OLENA BEREZKO*

Principles of urban structure in social spaces of shopping malls

Abstract

Today it is hard to imagine a large modern city without a shopping mall. Actually mall emerged as a kind of city center for periphery residents. However, in today's fast paced life the concept of "everything under one roof" has become an integral part of the urban structure. Mall makes it possible to meet not one but a number of needs at once.

The fact that mall is analogous to city centre is confirmed not only by their functional content similarity, but also by structure. Like urban web is anchored at nodes of human activity, "shopping mall web" is anchored on nodes of retail and entertainment spaces. Like urban structures have a hierarchy of connections (from footpaths to roads), shopping mall structure has a hierarchy of social spaces (from side malls to the centre court). Despite this similarity, the socialization and communication problems in shopping malls remain unsolved.

In this study the comparative analysis of urban and shopping mall structures was performed. We defined the key urban structure principles suitable for effective formation of social and public spaces of malls.

Keywords: shopping mall, social space, urban structure, urban architecture, mall, retail space, public space

Introduction

Today shopping mall is an integral part of many modern cities. In spite of that, this type of building continues bringing contradictory feelings and attitudes towards itself. Some city inhabitants admire mall's "everything under one roof" concept. They are attracted by its secure temperature-controlled environment and can hardly imagine their lives without such retail and entertainment space. Others criticize the very concept of mall blaming it for pumping the periphery of cities, small family shops' decline and promotion of consumerism.

However, the undeniable fact is that in many regions of the world (e.g. Central and Eastern Europe) malls are becoming extreme popular and their number is rapidly growing. According to Cushman & Wakefield's April 2014 report a number of countries significantly increased their shopping centre gross leasable area in the second half of 2013. The most substantial increase was seen in Russia (appr. 1.0 million sq.m., 34 new shopping centres developed), Turkey (appr. 487,000 sq.m.), Ukraine (appr. 340,000 sq.m., rose by 10,8%), Poland (appr. 340,000 sq.m., rose by 6,9%) and France (appr. 280,000 sq.m.) [17].

Shopping malls are experiencing comeback not seen in years in the U.S.A., a country which is known as a "homeland" of this building type. Glimcher reports stable growth in mall net operating income and store sales in the second quarter of 2014 [10]. Between 1956 and 2005, more than 1,500 shopping malls of different sizes and topology were built all over the United States. However in the mid-2000s a number of experts and researchers claimed that the Golden Age of malls had passed, which among other reasons had been caused by the rise of e-commerce [11, 18, 20].

At that time many malls started losing their popularity and a significant part of them became completely abandoned. Two new notions appeared in order to describe such malls: "*aging malls*" and "*dead malls*". Built sometime in the areas which were then outskirts of the city, aging malls are now deeply imbedded within

an urban context and need renovation. As far as the creation and existence of shopping malls is governed entirely by market competition and private interests, aging malls become dead more often, defeated by new competitive peers and successful retail innovations [11, 16].

Thus further malls development is a subject of many contemporary research projects. Urban Land Institute, global nonprofit research and education organization in the field of land use and real estate development, in its studies aims to find new principles of rethinking the mall [4]. Other researchers focus on human activity in malls [6], problems of dead malls [16] etc.

As far as mall was initially designed as an analogue of a city centre for periphery inhabitants, we suggest applying the principles of urban design in the structure of a mall in order to solve malls' current problems and foster the very concept rethinking. Validity of this approach is based on shopping mall's historical background and similarity of urban and mall structures.

Mall's historical background

During the 1950s in the U.S. global motorization provided a strong incentive to the rapid development of cities' periphery. In the late 1960s every two Americans accounted for one car [15].

In spite of the rapid development, peripheral streets didn't take over all functions of central streets, causing some shopping and social vacuum. Residents of the suburbs had to go to the center to participate in cultural life, have fun, make necessary purchases and more. This re-

sulted in overloading of the city transport system and a number of problems, including:
– traffic congestions on city roads;
– lack of parking spaces;
– limited access to public buildings and facilities;
– and, as a consequence, environmental degradation.
The solution to these problems became a new type of building – a shopping mall [3]. The prototypes for the new building type were retail urban spaces of 19th century: passages, galleries and department stores [7]. Malls encapsulated the main functions of these building types, providing a new level of retail space organization and consumer experience as well as satisfying the requirements of contemporary life. However, unlike its prototypes, shopping mall had not only to satisfy the visitors' needs for shopping, entertainment and recreation, but become a substitute of city centre for periphery inhabitants.

