<sup>1</sup>, *comparison shopping*<sup>2</sup>, *specialized shopping*<sup>3</sup> and *impulse shopping*<sup>4</sup>. Thus various shopping type initiates various movement intensity according to variety of retail tenant mix. These shopping types will not only have significance from the point of view of various tenant types and profiles, but also from the point of view of space allocation for these within the shopping center.

Again **shopping trip** is also considered as the factor for consumers' movement pattern; whether it's going to be a longer stay or shorter stay and that trip related to shopping goods/tenant mix, influence the movement criteria. In Reikli's (2012) study, two different shopping strategies have been mentioned; *single purpose shopping trip*<sup>5</sup> and *multipurpose shopping trip*<sup>6</sup>. Most of the studies come out with consumers' inclination towards multipurpose shopping for various reasons among which travelling cost is an important issue. According to Yan (2013), „Shoppers travelling cost could be minimized as they can be satisfied with their multipurpose in one shopping trip.“ Northern (1984) divided the shopping pattern into two classifications: *regular shopping visit*<sup>7</sup> and *occasional visits*<sup>8</sup>. Whatever the purpose of visit to the mall, movement remains the crucial factor to make it successfully happen.

Thus all these purpose and trip pattern of shopping ends to a mall with variety of tenant mix. Behind all these shopping purpose and trip pattern, remains the core concept of tenant mix of a mall which itself is a vast focus of study to relate consumer movement to its planning and clustering.

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<sup>1</sup> in this case, the main goal of customers is on minimizing shopping related efforts. They are primarily product-, rather than brand-oriented and less price-sensitive. Here we can talk about buying products which satisfy primary, daily needs or which customers need quickly and often.

<sup>2</sup> in this case customers are very interested in the outcome of shopping, they have a general concept about the type of product or service they would like, but they do not have a concrete idea about the brand. They search for more information and are willing to make an effort for planning the purchase and to decide which product to buy. This is typical of furniture, electronics, clothing and fashion wear etc. purchases. In order to facilitate this shopping type, retailers selling these product categories are placed, clustered next to each other, in order to attract more customer traffic. Hotelling's (1929) retail agglomeration theory also lies on this idea. As a result, customers choose those shopping centers as the place of shopping, which accommodate more retailers selling the respective product category, thus reducing the risk related to finding the desired product (Webber, 1972, id. Eppli and Benjamin, 1994), even if this demands a significant effort (travel cost, time) from the customer. This explains also how the catchment area expands.

<sup>3</sup> in this case customers know exactly what product they want and do not accept any replacements, this is when they are the most interested in the outcome of shopping. Usually, they are loyal to the brand and retailer and are willing to make a great effort for the given product. Thus, they patronize the respective store or shopping center, even if getting there is inconvenient. In cases like this, the commercial catchment area is blurred completely, because customers are willing to go as far as necessary to buy the respective product. But the ratio of this shopping type is far lower than comparison shopping.

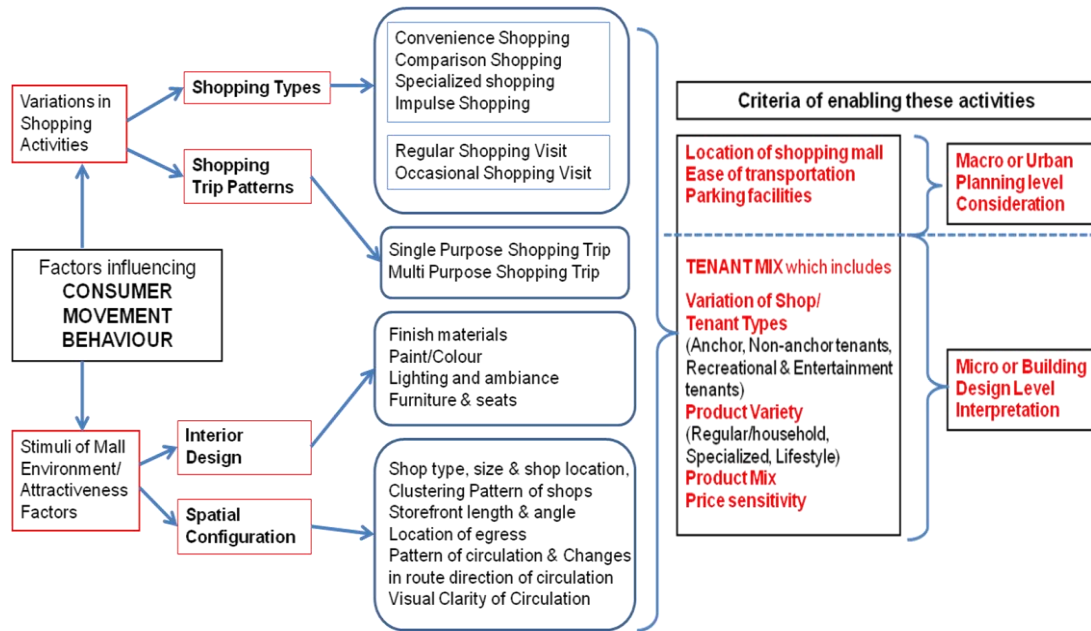
<sup>4</sup> these shopping types rarely come as independent shopping, rather, they occur beside the former three shopping types. In these cases customers buy products that they are not seeking actively or consciously. Products like these are placed next to entrances or exits, or near products related to comparison shopping. In a shopping center, this is the case of jewelry stores or stores selling snacks, which are placed where they benefit from the customer traffic, generated by convenience, comparison and specialized shopping types alike.

<sup>5</sup> during which the customer's goal is to purchase a single given product.

<sup>6</sup> in this case, shoppers buy several products and services at one time.

<sup>7</sup> Regular visit refers to the necessity which frequently purchase like the household items, food, drinks, newspapers.

<sup>8</sup> Occasional visit refers to the fashion items, clothes, jewelry and electrical equipments.



**Fig. 2.5:** Diagrammatic Summary of Literature showing the significance of TENANT MIX in consumer movement behavior (Developed by author)

**Tenant mix** itself has been studied with various approaches such as; investor-oriented (Abratt & Fourie et al., 1985), location-oriented (Brown S, 1993), measurement-oriented (Kirkup and Rafiq, 1994) and a more comprehensive idea of tenant mix from Greenspan (1987). But when comes to the study of consumers movement in relation to the tenant mix, the scholarly study considers „Shoppers“ as the key determinant to a mall. A successful shopping centre needs to keep with high customer patronage“ (Yan, 2013) where the relation with mall“s tenant mix and their shopping purpose has been mentioned by stating, „Shoppers usually choose to shop in a mall which provides one-stop shopping experience with unique tenants also.“ Sim and Way (1989)“s correlation study of „tenant placement and patronage came out with a suggestion of tenant clustering which can create more synergy effect on the consumers movement“ is also supported by Yan (2013)“s suggestion of making tenant mix tailor-made to have unique impression to shoppers so they could make the difference from their competitors.

Various studies have come out with detail about how the type of tenants can have significant movement disperse capacity. Anchor tenants have proven most worthy in dragging dynamic movements within the mall. Nevin & Houston (1980) states, „anchor tenants could draw specific and lots of customers. Other retailers could benefit from the additional customer turnover generated by the anchor tenant“ which also supported by other researchers specifically for the large shopping centers where synergy effect created by anchor tenants can benefits non-anchor tenants; that is a balanced and well-planned tenant mix of anchor and non-anchor tenants (Eppli and Benjamin, 1994) . Yan (2013) mentioned that having the large drawing power of consumers to the mall, „Anchor tenants usually preferred to be placed at the retail externalities which could

attract customers from one end to the other. Anchor tenants are treated as the magnet traders for the shopping centre. Meanwhile for other small, lesser magnet retailers, they are needed to be placed at different intervals to make the movement around the mall.” Thy et al. (1999) also had similar notion that mentioned food and beverage tenants are served as a good "magnet shops" to attract customers to shopping centers. It is also generally agreed that similar retailers should be placed nearby anchor tenants while fashion, watches, jewelry retailers should be placed in central area (Yan, 2013). Apart from only dragging visibly significant number of consumers, anchor tenants contribute a lot to the mall by generating the rental income and sales revenue for the whole shopping mall. As locations of tenants are significant in drawing movements, selection of anchor tenant is critical to the mall since it influences the customer flow pattern.

### 2.3.2. Attraction, Movement and Configuration

In order to understand spatial properties and its various investigative significance for any given building or urban segment, pedestrian movement study has been considered as an immensely legitimate aspect. The earlier *‘theory of attraction’*<sup>9</sup> for generating movement has later been confronted with the importance of spatial „configuration“ which has been since a sector of enormous morphological researches both in urban and building level.

Spatial *configuration* according to Hillier, et. all. (1993), „is the way in which the spatial elements through which people move—streets, squares, alleys and so on—are linked together to form some kind of global pattern“. Emphasizing the impact of configuration they also stated that „configuration can have effects on movement which are independent of attractors“ while confining it, Kim (2001) stated, „ configuration is perhaps the most difficult aspect of the environment to describe in an objective and analytical manner“.

The notion of movement and spatial configuration has been studied in various researches and especially for shopping malls „configuration has a direct relationship with the distribution of movement within planned, artificial shopping centre environments“ (Fong, 2003). In support to this statement and as extension of the idea, several researches have been conducted. Min et al. (2012) focused on analyzing spatial configuration of a complex commercial facility, merchandizing to obtain attraction effect and pedestrian characteristics considering user“s behavior. Saruyama and Kishimoto, (2014) have investigated the relationship between space configuration of a complex facility and the distribution of shoppers in this space. Kong and Kim, (2012), have mentioned „a relation between sales and pedestrian movement and between pedestrian movement and spatial configuration“; hence has tried „to forecast sales and

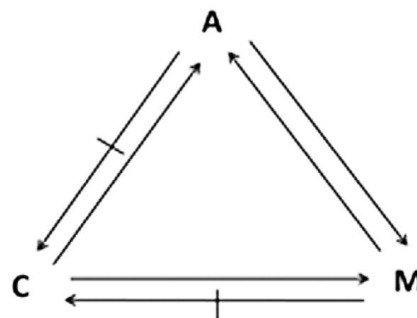
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<sup>9</sup> In the *attraction* theory of pedestrian movement, movement is seen as being *to and from* built forms with differing degrees of attraction, and design is seen as coping with the local consequences of that attraction. (Hillier, et. all., 1993)

pedestrian movement of a shop or assess the value of shop". Do-Hyeon (2005) investigated relation between pedestrian movement and tenants according to spatial configuration in a large scale complex commercial place and Eun-young (2001) examined relation between factors affecting users' movement and their walking patterns in large scale basement complex commercial space.

Previous section of discussion (influencing factors for consumer movement behavior) has established „**Tenant Mix**“ as an important factor which acts as both determinant for attraction and mall configuration. When comes the effective tenant planning of a mall, Hillier, et al. (1993) and Hadjri (2006) indicated that „the linkage between the entrances, corridors, escalators etc. are critical to the pattern of grid in planning the tenant mix of a shopping centre“. Garip et al. (2015) also stated that syntactic character of the market places affect people's movement.

As Hillier, et.all. (1993) illustrated in Fig.2.6, attractors and movement may affect each other; however, the other two relations are asymmetrical. Configuration may affect the location of attractors, but the location of attractors cannot affect configuration. Likewise, configuration may affect movement, but movement cannot affect configuration. If strong correlations are observed between movements and both configuration and attractors, the only possible lines of influence are from configuration to both movement and attractors, with the latter two influencing each other.



**Fig. 2.6:** Inter-relationship between attraction (A), configuration (C) and movement (M) (Hillier, et. all., 1993).

Shopping malls are considered in developing countries as the outcome of western retail image in the developing countries as „the modernizing effect shapes and changes the spatial structure of retail developments (Hossain, 2009). The volumetric mass with internal spaciousness and outside grandness in scale are mimicking the westernized formalism of shopping mall. But the resulting deep planning with ample shop units are lacking in creating successful shopping environment. An enclosed shopping centre is a case where changing one thing is likely to affect others (Fong, 2003). Therefore the triangulation of spatial configuration, movement and effective tenant mix as attractor for a mega scale shopping mall is a crucial one to determine for a successful retail hub.

## 2.4. Theoretical Understanding of DEPTHMAP & Visibility Graph Analysis (VGA)

**Depthmap** is graph analysis software, not a geometric analysis tool (Turner, 2004). The original concept behind Depthmap developed from two strands of thought. One was isovist analysis (Benedikt, 1979), and the other space syntax (Hillier and Hanson, 1984). The decision to combine isovist fields with space syntax to provide a measure of how well integrated isovists themselves are within a plan of an environment (Turner and Penn, 1999) has resulted up as a methodology which was later formalized more simply as *visibility graph analysis* (VGA) (Turner et al., 2001). Depthmap can also analyse axial maps.

In VGA, a grid of points is overlaid on the plan. A graph is then made of the points, where each point is connected to every other point that it can see. The *visual integration* of a point is based on the number of visual steps it takes to get from that point to any other point within the system. It is important at this stage to clear up a common misunderstanding: Depthmap analyses *point locations* not grid squares. Although you are shown a set of squares for ease of seeing the points, visibility is always assessed from the very centre of the grid square.

**The visibility graph** is a tool with which we can begin consciously to explore the visibility and permeability relations in spatial systems (Tahar and Brown, 2003). According to Hanson (1998), “.....*architectural speculation almost invariably brings into play the relationship between visibility [what you can see] and permeability [where you can go].*” The visibility graph properties may give clues to interpret manifestations of spatial perception, such as way finding, movement, and space use within a building or a house. (Tahar and Brown, 2003). It was hypothesized that VGA would give a good indication of how people might interact with space; either moving through it (Desyllas and Duxbury, 2001) or standing, discussing or generally occupying it.

The global measures<sup>10</sup> of the graph include 'mean depth', 'node count', 'integration' and 'entropy'. The local measures<sup>11</sup> calculated by Depthmap are 'clustering coefficient', 'control', 'controllability' and 'connectivity'.

Considering the specific research and its objectives, the Depthmap graph analysis software has been applied for running Visibility Graph Analysis (VGA) after generating visibility graph for each level. The analysis considered the following measures:

<sup>10</sup> The global measures are all based on preparing shortest paths from each node, through the visibility graph, to all other nodes.

<sup>11</sup> The local measures are based on the relationships between each node and the nodes directly connected to it.

**Table 2.3:** Various Syntactic Measures of VGA

Global Measures	a) Visual Integration b) Visual Mean depth	First Order Measure
Local Measures	c) Visual connectivity d) Clustering Coefficient	
	e) Intelligibility	Second Order Measure

For this study, the first order of global measure „Integration“ (which is termed in VGA as Visual Integration) is only considered to derive the second order measures of correlation between Visual Connectivity (CN) and Visual Global Integration (HH) to observe the overall Intelligibility<sup>12</sup> of the system (for each level separately). As the „VGA integration is heavily biased towards large open areas. In axial integration, because the system is dimensionless, large open areas do not unduly weight the values of the lines; that is, the large areas only weight the values by their increased connections, not through their area. By contrast, in VGA integration the measure approximates a mean of distance times area.“ (Turner, 2001).

For most of the previous researches using VGA within the building or in an enclosed space, the mostly suggested global measure was not Integration, rather „Visual Mean Depth“ and „Point Depth Entropy“. As Point Depth Entropy is a topological measure (Turner, 2001) and the aimed study is not intended to that way, the considered global measure is Visual Mean Depth for detail understanding and analysis.

VGA is comparatively less effective for calculating mean depth in a larger spatial system or for Urban set up as „Measures of mean depth always create an 'edge effect' and that is the whole point: the interesting thing about them is the way that they define what is central and what is edge.“ (Desyllas & Duxbury, 2001). As for this a single bounded system or building interior can be effectively be studied by VGA. In urban system the „edge effect“ (if not objectify for the specific research), can be overcome by adopting local measures of VGA like „Visual Connectivity (Visibility)“ or „Clustering Co-efficient“ (Turner, Doxa et al. 1999). VGA is effectively applicable for building interiors as „they are usefully thought of as (literally) bounded spatial systems.“ (Desyllas & Duxbury, 2001).

Visibility graphs analyse the extent to which any point in a spatial network is visible from any other. (Desyllas & Duxbury, 2001). VGA has been used in architectural analysis ((Turner, Doxa et al. 1999; Turner and Penn 1999), specially on testing the

<sup>12</sup> „Intelligibility“ means the degree to which what we can see from the spaces that make up the system” (Turner 2007). It is a correlation between local and global spatial properties of the layout; it summarizes their relationships (Hillier and Hanson, 1984).

relationship of VGA to pedestrian movement has been exclusively on studies within buildings, such as the Tate Gallery (Batty, Conroy et al. 1998; Turner and Penn 1999).

Since various studies have incorporated VGA within the building system, the selected research has justified its content to proceed with this graph analysis for attaining the aim objective of the study. In discussing the considered measures for the study, the specific definition comes up as following:

**Visual Integration:** The *visual integration* of a point is based on the number of visual steps it takes to get from that point to any other point within the system. Integration is accordingly about “syntactic” and not “metric” accessibility, and the expression “depth” rather than “distance” is used to illustrate how far a given space is from another space (Mahmoud and Omar, 2015)

**Visual Mean Depth:** Mean depth is calculated for each node much like the step depth. The shortest path (i.e., the fewest number of turns) through the visibility graph is calculated to each other node within the graph. „Visual Mean Depth“ as per Turner (2001) „seems to be useful understanding movement of people within building environments, where it is difficult to apply traditional Space Syntax methods such as axial analysis at high resolutions“.

**Visual Connectivity (Visibility):** It is defined as the number of points at which a space is directly connected to other spaces. (Alitajer and Nojoumi, 2015)

**Clustering Co-efficient:** Clustering coefficient is a measure introduced by Watts and Strogatz (1998) to help assess whether or not a graph is a ‘small world’ or not. Clustering coefficient is defined as the proportion of vertices which are actually connected within the neighbourhood of the current vertex, compared to the number that could possibly be connected. It appears to give an idea of the ‘junctionness’ of locations, and how the visual information is changing within systems, dictating, perhaps, the way a journey is perceived and where the decision points come within it (Turner et al., 2001). According to Tahar and Brown (2003), „The clustering coefficient gives a measure of the proportion of inter-visible space within the visibility neighbourhood of a given point“.

**Intelligibility:** The second order measure “**Intelligibility**” is significant in syntactic analysis for a given spatial system and „is calculated by the degree of linear correlation between local measure connectivity (CN) and global integration (Rn) value“ (Hillier & Hanson 1984).

Space Syntax theorists have argued that the property of intelligibility in the space syntax literature contributes to an intuitive understanding of configuration (Haq, 2001). Intelligibility is not only a physical attribute of the environment, but an aspect of spatial cognition as well; it is an intervening variable, which promotes the interaction, and at

the same time, it facilitates a clear image of spatial layout (Kim, 2001). The inherent intelligibility of a spatial complex influences exploratory movement and the understanding of its configuration (Brösamle and Hölscher, 2007, Yun and Kim, 2007 cited in Beck and Turkienicz, 2009).

Hillier (1996) defines : “*The property of ‘intelligibility’ in a deformed grid means the degree to which what we can see from the spaces that make up the system- that is how many other spaces are connected to - is a good guide to what we cannot see, that is the integration of each space into the system as a whole.*” He also proposes that intelligibility is related to the capacity of a space to give clues to the understanding of the whole system.

„Intelligibility“ according to Kim (2001), „is not only a static property of system but also the process by which the mind acquires spatial knowledge. The extended notion of intelligibility recognizes the importance of spatial reasoning in the human mind - it is not just a topological geometry for representing the physical environment“.

Hillier et al (1987) propose a syntactic definition of intelligibility to describe this qualitative aspect of spatial form analytically and quantitatively. The intelligibility of the form can be measured by analyzing the relationship between how spatial configuration can be seen from its parts and what it is like as an overall pattern, that is, as a distribution of integration. Hillier develops a metric for intelligibility by correlating a local measure of spatial configuration with a global measure. It is defined as the degree of correlation between the connectivity and integration values of the line in a configuration. Later, Hillier (1996) explains this notion using scatter grams that show the correlation between them and notes that degree of intelligibility can be read by looking at the shape of the scatter.



## CHAPTER: 03

### RESEARCH METHODOLOGY

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#### 3.1. Introduction

The discussion on previous chapter of Literature Review has been a guiding notion to generate the methodical frame work for this research. Based on the objective of the research, the study is designed as ‘**Case Study based Mixed-method Research**’ where the understanding and findings from this study will be able to generalize for opting further studies in similar or different conditions.

This chapter has been developed in three major sections; the **first section** will demonstrate why this study has opted for a „mixed-method research“ design (purpose for mixing by highlighting the main objective of the design) through stating initially its scholarly definitions and interpretation, the **second section** will elaborate the rationale of approaching *a single case study* for mixed-method research and specifically, for this study the selection criteria of the case and lastly, the **third section** will describe the data collection methods, data analysis and synthesis procedure.

#### 3.2. Mixed-Method Research: A Theoretical Perspective

Mixed methods may be defined as „research in which the investigator collects and analyses data, integrates the findings and draws inferences using both qualitative and quantitative approaches or methods in a single study“ (Tashakkori and Creswell, 2007; cited by Doyle, Brady and Byrne, 2009).

According to Leech and Onwuegbuzie (2008) „In general, mixed methods research represents research that involves collecting, analyzing, and interpreting quantitative and qualitative data in a single study or in a series of studies that investigate the same underlying phenomenon.“ Creswell and Plano Clark (2007: 5) says, „Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems that either approach alone.“

Mixed method research has been justified by many scholars for various reasons. Doyle, Brady and Byrne (2009) has cited Greene, et al. (1989) and Bryman’s (2006) works in a generalized way by focusing common issues narrated by both of them as the rationale

of selecting mixed method for a study. These are; *Triangulation, Completeness, Offsetting weaknesses and providing stronger inferences, Answering different research questions, Explanation of findings, Illustration of data, Hypotheses development and testing, Instrument development and testing*. Fernandez and Azorin (2011) have mentioned this method significant and purposeful for another two reasons; *Development<sup>1</sup>* and *Expansion<sup>2</sup>*. They have cited Creswell, 2003; Morgan, 1998; Morse, 1991; Onwuegbuzie et al., 2009; Tashakkori & Teddlie, 1998 to state the other two main determinant factors for opting to mixed method research and these are; *Priority<sup>3</sup>* and *Implementation of data collection<sup>4</sup>*.

From all the above mentioned review, it is evident that various studies might require fulfilling various aspects to opt for a mixed method research. Hence in this particular study, the back ground and rationale of the study along with its specific objectives (stated in chapter 01) requisite the mixed-method for mostly *Triangulation, Completeness* and *Answering different research questions*.

The understanding of movement behaviour of consumers in relation to tenant mix of shopping mall is primarily a qualitative research. How and which extent tenant mix planning can influence consumers movement behaviour inside the mall is the key question to investigate in this study. For the purpose of the study, a quantitative data collection process of consumers involved thus it is organized as a mixed method approach. Schoonenboom and Johnson (2017) states, „A mixed methods design is characterized by the combination of at least one qualitative and one quantitative research component.“ The research is broadly qualitative associated with simulation and analytical data interpretation. The study for its purpose and objective required a mixed method approach as the method allows the scope of triangulation to search for a convergent results. Here the triangulation is methodological triangulation.

The methodological constructs in research arena has its own debates on formulation of particular research methods for any particular research types. The scholarly debate on the stream of research methodology has even admitted mixed method as a newer one. Many researchers argue that as mixed methods research is still evolving, the discussion of what it actually is should be kept open as well as other suggest that the definition of mixed methods research will change over time as this research approach continues to grow (Doyle, Brady and Byrne, 2009 cited Tashakkori and Creswell, 2007 and Johnson, et al., 2007).

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<sup>1</sup> (i.e., the intent to help develop or to inform the other method). In this case, it is again usual to use sequential designs, in which one of the methods (normally the one with least weight) helps in some way to improve upon the subsequent implementation of the other method (normally the main or dominant one)

<sup>2</sup> (i.e., seeking to analyse and to explore different facets of a phenomenon so as to obtain a richer and more detailed understanding of it).“

<sup>3</sup> In a mixed methods study, the researcher can give the same priority, weight, or status to the quantitative and qualitative aspects (equal weight designs), or alternatively can give greater weight to one of them (different weight designs).

<sup>4</sup> This concept refers to the order in which the researcher collects quantitative and qualitative data. The two options are collecting information at the same time (simultaneous, concurrent, or parallel designs) or at different points (sequential or two-stage designs).

### 3.3. 'Case Study' Approach for Mixed-Method Research

Here in this section the **significance of case study research** has been narrated and later on the scholarly affirmation on conducting the **Mixed-Method approach to investigate the case** has been stated.

Case study research excels at bringing us to an understanding of a complex issue or object and can extend experience or add strength to what is already known through previous research. Case studies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships. This is why „the case study method is progressively popular among researchers“ (Thomas, 2011; Hyett, Kenny & Dickson-Swift, 2014 cited in J. Gustafsson, 2017)

In defining the significance of case study research, Gustafsson (2017) cited Creswell (2013) that „the case study method explores a real-life, contemporary bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information... and reports a case description and case themes“.

Case studies highlight a developmental factor, which means that the cases are generated and evolve over time, often as a series of specific and interrelated events those occur in “that particular time and that particular place.” Holistically speaking, this constitutes *the case*.

Starman (2013) cited Sturman (1997) that, „[a] case study is a general term for the exploration of an individual, group or phenomenon“. Therefore, a case study is a comprehensive description of an individual case and its analysis; i.e., the characterization of the case and the events, as well as a description of the discovery process of these features that is the process of research itself (Mesec, 1998). In scholarly references, the issue of investigating a single case through various methods has been mentioned. Flyvbjerg (2011) states, an individual case can be studied from different perspectives – **both qualitative and quantitative**. A case study is an analyses of systems studied with a wide-ranging view where **either one or several methods** are used. (Thomas, 2011 cited in Gustafsson, 2017).

In describing why any particular research should opt for case study, Stake (2005) stated that a case study is not a methodological choice, but rather a choice of what is to be studied – by whatever methods we choose to study *the case*. In so doing, we can study it analytically, holistically, hermeneutically, culturally, and by **mixed methods**, but we concentrate, at least for the time being, on the case (Stake, 2005).

In mixed method research, the case study approach has gained a distinguish importance as Kitchenham (2010) states, „Mixed methods research works particularly well for case study research as it allows the researcher to take the rich empirical data yielded from

case studies and apply either quantitative or qualitative methods or quantitative and qualitative methods to the data." Case study research lends itself particularly well to mixed methods research, as myriad approaches to research design, analysis, and interpretation are possible. He again states, „The combination of qualitative and quantitative techniques enhances legitimation as the qualitative analyses involve descriptive precision and the quantitative analyses ensure numerical precision.“

Case study research often examines the descriptive questions of who, what, where, how many, and how much but can neglect the how and why questions often investigated in quantitative studies. Mixed methods research allows opportunities for the meaningful questions to be posed, measured, analyzed, and interpreted. Because both inductive and deductive reasoning are applied in mixed method research, the results are far more robust, especially in case study research that involves rich empirical data gathered through varied data collection techniques. In short, mixed method research is so powerful because it allows the “gaps” in qualitative research methodologies to be filled or overlapped by quantitative methodologies and techniques and vice versa. Kitchenham (2010)

### 3.3.1. Rationale of Single Case Study

Both single and multiple cases are evident in thriving for a mixed method research. But the single case study inherently contains scopes for investigation through multiple modes of understanding. **Selecting single or multiple cases** is a key element, but a single case study can include more than one unit of embedded analysis. The existence of phenomenon can opulently be described by single case studies. For creating high-quality theory, Dyer & Wilkins (1991) argue that single case studies are better than multiple cases because a single case study produce extra and better theory. (Siggelkow, 2007 cited in Gustafsson , 2017)

When a single case study is used, the researcher can question old theoretical relationships and explore new ones because of that a more careful study is made. This makes also the researcher to get a deeper understanding of the subject (Dyer & Wilkins, 1991 cited by Gustafson, 2017). Gustafsson (2017) explains, other benefits are that single case studies richly can describe the existence of phenomenon and it is better to make a single case study than a multiple case study when the writer wants to study, for example, a person or a group of people.

Gustafsson (2017) cited Yin (2003) that a case study can contain either a single study or multiple studies. The researchers therefore have to consider if it is wisely to make a single case study or if it is more wisely to make a multiple case study for the understanding of the phenomenon. While considering the case, Yin (2003) has given utmost importance to look over the context. He also explains that a single case study with embedded units can be made if the researcher wants to have the ability to study the

case with data analysis within case analyses, between case analyses and cross-case analyses. When the researcher chooses a single case study with embedded units he gets the ability to explore those subunits that are located within larger cases (Gustafsson, 2017).

Starman (2013) cites Flyvbjerg (2011) that, „One can often generalize on the basis of a single case, and the case study may be central to scientific development via generalization as supplement or alternative to other methods“. Eysenck wrote following: „Sometimes we simply have to keep our eyes open and look carefully at individual cases – not in the hope of proving anything, but rather in the hope of learning something“ (Eysenck 1976 cited in Flyvbjerg, 2006).

A case study can be helpful when we are eager to answer the questions of “how” and “why,” when we cannot influence the behaviour of those involved in a study, and when we want to cover contextual conditions because we believe they are relevant to the phenomenon under study or when the boundaries between the phenomenon and context are not clear (Yin,2003 in Baxter & Jack, 2008; cited by Starman ,2013).

### **3.3.2. Case Study Selection Criteria for Given Research**

The research object in a case study is often a program, an entity, a person, or a group of people. The questions are targeted to a limited number of events or conditions and their inter-relationships. Selection of Case study is considered for what will be explored. But while opting for a case study based research, it is utmost important to remember that selecting the case for the specific research is the crucial choice. Starman (2013) said about Mesec’s (1998) suggestion of selecting such case for a research unit (an individual, family or other group, organization, or community) where a practical problem that we are interested in exists.

Mesec (1998) has also stated that, „we should select interesting cases (e.g., contrasting, extreme, exceptional cases) instead of typical, average cases. Similar to him, Thomas (2011) also suggests choosing an atypical case, where the subject and object interact in a dynamic relationship. On the other hand, Yin (2009) recommends selecting a representative or typical case because in doing so, we may find new hypotheses and deeper layers that previous theory has missed. Each case has its advantages and disadvantages, but the selection of cases and should mostly depend upon the research problem.

The selection of a case based on prior knowledge leads to a better research plan. Cases selected on the basis of prior knowledge are most likely crucial for enabling the development of a strong theoretical base for the research, which makes the procedure of theory testing more rigorous (Starman, 2013).

The mixed-method, case study based research is initiated to have an exploratory understanding of present day large scale shopping mall in the complex set of urbanized Dhaka. The specific study is designed to understand the phenomena of tenant mix as a part of shopping mall planning which is intended to generate a significant consumer movement inside the mall, therefore the movement behavior is narrowed down to spatial perception of mall planning which for this research is specifically tenant mix of that mall.

The reasons of selecting a single case study (for this research, Bashundhara City Shopping Mall) have been described in following paragraph. The reasons for the justification for the single case study are identified in this section. The reasons are:

**Firstly**, the criteria for investigation (according to research objectives and yielded research questions) justified the selected malls as it needed certain criteria fulfilled; size of mall in terms of overall sft, no. of shops, time of operations, significant urban context, the maximum tenant mix, a significant no. of pedestrian footfall, the previous research indication to the study area.

**Secondly**, for the design practitioners in architecture and built environment, the case study is a pioneer one in terms of its design and approach to the retail developers as the potential significance to practitioners of the findings of the study.

**Thirdly**, the outcome is expected for recommendations for further research as the topic is dynamic and the fluidity in the research intension has prospects to be examined by other research perspectives with various strategic notions.

Multi-leveled enclosed Shopping mall as a modern concept of retailing has emerged in the scenario of urban Dhaka in last decade of twentieth century. Since then the trend of building shopping malls has become an integral part of overall urbanization process. Though an intense scholarly research (Hossain and Penn, 1999) found the retail growth of Dhaka has the character of spontaneity in general, „the recent trend of modern and enclosed shopping centre development in Dhaka, attempt to imitate the internal shopping environment of the developed countries“ (Hossain, 2009). These volumetric shopping malls focused more in form and urban locational aspects rather than internal optimization of spatial planning of shops. Extensive number of fixed and similar shop size, grouping or cluster of retail types in different floor levels fails to meet different class of consumers shopping preference (Hossain, 2009). Thus tenant mix is always left behind as a conceptual part of the planning therefore hampers the overall functioning of the mall and delays the financial success of the retailers.

A well executed tenant mix will generate sufficient amount of consumer movement in every space of the mall thus ensuring the economic viability of the retailer. But generally in most enclosed, planned shopping mall in Dhaka „the long linear corridors with limited accessibility and less variety in tenant mix pattern, fails to generate

customers in the deeper part of the building (Hossain, 2009). In these regard such malls need a research based investigation so that the existing examples can be a pioneer in the future growth of such building types. **Bashundhara City Shopping mall** in Panthapath near Karwan Bazar, a major CBD of Dhaka, with the longest time frame of operation in a category of large scale enclosed shopping mall<sup>1</sup> holds the rational of conducting a research of this aspect.

A previous study had an indication on this specific shopping mall under the category of planned one mentioning their “spatialisation process and pattern are merely controlled by space economy of a specific context rather guided by the planning principles of „enclosed shopping centers” of the west”. (Hossain, 2009). The ground floor specifically investigated with adjacent urban context. But the whole shopping mall with its existing eight floors of dedicated retailing variations was not considered as its maturity as a fully functioning mall was a slow process. But after a decade its a potential mall to be investigated within a distinct socio-cultural retail environment of spontaneous character where variety of consumer and their buying behavior in a changing scenario of economic growth of a developing country plays an important role.

Thus from preceding researches the study aims to investigate on overall spatial planning of Bashundhara City Shopping Mall (considering it as a pioneer one in terms of scale and time of operation) with a focus on Tenant mix and its relation with inner consumer movement behavior to understand how such scaled shopping malls in Dhaka are attaining economic feasibility and functional sustainability under a complex dynamism of distinct socio-cultural consumer behavior and exceeding economic environment.

In order to carry out the study, the mall selection criteria is based on previously recognized shopping mall in scholarly research under the category of planned shopping center and within a noticeable urban surrounding, designed by contemporary native architect and the per floor area with ample variations of shops. Under these criteria **Bashundhara City Shopping Mall Complex** has been selected as a research area. The mall has approximately 1, 91,000 sq. ft. with an ample variety of stores bearing the total numbers of 2325. The mall comprised within the 8 storey podium containing Retail Spaces, Mega Stores, Theme Park, Cinemas and Food Court.

Thus selected case, BCSM is a significant one regarding total number of shops with ample variations in tenant mix, their spatial distribution and clustering pattern as well as a mature one considering the operational time frame within an intense urban context. Therefore the study selects the specific mall as it is comprised of all considerations for the research intention to reveal the impacts of present tenant mix on consumer movement behavior.

### 3.4. Methods Used in Data Collection Process

„Mixed method is a research paradigm that combines specific positivistic elements of quantitative research methods with specific constructivist elements of qualitative research methods. Generally, this approach can be sequential or parallel, with the quantitative and qualitative approaches used alternately or together to investigate the same phenomenon“ (Kitchenham, 2010). „Although case studies have often been considered to be part of qualitative research and methodology they may also be quantitative or contain a combination of qualitative and quantitative approaches“ (Starman, 2013). But while doing so „Qualitative and quantitative results should complement each other to create a meaningful whole according to the object and purpose of the investigation“ (Sagadin, 2004).

A key strength of the case study method involves using **multiple sources and techniques** in the data gathering process (tools to collect data can include surveys, interviews, documentation review, observation, and even the collection of physical artifacts). As Single case study can be more investigative and a mixed method research has that potential to deploy various data collection approach. In order to opt for data collection process, the methodological mix has been done in the following manner:

**Table 3.1:** The Methodological Mix of Data Collection Process

Methods used in data collection process	Typology of Methods	Data Generated as	Data Interpreted as
<b>Empirical investigation through Field survey</b> to identify details about the tenant types, spatial clustering and locations,	Qualitative	Quantitative charts, diagrams, Colour coded Plans	Qualitative
Implementation of <b>Space-Syntax</b> to study axial maps of all floors	Quantitative	Quantitative charts,	Qualitative
<b>Movement observation</b> through „Gate method“	Quantitative	Quantitative Data charts	Qualitative
<b>Questionnaire survey</b> by constructing open ended questionnaire.	Qualitative	Quantitative Data charts	Qualitative

The data collection was designed as a concurrent<sup>5</sup> process, not sequential<sup>6</sup>.

While deciding the methods for data collection process, the triangulation is considered as the single case study approach is often seems to face criticism for its authenticity of Data collection approach. The main aim of triangulation is to achieve a convergence of the results obtained via quantitative and qualitative approaches, such that these results are more reliable (Jick, 1979). What is sought, therefore, is a corroboration or correspondence of results obtained through different methods.

<sup>5</sup> the two or more types of data are collected more or less simultaneously (concurrent designs), Small, 2011

<sup>6</sup> In data collection process, one is preceded by the other for methodological reasons (sequential designs). Small, 2011



Fernandez and Azorin (2011) cited, „With regard to the purpose of conducting mixed methods research designs by integrating different types of data in the same study, several potential reasons have been noted by various authors (Creswell, 2003; Greene et al., 1989; Morgan, 1998). Two of the most widely stated reasons are *triangulation* (i.e., to seek convergence in data); and *complementarity* (i.e., to measure facets overlapped from a phenomenon). According to Greene et al. (1989), *complementarity* seeks to clarify or to illustrate the results obtained with one method by also applying the other.

Generally, the data collection sequences (either concurrent or sequential) have been simplified with its aim of attainment the results (either for triangulation or complementarity). Most of the scholars have streamed the concurrent data collection process to achieve the result for triangulation and sequential process to display the results for complementarity.

