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Special Issue: QUESTIONS - Trends in Architectural and Urban Planning Education - Between Fundamental Approach and Research by Design.

PREFACE

This volume contains a part of the papers presented at the First International Workshop in Architecture and Urban planning, organized by the Faculty of Architecture and Urban Planning of the Technical University of Cluj-Napoca. Entitled **"QUESTIONS - Trends in Architectural and Urban Planning Education - Between Fundamental Approach and Research by Design**" this workshop was organized on the occasion of the final diploma project sessions of students of Faculty of Architecture and Urban Planning of the Technical University of Cluj-Napoca and held in Cluj-Napoca (Romania) on 4-7 Julie 2012.

The aim of the workshop was to inform and provoke debate over various research experiences in architectural and urban planning education including research by design topics.

We proposed a meeting of representatives (teachers and fellow researchers) of architecture and urban planning education from Europe, for sharing and discussing a wide range of experiences related to research within architecture and urban planning education, a good opportunity for disseminating these new attitudes. The main purpose was to investigate the field, its limits, the differences and the specificities of actual trends in architecture and urban planning education. Which are the challenges that research in architecture and urban planning can solve in the near future? How is research evolving in its relation with the practice of architecture and urban planning and which are the most recent Romanian contributions to these approaches? We wanted to focus on the subject by investigating the trends in architecture and urban planning thus channeling the efforts of academics and professionals for finding answers to future challenges.

Proposed topics were:
- research contributions in architecture and urban planning education;
- foreseeing the future through new challenges addressed to the research;
- architecture and urban planning: limits, overlap and determinations;
- research by design, recognition, relativity, dissemination;
- towards a flexible teaching process of architecture and urban planning.

During this workshop, students and community members had the opportunity to attend several keynote lectures of professors from universities involved in Erasmus programs with our faculty: Prof. Raf de Saeger, Department of Architecture Sint-Lucas, Belgium, Prof. Mariann Simon, FA-UTE Budapest, Hungary, Prof. Petra Pferdmenges, Superior Institute of Architecture Saint-Luc de Wallonie, Belgium Prof.Frederic Bertrand, ENSA de Paris Belleville, France, Prof. Françoise Very, Ecole Nationale Supérieure d'Architecture de Grenoble, France, of professors from the Babeș-Bolyai University of Cluj-Napoca: Prof. Pompei Cocean, Faculty of Geography and Assoc.prof. Rudolf Poledna, Faculty of Sociology and of professors from the University of Architecture and Urban Planning "Ion Mincu" Bucharest , Assoc. Prof. Cerasella Crăciun.

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The editors are very grateful to all authors for their valuable contribution and to all the colleagues helping in reviewing the papers published in this book. We must mention the importance of material support assured by our colleagues lect. Șerban Țigănaș and lect. Dana Opincariu and thank for the administrative and organizational skills to assist. Paul Mihai Moldovan, assist. Ionuț Julean, lect. Cristina Purcar and Cristina Miclea.

We are very grateful to the Rector of the Technical University and to the Head of International Office of T.U, which encouraged and supported this workshop.

The Editors

Cluj-Napoca, July 2012

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Continuity and discontinuity in public space. The Transylvania Cultural Center in Cluj-Napoca

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Abstract

The City of Cluj-Napoca has organized an architectural competition with the main goal to determine the best solution for the design theme for a new Cultural Center. This theme is based on the city's Cultural Development Strategy. The new Cultural Center should host a new Philharmonic Hall, offices, restaurants, spaces for performing artists, a building for restoration center with adequate facilities, arts galleries, multifunctional spaces, convention center with libraries and spaces for exhibition ,etc.Our team earned the first prize ex-aequo with another team, also from the Technical University of Cluj-Napoca. The jury appreciate our proposal because of the simple solution of traffic; the new street opened hear and named "The Philharmonic Hall street" is facilitating the auto and pedestrian circulation occasioned by the heterogeneous activities and cultural events should happened in this area/4/. The new street was conceived as a characteristic urban space of city of Cluj-Napoca, where the main representative spaces are characteristic streets, a consequence of the medieval age urban heritage.Also was well appreciated our approach in the distribution of spaces in the four main buildings that we proposed to be erected in four stages: The Philharmonic Hall, the Center for Restoration (studies and offices), the Convention Center and the House of Arts, all being in connection and articulated to allow the appropriation of spaces for any type of cultural event (from larger to smaller scale).

Rezumat

Primaria municipiului Cluj-Napoca a organizat o competitive arhitecturala cu scopul gasirii unei solutii optime pentru tema de proiectare a noului Centru Cultural Transilvania. Aceasta tema se bazeaza pe Strategia de Dezvoltare Culturala a municipiului. Noul centru cultural trebuie sa cuprinda un nou sediu al Filarmonicii, birouri, restaurante,un sediu pentru centru de restaurari cu dotarile adecvate, galerii de arta, spatii polivalente, sali de conferinte cu librarii si spatii pentru expozitii, etc.Echipa noastra a castigat premiul 1 ex-aequo alaturi de alta echipa din Universitatea Tehnica din Cluj-Napoca. Juriul a apreciat propunerea noastra datorita simplitatii solutiei de traffic: noua strada deschisa aici si pe care am numit-o sugestiv "Strada Filarmonicii" usureaza circulatia auto si pietonala intensa, determinata de multitudinea activitatilor si evenimentelor care vor avea loc aici /4/. Noua strada a fost conceputa ca spatiu urban caracteristic al orasului Cluj-Napoca, in care principalele spatii reprezentative sunt strazile cu specific, consecinta a mostenirii urbane medievale.A fost apreciata deasemenea distributia spatiala a principalelor functiuni in cele

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patru volume principale, realizabile in patru etape successive si avand urmatoarele destinatii: Sediul Filarmonicii, Centrul de Restaurari, Centru de conferinte, si Casa artelor. Aceste cladiri se afla in legatura unele cu altele, putand functiona separat si impreauna, in functie de complexitatea evenimentelor cultural care urmeaza a se desfasura cu diferite ocazii.

Keywords: urban pattern, landmark, cultural events, new identity, parvis , porch , hierarchy, minimalistic language.

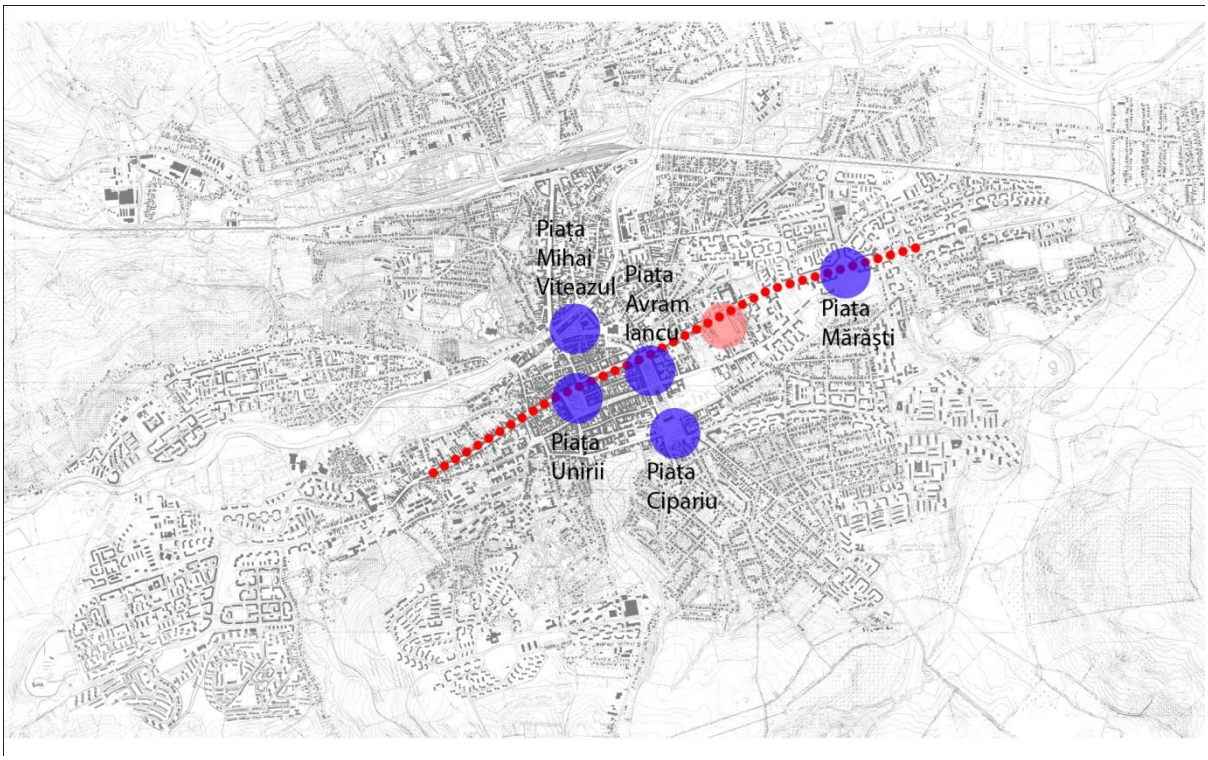
1. Introduction – emplacement and collocation .

The location of the new Transylvania Cultural Center is in the east side of the city of Cluj-Napoca, close to the town center, in an area characterized by rural type urban pattern: long streets with long and narrow lots, typical for the buffer area which surrounded the fortified medieval town [1]. These lots were utilized and merged in different ways for new functions necessaries in the XIX-th and XX-th centuries in the neighborhood of the town center. The military barrack erected here in the XIX-th century illustrate these, and became now one of the city's historical buildings . These one flat building is the main factor of identity of the location area for the cultural center, with its more than 70 meter long façade, being also one of the main landmarks of the zone with the nearby new business building.

Figure 1. Aerial view of the proposed Cultural Center

The emplacement area of 13,923 sqm is located to the southern front of the 21 December avenue and it is surrounded by the former military barrack to the north, by gendarmerie and a tall business

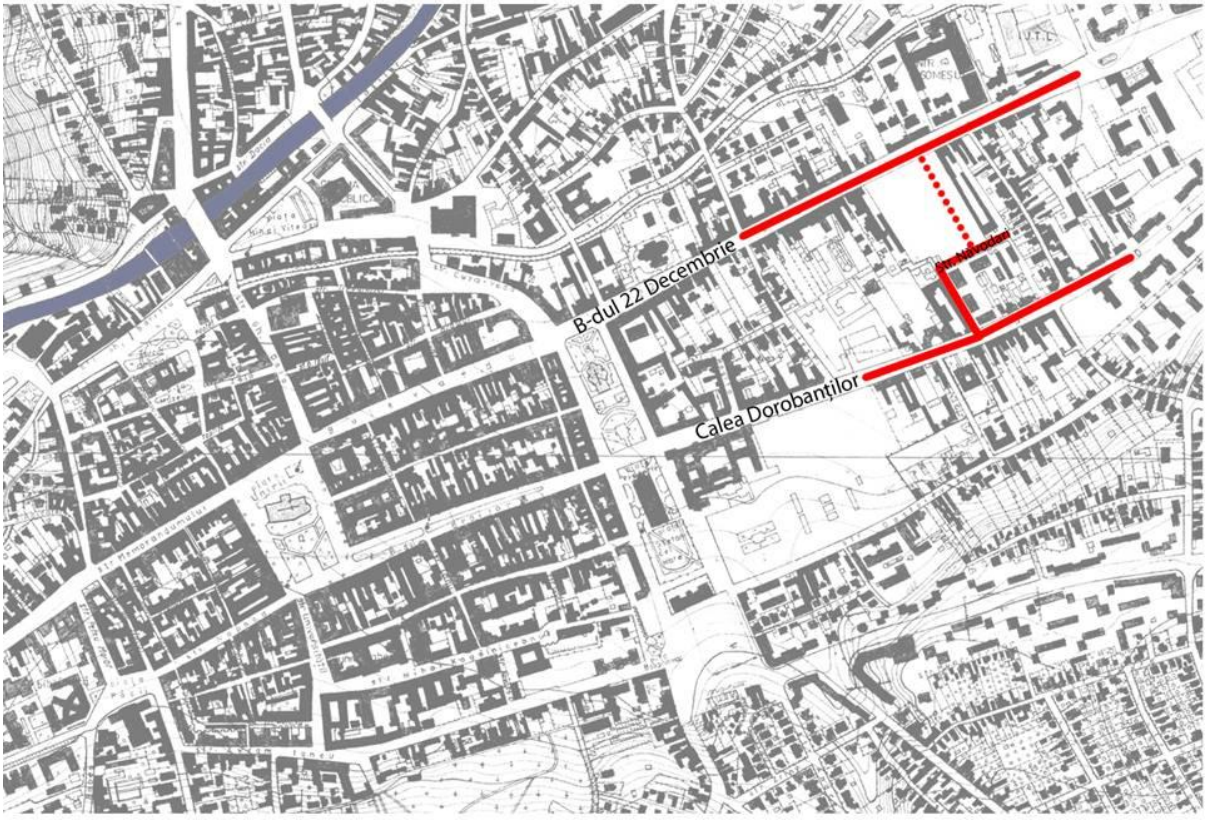
center to the west, small residences and offices at the east and Navodari street at the south (Fig. 2, Fig. 3).
We proposed to organize the new Cultural Center along a new street (we called it The Philharmonic Hall street) connecting with Navodari Street the two main axes on the east-west direction of the historical center: Eroilor street and 21 Dec. 1989 Avenue (Fig. 4). This street serves for the adequate distribution of car and pedestrian traffic and became a cultural artery, music, arts and cinematographic events expending here from the inside of surrounding



F2. Location of the new Cultural Center – in red

F3. Site limit

buildings .The north-south orientation of this street allows the permanence of the sun throughout the day, favoring the presence and stand of pedestrians who participates at the cultural events.



F4. Doted line - the path of the new street – in red

The north-south layout of the proposed street remind the axe of the medieval town, connecting the main public spaces: the former Ovar Square, the former Corn Square, the former Gubernium Square. It also remind a specific attitude of opening new streets in the XIX-th century in Cluj, when the city development needed new mains and representatives buildings specifics for the new administration and the rich bourgeoisie, and connecting them into the old urban pattern[5]; with that occasion, a new image erected , the architecture and the public space(the street) specific for that period of time(Fig. 5, Fig. 6).

The presence of the new" Philharmonic Hall street" is in the favor of the structure of the modern urban space, the new cultural area offer a continue and coherent image of contemporary minimalistic architecture , a new "public space" specific for the new time of the town.

In this way we collocated [3] a new contemporary urban space, with a strong identity in a heterogeneous zone (from the point of view of buildings, of urban pattern and urban functions).

Street alignment plantation enriches the image of the street (Fig. 17, Fig. 18).

Two main landmarks [6], limit the new street, and they are conceived at the scale of their neighborhoods, accorded to the specific spatial hierarchy of the block . At the north end of the street , at the crossing with 21 Dec.1989 Avenue ,the big porch close the front space of the Philharmonic Hall, and make the building main entrance monumental and very visible. At the south end, at the crossing with Navodari street, a diaphragm- building – the Conference Center, close the perspective towards a small group of blocks of flats.