Unexpectedly malls created the opposite effect making residents of city centers go to the periphery to visit them, thus creating traffic jams again and making the center deserted [3]. Urban residents were no longer attracted only by mall's functional content, but also by its spatial design: concentration of essential goods and services in a relatively small area and ability to access them in a comfortable environment.

Austrian architect Victor Gruen, creator of the first shopping malls, considered them as constructions combining under one roof: public space, pedestrian social space, recreational and entertainment facilities, catering and trade. According to Gruen, mall is actually an urban environment, satisfying both periphery and center residents [5].

However, there was gradually launched mass mall construction in cities. The building that was meant to become an embodiment of an American dream transformed into a purely commercial project. And Gruen was accused of all the related negative phenomena [7]. After its migration to the city mall got significantly modified. Due to dense urban construction the spatial structure of mall got more complicated: it became more multistorey, underground malls were constructed, mall was divided into separate functional blocks. After a series of transformations mall became not only one of the most effective forms of retail space organization but also an inherent part of any big city.

The strivings of architects to create a mall that could compete with city centre remained unchanged. Analysis of the mall system and contrasting of its elements with city elements will enable to understand the problem and find solutions to it. Since today despite the development of trade and entertainment functions, problems of socialization and communication in malls stay unresolved.

Contrasting of the city structure, mall structure and their elements

Since we are talking about mall structure, we assume that mall is a system. System is a set of interconnected elements and connections between them forming an integrity which constitutes a special unity with the environment and is an element of "supersystem", and this integrity has a certain goal [5].

On the basis of this definition it may be said that **mall as a system is a set of interconnected elements and connections between them which constitutes a special unity with the environment. Mall, as a system, is an element of "supersystem" – city element. Mall as a system has a certain goal.** Having analyzed historical preconditions for mall appearance, one may conclude that **the goal of mall as a city subsystem is to undertake all the functions of the city centre.** With this in view, mall elements perform functions inherent in city centre elements. Let us consider mall division into certain structural elements differing by value and area:
– anchor – tenants that are the centre of attractiveness for mall visitors;
– tenants;
–social space [21].
Anchor and other tenants are the elements represented in mall as premises performing a certain function. They differ in size and level of attractiveness for visitors. These elements perform such functions characteristics of the city centre as: commercial, entertainment, catering. They are represented in mall as shops, restaurants, cinemas, sports centers, etc. At the same time social space plays an absolutely different role in mall. Within the mall system analysis, social space is the element performing the function of connecting all the mall elements.

Structural elements of mall can be compared to city structural elements. Nikos A.Sakingaros points out the following basic elements of city networks:
– nodes – nodes of human activity. House, work, shop, restaurant, church and others can be nodes.
– connections – streets connecting nodes. Connections have a certain hierarchy: from pedestrian streets to highways [19].
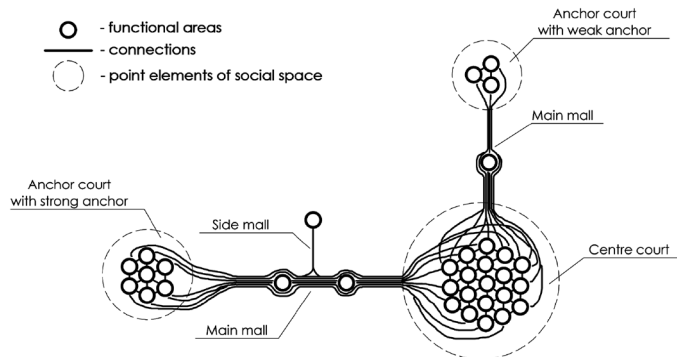Urban network construction takes place as the result of fixation of basic nodes of human activity. Depending on the activeness of nodes and the distance between them the hierarchy of connections is formed [19]. Movement in the mall space takes place similarly. Within mall structure anchors performing the function of magnet for visitors are placed. Anchors are connected with social space along which other tenants get located. Depending on the degree of anchor attractiveness and its location within the mall structure, there takes place distribution of human activity in the mall's social space.