#### **3.4.1. Field Survey**

All floor plans of the shopping mall have been collected from the respected authority of the mall administration with legal permission. The tenant mix then has been identified with a detail field survey of locating the specific store details on the floor plans. All multiple sources of evidence are collected and stored comprehensively and systematically. Required field notes have been taken while doing the survey and created databases to categorize and reference data to make it readily available for subsequent reinterpretation. Strong attention has been given to maintain the relationship between the issue and the evidence.

#### **3.4.2. Generation of Visibility Graphs Through Depth Map**

To reveal the spatial configuration of tenant mix pattern and its visibility in various spaces, floor plans are analyzed by Depth map software. A detail study on the software generated quantitative data has done to reveal the visual integration and segregation of various floor spaces. These data has collided with movement data to understand the relation of movement density with overall spatial properties of the shopping mall.

#### **3.4.3. Movement Observation through Gate Method**

In order to collect a diverse set of consumers' movement data „the gate count method“ has been adopted. The „Gate Method“ is a well established investigation method to observe various types of movement (both pedestrian and vehicular). For this specific research, Gates are evenly distributed based on the consideration of various types of tenant mixes, ranging from anchor tenants to non-anchor tenants, location near exits/egress or very segregated locations of the mall.

This selection of gates location has been decided after a detail survey of all floors followed by generating both axial maps and visibility graphs of those floors to identify the integrated and segregated spaces of each floor and the distribution of tenants along those floors. The following procedure has been maintained while collecting the movement data in the shopping floors of the selected study areas.

Determination of survey procedure for GATE METHOD:

2 weekdays+ 1 weekend= 3 days

Ratio taken from the distribution of weekdays and week end (2.5: 1)

$2.5 \times 2 = 5$  (weekdays)

$1 \times 2 = 2$  (weekends)

Each floor= 25 gates

1 gate with 3 mins observation; so 25 gates with 75 mins,  
1.25 hour round up for each floor.

Each Floor has 3 times a day observation (morning, afternoon and evening)-  
Thus 3.75 hrs observation in one day.

1 gate-----3 times a day  $\times$  3 days= 9 times

Each time-----3 mins  $\times$  9= 27 mins

1 gate has a count of 27 minutes  
25 gates have a count of  $27 \times 25 = 675$  mins

1 floor with 25 gates have a count of  $675 \text{ mins} / 60 = 11 \text{ hr } 15 \text{ mins}$

11 hr. 15 mins/ floor in regular season (3 days) and

11 hr. 15 mins /floor in festive season (3 days)

That's 22 hrs. 30 mins/floor in total for 6 days.

#### 3.4.4. Questionnaire survey

A questionnaire survey inside the mall has conducted to identify the consumers' perception about the tenant mix and spatial configuration of the mall. Here the tenant mix is broadly covering the aspects of store types, store size, their locational and spatial significance as a whole the configurational attributes of the shopping mall.

In this research the configurational attribute of shopping mall has encompassed the term „Tenant Mix“ in general and store types, store size, their locational and spatial

significance in detail. The questionnaire survey therefore has been conducted to get a detail understanding how these parameters affect the movement pattern within the shopping mall.

Questionnaire was hand carried and personally explained to respondents by the surveyors. Surveyors gave instructions for completing the questionnaire and waited while respondent independently filled out questionnaire. The questionnaire was designed as **close ended** to attain the respondent's perception in a more structured way as the pilot survey showed that in a busy mall like this, people are hardly give enough time to concentrate on a detail questions or interviews. Sample questionnaire is attached in appendix section.

#### **3.4.4.1. Sampling Method and Selection of Sample Size**

Sampling was required to determine in this research while conducting a questionnaire survey for understanding consumers' intention of going various floor levels and their preferences over tenant placement strategies.

In general, for surveys to yield meaningful responses, sample sizes of over 100 are usually required because precision is essential. It is a general statistical statement. Ishak and Bakar (2014) states, „Qualitative and quantitative researches approaches sampling quite differently“ by further adding that qualitative researchers should be „more creative in dealing with sampling issues.“

Since this a case study based mixed method research, Starman (2013) cited Sagadin (1991) that „A case study is about determining what the investigated case may be; it is not about defining populations and selecting appropriate samples. A case study is usually a study of a single case or a small number of cases. The idea of representative sampling and statistical generalizations to a wider population should be rejected, and analytical induction should be chosen instead.

Ishak and Bakar (2014) cited that „many authors enlightening qualitative approach as research methodology never actually discuss sampling procedures, let alone detailing the exact procedure in choosing research participants or informants“ (Marshall & Rossman, 2011; Creswell, 2003). The focus has been on how the small sample or small collection of cases, units, or activities, illuminates“ social life or the phenomenon being studied. The primary purpose of sampling for a qualitative researcher is to collect specific cases, events, or actions that can clarify or deepen the researchers understanding about the phenomenon under study.

Ishak and Bakar (2014) say, „Challenges in developing sampling frame for case study need to be analyzed from a number of factors. Such factors as: objectives of the study, the sampling design that allows for nonbiased selection of samples (if it becomes an

issue) and the issue of generalization of data to the bigger population (evidence of external validity) need scrutiny when developing sampling frame for a qualitative study." They also say, „In particular for a case study, the data is meant to describe and to explain the phenomenon experience by the samples or participants of the study. The only challenge for the researcher is, to ensure that there are enough participants to help explain the phenomenon (and of course, a comprehensive research questions and the right protocol to help answer the research questions).“

According to Ishak and Bakar (2014), „Qualitative researchers rarely determine their sample size prior to their study nor do they have great ideas or vast knowledge about the population they are going to study (if they do, then it will defeat the purpose of doing a qualitative study!) or from which the unit of analysis will be taken from. Concisely, qualitative researchers select their cases gradually, and not limiting the number of selected participants until the data reached *saturation point*.“

Dworkin (2012) also mentions *saturation* by stating, „Most scholars argue that the concept of saturation is the most important factor to think about when mulling over sample size decisions in qualitative research (Mason,2010).Saturation is defined by many as the point at which the data collection process no longer offers any new or relevant data.“

While specifically talking about the sampling technique, Ishak and Bakar (2014) suggest for „a variety of non-probability sampling techniques can be employed in qualitative study for the selection purposes.“ They state that, „Techniques such as haphazard, accidental, or convenient sampling are easier to employ but more often then not, these techniques can produce ineffective, highly unrepresentative samples. Therefore, they are not recommended even for qualitative study, which do not emphasize on generalizability of data towards the bigger population. However, quota sampling is the improve version of the haphazard, accidental approach (Neuman, 2009). This sampling approach is suitable when a researcher would like to interview a group of individuals with different characteristics, thereby, ensuring some differences in the sample. This is similar to stratified sampling commonly associated with a quantitative study, and is highly recommended for embedded single-case design when the unit of analyses is individuals of different characteristics, clustered under one group (organization, community etc.).“

For this specific study of consumer movement pattern, the sampling method was **non-probability, convenience sampling**. As Ishak and Bakar (2014) state that qualitative researchers tend to use non-probability sampling.

Sample size selection is closely related to the process of defining what kind of sample one need for the particular type of research. As number of sample or sample size is a debate in qualitative investigation, Dworkin (2012) mentions, „an extremely large number of articles, book chapters, and books recommend guidance and suggest

anywhere from 5 to 50 participants as adequate.” But her suggestion was for qualitative studies using in-depth interviews. Glesne and Peshkin (1992) suggested that the number of participants for a qualitative study could be determined by looking at the data during data analysis.

The final sample size for this research remained within a number of **60 respondents**, where 30 male and 30 female. For covering various types of consumers to get a dynamic mental perspective, questionnaire survey has been conducted in two different times; regular season and festive season along the whole year.

### 3.5. Data Analysis and Synthesis

The purposes with case studies are according to Solberg Søilen & Huber (2006) are to generate background material to a discussion about a concrete problem. Case studies are also often used when it is hard to find a precise solution. (Cited by Gustafsson, 2017) The conclusion that is aimed by a case study can be either illustrative or confirmable [Gerring (2004) cited in Gustafsson (2017)].

Stake (1995) tells that a case study can have a tricky type of approach and therefore it can be a tough job for the researcher to report the study. (Cited by Gustafsson, 2017) According to Yin (2009) the researcher also has to understand and identify the specific audience of the study. (Cited by Gustafsson , 2017). So the data analysis phase is more focused on the understanding of spatial utilization of the selected shopping mall to get a clue of how it attaining the consumer movement attraction in various critical condition.

In this particular study, data obtained from various methods will be analyzed in this section. Findings at this stage will provide the qualitative understanding of the study by revealing how movement is oriented as an impact of tenant mix for large scale shopping malls. This case study based, mixed method research has opted for data analysis towards a more descriptive way to generalize the findings focusing the research objectives and context. In mixed method research, the data analysis can be done in following three ways;

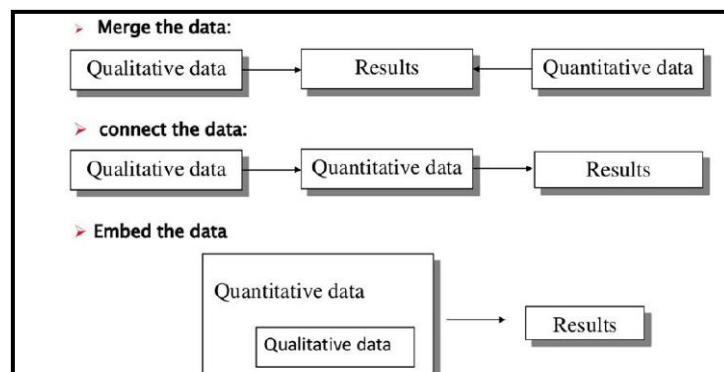


Fig. 3.1: Mixing of Data (Source: Cameron, 2015)

The data will be merged for analyses and synthesis. The syntactic analysis will help to understand the movement logic of the consumers which will be further explained by the consumers' perception that has been extracted from the questionnaire survey.

For this study, the issues of **Validity** and **Reliability** have been addressed in various stages of the research design. **Validity** construction requires using the correct measures for the concepts being studied. **Internal validity** demonstrates that certain conditions lead to other conditions and requires the use of multiple pieces of evidence from multiple sources to uncover convergent lines of inquiry. In this study, the various methods of data collection have enabled triangulation to contain the internal validity.

As **External validity** reflects whether or not findings are generalizable beyond the immediate case or cases; the more variations in places, people, and procedures a case study can withstand and still yield the same findings, the more external validity the research has. As for this study, the selected case has been rationalized keeping in mind the multiple aspects of being a representative one, hence it enables a greater chance for external validity.

**Reliability** refers to the stability, accuracy, and precision of measurement. Exemplary case study design ensures that the procedures used are well documented and can be repeated with the same results over and over again. In this research, for data collection and analysis procedure, well established research methods have been implemented (gate method, space-syntax) and all the generated data are properly documented where the raw data are attached in appendix section for ensuring reliability.

## CHAPTER: 04

### **AN EMPIRICAL INVESTIGATION ON TENANT MIX PATTERN: DIVULGING MULTIMODAL PERSPECTIVES**

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#### **4.1. Introduction**

This chapter is organized with an attempt to explain the first objective of the research that is **‘To investigate the existing tenant mix pattern within the shopping mall in terms of shop size, clustering pattern, their locational and spatial significance.’** Hence to grasp the overall notion of *Tenant Mix* for the selected shopping mall, the write-up has been broadly sectioned with the outcome of two methodological investigations;

Firstly, Tenant mix of each floor of the mall has been observed through an extensive first hand survey to understand their **Types, Layouts and Clustering patterns**; thereby a broader and general understanding has been obtained for the overall mall functioning pattern in terms of Tenants distribution.

Secondly, the **Locational and Spatial significance** of present tenant distribution has been further investigated through Visibility Graph Analysis (VGA) of Depthmap graph analysis software as this enables to understand the spatial properties of configuration.

While pursuing the study of tracing tenant mix pattern, all eight floors were considered both each as an individual system as well as the whole mall as a total one. All floor plans were collected and re-drawn to portray the present tenant mix. Later on, to undergo with visibility graph analysis, plans were formatted accordingly to be compatible with the Depthmap software.

#### **4.2. An Overview of Bashundhara City Shopping Mall**

In Bangladesh multi-leveled large scale Shopping mall as an enormous enclosed entity, is a contemporary phenomena. Bashundhara City Shopping Mall is the second largest amongst these types of buildings in Dhaka that started operating in 2004. Location of the mall is in Panthapath near Karwan Bazar, a major CBD of Dhaka [Fig.4.1 (a) & (b), Fig.4.2 (a) & (b)]. The mall is actually a part of a 19 storey high-rise mixed-used building complex in which the 8 storey colossal podium is designed as the astonishing shopping precinct for the urban consumers of the capital (Fig. 4.3) which in course of time has become a land mark for the surrounding urban entity.





Fig. 4.1 (a)



Fig. 4.1 (b)



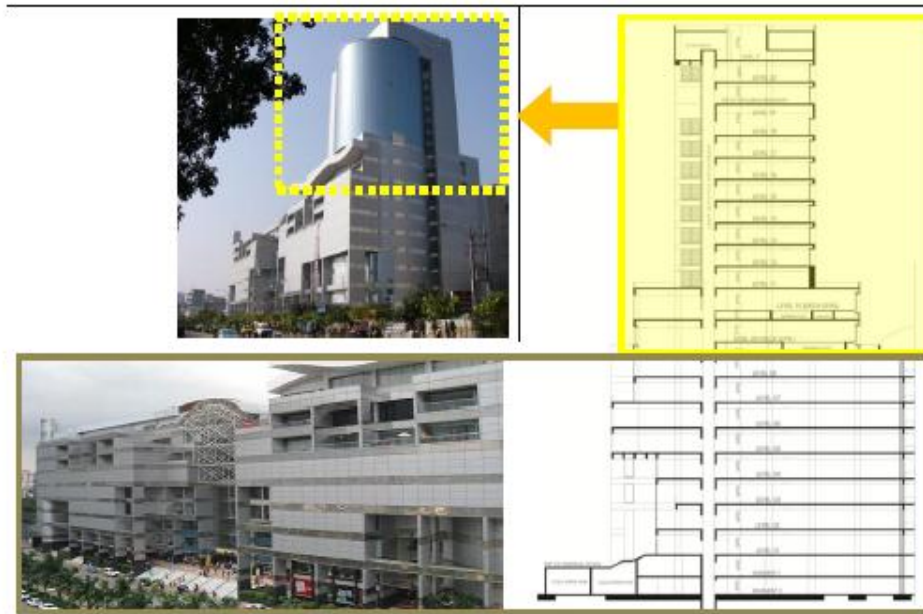
Fig. 4.2 (a)



Fig.4.2 (b)

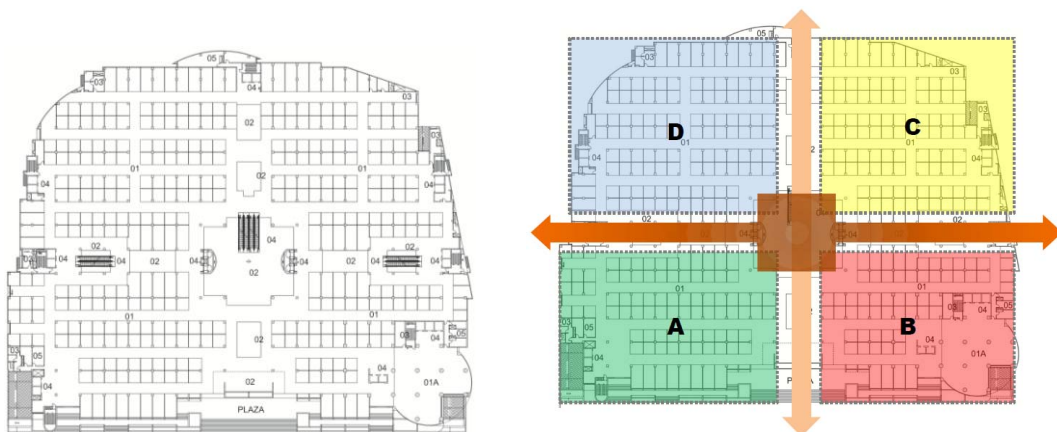
Figure: 4.1(a). Location of the shopping Mall in Dhaka City Map  
 4.1(b). Blow-up Image of the Mall location in Google Map  
 4.2 (a) & (b). Frontal View of the Mall





**Fig. 4.3:** Section and Image of Mall segment showing the total mixed use commercial complex

Individual shopping floor comprised an area of **191200** sqft and act as the perfect hub for regular retail spaces and mega stores, theme park, cinemas and food court<sup>1</sup>. There are over 2325 shop provision in this mall. Each level contains 290 shops. Shop size varies from a Single shop unit of 150sft to a double shop unit of 300sft. The large shop is 1475sft & average shop size is 250sft. Each level has a spatial division of 4 major segments of shops through two major /primary circulation corridors that contain the major visible vertical circulation stacks (escalator, lifts and stairs) showing in Fig.4.4. The symmetric division of shops in a quadripartite planning manner has the secondary corridors intertwined with main circulation corridor artery. Width of the circulation corridor is 10'-6" in average shopping aisle.



**Fig. 4.4:** Reference plan of the mall showing basic planning configuration (with primary circulation and shop cluster identified as Block A, B, C and D)

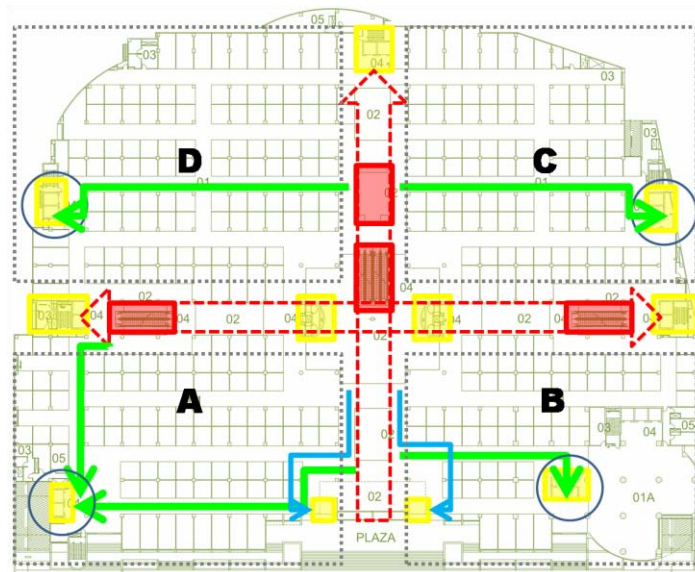
<sup>1</sup> [www.bashundhara-city.com](http://www.bashundhara-city.com)

The central atrium of the mall has enabled all the floors to get visually connected and also acts as a natural source of sky lighting. Up to **50,000** people from home and abroad visit the mall daily, which reaches to **1, 00,000** during festivals and special occasions. With the longest time frame of operation in a category of large scale enclosed shopping mall in Bangladesh, this shopping destination has excelled in fulfilling consumers requirement and became an icon for the city as well as the country.

#### 4.2.1. Underlying Configuration of the Mall

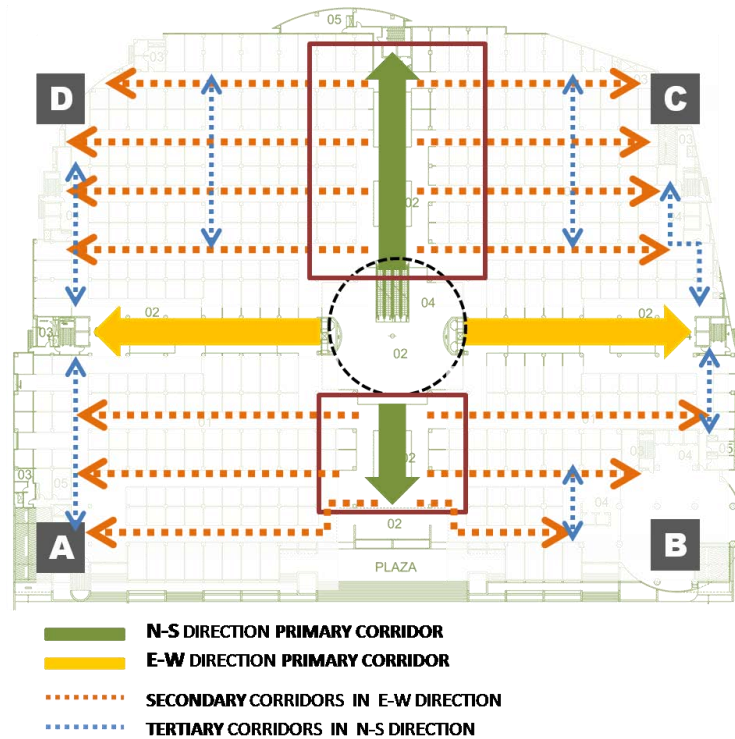
The apparently simple and symmetric plan has more subtle differences in its configuration for various levels. Various configurational attributes; e.g.; variations in the shape of central atrium, positioning of primary escalators and its transition to the regular one, locations of other secondary atria and additional escalators, lifts, stairs and toilet blocks, all has created altogether the spatial pattern of existing mall. Sequentially the circulation corridor hierarchy has evolved for different floors horizontally as well as, as a connected one for the vertical system.

The four main circulation corridor flanking along four cardinal directions from central atrium space, acts as the primary horizontal connector for every floor. These are also the connectors for vertical spine of the mall for containing majority escalators, lifts and stairs of the mall. But the configuration of these primary spines in terms of locating vertical means of connectors (escalators) and secondary atria are not similar (Fig. 4.5). The configurations of central circulation towards east and west directions are similar. Both are approached with capsule lift, followed by secondary atrium and escalators and finally terminated by the complete service core comprising of lifts, stairs and toilets.



**Fig. 4.5:** Location & Means of Vertical Circulation points and their spatial connectedness from primary circulation corridor

The configurational properties of all the floors of this mall remain almost same from level-1 to level-6. Level 7 and 8 are different in terms of the absence of secondary corridors as to provide bigger sized tenants. The existing circulation has been categorized as Primary, Secondary, and Tertiary ones (the color coded lines are shown in floor plan at Fig.4.6) and the corridors are later numerically denoted for simplifying the further explanation of visibility graph.



**Fig. 4.6:** Configuration and Hierarchy of Circulation Corridors

The central circulation aisle towards north is more visually dominating. It is approached by grand escalators in ground floor which makes its shift of transition towards the regular one in level-2 and from that level onwards, it remains same, thus making this central corridor's configuration different. It came up with the location of escalator approaching from the central atrium, followed by a secondary atrium and visually ends with a formal service core for rest of the levels.

In comparison to these three, the central circulation towards south is bit understated in terms of its spatial length and having only a secondary atrium. The only escalator is provided in this atrium between level -07 and level-08. This segment of circulation is the shallowest in comparison to other three, hence provided the visual aperture unobstructed from the extreme north end point of each floor level as well as acts the main natural light dragger segment. When revealing the configuration of secondary aisles of each floor, apparently all seemed flanking towards east and west from the main circulation corridor of north and south. This even makes the central east and west corridor to become a part of this visual rhythm of aligning with other parallel corridors as a common system. Thus majority secondary corridors maintain a perpendicular

configuration with the north-south central corridor. Therefore being visually significant, the central corridors of east and west do not provide any perpendicular access from them except a zig-zag one managed to escape from the spatial cluttering of the extreme end.

For such configurational properties of the floor, the tenants locating in block C and D have more advantage even though being at the extreme end (as can be seen from central north corridor ). But tenants of block A and B need to be seen from central south corridor which is in a disadvantageous position for lacking the vertical connector in a central position. The situation has even more deteriorated due to the absence of secondary corridors, perpendicular to the primary central east and west. Apparently having a symmetric spatial planning of shop module, the rare two blocks (C and D) are deeper as have three parallel aisle that are perpendicular to main central north corridor whereas A and B has two aisle.

Level-1 & 2 has a variation in configuration along the central court. Level-1 occupies the vast central space to accommodate the immediate entrances of shoppers, channels various directions of shop layouts through connecting corridors and disperses the consumers to various means of vertical (lift/escalators/stairs) and horizontal (linking corridors) directions. Level-2 generates the central void (atrium) along the central court of ground floor with a square shape that remains same in level-3. Rest of the floors sees the changes in the space configuration along the central atrium from a square one to a circular one.

#### **4.3. Present Scenario of Tenant Mix in the Mall**

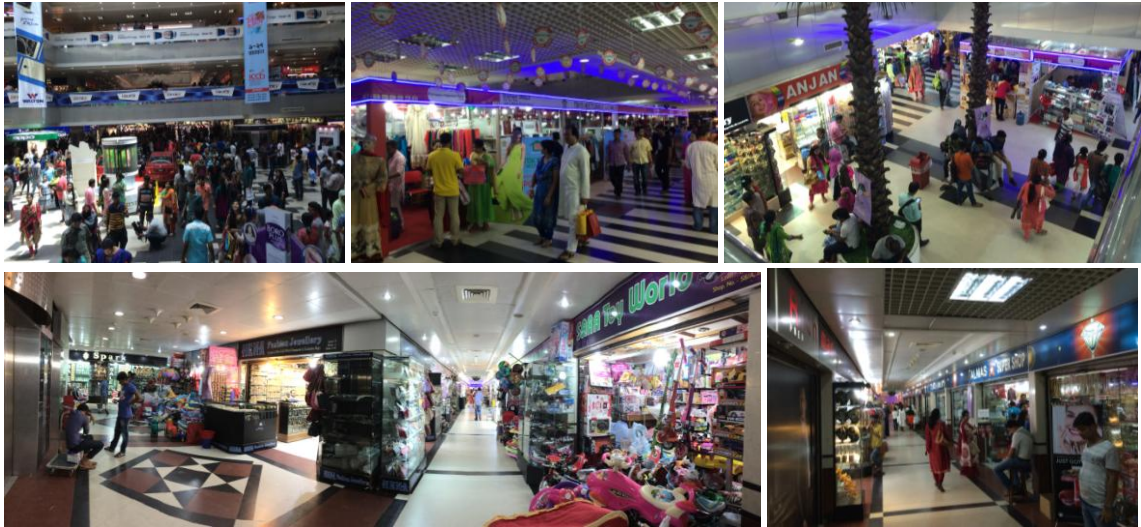
Bashundhara City Shopping Mall with its eight shopping floors acts as a compact shopping destination for the consumer of Dhaka. Tenant distribution hence considered both for the horizontal and vertical direction to ensure shoppers and retailers highest comfort to their own perspectives. The present tenant mix has generated within a long span of time following a trial error process. Therefore it is way too customized rather than derived theoretically in design phase. While operating for more than a decade, through this restructuring of tenant mix in few selective floors and seasonal profit strategy, the precinct ultimately seems economically a partial successful one, but at the cost of a great deal of time. The search for existing tenant mix is investigated mainly based the typology of tenants described in literature review section (chapter two).

As the complex notion of tenants includes various typologies, the selected mall is observed under the following specific category:

- a) The conventional interpretation of Magnet stores as an attraction factor (Anchor tenants and Non-anchor tenants)
- b) More contemporary classification of Generative, Shared and Suscipient tenant typology



A thorough observational survey for this 8 level shopping mall has grasped the present scenario of tenant distribution. As for the **Tenant Types**, the finding shows (figure/map/table) that the whole mall is currently having near about 23 types of shops according to product variations. But the product variation overlapped within various types of shops, thus a wider range of tenant typologies have emerged in the mall. Anchor tenants are kept as a distinct category. These typologies of tenants and number of shops under all categories are also summed up along with their distribution in various levels in a table format (Table 4.1).



**Fig. 4.7:** Glimpses of Present Tenant Mix in the Mall

Various tenant types and shop numbers under those tenant categories in various levels are then observed with graphical representations through various bar charts to understand the overall distribution pattern (Fig. 4.8 to Fig. 4.10). The quantitative intensities of various tenants and number of shops under those in different levels were the deciding factors for further categorization of tenant typologies according to their business interdependencies. The highest number of shops (310) is observed under the tenant type of Ladies Ready-made Garments which is followed by Gents RMG (279 shops) and Children RMG (112 shops) holding as a whole the 42% tenant coverage of the whole mall. Thus it acts as a major generative business for this shopping arena which is significantly stimulated associated shared tenants of cosmetics and beauty products, shoes and bags, jewellery and clothing accessories. Another significant generative tenant observed is Electronics and Electrical accessories with mobile phone, customer care and servicing and electrical house hold gadgets (19%). A significant tenant of traditional jewellery and watches (12%) are also dominating in this mall.

To get a more graphically meaningful and comparable understanding of present tenant mix among all floors, pie-charts (Fig. 4.11 to Fig. 4.14) are extracted from the statistical summary of existing tenant typology showing the tenant occupancy percentage.

**Table 4.1: Tenant Types and their Distribution (along with shop numbers) in Various Levels**

Sl. No.	Tenant Type	Floors/Levels							
		L-1	L-2	L-3	L-4	L-5	L-6	L-7	L-8
		15 types	12 types	14 types	9 types	10 types	10 types	5 types	2 types
01.	Readymade Garments (Ladies )	22	38	118	129	2		1	
02.	Readymade Garments (Gents )	11	178	85	2			3	
03.	Readymade Garments (Children )	73	17		13	9			
04.	Ladies Clothing (Traditional wear/ Saree)				92				
05.	Ladies Tailoring Shop			10	3				
06.	Gents Tailoring Shop		3	3					
07.	Ladies Bags & Shoes	14	4	7			1		
08.	Cosmetics and Beauty Shop	9		15			2		
09.	Traditional Jewelry, Artificial Ornaments & Stone Shops	36	2	11		110	6		
10.	Sportswear, shoes and accessories		9						
11.	Shoe Stores						76	2	
12.	Toy Stores	9							
13.	Home ware & Kitchen Appliances						12		
14.	Electronic Shops & Showrooms (Camera, Various equipments & Gadgets)	15	2	1		14	144		
15.	Mobile, Accessories Shop & customer care	48	2	7		67			
16.	Watch showroom	26			8		5		
17.	Optics Stores					21			
18.	Health & Fitness Equipments	4		3		11			
19.	Super Shop/Departmental Store/ Lifestyle Store (local/international chain)	2	1	1	2			2	
20.	Temporary Free Standing Kiosks (Miscellaneous products with promotional offers; e.g. foods, cosmetics, Jewelry, household accessories)	10	4	6	4	2	2	2	
21.	Service Stores (Bank, Travel Agent Offices, Money Exchange, Beauty Saloon -Gents/Ladies)	2	2	2		2	1		
22.	Food and Snacks	8		1	1	4	1		92
23.	Entertainment & Amusements								2

Retail activities

Service & Entertainment

Total shop numbers in mall (including all levels)