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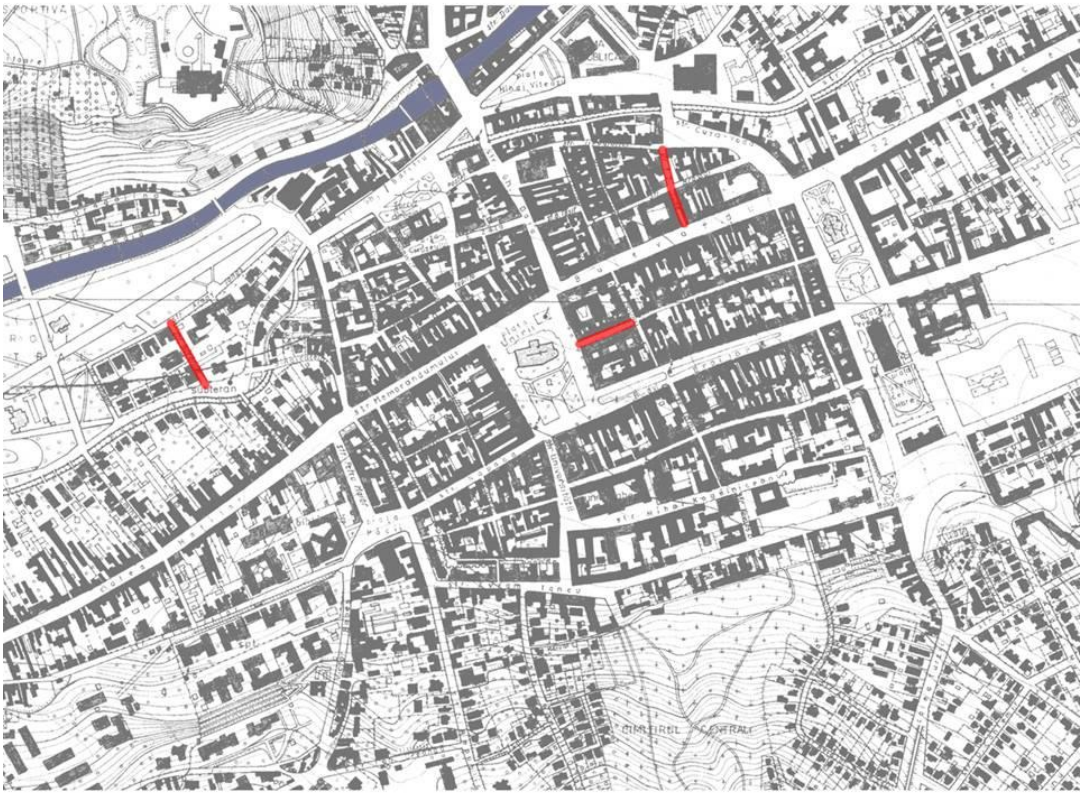
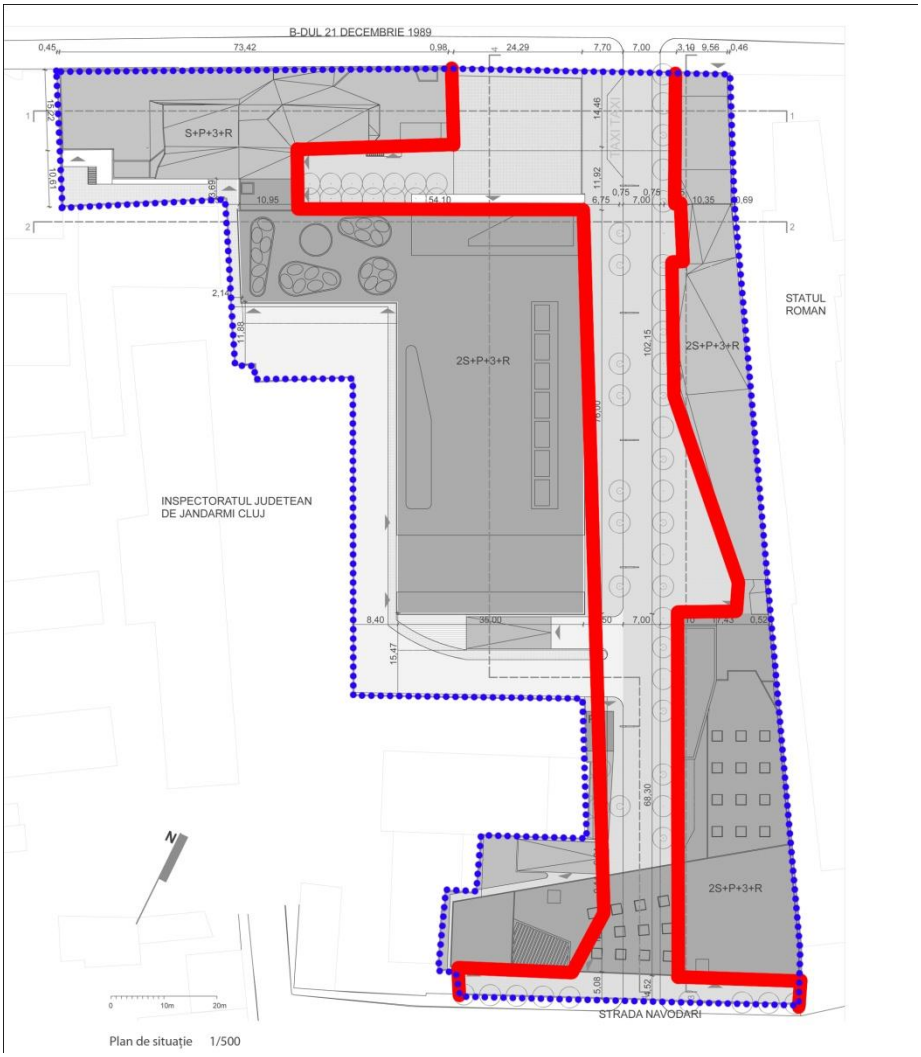
F5. Paths of new streets over the 1869 plan of Cluj-Napoca



F6. Paths of these streets today, in current urban fabric



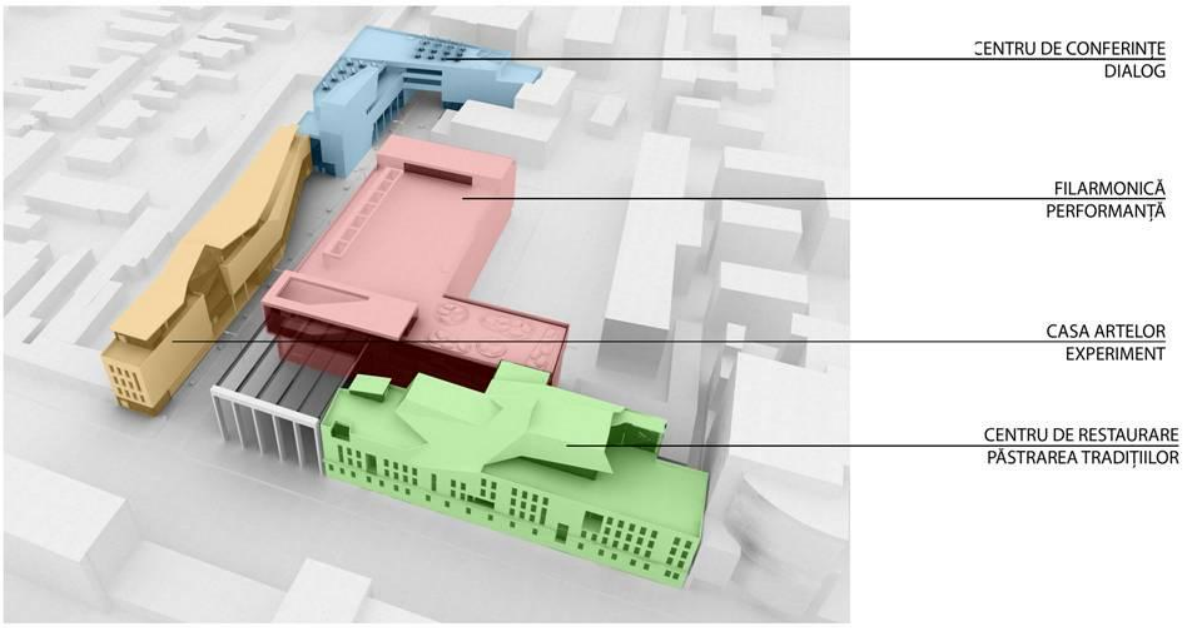
F7. The new street, and limit (in red) of public space created

The vertical disposal of different layers of space is reference to tradition . The transparent ground-floors makes visible the cultural events located in the surrounding buildings, inviting the pedestrian to participate, stimulating social connections ,democratic , safe and friendly attitudes. Surprise elements – the green gardens on the top levels' terraces (Fig. 13) of the new buildings, contribute to the friendly atmosphere of the cultural area.
The image of the rectangular street is enriched with variable enlargements of the sidewalk in the front of exhibition areas or book-shops (housed in the House of Arts), open air activities being welcome here (Fig. 7, Fig. 17), and a small green area aggregate the secondary entrance in the Philharmonic Hall with the main access to the Center for Restoration.
This urban - architectural frame allows fair reports between buildings at local level, establish a polite neighborhood, making a subtle suture in the nearby traditional tissue at global level.

2. Stages.

The Cultural Center is proposed to be realized in four stages. Each stage corresponds to a specific activity, and the buildings hosting these activities have a distinct identity : the Philharmonic Hall

emphasize the performance, the Restoration Center – preserve traditions, the Conference Center encourage dialogue, the House of Arts – builds the experiment.



F8. The for stages of the project : first(in rose)- the Philharmonic Hall, second(in green)- the Restoration Center, third(in blue)- the Conference Center and forth(in beige)- the House of Arts.

The first stage is of The Philharmonic Building. The main access for audience in the main hall of the Philharmonic, from the main street 21 Decembrie Avenue, passes through a monumental porch attached to the historical monument of the military barrack and limiting the open space that precedes the entry. In the same time, there are many possibilities for the audience to interact with the Philharmonic street events during concert breaks, at different levels of the main hall. Large windows or ports (that can be open) of the foyers assure visual or direct contact with the surrounding city. The big and small concert halls are linked through the main hall to a cafeteria in the basement and to the Restoration Center . Access for cars are solved from the new proposed street in an underground parking by two 15% ramps with both way access. From these new street is an easy access to the service courtyard of the building, for downloading scenery, large musical instruments, etc . Here, the cars belonging to the institution have specially assigned parking spaces. The service access to the building is meant to be as easily as possible for every entry of this building. The service access to the building is meant to be as easily as possible, to every entry of this building.
The total number of floors is eight: three underground floors, 4 floors above ground and one roof floor. The terrace floor is conceived like another public space for different cultural events, connected to interesting panoramas of the city.
The Restoration Center is proposed to be realized in the second stage. By building on top of the existing historic monument – the military barrack , a two levels building (underground floor with arches and vaults specifics for the XIX century architecture of Transylvania), we make also a reference and an example for the activities that take part here. A hidden – surprising, open space with trees, connect at the ground-floor the entries of the Restoration Center with them of the Philharmonic Hall. On the top floor of the building there is a reference to the traditional roofs: a tall and funny multifunctional hall, connected to the usual functions of a restoration center (storage, laboratories etc. It also has a strong visual identity, taking part to the heterogeneous movements of

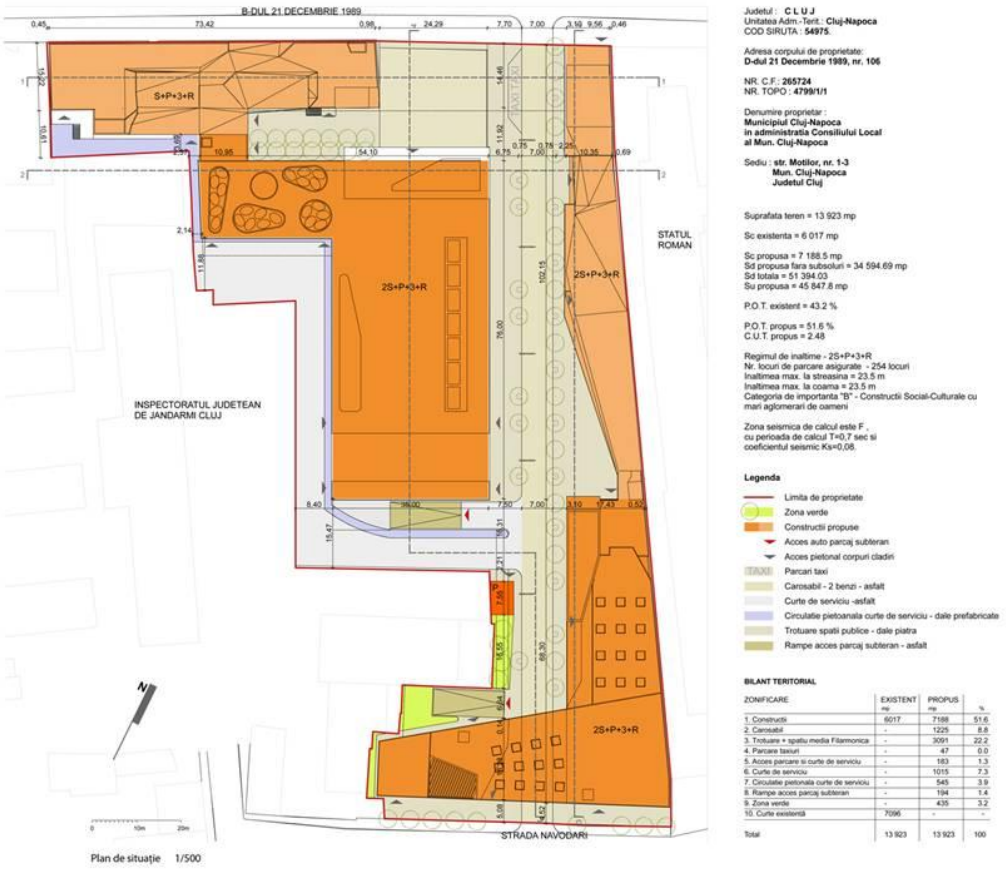
the historical roofs of the city. The number of floors is identical to the one of the Philharmonic Building.

The Conference Center - the third stage of the project is conceived as a diaphragm- building. It closes the perspective of the new street towards the Navodari Street and in the same time articulates the existing housing buildings to the new Cultural Center. The public spaces located to the ground-floor of this building, are a response to this neighborhoods, housing popular activities At the top floor of this building, two restaurants offer panoramas of the city. The conference halls have different capacities, and the foyers and entry halls allow for diverse activities.

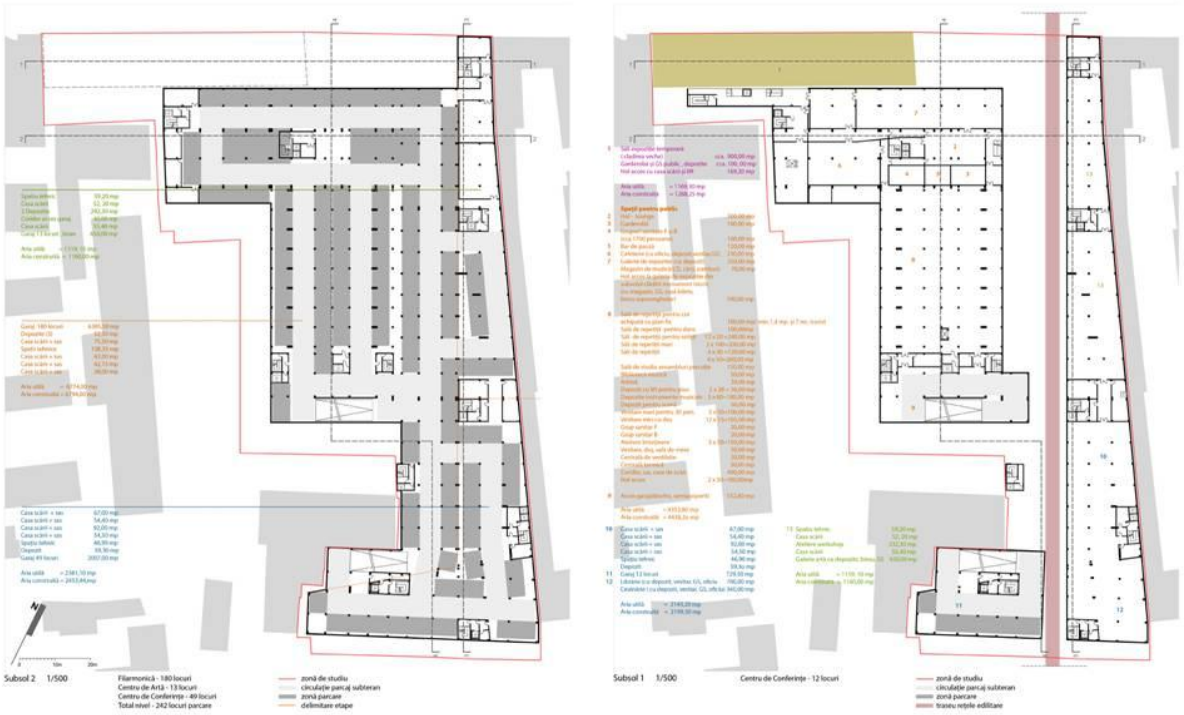
The fourth stage of the project is the House of Arts. This building fills in the front to the B-dul 21 Decembrie 1989, and also makes an articulation with the western front of the new proposed street. Here, there are small apartments and spaces for artists, workshops, unconventional spaces for artistic education and public dialogue, exhibitions, art galleries, book-shops..

3. Functional and spatial scheme.

The architectural ensemble is composed by four separate buildings, linked if necessary two by two: the Philharmonic Hall together with the Restoration Center, the Conference Center together with the House of Arts.



F9. Site plan of the Cultural Center



F10.The two underground floors of the Cultural Center

F11. Ground -floor and 1st floor of the Cultural Center

F12. 2nd and 3rd floors of the Cultural Center

F13. Top floor of the Cultural Center and views from the top floor

The Philharmonic Hall takes part as an open urban stage to the city's spectacle, by it's “ parvis” and monumental porch. The main entrance hall links the two concert halls (one of 1182 places and one of 500 places). The two concert halls' foyers are articulated by the semi-floors of the entrance hall. The activities in the two concert halls can take place simultaneously or separately in the same time. For main cultural events, the broad space of the hallways can sustain different activities, ranging from exhibitions to experiment performances, festivals, etc.

F14. View of the Philharmonic Hall from the new street

F15. View of the Philharmonic Hall from the new street by night

The size of the spaces is toned down by the lapidary and minimalistic architecture used. The transparence of the public spaces suggests openness, friendship, equality. To the ground-floor of the building there are spaces for the visiting public: bistro, exhibition space; these spaces link to the underground floor of the Restoration Center. The artists' facilities are at all the floors of the building. The underground parking has a restricted access to Philharmonic Building entry hall. The service courtyard makes possible the service access to the Philharmonic Building and Restoration Center.
The Restoration Center is placed in the existing monument building, and on top of it, using a light metal structure. At the upper floors there are placed the activities regarding research and restoration, specific education facilities, and different organizations related to the restoration domain. The multifunctional hall, situated on the terrace floor, is meant to be a distance landmark of the city, by its exuberant volume. A transparent hall links he center to the Philharmonic Hall, and can sustain the expand of different cultural events.

F16. View from B-dul 21 Decembrie 1989 - from left ot right: House of Arts Building, Porch of the Philharmonic Hall, Restoration Center

Besides the usual specific functions, the Conference Center has media spaces, shops at the ground-floor and underground floor, exhibition facilities, bookshop, bistro and two restaurants at the top floor of the building. Access of people and goods is possible from the new street and Navodari Street. The underground parking has a restricted access to the main hall of the building. By the staircase, the main hall is articulated to the House of Arts; the two building can function together or independent. Also the different floors of the building can function independently in case of smaller events.
In the House of Arts there are many working spaces for artists, workshops, spaces for education facilities and art communication, exhibition halls.. At the upper levels there are small apartments for artists.

