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MAGYAR AGRÁR- ÉS ÉLETTUDOMÁNYI EGYETEM

Analysis of the liveability of urban ground floors with community participation

Theses of the Ph.D. dissertation

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1 AIMS AND STRUCTURE OF THE THESIS

In order to ensure the liveability of urban areas, urban research is facing new challenges today, both scientifically and practically. The changing climatic conditions, the changing urban space use habits and the changing economic environment all make the research of the characteristics of a liveable city topical.

According to the starting point of the research, one of the foundations of a liveable city is a well-functioning ground floor zone on the border of private and public spaces. We need to look at and interpret the urban ground floor on the border of public spaces and private spaces and the urban processes taking place there in order to find the right answers in order to achieve a liveable urban ground floor. The main goal of the research is to explore the criteria of the liveability of the urban ground floor, to synthesize and apply the research published on the topic on the basis of the literature determining the current urban research and the practice of urban development. The research focuses primarily on the ground floor zone of the city centre areas of mixed-use urban areas of terraced housing.

The choice of topic for doctoral research was determined by my personal and professional interests. In the course of my professional work, I became interested in the study of the liveability of the urban ground floor zone, as well as the community participation as a method in planning and at the same time the approach determining urban research and urban development practice. In the present doctoral research, the two topics come together. The research of the liveability of the urban ground floor and the development and application of the community participation tool during the research will help to reveal the spatial theory, space use and space management processes taking place in the contemporary city.

The aims of the research are the following:

1.1 Objective 1 - To investigate the role of the urban ground floor in the life of liveable urban streets and public spaces, especially in the traditionally formed, dense, city-center fabric.

The aim of the research is to examine the role and importance of the urban ground floor in the traditionally formed urban fabric based on the literature. The research focuses primarily on the ground floor zone of the city centre areas of mixed-use urban areas of terraced housing A further aim of the research, however, is to outline the changes in the structures of the urban ground floor in the downtown areas from the time of the Industrial Revolution to the present day.

1.2 Objective 2 - To explore, summarize and group the domestic and international definitions of the urban ground floor, the approaches of space theory, space use and space management

The second goal of the research is to explore, summarize, and group domestic and international definitions of the urban ground floor. Summarize the urban ground floor interpretations at the boundary between private space and public space in groups of space theory, space use, and space management according to the focus of the approach.

1.3 Objective 3 - To examine and summarize international examples, ground floor rehabilitation programs.

The third aim of the research is to examine and summarize the structure of ground floor rehabilitation programs, the operation of space management and the role of community participation through international and domestic examples.

1.4 Objective 4 - To explore, summarize and group contemporary research presenting the criteria for the liveability of the urban ground floor.

The fourth goal of the research is to explore, group, and synthesize the latest international research on urban ground floor liveability criteria.

1.5 Objective 5 - To adapt the system summarized on the criteria of the liveability of the urban ground floor to the conditions in Budapest with an online community participation tool.

The fifth goal of the research after having done the international literature synthesis, to adapt the system of criteria to the Hungarian conditions with the participation of local experts. In this way, it integrates the criteria of a livable urban ground floor, the recent results of contemporary urban research and the knowledge of Hungarian experts on the subject.

1.6 Objective 6 - To study the liveability of the urban ground floor with the participation of local residents on the example of a selected site.

The sixth goal is to use the developed criteria system as a new test method. Based on a selected site, it analyzes the spatial theory, space use and space management criteria of the given neighborhood, street and buildings along the criteria, as well as it carries out a site-based study of the area. The study also aims at answering the researcher's question that: To what extent do the responses of the local population and local businesses appearing in the framework of qualitative research support the image of the given street criterion based on empirical, quantitative research?