1671

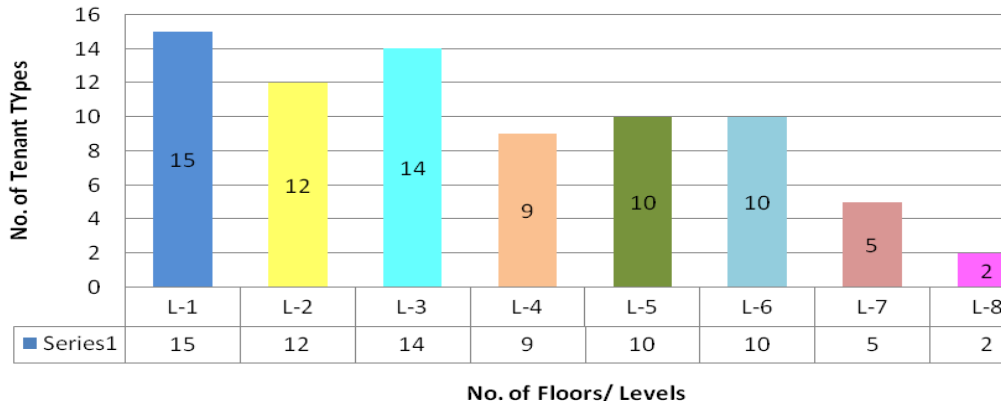


Fig. 4.8: Number of Tenant typology in various levels

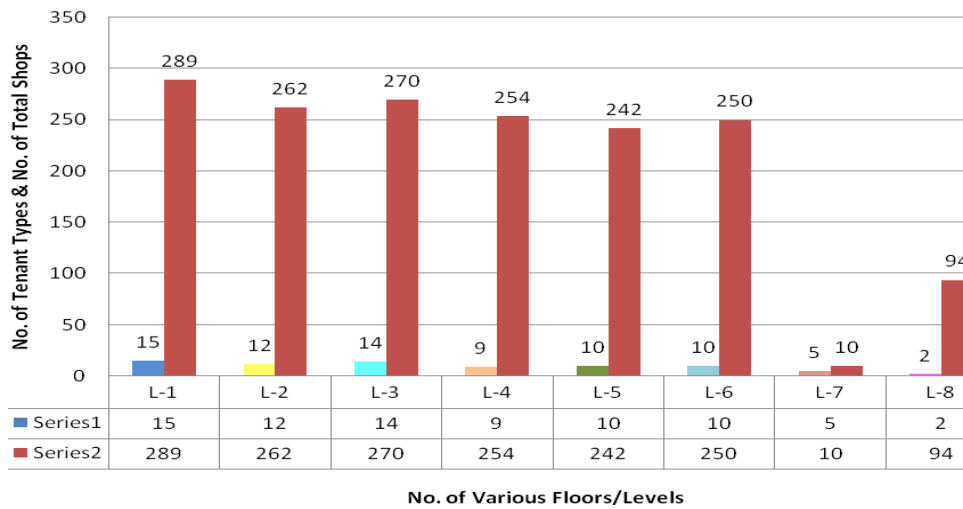


Fig. 4.9: Number of shops under various tenant typology in various levels

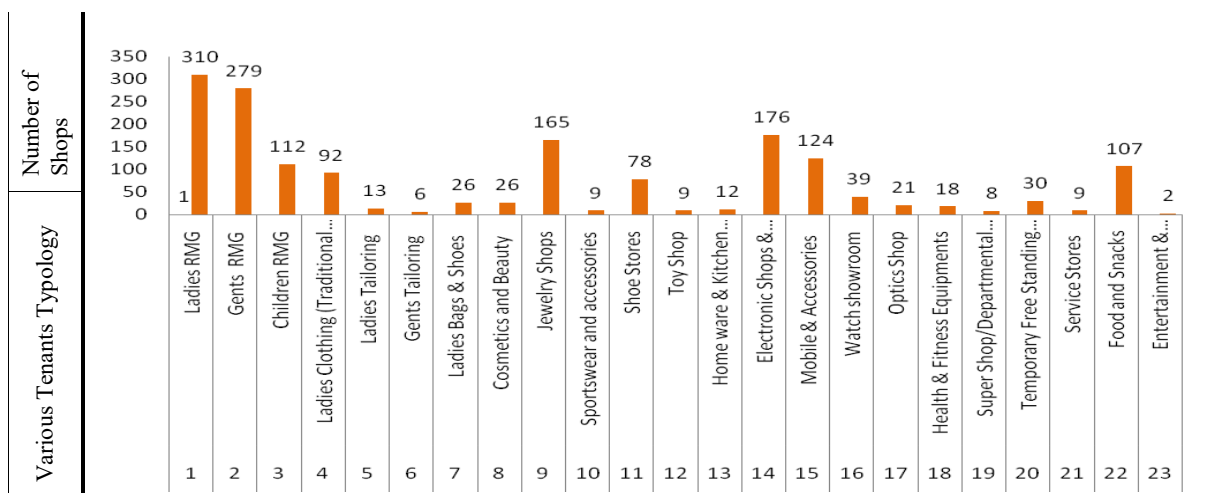
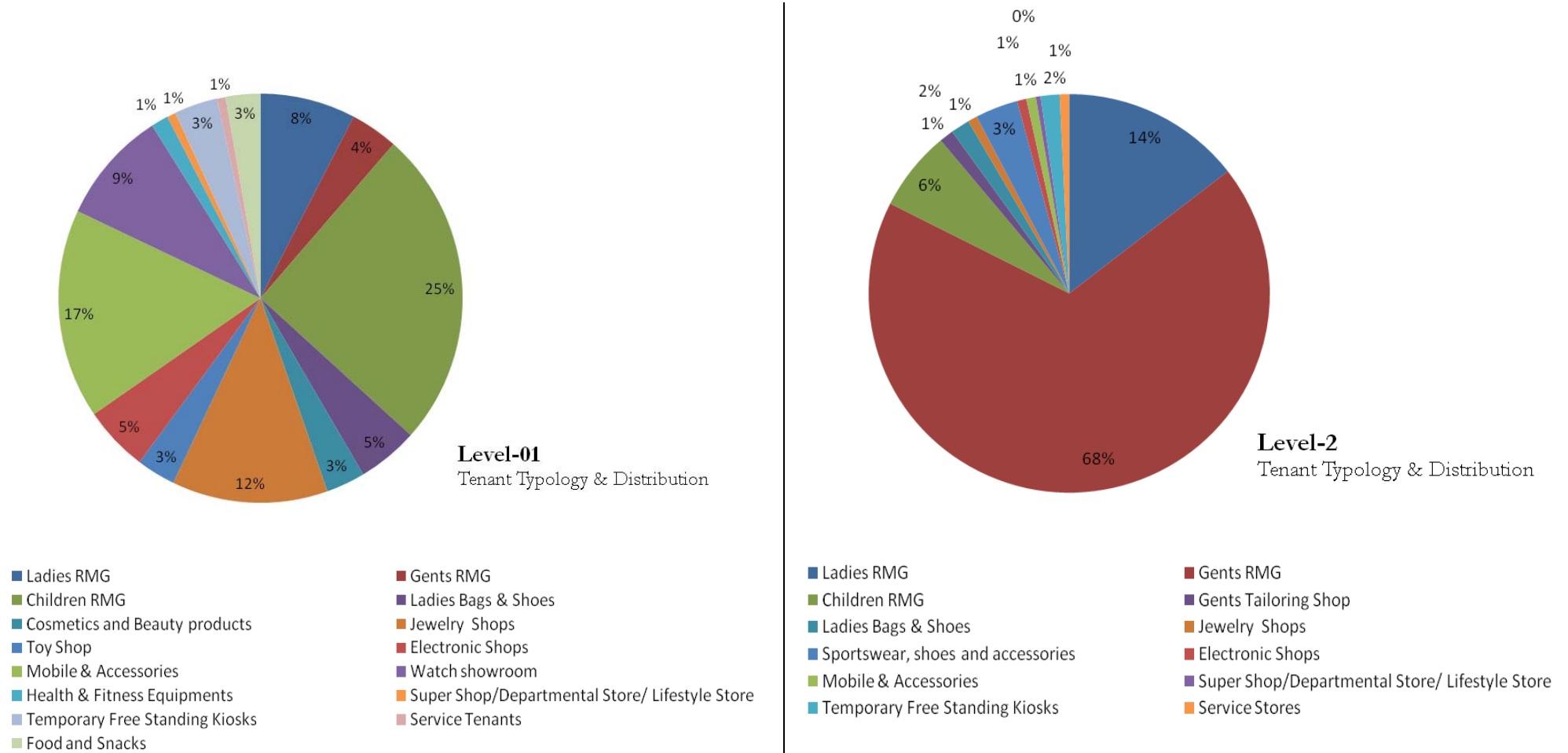
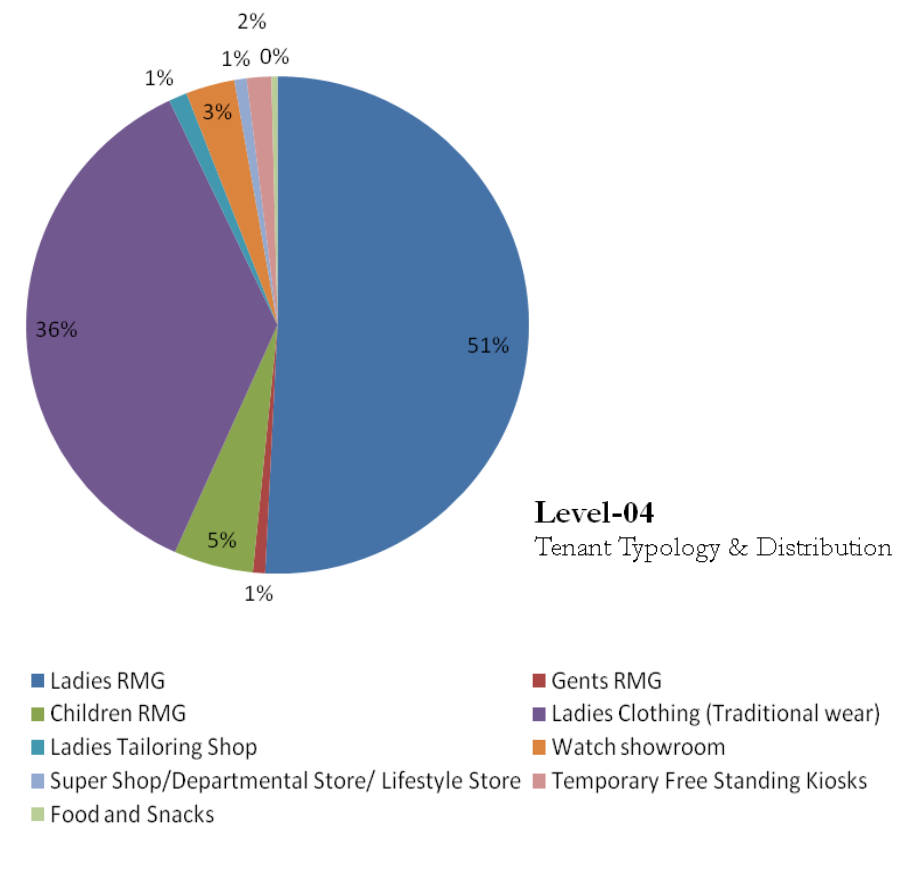
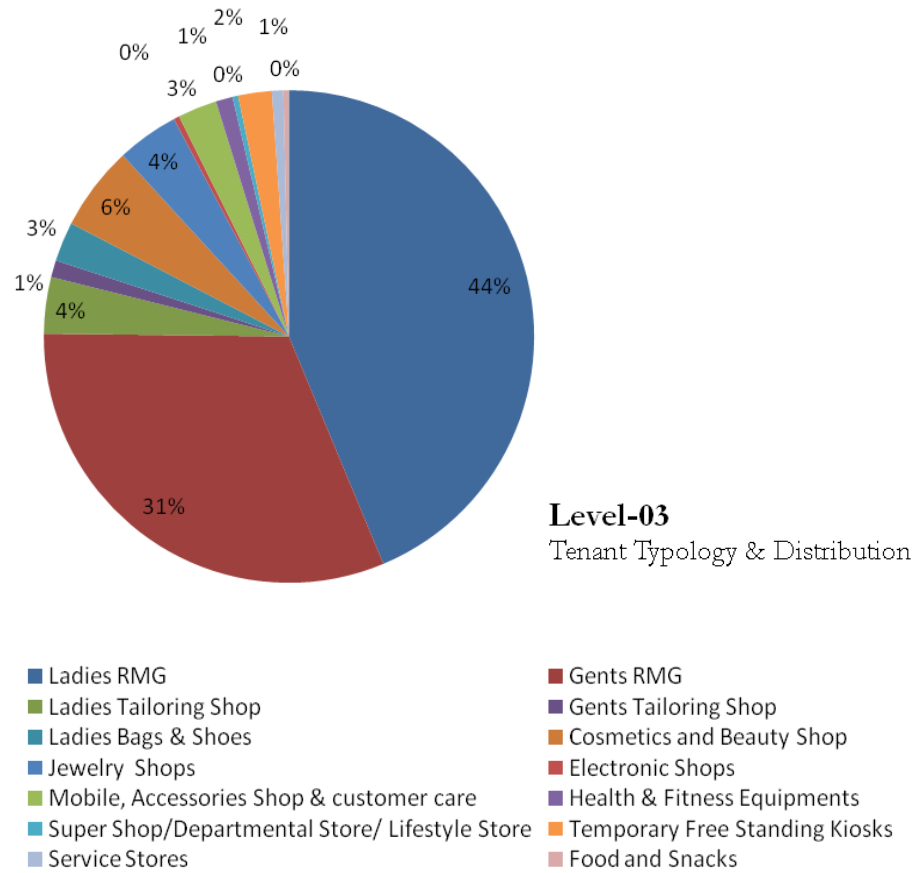


Fig. 4.10: Total number of shops under various tenant typologies in all levels

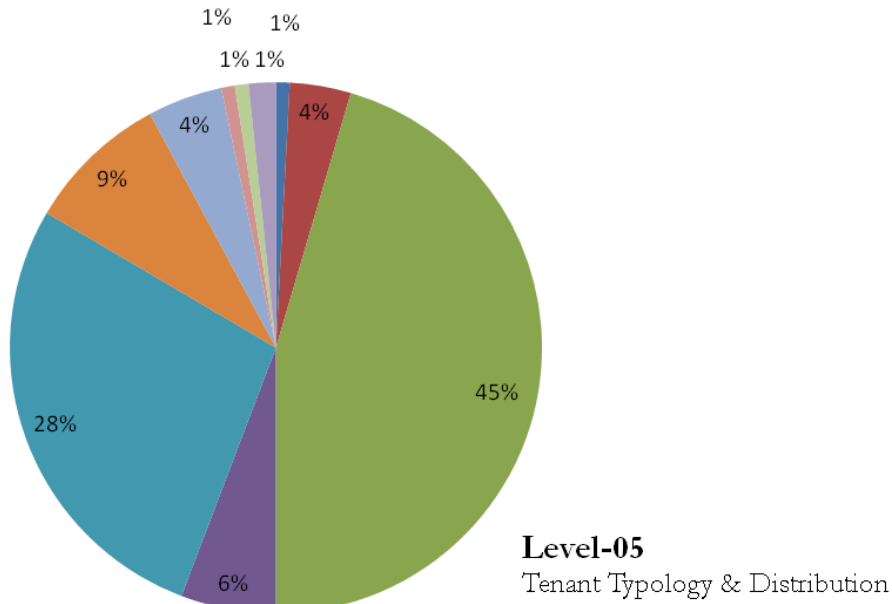


**Fig. 4.11:** Tenant typology & percentage of occupancy in level-01 & level-02

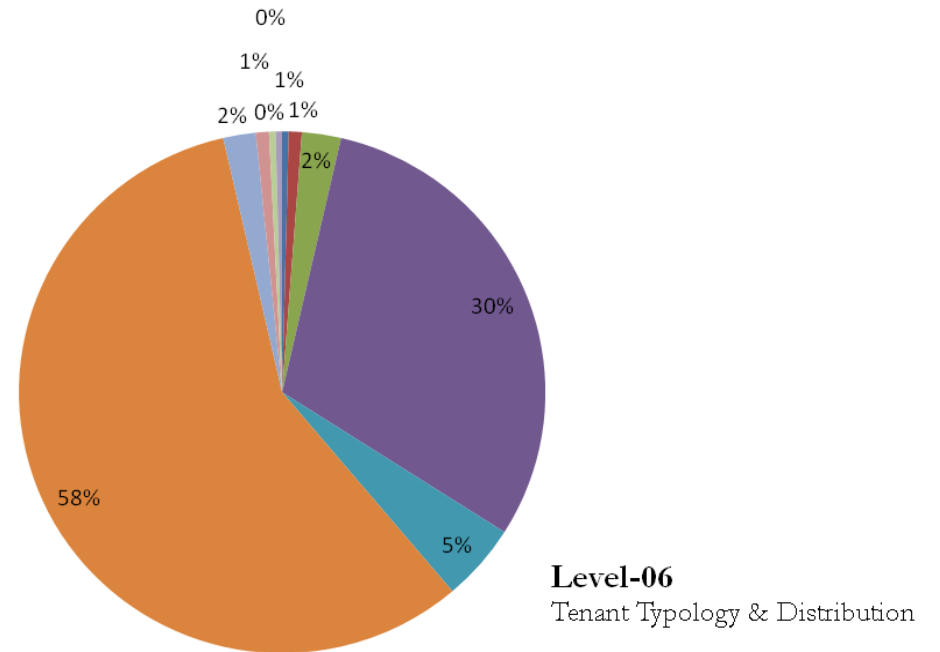




**Fig. 4.12:** Tenant typology & percentage of occupancy in level-03 & level-04

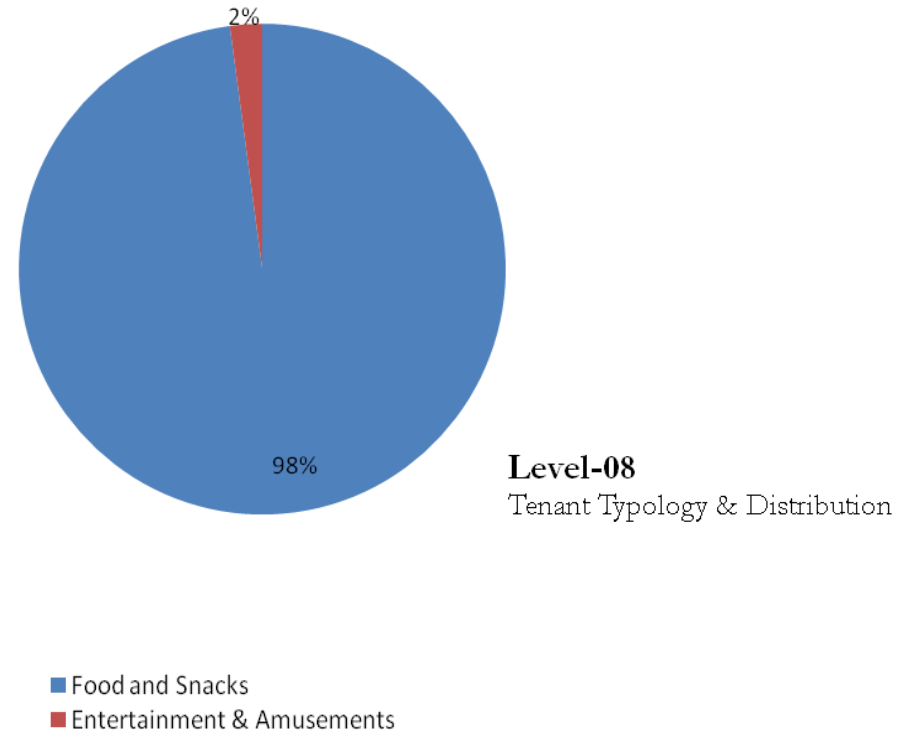
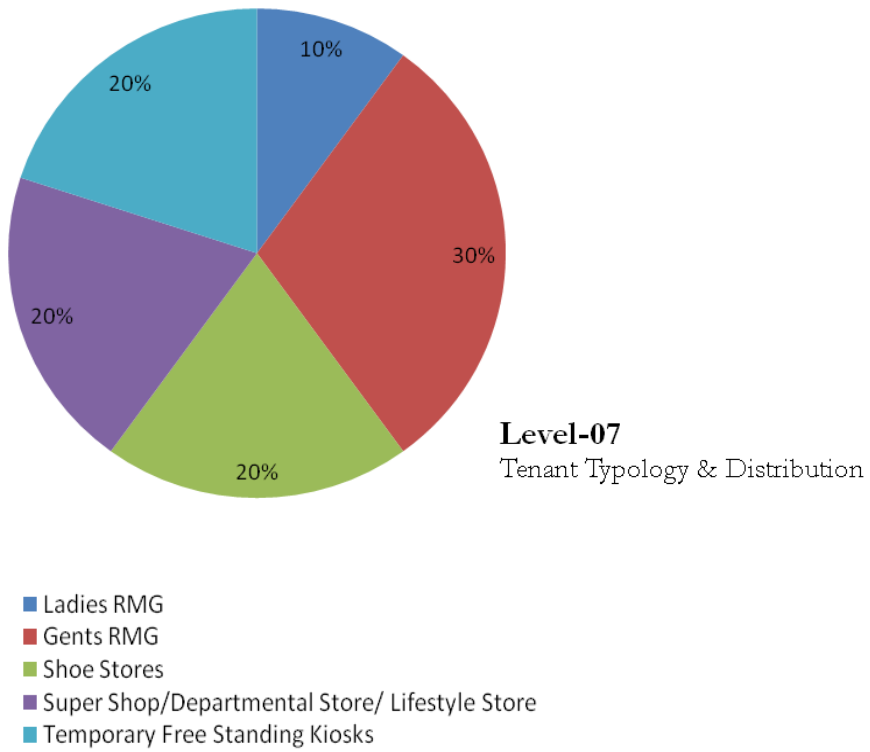


- Ladies RMG
- Jewelry Shops
- Mobile & Accessories
- Health & Fitness Equipments
- Service Stores
- Children RMG
- Electronic Shops
- Optics Shop
- Temporary Free Standing Kiosks
- Food and Snacks



- Ladies Bags & Shoes
- Jewelry Shops
- Home ware & Kitchen Appliances
- Watch showroom
- Service Stores
- Cosmetics and Beauty Shop
- Shoe Stores
- Electronic Shops
- Temporary Free Standing Kiosks
- Food and Snacks

**Fig. 4.13:** Tenant typology & percentage of occupancy in level-05 & level-06



**Fig. 4.14:** Tenant typology & percentage of occupancy in level-07 & level-08

The existing tenant types prevailing in multiple levels are represented with various color codes to display the overall tenant mix pattern of the mall. The spatial representation of this mix is displayed in various levels' plans and considered as the primary image of existing tenant mix pattern.

The observation of tenant typology later leads revealing the tenant clustering pattern where existing shops have been categorized into three broader business types; Generative, Suscipient and Shared business of tenants. This perspective of observing tenant groupings was identified relatable for the retail context of developing countries; specifically for Dhaka (Hussain, 1999). This way of observation to understand tenant clustering helps to reveal some inner rational of which type (of tenants) tends to be where and why. Thus these business types of tenants actually dominate the spatial clustering or dispersing mood of the shops under various tenant groups within the mall precinct.

For understanding and assessing overall tenant mix, separate tables of tenant typology (according to business types) have been presented for various levels (Table 4.2 to Table 4.9). Anchor tenants are still kept as a separate category apart from these business types to make the visual analysis less ambiguous. Tenants providing various services as well as food and entertainment tenants are kept under a common category of 'Service & Entertainment'. The table-format statistical representation of this typology (generative, shared and suscipient) later on developed as the spatial interpretation of respective floor plans. Thus all floor plans have a secondary image of containing the tenant distribution according to business types, evident anchor tenants (as a separate category) and service and entertainments tenants (Fig. 4.15 to Fig. 4. 22)

#### **4.3.1. Types, Lay-outs & Clustering of Tenants in Various Floors**

The ground floor plan is the strategically most significant one for its primary contact with existing urban set up. Generally the ample pedestrian movement inside the floor create utmost scope for showcasing the variations of shop types to the consumer. That is why this floor usually combines a mega mix of tenants. This gives the vibe of a place for all users group by showcasing tenant variations in most diverse way.

In this case, **Level-01** (ground floor) accommodates maximum categories of tenants (15 types) in comparison to all other levels. And number of shops comprising all categories of tenants are 289. The majority shops are of RMG (readymade garments) tenants for male, female and children followed by significant tenant types of mobile, electronic accessories and watch showroom. Jewellery, bags, beauty accessories and toy shops are another bigger category of tenants for this level. The presence of service tenants like; ATM, beauty salon and food corners (entertainment facilities) are also evident.

Anchor tenants (both primary and secondary anchors in terms of their shop size and local or global franchise pattern) are also among the existing tenant category. For this level/floor the primary anchor tenant is the famous local brands of clothing and life style outlets (Aarong), which is positioned just at the adjacent to one of the three entrances of the mall and internally connected occupying four levels where the accessibility is allowed from all levels. But the ground floor acts as the primary collector of the shoppers. The secondary anchor is a moderate scaled departmental store (local chain store of ALMAS) placed at the rare north end of the mall.

Tenant mix, for this level, according to their business types (which initiate major clustering or dispersing strategies) is presented both in floor plan [Fig. 4.15 (a) & (b)] and table format (Table. 4.2 ). This level has mostly two categories of generative business (identified as G-1 & G-2 in color code table); RMG oriented and electronics and mobile accessories generated. Shared business mostly for this level associated with RMG with a priority to the female and kid’s consumer group. The suscipient tenants, mostly for this floor are Free Standing Kiosks with cosmetics, Jewelry, miscellaneous products with promotional offers. These are located in the primary circulation spine of the floor plan adjacent to escalators and lifts to catch the attraction of moving consumers through the circulation corridor.



**Fig.4.15: (a) Existing Tenant typology & (b) Synthesized mix according to Business Type in Level-01**

**Table 4.2:** Tenant Mix Patterns in **Level-01** (shop clustering according to Business types)

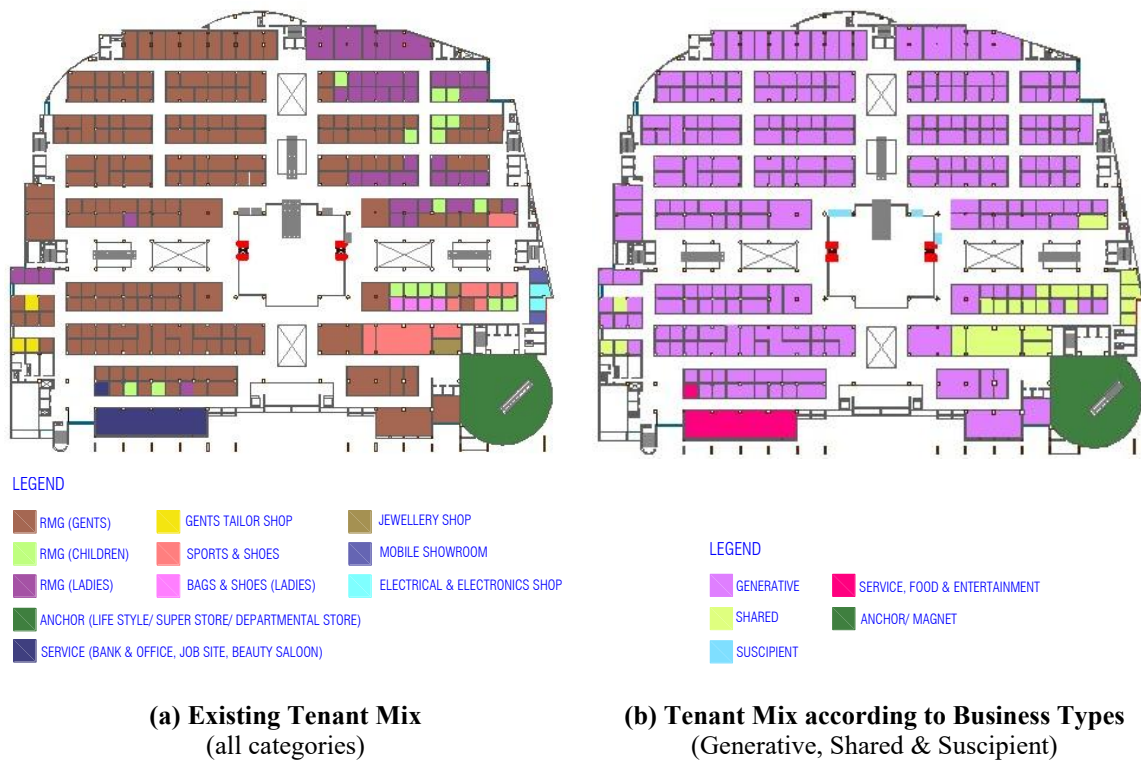
Sl. No.	Tenant Typology (15 types of tenants)	No. of Shops for each type	Business Types
01.	Readymade Garments (Ladies )	22	<b>Generative</b> (Cluster: <b>G-01</b> ) Giving priority to children RMG
02.	Readymade Garments (Gents )	11	
03.	Readymade Garments (Children )	<b>73</b>	
04.	Electronic Shops & Showrooms (Camera, Various equipments & Gadgets)	15	<b>Generative</b> (Cluster: <b>G-02</b> ) Giving priority to Mobile & accessories shop
05.	Mobile, Accessories Shop & Customer care	<b>48</b>	
06.	Watch showroom	26	
07.	Ladies Bags & Shoes	14	<b>Shared</b>
08.	Cosmetics and Beauty Shop	9	
09.	Traditional Jewelry, Artificial Ornaments & Stone Shops	36	
10.	Toy Shop	9	
11.	Health & Fitness Equipments	4	
12.	Temporary Free Standing Kiosks (Miscellaneous products with promotional offers; e.g. foods, cosmetics, Jewelry, household accessories)	10	<b>Suscipient</b>
13.	Super Shop/Departmental Store/ Lifestyle Store (local/international chain)	2	<b>Anchor Tenant</b>
14.	Service Stores (Bank, Travel Agent Offices, Money Exchange, Beauty Saloon - Gents/Ladies)	2	<b>Service &amp; Entertainment</b>
15.	Food and Snacks	8	

The shop layout had no evident hierarchy of shop size on its initial planning rather a single module was proposed which was more flexible to add on for bigger tenants. A single one and comparatively bigger space in each floor was suggested for anchor tenants. The present plan show the variations of shop sizes as per tenants' space requirement by adding up multiple modules. The presence of bigger shops is minimal while standard module shops (average 250 sft) are evident. The majority bigger sized shops are around the central court and central circulation aisle.

Similar types of shops have formed clusters. The hierarchy of clusters of level-1 shops are clearer to the entrance level and alongside primary circulation corridor but gradually became more ambiguous to the rare part. The frontal blocks (A & B) are having more stronger and compact clusters (more of a 50-70 shops) of **watch showroom** and **electronics shops** (mobile sales, servicing and accessories and various electronic devices) respectively. But the rare blocks (C & D) have both bigger and smaller clusters (sometimes a cluster of 5-8 shops) of various shops in an over lapping manner. In the rare part of this level (level-01), the clusters are more overlapping rather

than making demarcations. Such hazy boundaries of shop types make customer either to explore more or to get exhausted. The inter-woven character of tenants makes apparently the planning ambiguous. The cul-de sacs are crucial ones with tenant pattern which are mostly designated with small food corners. These food shops also act as attractor in the rare end for its less noisy ambiance.

**Level-2** has more clear distinction of tenants compared to level-1. The classification is clearly laid out. This level occupies the tenant types of RMG for all three category of consumers (Gents, Ladies and children). The domination of ready-made garments prioritizing men make it as a male dominating level, hence these act as generative business for this level. An evident shared business in support to this generative one are tailoring shops (though very few in numbers), jewellery shops, shoes and bag stores. This level has no service of entertainment (food) tenants. The primary anchor tenant of level-01 is also accessible from this level which contains its character as a magnet for attracting more consumer towards its location.



**Fig.4.16: (a) Existing Tenant typology & (b) Synthesized mix according to Business type in Level-02**

The generative business for this level is mostly Gents Ready-made Garments along with a moderate number of Ladies Ready-made Garments and Children’s’ Clothing shops. The extensive ratio of generative business has made this a monotypic tenant floor where shared businesses are barely there. The various business types of tenants in level-02 are summarized in Table 4.3.

**Table 4.3:** Tenant Mix Patterns in **Level-02** (shop clustering according to Business types)

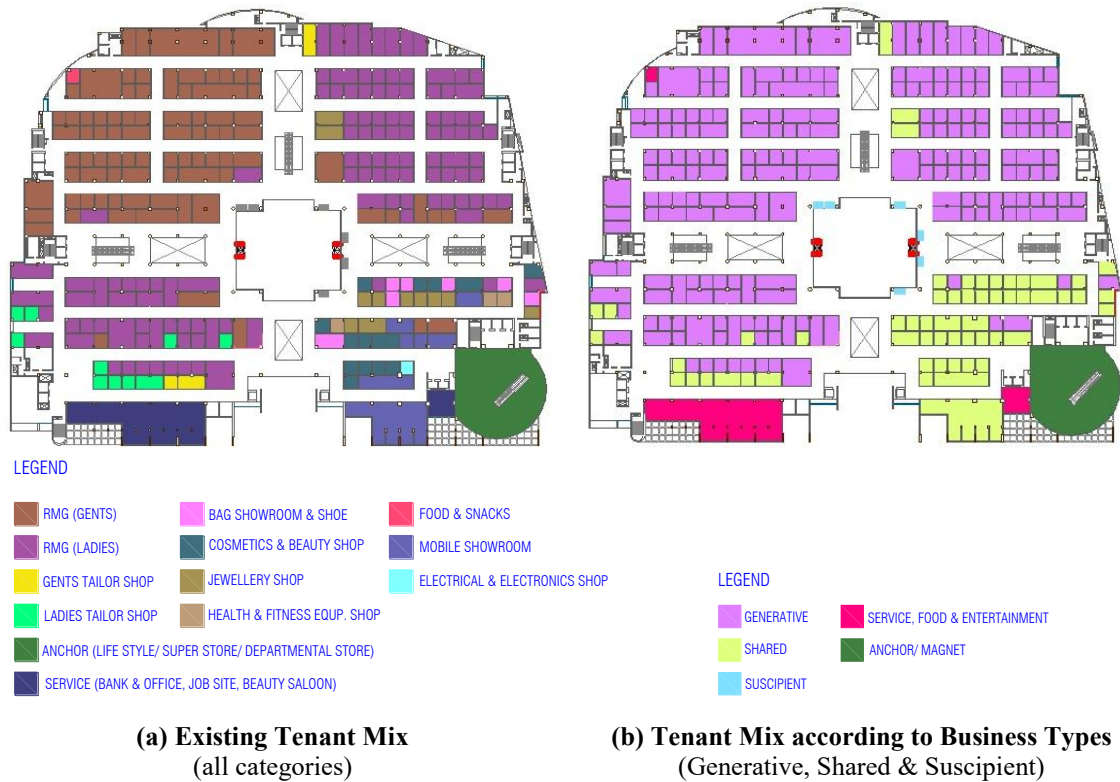
Sl. No.	Tenant Typology (12 types of tenants)	No. of Shops for each type	Business Types	
01.	Readymade Garments (Ladies )	38	<b>Generative</b> Giving priority to Gents RMG	
02.	<b>Readymade Garments (Gents )</b>	<b>178</b>		
03.	Readymade Garments (Children )	17		
04.	Gents Tailoring Shop	3	<b>Shared</b>	
05.	Ladies Bags & Shoes	4		
06.	Traditional Jewelry, Artificial Ornaments & Stone Shops	2		
07.	Sportswear, shoes and accessories	9		
08.	Electronic Shops & Showrooms (Camera, Various equipments & Gadgets)	2		
09.	Mobile, Accessories Shop & customer care	2		
10.	Temporary Free Standing Kiosks	4		<b>Suscipient</b>
11.	Super Shop/Departmental Store/ Lifestyle Store (local/international chain)	1		<b>Anchor Tenant</b>
12.	Service Stores (Bank, Travel Agent Offices, Money Exchange, Beauty Saloon -Gents/Ladies)	2		<b>Service &amp; Entertainment</b>

**Level-3** is more weighed on women shoppers as occupying majority floor area with ladies clothing (mostly readymade garments) and accessories; bags, jewelry etc. But the presence of RMG (for gent and children) has also made this floor a potential attraction for this consumer group. This level displays tailoring shops, jewellery, cosmetics shops and mobile and electronics showroom as shared business. The tenant types and clustering in this level is more visually defined in accordance with various gender groups.

**Level-4** and **level-5** is more women centric zone. The shop types are mostly ladies clothing, Traditional wares and RMG on level-04 and Jewellery stores on level-5. L-4 & 5, as per the product variety of shops, is more emphasized to dedicate for female users/consumers group with traditional clothing (saree), RMG and jewellery (from traditional to contemporary). These two floors are also shared with mobile and electronics showroom/food corners and some service tenants (banks/ money exchanges).

**Level-6** is dominantly divided into two generative business types; Mobile & electronics shops and shoe stores. This is also cluster based floor. This floor with an elaborate cluster of electronics, mobile shops has the main attracting cluster of shoe stores (in block-C). As these tenants are is a shared type for clothing (acts as accessories); it is hugely visited by users even if placed vertically. From level-2 to level-6, all these floors have some shared business supporting to the respective generative business of each floor. They are mostly jewellery, cosmetics and beauty products shops. The suscipient business for all theses floors are food kiosks and fancy jewellery stands. A separate cluster of mobile and accessories are evident in level 3, 4 & 5.

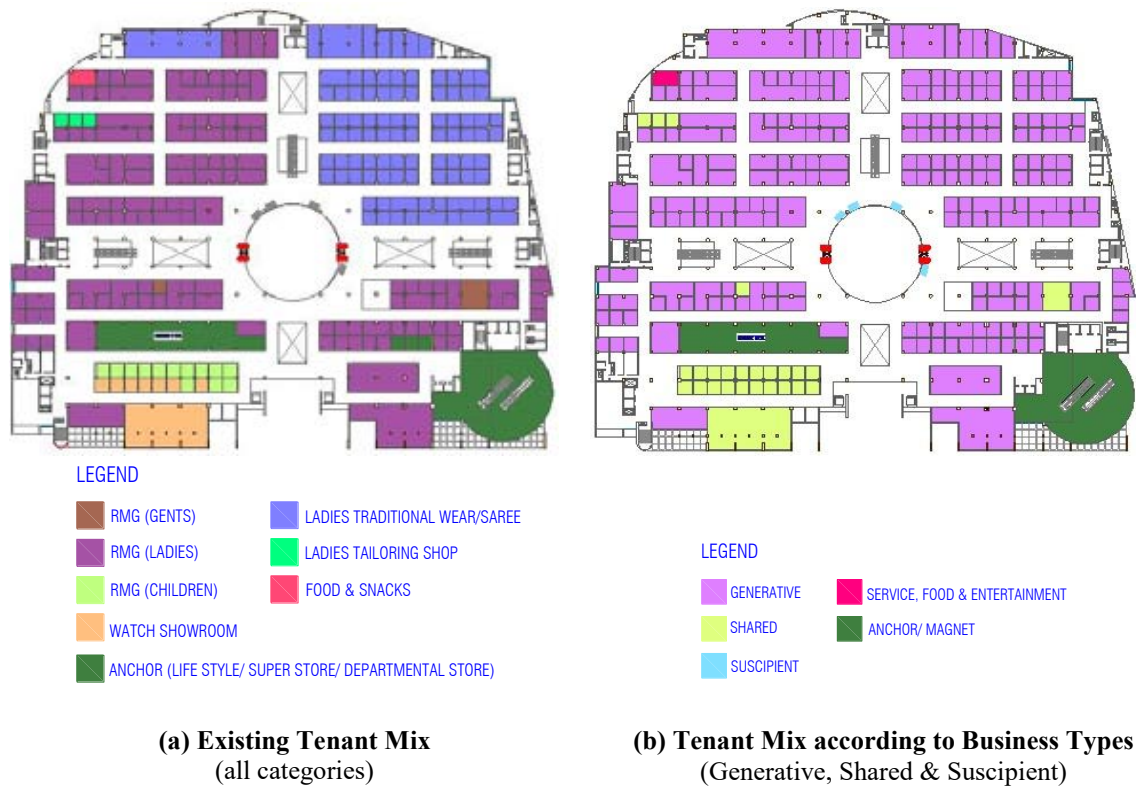




**Fig.4.17: (a) Existing Tenant typology & (b) Synthesized mix according to Business Type in Level-03**

**Table 4.4: Tenant Mix Patterns in Level-03 (shop clustering according to Business types)**

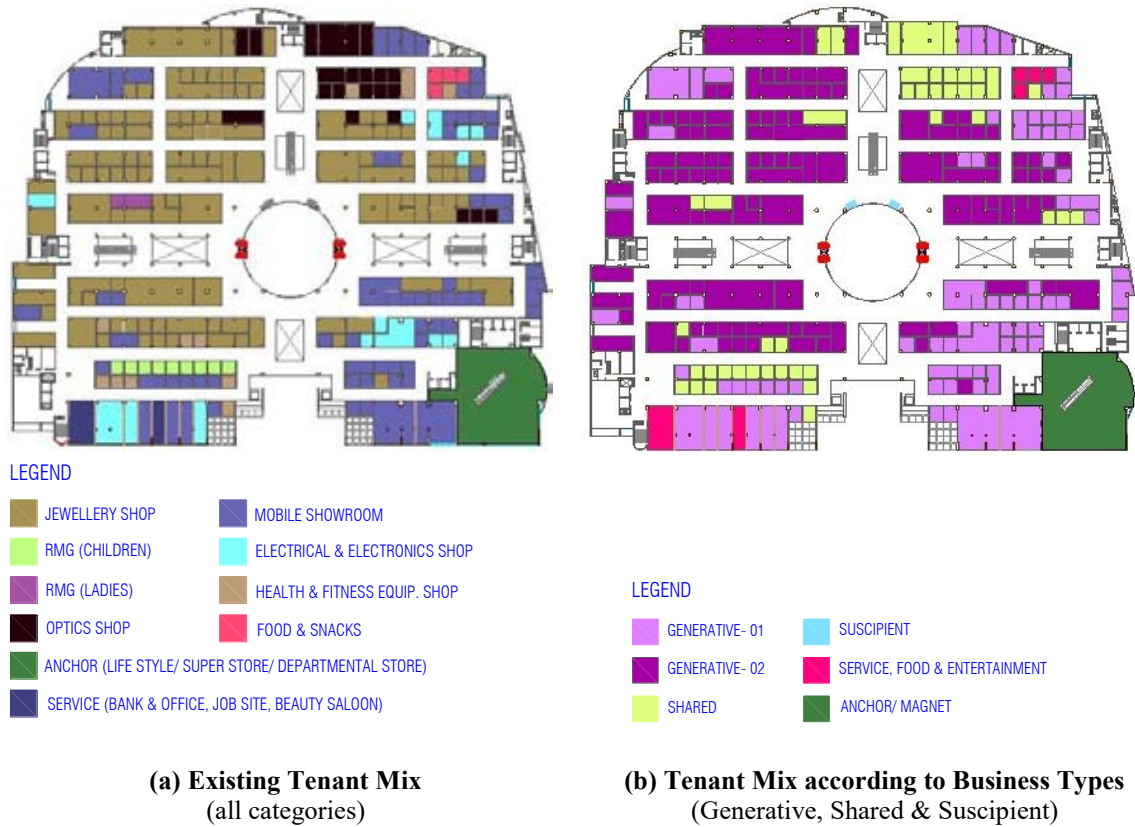
Sl. No.	Tenant Typology (14 types of tenants)	No. of Shops for each type	Business Types
01.	Readymade Garments (Ladies )	<b>118</b>	<b>Generative</b> (two Clusters are evident: <b>G-01 &amp; G-02</b> ) Giving priority to Ladies RMG
02.	Readymade Garments (Gents )	85	
03.	Ladies Tailoring Shop	10	<b>Shared</b>
04.	Gents Tailoring Shop	3	
05.	Ladies Bags & Shoes	7	
06.	Cosmetics and Beauty Shop	15	
07.	Traditional Jewelry, Artificial Ornaments & Stone Shops	11	
08.	Health & Fitness Equipments	3	
09.	Electronic Shops & Showrooms (Camera, Various equipments & Gadgets)	1	<b>Shared</b> Prevailing with a cluster
10.	Mobile, Accessories Shop & customer care	7	
11.	Temporary Free Standing Kiosks	6	<b>Suscipient</b>
12.	Super Shop/Departmental Store/ Lifestyle Store (local/international chain)	1	<b>Anchor Tenant</b>
13.	Service Stores (Bank, Travel Agent Offices, Money Exchange, Beauty Saloon -Gents/Ladies)	2	<b>Service &amp; Entertainment</b>
14.	Food and Snacks	1	