F17. View from Philharmonic street towards the Conference Center

F18. View from Philharmonic street towards B-dul 21 Decembrie 198

F19. View from Philharmonic street towards the House of Arts Building (in the back the Conference Center)

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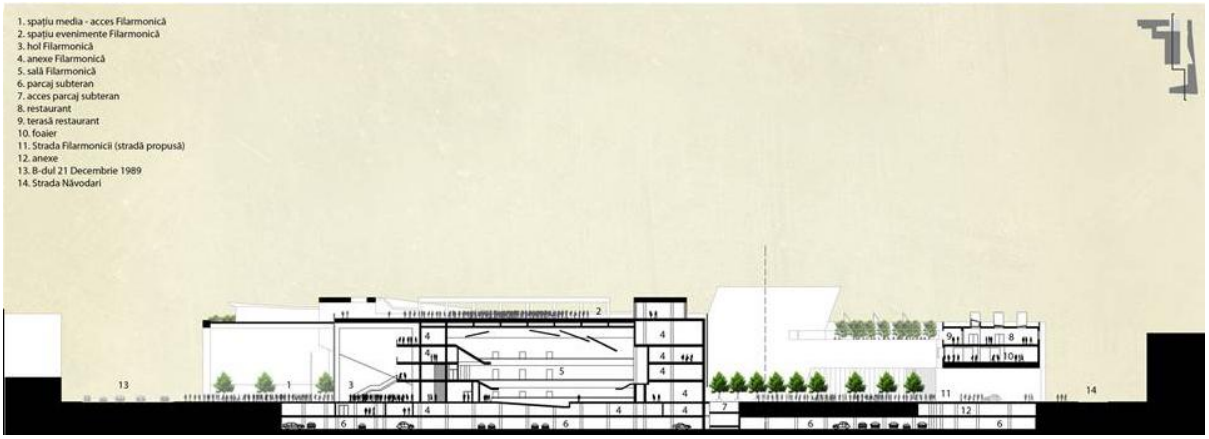

F20. Cross Section : Philharmonic Hall and Conference Center

F21. Cross Section: House of Arts and Conference Center

The ground-floor of the building is conceived as a space for advertising the city: there is an important tourist information center. Everything in this building is open to the public. The generous hallways are adaptable for various activities and the whole space suggests fluidity, movement, democracy, transparency. The green roof is a recreational area for the artists living here and in the same time an ecological attitude towards the environment.
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4. Conclusions.

We believe the street is a real urban space, specifically traditional for the European city [2], it is consistent with the intrinsic character of the place and has the capacity to provide an area where individuality is marked. We conceived the new Transylvania Cultural Center around a new street, which we considered necessary for a good functioning of entire zone, a new street which could sustain all the important functions that would be introduced in this area, facilitating the pedestrian and auto traffics and the right distribution and integration in the town. Called the Philharmonic Hall street, convinced that it might become an important landmark of Cluj-Napoca, this street is thought to have a strong identity associated to the functions of the new cultural center, and the new contemporary architectural image. That was, we think, the reason of the appreciation of our work, proved by the awards achieved. The big porch we proposed in the front of the "parvis" of the Philharmonic Hall was also considered a good and significant landmark, in this way the long historical building from her neighborhood was counterpoised by the suggestive architecture. We suggested also a possible image for the new architecture that should be realized: a minimalistic language, in agreement with the austere new and old times (the solid wall was the characteristic image in the architecture of Cluj-Napoca).
The urban space typical for European countries[5] to which we belong, is embodied by streets and squares. The street is a major representative space, which can integrate a great sum of functions, adding value to the wellbeing and social life of a city..

References

[1] Agachi M.I.M., *Clujul modern - aspecte urbanistice*, UTPress Cluj Napoca, pp.99, 2004

[2] Lilley Keith, Mapping the medieval city,*Urban History,* **Vol.27,** part 1, pp.21, May 2000

[3] Kostoff Spiro, *The City Shaped - Urban Patterns and Meanings Through History*, Bulfinch Press, London , pp.46, 1992

[4] *Jurnalul Municipal Cluj-Napoca*, nr.51, pp.7 aprilie-mai-iunie 2010,

[5] Kostoff Spiro, *The City Shaped - Urban Patterns and Meanings Through History*, Bulfinch Press, London , pp.52, 1992

[6] Lynch Kevin – *L' Immagine della Citta,* Marsilio Editori, Padova, pp.67 , 1971

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Ephemeral architecture

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Abstract

Ephemeral architecture has become an attraction in the last century. Although the temporary buildings have always existed, the interest in this type of architecture gained momentum due to the demands and needs of the individual forming part of contemporary society. Over the centuries, the interest was on the monumental architecture type, architecture that has given buildings that we can admire today in big cities. Using ephemeral architecture, especially the temporary pavilions, we can easily study the community reaction about the new features built in the inhabited environment. This improves the quality of a public space, leading in some cases to the repopulation of lost spaces of the community. With the re-appropriation of a public space by the community to which it belongs it creates the premises for the establishment of new relationships between individuals. This leads to strengthening a community.

Arhitectura efemera a devenit un punct de atractie in ultimul secol. Desi elemente temporare exista dintotdeauna, interesul pentru acest tip de arhitectura a luat avant datorita cerintelor si necesitatilor individului care face parte din societatea contemporana. De-a lungul secolelor trecute, interesul cadea pe arhitectura de tip monumental, arhitectura care a dat cladiri pe care le putem admira si azi in marile orase. Cu ajutorul arhitecturii efemere, in special a pavilioanelor temporare, putem studia usor reactia colectivitatii cu privire la noi elemente construite in mediul locuit. Astefel se imbunatateste calitatea unui spatiu public, ajungandu-se, in unele cazuri, pana la repopularea unor spatii pierdute de catre colectivitate. Odata cu re-aproprierea unui spatiu public de catre comunitatea din care face parte se creaza premizele pentru stabilirea unor noi relatii intre indivizi. Acest fapt duce la intarirea unei comunitati.

Keywords: ephemeral, perennial, temporary, space, place, pavilion, Serpentine Gallery

1. Introduction

"Architecture is always a temporary modification of the space, of the city, of the landscape, “he said. "We think that it's permanent. But we never know."[13]. Since ancient times a building was constructed in order to remain legacy to future generations and the architect work of art was a vocation to eternity. Jean Nouvel said in one of his conversations with Jean Baudrillard that “one of the big problems with architecture is that it must both exist and be quickly forgotten; that is, lived spaces are not designed to be experienced continuously[1, p.19]. The current context, where the urban and environmental changes of the last century let to the reassessment of the values, goals and

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the way we carry out, led the architectural practice to the emergence of mutations in the design process. If classical architecture always relied on the permanence of the architectural effect, now we want a programmed building, a building as a creator of events.. "The event [...] is unique, singular and everything, it is fleeting." [1, p.19].

Ephemeral term has its origin in the Greek word *ephemeros*, that means "lasting one day"[15]. In "The Metapolis Dictionary of Advanced Architecture: City, Technology and Society in the Information Age", the definition is supplemented, it said that "it is an action or event whose duration is, in the first instance, one day. By extension, ephemeral indicates a short, fleeting, impermanent and unstable extension, phenomenon, presence or creation: of short duration [6]. The opposite term is perennial. It is defined by stability, persistence, a long duration of time. The two terms are the basis for defining the timeline in contemporary architecture, being the extremes of the life of a building or facility.

Analyzing the architecture as a process and not as an art whose purpose is to create objects, we can say that the life of a building is limited. The difference between a building who is on a site for a week or 100 years is given only by the temporal reference system to which we refer. If we look at the life of a building related to the life of an ephemeris then we could say that all buildings are perennial, but because a building is designed to serve the needs of the people we will analyze its life related to human life. Thus we will divide buildings into four categories[8]. The first category is that of ephemeral buildings which have a lifetime of a few seconds or minutes. The second category includes temporary buildings which lasts from several weeks to several months, being architectural events in the form of an exhibition[15]. The third category are the buildings that can withstand "a lifetime", and the fourth category is called by Jacques Gubler monumental architecture in the sense that it resists centuries, remaining witness of passing generations. From this point we use the above-mentioned classification to refer to the length of the building over time.

2. Traditional city versus contemporary city

The traditional town is made by the same basic rules for thousands of years. Historically, the cities have been designed and developed in accordance with representations of gods and kings as a source of spiritual and temporal power. The sites have been developed to strengthen the position of these sources of power in everyday life of citizens. In antiquity the most important urban development takes place in Ancient Greece and the Roman Empire. Between Greek and Roman urban planning there is a strong connection due to the fact that the second has its origins in the first, completed only by Etruscan influences. Both in Greek and Roman urban planning the most important elements of the social dimension are: the agora (forum) and the theater [10, p.10]- they are areas of social identity, places where the cultural exchanges are the easiest. Also the agora (forum) becomes urban the space continuity, being the area where the population make decisions for things that take place in the city.

The medieval period corresponds to the barbarian invasions and requires the withdrawal of the citizens in an enclosed area. Therefore the way of living has a regression, the living conditions were poor because excessive density inside the cities. Also, the interest for quality buildings and exterior buildings is low.

The emergence of Renaissance theorists such as Leon Battista Alberti, greatly influences the return to ancient theories, but keeps the elements used in the Middle Ages. It is the moment when appears the first plans for the ideal cities and, from there, the interest for urban spaces, for cultural meetings and events. This policy will be continued in the next centuries.

In the XVIIth and XVIIIth century the urban planning will be influenced by the royal power (France) and the papal power (Italy), which will establish new rules based development concerns such as of space scenery, especially in squares, creating the axles for better links between city targets, city healthiness and urban facilities.

The XIXth century city is no longer able to self-adjust and that is why there are many large-scale interventions that try solve problems more quickly.
With the emergence of modern democratic societies, the power source moves in a wider area, now the city became designed by its people. Instead of gods and kings, the people are the source of inspiration and legitimacy for urban design. In the first instance, a reduced number of people, that included only the elite, had acces to the new projects for the city, but t under the democratic pressure, the opening become gradually larger. Today urban environment is discussed in terms of hybridization and connections, porosity, authenticity and vulnerability [12].

Progress allows globalization, the rapid movement of goods, information, and individual relocation. Therefore the rhythm of life changes, the individual becomes autonomous, the links are increasingly weak and can not meet the needs of city residents. The city needs to become interactive, mobile the need for interconnection is stronger than anything else. The urban environment must be able to meet cultural needs of the community, the end user because the destruction of the social environment can lead to serious consequences. Today, in contrast to the modern view of space as "objective", "homogeneous" and neutral, the contemporaneity insists on "subjective" and "meaning"[12, p.136], while the spaces lacking these qualities become inert because people refuse to obey the rules.

Interventions need to meet the current needs, but also to allow new ways of making people and activities to converge. The convergences in space and time of the people, activities, business, generate new hybrid elements. These elements allow new convergences and the process continues. This is actually the definition of development. While modern theory discourage the convergences with separation and control accents, contemporary encourages them. Indeed, the diversity of the actors involved in producing this great picture demonstrates the principle ecodiversity over the time limit

3. The influence of the ephemeral architecture in the public space

Although temporary architecture seems in a broad sense to be closely related to time rather than space we will use an assertion of Michel Foucault extracted from his "Of other spaces" in order to focus attention on how temporary architecture influences the character of a space. He says that the main concern of today is not the issue of time but rather the space: “In any case I believe that the anxiety of our era has to do fundamentally with space, no doubt a great deal more than with time. Time probably appears to us only as one of the various distributive operations that are possible for the elements that are spread out in space, Now, despite all the techniques for appropriating space, despite the whole network of knowledge that enables us to delimit or to formalize it, contemporary space is perhaps still not entirely desanctified (apparently unlike time, it would seem, which was detached from the sacred in the nineteenth century)” [5, p.2].

There are a lot of public spaces that are empty of content, or indeterminate, without borders. Sometimes the public space is absorbed by the private use, but it doesn’t happen all the time, or with all the spaces. The interventions need to respond to current needs, but also to enable new ways of making people and activities to converge. Convergences in time and space of people, activities, the business generates hybrid elements.

One of the possibilities of hybrid elements is the ephemeral architecture. His appearance creates an event, making the people to converge, to establish relations that maybe are not possible in other situations or without the architectural object. The life of a temporary object is several months, long enough to meet a large number of city dwellers who want to interact with him. Also, the time mentioned above is not enough for the architectural object to cease to have effect on space. If this would happen people would come to be bored, to be appear that the object remained closed between its limits and dominant building.

A response modeled on „human lifetime" architecture or monumental architecture[8] has less chance of success because, as Cyprian Mihali said the monument orders the space, it stiffens and stratify it. "The monument defines its authoritative and quasi-definitive limits of space and draws a precise boundary between interior and exterior." [9. p. 138]. I think a more appropriate solution is to create temporary objects that have the ability to respond appropriately to people's daily needs and create the relationships required to meet their current needs.

The lifetime of a temporary object is several months, long enough to cope with the large number of inhabitants of a city who want to connect with it. Also, the time mentioned above is not enough for the architectural object cease to have effect on the site and become forgotten. If this were to happen people would end up bored, the object will appear locked between its limits, motionless and dominant.

However, a temporary object is only a temporary solution to resuscitate a place and the purpose the city is, in addition to the primary function of housing, to have places which are practiced[2, p.118]. However, if we start from the premise that a man in a contemporary, globalized and consumer society needs rapid changes and the reinventing of the space in a space that does not follow the rules, always being another, when one object not enough.

4. Case study: Serpentine Gallery Pavilions, London

There is a compromise between the two options above. We can imagine temporary objects what transform a place for a certain period of time, but we can also multiply their existence while alternating with moments in which nothing happens. In this case it can be considered as an example Serpetine Gallery in Hyde Park in London and the temporary pavilions that appear every year for a few months.

The Serpentine Gallery was built as a tea pavilion in 1934, being converted into an art gallery in 1970. For 12 years, with neoclassical building, there is one temporary pavilion that remains on the site a few months during summer. It is renewed every year by a successful architect, the premises for various activities. The pavilions are very spectacular, based on innovative concepts, using new materials and dramatic structure. Also, contributing to dynamic objects is that the architects of these pavilions are part of different worlds, spread all over the globe. The contribution of these artists pass the boundaries, each of them brings something of its culture, the society they live in, creating a strong possibility of cultural exchange.

The relationships established with the construction of the pavilions from time to time are also different depending on the architect idea and the message that he wants to convey. There are pavilions, as the 2009 pavilion of SANAA, which imagines an aluminum dome that dilates the park and the sky through its reflections, but it also melts into the environment. It has no well-defined limits, as Michel de Certeaux suggests us in one of his explanations on the characteristics of the space[2, p.119].

We can find contrasting pavilions as Jean Nouvel's pavilion in 2010which leads to extreme color contrast between the building (red) and the environment. The idea of this project is double. On the one hand the pavilion color it is inspired by the context. Inspiration comes from the red color commonly used in London's public spaces - buses, fire hydrants, phone booths, mailboxes, and Queen's soldiers uniform[7]. On the other hand, the pavilion is working with the background provided by green park and blue sky. Therefore, it appears like an element that can not be ignored, which do not produce but filters emotions thus emphasizing the experience that we have in this park[3].In terms of a formal language „the pavilion is car of the Sun, a way to direct the Sun"[7]. The architect resembles it to a plant that buds the spring, blooms the summer, withers in autumn, so that the winter would make it disappear altogether.

Jean Nouvel said about the design of a temporary pavilion that each architect to leaves here a part of his attitude, like customizing more than ever because the architect is free to be an artist, the rules are not so strict. "It is an architecture of celebration."[7]. It prints an impression that remains in the memory of every visitor, creating different emotions every time you remember it.

We could also mention here other types of approaches to this extension, such as the sculptural object created by Zaha Hadid in 2007, which the architect says it is a sculptural installation of organic inspiration (petals of a flower) which allows air, light and sound to pass through it[14]. Also an original approach have Alvaro Siza and Eduardo Souto de Moura, along with Cecil Balmond in 2005. They intended to establish a link between the designed pavilion and the neoclassical building whose importance is intended to be put in value.

Finally, one of the first projects for the gallery is by Daniel Libeskind and Sir Ove Arup (2001). They suggest a concept that is based on origami technique. The most important element created space are materials used (aluminum plated) because through their use the designers wish to establish a dialogue between the building and the natural environment using reflected images.

All the Serpentine Gallery Pavilions are very different both as a concept and as a formal way of representation. They are subjective creation that aims to achieve a dialogue between different elements of the park, resulting in different relationships (denial, positive, causal, etc.) Also, pavilion structure is extremely flexible, leaving room for interpretation, allowing the individual to "invent through countless tactics and strategies, the daily life according an original combination of practice and stories"[9].

There is a danger in thr homogeneous alternation of the existence or otherwise of an architectural object. Through an extended recurrence of this process or an alert rhytm of change, is likely that the insertion of a pavilion in a place no longer produces the desired transformation. We believe that, due to the rapid movement of individuals in contemporary society and also the fact that, in the studied case, the rate of occurrence of the pavilions it is quite low (they are on the site about 4 months a year) there is no danger.

5. Conclusions

Jean Francois Lyotard said in Domus and Megapolis that "It is not the house passing away, like a mobile home or the shepherd's hut, it is in passing that we dwell." The contemporary human is restless, anxious, he is always on the move.

The contemporary man feels the need to reinvent himself and the spaces that he lives. This leads to hybrid spaces, hybrid building elements or even entire buildings that are odd and the society does not accept them. We believe that this type of problems can be avoided with a temporary

intervention. The insertion of an ephemeral element in the public space can give life to it. Today, many experiments are done using the temporary architecture. This way appear many types of construction that are tested over a few months. One of the most common examples are exhibition pavilions are built in all parts of the globe. There are also invented many the temporary installations whose purpose is very different. All these experiments can only confirm or invalidate the need for certain interventions in a given space, satisfying for a period of time the community needs for which they are designed. Users have the opportunity to form some idea when they use their senses to know the new space created to give a response accordingly. An ephemeral element helps establish new relations between the place, the space, the time and the citizens.

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6. References

[1] Baudrillard J.; Nouvel J. *Obiectele singulare. Arhitectură și filosofie*, ed. Paideia, București, 2004.

[2] de Certeau M., *The practice of Everyday Life*, University of California PR Berkley, Los Angeles, London, 1985.