2 METHODOLOGY

The research uses several methodological tools to achieve the goals: It uses literature source analysis, grouping and synthesis. Experts participate in the research through online qualitative interviews (N = 9) and an online expert questionnaire (N = 14). In order to develop a system of criteria, a new methodology will be introduced and applied, which will group and explore the criteria of the urban ground floor on the scale of “urban neighborhood”, “street” and “building” based on spatial theory, space use and space management criteria.
A public participation geographic information tool (PPGIS) was developed and implemented in connection with the research. The characteristics of the urban ground floor are examined at the selected site using empirical, quantitative and qualitative survey methods, with the participation of the local population (N = 191) and local businesses (N = 26) in the framework of a PPGIS online questionnaire.

3 SCIENTIFIC RESULTS

The following results prove the achievement of the goals formulated at the beginning of the research:

Table 1 - Objectives set at the beginning of the research and results of the research

Number of objectives	Description of objective	Number of theses
Objective 1	To investigate the role of the urban ground floor in the life of liveable urban streets and public spaces, especially in the traditionally formed, dense, city-center fabric.	**T1A, T1B T4, T5**
Objective 2	To explore, summarize and group the domestic and international definitions of the urban ground floor, the approaches of space theory, space use and space management	**T1A, T1B, T2**
Objective 3	To examine and summarize international examples, ground floor rehabilitation programs.	**T6**
Objective 4	To explore, summarize and group contemporary research presenting the criteria for the liveability of the urban ground floor.	**T3, T4,**
Objective 5	To adapt the system summarized on the criteria of the liveability of the urban ground floor to the conditions in Budapest with an online community participation tool.	**T3, T7**
Objective 6	To study the liveability of the urban ground floor with the participation of local residents on the example of a selected site.	**T7**

Following the explanation of the research goals formulated in the dissertation and on the basis of the research results, the following theses were formulated:

3.1.1 Thesis 1:

T1 / A. Based on the synthesis of domestic and international definitions: In the urban fabric of terraced housing mixed-use, downtown areas, the urban ground floor is formed at the junction of the building and the street: Part of it is the semi-public rooms on the ground floor of the building, which open onto the public area, and include the ground floor facade of the building, the gate, the entrance, the external appearance of the portal, the sidewalk in front of the building, terraces and green surfaces as well.

Based on the spatial theory factors determining the physical properties of the space, the urban ground floor is a temporary filter space, a border, which is made up of interior spaces inside the building, thus the ground floor rooms opening directly to the external space and the related external spaces outside the building. From the point of view of space use: the urban ground floor consists of public spaces based on the degree of publicity and semi-private spaces with limited public access. While in terms of ownership and maintenance aspects that determine space management: it consists of privately owned or maintained and community-owned and maintained spaces, which are external and internal spaces, to be interpreted together in an urban scale and in their operation. (Figure 1)

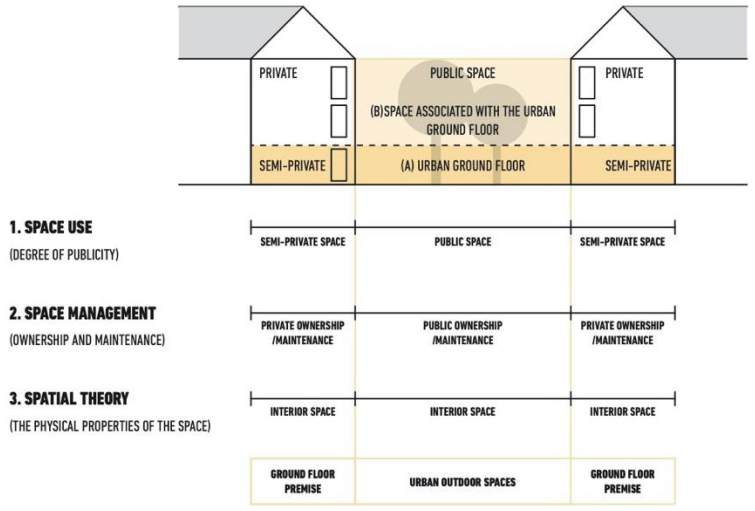

Figure 1 – The urban ground floor

T1 / B. The perception of the urban ground floor is influenced as a secondary space by the outdoor space above the ground floor zone from the first floor to the height of the second and third floors and the part of the building's street-facing façade above the ground floor zone. The properties of this secondary space (Figure 1-2 - space related to the urban ground floor (B)) influence the perception of the space user present in the ground floor space (Figure 1-2 - urban space on the ground floor).