**Fig.4.18: (a) Existing Tenant typology & (b) Synthesized mix according to Business Type in Level-04**

**Table 4.5: Tenant Mix Patterns in Level-04 (shop clustering according to Business types)**

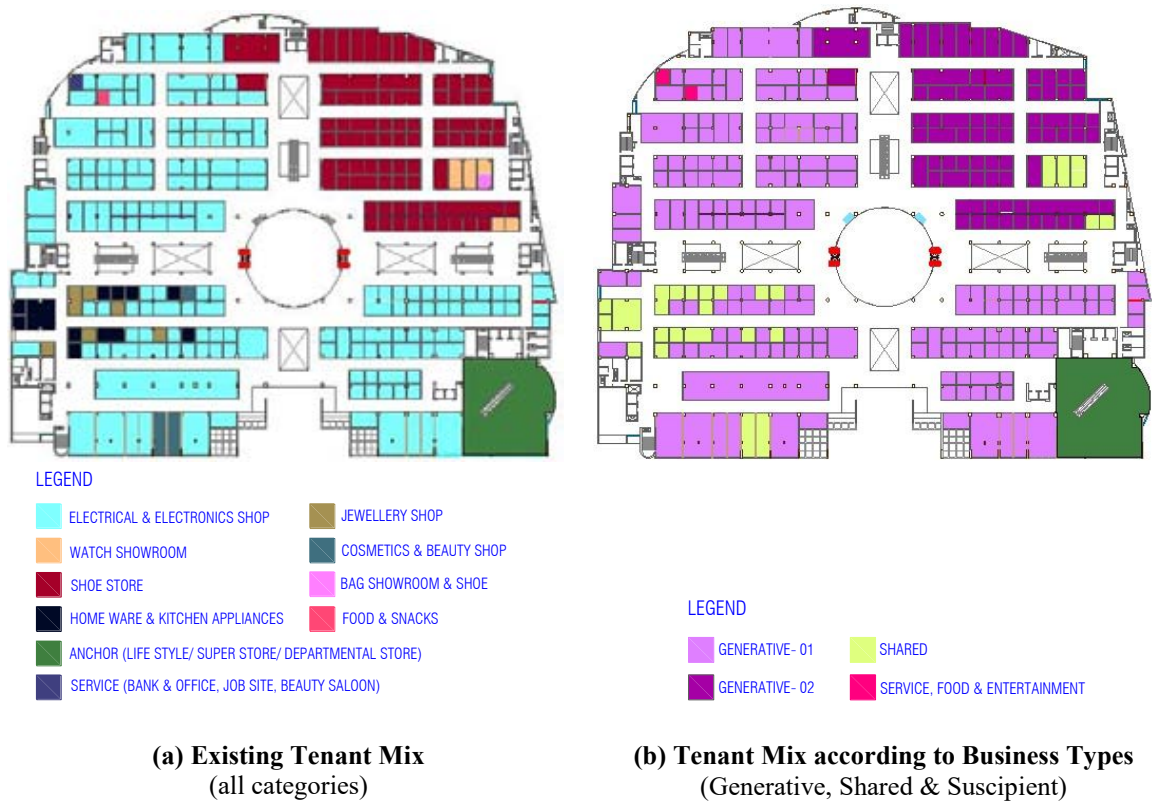
Sl. No.	Tenant Typology (9 types of tenants)	No. of Shops for each type	Business Types
01.	Readymade Garments (Ladies )	129	<b>Generative</b>
02.	Ladies Clothing (Traditional wear/ Saree)	92	(two Clusters are evident: <b>G-01 &amp; G-02</b> ) Giving priority to Ladies RMG
03.	Readymade Garments (Gents )	2	<b>Shared</b>
04.	Readymade Garments (Children )	13	
05.	Ladies Tailoring Shop	3	
06.	Watch showroom	8	<b>Shared</b> Prevailing with a cluster
07.	Temporary Free Standing Kiosks	4	<b>Suscipient</b>
08.	Super Shop/Departmental Store/ Lifestyle Store (local/international chain)	2	<b>Anchor Tenant</b>
09.	Food and Snacks	1	<b>Service &amp; Entertainment</b>



**Fig.4.19: (a) Existing Tenant typology & (b) Synthesized mix according to Business Type in Level-05**

**Table 4.6: Tenant Mix Patterns in Level-05 (shop clustering according to Business types)**

Sl. No.	Tenant Typology (10 types of tenants)	No. of Shops for each type	Business Types
01.	Traditional Jewelry, Artificial Ornaments & Stone Shops	110	<b>Generative</b> (two significant clusters are evident: <b>G-01 &amp; G-02</b> ) G-01 (Jewellery) G-02 (Mobile & Electronics)
02.	Electronic Shops & Showrooms (Camera, Various equipments & Gadgets)	14	
03.	Mobile, Accessories Shop & customer care	67	
04.	Optics Shop	21	<b>Shared</b> Few shared tenants show their own clustering pattern
05.	Health & Fitness Equipments	11	
06.	Readymade Garments (Ladies )	2	
07.	Readymade Garments (Children )	9	
08.	Temporary Free Standing Kiosks	2	<b>Suscipient</b>
09.	Service Stores (Bank, Travel Agent Offices, Money Exchange, Beauty Saloon - Gents/Ladies)	2	<b>Anchor Tenant</b>
10.	Food and Snacks	4	<b>Service &amp; Entertainment</b>



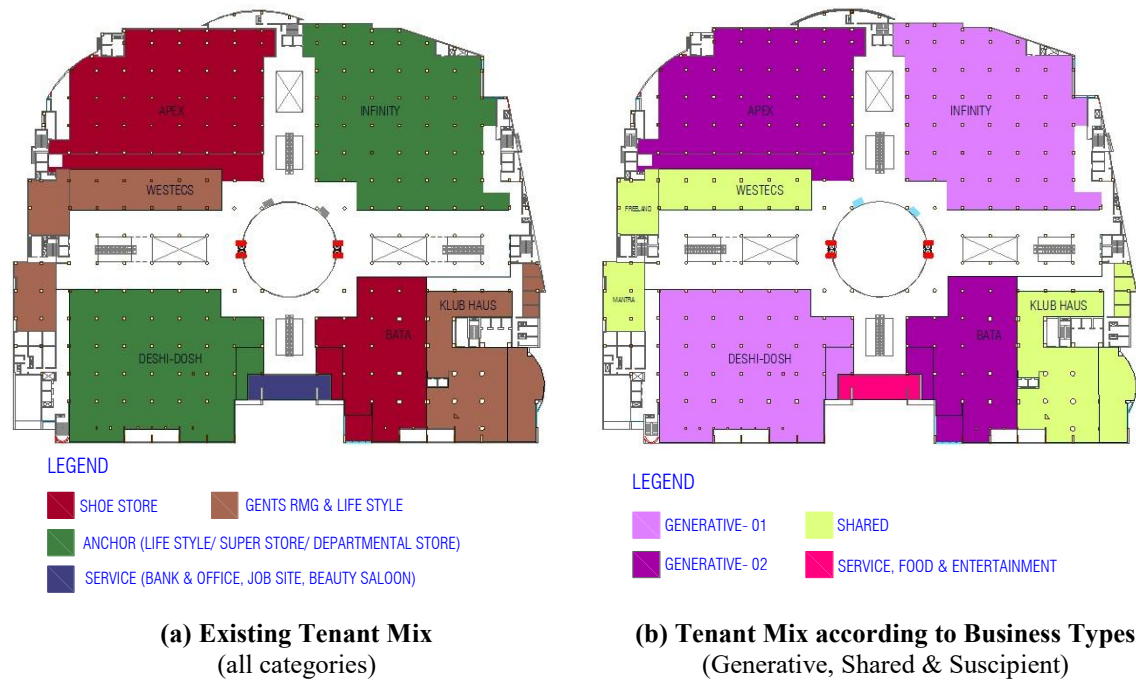
**Fig.4.20: (a) Existing Tenant typology & (b) Synthesized mix according to Business Type in Level-06**

**Table 4.7: Tenant Mix Patterns in Level-06 (shop clustering according to Business types)**

Sl. No.	Tenant Typology (10 types of tenants)	No. of Shops for each type	Business Types
01.	Electronic Shops & Showrooms (Camera, Various equipments & Gadgets)	144	<b>Generative</b> (two significant clusters are evident: <b>G-01 &amp; G-02</b> G-01 (Electronics) G-02 (Shoe Stores)
02.	Shoe Stores	76	
03.	Ladies Bags & Shoes	1	<b>Shared</b>
04.	Cosmetics and Beauty Shop	2	
05.	Traditional Jewelry, Artificial Ornaments & Stone Shops	6	
06.	Watch showroom	5	
07.	Home ware & Kitchen Appliances	12	
08.	Temporary Free Standing Kiosks	2	<b>Suscipient</b>
09.	Service Stores (Bank, Travel Agent Offices, Money Exchange, Beauty Saloon -Gents/Ladies)	1	<b>Service &amp; Entertainment</b>
10.	Food and Snacks	1	



**Level -7** shows a totally different shop distribution as this floor accommodates mostly all the magnet stores within it. Therefore the numbers of shops are less with a bigger space occupied. This whole floor thus acts as the magnet zone. The existing spatial division of four mega blocks with some nominal divisions to accommodate bigger stores ensure the vertical pull of the shopper. This level reveals the complete absence of Service and Entertainment tenants as the immediate top floor; level-8 holds it as an attraction.



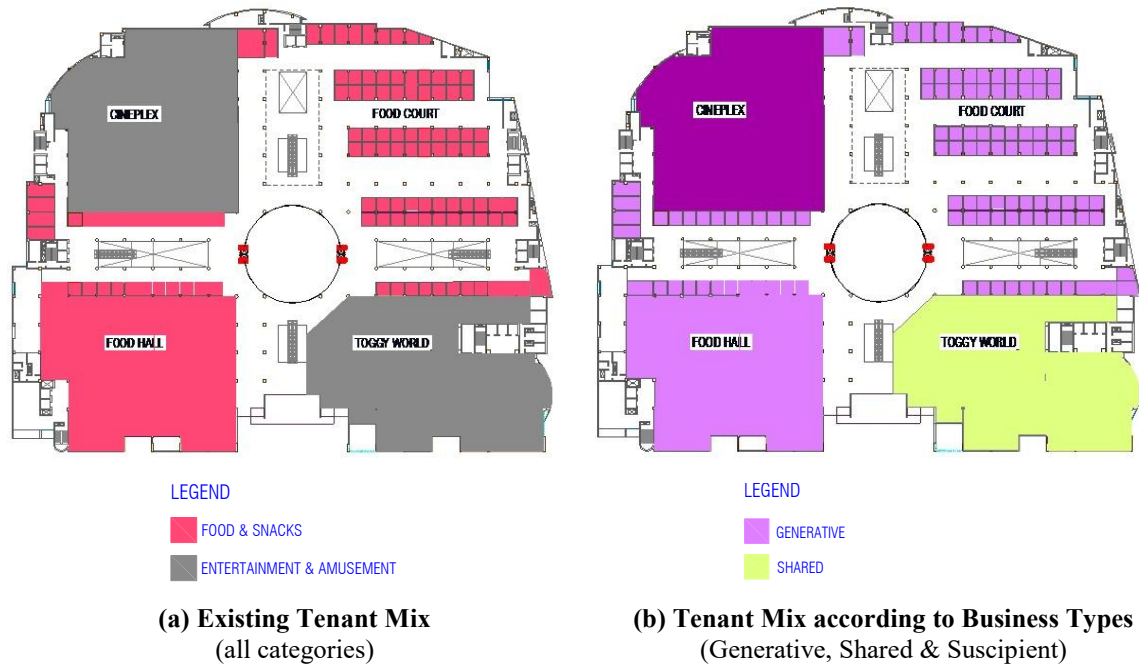
**Fig.4.21: (a) Existing Tenant typology & (b) Synthesized mix according to Business Type in Level-07**

**Table 4.8: Tenant Mix Patterns in Level-07 (shop clustering according to Business types)**

Sl. No.	Tenant Typology (5 types of tenants)	No. of Shops for each type	Business Types
01.	Super Shop/Departmental Store/ Lifestyle Store (local/international chain)	2	<b>Generative</b> (4 Primary Anchor Tenants acts as Generative Business for this level. Two has distinct character of life style store and two are more specific product focused)
02.	Shoe Stores	2	
03.	Readymade Garments (Ladies )	1	<b>Shared</b> (2 Secondary Anchor tenants acts as Shared )
04.	Readymade Garments (Gents )	3	
05.	Temporary Free Standing Kiosks	2	<b>Suscipient</b>

The vertical stacking of tenants is practically working as Level-7 and Level-8 is two distinct hubs for consumers. Level-7 is the retail magnet for the overall mall (for all its magnet stores) and **Level-8** is the entertainment facility (grand food court, movie/Cineplex, game zone/kids zone) of the mall.

The adjacent top floor (level-8) is the universal attraction of the consumers; that is food court. Additional entertainment facilities, cinema and children game zone are also sharing space in this level, hence amplifying attraction factors for consumers. The shopping mall has thus created a sandwich effect by focusing on its lower levels and extreme upper levels.



**Fig.4.22: (a) Existing Tenant typology & (b) Synthesized mix according to Business Type in Level-08**

**Table 4.9: Tenant Mix Patterns in Level-08 (shop clustering according to Business types)**

Sl. No.	Tenant Typology (2 types of tenants)	No. of Shops for each type	Business Types
01.	Food and Snacks	92	<b>Service &amp; Entertainment</b>
02.	Entertainment & Amusements	2	

This level consciously lacks in exhibiting regular retail tenants to maintain its independent operation even after the mall is closed for retailers due to holidays. Thus it allows a regular visit of consumers throughout the whole year with multiple purposes from a regular day to day shopping trip to the planned social gathering for food, fun and entertainment.

A picturesque analysis of tenant mix in various levels shows the presence anchor tenants with their locational dynamics (Fig.4.23 and Fig. 4.24). The variations of anchor tenants are revealed not only in terms of their brand value of local or global scenario, the sizes of these tenants also varied for multiple strategic locations. They are seen occupying both advantageous as well as in unconventional locations. Even

repetition of similar anchor tenants (mainly secondary anchor) are observed in different level as well as in same level where they are not in sync if consider this is an effective tenant planning. Instead of conventional anchor placement strategy, cluster of particular tenants as ‘attraction’ is more evident in this mall.



- (a) & (b): Brand shop as an attractor in less integrated space  
 (c): End Location for magnet store to attract consumer (ALMAS Super Shop)  
 (d), (e) & (f): Local brands as Anchor shops occupy prominent locations in corner

**Fig. 4.23:** Images of various Anchor Tenants



- (a) & (b): Anchor Tenants with heavy display prefers rear space  
 (c): Cosmetic corner in deep spaces generates more movements for female consumers

**Fig. 4.24:** Tenants with product and locational variations act as attraction

The presence of shared and susceptible tenants in this shopping mall shows an internal business relationship along with the main generative business for individual levels. Shared tenants are mainly tailoring shops that are found in cluster within the generative tenants of RMG (Fig. 4.25). But some other tenants act as shared; like cosmetics, jewelry, beauty products, toy shops are not evident in inserted mode within the generative ones, rather prefer to form a cluster within them.



Spacious primary circulation spine are effective for suscipient tenants as it enables maximum movement exposure at the same time acts a pause from exhausting shopping experience; in both cases, suscipient tenants experience selling benefits (Fig. 4.26).



(a), (b) & (c): Tailoring as a shared tenant with generative tenants of RMG or clothing  
 (d) & (e): Tailoring took places where less movement occurs

**Fig.4.25:** Shared Tenants in various levels



(a), (b) & (c): Suscipient tenants adjacent to vertical circulation stack and escalators and are visually connected from other level as most of them are also near the central atrium, hence avail a visual advantage.

(d), (e) & (f): Suscipient tenants taking advantage of impulsive sale (small moving units of shops selling accessories and take away snacks targeting moving shoppers)

**Fig. 4.26:** Suscipient Tenants in various levels



#### **4.3.2. Locational and Spatial significance of Tenants: An Approach Through Visibility Graph Analysis (VGA)**

The spatial planning of general shop module, accessibility in various locations of the mall and positioning the means of vertical circulation connector in various points have created the mall's very own spatial configuration. Therefore the locational and spatial significance of tenants are certainly not an independent issue. The understanding of the spatial properties and configurational attributes of the mall will reveal the locational significance of various tenants.

Planning of tenant mix considering these configurational properties of mall, certainly signify their locational and spatial aspects to the consumers as configuration has a visual impact on consumers spatial cognitions, hence plays an established role on movement dynamics by generating (enhancing/ diminishing ) various movement pattern . Apart from tenants' typology, size and clustering, its locational significance in terms of visibility is a crucial issue. Due to configurational dynamics, various locations of the mall possess different level of visual connectivity. Again, apparently existing visual segregation for certain tenants' location might be spatially benefited with various configurational attributes (multiple locations of lifts, toilets, prayer zones etc.). As one of the main research focus is to understand tenants' locational significance on consumers movement behaviour, visual cognition of space plays a strong role in movement determination.

In order to understand the spatial significance of existing tenant placements, the floor plans are therefore investigated using VGA (visibility graph analysis) of depth map analysis. Visibility Graph has been generated by excluding the shopping units, thus considered the spatial configuration of each level of the mall as a single bounded space. The circulation pattern (corridor, lobby area with lifts, stairs and escalators) has been extracted to have a clear image of understanding whether the spatial and locational significance of various tenant types are related/aligned with the configurational properties of the mall. Through VGA the following aspects are intended to understand:

- To reveal if there is any relation of tenant clustering pervades rather than to only identify the reason behind the arrangements and
- To explain, how various tenants (anchor/non-anchor or generative/ shared/suscipient) are taking/missing the advantages of the visual properties of the mall.

Locational and spatial significance of tenants have been observed in terms of the single floor plan. As the eight-level shopping mall has distinct difference and similarities in spatial configuration in various levels, for depth map analysis, floor plans having similar configuration are considered once to produce visibility graph. But the analysis has considered combining all floor plans having different tenant mix with that similar spatial configuration. Therefore, the number of plans for depth map analysis is 5 (level-01, Level-02 & 03, Level-4, 5 & 6, level-7 and level-8).

The spatial properties of each floor have been analyzed through the visibility graph generated by depthmap software. Among various attributes of VGA, the following four are considered as the stated/outlined objective of the research is aligned with these specific measures. The attributes obtained from Visibility Graph Analysis (VGA) for all the floors are: Visual Integration, Visual Mean Depth, Visual Connectivity (Visibility) and Clustering Coefficient.

Later on second order measure of Intelligibility has been derived through co-relation between visual connectivity and Visual Integration for all levels. To simplify the VGA explanation, the circulations aisle/corridors are all numerically denoted in the following base plan (Fig. 4.27).

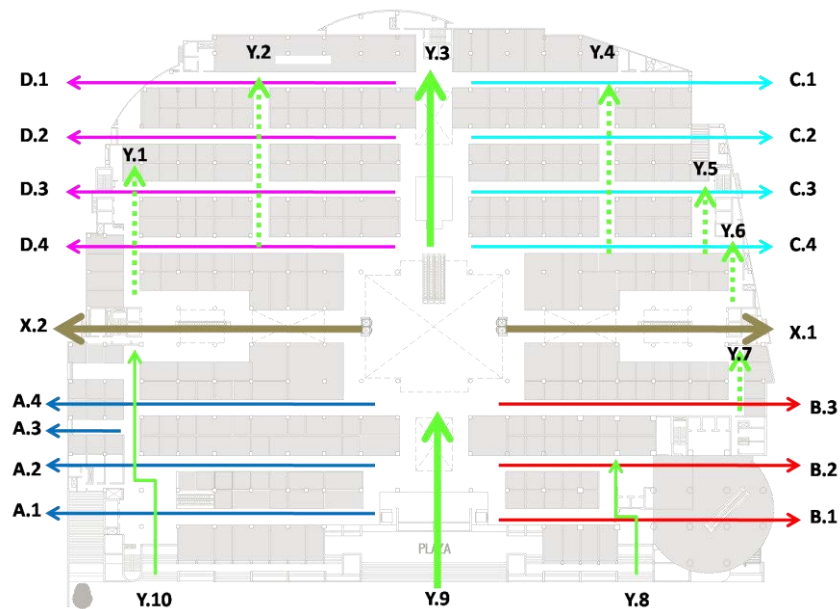


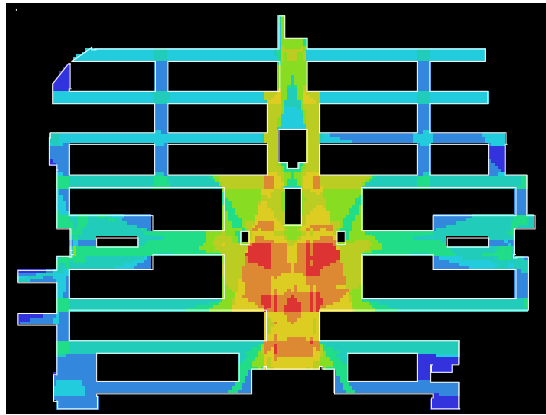
Fig. 4.27: Numerical Notation of Corridors

The visibility graphs of all the floors have been extracted for the above mentioned attributes and compiled floor wise with a base map of showing existing tenant mix of respective levels. Later on a table (Table 4.10) is generated containing all the numerical measures for these attributes to enable the comparative graph analysis for various levels of Bashundhara City Shopping Mall.

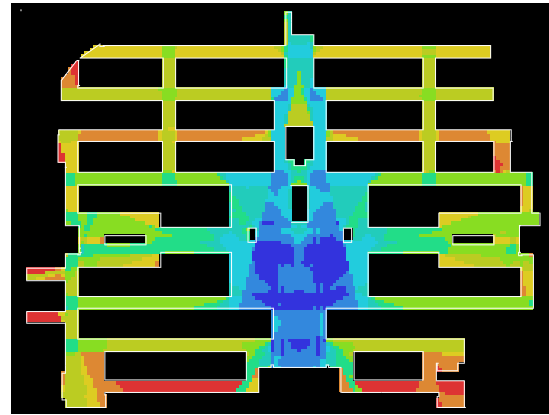
Visibility Graph for **level-01** with all its selected measures show that (Fig. 4.28), **Visual integration** is higher at the central court. It even extended to the rare end of the mall through central north corridor. But being at immediate adjacent to the court, the central east and west corridors possess lesser visual integration. **Visual mean depth** is surprisingly higher in A<sub>1</sub> and B<sub>1</sub>, even being the immediate corridors near the main entrance, whereas the extreme rare corridors (C<sub>1</sub> & D<sub>1</sub>) have moderate mean depth. The central court has also the most **Visual connectivity** with the immediate surroundings. Tenant location near the central court enjoys immediate access by consumers as they are most visually connected to the shoppers. **Clustering co-efficient** is higher in block C and D and moderate in block A and B.

Observation of Spatial Properties of different Level of the mall through Visibility Graphs

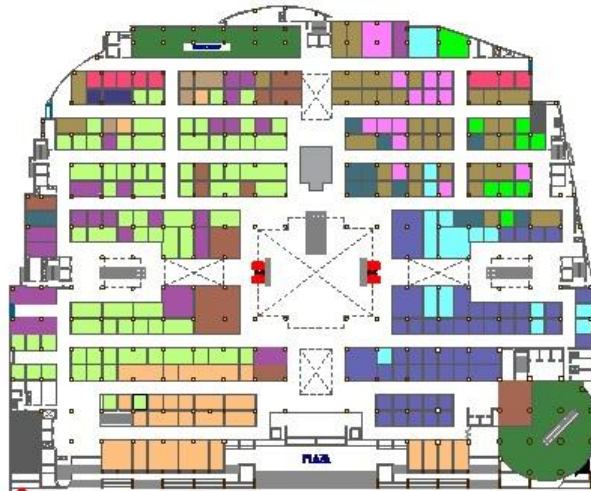
Level-1



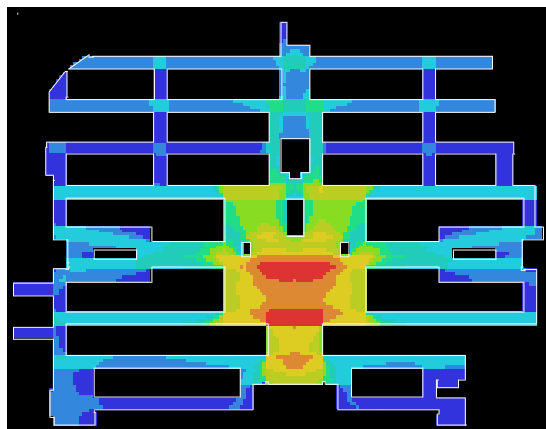
Visual Integration (HH)



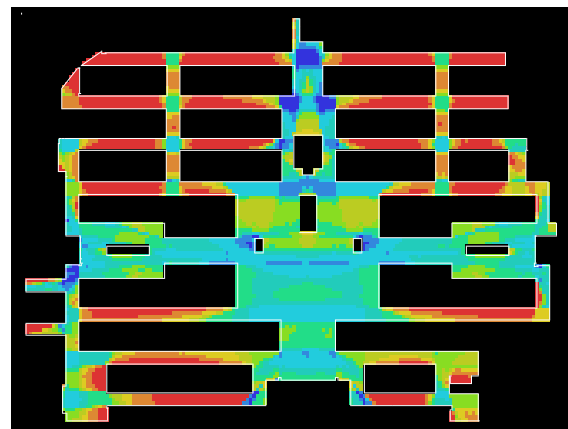
Visual Mean Depth



Level-01: Existing Tenant Mix (Shop types, size, location and Clustering pattern)



Visual Connectivity (Visibility)



Clustering Coefficient

Fig. 4.28: Various Attributes of Visibility Graph of Level-01

Following these visibility attributes, it seems overall locational and spatial significance of tenants for level-1 might look abrupt, tenant clustering has managed to work out to a certain level. While forming cluster, all most all types of tenants have one or more representational shop along the central court and primary circulation axis which later on drag the spatial linkage to more deeper space (except food corners, , service stores, beauty salon etc).

As the GF is considered as the enclosed system, the significance of entry points are absent in this graph. But the physical observation showed that all 3 entries have almost equal intensity of user penetration (Fig. 4.29). Thus the 3 entrance point has some significant tenant locations. As the central one leads directly to the court, the other two have two primary anchor tenants just adjacent to them; Aarong and Mustafa Mart.

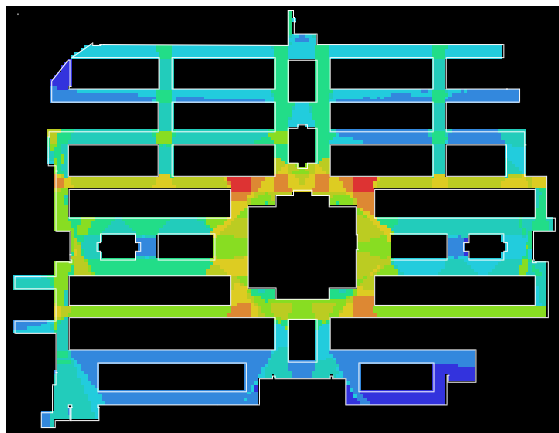


Fig. 4.29: Primary entry point Movement Intensity in Level-01

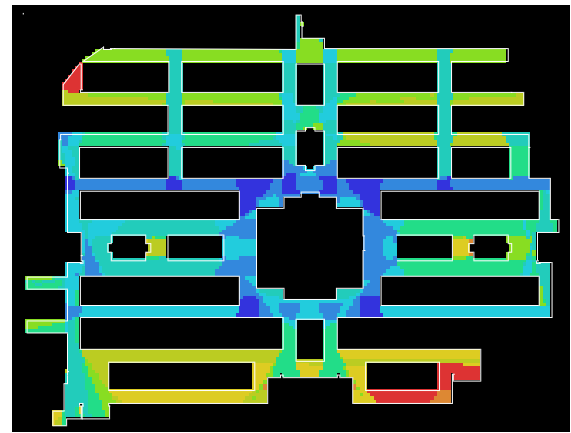
Considering the middle one ( $Y_9$ ) as the grand and central entrance, it remained spatially significant (for movement generation), which also evident in visibility graph. Thus shop location along this entrance kept non-anchor type to avoid sticking consumers around the place rather to attract them more into deeper space. But  $Y_{10}$  &  $Y_8$  have a direct locational significance for two anchor tenants (respectively Mustafa Mart in basement-01 through escalator and Aarong from level-1 to level-4). These locations of anchor tenants are not conventional for a shopping mall like this in terms of standard tenant planning.

**Level 02 & 03** have similar spatial configuration and also have more similar type of tenant distribution (Fig. 4.30). Both floors have RMG clusters as generative business designated for M/F where L-2 is prioritized more on male and L-3 is more on female. The visibility measures show that, **visual integration** is higher on certain zones around the central atrium, mostly at the junction of  $C_4$  and  $D_4$  towards the atrium. **Visual Mean Depth** is most evident at the corner of B block. **Visual Connectivity** is highest along the atrium and the flanking corridors from those integrated space have also a well moderate connectivity. But surprisingly, for these levels, the extreme end corridors,  $C_1$  and  $D_1$  (of block C and D) are also comparative have well visual connectivity. The **Visual Clustering co-efficient**, for both these levels, has highest intensity in block C and D in comparison to Block A and B.

Level-2 & 3



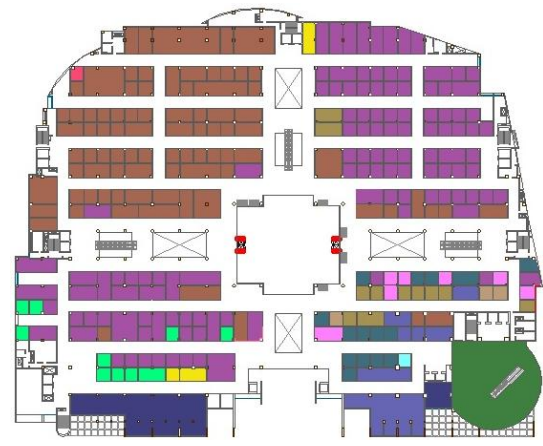
Visual Integration (HH)



Visual Mean Depth

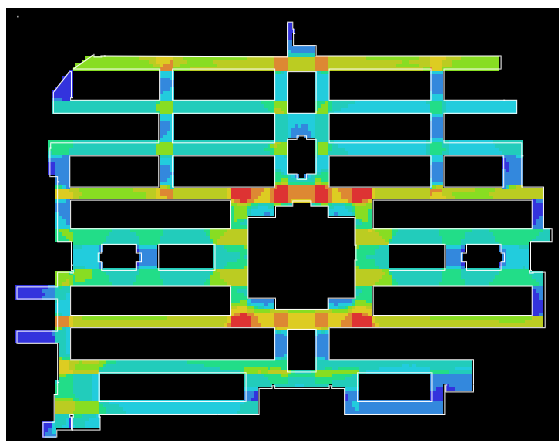


L-2

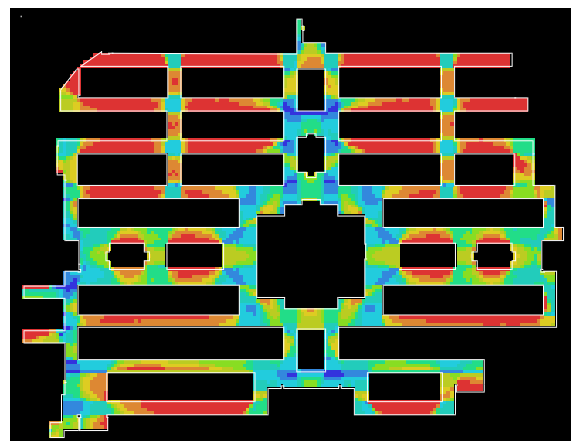


L-3

Existing Tenant Mix (Shop types, size, location and Clustering pattern)



Visual Connectivity (Visibility)



Clustering Coefficient

Fig. 4.30: Various Attributes of Visibility Graph of Level-02 & 03

Level 04, 05 & 06, with similar configuration (Fig. 4.31) shows a shift of **Visual Integration** to a very certain zone around the atrium. Excessive **Visual Mean Depth** is mostly absent in any particular location of tenant agglomeration. The atrium-centric highest **visual connectivity** is visible for all three levels and **visual clustering coefficient** remained almost same as the previous levels. Having similar configuration for these levels, the variations of shop type creates various attraction factors for those levels.

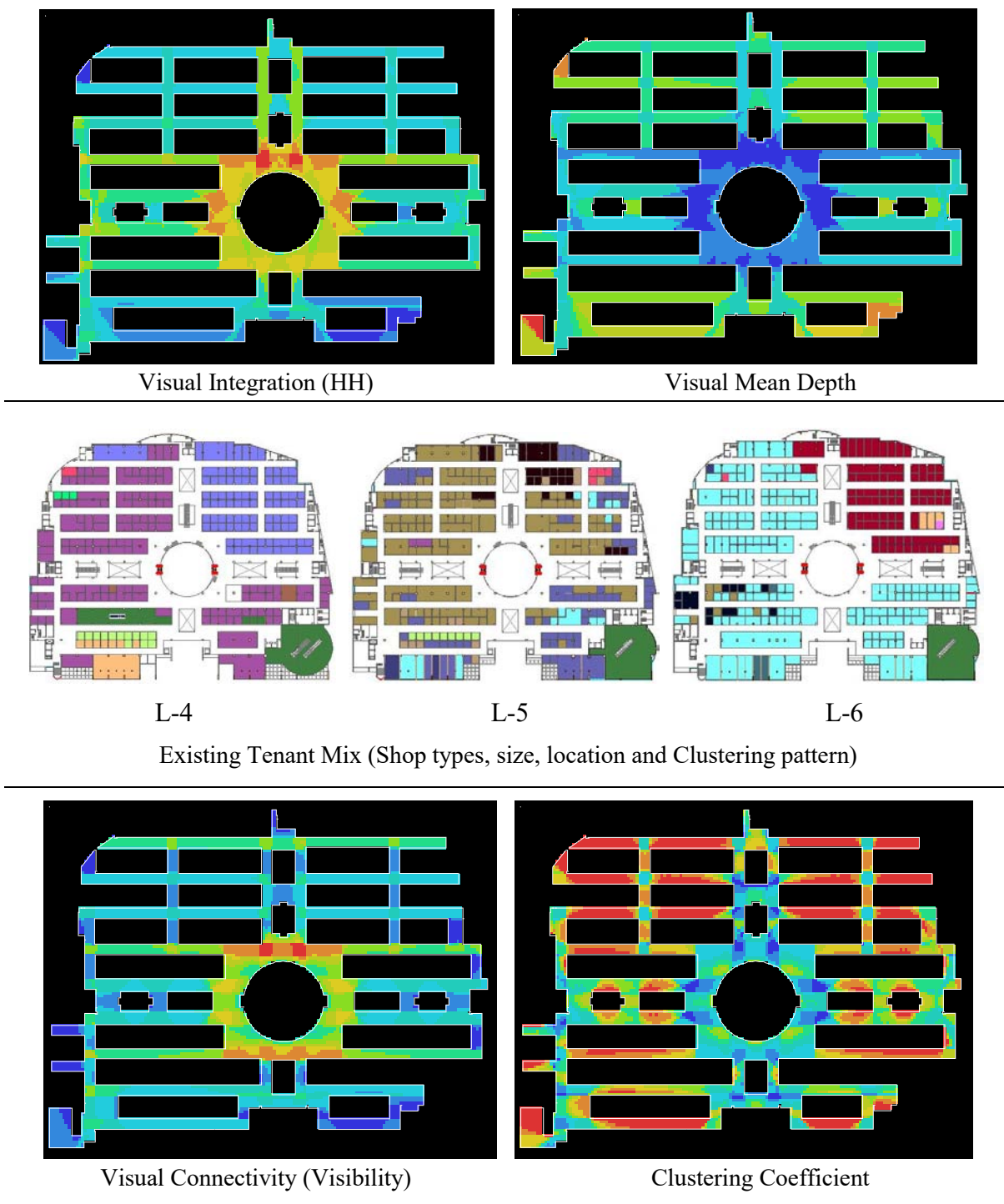
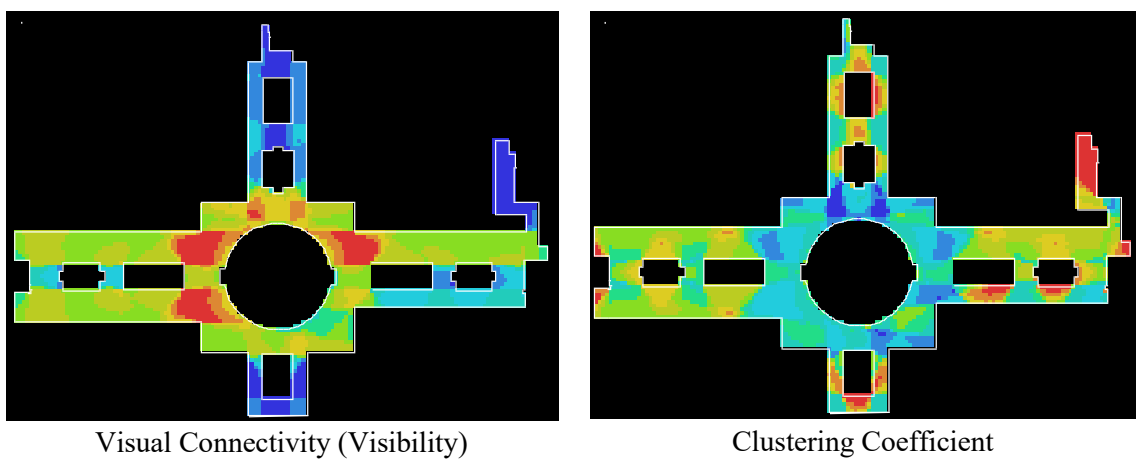
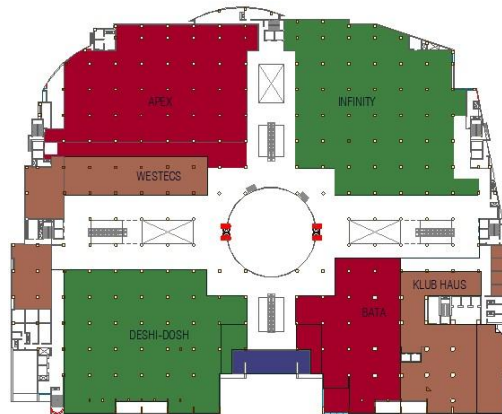
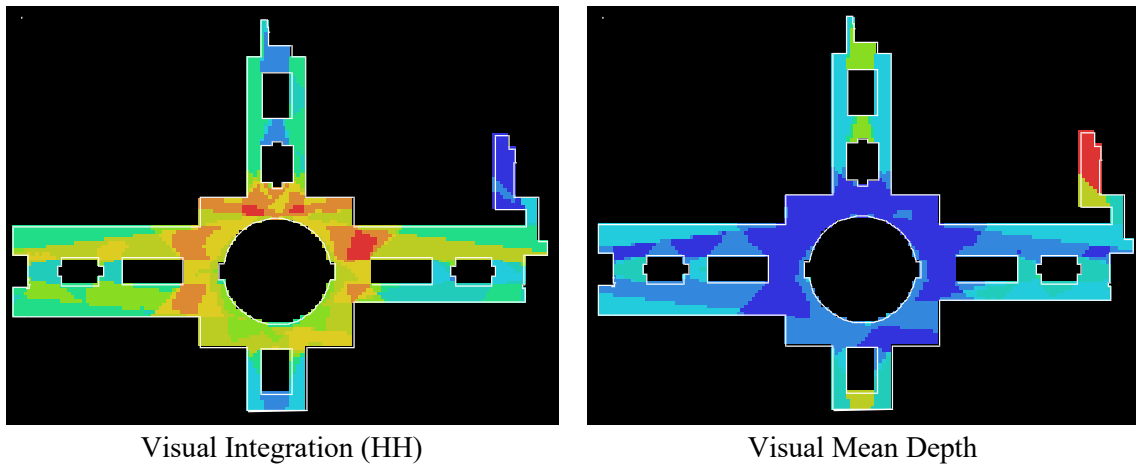