By analogy to city structure model construction [19], let us build some mall models (il. 1). Those models reflect the structure of connections between mall elements and mall connection to the outer environment:
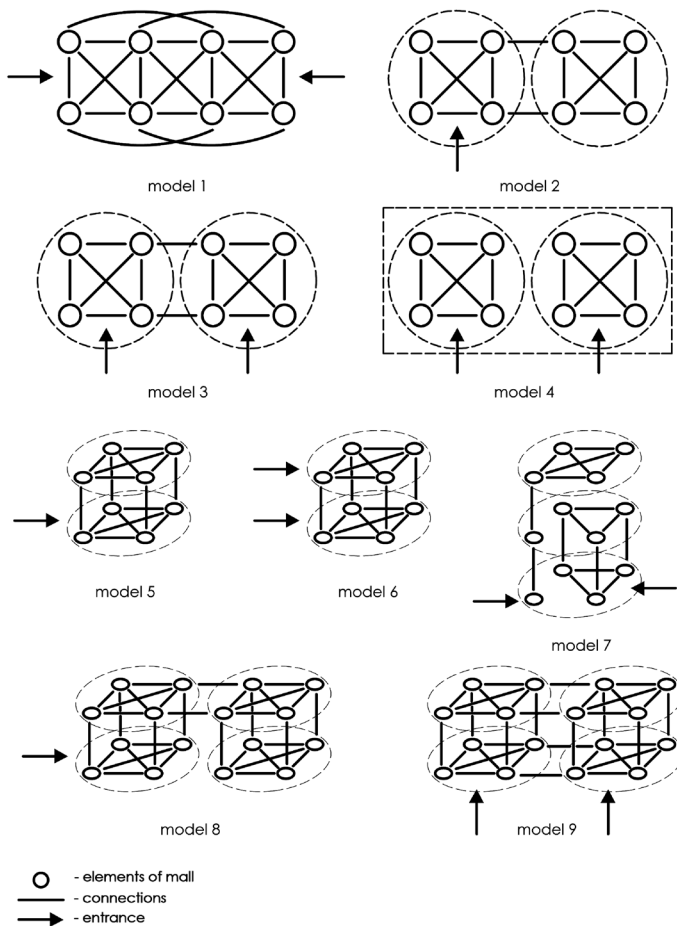
il. 1. Models of malls' structural network. Drawn by the author

Model 1 is a model of an ordinary one-storey mall consisting of one block and all the elements of which are linked by connections. **Model 2** depicts a one-storey mall consisting of several blocks linked by connections. Entrance to the mall is into one of the blocks only. **Model 3** is similar to model 2, and mall consists of several blocks linked by connections. Unlike model 2, model 3 has a separate entrance to each block. **Model 4** is a one-storey mall consisting of two blocks having separate entrances, belonging to one building but not linked with each other by connections. **Model 5** depicts a mall having more than one storey. Mall elements at each floor are linked by connections, storeys are linked by vertical connections. The entrance is located at one of the sto-

il. 2. Model of mall's social space. Drawn by the author

reys. **Model 6** is similar to model 5, it being different only in that there are separate entrances at several or all storeys. **Model 7** is a mall with more than one storey. At some storeys not all elements are linked. Thus, groups of elements are formed at the storey. There can be a separate entrance to each group if this is the ground floor. These groups are linked by vertical connections along storeys. **Model 8** is a mall consisting of several blocks having more than one storey. Blocks are linked by connections at one of the floors only. The entrance to the mall is only to one of the blocks. **Model 9** is similar to model 8, however, blocks are linked by connections at all the storeys and each block has a separate entrance. Also, mixed models combining several of the above are possible.

In those models we see that connections are of two types: vertical between storeys and horizontal between storey elements. Vertical connections in the mall are represented by vertical communications, like staircase, elevators, escalators. Horizontal connections constitute social space. However, besides the connective function, social space contains various functional loads. The same as in city streets, social space has small centers of trade, open restaurants, etc. Also, besides functional zoning, social space is divided into structural elements influencing distribution of human activity in it and in mall in general.