[3] Conti, S., *Nouvel Riche*, 12 iulie 2010, WWD, volume 200, nr. 7, New York, USA

[4] Ellin, N., *Integral urbanism*, Routledge, New York, London 2006.

[5] Foucault, M., "Altfel de spații", *Dits et écrits*, Gallimard, vol IV, traducere de Bogdan Ghiu, 1994.

[6] Gausa M. Guallart V. Muller W. Soriano F. Porras F. Morales J. *The Metapolis Dictionary of Advanced Architecture: City, Technology and Society in the Information Age*, ACTAR, Barcelona, 2003

[7] Glancey, J., *G2 Arts: Rhapsody in red: Award-winning architect Jean Nouvel has finally built in Britain. He tells Jonathan Glancey why he created a 'sun machine' in a London park(complete with ping-pong tables)*, The Guardian, London (UK), 07 july 2010.

[8] Gubler J. De l'éphémere au monumental. *A3 Journal – L'Architecture de l'ephemere*, juin 2003, nr. 04, pp. 6, 2003

[9] Ioan, A., Mihali, C., *Dublu tratat de urbanologieI*, Idea Design & Print, Cluj-Napoca 2009.

[10] Harouel, J-L., *Istoria Urbanismului*, București, Editura Meridiane, 2001.

[11] Lyotard, J-F., *The Inhuman*, Polity Press, Cambrige, 1991.

[12] Ellin, N., *Integral urbanism*, Routledge, New York, London, 2006.

[13] Pogrebin, R., *Nouvel, Who Pushes Architecturețs Limits, Wins Pritzker*, New York Times, section E, 2008.

[14] http://www.serpentinegallery.org/architecture/

[15] www.dexonline.ro

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Rethinking [Jewish] Diaspora Community Space: The Synagogue as a Crisis Heterotopia

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Abstract

The numerous synagogues spread in the Diaspora represent a challenge for almost any interested researcher, due to their original, specific, and long lasting tradition, directly connected to Judaism and to Jewish communities, bond in a dual relation. Apart from discussing religious aspects concerning the problematic of monotheism or the role of the place of worship, remarkably, the synagogue represents "something different". It is that "singular" place of worship to be considered a "total" community space, offering a special experience, as a ritual space that exists out of the time, i.e. a heterotopia (as it was introduced by Michel Foucault). The paper pursues a different kind of approach on the nature of synagogues and the experiences associated with their historical becoming, significances, and characteristic matters. Place for worship and prayer, house for learning and home for community gatherings, the synagogue is a "different" type of sacred space, standing outside the sacred, the real, and the profane, in the same time. It is intrinsically connected with spiritual experiences. As the ultimate refuge of Jewishness in the Diaspora, this "other space" reunites the real (the profane) with the holy (the sacred), the existent (the inherited) with the promised (the future), the everyday life with the ritual, the school with the faith, the values with the laws and exigencies, the individual profit and wealth with generosity and charity, the self with the others, for the welfare of the whole community.

Rezumat

*Numeroasele sinagogi răspândite în Diaspora reprezintă o provocare pentru orice cercetător în domeniu, datorită originalităţii, specificului şi tradiţiei îndelungate, în strânsă legătură cu iudaismul şi comunităţile evreieşti, aflate într-o legătură dual*ă. *Dincolo de a discuta aspecte religioase legate de problematica monoteismului sau de rolul lăcaşului de cult, în mod remarcabil, sinagoga reprezintă „ceva diferit". Este acel loc de cult „unic", considerat un spaţiu comunitar total, oferind o experienţă specială, ca un spaţiu ritualic care există în afara timpului, adică o heterotopie (aşa cum a fost definită de Michel Foucault). Articolul propune o altfel de abordare asupra naturii sinagogilor şi a experienţelor legate de evoluţia lor istorică, semnificaţii şi aspecte caracteristice. Lăcaş pentru cult şi rugăciune, casă pentru studiu şi loc de adunare pentru comunitate, sinagoga este un „altfel" de spaţiu sacru, ce stă în afara sacrului, realului şi profanului, în acelaşi timp. Este legată intrinsec de experienţa spirituală. Ca un ultim refugiu al evreimii în Diaspora, acest „altfel de spaţiu" reuneşte realul (profanul) cu ceea ce e sfânt (sacrul), existentul (moştenirea) cu ceea ce este promis (viitorul), viaţa cotidiană cu ritualul, şcoala cu credinţa, valorile cu legile şi exigenţele, profitul şi bunăstarea individului cu generozitatea şi caritatea, sinele cu ceilalţi, totul spre binele întregii comunităţi.*

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1. Introduction

While the desire of rebuilding the Temple of Jerusalem remains a continuous goal, the *"utopia" of faith* might become reality, respectively, the prophecy would fulfil, so that, Solomon's Temple would become *a last heterotopia* of the modern, contemporary society.

In this article, we use the term "heterotopia" as it was introduced and theorized by Michel Foucault, in his lecture *Des espaces autres* presented to the *Cercle d'études architecturales*, on 14 March 1967[1]. As Michel Foucault puts it, "utopias are emplacements having no real place. […] They are society perfected […] but in any case these utopias are spaces that are fundamentally and essentially unreal" [1, p. 178].

Sensu stricto, as an *institution of belief*, the Temple of Solomon is a *utopia*. Instead, the synagogue, could be defined, by contrast, as a *heterotopia*, i.e. one of the places "utterly different from all the emplacements that they reflect or refer to" and of which they speak about. Between them, there are the cult and the Torah as "a kind of mixed, intermediate experience" [1, p. 178]. According to Foucault's definition of heterotopias, we can identify the synagogues as: "real places, actual places, places that are designed into the very institution of society, which are *sorts of actually realized utopias in which the real emplacements, all the other real emplacements that can be found within the culture are, at the same time, represented, contested, and reversed, sorts of places that are outside all places*, although they are actually localizable (our italics)." [1, p. 178].

Therefore, this is how one can explain that, the synagogue (often referred to, by the Neologs, as "temple"), considered to be, *ab initio*, a ritual *space* with an *uncertain* "sacred" character, bringing together many types of *places* with "absolute" *sacrality*, due to its architectural and artistic complexity (valuable "thing", sometimes even "work of art"), and representing the social-religious Jewish system, through its importance in the community life (like the role of the temple, in the past), being a permanent factor, with coagulant role, surpassing the status of social and religious circumstance, becomes a symbol, synthesis of Jewish cultural values, like a wellspring of "power" or "will", which provides a permanent connection between past and present, until the fulfilment of the destiny of the world, to which it belongs.

Due to its complex functions, the characteristics of the synagogue, related to "sacredness" / "holiness", can vary a lot; but we do not intend to argue, here, at all, about the "sacred" character of the synagogue and / or the temple. The paper intends to show the evolution of the synagogue as a heterotopia and the perspectives on the Jewish community space perceived through the synagogue, as a complete system of significations. The synagogue, proliferating the sense of living as a community – as a realm of everyday life, with its own history and specific coordinates –, *as a crisis heterotopia*, would be a refuge of the contemporary Diaspora, in the search of originality, identity and signification, in life, thought and architecture.

2. The Synagogue: Principles of a Heterotopia

If the Temple defines, as *a space* itself, the divine covenant between God and His chosen people, the synagogue, instead, is a "provisional" prayer place (a "connection"), which provides the conditions required by the ritual, until a *new* rebuilding of the Temple. So, the synagogue would be, in present-day terms, nothing else but an accomplished / realized utopia: a "crisis heterotopia",

"without geographical coordinates", [1, p. 180] a "privileged or sacred or forbidden" place and "reserved" exclusively "for *individuals* who are *in a state of crisis* with respect to society and the human milieu in which they live (our italics)" [1, p. 179]. In this case, we may call the *crisis* of the Diaspora Jewish society, a *historical-religious dual provisional determination*.

2.1 The first principle

The Jewish presence in the Diaspora constituted a major factor in the formation process of some *unique* cultures, profoundly and directly adapted to the historical and geographical areas, in which Jews had settled. Thus, the arising communities and the continuous development of the society life, undoubtedly contributed to the emancipation of some new, social, cultural, and economic structures. This meant an association between the multi-century old values of the already existing entities and those specific to Jewish tradition, in parallel with an ethno-cultural synthesis, generating *bipolar structure units* ("…-Jewish"). These particular structures, often afflicted by social and political tensions, opened new perspectives, along with the natural course of society, with the "vocation of inter-ethnicity" and creating "a well accomplished biography", [2, p. 9] proving attachment and loyalty to adoptive states and nations. [3, pp. 112–3.]

Therefore, according to *the first principle of the heterotopia,* as defined by Foucault "there is probably not a single culture in the world that does not establish heterotopias: that is *a constant of every human group*. But heterotopias obviously take *forms that are very diverse* (our italics)" [1, p. 179]. Hence, the synagogue would be the "crisis heterotopia" [1, p. 179] of the Diaspora Jews, often materialized with the strong cultural influence of the "adoptive" people (nation), many times with the finest touch of the specific [architectural] styles of the historical epochs.

2.2 The second principle

"*The second principle* […] *of heterotopias* is that, in the course of its history, a society can make a heterotopia that exists and has not ceased to exist operate in a very different way; in fact, each heterotopia has a precise and specific operation within the society, and the same heterotopia can have one operation or another, depending on the synchrony of the culture in which it is found (our italics)" [1, p. 180].

In areas inhabited by the Jews, the evolution of synagogue architecture runs in parallel with the evolution of prevailing styles of the time. *The Jewish Encyclopedia* emphasizes the *local character of the plastic expression of synagogues*, which naturally assumed the style and image of the churches of other denominations, as it happens in Strasbourg, Kassel, Budweis, Munich or Hanover. The Talmudic requirement, that the synagogue had to rise above other buildings of the settlement, faced papal interdictions and solutions aroused, being interpreted as, only at the roof level, by introducing high rods, thus fulfilling, even textually, the dogma [4, pp. 631–2].

From the Middle Ages to Modernism, there are outstanding examples of religious Jewish architecture, a tradition that continues today, with Postmodern and contemporary expressions, reflecting a significant conceptual and design development [5]: late Romanesque (Worms, in Germany), Gothic (Prague, in the Czech Republic), Renaissance (Padova, Venice, in Italy), Baroque (Włodawa, in Poland), Classicsm (Cavaillon, Lunéville, in France), Neoclassicism (London, in England; Karlsruhe, Dresden, in Germany; Óbuda, in Hungary), Neogothic (Vienna, in Austria, Ceské Budejovice in the Czech Republic, Szeged, in Hungary; Braşov, Timişoara, in Romania), Neoromanesque (Paris, Metz, in France), Oriental Style – Arab, Moorish or Hispano-Moorish – (Florence, in Italy; Budapest, in Hungary; Prague, in the Czech Republic; Sankt Petersburg, in Russia; Berlin, in Germany), Art Nouveau / Secession (Subotica, in Serbia; Trencin, in Slovakia; Paris, in France), Art Déco (Košice, Bratislava, Žilina, in Slovakia) [6].

Richard Cohen shows [7, pp. 69–70] that since the 17th century, one can observe the Jews' tendency to material wealth manifestation, both in private and in public sectors, whether they were in Dutch, German, Italian, Bohemian or Moravian territories. Ceremonial art, however, was not an attribute, only of those with material possibilities; the Jews, generally being accustomed to use ritual and common household objects, which they imprinted (through handcraft), a certain character / identity. Manufactured in accordance with tradition and ritual demands, the items bore signs and ritual symbols. They used to serve the several generations' practices, so the objects started to reflect (through art) the Jewish experience, altogether with the social and cultural development and their specific "*mentalité*" [7, p. 69]. Concerning architecture it happens alike: architecture functions as a preserver of the community memories and tradition. In addition, this perspective, often speculated in contemporary architecture, would be the connection with the *fourth principle*.

The Jews from the Eastern Europe developed their own architectural concepts starting with the 16th to 18th centuries [8, p. 145]. Inside the cities, there usually were stone built synagogues, focusing around them, the entire community, and forming the so-called *Jewish quarters* (*districts*). An interesting example, would be Prague, where the community was extremely well organized, having even its own mayor: its famous synagogue, the *Altneuschul* (the *Old New Synagogue*), in Gothic style, dates from the 14th century. In Bohemia, the Renaissance and Baroque had spectacular artistic expressions, even in the ghetto, occurring the appearance of some small synagogues, resembling those from Poland: for example, Chodová Planá, Lázné Kynzvart, Nové Sedliste [5, p. 86, 91]. Geoffrey Wigoder points out that the migration of Ashkenazi Jews, from Germany to Poland, beginning with the 14th century, favoured the appearance of the first monumental synagogues. For example, in Kazimierz, the Jewish quarter of Krakow (which was at that time the capital of the Jagellon state), the Jews that arrived there, after the Prague pogrom, raised the first and largest synagogue: the *Old Synagogue* (*Synagoga Stara*), with a structure following the model of the *Worms* synagogue and the *Altneuschul* from Prague. The influence of the Italian Renaissance left an important mark on the synagogue architecture, too, having a significant role in the development of the *wooden synagogues* of Poland, starting with the mid-17th century – a unique and expressive contribution to this type architecture (*Wolpa*, *Jurburg*, *Zabludow*) and of the *fortified baroque synagogues*, at the border with Ukraine and Russia, built from defensive reasons (*Lutsk*, *Zolkiev*, *Belz*). The pogroms of the mid-17th century determined the Jewish refugees to spread the style of the Polish synagogues to other areas from Germany, Hungary, and Bohemia. After the 18th century, the Polish synagogues lost their originality, retaining their important role in the development of the specific *shtetl life* [9, pp. 93–112; 6].

The 19th century and the beginning of the 20th century were politically and socially marked by Zionism, a movement directed towards the "national" emancipation and self-determination of the Jewish people, which later, achieved its greatest goal by establishing the modern state of *Israel*, as a Jewish independent state. The consequences of *Zionism* in Eastern Europe determined the Jewish exodus, in waves, to Central and Western Europe, and especially to America, due to the desire of "liberation" from social constraints and political persecution, in the late 19th century and early 20th century. [6] After the Congress in Pest, 1869, religious misunderstandings increasingly widened, so every community was to build their own synagogue, according to their rite. By the year 1871, the schism divided the Jews into three main categories: *Orthodox*, *Neolog* (*Reformed*) and "*status quo ante*", inevitably influencing, the future stylistic development, too [5, p. 28]. However, the most obvious changes will occur in the Neolog congregations. Their synagogues, (frequently called "temples"), often renounce to the orientation towards East. In the Neolog temples, even the *central bimah*, becomes a kind of altar, located in front of the *Aron Kodesh*, and in addition, the organ use, "borrowed" from Christian churches, becomes a habit, standing in the choir gallery, emphasizing the perception of the synagogue from a new perspective, similar to that of a Christian church. As a result, many synagogues over the past 160 years, adopted a similar to Christian churches layout,

grouping the most important and "sacred" elements opposite to the main entrance and around the sanctuary. In addition, steeple-like towers were introduced, in the main façade composition: usually two, flanking the main entrance, traditionally reminding of *Jakin and Boaz*.

From the Middle Ages to present day, the architecture of synagogues evolved in stages, differentiating some important periods, following the characteristics of the geographical-cultural areas and the particular styles [5, 6, 9]. Only in the 19th century effective synagogue design elements, regulations, and requirements, were elaborated more clearly. Concerning planimetry, one can observe the preference to *central plans*, with the gradual abandon of the *basilica and rectangular* ones, and the introduction of domes and towers (like Christian bell towers / steeples) [8, *passim* pp. 88–100].

During the 18th and 19th centuries, the synagogue grouped around itself a series of related, specific to Jewish community life functions, bringing together different buildings, "with ritual, cultural, philanthropic or merely utilitarian / practical and sometimes even lucrative role" (from the winter praying house, to the *mikveh* and rabbi's home). This way, complex ensembles resulted, frequently, in order, "to provide financial support to the community life". Regarding urbanism, in the European area, one can observe a preference, of the Orthodox Jews for "enclosed compositions" with interior courtyards and of the Neolog Jews for "a pavilion type layout". In the period up to emancipation, in cases when not forced to live in the ghetto or in their own quarters, Jews often preferred to settle in "certain areas of the cities" (our trans.) [8, p. 87].

Above all, the synagogue, as a sum of functions and a function itself, represents the symbol of Diaspora Jewishness and Jewish identity, being *a fascinating space*, able to order both the life of an individual and of an entire community, guarding and helping to preserve Jewish traditions, values and thought. [6]

2.3 The third principle

"*A third principle*. The heterotopia has the ability to juxtapose in a single real place several emplacements that are incompatible in themselves (our italics)" [1, p. 181].

As a whole, the synagogue, same to the Christian church, reunites different types of elements and places, more or less "holy" or "sacred", in *an hierarchic space* – in terms of religion (worship dogma) and especially of the "sacred". Although, no longer requiring a so obvious sacred space arrangement, as it happened in the Temple (the courtyard, the Holy Place and the Holy of Holies), representing the *imago mundi* [10, pp. 42–43], the "historical" / "theoretical" synagogue presents a hierarchy of spaces, emphasizing "sacredness", from West to East. *The narthex*, proportioned according to the whole volume of the building, with facilities for washing hands (as a purification ritual), allows the access to the men's wardrobe, in the men's prayer room and to women's balcony. *The pre-synagogue*, usually for religious service with few participants, sometimes operates as an extension of the prayer-hall. *The prayer-hall* is the nave or men's hall, occupying the ground floor, provided with pews / benches, oriented towards the *Aron Kodesh* / *sanctuary area*, compulsorily arranged with a central aisle, required by the ceremonial processions with the Torah Scrolls. *The women's room*, originally a place itself, evolved from a completely separate room communicating through wall observation slits, to the superimposed solutions, separated by grids and, commonly, to overlaid galleries, often on several levels, increasing the capacity of the synagogue, assuring acoustics and visibility for the nave. *The sanctuary* reunites the platform / podium with the *almemar* or *bimah* – pulpit or Torah reading desk (platform for the Torah reading and for conducting religious services) –, the cantor's desk, the *Aron Kodesh* – Holy Scrolls "Cabinet" –, the rabbi's and superiors' seats. Various annexes complete the ensemble: rooms for rabbis, soloists, cantors, then staircases, cloakrooms, toilets, etc. The above presented configuration is specific to Neolog

synagogues, and one should note that the ritual does not require all these components. In traditional Orthodox synagogues, the *almemar-bimah* is located in the centre of the nave. From the second half of the 19th century, the Reform trends influenced Orthodox synagogues, too [8, pp. 88–94]. Furthermore, the *Encyclopaedia Judaica* states: "All objects in the synagogue acquire sanctity by virtue of the sacred purposes which they serve; therefore, *halakhah* governs their use." "The holiness of objects is determined by their proximity, in space and use, to the Torah scroll, the most sacred object in the synagogue." [11, p. 363].