Fig. 4.31: Various Attributes of Visibility Graph of Level-04, 05 & 06

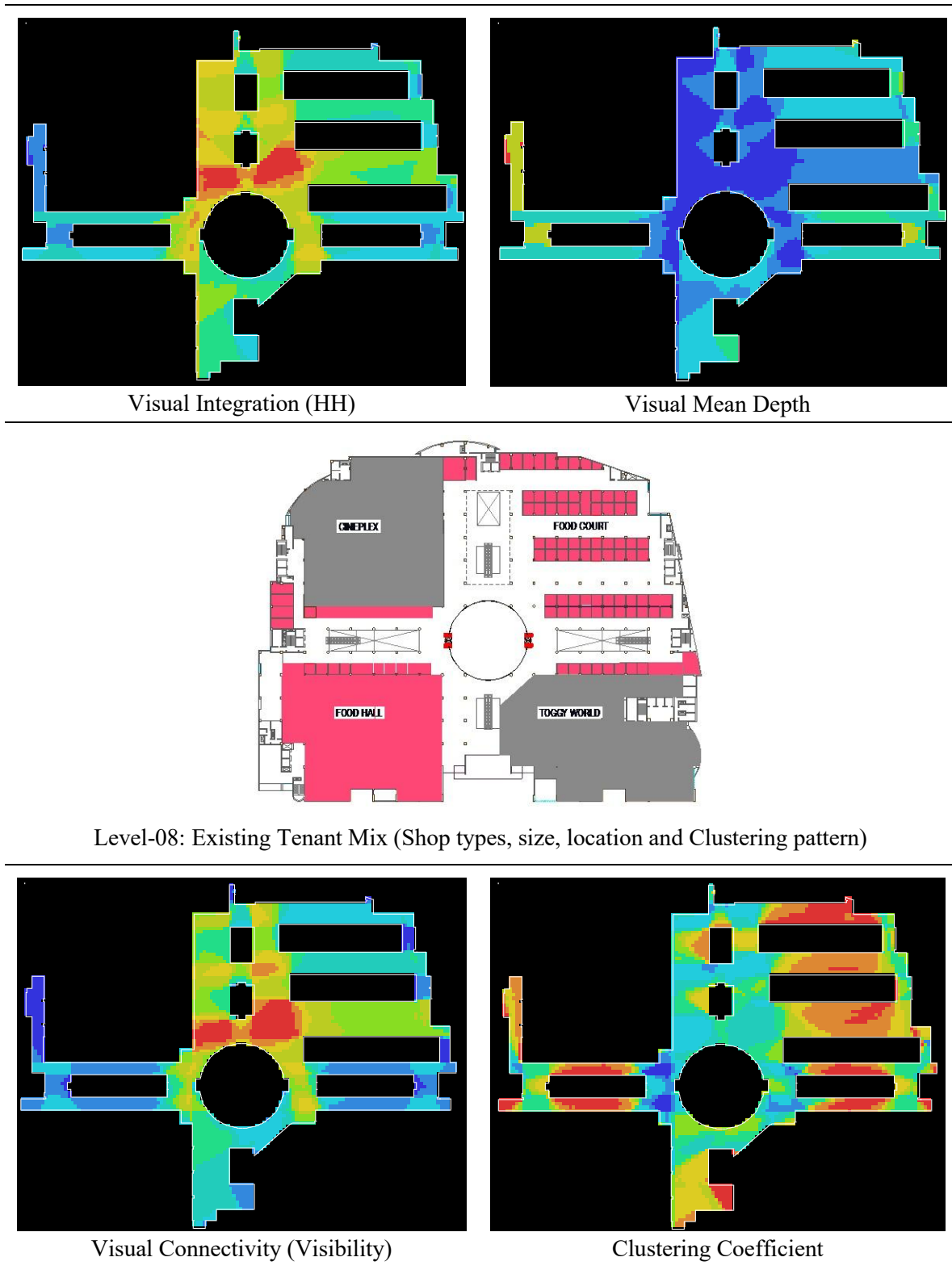


**Level-07**, with different spatial configuration from other levels, shows that **Visual Integration** is higher along the atrium, but **Visual Mean Depth** is significantly lower in this whole floor. This makes the level less ambiguous. **Visual Connectivity** is also fairly moderate without having strong contrast of less connected spaces. The absence of secondary circulations has ensured more clarity in this level and the **Visual Clustering Co-efficient**, that was a strong phenomenon in other level, is barely there as a dominating spatial character.



**Fig. 4.32:** Various Attributes of Visibility Graph of Level-07

**Level-08**, the hub of food and entertainment, has two distinct characters; a more elaborate space for food court which has a spill over character that blended with the circulation corridor and more a formal zone of Cineplex and kid's game zone.



**Fig. 4.33:** Various Attributes of Visibility Graph of Level-08



In this level, **Visual Integration** is higher in a more shifted location in between the Cineplex and the food court zone. **Visual Mean Depth** is apparently lower in most of the spaces along the Cineplex and food court. **Visual Connectivity** is moderately high in the shared space of common circulation near the atrium whereas **Visual Clustering Co-efficient** is higher in food court. The food stalls have thus aligned with the spatial configuration in this level as they have able to create a cluster that is visually separable from the other entertainment tenants.

Visibility Graph shows that more integrated spaces of the mall are near the central circulation zone. The Visibility Graph of all floors (except level-7 & 8) shows some unique spatial configuration when considering the distribution of shop types in relation to these understanding. But in this case, the spatial significance of tenant placement seems to take benefit from clustering effect generated by Visibility Graph as block C & D show high clustering co-efficient in almost all levels.

The location of service core also somehow signifies various locations of tenants and their clustering pattern. But in this case vertical circulation means only adjacent to central atrium are more spatially dominating. Others in multiple locations of the mall are not able to enhance the spatial significance of that zone. Therefore tenants that are trying to take advantages from those locations are not actually getting any spatial benefits as views have been obstructed in various points.




The table showing the attribute summary (Table 4.10) for all levels clearly depicts the comparisons of various measures. The value of average **Visual Integration** is highest in level-01(**7.5073**) and lowest in level-02 & 03 (**3.93267**). But average **Visual Mean Depth** is highest in level-02 & 03 (**3.68377**) and lowest in level-07 (**2.44767**). As level-07 displays bigger sizes of tenant coverage, the spatial configuration of this level became less ambiguous in comparison to others.

The lowest average VI and highest average VMD in level-02 and 03, makes these two levels having the highest average **Visual Clustering Co-efficient value (0.783587)** and shows spaces of various blocks of these levels to be in a more concentrating mood rather than blending with overall spatial configuration of the levels. Even average **Visual Connectivity (Visibility)** is lowest in these levels (**360.725**) in comparison to average highest visibility in level-01 (**907.1**).

The numerical values for a VMD and VCC in all levels show little deviations whereas Visual Integration (VI) and Visual Connectivity (VC) have strong variations in different levels. As tenant planning and distribution varies in different levels, further movement study and correlation of movement with these attributes will reveal the extent of influence that present tenant mix is creating on movement.

**Table 4.10: Various Attributes of Visibility Graph of various levels**

Measuring Orders	Measuring Types	Measuring Terms	Values	Various Levels							
				Level-01	Level-02	Level-03	Level-04	Level-05	Level-06	Level-07	Level-08
				Similar spatial configuration			Similar spatial configuration				
First Order Measures	Global Measures	Visual Integration	Minimum	3.31771	2.37597		2.3904		2.43412	2.71602	
			Average	<b>7.5073</b>	<b>3.93267</b>		4.4373		<b>6.95674</b>	<b>7.505</b>	
			Maximum	13.2014	6.39955		7.30532		10.6778	12.1912	
		Visual Mean Depth	Minimum	1.78074	2.57757		2.39017		1.86852	1.76691	
			Average	2.49628	<b>3.68377</b>		<b>3.41024</b>		<b>2.44769</b>	2.34964	
			Maximum	4.1066	5.24912		5.2485		4.80994	4.44237	
	Local Measures	Visual Connectivity	Minimum	47	29		18		56	17	
			Average	<b>907.1</b>	<b>360.725</b>		407.059		598.581	<b>598.755</b>	
			Maximum	2703	821		1111		1107	1337	
		Visual Clustering co-efficient	Minimum	0.39761	0.427464		0.412993		0.418137	0.374795	
			Average	0.740325	<b>0.783587</b>		<b>0.762133</b>		<b>0.70229</b>	0.735744	
			Maximum	1	1		1		1	1	
Second Order Measures	Intelligibility (CN <sup>^</sup> Rn)		<b>0.9487676</b>	<b>0.6336513</b>		0.8242596		0.8704849	<b>0.9350026</b>		

 Highest numerical Value for specific measures  
 Second highest numerical Value for specific measures  
 Lowest numerical Value for specific measures

Again the second order measure, intelligibility, for all the levels (Fig.4.34) shows that level-01 has the highest value (0.9487676). Level-02 & 03 has the lowest value (0.6336513) whereas other levels have a moderate variation between the range of highest and lowest value. In general, the values express the mall as a more visually intelligible; that is configurational ease of the mall is expected to relieve the locational and spatial stress of tenants' planning regardless their types or clustering patten. But as this is only the half way analysis of the study, the significance of spatial configuration will be revealed only after the further inclusion of movement study along with these various syntactic measures.

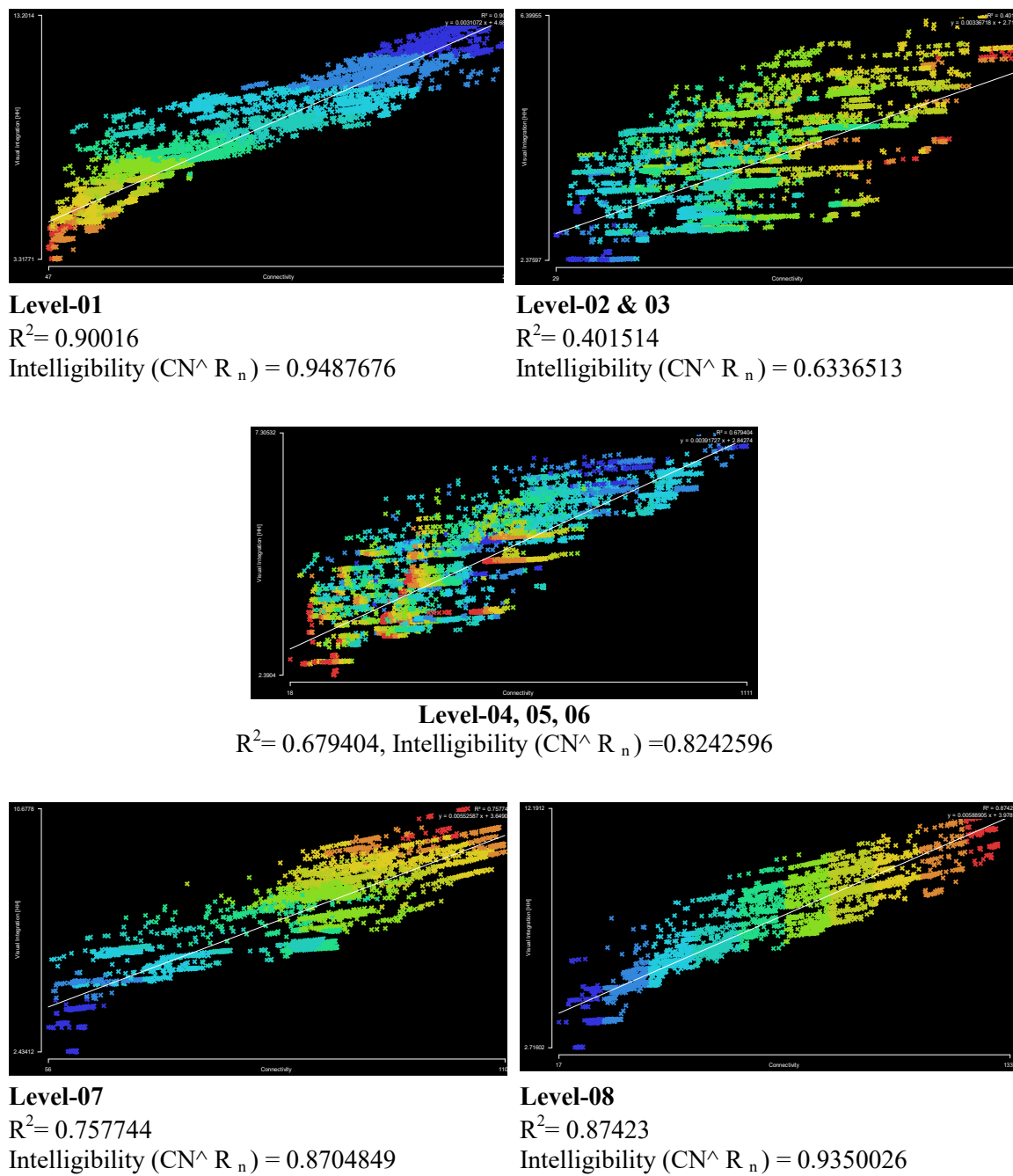


Fig. 4.34: Scattergram showing the Value of 'Intelligilty' for various levels

Among the four first order attributes, the local measure, **Visual Clustering Co-efficient** has come up with some unique findings to understand the perspective of tenant clustering in various levels. As for other three attributes the highest and lowest and in between values show significant fluctuations whereas this attribute for all levels have very little deviations. All the floors show strong values of average visual clustering co-efficient and the visual representation is also expressed in graph images. The higher value of clustering co-efficient is visually evident in block C & D where there are agglomerations of majority shops for each floor.

This configurational property of showing the tendency of some spaces to be tied together even being in a larger space, is not always an undesirable phenomenon for building design. But for a shopping mall like this, it might create ambiguity for spatial cognition for the shoppers if tenant mix is not responded accordingly. As clustering co-efficient show 'junctionness' between spaces, tenant mixes are crucial in terms of their locations in those spaces of junctions to attract consumers to a more clustered spaces. Thus understanding this spatial aspect, tenant placement strategy should be incorporated to take advantage from it and to make it a blessing in disguise. Though in present condition, visually significant tenant clusters exist in almost every floor of the mall, it is not spatially synchronized with these visual properties of configuration.

#### 4.4. Synopsis of Findings

The following are the brief summary of findings from empirical investigation that discussed in this chapter:

##### a) Observed Tenant Typology

- The presence of multiple varieties of tenants (23 in total in all floors) under a single roof has made this mall unique. Existing **Tenants according to their business types** (Generative, Shared and Susicipient) has been categorized from observing the present shop type and their product variations.

The significant present of **Anchor tenants** is evident in the mall, though not in a way of conventional approach of mixing it with non-anchor tenants. Through the extensive number of shops from all these tenant types, the mall has become a convenient shopping destination for one-stop shopping experience. The ample shops under individual tenants, allows the comparative shopping experience to the consumers.

- Some tenants with its ample number of shops act as the core generative business that create symbiotic relationship with associated shared tenants (generally act as complementary for generative business). In this case readymade garments and clothing for all age and gender group act as generative tenants in major levels where cosmetics and beauty products, shoes and bags stores, tailoring shops, contemporary jewellery and traditional ornaments shops act as shared tenants.

- Generative tenants vary from floor to floor as well as shared ones. Some level shows the presence of multiple generative tenants. Again some tenants act as shared business in one floor, has been dominating as generative in other floors. But most dominating generative tenant revealed as ready-made garments (ladies, gents and children), women's traditional ware (saree), electronics and mobile shop, jewellery and shoe stores.

The number of shops under various tenants, forming bigger cluster of same type in several floors (level-02, 03, 04 & 05), gives a monotypic shopping experience. Even though it increases competitiveness among the retailers, it also encourages comparative shopping behaviour of the consumers.

#### **b) Tenant Clustering Patterns**

- For multiple levels, these business types are distributed in various patterns. But all levels show a significant presence of **Tenant clustering** whether its generative or shared. Tenant clustering pattern show various combinations in various levels too. But mostly it is observed as **Gender based** (ladies, gents and children, sometimes a mixed combination) tenant clustering regardless product variety (level-02, 03, 04 & 05). The visible **product based** clustering is present in Level-06. Level-01, 07 and 08 merged as for all gender group regardless product variations under various tenant typologies.

For some levels, bigger cluster of generative tenants spatially grabbed almost 2/3 of the floor, thus providing a disproportionate remaining space for shared and susceptible tenants. The present of susceptible tenants are very formalized and controlled. Hence the true character of this tenant category (spontaneity of choosing locations) is compromised.

#### **c) Spatial and Locational Significance of present Tenant Mix**

- Regarding the **spatial and locational significance** of present tenant mix, the visibility graph analysis came up with some configurational understanding about the mall. It helps to further observe if the tenant planning is more about their variations with multiple shop no. or is aligned in accordance with the spatial character of the mall. Among various visibility attributes of the graph, **Visual Clustering Co-efficient** seemed holding a strong impact almost in all levels. The observation of tenant mix and understanding of spatial properties of the mall from VGA, present configuration shows that the mall is not visually a well connected one in most of its spaces. Instead the character of forming segregated cluster is evident. Once the shoppers are entered to those areas, they are literally cut off from the central space.

- .Primary circulation spine with multiple vertical circulation means and its adjacent locations are occupied with the representative shops from various tenant categories (which are mostly the outlets or local chains of specific brand having other outlets in different shopping mall of the city to as a business and survival strategy). They act as

main attractor for that specific shop cluster and eventually they hold comparatively bigger shop module in those spaces. This makes smaller shops under similar tenant category to struggle as they remain in the shadow of those shops with a lesser visual exposure.

- In considering locational and spatial significance of **anchor tenants**, the observed mall show a non-conventional approach of placing anchor tenants both in each floor and as a whole system. Locational significance of anchor placement in individual floor is not well distributed. Instead a whole level is regarded as ‘Magnet Floor’ for accommodating all anchor tenants within it. To overcome the challenge of managing vertical movement pull, anchor tenants are considered placing vertically (a whole single floor of level-7 act as mega magnet) rather than emphasizing their locational significance horizontally. As for individual floors, specific Tenant clustering with numerous shops are perceived as ‘attractor’ as it provides comparative shopping facility to the consumers.

Apart from a whole magnet floor of level-07, the only remaining primary anchor (Aarong) has its location from level-01 to level-04 which is connected internally as well as provides access from all four levels. This even promotes some secondary anchor tenants through its spatial connectedness and sharing of immediate spaces with those shops. But this significant anchor tenant’s location is also doesn’t comply with the overall mall configuration.

**Food, Entertainment & Service tenants** usually have the less integrated space. Food corners are also in typical floor has taken the most corner location while the whole food court level (level-08) acts as the significant attraction apart from retail activities. The Cineplex and kids game zone as a tenant from entertainment category also signify the ultimate attraction of this top level of the shopping mall.

## CHAPTER: 05

### **MOVEMENT DYNAMICS OF CONSUMER WITHIN THE MALL: A SOCIO-SPATIAL PHENOMENON**

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#### **5.1. Introduction**

The movement behavior of consumer within a mall is apparently a visual summary of how vibrant the mall activity is, though it is not the exact portrayal of retailers' profit nor shows actual buying behavior of shoppers. From design and retail planning perspective, it is more about the users' spatial mingling within the built environment. Movement study as a way of understanding consumer behavior in shopping mall is not uniquely a newer idea; rather it is considered in many studies in retail planning both in urban level and in inside the building design level. But in Dhaka, where sprawling shopping malls are eminent visual urban characteristics, such study is hardly evident. In the study area of Bashundhara City Shopping Mall of Dhaka, this movement behavior is observed to understand how tenant mix and its planning in relation to inner spatial configuration of the mall, influencing the movement dynamics; that is its intensity, pattern and overall characteristics.

This chapter is intended to explore the second objective of the research that is '**To identify consumer movement pattern and density and their relation to existing tenant mix pattern to understand the configurational attributes of the shopping mall to attract consumer penetration.**' This segment of write-up has been broadly structured with two perspectives;

Firstly, the **Intensity and Pattern** of consumers' movement in various locations of the specific mall has been traced through an empirical investigation; 'Gate Method' ((a detail of this method has been demonstrated in chapter 03). The extensive survey has covered the major influential aspects for movement generations (Festivities and Gender specific issues) apart from basic design criteria of the mall. Thus a wider aperture of overall movement intensity and pattern has been perceived and analyzed.

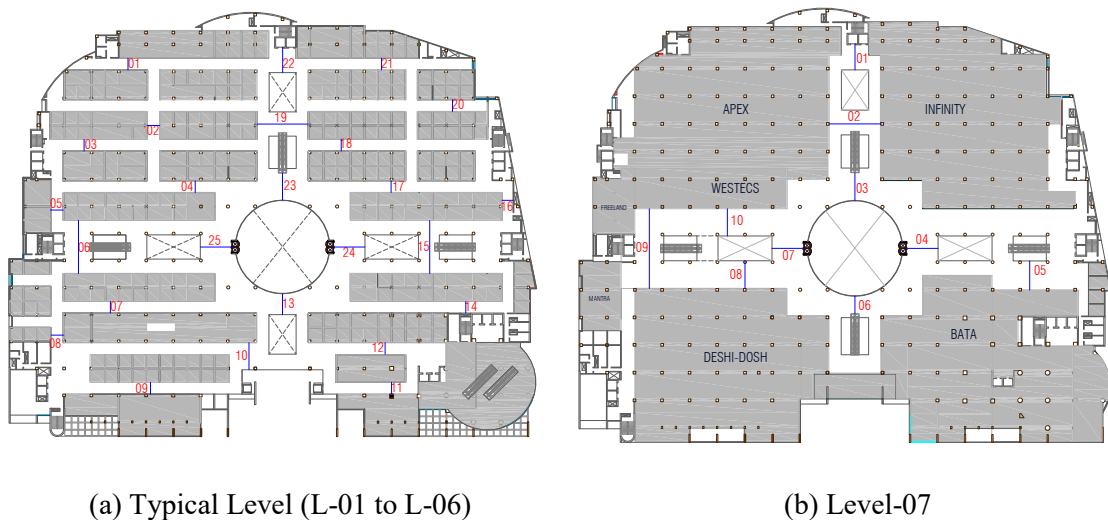
Secondly, the **Configurational attributes of the shopping mall** has been further investigated through Visibility Graph Analysis (VGA) in relation to movement intensity. This channelled a clearer understanding of how over all tenant mix of the mall can be effectively connected to the relationship between movement and configuration of the mall for generating adequate movement within the facility. A further semi structured questionnaire survey was conducted (details of the survey method and sampling procedure has been discussed in chapter 03). This enabled to realize consumers' perception on how their movement is influenced by various aspects of the mall emphasizing the main research context of tenant mix.



## 5.2. Consumers' Movement Behaviour: Intensity & Pattern

The 'gate method' movement observation has been conducted in all retail floors (from level-1 to level-7). Twenty-five (25) gates were selected for first six levels (L-1 to L-6) and 10 gates for level-7 (as the spatial configuration is different due to the larger size of tenants in this floor). Gate locations are similar in all floors having same configuration. Gates located near main atrium of level-1 (gate. 13, 23, 24 & 25) have been photographed for movement count as the intensity was huge to calculate the moment in various categories. The gate locations have been selected after generating Visibility Graph for each floor.

The gate locations are given both for typical floor and level-07 and 08 (fig. 5.1). Among the gate points, 6, 13,15,19,22,23,24,25 are located on the main circulation aisle, near the lifts or escalators. The four blocks contain the gates respectively **A** (7,8,9,10), **B** ( 11, 12, 14), **C** (16,17,18,20,21) and **D** (1,2,3,4,5). Gates increased or decreased in each block due to the overall shopping area coverage of each block. Block C and D are the bigger blocks comparing the other two.



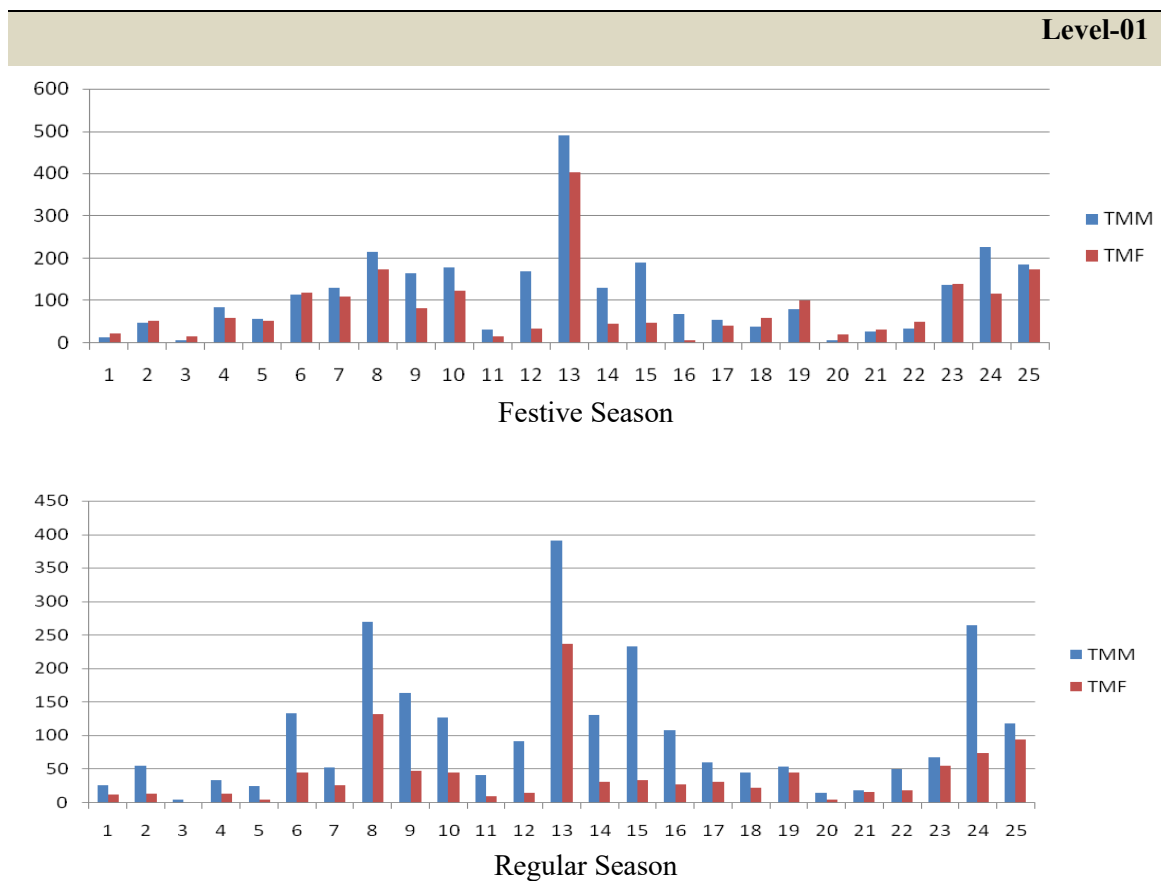
**Fig. 5.1:** Gate Locations in Two Representative Levels

Movement intensity observation of Level-8 was done by pictorial study and video recording as this floor is solely defined for recreational and leisurely purpose; therefore subtracting regular retail outlets. As the study is intended to investigate impacts of various shop types distribution on consumers' movement, similar type's shops (and being in the category of service retail), this level act as an magnet floor as a whole. So the individual floor is not studied critically for movement pattern rather this floor was considered for a total vertical understanding of movement. Again another limitation is because the search for movement in a defined spatial configuration, this floor lack in it too. Its mostly an open floor plan and more flexible in terms of defined configuration. The movement study in all effective shopping floors has been conducted for a whole year round to get an overall scenario.

It has necessities the urge to classify the time frame in two main categories of Regular Season and Festive Season. Even a gender specific understanding for consumers overall movement pattern was considered to investigate for fine-tuning the other observations related to movement.

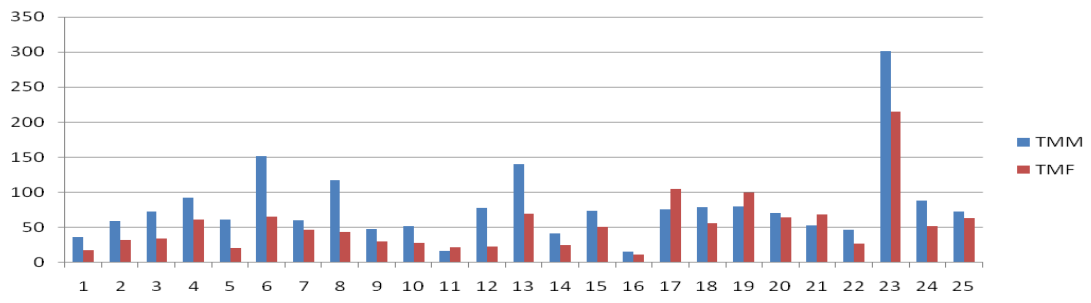
Movement intensity observed in various floors in various seasons (Festive season and regular season) shows a variety of pattern. Gender specific movement intensity is also evident in various tenant locations. As tenant clustering in previous sections show a significant grouping of shops giving priority to specific gender types (male ware, female ware), the movement also varied accordingly. The observed movement pattern and intensity is generated into bar charts (fig. 5.2 to fig. 5.9) from the movement data collected from field survey.

The interpretation of the observed movement intensity and pattern is later summed up following these bar charts in a table format which is arranged in accordance with floor type from ground (Level-1) to top floor (Level-8).

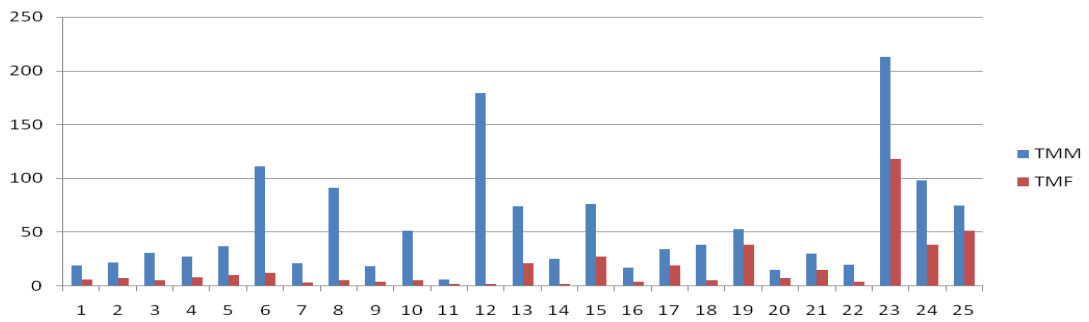


**Fig. 5.2:** Movement intensity & movement pattern of consumers In various gates of level-01 in various seasons

**Level-02**



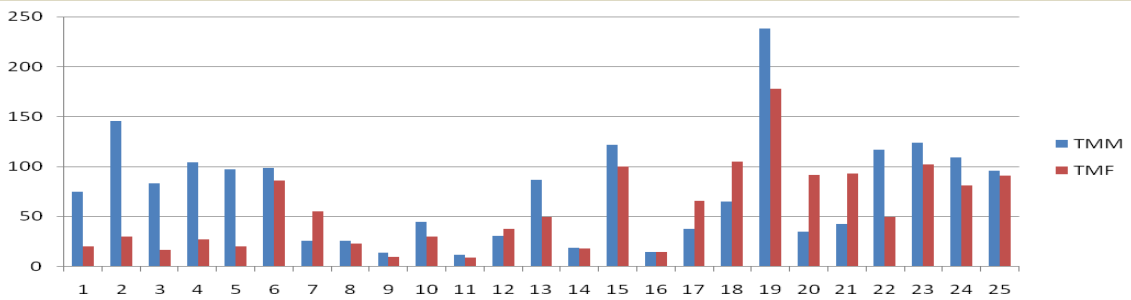
**Festive Season**



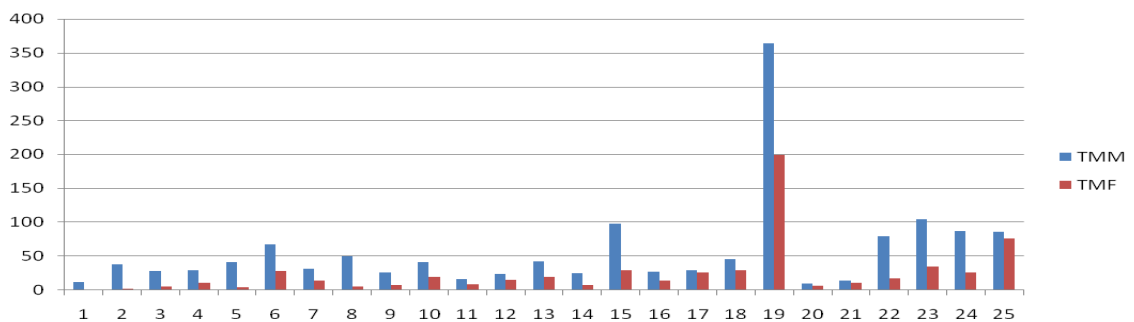
**Regular Season**

**Fig. 5.3: Movement intensity & movement pattern of consumers In various gates of level-02 in various seasons**

**Level-03**



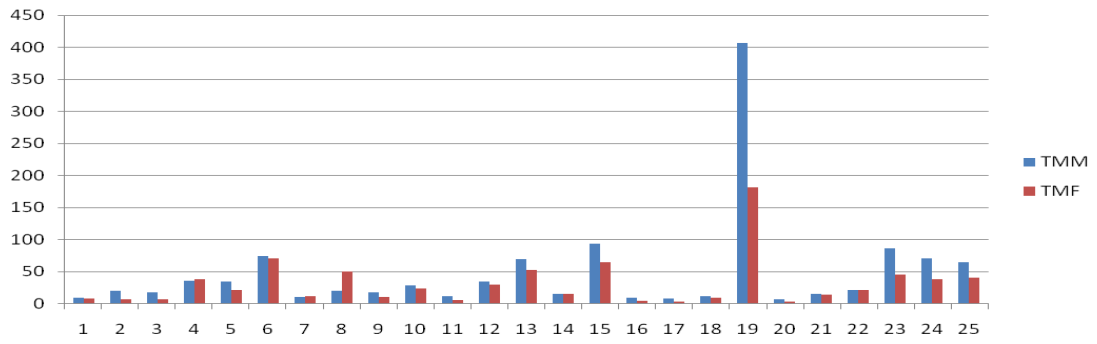
**Festive Season**



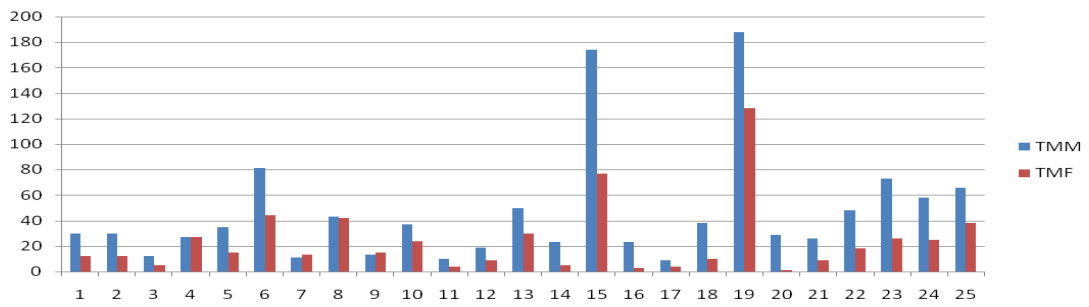
**Regular Season**

**Fig. 5.4: Movement intensity & movement pattern of consumers In various gates of level-03 in various seasons**

Level-04



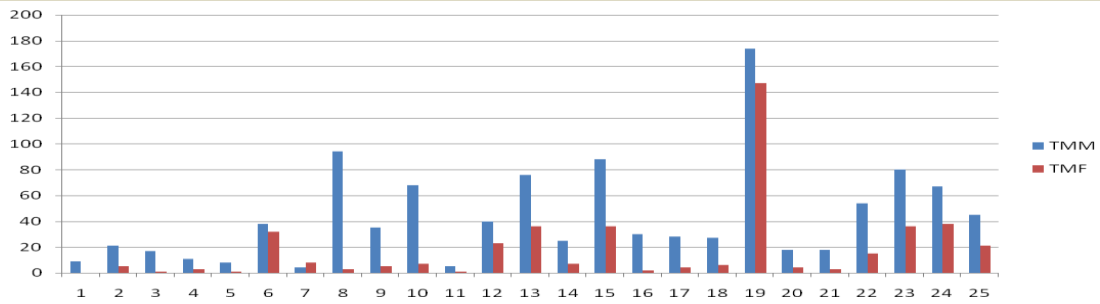
Festive Season



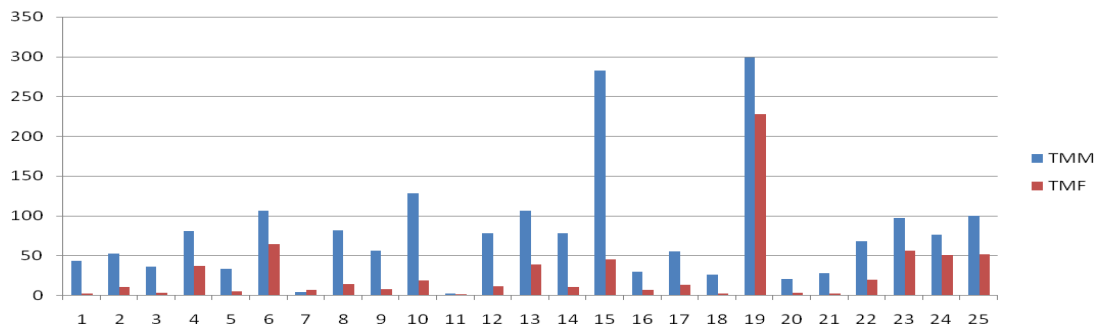
Regular Season

Fig. 5.5: Movement intensity & movement pattern of consumers In various gates of level-04 in various seasons