Of importance is the fact that all the elements of social space are unique in having the same property that is not inherent in other mall elements. All the elements are united by one general space, while other mall elements are separated from social space. Hence, one may conclude that **mall's social space is not just a mall element, but rather its subsystem.** Since it is availability of stable connections, really significant ones, and not just any connections between elements or their properties exceeding connections of those elements with elements not included into the system in power, that constitutes an important attribute of the system [5]. **Thus, social space as a system has a certain goal.** With account of the formulated mall goal and analogy of mall to city centre made, one may say that **the goal of social space as a mall subsystem is to undertake the functions of city centre streets.**

As it has been determined that social space of mall is a system, let us consider the elements of which this system consists. In 2004 *Urban Land Institute*, in its analytical report, published a basic scheme of mall division into structural elements [4]. Let us elaborate the model of mall's social space on the basis of this scheme (il. 2).

Under this scheme, conventional social space of mall consists of the following elements:
– centre court – court at the crossroads of main malls;
– anchor court – court located in correspondence to the location of the functional element of mall performing the anchor function;
– main mall – mall between two anchors, or between the main mall and anchor;
– side mall – mall that is not connected to any certain anchor [4].

By spatial organization those elements can be divided into two groups: linear and point ones. Linear ones include the main and side malls, while point ones include centre and anchor courts. Each of those elements has got certain characteristics and properties. They differ in their functional load and area occupied, they may also be classified by the degree of human activity within them and the amount of rent paid for the use of commercial areas.

Centre court occupies on average 18% of mall's social space. Here main malls intercross and the following functional areas are normally located here:
– trade area;
– recreation area;
– catering area;
– entertainment area.

Due to that, mall visitors not only cross the centre court while moving from one anchor to the other, but they also have good reasons to stay within it for a long period of time. That is why centre court is the element of social space where the degree of mall visitor activity is the highest [6].

Rent for retail shops facing the centre court is also relatively high. Contemporary researchers directly link mall's rental cost to the distance from the centre court. In particular, on the basis of empirical studies of US malls there has been elaborated a mathematical model of dependence of the amount of rent per one trade area unit on the whole range of factors including the distance to the centre court. Approximation to it presupposes increase in the amount of rent and vice versa [2].

The study compares amount of rent for retail shops and establishments that are not anchors. This is caused by the results of analysis of contracts with anchors and non-anchors that were signed by mall owners in the USA [12]. The authors of the study have traced that the shops performing the function of anchors either don't pay rent at all, or the amount of rent is very low. 73% of anchors don't pay any rent, while the number of retail shops that don't pay any rent makes up 0%. Even if we consider anchors paying rent, average amount of rent per trade area unit makes up 4.13 versus 29.37 US dollars paid by non-anchor shops [12]. This is accounted for by the fact that anchors are used by mall developer to generate motion in the mall. By their popularity and prestige level they attract visitors. That enables to charge non-anchor shops with higher amount of rent since they make use of the popularity and prestige of anchors.

Hence the conclusion that the price of rented area for retail shops within the **anchor court** is high. Anchor courts occupy 23% of the social space area in size [6]. Functional load of anchor court often depends on the function of anchor. If anchor is represented by a restaurant, then there will be catering area in the anchor court, while if anchor is represented by a shop for children, anchor court can contain recreation area in the form of a playground for children. The degree of human activity in the anchor court may vary from high to average depending on the size of anchor.

The main mall occupies 36% of the social space area [6]. It is mainly in the main mall that small trade areas are located, however it is also possible that there be small catering or recreation areas there. The main mall has average degree of activity as contrasted to centre and anchor courts. In correspondence with the degree of activity the amount of rent for retail shops is average.

The side mall constitutes one of the problematic areas of mall's social space. In this mall there is no transit movement (from one to another anchor), retail shops in the side mall are most distant from centre and anchor courts. This causes low level of human activity. The study has shown that the degree of human activity in the side mall is 40% lower than in the main one [6]. In side malls there are mainly located only small trade areas. Along with that, the area occupied by side malls makes up 23% of the social space area. That is 23% of social space have low degree of activity, low amount of rent for retail shops and uniform functional load in the form of small trade areas only.