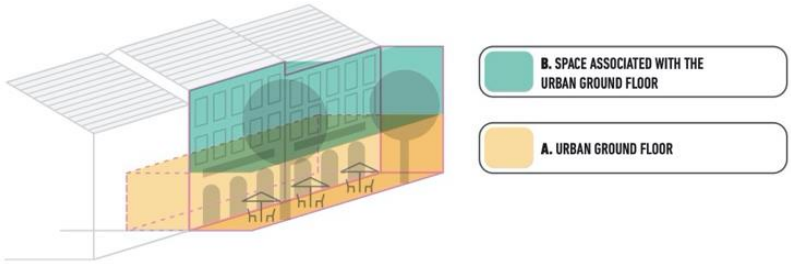

Figure 2 – Space of the urban ground floor and space associated with the urban ground floor

3.1.2 Thesis 2:

The bases of contemporary research summarizing the criteria of a liveable urban ground floor are still the works of postmodern urban theorists who oppose modern architecture, protect the classical urban ground floor, and the system of classical urban streets and urban blocks. A detailed analysis of the literature has revealed that the works of postmodern urban theorists who oppose modern architecture refer to the criteria of spatial theory and space use that the contemporary literature summarizes as criteria for a liveable, human-scale urban ground floor.

3.1.3 Thesis 3:

In the course of the research, a new methodology was developed and applied, which examines the liveability criteria of the urban ground floor on the scale of "urban neighborhood", "street" and "building" based on spatial theory, space use and space management criteria.

The methodology on the "neighborhood" scale focuses on the ground floor zone of the city centre areas of mixed-use terraced housing urban areas. On a "street" scale it focuses on the ground floor and open spaces. While on a "building" scale it focuses on the human zone of the ground floor and the directly adjoining outer zone.
The system of spatial theory criteria means the characteristics determining the physical properties of space, the characteristics of space use are functional characteristics related to the use of space and related to space. While the aspects of space management include organizational factors, actors, structures and characteristics related to the operation and maintenance of the urban ground floor. (Figure 3)

In the course of the research, the methodology was applied in the processing of the literature, in the establishment of the system of criteria for the liveability of the urban ground floor, and in the urban ground floor analyses carried out with community participation.
The research summarizes the liveability criteria of the urban ground floor in a system of 33 criteria based on the current literature. Then, based on qualitative expert interviews (N = 9), the system is synthesized in a system of 32 criteria, adapted to local social, economic and environmental conditions. (Table 2)

Based on the system of criteria, a complex picture can be formed of the social, economic and environmental characteristics of the urban ground floor. Based on the system, the strengths and weaknesses of the ground floor zone and future development opportunities can be summarized on the scale of the urban area, the street and the building.