Level-05



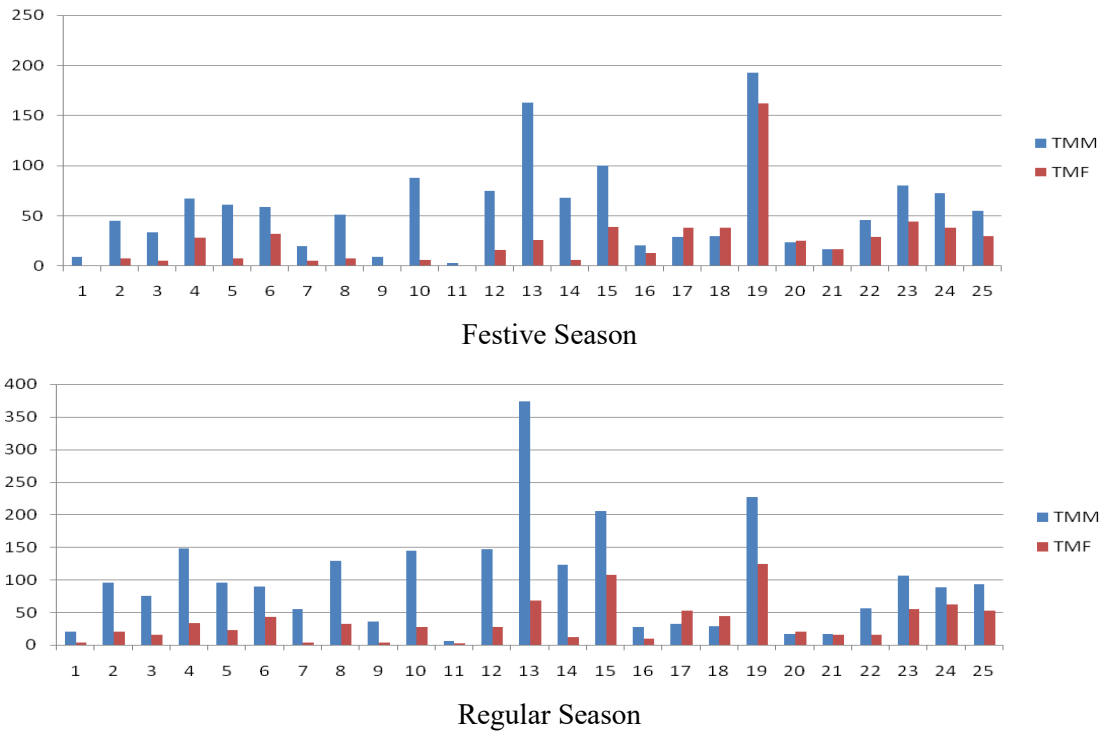
Festive Season



Regular Season

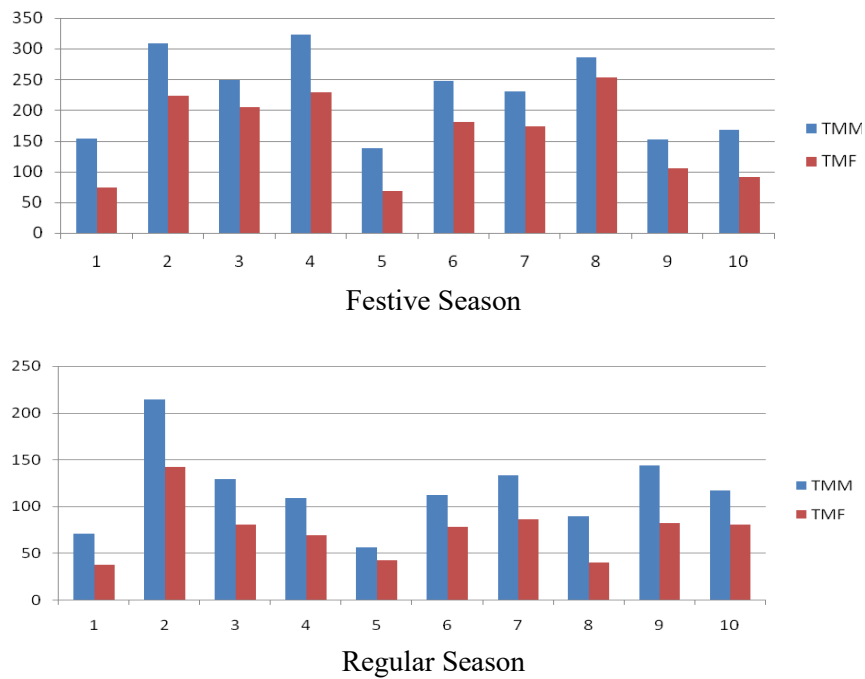
Fig. 5.6: Movement intensity & movement pattern of consumers In various gates of level-05 in various seasons

**Level-06**

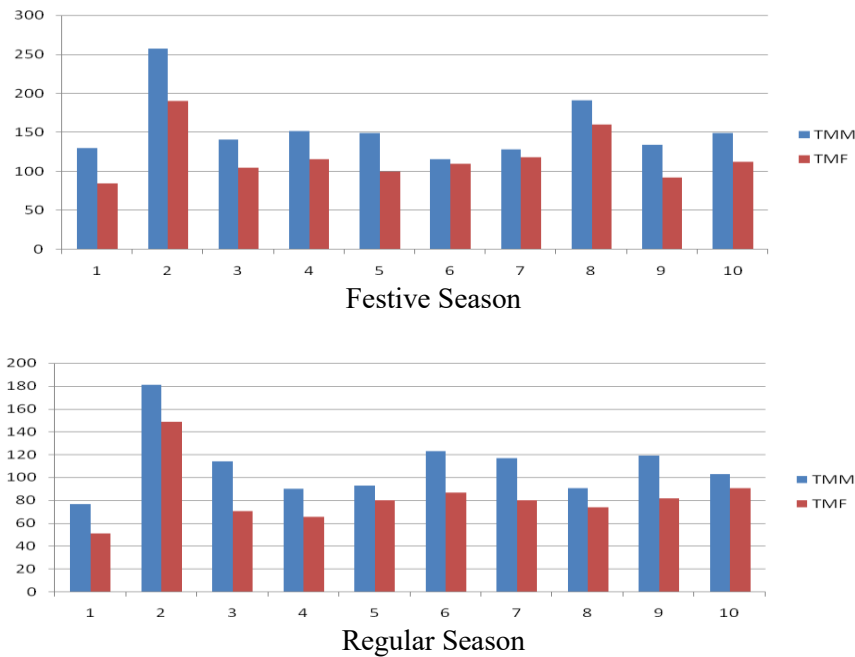


**Fig. 5.7:** Movement intensity & movement pattern of consumers In various gates of level-06 in various seasons

**Level-07**



**Fig. 5.8:** Movement intensity & movement pattern of consumers In various gates of level-07 in various seasons



**Fig. 5.9:** Movement intensity & movement pattern of consumers In various gates of **level-08** in various seasons

Movement behaviour summary of various floors are described as follows:

**LEVEL-1 (Ground Floor)**

As ground floor (level-1) acts as entrance to the mall, it receives the maximum movement, but it is not always for the tenant attraction factors, rather the floor acts as more a platform to channel movement to various floors. Being the main floor of consumers' entrance to the mall, three frontal entrances give extensive character of movement influx into the mall. When comes to internal movement dynamics, consumers' movement intensity is more central to the mall.

The intensity of movement in all gates is higher in comparison to regular season; specially in gate 13 as it's the main central entrance of the mall. But female consumers show an increased trend to be in festive season. While in regular season, the male consumers are more frequent than female. Gate no. 3, 20 experiences least movements in both seasons.

**LEVEL-2**

Level-02 has overall more consumers in festive season than level-01. But maximum movement intensity shifted to the gate no 23 from 13 in this level, as the frequently used central escalator is near to this gate. Interestingly this level shows more movement intensity in majority gates that are located in block C followed by block D. The lowest average intensity is visible in gate 11 (block B) and 16 (block C).

### **LEVEL-3**

Comparing to all typical floor having similar spatial planning of shop layouts (level-02 to level-06), this level shows the extreme movement intensity in all gates in festive season. The regular season in opposite show a drastic fall in consumer movement. Block C and D shows even the gender based intensity as the initial one have more ladies clothing and later one is displayed gents clothing. But in both blocks the male and female consumer movement is simultaneously visible.

### **LEVEL-4**

Having similar shop layouts in comparison to previous level, level-4 shows strikingly low movement intensity in festive season comparing to regular season. This level showcases more of a particular tenant type (Traditional ladies clothing; saree) where consumers in festive season are less visible. The only higher movement intensity is visible in gate 13, 15 of block B (apart from the gates located in circulations area) which are in the area that has a spatial access to magnet tenant from this level.

### **LEVEL-5**

Surprisingly this level shows higher movement intensity in both seasons comparing to level-04. This mostly single tenant (Traditional jewelry) focused level is mixed up with another less dominant generative tenant of Electronics and mobile. The experimental tenant mixing has enabled to enhance movement intensity for both gender groups of consumers. But block A and B, acting as cluster of majority electronics and mobile shops have more movement intensity of male consumers.

### **LEVEL-6**

Despite the evident similarities in spatial planning and configurations with previous floor, level-6 has a different tenant mix of Electronics and mobile with a dominant cluster of shoe stores. The average movement intensity in both seasons is almost similar like previous levels. But gates in block C (16, 17, 18, 20, and 21) show a rise in female consumer movement in this level as this might act as an attraction amidst of electronics having the cluster of shoe stores.

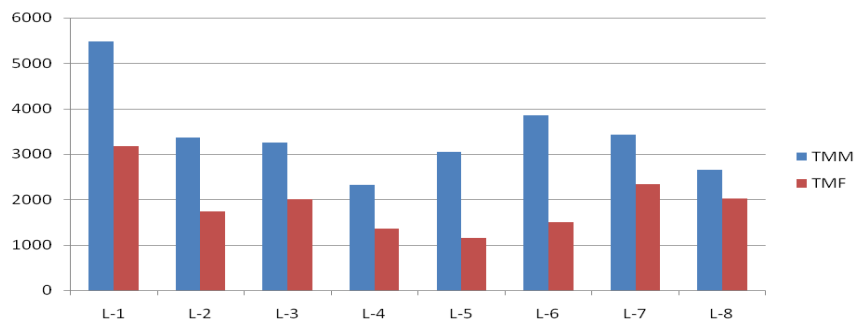
### **LEVEL-7 & 8**

The all anchor tenant grouping floor (level-07) and food and entertainment floor (Level-08) has certainly more movement intensity than all other floors. The configurational variations has allowed selecting 10 gates in both these levels, thus intensity in each gate is higher in comparison to other gates in

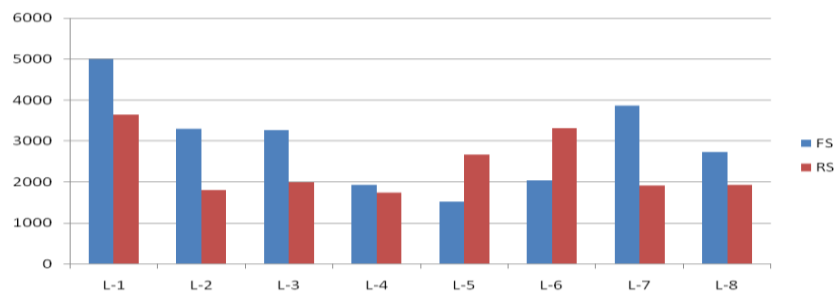


various levels. The overall movement intensity fluctuates in level-07 (higher in festive season and lower in regular season), but level-08 has a more constant visible movement intensity. This is the level that all the year round acts as a major attraction for the various groups of consumer for social interaction and leisurely purpose.

Considering the whole mall as a compact system, the movement intensity graph (Fig.5.10) Total Movement (Male & Female separately) in all levels shows that male consumers are more than female consumers. Another graph (Fig. 5.11) of total movement in various times (Regular & Festival season) in all levels shows that some levels have more movement intensity in regular season rather than festive season (level -05 and 06) where as other levels experience higher movement intensity mostly in festive season.



**Fig.5.10:** Gender Specific Total Movement (Male & Female separately) In all levels considering various season



**Fig.5.11:** Season Specific Total Movement intensity In all levels

Another two comparative graphs of consumers' movement intensity [Fig. 5.12 (a) of total movement (MM+ MF) in Regular season & Fig. 5.12 (b) of total movement of Festive season in level-1 to level-6] show the variations in each gate simultaneously for all six levels.

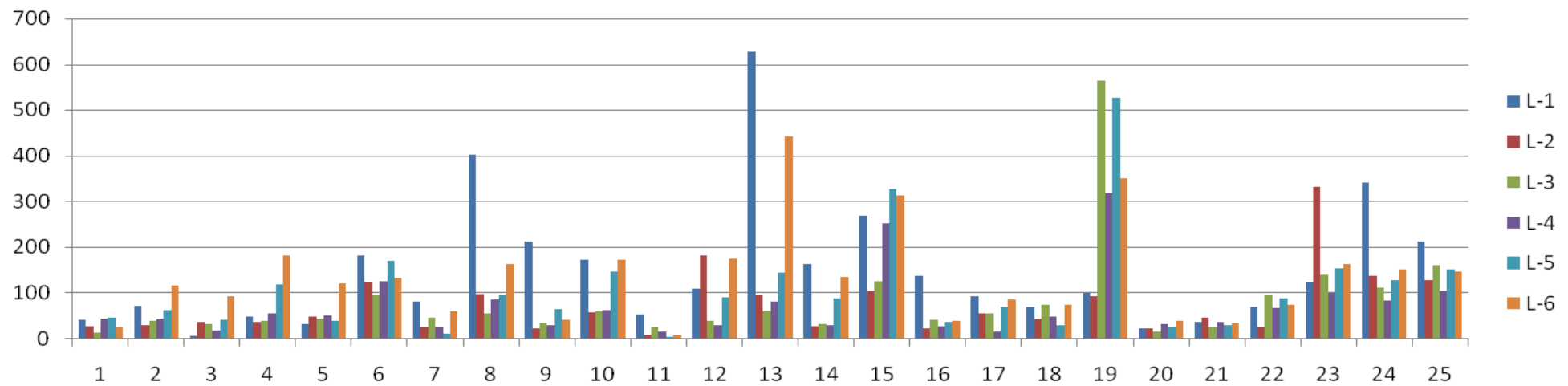


Fig.5.12 (a): Total Movement (MM+ MF) in **Regular season** in all levels

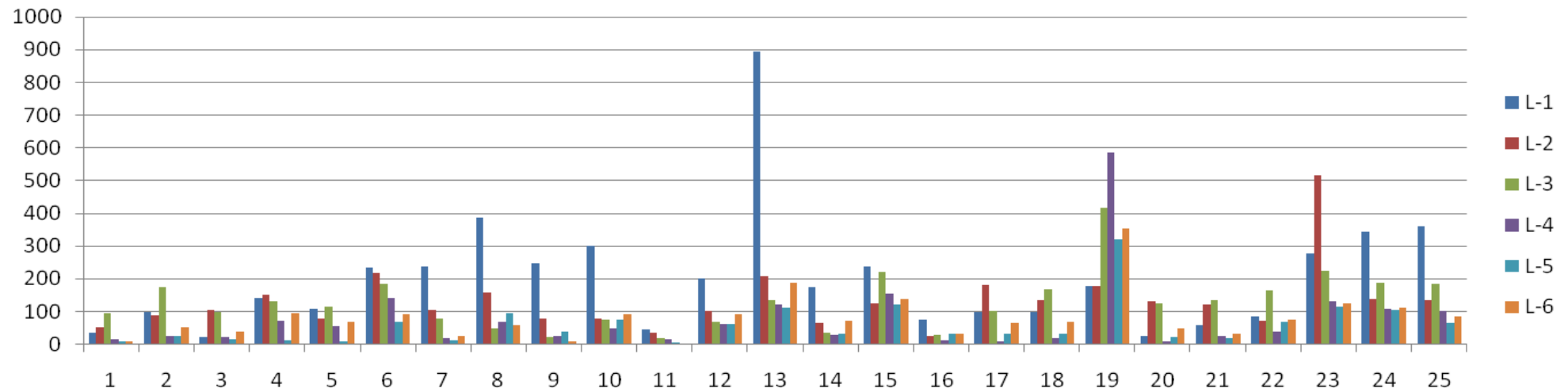
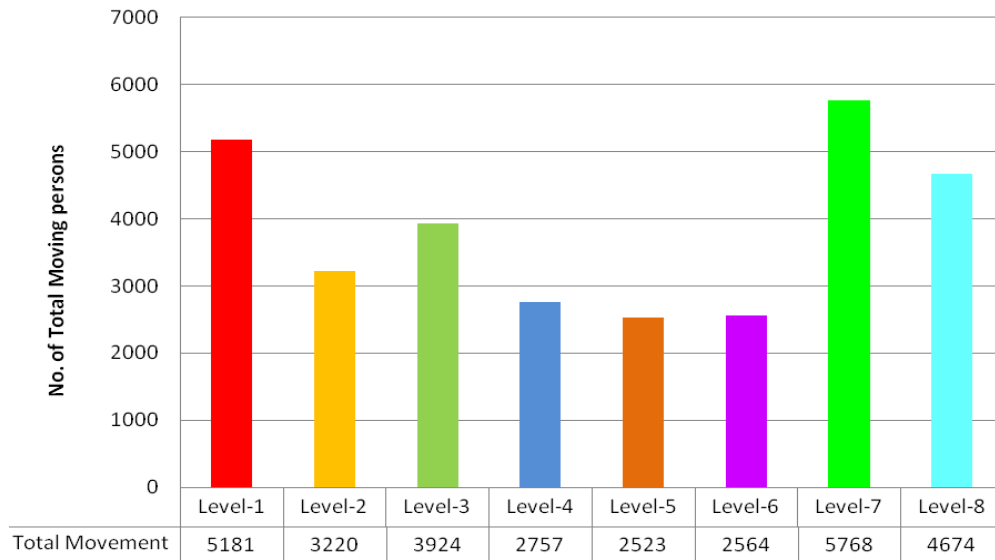


Fig.5.12 (b): Total Movement (MM+ MF) in **Festival season** in all levels

The graph (Fig. 5.13) showing total movement in various levels for the whole survey phase of both season and for all gender group, show that level-07 has the maximum movement followed by level-01 and level-08. Its a drag of consumers to level-1 through placing ample variety of shops (which certainly attracts consumers of all category regardless various demographic parameters) and then to pull them to the extreme top (as it also for a hub for all), thus ensuring in between floors to be planned in a way that offers categorical products for fulfilling various needs of various type of consumers.



**Fig.5.13:** Total Movement intensity in all levels in all seasons

### 5.3. Movement and Spatial Configuration of the Mall

The movement study has been conducted after assessing the configurational attributes of the mall by syntactic analysis that to relate how these impact on movement behavior. The movement counts on selected gates of various floors show some unique observations. Previously collected movement data has been inserted with selected attributes of visibility graph to observe, how the various measures correlate with movement intensity in various locations of mall. This segment of analysis is helpful in understanding whether configuration is influencing movement dynamics or not; and while doing so, the extent of ensuring effective movement in apparently less visited spaces of the shopping mall can be assessed in light of re-arranging tenant mix or rethinking on the configurational climax in those areas.

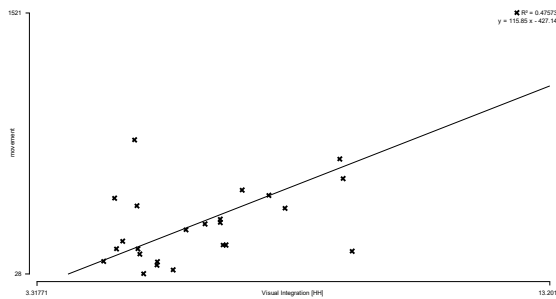
In order to understand movement dynamics in relation to malls configurational properties, the following four (04) scatter gram analysis have been conducted for all levels.

**Table 5.1: Rational of Various Scatter gram Analysis**

Scatter gram Analysis for <b>various levels</b>	
Correlation of Visual Integration and Movement	This will enable to understand the pattern and intensity of consumers movement in accordance to visibility of different spaces of the mall in different floors
Correlation of Visual Mean Depth and Movement	
Correlation of Clustering Co-efficient and Movement	Clustering co-efficient shows significant phenomena for this mall. This correlation will able to analyse whether movement is cluster induced or not.
Correlation of Visual Integration and Visual Connectivity	To observe malls overall configuration in terms of intelligibility of individual floors.

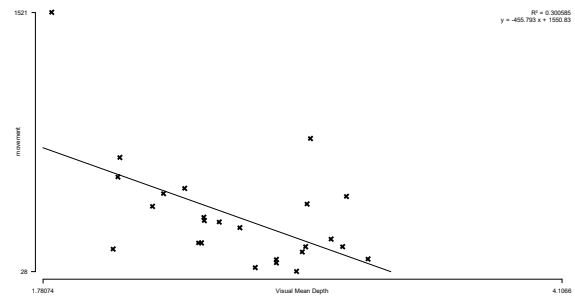
**Level-01 (various syntactic measures)**

**Correlation of Visual Integration and Movement**



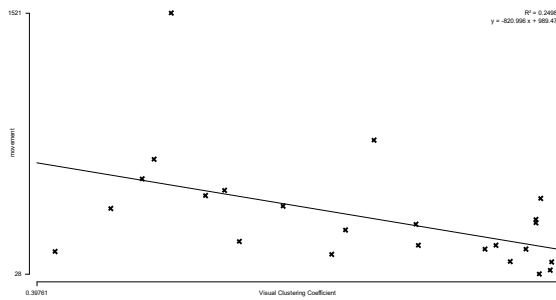
$R^2 = 0.475734$ ,  $R=0.689734$   
 $Y=115.85x- 427.149$

**Correlation of Visual Mean Depth and Movement**



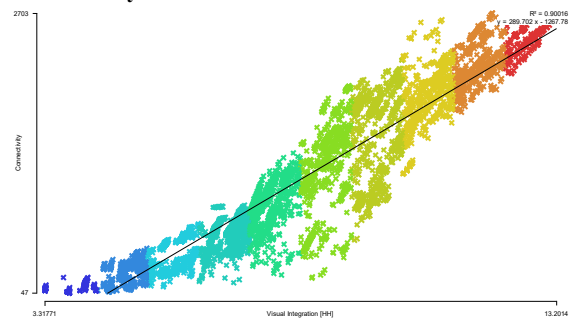
$R^2 = 0.300585$ ,  $R=0.548256$   
 $Y=-455.793x+ 1550.83$

**Correlation of Clustering Co-efficient and Movement**



$R^2 = 0.24983$ ,  $R=0.499829$   
 $Y=-820.996x+ 989.472$

**Correlation of Visual Integration and Visual Connectivity**

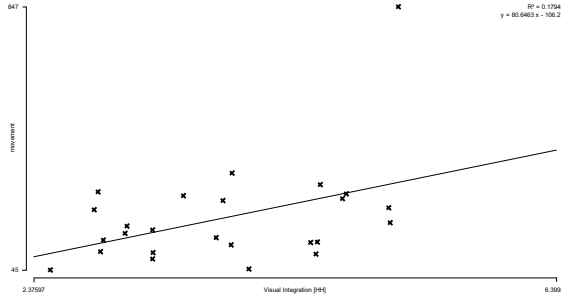


$R^2 = 0.90016$ ,  $R=0.948767$   
 $Y=289.702x- 1267.78$

**Fig. 5.14: Scatter gram analysis for level-01**

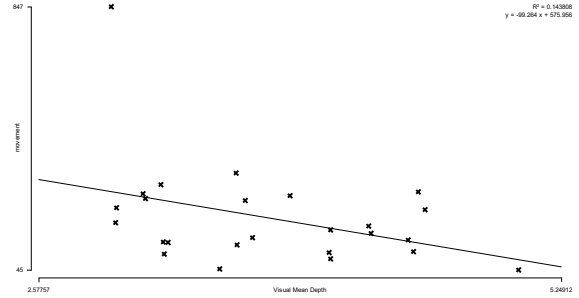
### Level-02

**Correlation of Visual Integration and Movement**



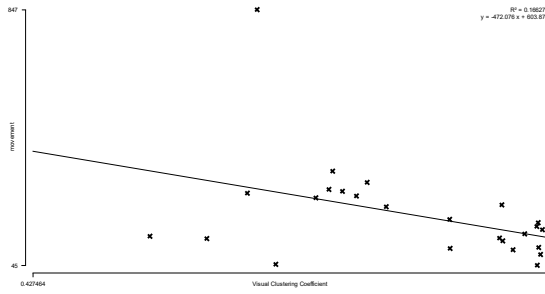
$R^2 = 0.179453$ ,  $R=0.423618$   
 $Y=80.6463x- 106.213$

**Correlation of Visual Mean Depth and Movement**



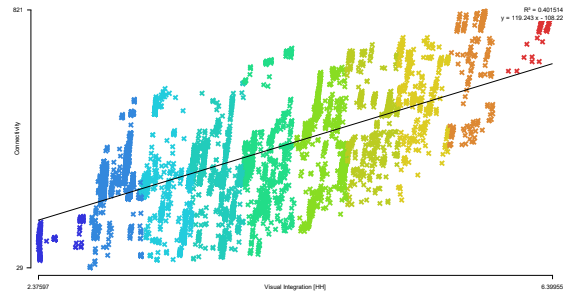
$R^2 = 0.143808$ ,  $R=0.3792202$   
 $Y=-99.264x+ 575.956$

**Correlation of Clustering Co-efficient and Movement**



$R^2 = 0.166279$ ,  $R=0.4077732$   
 $Y=-472.076x+ 603.874$

**Correlation of Visual Integration and Visual Connectivity**

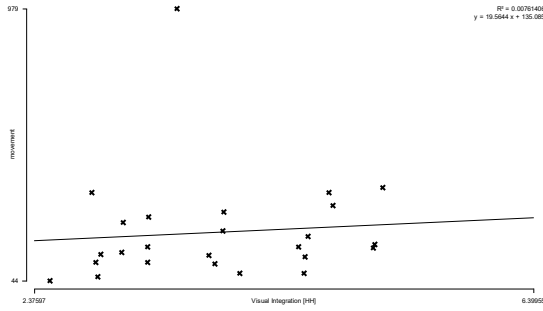


$R^2 = 0.401514$ ,  $R=0.633651$   
 $Y=119.243x- 108.22$

**Fig. 5.15:** Scatter gram analysis for level-02

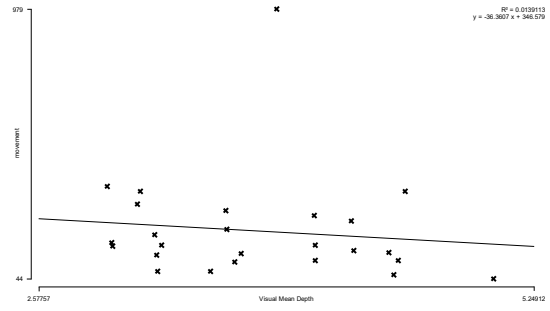
### Level-03

**Correlation of Visual Integration and Movement**



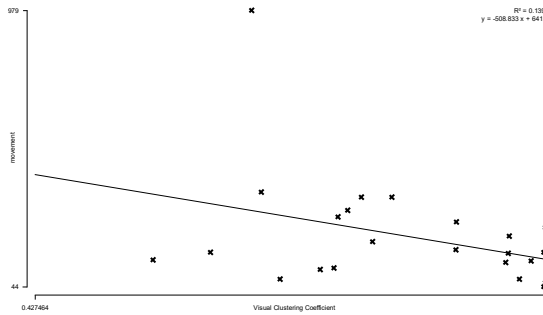
$R^2 = 0.00761406$ ,  $R=0.087258$   
 $Y=19.5644x+ 135.085$

**Correlation of Visual Mean Depth and Movement**



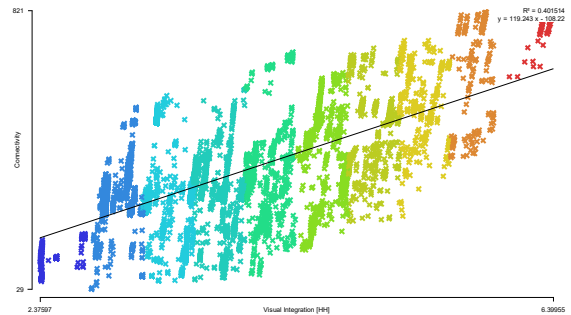
$R^2 = 0.0139113$ ,  $R=0.117946$   
 $Y=-36.3607x+ 346.579$

**Correlation of Clustering Co-efficient and Movement**



$R^2 = 0.139272$ ,  $R=0.373191$   
 $Y=-508.833x+ 641.282$

**Correlation of Visual Integration and Visual Connectivity**

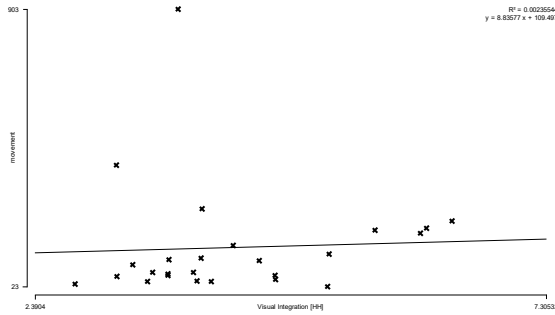


$R^2 = 0.401514$ ,  $R=0.633651$   
 $Y=119.243x- 108.22$

**Fig. 5.16: Scatter gram analysis for level-03**

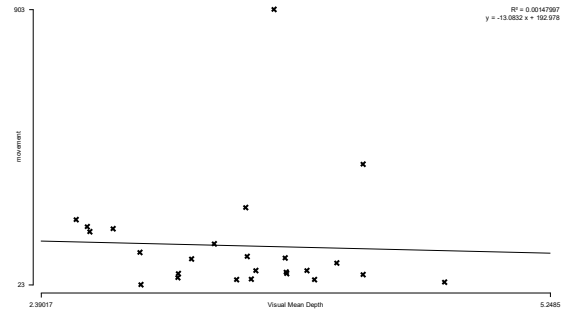
### Level-04

**Correlation of Visual Integration and Movement**



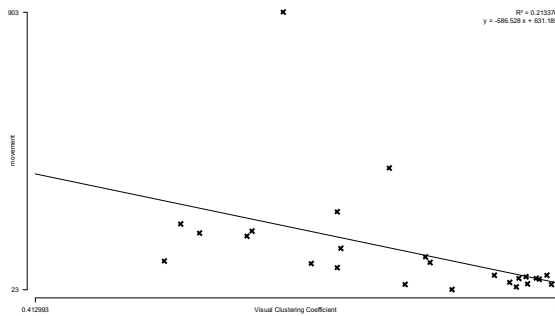
$R^2 = 0.00235544$ ,  **$R=0.0485328$**   
 $Y=8.83577x+ 109.497$

**Correlation of Visual Mean Depth and Movement**



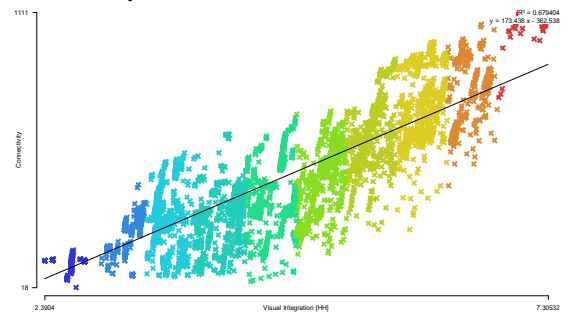
$R^2 = 0.00147997$ ,  **$R=0.0384703$**   
 $Y=-13.0832x+ 192.978$

**Correlation of Clustering Co-efficient and Movement**



$R^2 = 0.213376$ ,  **$R=0.461926$**   
 $Y=-586.528x+ 631.185$

**Correlation of Visual Integration and Visual Connectivity**

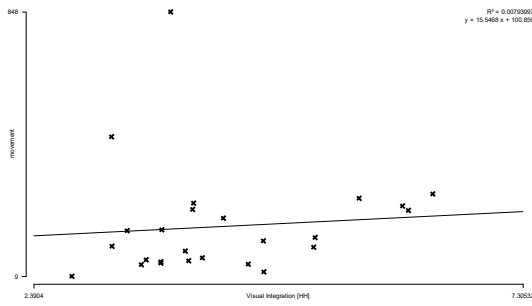


$R^2 = 0.679404$ ,  **$R=0.824259$**   
 $Y=173.438x- 362.538$

**Fig. 5.17: Scatter gram analysis for level-04**

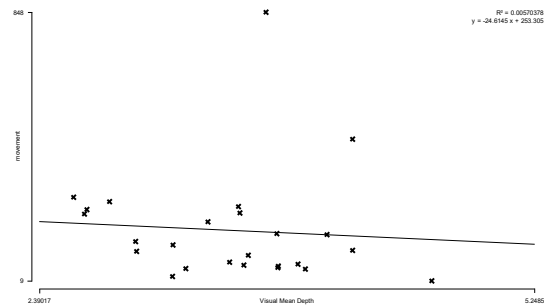
**Level-05**

**Correlation of Visual Integration and Movement**



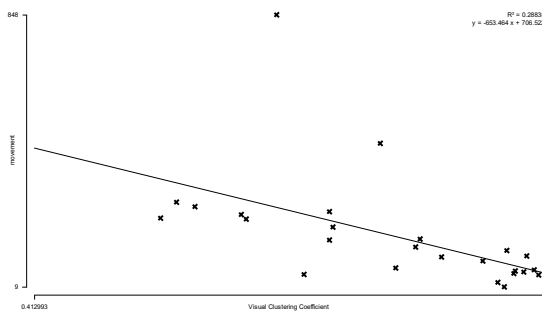
$R^2 = 0.00793997$ , **R=0.0891065**  
 $Y=15.5468x+ 100.859$

**Correlation of Visual Mean Depth and Movement**



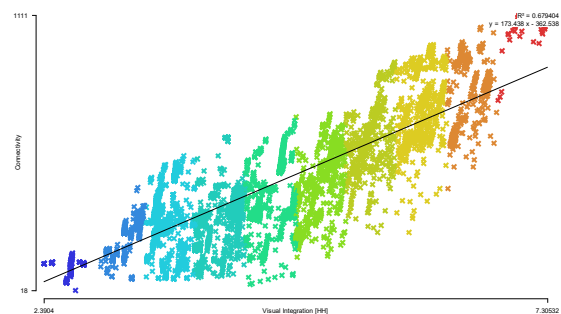
$R^2 = 0.00570378$ , **R=0.0755233**  
 $Y=-24.6145x+ 253.305$

**Correlation of Clustering Co-efficient and Movement**



$R^2 = 0.28838$ , **R=0.53701**  
 $Y=-653.464x+ 706.522$

**Correlation of Visual Integration and Visual Connectivity**



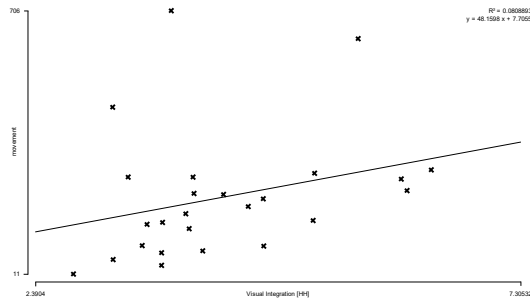
$R^2 = 0.679404$ , **R=0.824259**  
 $Y=173.438x- 362.538$

**Fig. 5.18:** Scatter gram analysis for level-05



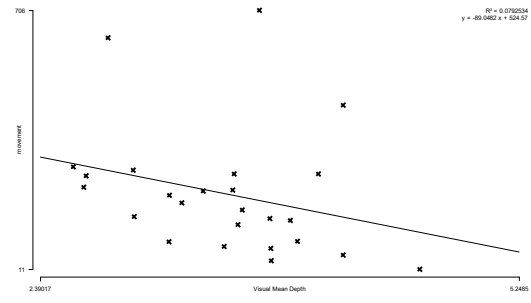
### Level-06

**Correlation of Visual Integration and Movement**



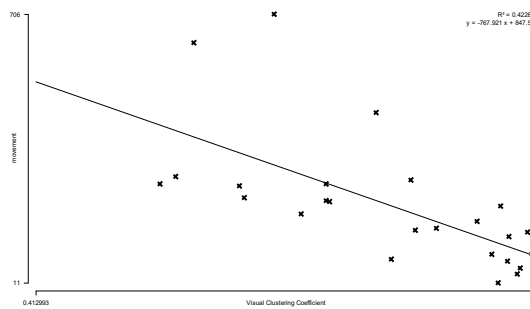
$R^2 = 0.0808893$ ,  **$R=0.2844104$**   
 $Y=48.1598x+ 7.7055$