The analysis made obviously shows that social space elements make up a certain hierarchy from the point of view of human activity and rent. If we draw a parallel with city streets, this hierarchy of streets from highways to small streets seems to be quite natural. Since "Natural movement is the proportion of movement on each line that determined by the structure of the urban grid itself rather than by the presence of specific attractors or magnets" [14]. However, mall planning is brought down to creation of a structure that would optimize the income from leasing to the maximum. However, mall authors, via structural network construction and anchor placement try to oppose natural laws of movement [6].

Let us get back to the goal of social space formulated by us – to undertake the functions of city centre streets. Achievement of this goal can become a solution to the problem of both balancing the degree of human activity in the mall as well as mall development in general. And not only as a trade and entertainment establishment but as social environment and social space as well. City centre streets constitute a powerful node, actually an anchor, in the city structure. Thus, undertaking the functions of city centre streets social space would itself become a real mall anchor.

Adjustment of the principles of comfortable city environment shaping to the mall's social space.

People's stay in the city centre presupposes certain activity: movement from one place to the other, walks, brief stops, long stops, looking at show windows, talks, communication, sports, dancing, rest, street trade, children's games, street entertainment, cultural events [9]. Many scientists deal with the issues of developing cities and their centers. These scientists strive for the development of city centre as social environment where there could take place communication between people at all levels. In particular, Jan Gehl has elaborated a whole range of city quality criteria and principles of its improvement. Striving for the development of the mall's social space we use and adjust Gehl's principles of excellence to malls [8].

Planning principles:
Placement of functional areas in social space so that the distance between them is not very long [8]. Sufficient for comfortable movement of people between areas, but quite close to create a range of interesting proposals and events for visitors (fig.3).
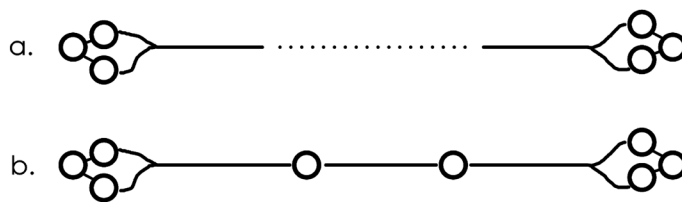
il. 3 The distance between functional areas in the mall's social space. The scheme based on [19]. Drawn by the author
There two groups of functional areas cannot be connected
Introducing two new functional areas allows a connection to be established

Securing multifunctional, diverse nature for social space and richness of impression [8].
Establishing open borders between the mall's social space and the city for the life in the city and in the mall to be able to interact [8]. One of the basic mall's problems is its isolation and detachment from urban space. Mall is often not just an isolated building, but a parking area separated from urban space. As an example of a mall the social space of which is more open there could be taken Warsaw mall "Zlote Tarasy". Entrances to the mall following the landscape conditions are available at two levels. At each level a terrace is formed where catering areas and green areas are located. And glassy mall cover creates an atmosphere of openness and space. However, this openness is only partial. Merger of social space with city environment is demonstrated by the building of Norwegian National Opera & Ballet in Oslo. Its roof constitutes part of social space that smoothly runs from the urban environment to the space inside the premises [1].

Creating impetuses for long-term stay in social space. Gehl states that of all the city life activation means creation of conditions for a longer stay beyond one's home is the simplest [8]. Since mall is a commercial structure, everything in it is aimed at gaining profit. That is mall visitors, while staying in it, are actually forced to spend money. Unlike city centre where they have an opportunity to spend time without any financial costs. This does not contribute to socialization and, moreover, does not contribute to a long-term stay at all. Creation of centers of entertainment or spectacles for which you don't have to pay or it is not necessary to pay in the social space would mentally make people get rid of the opinion that staying in a mall they must have leisure spending money.

Such centers could be playgrounds for children, open stages for fashion shows or exhibitions, screens for open shows of art movies, open libraries with the book exchange opportunities and open reading room. Arrangement of sports and recreation areas in the social space would be a serious step towards socialization: like skate park, platform for break dance, bicycle park, area for graffito competitions, etc. [1].

il. 4. Examples of buildings open for city space
Shopping Mall «Zlote Tarasy» «Norwegian National Opera & Ballet»

Principles of promoting communication among people:
Absence of walls and high partitions in social space promote communication among people and seeing space without any obstacles [8].