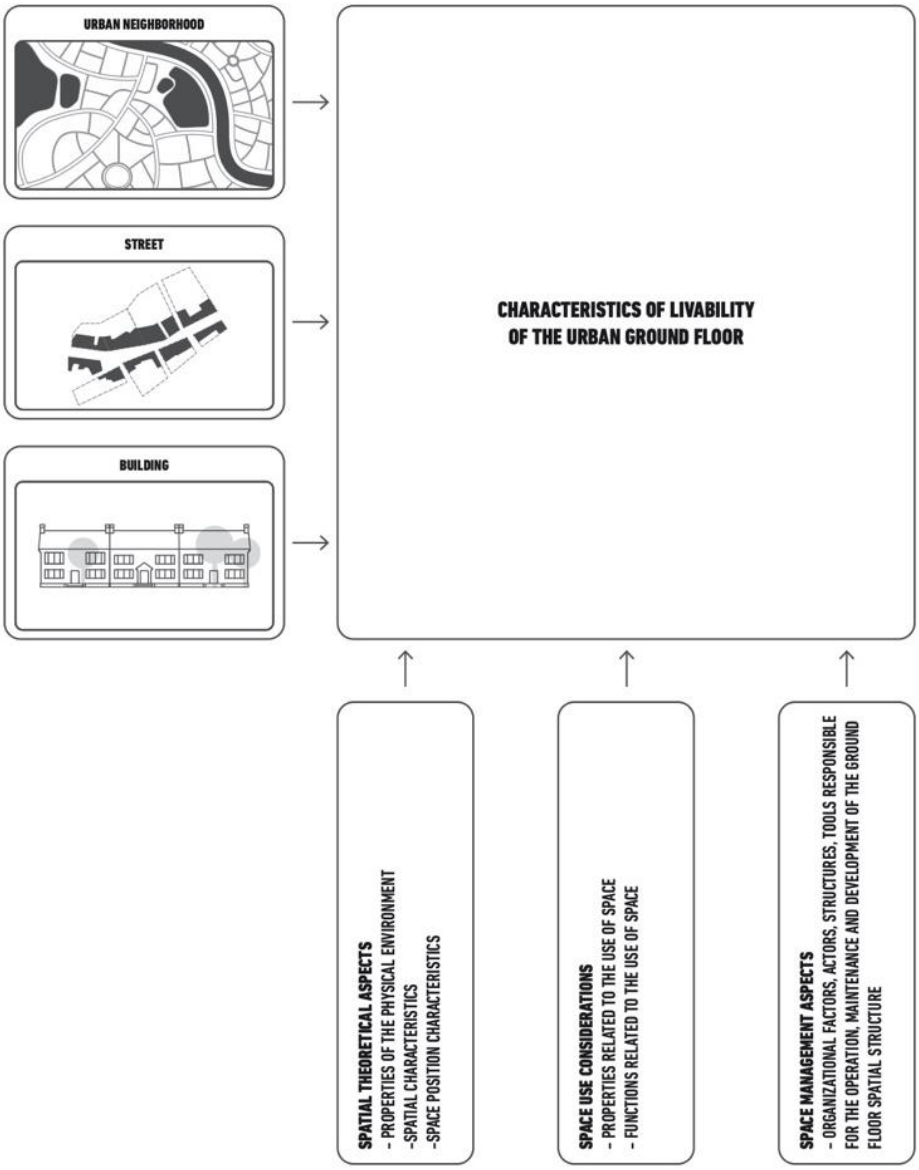

Figure 3 - Methodology for developing the system of criteria

Table 2 - The set of criteria created as a result of the research presenting the characteristics of the liveable urban ground floor

Scale	Grouping	Serial no.	Criteria
NEIGHBOURHOOD (E)	Spatial theory (ST)	NST1	***Good position within the city***
		NST2	***Good connection with the system of urban green infrastructure and the system of urban open spaces***
		NST3	***Appropriate density***
	Space use (SU)	NSU4	***Mixed-function areas and compact space use***
		NSU5	***Public security***
		NSU6	***Place identity, a community using the ground floor premises, the presence of the residential function***
	Space management (SM)	NSM7	***Vision and strategy, partnership networks***
		NSM8	***Place marketing***
		NSM9	***City management, basic local services***
		NSM10	***Clear and comprehensible information system***
STREET (S)	Spatial theory (ST)	SST11	***A space accessible on foot and encouraging people to walk***
		SST12	***Appropriate spatial proportions "spatial perception of an exterior living room"***
		SST13	***Sensation of comfort (protection from wind, noise, sunshine; shade)***
		SST14	***Appropriate basic infrastructure***
		SST15	***Tree-lined green street***
		SST16	***Architectural diversity, exterior architecture suiting the environment***
	Space use (SU)	SSU17	***The reduction of traffic, low noise pollution***
		SSU18	***Parking opportunities and the balance of pedestrian surfaces***
		SSU19	***Active and high-quality ground floor zones, functional diversity***
		SSU20	***A place suitable for waiting, the possibility to sit down***
		SSU21	***The possibility of diversified space use and the existence of different age groups***
	Space management (SM)	SSM22	***Diverse tenant mix***
		SSM23	***International chains and independent enterprises***
		SSM24	***Street management***
		SSM25	***Active hours***
BUILDING (B)	Spatial theory (ST)	BST26	***Details perceivable in the speed of movement of pedestrians;***