Seth Kunin considers the spatial hierarchy characterizing the synagogue, "a hierarchy of sacred spaces", making some associations with the spatial structure of the Temple, but noting some differences, too. For him, "the building itself has an element of sacredness", thus, for example, the synagogue does not need a *mezuzah*,[2] it is its own *mezuzah* or it is a *mezuzah* itself – it is "sacred", holy to itself. Inside, there is a gradation of the "sacred" from West to East, following the line nave-*bimah*-Ark. Kunin, also, highlights some ideological aspects, of the sacred space, reflected by the expressions of "up" or "raised". For example, the *bimah* is always "raised" on a podium – the symbol of the mountain – and the word *aliyah*, used for calling a man to "stand up", come and read from the Torah and the Ark, which is set "high", on a platform, too. Generally, oriented towards Jerusalem, and so, to Mount Zion and to the Temple, the synagogue (except non-traditional ones), therefore, suggests the everlasting wish of returning to the country of origin (clear expression of Zionism), also return to the sacrificial cult. However, for Kunin, the synagogue expresses an aspect rather *functional*, of the sacred [12, pp. 134–6, 142]. Further, we do not wish to debate, here, on the "sacred" or "profane" character of the synagogue – the issue is very complex and exceeds the matters of this paper.

The *Aron Kodesh*, located in the easternmost point of the synagogue, is also its holiest place; here, the Torah Scrolls are kept. Unlike the Holy of Holies, in Solomon's Temple, where only the high priest had access (and just once in a year!), the Holy Ark is "open" to all men, who, during the religious ceremony, are invited to draw the curtain (*Parochet*) and take out or put in one of the Torah Scrolls, as the reading progresses. The central placed *bimah* symbolizes the Sinaitic Tent Tabernacle, where Jews surrounded the Sanctuary, and suggests that the Torah belongs to all community members, equally. The orientation of the Holy Ark towards Jerusalem spiritually unites, during prayers, Jews throughout the world.

Natural light and artificial lighting (lamps, chandeliers, the *Ner Tamid*, menorahs, *hanukkiyah*, etc.) have a special place inside the synagogue space, generating and / or outlining specific symbols and a characteristic atmosphere. Synagogues often have twelve windows or twelve window spans, reminding the twelve tribes of Israel. Thus, the synagogue itself becomes an "ark" and the inner "light of faith" *shines* through its *openings*.

2.4 The fourth principle

"*Fourth principle*. More often than not, heterotopias are connected with temporal discontinuities [*découpages du temps*]; that is, they open onto what might be called, for the sake of symmetry, heterochronias. The heterotopia begins to function fully when men are in a kind of *absolute break with their traditional time* […] (our italics)" [1, p. 182].

In the case of the synagogue, itself a "shelter" for the Ark (so, for the Torah, too) and for other sacred ritual objects, a "break" from the *traditional time* ("profane" at Eliade [10, p. 31]) – in the sense of the "sacred" – might appear. Consequently, due to its *mystical dimension*, *heterochronia* would form, through the believers' praying, and the rituals related to the *Yamim Noraim* (marking the beginning and the end of *The Ten Days of Repentance*, respectively the holidays *Rosh Hashanah*[3] and *Yom Kippur*[4]) and even more important, the Torah Sacred Scrolls reading moments

– when Jews "relive" their history. The (perhaps most) intense "remembrance" of the past, occurs in the *Pesach* celebration, recalling *the exodus* from the Egyptian slavery, a crucial moment in the Jewish collective memory. *Hanukkah* is, also, an occasion, when Jews remember and, especially, thank to God, for the joys and wonders in everyone's life.

In addition, the synagogue, as the *depository* of the most significant religious objects belonging to a congregation (*v.s.*, second principle: *architecture as memory*) *functions* likewise, "linked to the accumulation of time" [1, p. 182], as a *thrifty custodian of the community memory*, as the museum or library are "preservers" of culture and civilization, ensuring its continuity, perpetuation, and transmission of values and customs, to next generations.

2.5 The fifth principle

"*A fifth principle*. Heterotopias always presuppose a system of opening and closing that isolates them and makes them penetrable at the same time. […] Either one is constrained to enter, […], or one has to submit to rituals and purifications. One can enter only with a certain permission and after a certain number of gestures have been performed. There are even heterotopias that are entirely devoted to those purification activities […] (our italics)" [1, p. 183].

Entering the synagogue requires an entire ritual (which can be interpreted, as "preparation" / "cleaning" / "humbling", even "repentance", before getting into a sacred space): from purification by washing hands, to men covering their heads with *kippah*s, and to married women hiding their hair. At morning prayers, compulsorily (except on *Yom Kippur*), adult men cover themselves with a special shawl – *tallit*, acting as a smaller "tent", defining for each of them, their *own* (personal) *space* during praying, thus channelling and enhancing the devotions. Covering the head in front of God is a symbol of modesty and humility. Therefore, the synagogue is *a heterotopia of ritual purification* (through prayer – "sacrifice of the lips"), a public space, still accessible only under certain conditions: respect of a ritual – that *ritual*, which confers "purity" to believers, who, in their turn, provide "purity" to the synagogal space. In this way, the "sacredness" of the synagogal space could be defined through *ritual*. The synagogue, as *a space*, must be "clean", meaning "pure", and "pure" as well, must be all those who enter into it, sharing faith and the specific "ritual", through which they "assure" their own "purity", coveted, before the Lord.

2.6 The sixth principle

Finally, the synagogue follows "*the last trait of* […] *heterotopias* (our italics)", too. Achieving the "function" of "creating" a "real space", "a different real space […] of compensation", "in relation to the remaining space" [1, p. 184], where it *unfolds*, the synagogue ensures the proper functioning of the Jewish society, until the new (re)building of the Temple. It occurs anywhere and proliferates everywhere, as *the centre of a Jewish community*, centre that, in the life of a Jew, supports spirituality and faith (as a beneficial energy).

3. Conclusions

As Henry Urbach points out "concepts of architectural heterotopia have served to float a range of historical and theoretical projects" [13, p. 351]. The synagogue, as an architectural form of the Diaspora Jews' nostalgia for the Temple, helped them to preserve the Judaism faith and Law, even when the social-political circumstances were utterly contrary. The synagogue, as a "surrogate" of the original Temple, should not be perceived as a *material false*, but as a *spiritual truth*, a physically expression of the Jewish strength of resistance. Through its complex meanings and significances, it survived history, demonstrating its coherence as an architectural space, completely

dedicated to a specific Jewish purpose, idea and ideal. In his article, Urbach reveals concisely "the salient aspects of heterotopia" [13, p. 351]. Concerning the synagogue, we highlight *three* of those aspects, essentially describing its role and way of functioning, profound, direct, and adapted to Diaspora Jewish life: "It is bounded, but still has effects beyond its borders. It represents the apparent normality of other space as fictitious and restrictive" and, maybe the most important, "It maintains heterotopic effect".

Actually, the synagogue *as a heterotopia* represents the meaningful Jewish community space of the Diaspora, a space that is created, generated, lived and performed by the Jews, as a sense of their lives. Consciously or unconsciously, the synagogue generates for its visitors, and especially for Jews, the sense of a place that is between the sacred and the profane, which could be characterized as absolutely present, but marking an absence, and sometimes outside traditional time; real, but at the same time a substitute; perennial, but also temporary; original, but with a role of compensation; closed or enclosed, but most penetrable, though, only through a specific ritual.

The synagogue is an "utterly different" [1, p. 178] space, dedicated to praying and Torah studying, a *simultaneously physical space*, meaning "utterly real" [1, p. 179], present (as a "clean" space, appropriate for praying), *and an imagined space*, meaning "utterly unreal" [1, p. 179], mental (as a temporary replacement for the real / true Temple). In this way, the synagogue becomes a reference symbol, in which, the Jewish community finds itself, until the new (re)building of the Temple; that is, as Foucault described and theorized, *a heterotopia*, representing a space that has many more meanings and a "set of relations" between "emplacements", than it seems at first sight – *an* "*actually realized utopia* (our italics)" [1, p. 178].

As "heterotopias can assume many architectural forms, programmes and scales" [13, p. 348], the synagogue, representing for the Diaspora a *crisis heterotopia*, becomes a legitimate architectural form of Jewish space, intended to loosen Jews from *the burden of unbelonging*. Thereby, it exposes a new way of living, abolishing all that was related to the Temple and could not be done anymore, offering landmarks, aims, and especially, after the Emancipation, expressing Jewish people's proudness (and, after the second half of the 19th century, their search for identity). As a whole, the synagogue confers identity, where it has never been so far, with the ambition of singularity, preserving the ritual, and so, might be seen as a *stable* materialization of a distinctive Jewish thought under the unforgiving and continuously challenging course of history and especially under the *pluralistic* concept that characterizes Judaism, "as a civilisation". In Budapest, for example, after the emancipation of the Jews in 1867, Pest became the effervescent place of Jewish culture and identity – new buildings were erected, especially institutions, following an extensive urban development in the Eastern part of the city, to the *Városliget*: architecture was the exponent of the "freedom" of Jewishness and needed powerful enactments, symbolizing the continuity and marking the new conceptions of modernity. Conclusive for this matter are the words of Aladár Kaszab, a representative of those times Budapest Jewish community, reflecting the new position of the Jews towards architecture and identity, as an ideological manifest of the Jewish pride as a community of great importance and influence for the future of the city: "Jewish architecture has only lately come into a position where it could be applied to Jewish institutions as well. Our temples, schools and other religious public buildings are no longer hidden in dark courtyards or narrow lanes. Architecture was probably the last one to get out of the ghetto. [...] In this new era of the Pest Israelite community's undertakings we intend to place great emphasis on architecture. We adopted major architectural projects in the spirit of freedom and pride. Out of the ghetto! Faithful adherence to the religious traditions of our forefathers, but open window to the spirit of modernization in our economic conduct." [14]

In architecture, identifying the complex nature of the synagogue with the heterotopia might reveal some interesting points of view concerning the understanding of religious-community space, and

the relationship between sanctity / sacrality / holiness and the profane matters of everyday life; and, as a proof, contemporary Jewish architecture emphasizes exactly the role of the synagogue for the Jewish community life. Without the synagogue, there is no community and no Jewish life at all.

The synagogue is the very special mark of the Jewish presence in the Diaspora, but also a sign of community sense, a way of living together, of understanding and respecting each other, a way of bringing more closely one to another. The synagogue *as a crisis heterotopia* is the true symbol of Jewish Diaspora life, of Jewish history and future, of tradition and continuity, of both tangible and intangible relationship with God, of the intermediary place between the sacred and the profane, of the ritual space that literally, as well as metaphorically, exists out of the time. The synagogue represents the unrevealed bound between architecture and community, not seen as a simple way of gathering people of the same "kind", but as a link between them and their beliefs, expectations, thoughts, philosophy of life, motivations, behaviour and cherished values.

Even though, in nowadays Central-Eastern European society, it is usually a speculated sight in tourism, sometimes functioning as paid entrance museum, highlight identity of Jewish Diaspora life and heritage, the synagogue, as a symbol, beyond its fundamental role and sometimes deprived of its former glory, values, and significance, constantly and faithfully pursues in maintaining anywhere its original, intrinsically spiritual sense for any Jew.

In the contemporary world, the synagogue as a crisis heterotopia is still a means of escape from repression and hostility, representing *the ultimate refuge for the community life and its principles*.

Regarding the synagogue and its complex connotations, there might be many ways of interpretation, more or less profound or symbolic, but *these six principles of the heterotopia*, define it perfectly, through its role and significance, as a sum of the most important aspects reflected in contemporary Jewish community space – the realm of Jewish Diaspora experience of living (in the sense of keeping the community united, through meetings, gatherings and celebrations), studying and praying together. Nevertheless, the analysis and conclusion remain open to further points of view and additional arguments in rethinking Jewish community space, especially in contemporary Jewish architecture, which undoubtedly remains bounded to tradition.

Anyway, a short visit to a synagogue, in function or not, would offer its visitor a glimpse of the traditional Jewish life, space and thought, showing the clear instance of its essential role and nature. Overall, the synagogue is *an island of refuge*, a floating sanctuary ("sailing vessel" [1, p. 185] – as an everlasting hope) of the sacred sense of life and community, in an increasingly secular world of disrespect, distrust, and terrible indifference. It means the unique spiritual experience, intense and symbolic, of the belief in mutual trust and help, in the welfare of community life, for surviving through history, and for the sake of continuity, as well as, for a good and bright future.

4. Notes

1. For the original French version, see Foucault M. Des espaces autres. *Architecture, Mouvement, Continuité*, **No. 5**, pp. 46–49, 1984.
2. *Mezuzah* is a manuscript with verses from the Torah, placed (sometimes) in a decorative box, put on the "door post" (the frame), in all the Jewish houses and often in all the rooms (except bathrooms).
3. Two days when Jews celebrate the joy of beginning a new year and the hope for a better future.
4. The holiest day of a year, for the Jews, known as the "Day of Atonement", a day of repentance, fasting, reflection and personal introspection, when the believers repent and (re)affirm their love for God.

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5. References

[1] Foucault M. Different Spaces. In: Rabinow P, ed. *Essential Works of Foucault, 1954-1984*, vol. 2, *Aesthetics, Method, and Epistemology*, ed. Faubion JD, trans. Hurley R. *et al.* New York: The New Press, pp. 175–85, 1998.

[2] Kuler H, Benjamin L. *Muzeul de Istorie a Evreilor din România Şef Rabin Dr. Moses Rosen* [Chief-Rabbi "Dr. Moses Rosen" History Museum of the Jews in Romania], FEDROM. Bucharest: Hasefer, 2002.

[3] Moldovan M, Julean I. A New Jewish Community Centre for Oradea. *Analele Universităţii din Oradea : Fascicula "Construcţii şi instalaţii hidroedilitare"*, **Vol. XIII**, pp. 111–8, 2010.

[4] Singer I, Adler C, *et al.*, eds. *The Jewish Encyclopedia*, vol. XI, *s.v.* "synagogue architecture". New York: Funk & Wagnalls Co., 1901-1906.

[5] Jarrassé D. *Synagogues: Architecture and Jewish Identity*. Paris: Vilo International, 2001.

[6] Julean I. Aspects Concerning the Synagogal Tradition in Central and Eastern Europe. (*to be published*) *LogiA*, **No 15**.

[7] Cohen RI. *Jewish Icons: Art and Society in Modern Europe*. Berkeley: University of California Press, 1998.

[8] Moldovan M. *Sinagoga : arhitectură a monoteismului* [The Synagogue: Architecture of Monotheism]. Bucharest: Paideia, 2003.

[9] Wigoder, G. *The Story of the Synagogue*: *A Diaspora Museum Book*. Jerusalem: The Domino Press, 1986.

[10] Eliade M. *The Sacred and the Profane: the Nature of Religion*. San Diego and New York: Harcourt Inc., 1987 [1957].

[11] Skolnik F, ed. *Encyclopaedia Judaica*, 2nd ed., vol. 19, s.v. "synagogue". Detroit: Macmillan Reference, 2007.

[12] Kunin S. Judaism. In: Holm J, Bowker J, eds. *Themes in Religious Studies: Sacred Place*. London and New York: Continuum International Publishing Group, pp. 115–48, 2003 [1994].

[13] Urbach H. Writing Architectural Heterotopia. *The Journal of Architecture*, **Vol.3**, pp. 347–54, 1998.

[14] Kaszab A. *Zsidó évkönyv az 5689, bibliai évre* [Jewish Yearbook for the Biblical Year 5689], 1928/1929, *apud* Frojimovics K, Komoróczy G, *et al. Jewish Budapest : Monuments, Rites, History, Central European University Press*. Budapest/New York, 1999 [1995], p. 288.

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A DIGITAL SPACE FOR THE VITRUVIAN MAN

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Abstract

The Information Revolution Era is reflected in current architectural practices by means of digital computer aided drafting and manufacturing which managed to eliminate most of the classic processes of representation and were able to impose a world of graphical representation without descriptive limits. The research sustains that the use of digital systems in architecture can go beyond the simple function of digital representation and should be seen as an extension to the human brain's functions, incapable of managing efficiently the high quantities of information that surrounds us. Architecture has sought along history a measure that could underlie a relationship between the artificial and natural space, a measure that could establish harmony between living things and the ordered production of human artifacts. Physical space has always been built in close relation to the proportions of the human body and his activities whose functional and aesthetic needs tries to ensure. The historical studies developed on this issue didn't manage to capture the dynamics of the architectural space as an evolutionary adaptive space, responding to change over time. They are static models. Starting from this assumption, the experiment deploys digital technologies in order to generate a tridimensional volume through rules of interaction conditioned by the proportions and movement of the human body by introducing a new parameter in the study of space: time. The main question being answered here is how can the users of a possible space really participate in its conception, definition and genesis ?