The sizes of social space shall correspond to the number of people for which the mall is designed [8]. Too small a space will lead to inconveniences in movement and psychological discomfort. While too large one will impede communication among people. Social space development along the horizontal line promotes communication. Availability of a large number of different levels, just the contrary, acts an impediment and creates inconveniences [8].
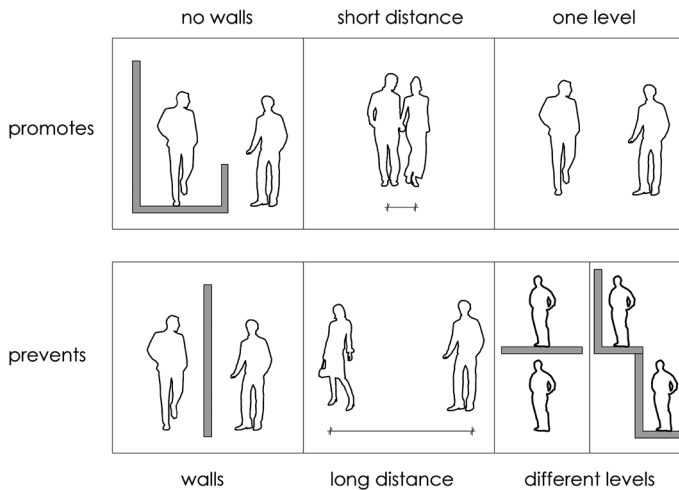
il. 5. Principles of promoting communication among people in the mall's social space. The scheme based on [14]. Drawn by the author

Social space quality criteria.
Security. The first and foremost city quality criterion, according to Gehl, is security and protection [8]. Popularity of mall can be accounted for by the fact that it is these criteria that are met in the mall perfectly well. Transport does not impede mall visitors in their free movement along the social space, mall guards keep watch of security while roof and walls ensure protection from unfavorable natural conditions.

1. Comfort. Creation of attractive environment from the point of view of principal activities:
   – Ability to walk. Comfortable space for walking, absence of obstacles, high-quality surface, accessibility for everybody (conditions for disabled people);
   – Ability to stand. Opportunity to spend time here standing, attractive places.
   – Ability to sit. Areas where one could sit, benches for having rest and observing some performance or watching some landscape.
   – Ability to see. Comfortable distances for observation, free field of vision, interesting sights and good illumination. In the streets of the city centre there will always be found plenty of objects for observation: buildings, architectural details, small architectural forms, etc. It would also be expedient to use such devices in the mall's social space.
   – Ability to talk and hear. Low level of noise, furniture creating space for talks.

   – Ability to play and go in for sports. Stimuli for creativity, physical activity. Sports and recreation areas in the social space could secure this opportunity [8].
2. Satisfaction:
   – Scope. Social space that has been designed according to human scope.
   – Ability to enjoy weather. Unfortunately, protection from unfavorable weather conditions at the same time deprives of the possibility to enjoy weather in the social space. However, there is a possibility to create open terraces that would enable visitors in the conditions of favorable weather conditions to breathe fresh air and enjoy nice landscape without going out of the mall.
   – Positive feelings. Good design, high-quality materials, nice landscapes, trees, water, plants. An important part of creating the city centre atmosphere in a mall is greenery planting in the social space and water centre creation [8].

Conclusion
The article analyses historical preconditions of mall appearance. Analysis has shown that mall was established as a counterpart of city centre for periphery residents. Thus, there has been traced expediency of contrasting mall system and city system. Mall has been considered as a system, structural elements of mall like anchor, tenants and social space have been determined. The goal of a mall as a city subsystem has been set – to undertake all the city centre functions. There has been made contrastive analysis with city structural elements. By analogy to city structure model construction, there have been outlined nine basic mall models. In the course of mall elements consideration and analysis it has been established that social space is not just a mall's element but its subsystem as well. Analysis of social mall as a system has been made, structural elements of social space like centre court, anchor court, main mall, side mall has been defined. Their basic characteristic has been found. The goal of the social space as a mall's subsystem has been set – to undertake the function of city centre streets. To achieve the goal, the principles of comfortable city environment shaping elaborated by Jan Gehl have been adjusted to the mall's social space. In particular, there have been adjusted some planning principles and principles of promoting communication among people. On the basis of city environment quality criteria there have been elaborated mall's social space quality criteria.

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