**Correlation of Visual Mean Depth and Movement**



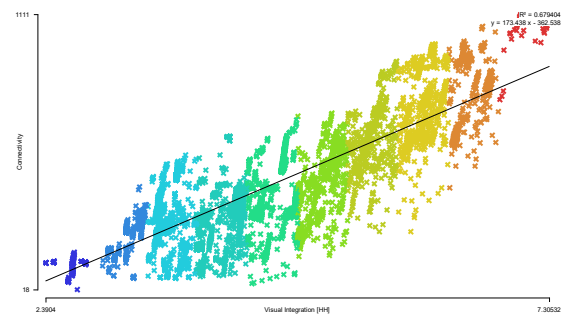
$R^2 = 0.0792534$ ,  **$R=0.2815198$**   
 $Y=-89.0482x+ 524.57$

**Correlation of Clustering Co-efficient and Movement**



$R^2 = 0.422805$ ,  **$R=0.650234$**   
 $Y=-767.921x+ 847.536$

**Correlation of Visual Integration and Visual Connectivity**

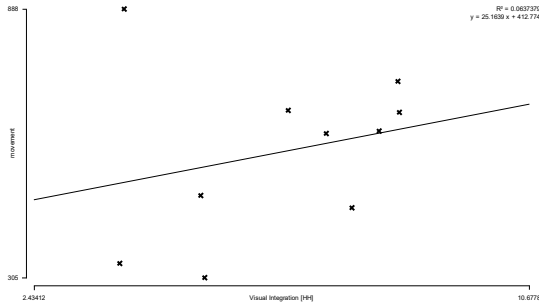


$R^2 = 0.679404$ ,  **$R=0.824259$**   
 $Y=173.438x- 362.538$

**Fig. 5.19:** Scatter gram analysis for level-06

### Level-07

**Correlation of Visual Integration and Movement**



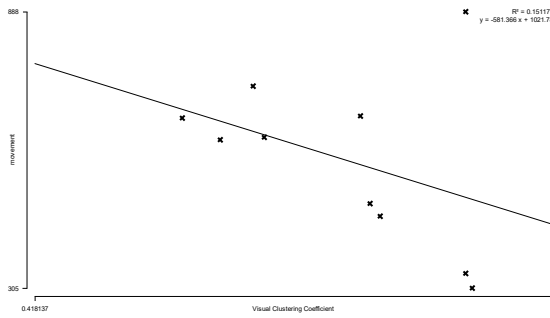
$R^2 = 0.0637379$ ,  $R=0.2524636$   
 $Y=25.1639x + 412.774$

**Correlation of Visual Mean Depth and Movement**



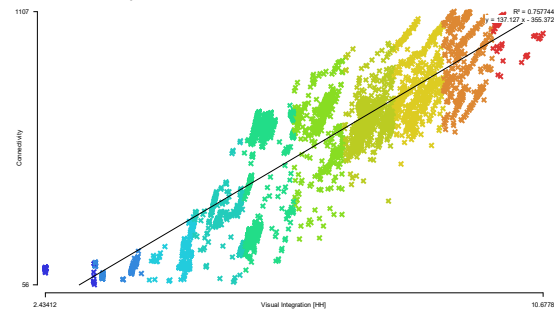
$R^2 = 0.0310089$ ,  $R=0.1760934$   
 $Y=-63.2446x + 737.871$

**Correlation of Clustering Co-efficient and Movement**



$R^2 = 0.151177$ ,  $R=0.3888148$   
 $Y=-581.366x + 1021.78$

**Correlation of Visual Integration and Visual Connectivity**

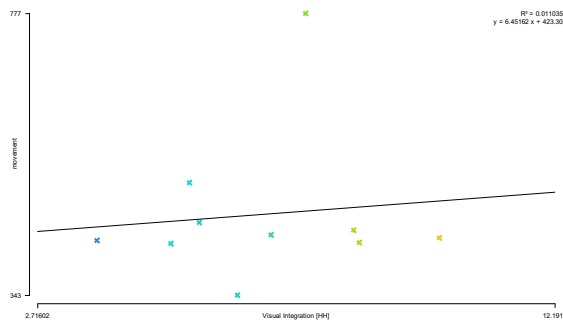


$R^2 = 0.757744$ ,  $R=0.8704849$   
 $Y=137.127x - 355.372$

**Fig. 5.20:** Scatter gram analysis for level-07

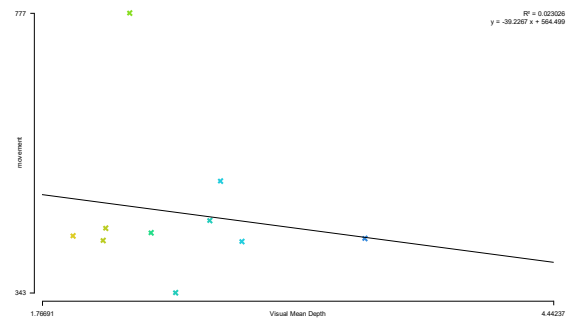
### Level-08

**Correlation of Visual Integration and Movement**



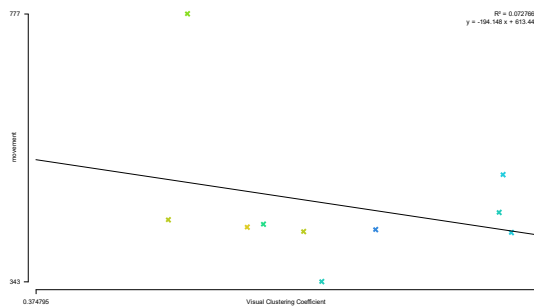
$R^2 = 0.0110355$ ,  **$R=0.105049$**   
 $Y=6.45162x+ 423.302$

**Correlation of Visual Mean Depth and Movement**



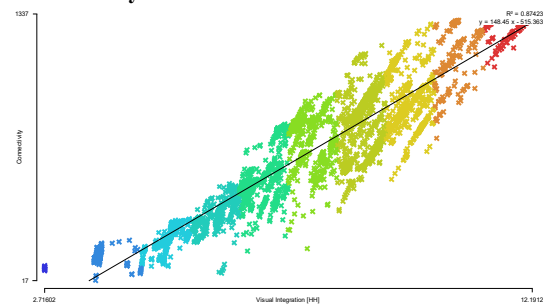
$R^2 = 0.023026$ ,  **$R=0.1517432$**   
 $Y=-39.2267x+ 564.499$

**Correlation of Clustering Co-efficient and Movement**



$R^2 = 0.0727667$ ,  **$R=0.269753$**   
 $Y=-194.148x+ 613.447$

**Correlation of Visual Integration and Visual Connectivity**



$R^2 = 0.87423$ ,  **$R=0.935002$**   
 $Y=148.145x- 515.363$

**Fig. 5.21: Scatter gram analysis for level-08**

Among the four categories of scatter plot, three (visual integration, visual mean depth and clustering co-efficient) are the correlation with movement in different levels and one is the correlation that explains the respective floors ‘Intelligibility’ (Correlation between visual integration and connectivity). The findings from scatter plot have been simplified in Table 5.2.

As some levels have similar spatial configuration, the intelligibility remains similar for them. Level -2 and 3 has the intelligibility of 0.633651 (as these two floors has similar configuration) and for level- 3, 4 and 5, that is 0.824259. Level-1 has the highest intelligibility (0.948767) followed by level-08 (0.935002) and level-7 (0.870484). But correlation of various measures with movement shows variations despite similar or very little variations in configuration in some floors. Both for the correlation of Visual Integration and Movement (VI<sup>^</sup>MV) and Visual Mean depth and Movement (VMD<sup>^</sup>MV), Level-01 has the highest values (0.689734 for VI<sup>^</sup>mv and 0.548256 for VMD<sup>^</sup>MV) amongst the all while level-04 has the lowest (0.048532).

**Table 5.2:** Comparative study of various scatter gram analysis for various levels

Level	Correlation of Visual Integration and Movement	Correlation of Visual Mean Depth and Movement	Correlation of Clustering Co-efficient and Movement	Correlation of Visual Integration and Visual Connectivity (Intelligibility)
Level-01	0.689734	0.548256	0.499829	0.948767
Level-02	0.423618	0.3792202	0.4077732	0.633651
Level-03	0.087258	0.117946	0.373191	0.633651
Level-04	0.0485328	0.0384703	0.461926	0.824259
Level-05	0.0891065	0.0755233	0.53701	0.824259
Level-06	0.2844104	0.2815198	0.650234	0.824259
Level-07	0.2524636	0.1760934	0.3888148	0.8704849
Level-08	0.105049	0.1517432	0.269753	0.935002

For all the levels  $VI^{\wedge}MV$  holds positive (uphill) relationship and  $VMD^{\wedge}MV$  holds negative (downhill) relationship. But the linear regression of clustering co-efficient and movement ( $CC^{\wedge}MV$ ) shows its highest value in level-6 (0.6502534) followed by level-5 (0.53701) and level-1 (0.499829). Despite having similar configuration, as therefore same value in intelligibility for level-4, 5 and 6, movement variations keeps the linear regression value different. Same issue is applicable for level-2 and 3.

The comparative line graph (Fig. 5.22) shows that regression of Clustering coefficient and movement is a significant measure in this case as it shows the different value trends in multiple levels where other two linear regression measures have a similar line trend. Thus movement dispersion variations in different floor with similar configuration, certainly indicates the significance of other potential stimuli of 'attraction' (in this case 'tenant mix' as a general concept). Tenant mix is acting as a dragging factor for more movements even though having similar configurations for some floors. As variation in configuration in different floor is merely a significant one, the changes of movement behavior and intensity is an outcome of present tenant mix of this mall.

But the movement bar chart having the comparative gate point movement intensity, identifies few constant segments of the mall that are experiencing less consumer even if the tenant mix varied in those areas (corridors A.1 & B.1 in block A and B). The configuration of those segments apparently seem look alike the other parts of the mall, but their way of spatial knitting with the whole configuration of the mall has an evident slip of visual disconnections from the main circulation spine. This configurational conflict of certain segments of the mall has made these areas less visited by the consumers for shopping purpose.

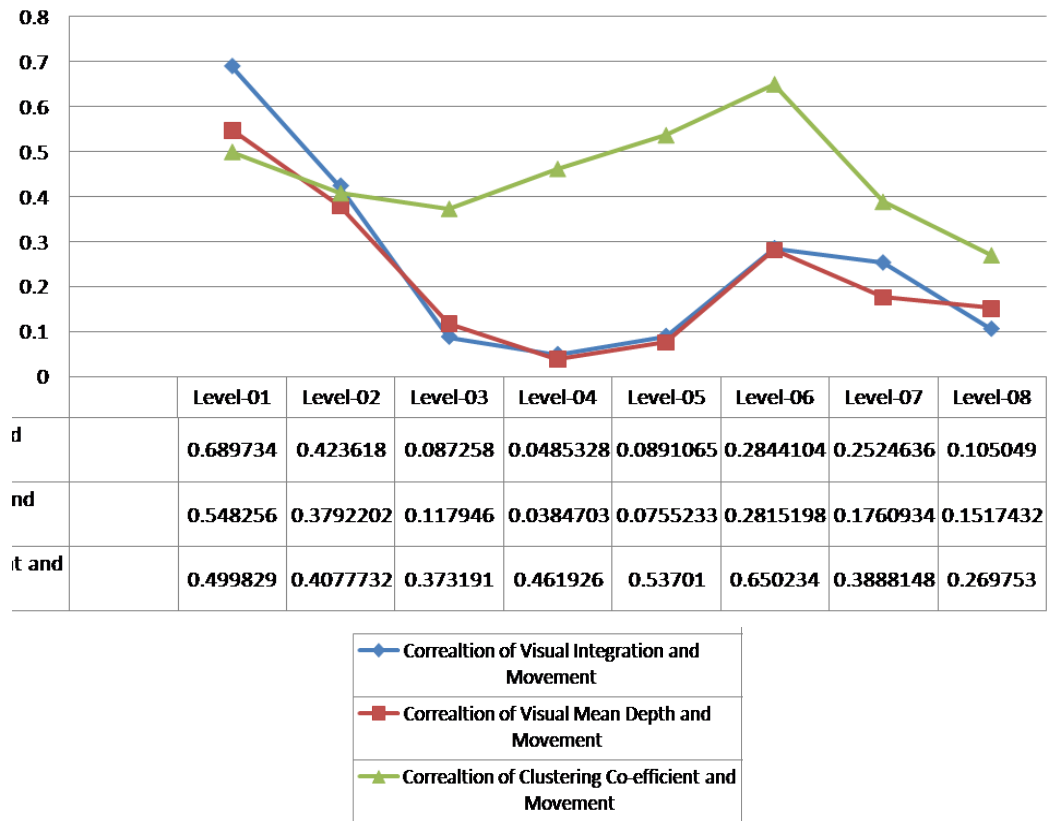


Fig. 5.22: Comparative Line graph Analysis for various Scatter gram values of different levels

This has again reminded that triangulation relationship of movement, configuration and attraction should certainly need to be a well-thought issue for successful shopping mall planning. People inherently make responses to the spatial configuration of a given built environment through generating various movement pattern and intensity. Attraction can have the multiplier effect to take advantage from the configuration but it cannot generate enough movement in certain locations that is spatially less connected or poorly linked to the overall system. Attraction can merely act as a dragging influence if the spatial configuration is not well established.

Again to have a deeper understanding the questionnaire survey conducted to find the movement rationale of consumers and to find how they relate with mall configuration and tenant mix. The questionnaire survey help to better understand the movement dynamics of consumer (what aspects intend to initiate their attraction for movement and why they prefer various locations over others). While preferring shop locations, it came out that for most consumers, location is not that significant and they found shop identification in this mall is easy. Again for most of them opt for brand shops when consider time saving shopping (68%), it seems tenant mix can play a great role in making less accessible space spatially more effective. It also came under the umbrella of thoughts that, spatially/visually less integrated spaces might overcome their spatial difficulties of reaching consumers through intelligent planning of tenants in that zone.

As brand dominates over size of shops, no matter whether it's big or small, if it contains brand products/values, it might overcome the accessibility issues in various spaces of the mall. Another findings of consumers purchase type, showed the result of consumers inclinations towards clothing and garments; so the brand shops containing such products will be more effective.

#### 5.4. Synopsis of Findings:

As movement is a collateral factor of both spatial configuration and attraction (in this case tenant mix), the findings have summarized after **firstly**, assessing significance of major spatial aspects of configuration over movement for the selected shopping mall and **secondly**, through the lens of present tenant mixes' spatial location and users perception on them, the understanding of movement variations is vivified.

Through the observed movement data and its relationship with various measures of visibility graph has provided some interesting findings from this perspective of the study. The summary has been sorted to reveal how consumers' movement pattern and density (both gender specific and in general) in the mall is influenced by the present tenant mix scenario (both floor wise as independent horizontal system and as a collective vertical system). The synopses of findings are described below:

01. Movement intensity in certain floors of the mall and certain places of each floors are higher than others. The general observation has revealed, **gates located in more visually integrated spaces have more movement count** than the lesser integrated ones. But the factors of spatial configuration in relation to visual connectivity are more elaborately analysed to coin up the findings for this chapter.
02. While revealing **general scenario of movement dynamics**, in various **primary and secondary circulation corridors** of individual levels, it came up with the notion that the northern segment of north-south aligned primary corridor contains extreme movement. Hence, the prevailing configurational character of this mall showing two significant clusters (C & D) with a clearer visual connections with the main central circulation corridor, aligning with north-south axis have comparatively high movement intensity of the consumers. The flanking secondary corridors in those two blocks are privileged with more visual connections as they enjoys a perpendicular alignment whereas, the secondary corridors of block A and B are parallel to the other central primary circulation aligned in east-west directions. The movement intensity thus varies accordingly (from the analysis of bar charts of movement intensity in various gates of the mall) as visually integrated spaces generate more movement.

03. Regarding spatial configuration and movement, **spatial location and spatial significance of vertical circulation spine** enhance movement in multilevel shopping malls. Therefore tenants along these areas take a good advantage of seamless flow of the consumers. But in this case the vertical circulation spine available in major visual integration field, enable dragging majority movement. Rest of the other vertical circulation spot that are provided for spatial and functional evenness for smooth access to the consumers in all levels, mostly fails to generate enough movement. Failure of visual cognition in identifying these spots is resulted in such phenomena around those spaces. And this eventually affects the tenants placed around these locations. Therefore spatial configuration which is predominately linked with vertical circulation spots, apart from circulation corridors in multilevel shopping malls, is not satisfactorily establishing its relation with movement intensity.

04. As for **gender specific movement intensity** in various levels, it is certain that the prevailing tenant mix on those levels (generative tenants based on more consumers' gender; mostly clothing) acts as an attractor for specific target group. Still spatial configuration plays a key role in various spaces of those levels, even if having similar tenant types, for generating intense movement. And the above described issues of evidently less movement in block A and B remain.

But while observing male or female consumer movement intensity separately as the tenant mix is strongly separated in some levels, there remains a very little difference; rather it seemed an amalgamation of equal gender participation for shopping instead of product specific jurisdiction of certain areas.

Still the specific level of jewellery and electronics (generative tenants irrespective of gender as products are of more related to expense, authenticity and diversity) has much intense movement of female and male consumers respectively.

05. Regarding **season specific movement dynamics (festive season and regular season)**, study shows a certain increase in movement flow even if in some visually less signified areas. Although tenant mix is diversified in this mall, but movement rush is evident in RMG related generative tenants and shared tenants in accordance with those. As festivity in our socio-cultural contexts is more associated with certain range of products, the intensity of consumers thus vary in those levels having the products more.

Even still more visually integrated spaces experience more movement. Having similar tenant mix, Movement intensity increase in festival season even if in less integrated spaces of the mall as overall number of shoppers increases.

06. As for **Level wise overall movement intensity** of consumer, apart from the spatial configuration of individual levels of the mall, findings reveal that ground floor (level-1) receives maximum movement (16.92 %) as it is the entrance to the mall and acts as more of a platform to channel movement to various floors, rather than for the tenant attraction factors.

It certainly shows clear findings that **food and entertainment tenants act as attraction** for this mall. Movement intensity in level-8 (15.26%) and supporting questionnaire study depicts consumers' preference for this level, thus makes the mall functionally efficient when comes ensuring movement in multilevel shopping mall.

Again less spatial complications and **consumers' preference for branded shops** (acts as magnet) has made level-7 (1.84 %) the most visited floors. Though its agglomeration of multiple anchor tenants is also not relatable with theory of individual floor's tenant planning.

07. However, **movement intensity in terms of attraction** in various spaces of individual levels, certainly not attaining results as locations of magnets is in spatially less visible area. The clustered blocks of generative tenants in multiple levels rather acts as attractor, than a single branded shop in individual floor.

Movement is not induced or reduced due the magnet stores (as the concept of magnet store is not accurately implemented here). It is (movement) is more associated with contextual consumer psychology (from questionnaire survey). Movement intensity is higher in block C mostly in all typical floors (except level-01) associated circulation areas.

08. Service facilities or service tenant enhanced movement is not rigorously visible.
09. The shopping culture involves a great deal of comparison of products and craving for bargain, hence elongates staying in mall with more movement. But to grab shopper in all place, the clustering plays an important role.



## CHAPTER: 06

### **ANALYSIS AND DISCUSSION**

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#### **6.1. Introduction**

In aiming to get an overall view of how modern days multi-level shopping malls are working on the challenge of their vast level internal space planning in terms of tenant mix to ensure potential consumer movement inside them, this chapter ‘Analysis and Discussion’ will proceed discussing and summing up the elaborate findings of preceding two chapters (Ch: 04 & Ch: 05). The outlined objectives of the research through the given research questions, are empirically investigated and analyzed followed by Visibility Graph Analysis under a structured methodology.

When assessing tenant mix in terms of shop size, clustering pattern, their locational and spatial significance (objective: 01), the study has been conducted by describing firstly, the primary organizational aspects of tenants (what are the evident shop typologies in each floor, how they are clustering in terms of types and sizes) , secondly, the overall shop organizations has been discussed in light of their locational and spatial significance both as a single system of individual floor and as an complete system of vertical mall through Visibility Graph Analysis(VGA). Later the empirical study of movement intensity and pattern in accordance with the tenant mix and malls’ spatial configuration (objective: 02), has enabled to attain the overall research objectives.

#### **6.2. Heterogeneity of Tenant Mix & its Spatial Order: A Vantage Point for Movement Attraction in ‘Multilevel Planned Shopping Mall’**

From the extensive first hand survey and observation on present scenario of Tenant Mix (stated in chapter 04) in the study area of Bashundhara City shopping mall, few distinct traits have been explored by analytical assessments. Tenant selection and their distribution patterns display some well-grounded characters for ensuring effective consumers movement; firstly, Prioritization of vertical tenant planning approached as ‘mix’ to pull movement in upper levels by letting each floor occupy two or more generative tenant clusters (except levele-01, 07 and 08) and secondly, tenant assemble has opted for a ‘match’ method in individual level for lateral dispersion of movements by concentrating on clustering of mostly generative tenants.

Although the present scenario of tenant mix, their typology, floor wise distribution and clustering invites a significant number of consumers into this mall according to the findings of empirical survey (from movement study in chapter 05), their movement

intensity and dispersion patterns are not always responsive to tenant selection when comes to the spatially challenged locations of mall. Therefore some places are experiencing heavy movement while significant locations are deprived to experience the same. Configurational complexities are not effectively addressed by present tenant mix to overcome the issue of satisfactory movement generation in certain areas.

The selected case of Shopping Mall and its planning organization is much influenced by westernize approach of a single entity, standalone form where spatial aspects of tenant planning are not aligned with respective westernized theory of shopping mall. These are more of taking the concept of the built form from one context to fit in to a whole other different consumer culture. The paradox of ‘Globally Local’ or ‘*Glocal*’ seemed only a forceful idea while considering the rhetoric of ‘Tenant mix’ for such planned, multilevel shopping mall for the consumers of a varied socio-cultural setting of developing country. Though Consumerism and its globalization are penetrating everywhere regardless country, yet it is becoming context specific due to manifoldness in socio-economic and geo-cultural strata of consumers.

Therefore in this specific study, ‘Tenant Mix’ is observed amidst the dilemma of trying to get befitted as a spatially ‘planned’ notion within a globally emerged form of shopping mall for the consumers who are more responsive to ‘spontaneous’ retail environment. The comprehensive study of assessing the impact of tenant mix in consumers’ movement behavior for this representative case of multilevel shopping mall in Dhaka came up with some strategic findings. These case specific approaches of Tenant mix strategy for this particular shopping mall in confronting the challenge of movement drag and movement channeling within its various levels is summarized below.

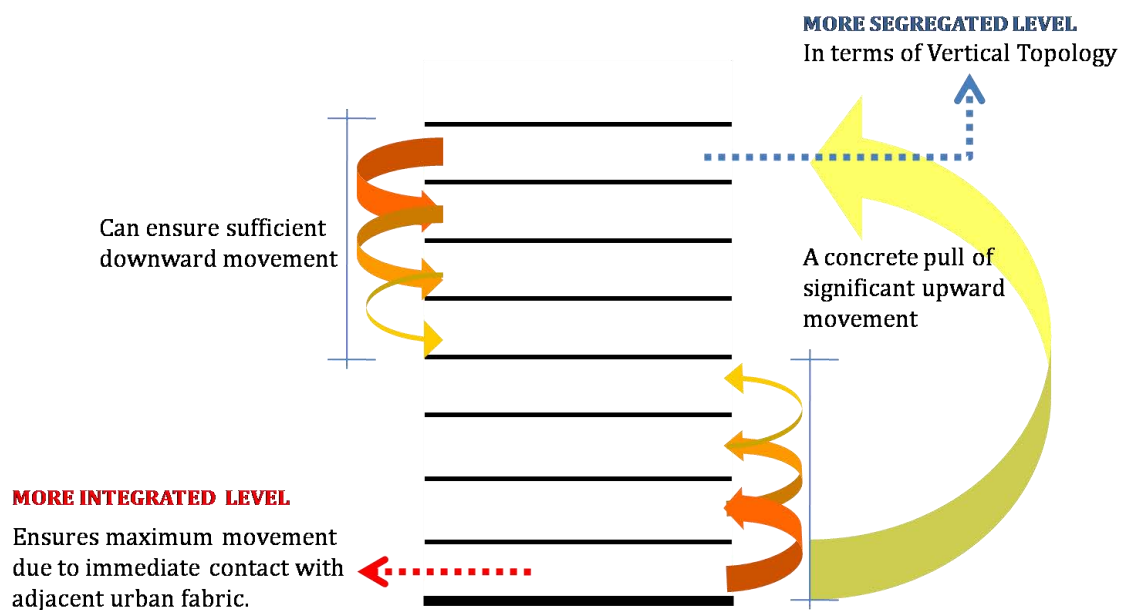
### **6.2.1. Apprehending ‘Vertical Tenant Placement Strategy’**

The present tenant mix of the mall, if analyzed as vertical zoning, is working effectively as total movement count in various levels have little less differentiations. The prioritization of ‘**Vertical Tenant planning**’ to ensure upward movement flow of consumers in various levels has adopted as a strategy for sustainable Multi level Mega shopping mall. The general tenant placement strategy for vertical zoning has come with a ‘Mix’ method where different floors are equipped with mostly different category of tenants. To create a complete conscience and cognitions about the category of tenants in various levels, mix method enables consumers to define every level clearly in accordance with its general tenant typology.

BCSM with its 8 levels, act as a compact mall where the contemporary ideas of various tenant types (generative, suscipient and Shared) exist more eminently in vertical zoning. If considered the spatial configuration of the mall in terms of its verticality, the

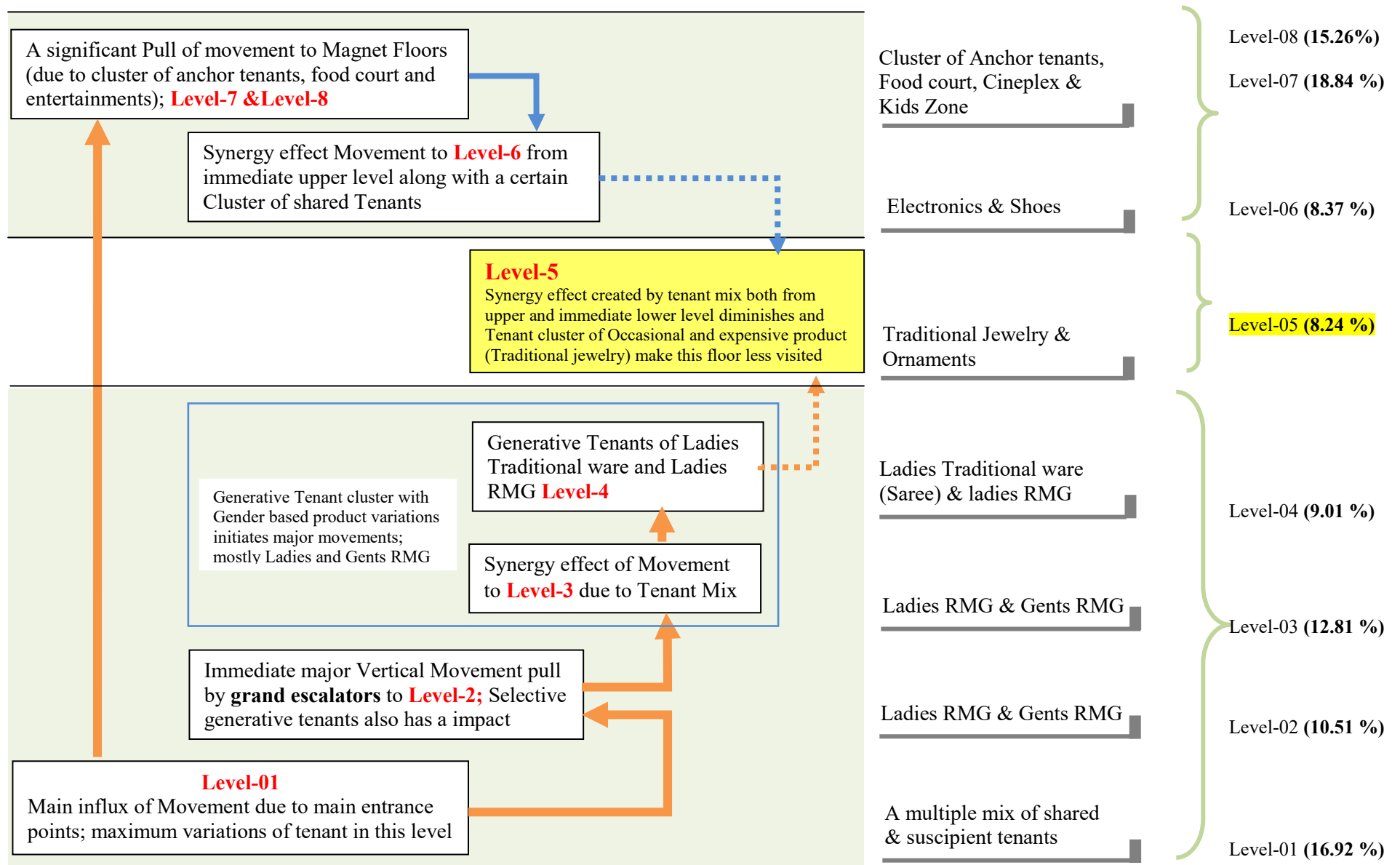
apparent visual understanding makes level-1 more integrated and level-8 the less integrated. The topological aspects of extreme high floor levels as thus considered for magnet stores as a whole.

Level-7 & 8, with two different tenant categories, acts as main attractor with clusters of primary anchor tenants. Being the most integrated floor, in terms of immediate closeness to external urban fabric and ease of reaching out, Level-01 has taken the advantages of flourishing susceptible business (as the variety of shops are immense in this floor) The conventional theory of preferring less integrated spaces for generative business (in this case, Level-2, 3, 4, 5 & 6 as observed in chapter four) in between floors of the mall have been flavoured with various dominating tenant types. This strategic consideration for vertical tenant mix has certainly created impact on upward movement pull of consumers (Fig.6.1).



**Fig.6.1:** Schematic diagram showing **significance of Tenant Mix** for generating **strategic vertical movement** in Multi-level Shopping Mall

The higher frequency of visits to a shopping mall often reasoned for diversity of store types among the centres with a combination of large supermarkets, national chain department stores, and discount drug stores. This is now has become a rule rather than exception (Howell and Rogers, 1981). Even a mall anchored by only a supermarket, will show a higher average frequency of visit than will a center without a supermarket, with this difference quite independent of overall preference or image. Similarly, the relationship between distance and patronage is likely to be larger for a center with a large area devoted to convenience goods and frequently purchased merchandise. The vertical tenant strategy to enhance movement is Bashundhara City Shopping Mall is described in Fig. 6.2.



**Fig.6.2:** Vertical Tenant Planning and Its Synergy effect on Movement Pattern and Intensity (showing in %)

### 6.2.2. Evaluating ‘Floor Specific Tenant planning’

The floor specific tenant planning is more compliant with contextual consumers’ buying behaviour and shopping culture of comparative shopping. Tenant clustering in individual floors are less of a mix, more of a match except level-1 and level-7. From level-2 to level-6, the generative tenants of particular type (like ladies and gents’ RMG, traditional jewellery and women ware, shoes, electronics, home appliances and household products) created significant clusters in different blocks (A, B, C and D) of respective floors. This cluster based spatial agglomeration of tenants encourages consumers for comparative shopping assessing product variations; therefore stretching movements (Table 6.1).

**Table 6.1:** Primary & Secondary Tenant Clusters in Various Levels

Levels	Primary Tenant Clusters	Secondary Tenant Clusters
Level: 01	01.RMG (Children) 02. Electronics, Mobile & Accessories	01. Jewelry, cosmetics and Ornaments
Level: 02	01.RMG (Gents)	01. RMG (Ladies) 02. Sports accessories, Bags and shoes
Level: 03	01.RMG (Ladies)	01.Cosmetics , Beauty product and Ornaments
Level: 04	01.Traditional Women ware (Saree) 02. RMG (Ladies)	
Level: 05	01.Traditional Jewelry and ornaments 02.Electronics, Mobile & Accessories	01. Optic shops
Level: 06	01.Electronics Shops	01. Shoe store
Level: 07	01.Anchor Tenants of various category (clothing, shoes and life style store )	
Level: 08	01. Food Court 02. Cineplex 03. Kids game zone	

But present tenant planning for individual level (findings) shows that such generative tenant cluster is usually occupy single block, sometimes more than one with similar type of tenants. Such tenants mostly evident in block C & D, for configurational advantages, are giving distinct character of the floor’s overall tenant identity whereas block A and B, even if planned with same principal, fails to generate sufficient movements.

This tenant cluster, even if working as a major attraction for consumer movement, spaces within those clusters which are visually less segregated fail to generate movement. Hence movement count abruptly fall down in those places. Configurational disadvantages are not properly addressed by tenant placement strategy in those areas. Therefore each floor as a single entity (except level-7 & 8) has their own unutilized and less privileged tenants. Tenant placement strategy; number, size and location of shops within that specific tenant category should be arranged in such a way so that movement generated by particular tenant can benefit the other. In this way competition between similar tenants doesn’t negatively affect on movement flow.

Generative tenants, aligned with necessary shared tenants, enhance more movement in less integrated spaces, whereas such amalgamation are less evident in individual blocks, rather dispersed in different blocks creating a separate cluster of shared business in this shopping mall. As the mall is not allowed to evolve organically, strategy of harmonizing such tenant typology with each other remains unaddressed. Suscipient tenants in almost every floor are more planned with regulated product variations. The space occupancy of such tenants might seem accurate, but their regimented guidance in overall mall is not aligned with the notion of their synchronization pattern in accordance with consumers' need.

It is easier to attract users by group of shops or large tenant cluster as the cultural trait of consumers in such developing country prefers/shows comparative and competitive shopping behaviour (Hossain, 2000). Though newly adopted rule for exempting bargaining, recently the mall has initiated the fixed price policy for all shops, still consumers find the similar tenant clusters as a hub for comparisons. This clustering also helps in visual cognition of identifying specific tenant location in a huge shopping mall like this.

### **6.2.3. Re-imagining the concept of 'Anchor Tenant'**

Theoretical notion of „Anchor Tenant“ with its conventional approach of location, type and clustering for generating seamless movement flow in various spaces of mall, has under gone with a rethinking for this selective study area.

● **'Cluster of Anchor Tenants' as a Vertical Magnet:** The much more emphasized issue of placing anchor tenants as magnet to attract consumers to the crucial places of the mall is interpreted vertically in this mall, that is for generating regular movement in between multiple levels, specially the uppermost ones.

Contemporary Multilevel malls, for its functional sustainability, usually have lateral connections from various urban points (subways, metro stations or overpass) to enable more movement penetrations. In this particular case, being a complete enclosed entity with very restrictive entrance points to the mall, the challenge was certainly to take the movement to the extreme upper level of the mall. The mall has replaced conventional tenant planning regarding one or more Anchor store to create magnet effect in individual floor, with a whole single floor working as magnet (level-7) for the mall.

● **'Cluster of Generative Tenants' as Attraction for individual level:** The locational and spatial significance of tenants in various floors came up with distinct criteria and characteristics, mostly the role and presence of anchor tenants in such mega malls. But Anchor tenants, as a magnet, is not interpreted with the conventional approach for individual floors of the mall. Though a few more tenants in various levels, in terms of

their shop size, product variety and brand value, might consider as „anchor“ to channel regular movement in adjacent areas, locational significance of these tenants are not comply with the spatial configuration of the mall.

The spatial configuration of individual floor and basic shop module has made the mall a super symmetrical and due to that, the mall has developed a more cluster based segmentation. Thus the individual segments (described as blocks; A, B, C and D) in every level has taken the strategy of containing a cluster of generative tenants. The cluster sizes of generative tenants supersede its effect as a magnet over other anchor tenants. Hence „cluster based generative tenants“ with their variations in multiple levels work more of an attraction factor for consumers of our socio-cultural context as this allow comparative shopping from a wider range of product variety. All these levels used specific tenant cluster as a single attractor rather than putting any major anchor tenant. The uneven placement of anchor tenants in the mall is evident in almost all shopping floors.

But even within these cluster, visually less integrated spaces, as an outcome of spatial configuration of the mall, need supported with attraction of anchor tenants (in such cases, a bigger size shop or secondary chain of any local brand ). These places with less movement should be of larger store (anchor) instead of small piece meal shops. This also needs to be feasible with the support of rent policy of mall. Small stores in front but rent wise expensive and large store in back rent wise inexpensive; such should be policy.

### **6.3. Spatial Configuration of Mall & Enactment of Natural Movement: An Implicit Issue of Reviewing Tenant Mix Silhouette**

Understanding spatial configuration of shopping mall plan and responsive tenant planning along those spatial properties play significant role in ensuring movement coherence regardless multiple levels and places among those levels.

Though Consumer Movement Behaviour seems more persuasive with present Tenant mix but evidently responsive with spatial configuration of the mall in some places. Tenants locating in visually more integrated spaces are enjoying „natural movement“ which is considered as natural outcome of configurational property of those locations. Thus tenants in those locations which can be labeled as attractors (either local brands or anchor tenants), are considered creating „amplifier effect“ for the additional movement generations. Hence, role of tenant mix is confusing as „natural movement“ generated in visually more integrated spaces are certainly considering tenants near those places as amplifier for more movement, but tenant mix if not reviving the movement in visually less segregated spaces, then it is partially successful in creating effective impact on overall consumers“ movement behavior.