Rezumat

Revoluția erei informaționale se traduce în practica arhitecturală curentă prin mijloacele digitale de proiectare asistată de calculator care au reușit să elimine o mare parte din procesele clasice de reprezentare și să impună o lume a reprezentărilor grafice fără limite descriptive. Cercetarea susține că utilizarea sistemelor informatice în ahitectură poate să depășească simpla funcție de reprezentare digitală și trebuie văzută ca o prelungire a capacităților creierului uman incapabil să proceseze și să gestioneze eficient cantitățile vaste de informație care ne înconjoară. Arhitectura a căutat de-a lungul istoriei o măsură care ar putea să fundamenteze relația dintre spațiul artificial și cel natural, o măsură care să stabilească armonia dintre ordinea lucrurilor vii şi ordinea lucrurilor produse de om. Spațiul fizic a fost întotdeauna construit în strânsă legătură cu proporțiile corpului uman și activitățile sale, ale cărui nevoi funcționale și estetice încearcă să le asigure. Studiile istorice produse pe marginea proporțiilor corpului uman nu au reușit să surprindă dinamica spațiului arhitectural ca un spațiu adaptativ, evolutiv ce răspunde modificărilor survenite în timp. Ele sunt modele statice. Plecând de la această asumpție, experimentul vizează generarea interactivă a unui volum determinat de mișcarea corpului uman prin introducerea unui nou parametru în studiul spațiului: timpul. Întrebarea de bază a acestui experiment este cum pot

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participa efectiv utilizatorii unui posibil spaţiu la conceperea, definirea și geneza lui?

Keywords: digital architecture, interactive architecture, computational design, generative design, genetic algorithms

1. Introduction

In order to make a proper introduction for the main topic of this article, called *A Digital Space for the Vitruvian Man*, which is an ongoing digital experiment, we should clarify first the bigger goal of the research. This experiment is part of a research project entitled *The Digital Interface between Nature and Architecture*[i], which is a sensorial parametric approach of natural processes and forces in informing the architectural model with real world data.
The research project aims to connect science topics from three scientific fields related to architecture, based on its multidisciplinary character: informatics, biology and neurosciences. It's an attempt to underline the possibility and the need for alternative perspectives on how the architectural space could be generated. An attempt to observe natural processes outside the existing prejudices, without cultural, regional or identity distortions.
The research projects main goal is to generate the conditions, the premises and the related interface needed for the "cultivation" or growth of the architectural object as a „second nature"[1] through digital technology, in the artificial world created by man. As we open up the topic of natural versus artificial specific to our built environment, we must first answer a basic question: What is truly sustainable?

2. Natural vs. Artificial. Sustainability Issues

To answer this question we must resort to nature's way of doing things because if there is something truly sustainable in our reality that is nature. I will begin my statement with an effort to defend nature from which we have gradually removed ourselves as a species. It's a topic that requires review as it becomes an abstract concept in our minds.
In this present in which the real and the virtual have come to overlap so well, in which the artificial becomes established without difficulty based on our mental abstractions, we must ask ourselves what is truly sustainable and what is actually thinking green? But we can't talk about ecological thinking without first defining what is the ecology of a thought that has not been corrupted by constraints of historical and cultural nature.

A common language that architecture can now use, that is able to connect with other related scientific fields is the language of ecology. But we are not taking about an ecology based on present economic principles that are corrupted, the term economy being misused to justify the expansion of the consumerist society and defies many principles of equilibrium, in which architecture is not more than the platform needed to deploy and integrate renewable energy solutions like solar panels, photovoltaic panels, or recycled materials, but an ecology that architecture is part of, and follows the principles that nature deploys in generating organisms and structures from the embryonic state to the growth and cyclic operations specific to living things.

Nature has no borders, no nationality, no identity barriers. It was, is and will be a reality of our physical environment and provides a global model of organization and evolution, extremely effective and balanced based on adaptability through interaction.

Thereby, the motivation of the research project becomes the relation that architecture could have with the evolution, adaptability and organic principles that characterize natural systems and living organisms. The research up till now has taught us that through digital technology we can become effective and efficient again, by informing our design processes with real data collected from the

environmental context in which the architectural space must emerge.

Nature is all about evolution. Natural systems have been evolving to higher levels of material efficiency in the process of adaptation to new physical constraints. Natural systems tend to do more with less energy keeping a state of equilibrium that we, as a species, seem to have lost in our inefficient design strategies. So the main question that the research asks is how can we use digital technology to inform our design processes with real data and not base our strategies on different styles and stereotypes that come and go and are based on floating signifiers. This technological approach, dissociates itself from the interpretation of symbols and from investing matter and form with different significations and focuses on the genesis of space, its material and structural performance.

The research project aims to harness nature's "wisdom", the methods and means that natural systems apply in the process of delivering new organisms and natural structures that have an ideal function in their ecosystems. It's a conceptual approach that we will call Informational Biomimicry. From this perspective architecture becomes a living entity.
Natural systems have the ability to maintain a balance, based on a exchange of information at different scales between their constituent elements. In fact this is one of the ecosystems definition. This exchange of information implies the existence of transmitters, receptors and actuators or performers that stimulate a prompt reaction in all living organisms in response to incoming information, also known as reactivity.

3. The Brain and The Ecosystem

The brain is the instrument that centralizes all our sensations and has the ability to do so through different senses that acquire different types of information on it's environment. (Fig.1) This is the information we are usually working within our projects.
The brain is where information perceived through our senses receives an answer, a reaction. But the brain can often generate inadequate reactions as a answer, if the rational system is based on corrupted principles of value and morality. Can this sensory information be used in our design strategies in a more efficient, objective way, can it influence directly the design process ?

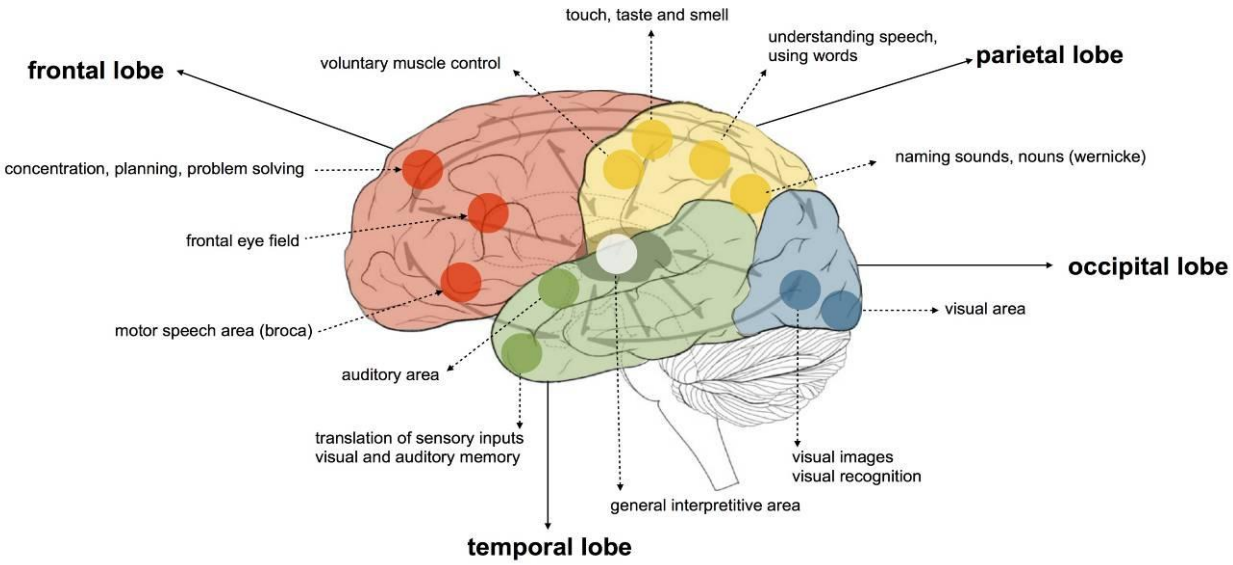


Figure 1. Sensory signal processing map of the human brain

In response to this question the research proposes the externalization of the process of data acquisition and interpretation through different types of digital sensors with the help of a

microprocessor. By doing this we are able to connect the natural stimuli exerted by the environment with the virtual model in order for the new object to emerge through interaction. (Fig. 2)

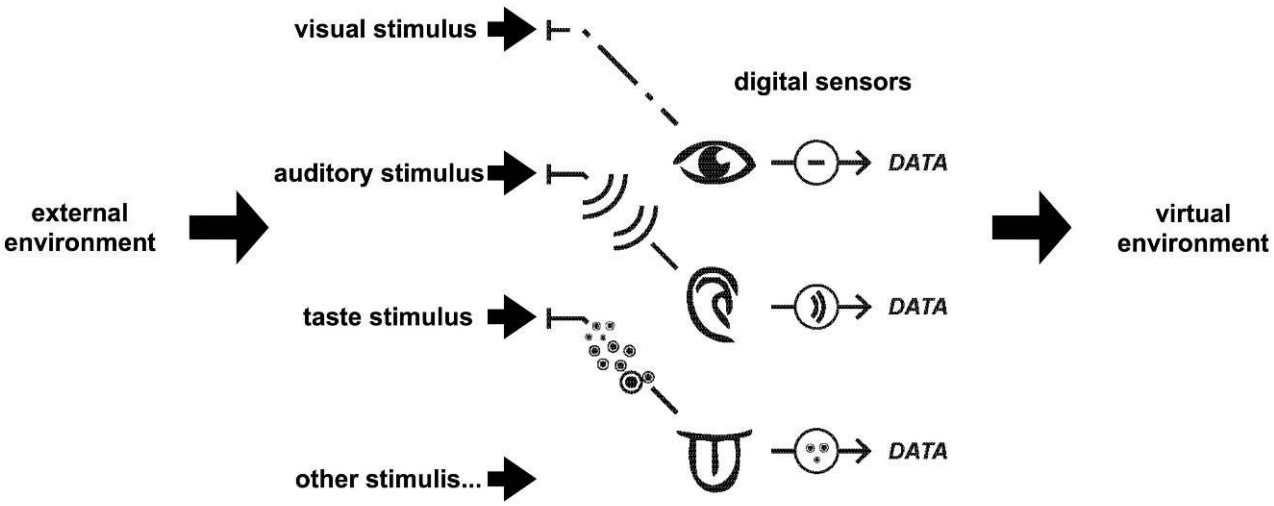


Figure 2. Externalization of the process of data acquisition and interpretation of sensorial information – diagram

We are creating the premises for the architectural object to emerge through interaction. The proposal consists of a digital sensory tree, capable of interpreting objectively and informing the architectural model with real time sensorial data acquired from the environment. This process could be seen as an extension of our sensory human abilities in the process of augmentation of the architectural model with quantifiable data. (Fig.3)

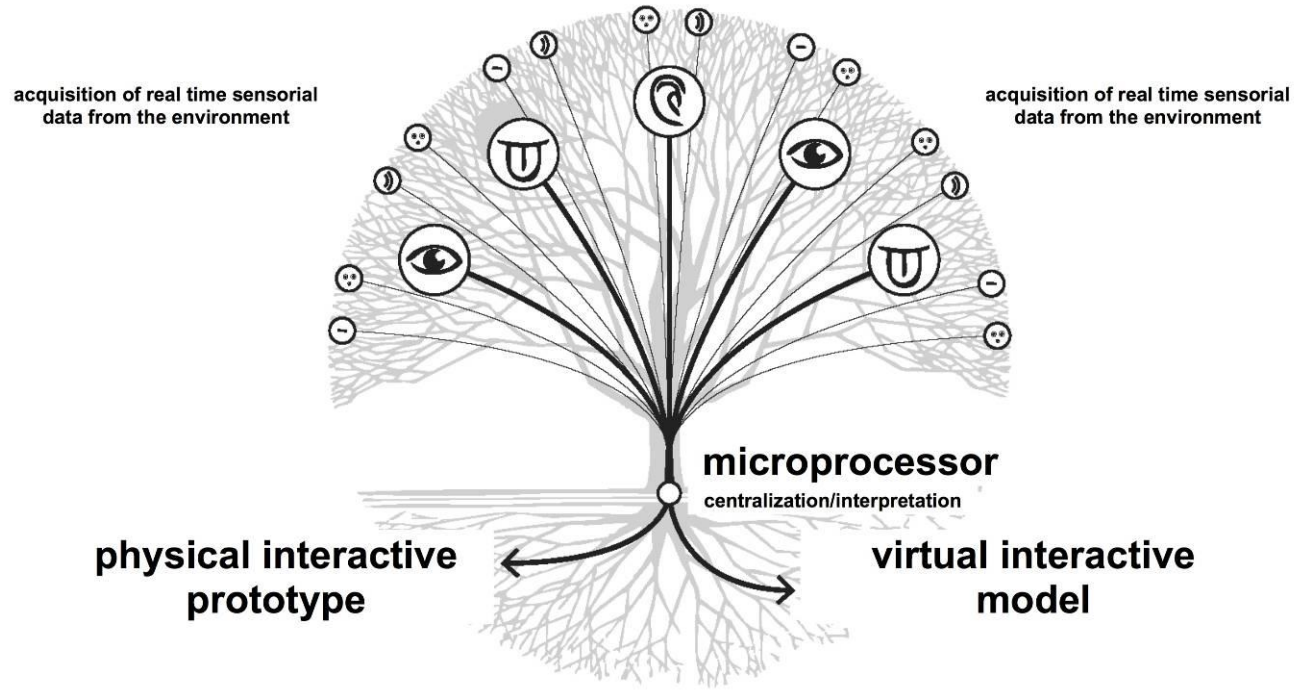


Figure 3. Proposed Digital Sensory Tree – diagram

The project aims to create an informational ecosystem in which the architectural space can be "grown" as a living organism, as a space of negotiation between internal and external forces and processes. A "diagram of forces"[2] the way D'Arcy Wenthvorth Thompshon has put it. (Fig.4)

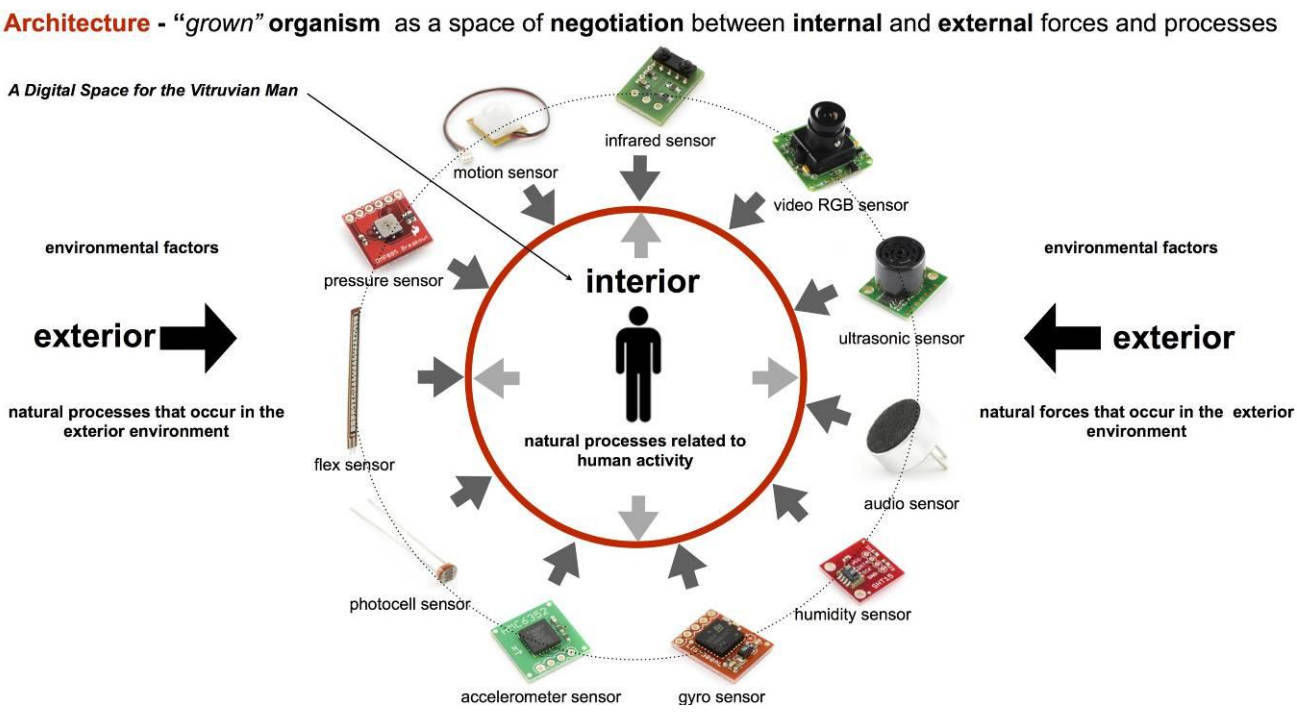


Figure 4. Informational Ecosystem - a diagram of forces

The perspective from which information and pure data means the triumph of form over content, underestimates the importance of communication and the information theory in understanding the dynamics of an space in which information is gaining ground over the production of meaning, and signifiers. One of the theories that captures and predicts the primacy of the information networks over the networks of meaning is the post-structuralism which describes the late modern civilization as a civilization of "floating signifiers" with signs that have lost contact with the networks of meaning.
To give a proper answer to this question of sustainability in architecture, I believe that a truly ecological thinking in architecture should aim to generate architectural space from its embryonic stages in relation to the natural environment, placing the product of architecture in the field of living organisms. This assumption will be verified through a series of digital experiments related to natural processes and forces exerted on the future architectural object. The experimental objectives in the research project come to support the theoretical framework and to substantiate the scientific validation of results obtained through digital experiment.