			architectural quality, architectural character
		BST27	***Vertical orientation of the facade, smaller premises next to each other***
		BST28	***Active and transparent ground floor façades, soft edges***
		BST29	***Appropriate features of ground floor premises, appropriate premise height***
		BST30	***Appropriate signs and inscriptions***
	Space use (SU)	BSU31	***Sociable human zone, flexible space use***
	Space management (SM)	BSM32	***Joint representation***

3.1.4 Thesis 4:

The recognition and support of the spatial theory and land use type criteria characterizing the urban ground floor is much higher among the experts dealing with the topic compared to the spatial management criteria. Although the role of the space management sector and criteria is essential for the proper and successful operation of urban streets.

The criteria obtained during the research were evaluated in the framework of an online questionnaire with the participation of selected experts (N = 14). The proportion of criteria for the liveability of the urban ground floor was compared with the answers to the expert questionnaire. Based on the results it can be stated that the distribution of spatial theory (42%), space use (30%) and space management (27%) criteria in the established system is balanced. While the expert questionnaire shows that the proportions of the spatial theory (52%) and space use (35%) criteria received much more points than the space management (13%) criteria. The result supports the assumption that the role of space management is underestimated among Hungarian experts compared to international practice, however, its domestic practice is still unfolding.

3.1.5 Thesis 5:

The urban ground floor plays a key role in the life of well-functioning urban public spaces, for which the active, high-quality ground floor functions, the presence of functional diversity, the human-scale ground floor zone and flexible land use are particularly important criteria in the ground floor zone of surrounding buildings.

Based on an expert questionnaire (N = 14) and qualitative expert interviews (N = 9), the research examined the most important criteria for the liveability

of the urban ground floor at the scale of the urban area, the street and the building. According to the expert questionnaire and interviews, on the scale of "neighborhood" the good position within the city, the presence of mixed-use areas and compact land use, local identity, the population using the ground floor and the presence of the residential function are the most important criteria influencing the liveability of the urban ground floor. On the "street" scale, the interviewed experts consider the existence of active and high-quality ground floors and functional diversity to be of paramount importance, while on the "building" scale the highest evaluation was given for the social zone, flexible space use (entrance area, street terraces) and active, transparent facades, soft edges.

3.1.6 Thesis 6:

The spatial management study of ground floor rehabilitation programs showed that well-functioning development programs include short-term, medium-term, and long-term elements, as well as communication (soft), built (hard), and management (org) elements. In the case of successful programs, the development process is accompanied by community participation.

The research examined the comparative space management of European urban examples, complex ground floor rehabilitation and street rehabilitation programs. The research examined the goals, structure, strengths and weaknesses of the programs, as well as the institutional system behind rehabilitation. The difficulties of the programs are similar in several cases: compliance with regulations, incentives for owners, inflexible legal environment, reconciling private and public interests. Difficulties in management included the number of participants in the development process (too high or too low) and unclear responsibilities.

3.1.7 Thesis 7:

In connection with the research, online public participation geoinformation systems (PPGIS) have been created, which can be used for the research of the urban ground floor, and for the planning and implementation of development programs with the participation of the local population.[1]

[1] The professional concept of urban development of the PPGIS online tool www.budapestdialog.hu (2014) is 100% written by co-founder Klára Szerdahelyi-Németh. (co-founders: András Berecz, Tamás Szerdahelyi)

Based on the participation of local communities (local residents, local businesses) through a place-based online questionnaire (PPGIS), a socially and economically more sustainable development program can be developed for the urban ground floor. In the framework of the research, the ground floor zone was examined at the selected location on the basis of a system of criteria. The studies were conducted with the participation of the local residents (N = 191) and local entrepreneurs (N = 26). The research yielded the following results: In the case of spatial theory and space use type criteria, the empirical, quantitative and qualitative studies, that involve local residents and local entrepreneurs, are largely supported (91% - spatial theory criteria, 93% - spatial use criteria) by qualitative research results. However, in terms of space management criteria, the results of the entrepreneurial questionnaire provide less (67%) support for empirical, quantitative, and qualitative studies.