**6.3.1. Spatial Segmentation & Tenant Clustering: An interconnected issue for movement coherence**

The overall mall configuration shows serious issues on each floors Block-A & B and its adjacent spaces within it (except level-1). Spatially being the immediate space after the entrance (level-1), these spaces show extreme mean depth. The visual integration and visibility is also poor. But being the frontal zone of three (3) entrance points in ground level, these blocks manage a pull of movement. But tenant locations in these zones do not create the ultimate movement drag (as bigger store is on Block-A). It acts more as a transitional space to the main court (near the vertical circulation options). It tends that consumers like the vibe of centrality and being in the atrium. People’s notion of vista, ample space quality and bigger store is more eminent in such enclosed mall. Somehow these Blocks, A & B in upper floors (from level-2 to level-7) seem cut off from the central atrium. Where these two blocks are comparatively less deep (have only two internal aisle) than block-C & D.

When all these floors are analysed with their syntactic properties, the scenario shows that people abides by naturally with configuration. Some tenant cluster has the ability to work as attractor. While all major anchor tenants are agglomerated mostly in a single floor (level-7), its hard to tell what tenant type as an anchor is dragging the most consumers. The syntactic analysis awfully depicts the spatial front of the mall plan as the less integrated spaces for level-2 to level-6 (as they follow the same planning configuration.)

**Table 6.2:** Observation on Spatial Quality of mall and suggested Tenant Mix

General Observation on mall’s Spatial character		Recommended Tenant Mix	
Visual Property of Space	Configurational Attributes of Space	Tenant Typology	Shop sizes (under specific Tenant category)
Visually More Integrated Spaces	Supported with main primary cardinal corridors	Competitive Tenants of Local Brands	Regular module
Visually More Integrated Spaces	Secondary corridors mostly of Block A & B and Tertiary corridors	Dominating Tenants (National/ International chain or Brand)	Comparatively bigger

Generative tenant, for spontaneous retail scenario, occupies less integrated spaces (Hossain, 2000) but for planned shopping malls, a hierarchical variation is much required in terms of shop sizes and brand shops for a given generative cluster. When comes the tenant planning in accordance to spatial configuration of the mall, some places with suggested anchors or service tenants or even with shared tenants are not enabling movement.



As the tenant strategy is more of a cluster based, It might be debateable that, which cluster should place/located where. As clearly configuration properties of the mall show that tenant placing has some serious lacking on understanding the overall spatial configuration of the mall. Debate can be also on, within a shop cluster, how various sizes of similar type's shops can attract consumers by their placement /location on that cluster zone. How the adjacent primary configuration aspects (main circulation corridor/ location of stairs/lifts/escalators) can enhance the performance of those individual clusters.

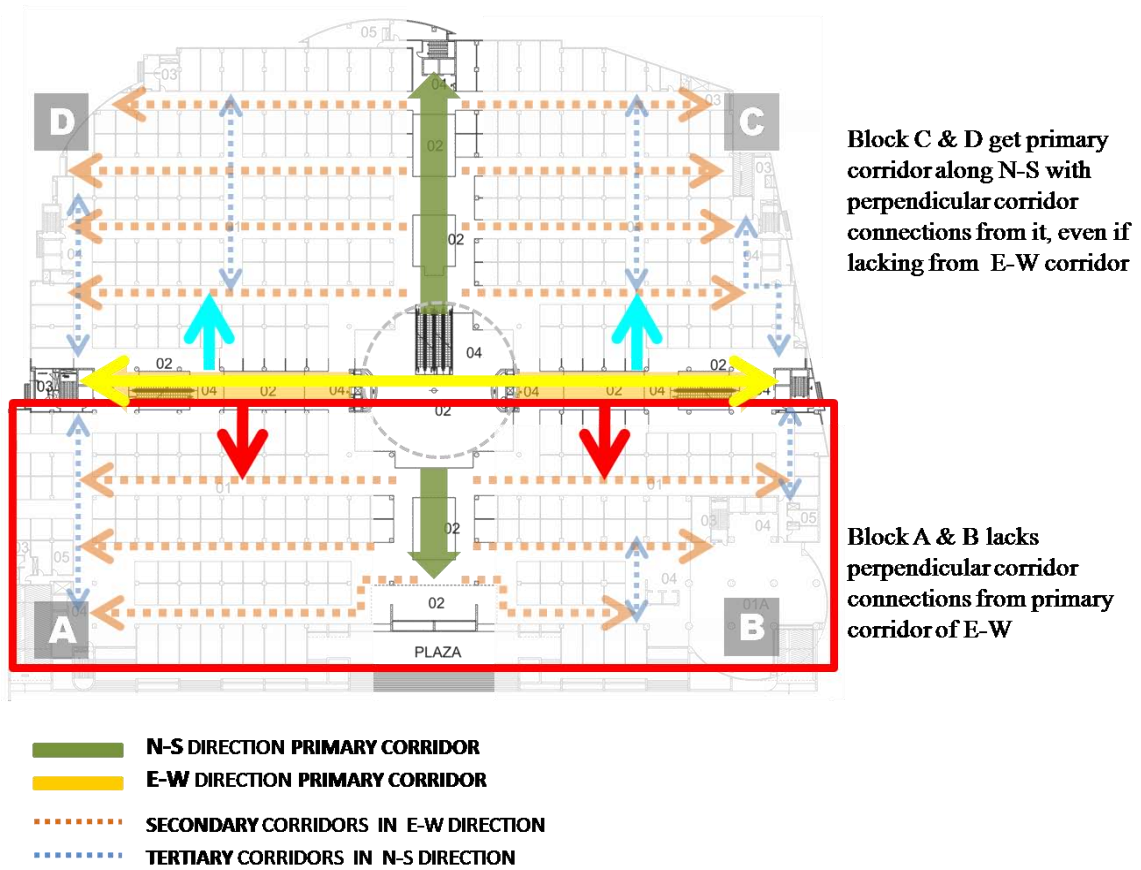
### **6.3.2. Configuration of Circulation Corridors & Visual Connectivity**

Movement dynamics within a shopping mall is crucial as it depends on how the design/configuration of the mall collects the consumers (ingress/egress) and how they are dispersed in various places of the mall. Collecting and channelling movements do not seem always effective if planned based attraction of tenant; rather tenant planning need to take advantage of spatial configuration of the mall. But when they have to play effective role in planning the less accessible place a vibrant one, it is not successfully attaining its purpose for this selected case of BCSM.

For spatial configuration, individual floor of the mall is mostly acting as a cluster. Hence its main circulation corridor generating major movements is distributing them to the adjacent cluster of tenants. Present situation of configuration is affecting block A and B as the main circulation corridor flanking towards E-W, has no direct visual connections with secondary corridors of that blocks (Fig. 6.3).

Secondary corridors of these blocks are parallel to the main movement generating corridors of East and West. Peripheral corridors and the south wing of another main corridor (N-S direction) adjacent to these blocks are not able to generate movement. With the help of some bigger sized shops and a significant Anchor tenant in these blocks, some movement is generating, but spatial configuration certainly the crucial one in this case to create natural movement.

But all secondary corridors of block C and D are visually and spatially have direct connections with the primary circulation corridors of N-S. The spatial connections of the secondary corridors of these blocks with the primary one is in perpendicular pattern. The perpendicular configuration of this corridor connectivity is helping generate movement towards the inner ends of those blocks. Through a nominal south extension of the main NS circulation maintain the perpendicular connections with secondary corridors of A and B, the main corridor itself has a fragmented configuration of containing a void and a visual cut off/distractions from vertical circulation spine. The visual discontinuity of primary and secondary corridors in these blocks are hampering in movement intensity.

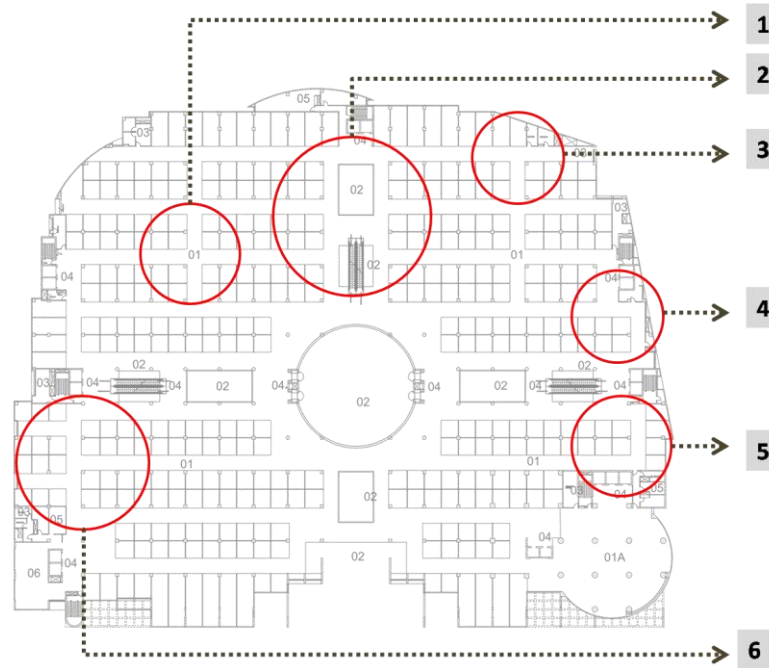


**Fig.6.3:** Lack of Perpendicular Circulation Connectivity in Block A & B (Level-1 to Level-6)

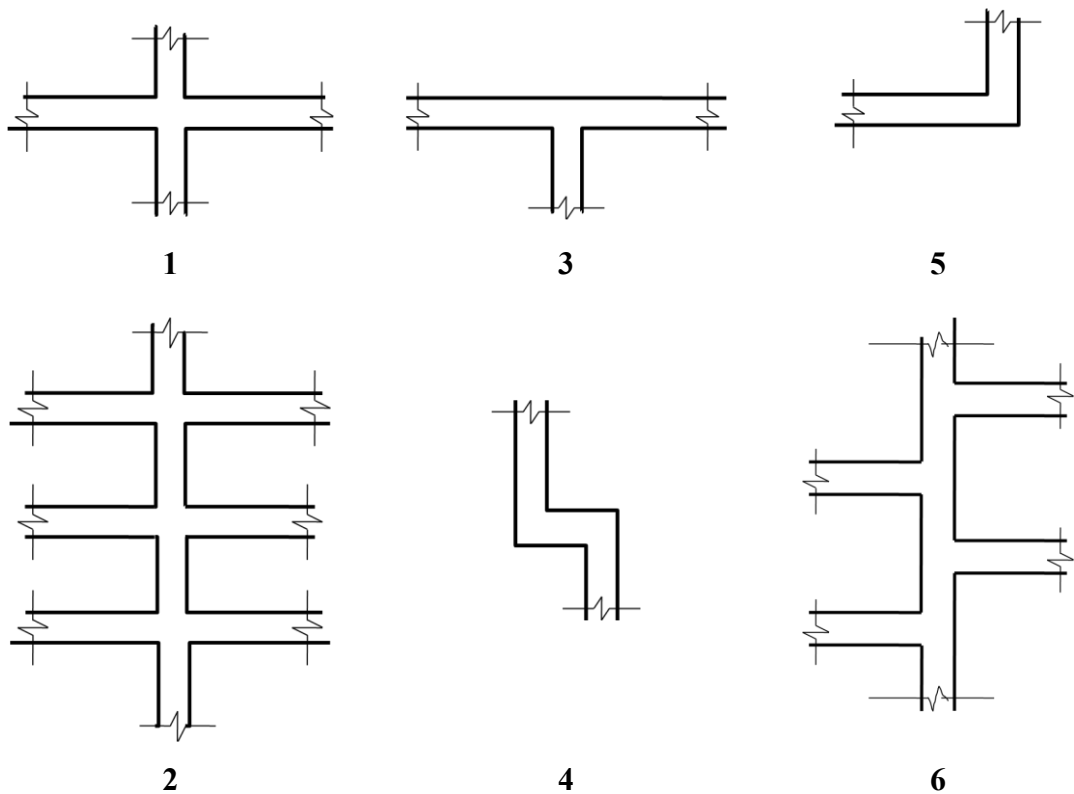
Again there are several configurational patterns of corridors in this mall. Apparently symmetric plan of the mall comes with multiple arrangements of corridors which make visual cognition clumsy [Fig.6.3 (a) and (b)]. Tenants' location and size of shops are spatially influenced with such configuration of the corridors.

The advantage of spatial configuration with the intelligent placing of attractor is a key for ensuring prospective shoppers movement, hence making it a successful shopping mall. Tenant distribution along the main circulation corridor and locations of main vertical circulation spine naturally has the advantage of movements. But the less integrated spaces are not come up with any effective tenant mix. Though in various levels, in those less visited places, some service tenants (beauty saloon, banks, travel agents), few shared tenants for generative tenant types (Tailor shops along with RMG) and food and entertainment tenants; e.g. small food corners are placed. This is still not able to generate enough movements in those areas.

The configurational advantage of main circulation corridor and locations of main vertical circulation spine is taken by the tenants where these are mostly big, branded shops. But less integrated spaces are typically given the non brand or less dominating shops. This is certainly a wrong policy of bid-rent theory.



**Fig.6.4 (a):** Various configurations of circulation corridors in a single level plan



**Fig.6.4 (b):** Blow-up of configurational variations of circulation corridors

Movement direction tends to depend on various issues of a mall space. The location of vertical circulation stacks (lift/stairs/escalators) play important role. Hence each cluster has the presence of vertical circulation means; its role of apparently visually connected easily. The configurational conflict of locating these vertical means has been tried to make up with tenant location; but still fails to generate enough movement. Such case in this mall shows that configuration plays a vital role over attraction.

But considering each level as an independent shopping floor, no such regulations are found; rather each floor has different vibe among which some has small scale magnet stores, some doesn't have. Even the spatial configuration of each floor failed to align with required individual tenant planning. It has resulted some place unnecessarily crowded while some having the potential of a good configuration failed to take/show the advantage.

#### **6.4. Perception of 'Shopping Mall as place of Socialization'**

In this particular research, consumers movement behaviour is not specifically considered as consumer purchase or buying behaviour only. Movement is used as a general term/dependent variable to study the malls tenant mix impact on it. Movement within a mall in now a day is triggered with various reasons. Social interaction and leisure shopping is one of them.

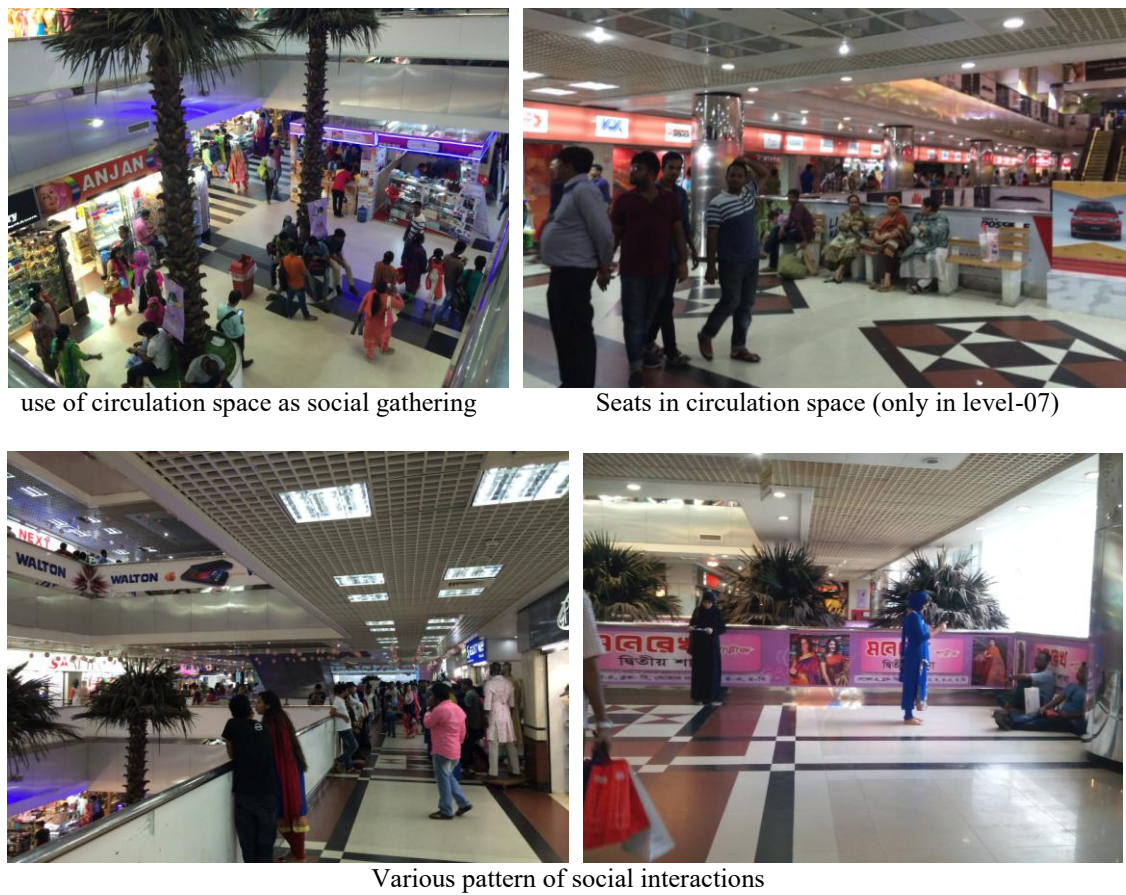
The outcome of questionnaire survey explore that people when come for shopping/purchase, they mostly search for specific tenants with product variations (67%). But apart from conventional shopping, leisure and entertainment act as potent stimuli for visiting this mall due to their preference of experiencing the shopping activity with friends or family (80%). Even various studies have come out such connotations that movement is highly a leisure driven activity in a shopping mall. "Tenant mix has its significance in research where its relation to „leisure shopping“ and „one stop shopping“ is considered significant in changing environment of social aspects of present day life" (Yan, 2013).

The consumers' perception of mall configuration and tenant mix (analysis from questionnaire survey) shows that they prefer food and entertainment facilities (Cineplex and kids zone) of the mall as attraction (72%) along with regular shopping which naturally allow their preferences for upward vertical movement. Thus users' perception of such mall as a „place of socialization“ encourages movement dynamism of diversified consumer for its assemblage of leisure and entertainment retailing alongside the regular ones.



**Fig. 6.5:** Food court and Cineplex in level-08 act as Attraction for Socialization with friends and family

The internal spatial character of the mall enhances the places attractiveness for mingling or rest as from observation and pictorial survey it is found that places along the atrium show a great movement intensity as these place act as a visual termination of both two and three dimensional spatial axis of the mall. It gives psychological sense of spatial and visual closeness. Visual connectivity along the atrium might in some case help visually identifying targeted tenant cluster, but spatial configuration within those spatial segment play important role in movement pattern and intensity.



**Fig. 6.6:** Image of various moods of Socialization in different spaces of the mall

Festivity and its association with shopping in the social and urban life of Dhaka play a certain role in increasing consumers' footfall in such shopping malls. Multiple religious festivals of various religious community along with few nationwide celebration of cultural events accelerate an extensive seasonal consumer visit regardless other considerations of the mall. Movement study in festival seasons enabled to capture this scenario which was quantitatively compared with consumers' footfall of regular season in chapter 05. The collective shopping experience with friends or family is considered as a part of socialization process and traditions of particular consumers of this culture.

## **6.5. Synopsis of Discussions**

Planning is one of the most important management elements as it defines the goals and plans the corresponding actions for the future. Thus planning of tenant mix is critical since this element drives the success of the shopping centres (Yan, 2013).

As Bashundhara City Shopping mall is operating more than a decade, the tenant combination has been going through various combinations over the time. Tenant mix, being an extensive pre-design survey for planning a shopping mall is also a long-term policy which need in maintaining and improving. It is required to keep in review in order to cope with the dynamic demands of shopper and certainly works best when considered as case specific for any given urban context, specially for a developing country like Bangladesh with a variations in the notion of consumerism. Its importance also lies in maximizing the revenue of shopping centers. But it remains partially successful in creating effective impact on consumers' movement behavior if not considered the spatial configuration of the mall.

The present mix in BCSM shows, an effective movement drag in various floors; still some floor is struggling with lesser movement in various spaces. In those cases, the understanding of configuration of the mall can play a role of saviour to generate enough movement where it is necessary. The findings show that this mall, has tried to attract consumer mostly by its tenant strategy, rather realizing the configurational properties of the mall. Therefore, various tenant mix have were adopted and to arrange them, the mall has initiated mostly the clustering strategy. As the clusters are also a huge bunch of shops, they lack on positioning within the cluster in accordance to the shop size or fail to create magnet concepts among the same typology.

**Table 6.3: Summary of Findings, Comments & Specific Recommendations for the Selected Study Area**

General findings	Comments	Recommendations
<p>●Prioritizing ‘Vertical Planning of Tenants’ approached as ‘Mix’ to ensure upward movement of consumers: A strategy for sustainable Multi level Mega shopping mall</p> <p>(Empirical study explained in chapter 04)</p>	<p>This arrangement is working to generate movements in various levels of the mall. Specially major anchor tenants and food and entertainment tenants located vertically less integrated floors (level-7 and 8), are certainly dragging movement, therefore the immediate following floor are experiencing the synergy effect created by level-7, which is level-6.</p>	<p>As Level-4 &amp; 5 experience the diminishing effect of the attraction synergy, hence Tenant Mix of those levels, need an in between moderate attraction</p>
<p>●Individual Level ‘Horizontal Tenant planning’ initiated as ‘Match’ : An approach compliant with contextual consumers’ buying behaviour and shopping culture</p> <p>(Empirical study explained in chapter 04)</p>	<p>Tenant cluster works as attraction for comparative shopping for the consumers.</p> <p>Several Suscipient tenants (isolated food corners) in various floors lack in visual connectivity. Their adjacent tenants can be an attraction for movement generation in those places</p>	<p>Generative tenants should be more associated with shared tenants and suscipient tenants.</p> <p>Spaces that are visually less integrated need an effective tenant planning. Standard mini module shop should be replaced in those places with bigger module tenants to grab consumers in an advance location so that they do not have to travel much</p>
<p>● Re-imagining the concept of ‘Anchor Tenant’ as a Magnet for generating seamless flow of regular movement</p> <p>(Analysis of empirical study in chapter 04 and movement study in chapter o5 )</p>	<p>Various Generative tenant clusters are creating anchor effect, but lacks of configurational consideration in certain places are not supporting movement in generation.</p>	<p>Need anchor tenants/ local brands in individual blocks where the visual configuration is less segregated.</p>
<p>● Tenant mix and Spatial Configuration: An interconnected issue for Movement Coherence</p> <p>(Synthesizing Movement data and Visibility Graphs along with their various correlation in chapter 05)</p>	<p>Spatial connectivity is not always satisfactory even with an effective and extremely sorted tenant planning; Visual connectivity with various spaces initiates consumer movement. Visually less integrated spaces are not always can be saved by tenant re arrangement; configurational re-adjustment is necessary.</p>	<p>Configurational disadvantages need to be addressed with a strategic tenant planning; still a major configurational amendment need to address regarding the connectivity of secondary corridors with the main primary circulation corridor of the mall.</p>
<p>●Consumers’ perception of ‘Shopping Mall as place of Socialization’</p> <p>(Analysis of Movement study and questionnaire survey in chapter 05 )</p>	<p>Present tenant planning focusing on entertainment and food in top level is pursuing consumers visit in this mall</p>	<p>Tenants, encouraging traditional pattern of consumer behaviour in incorporating family members and friends, can give emphasis in spatial character of the mall to make the best use of such socio-cultural aspects of the shoppers of Bangladesh.</p>



## CHAPTER: 07

### CONCLUSION

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#### 7.1 A Brief Synthesis of the Research

This study extensively focused on the planning aspects of retail buildings, not the policy of retailing. Thus the limitations remain in understanding the contextual economic perspective of the retailers and the shop owners as well as the retail developers who possess multifarious aspects in terms of profit and business. While going through this study, it has been also understood that the complex retail web within the mall is substantially space sensitive to the changed economic scenario of the country. Therefore a flexible retail planning is always desired in a country like a developing one where such buildings can cope up with any socio-economic fluctuations. And a sustainable shopping mall is always a balanced triangle conforming its spatial configuration, consumer movement stabilization and attraction factors.

Shopping mall design in now a days is not only limited into designing the attractive space inside and luscious mass outside. The challenge now incorporates a wide range of variables from marketing strategy in to the spatial design decisions. Like every other sectors of building design, this too a multifarious aspects. And this might be the most sensitive in terms of users' psychology that should be considered from the very beginning of the design process. Again from contextual aspects of physical character, multi-leveled mega shopping malls usually attached with other urban phenomena (like; airport, terminal, metro station) are emerged as more sustainable one. Bashundhara City Shopping Mall and malls like this which are totally cut off from surrounding and act as a single attraction is always vulnerable in terms of sustainability. Mega mall as a single entity cannot be served as a decorative building rather its sole purpose of trade and commerce should be the crucial consideration.

This case specific research on BCSM (for its scale, volume, per floor square ft and total height) and its present Tenant mix, which is a outcome of overly a decade of operations still has some deliberate issue of movement generations in various places . As tenant mix plays a great role in influencing 'consumer catchment area' of the mall and if planned accordingly, then it eventually will also make the mall sustainable within the urban vicinity. An iconic retail hub or shopping mall in an iconic location cannot guarantee its successful operation unless it is considered for its inner mall coherence with tenant mix and consumer movement. In light of this research, it can undeniably ascertain that future shopping mall design projects in urban Dhaka need to be immensely calculated in attaining their economic feasibility and overall urban sustainability. From the previous section of analysis and synthesis, a brief summary of design considerations for multilevel shopping malls, in general, are discussed below.



## 7.2 Prior Considerations of Tenant Mix for Sustainable Shopping Mall in A Context Specific Consumer Culture

As contemporary shopping malls with a global vibe, certainly to a greater extent are welcomed by urban population of Dhaka, such malls are not alien anymore. Their visual attraction as a landmark buildings are undeniable, if not satisfactorily successful in terms of retail planning for a quick turnover for its ultimate economic sustainability. Hence to work on effective movement generations in multilevel shopping malls, apart from configurational properties of the mall's spatial planning; tenant mix can play an important role. As every shopping mall in a specific urban area fulfill the consumptions of a distinct catchment population, its tenant mix should be evolved from that macro level study and observations of the requirement of targeted consumers.

From this study the general recommendations in considering **Tenant Mix as a significant factor to intensify space specific movement generations**, for multilevel shopping Malls are discussed below:

a) Tenant Mix is a key consideration for **vertical movement channeling** in large scale multilevel shopping mall. Ensuring sufficient footfall of consumers in vertically more segregated floors in comparison to ground level and its immediate floors need a strategic planning of tenant selection. A significant pull of movement to the top most level can create an effective downward movement to the immediate following levels.

Considering Multilevel shopping mall, as an enclosed entity, that is spatially only connected from ground level, conventional 'theory of attraction' can imply in vertical movement generation regardless its inner spatial configuration. The attraction factor of inter-floor tenant typology (based on distinct product variations) and its strategic vertical positioning can create synergy effect for consumer movement. But evenly movement dispersion in individual level needs a synchronized tenant planning both vertically and horizontally. The formal cohesion of such scaled retail hub along with its surrounding urban phenomena (any lateral connectivity of urban space; e.g. elevated metro station, foot-over bridge) can enhance movement and the mall's vertical sustainability.

b) All individual levels of a high-rise mall should be regarded as **a single entity of shopping floor** in terms of tenants' typology (based on business category of generative, shared and suscipient) focusing shop size, clustering and spatial planning within the floor to create enough movement in every place of that particular floor.

•**Shop Type:** Generative tenants, being in larger number can identify a floor's major tenant typology. But an effective amalgamation of shared and suscipient tenants can ensure more movements in spatially segregated locations if these tenants are placed considering the configurational properties of the floor.

●**Shop Clustering:** The general trait of comparison shopping behavior of our contextual consumers enables generative and shared tenants to work in Clusters. The cluster of generative tenants thus acts as attractor for a single floor and increase movements in various spaces. But a hierarchy of shop sizes (regardless local/international brand of same tenant category) within the generative cluster need to be minutely allocated in spatially segregated locations of the same cluster to break the monotony through size and product variations of those tenants.

Shared tenants should mingle up with generative tenants and can be formed as cluster; but not placed separately in isolated areas. For planned shopping mall, such tenant coherence should be observed from consumers' socio-cultural context of buying behavior and overall shopping culture.

●**Shop Size:** Bigger stores for its product variations or for being a secondary anchor (of national or international chain store), can occupy less integrated spaces as they have the attraction factor to drag movement. Whereas To take the advantage of natural movement, the smaller sized local shops should be placed along the central circulation spine.

●**Anchor Tenant:** The westernize concept of anchor tenant (e.g.; a life style store or departmental store of a local or global chain) with a strategic spatial location of significant area coverage not often work for individual levels. But one or more anchors covering multiple levels as a single entity can add up to movement intensity in less integrated spaces of enclosed shopping malls. To channel movement in lateral connection points of anchor tenant needs considerations from the malls' configurational perspective. Again a well sorted clustering of multiple anchor tenants in a single level can create a magnetic pull of consumers' movement.

But the concept of anchor tenant is not always compliant with overcoming the configurational mess of the mall. Through their established brand value, product category and with pre-determined image in consumers' priority for choosing them, they might get able to attract a certain movement. But if the malls' spatial configuration is not well supported, it fails to channel desired movement in other places of the mall. Therefore, anchor tenants also enhance their contributions in overall movement generation and movement channelling if synchronized with the overall spatial configuration of the mall.

c) A prior methodological analysis is essential to understand the spatial properties of the mall; as spatial configuration can enhance the performances of tenants in terms of catalyzing movement inundation. **Locational and spatial significance of tenants** can be well apprehended by understanding configurational attributes of the mall. The circulation corridors, its hierarchy (primary and secondary circulation) and

configuration of spatial linkage to various spaces of the mall certainly create impacts on the tenants' performance in generating movement. Location of vertical circulation core (lift and stair) can be a significant point for enhancing movement also. A less ambiguous configuration with more visual connectivity of all areas can help in visual cognition of space for consumers. Topologically distant spaces (parallel elongated secondary corridors with insignificant perpendicular connections to primary corridor) can hamper in visual connections of spaces.

Even if for such controlled and planned mall with specific tenant mix, a significant room should be kept for organic development of tenants; in such cases, mall management should encourage interested retailers perception of consumers' demand along with allowing some place specific tenant strategy.

**d)** Tenant mix can contribute in idealizing the perception of '**Shopping mall as a Place of Socialization**'. As from preceding researches and continuing studies in retail sectors, shopping mall in urban area works as more than a retail hub, its emerging appraisal as a place of socialization can add a newer dimension in planning tenant mix. Proper planning of entertainment facilities and appropriate ambiance can enhance the overall performance of mall through increased footfall of consumers.

Tenants containing products that are necessary all the year round can be in less integrated spaces. But more integrated spaces might be planned by targeting seasonal shoppers of festive periods along with their regular season attraction. As for occasional visits people tend to follow the easy route to identify the desired shops. Thus shoppers' type may influence tenant mix. Regular shoppers know what to buy where. Seasonal shoppers have less frequent visits and shorter stay in mall, so tenants, those have more selling potent in festive seasons should be visibly identifiable by adopting the concept of shared or susceptible locations alongside the generative ones. The apparently two opposite notion of '*time constrained shopping*' and '*leisure shopping*' are both a reality for the urban consumers of Dhaka. Therefore a well planned mix of conventional tenants along with other experimental entertainment and service tenants can ensure the working dynamics of modern day shopping mall.

The holistic retail design process is apparently ignored in our country. Most of the research in this sector in Bangladesh is occupied from marketing point of view, while spatial significance of shopping mall and its internal planning layout of shops along with tenant mix is mentioned but not approached elaborately through research investigation by the design and planning personnel. Again, the design stream of shopping mall need a fruitful encounter with the other important aspects of its most significant stakeholders; *the consumers*. This study thus explores that a huge possibility lies under such research that should be initiated from architectural and spatial perspective of the mall design which will deal with some emerging notions of shopping mall parameters like; consumers patronage, psychographic parameters,

consumer segmentation. The spatial and situational aspects of stores within the mall are also linked with these factors. Considering the dynamics of shopping mall design, thus further research gap remains in rudimentary level of understanding how the westernized version of shopping mall is working in the context of consumer culture in Bangladesh.

As some extreme iconic shopping malls are appearing in the urban scenario of Dhaka and in so they will appear in divisional cities, if studies don't initiate this phase, it will be not in the pace with the design manifestation level. The whole idea of planning and designing sustainable shopping mall in relation to tenant mix, consumers and their demands on a changing scenario of fast growing technological world is utmost essential.

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## **Appendix**

## Questionnaire Survey for Research work in BUET

Survey Location: BASHUNDHARA CITY SHOPPING MALL

We are conducting a survey on shopping mall as a part of a Masters Research project in Department of Architecture, BUET. It would be most helpful if you kindly answer the following few questions. We value your opinions and respect your privacy. All the answers given will be treated with utmost confidentiality.

If you have any queries or need for further clarification, feel free to contact Ms. Fahmida Nusrat, M.Arch Researcher, BUET, Dhaka. E-mail address: [f\\_nusrat@yahoo.com](mailto:f_nusrat@yahoo.com).

Sample No. \_\_\_\_\_

Date \_\_\_\_\_

Present Address of the Consumer:

Time: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Contact No. \_\_\_\_\_

**Please select the answer with ( ✓ ) mark on the bracket which most closely reflects your opinion**

### Part – A (Socio-economic & Demographic factors)

- |                |                      |                        |                |
|----------------|----------------------|------------------------|----------------|
| 1. Gender:     | 1) Male ( )          | 2) Female ( )          |                |
| 2. Age:        | 1) 20 – 30 Years ( ) | 2) 30 – 40 Years ( )   |                |
|                | 3) 40 – 50 Years ( ) | 4) 50 – 60 Years ( )   |                |
| 3. Occupation: | 1) House Wife ( )    | 2) Paid Employment ( ) | 3) Business( ) |
|                | 4) Retired( )        | 5) Student ( )         |                |
| 4. Education:  | 1) SSC / Diploma ( ) | 2) Degree ( )          |                |
|                | 3) Graduate ( )      | 4) Postgraduate ( )    |                |

### Part – B (Consumers Patronage to the mall)

#### TRAVEL PATTERN & TRIP STRUCTURE

5. How frequently do you visit this shopping mall?
 

1) Twice in a Week ( )	2) Once in a Week ( )	3) Once in a Fortnight ( )
4) Once in a Month ( )	5) Once in Six Month ( )	6) Festival Season ( )
6. Mode of transport normally used for shopping:
 

1) Two Wheeler ( )	2) Private Car ( )	3) CNG /Auto/Taxi ( )
4) Public transport/ Bus ( )	5) Rickshaw ( )	
7. Did you usually come alone in this mall?
 

1) Yes ( )	2) No ( )
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8. If no, then who usually accompanies you?
 

1) Friend ( )	2) Other family members ( )
3) Neighbour ( )	4) Colleagues ( )

9. How much time do you usually spend in this mall in each visit?  
 1) Less than 1 hour ( )    2) 1-3 hrs ( )  
 3) Almost ½ Day ( )    4) Full Day ( )
10. What are the other factors for choosing this shopping center?  
 1) Ease of transport ( )    2) Near to house ( )    3) One stop quality shopping ( )  
 4) Parking facilities ( )    5) Near to work place ( )

PURCHASE PATTERN & LOCATION CRITERIA OF TENANTS

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11. What do you shop generally in this mall for you and your house hold consumption?  
 1) Clothing and garments ( )    2) Jewelry & Cosmetics ( )    3) Shoes & Bags ( )  
 4) Household products ( )    5) Electronic products ( )    6) Gifts and Toys ( )
12. Do you often buy things that you did not plan to purchase in advance?  
 1) Yes ( )    2) No ( )    3) Sometimes ( )  
 4) Often ( )    5) Always ( )    6) Never ( )
13. Do you come to this shopping center for the following purpose also?  
 1) Socialization ( )    2) Business ( )    3) Restaurant/refreshments ( )  
 4) Only shopping ( )    5) Entertainment/movies ( )    6) Others ( )
14. Identifying desired shop locations in this mall is-  
 1) Very Easy ( )    2) Easy ( )    3) Difficult ( )  
 4) Little hard ( )    5) Extremely difficult ( )
15. I usually prefer shops which are-  
 1) In quite location ( )    2) Near the main circulation ( )  
 3) In any location ( )    4) Location does not matter ( )
16. For desired product, I prefer to -  
 1) Check similar shops in same floor for product variety ( )  
 2) Go for previously known shops ( )  
 3) Move different floors ( )  
 4) Check shops with bargain scope ( )  
 5) Go for Branded shop ( )
17. For quick and time saving shopping, I prefer going to-  
 1) Smaller shops ( )    2) Bigger shops ( )    3) Stores in isolated locations ( )  
 4) Brand shops only ( )    5) Previously known shops ( )  
 6) Shops which I see first ( )
18. For having food/refreshments, what do you prefer in this mall?  
 1) Temporary snack s/juice corners in lobby areas ( )  
 2) Permanent Snacks corner in each floor ( )  
 3) Food court ( )  
 4) Don't have food here usually ( )  
 5) go outside of the mall for food ( )

**Part – C** (Reasons behind Consumers' Preference for the mall)

Please put tick (✓) mark on the more appropriate number for the given statements.

Statements	1	2	3	4	5
	Strongly Disagree	Somewhat disagree	Neutral	Somewhat Agree	Strongly Agree
19. The mall gives One-stop shopping facilities with <b>various types of shops</b>					
20. The mall has a <b>wider range of Product variations</b>					
21. Products are of <b>good quality</b>					
22. Items available with <b>different prize range</b>					
23. Shops Allow <b>bargaining</b>					
24. <b>Shop sizes are comfortable</b> to see product variety					
25. <b>Product display in corridor</b> helps to locate shops easily					
26. Mall environment allows to go for <b>large quantity of shopping</b>					

Following are a few statements about your repeat visit intentions.

Please **put tick (✓) mark on the more appropriate number.**

questions	1	2	3	4	5
	Strongly Disagree	Somewhat disagree	Neutral	Somewhat Agree	Strongly Agree
27. Shopping is fun, easy and exciting in this mall					
28. Shopping environment is safe					
29. I will continue to visit the mall in future					
30. I will recommend this mall to my friends and relatives					

**Thank you very much for your participation in this study.**