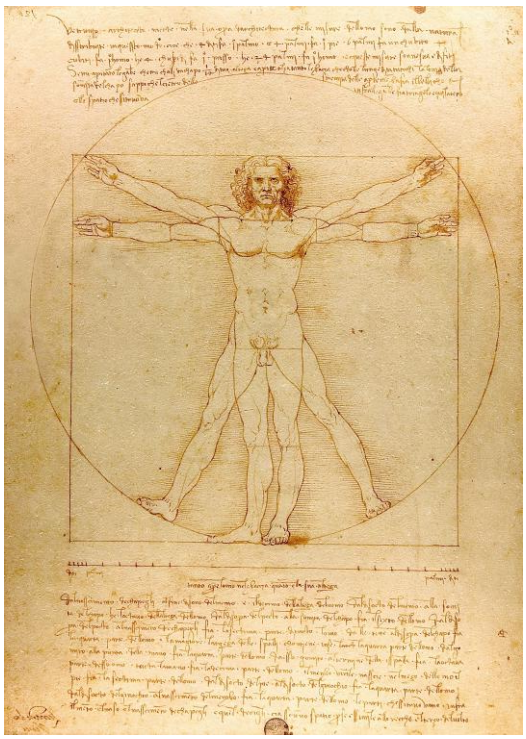
4. Digital Experiment – A digital Space for the Vitruvian Man

The first experiment is aimed at specific natural processes that occur in an internal environment in which individuals operate and can provide information on the spatial distribution of the users in a existing environment, in determining optimal volumetric surfaces from a spatial and functional point of view. By using heat maps that refer to traffic monitoring, points of interest, temporal distribution in space and functional use, we can generate a volumetric object informed by real world data acquired through digital means. So the main question of the digital experiment becomes: How can the users of a possible space, really participate in its conception, definition and genesis ?

4.1 Historical background

The Roman architect Marcus Vitruvius Pollio known as Vitruvius, described in his famous treaty *De Arhitectura*, the proportional essence of architectures most famous man, known later in the fifteenth century through the drawings of Leonardo Da Vinci, as the "Vitruvian Man". Vitruvius's

proportional system, revolved around the notion of ideal human body proportions. Da Vinci represented this ideal body with spread arms and feet , inscribed in primary shapes, symbolizing perfection - the circle and square. (Fig.5)



Vitruvius considered that a building based on the proportions of this geometric construction would achieve universal harmony. In his view, harmonious proportions were the quintessential definition of human archetype and offered architects of his time an objective reference scale.

Few were more enslaved by the philosophy of Plato and Vitruvius than Renaissance architects.

Armed with an understanding of Greek mathematical world and the Christian faith that man as the image of God, was embodying the universal harmony, Renaissance architects saw "the figure of the Vitruvian Man inscribed in a square and a circle as a mathematical symbol between micro cosmos and macro cosmos." [3]

More recently anthropometric studies have showed that a universal proportion can not be accepted even if the relationship between the proposed segments in the human body are consistent for different individuals.

Figure 5. *Vitruvian Man,* Leonardo da Vinci, Galleria dell'Accademia, Venice, Italy (circa 1490)

Nearly 500 years after the Renaissance, famous architects like Le Corbusier were still producing immutable human archetypes in order to achieve architectural space. For him, The "Modulor" was a tool capable of inscribing human proportions in any man made product be it of architectural nature or mechanical nature: "a universal instrument, easy to employ, which can be used all over the world to obtain beauty and rationality in proportions of everything produced by man."[4]

Le Corbusier's Modulor was in fact an attempt to revive the humanities proportioning systems as were the Vitruvian or the Platonic systems. The architect proposes a new measuring system for regulating universal proportions in all modes of cultural and technological production. The measure adopted is derived from the supposed correlation between the height of a ideal human individual and the relationships of the Golden Section and Fibonacci series found in natural forms. (Fig.6)

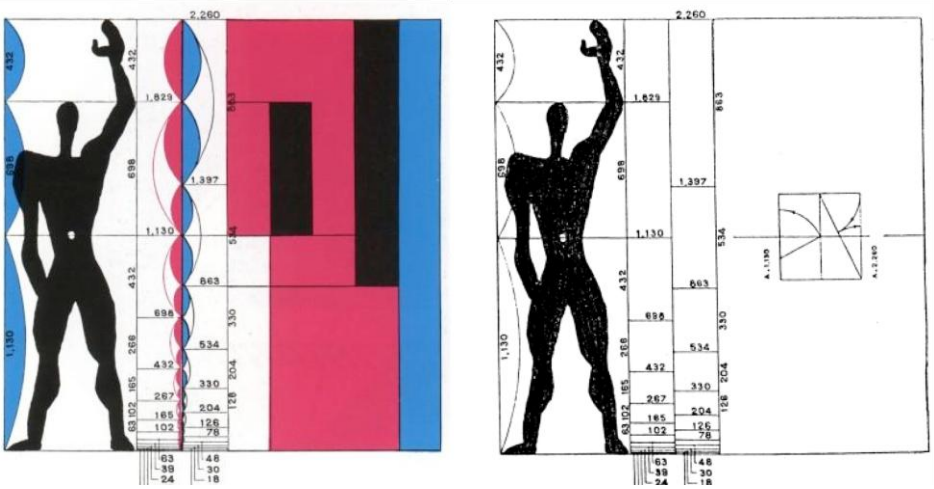


Figure 6. *The Modulor,* Le Corbusier, *Modulor 2*, Paris, 1952, Copyright FLC/ADAGP.

The Modulor was used as a compositional device that favored repetition for mass-produced units, the most obvious example being his project Unité d'Habitation social housing in Marseille. The

architect's vanity made him say that this device would allow industrial production in a way that would harmonize with the proportions of the human subject. (Fig.7)

Figure 7. *Unité d'Habitation* - Cité radieuse (La Maison du Fada, informal), Le Corbusier, Marseille, France, 1947-1952.

Le Corbusier used the human body as a mediator between the sensory perceived world and natural laws of perspective. In his studies, attention has been focused particularly on the position of the eye in reference to the perceived world more than any other sensory perception, and the relationships the Modulor tried to establish were justified by this position of a standing individual.
The Modulor unlike Da Vinci's Vitruvian Man, is based on the subjective views of the individual in reference to the world he perceives. (Fig. 8)

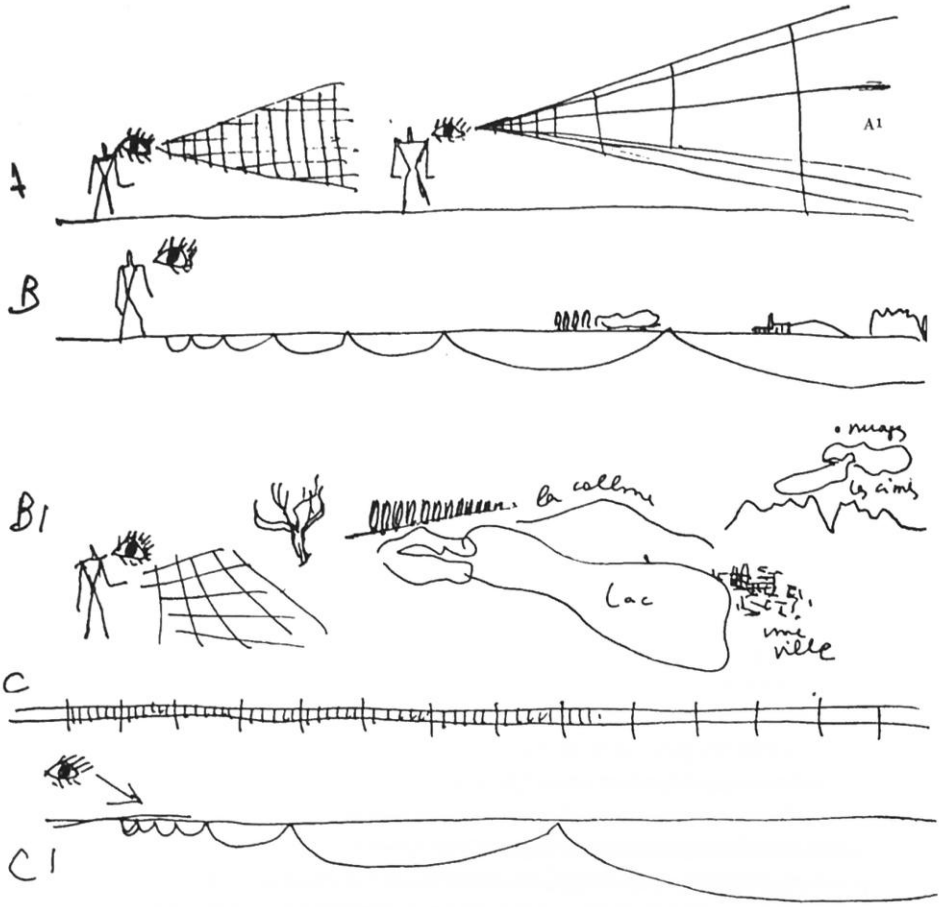


Figure 8. The Modulor as an optical device ordering the perceived perspective *The Modulor*, Paris.
Referring to measurement processes, Thomas Kuhn and Ian Hacking noted that these processes have achieved a new status in the nineteenth century, when empirical experiments have

demonstrated the importance of quantifiable data, and become in fact a common feature of the scientific discourse for the first time .
Measurement is not a simple descriptive process, it was and still is a diagrammatic technique that intermediates between the known phenomenon by the subject (subjective knowledge) and the objective world of things (noumenon). The objects of empirical knowledge were constructed through successive measurements following a descriptive ordering of the subject being represented.

Vitruvius and Le Corbusiers archetypes exists outside the real world and outside time, and their efforts in trying to find a measure of universal and timeless proportions applicable to a dynamic and complex context that changes and adapts, through static models, was doomed to failure.

Democracy in architecture does not mean that we need the same environment, but an equal opportunity to express our individual needs, which would translate today through mass customization - a concept opposed to Le Corbusier's theory which we know that occurred in the context of the industrial revolution period, based on mass production.
The studies of Vitruvius, L.B. Alberti, Le Corbusier, Leonardo da Vinci didn't capture the dynamics of the architectural space as a evolutionary adaptive space, responding to change over time - they are static models. But the Vitruvian Man for example, was an obvious attempt to represent the dynamics of the human body through the sixteen possible positions in combining the two main postures that are inscribed by two primary geometric shapes : the circle - dynamic, the square – stable.

4.2 Hypothesis

Starting from this assumption, based on current digital technology, the experiment tries to automatically generate a tridimensional volume conditioned by the proportions and movement of the human body by introducing a new parameter in the study of this space: time.
Physical space has always been built in close relation to the proportions of the human body and its activities whose functional and aesthetic needs tries to ensure. The architect's role here is to design systems able to react to change in time and transcends the romantic vision of the single creator, able to meet the complex needs of a community. The user becomes a truly active natural agent in the emerging space. The parameters of the studied individuals inform interactively the architectural space through their personal dimension providing a complex number of iterations and at the same time the flexibility that only collective design can generate. The volume will be informed with proportions of the human body in motion and time, and will be generated in a democratic way continually being carved by the anatomical features of each individual user.

4.3 Concept and Implementation

The data acquisition of the profile generated by a mass of individuals will be accessible using digital techniques currently used in the telecommunications field . The project uses an array of sensors and transducers that can provide real time data about the position, the human body's profile and the use of space in time. The intention is the acquisition of a spatial point cloud in a iterative manner, by three-dimensionally scanning the existing environment with a matrix of infrared sensors and stereo cameras. The spatial points described by the human body in motion will generate a continuous stream, or a point cloud, that will be later interpolated with a polynomial algorithm based on mathematical functions in order to obtain a continuous surface. (eg. Spline function). This will result in a NURBS surface that will be informed with an intrinsic intelligence. This is the first step in generating an architectural object resulted in a interactive manner.

4.4 The Experiment's Principle

This sensors are distributed in a matrix of one meter spacing on the ceiling of an existing room.(Fig.9) The table of coordinates is related to the position of the sensors on the ceiling in relation to the position of the moving human body. (Table 10) The simulation using the Spline Function interpolates the 3D points from the database to generate an optimal surface. (Fig.11,12,13)

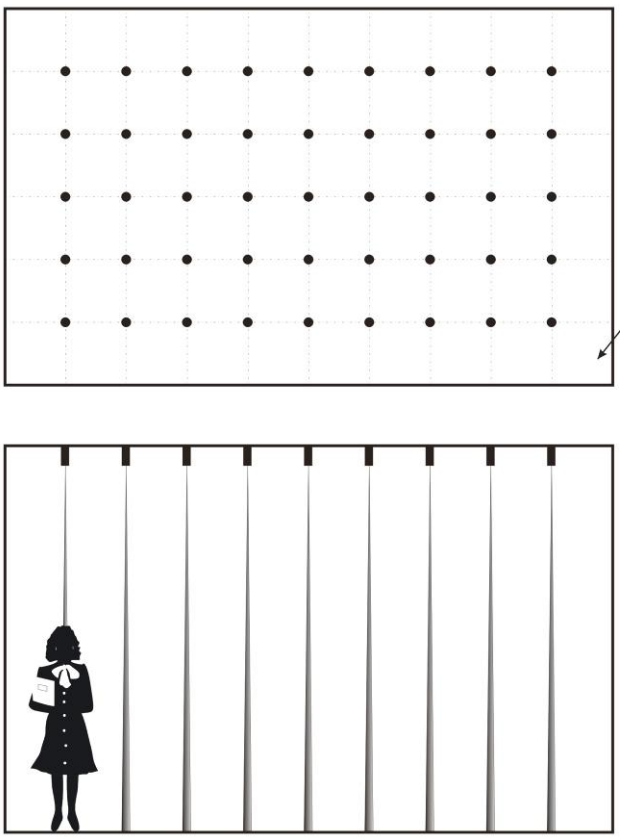


Figure 9. Plan, Section. Matrix of infrared sensors

x	y	z
1	1	0
2	1	0
3	1	0
4	1	0
5	1	0
1	2	0
2	2	0
3	2	2
4	2	0
5	2	0
1	3	0
2	3	0
3	3	0
4	3	0
5	3	0
1	4	0
2	4	0
3	4	0
4	4	1,5
5	4	0
1	5	0
2	5	0
3	5	0
4	5	0
5	5	0

Table 1. Matrix of spatial coordinates

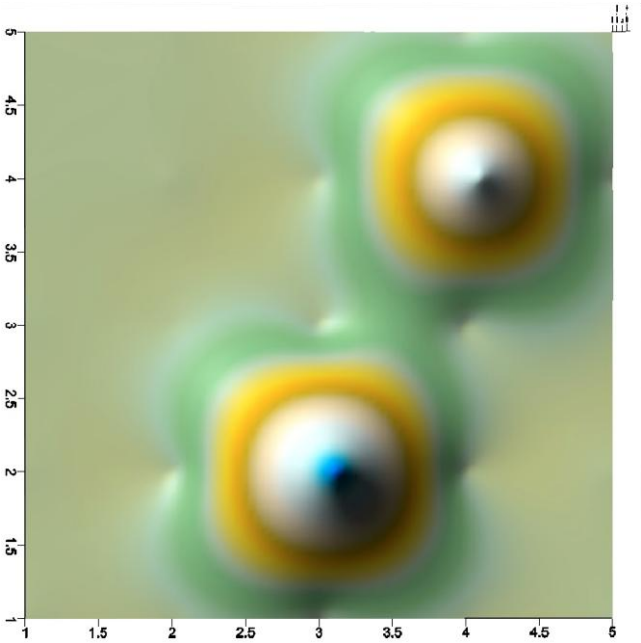


Figure.11 Spline Function interpolation simulation

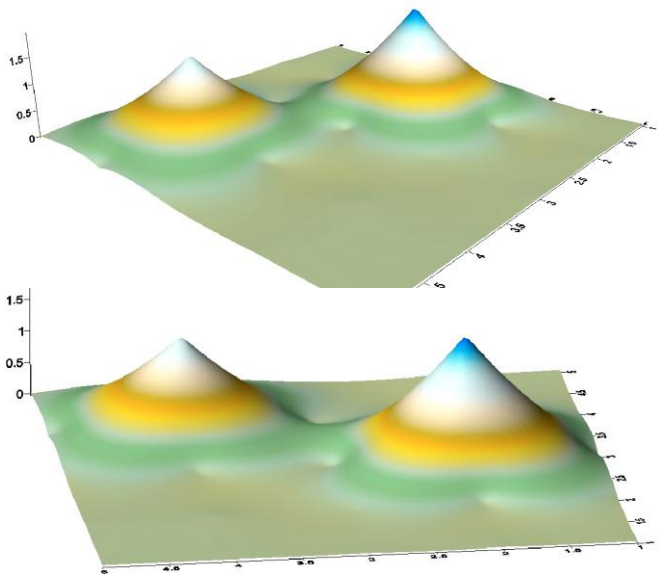


Figure 12, 13. Views of the simulation surface

4.5 Methodology

For the microcontroller we chose the Arduino platform, an "open source" platform which allows flexible electronic prototyping and is used in the design and programming of interactive environments. It allows interaction between the real (physical) world, and the digital (virtual) world having analogue and digital ports for communication with different types of sensors. The electronic sensor is a technical tool able to react to certain physical or chemical properties of the environment. It is used to generate a signal indicating the occurrence of a given situation or represents a parameter variation in a studied phenomenon. This experiment uses infrared sensors and RGB sensors in order to capture the point cloud.