Following the explanation of the research goals formulated in the dissertation and on the basis of the research results, the following practical findings can be formulated:

3.1.8 Finding 1:

The established system of criteria provides a good basis for the elaboration of complex development programs aimed at the liveability of the urban ground floor, for the thematic participation of the related community, and for the selection and delimitation of potential development areas.

Changes in the historical urban fabric, the transforming areas of the city centers and the newly built neighborhoods all pose challenges for experts looking for making a liveable city. The system of criteria for a liveable urban ground floor is a well-applied tool in the examination of the ground floor zone, and then in the creation of the development program based on it. It also helps to thematize the related community participation process. Based on some criteria and the hierarchy of the existing street system, potential areas for the development of the ground floor zone can be identified.

The www.kozossegitervezes.hu PPGIS online tool (2020) was implemented in part from European Union funding (VEKOP-2.1.7-15-2016-00062) The professional concept of urban development of the PPGIS online tool www.kozossegitervezes.hu (2020) is 100% written by co-founder Klára Szerdahelyi-Németh. (co-founders: András Berecz, Tamás Szerdahelyi, Zoltán Avar, Gergely Lukácsházi) The PPGIS portal www.kozossegitervezes.hu was created with the development of the functional extension of the PPGIS portal www.budapestdialog.hu.

3.1.9 Finding 2:

The online questionnaire based on a geoinformation system (PPGIS)[2] can be used effectively in various scales of urban development and public space renewal.

The public participation geoinformation online tool developed in connection with the research can help the participation of local communities in the urban development process, from the urban[3] to the street[4] or building scale. The tool can be used well for assessing needs related to the development. During the planning process it helps to seek the opinion of the locals, to assess the habits of land use and also helps the transparent communication process surrounding the development.

3.1.10 Finding 3:

The system of criteria can be used in the preparation of the Local Building Regulations (HÉSZ, KÉSZ), the City Image Handbook (TAK) and the Regulations of City Image Decree (TKR).

The criteria developed in the course of the research, created on the scale of urban neighborhoods, streets and buildings, can enrich the research system of HÉSZ (KÉSZ), and TAK. In the course of the research, the indicators of the criteria summarized on the liveability of the urban ground floor may help to regulate the ground floor zone of the built-up areas of the city center in the local building regulations (HÉSZ, KÉSZ) or the Regulations of City Image (TKR).

[2] www.kozossegitervezes.hu
[3] Urban development concept, Urban development strategy
[4] Urban rehabilitation program, Ground floor rehabilitation, Street rehabilitation

4 CONCLUSION AND RECOMMENDATIONS

The focus of the research was on the urban ground floor, which greatly influences the liveability of urban areas and stretches between private and public spaces. The main goal of the work is to explore and summarize the criteria determining the liveability of the urban ground floor. The research formulates and explores it through six goals.

Based on the results of the research, further urban research can be done: Based on the criteria of a liveable urban ground floor, a comparative examination of sites, parts of cities, open spaces and streets of different scales can be performed. The research can be used in the preparation of the urban development program of city center areas and main streets.

As a continuation of the research, it is possible to add additional general data and indicators to the individual criteria, by which the application of the system as a method of analysis can become more efficient.

The topic of spatial management lies on the border between urban and management sciences, and it is barely researched in Hungarian urban science scenes. It is possible to expand the framework of the present research on the criteria of spatial management of the liveability.

The use of the online public participation geoinformation (PPGIS) questionnaire developed in connection with the research offers additional possibilities. In the present research, the method was used to compare areas of urban ground floors and to involve the local population and local businesses in the research. In further research, the geoinformation-based online questionnaire can be used to effectively model the land use habits, needs and future expectations of local residents and local businesses.

5 PUBLICATIONS CONNECTED TO THE RESEARCH TOPIC

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