4.6 Prototyping and testing

The point clouds were exported from the acquired database to a computer aided drafting software for visualization. (Fig. 14)

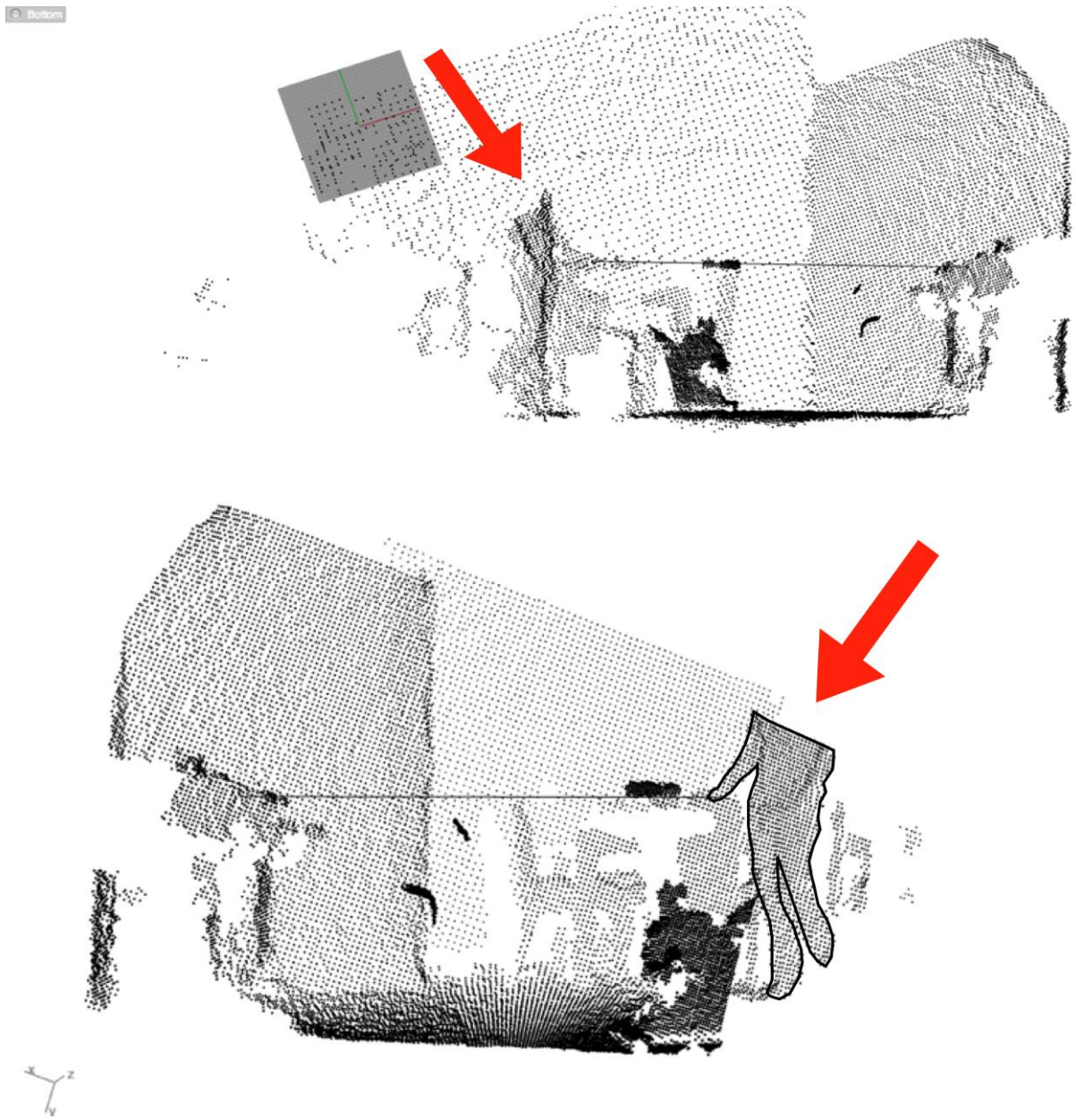


Figure 14. Views with three dimensional point clouds generated by human activity

The views above are the first tests using real sensory data. The next step is to interpolate different positions of the human body that are described in his movement during his activity in order to obtain a flux of point clouds that can further compose the final volume.

5. Conclusions

Architecture has sought along history a measure that could underlie a harmonious relationship between the artificial and the natural space, a measure that could establish harmony between living things and the ordered production of human artifacts.
This experiment deploys digital technologies in order to generate a tridimensional volume through rules of interaction conditioned by the proportions and movement of the human body by introducing a new parameter in the study of space: time. This way the user becomes a truly active agent in the definition, conception and genesis of this space, and the architect transcends the romantic vision of a single creator. This experiment aims at growing a volume that speaks about the optimization of an existing space as an evolutionary process. The results are promising and are a big step towards achieving generative space based on natural interactions.

6. References

[1] Vais, Dana. *Archi-texts: In search for a new modernity: essays on architecture*. Bucureşti: Editura Fundației Arhitext Design, p.183, 2008.

[2] Thompson, d'Arcy W. & Bonner, J.T. *On growth and form*, Cambridge University Press, 1945.

[3] Wittkower, R. *Architectural Principles in the Age of Humanism.* Norton, New York, p.14, 1962.

[4] Rasmussen, S.E. *Experiencing Architecture,* Cambridge, Mass.: MIT Press, p. 118, 1959.

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Abstract

From time immemorial architecture and it's education were one and the same until the major changes in society during the Renaissance Era took place. Agreeing with Bernard Tschumi's theory of the three dissociations [1], adding on to it (that the third dissociation was actually a dual one), and placing it in the context of Françoise Choay's theory of the socio-cultural revolutions [2] we'll state that every major change within society triggered major transformations and mutations within the fields of architecture and its education leading to the mentioned dissociations:
- *Between practice an theory during/after the Renaissance Era;*
- *Between the couple practice-theory and the production methods during the Industrial Revolution Era;*
- *Between architecture branches themselves: architecture, urban planning, interior architecture and between practice an theoretical-practice during/after the post-1968 events Era (post-Industrial Era).*

Considering that the Digital Era, which began in the mid '70s and it started to affect architecture in the mid '90s, is another major Era in history, our paper aims to analyze the transformations and mutations that took place within this timeframe in the fields of architecture and it's education and to extract a set of guidelines that would try to indicate future possible directions for architecture and architectural education. The purpose of the paper is, however, to provoke and inform debate rather than predict precise futures.

Rezumat

Din cele mai vechi timpuri arhitectura şi educaţia de arhitectură au fost unul şi acelaşi lucru, până la schimbările majore suferite de societate în timpul Renaşterii. Pentru o mai bună înţelegere a modului în care arhitectura şi educaţia de arhitectură au evoluat de-a lungul istoriei, vom lucra în cele ce urmează cu teoria celor trei disocieri [1] a dlui Bernard Tschumi pe care o vom plasa în contextul teoriei revoluţiilor culturale [2] a dnei Françoise Choay afirmând astfel că fiecare schimbare majoră a societăţii a provocat transformări şi mutaţii în câmpul arhitecturii şi a educaţiei de arhitectură declanşând disocierile mai sus menţionate:
- *Între practică şi teorie în timpul şi după perioada Renaşterii;*
- *Între cuplul practică-teorie şi metodele de producţie în timpul Revoluţiei Industriale;*
- *Între ramurile profesiei: arhitectură, urbanism, arhitectură de interior şi între practică şi 'practică teoretică' în timpul şi după evenimentele din jurul anului 1968 (Epoca post-Industrială).*

Considerând că Epoca Digitală - care a început în mijlocul anilor '70 dar influențează arhitectura abia de la mijlocul anilor '90 - este o a patra eră majoră în istoria omenirii, ne propunem prin această lucrare să analizăm schimbările (posibile disocieri sau 'asocieri') care au avut loc în acest interval de timp în educația de arhitectură și în arhitectură. Miza este aceea de extrage în urma analizei un set de linii directoare care să indice direcțiile viitoare posibile ale arhitecturii și a învățământului de arhitectură. Scopul acestui articol nu este acela de prezice într-un mod exact viitorul ci mai degrabă acela de dezbate și de a crește gradul de conștientizare al problemelor cu care se confruntă în prezent învățământul de arhitectură.

Keywords: transformations/mutations, architecture, education, digital/numeric, guide-lines

1. Introduction

The choice of words in the title should be explained before advancing any theories and hypotheses. We will consider the biological sense, as it is found in the French, Romanian and English dictionaries, of *transformation* and *mutation*. A transformation in architectural education will be understood as any modification of a process by the uptake and incorporation of exogenous information (e.g. the birth of architectural academic research moments after the integration of architectural education in the University system). A mutation in architectural education will be considered as any modification of a process as a result of internal information change, therefore, mutation is seen as *the main source of genetic variation, which is the raw material for evolution.*[3] The paper is focused mostly on European *architectural education* due to cultural differences. These differences are not as strong as, for example, those between Europe and Asia or South-America. As for the *Digital Era* we will consider it from mid 70's up to the present day. It's start point coincides with the birth of the personal computer concept. We acknowledge that point as the moment technology started to affect society as a whole.

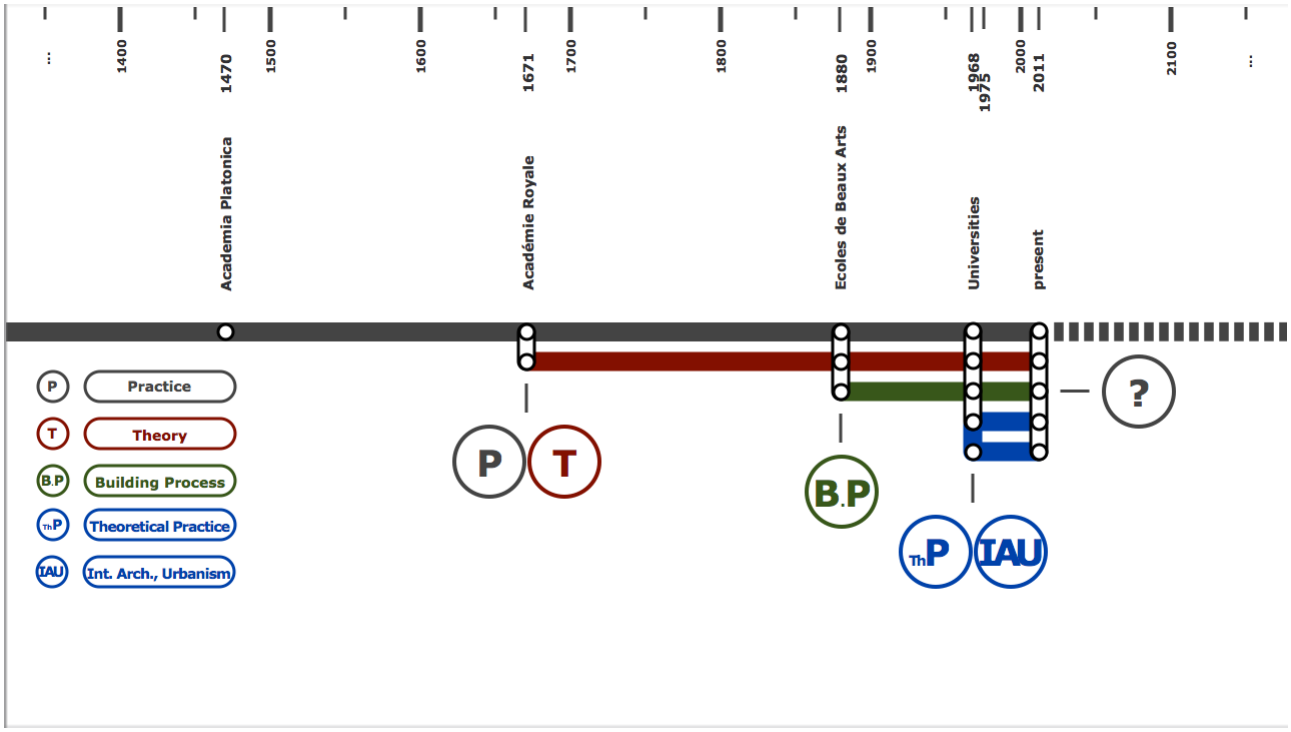

Figure 1. Timeline representation of the tree dissociations

2. Foundation

The paper will work with Bernard Tschumi's theory of the *three dissociations* [1] which will be put in the context of Françoise Choay's cultural revolutions [2] for a better understanding of the way in which architecture and architectural education have evolved during their existence.
Tschumi states that architecture and its education had three defining moments which were Académie Royale, Ecole des Beaux-Arts and the socio-cultural events that took place during 1968. Each of this moments triggered major dissociations within architecture and architectural education. Académie Royale had the same principles and the same political purpose as Academia Platonica. Both of them can be placed in terms of principles in the context of the Renaissance. Ecole des Beaux-Arts comes in the context of the Industrial Revolution.
In what concerns Françoise Choay's third cultural revolution, the electro-telematic revolution that started in the late 1950's, it is our opinion that it needs to be cut in two different revolutions/eras: the socio-cultural events from 1968 and the digital revolution that started in the mid 1970's. Therefore Tschumi's third dissociation happens in the context of the '68 events and it is our assumed task to analyze the changes (possible dissociations or *associations*) that had and to this day are still taking place in the Digital Era.

2.1 The first dissociation

Even though we have proof that architecture was discussed from antiquity by such important thinkers as Plato in Ancient Greece, Vitruvius in Ancient Rome and the master builders (Villard de Honnecourt, Mathes Röriczer, etc.) in the Middle Ages, there are no suggestions of formal courses taking place anywhere. Therefore our first stop in the history of architecture and it's education will be Academia Platonica in Florence. The school followed Plato's model and it was located in one of Lorenzo de Medici's gardens in Piazza San Marco in Florence. It was ran according to Alberti's principles about what architects should be, as he perceived himself more of a philosopher, in Plato's way, than a craftsman. He managed to convince Lorenzo about the importance of theory and became the first architect who designed his projects, but entrusted their construction to someone else. We can imagine the reputation of the school just by counting among its graduates the likes of Leonardo da Vinci and Michelangelo. The school had a political goal as well and that was to attack the Craft Guilds which, since the Middle Age, were still influential. However the fate of the Academia Platonica was bound to that of the de Medici's offering therefore no continuity.
The second stop in the history of architecture and it's education is the Académie Royale in Paris. The gesture of setting up the Académie was shaped much the same way as Alberti's idea: to elevate the architects from their status of craftsmen to that of intellectuals. The same idea which hid behind the same political goal: attacking the Craft Guilds which were not under Royal control. The Académie started as a group of discussion amongst the most prominent architects of the time who were supposed to inform the King on architectural matters. In 1671 the king appoints François Blondel as the Director and Professor of the Académie where he will give lectures twice a week. There were lectures in architecture, military architecture, mathematics and mechanics amongst others. By 1717 these lectures became a full two- or three-year course.
This marks the first dissociation in the history of architecture and its education, a split between practice and theory. Since time immemorial architecture and its education were one and the same, theoretical education and practical training took place almost simultaneously and were defined by the relation master-apprentice. Never before could we have spoken of architecture schools and rarely if not ever an architect was known as a public persona.
Even though the Académie Royale was created in the French Classicism's full swing, around 200 years later, it shares the same principles and goals as the Academia Platonica. The cultural goal, the elevation of the architects from the status of craftsmen to that of intellectuals, covered a political

goal of the pre-industrial age, the attack of the Craft Guilds that were considered to oppose free trade and hinder technological information, technology transfer and business development. The style itself, the Classicism, has the same principles as the Renaissance Era (e.g. rediscovery of ancient greek and roman values, the translation of ancient treaties such as Vitruvius *De Architectura*) and even the period itself as a model. Therefore, the first dissociation, between practice and theory, came as a result of the major changes in society during the Renaissance Era.
The transformations of architectural education are the shifting of theory from the master's workshop into the school, the birth of the syllabus, the birth of the relation professor-group of students, the birth of the architecture competition concept. The mutations are the fact that design is taught in the studio and that the studio remains in the master's workshop.

2.2 The second dissociation

Our third stop is the Ecole des Beaux-Arts in Paris. Jacques Louis David's influence on the birth of the Ecole was not as important as Blondel's influence on the Académie, therefore the Ecole lacks a founding concept and an explicit purpose. [5] All of the major and fast changes in the french society at the crossing of the century, the Revolution of 1789, Napoleon's Empire and the reinstallation of the royal regime and all of the personalities of the time had a great influence on the founding process of the Ecole. Despite this lack of concept we can integrate the birth of the Ecole in a grater movement of the age: architecture's integration with the arts and the elevation of architecture to the status of liberal art.
After the Revolution the Académie was shut down by the National Convention. In 1794 J.L.David became Chairman of the National Convention and founded new schools of medicine, music, political science, astronomy, etc. as well as an Architecture School who was to be linked with the Special Schools of Art. He created thus the conditions for the birth of the Ecole who had an uncertain status until 1819 (being at times subordinated to the French Institute, and at times to the political power) when king Louis XVIII institutes Ecole Royale des Beaux-Arts's autonomy by royal decree. For the first time in architectural education the central point in the syllabus is taken by the process of learning a specific technique of design: composition. This process became stronger as the notions of architectural competition and "workshop" became more and more complex. Competitions, mostly on composition, became a monthly habit and they were of two kinds: esquisses (sketch designs) and projets rendus (fully finished drawings rendered in ink). The "workshop", until then a unit external to architectural education, became a defining notion for the Beaux-Arts system. With its *patron*, *le massier*, *les anciens*, and *les nouveaux* [6], it became, as Michel Denès notes, such an rigorously ordered place that it reminds one about corporations. We are witnessing therefore the birth of the formalist way of thinking that is slowly replacing the scientific way. The main reason for this change in architectural thinking is the speed of the Industrial Revolution which was unveiling new programs, without historical precedents, that were requiring the use of new techniques and materials in the building process. These new techniques were appropriated by the industry which developed its own construction processes independent of the architectural thought.
This is the second dissociation, where architects have little control over the definition of building process. [...] Education flourishes. Schools of Architecture open everywhere. [7] E.E.Viollet-le-Duc anticipates this dissociation after his short period at the Ecole by saying that if they do not change, architects are bound to become an endangered species and that they should follow the example set by the engineers. The latter were embracing these new building techniques with no reticence and were founding their new schools: Ecole Polytechnique, Ecole des Ponts et Chausses, Ecole des Mines. ESA (Ecole Spéciale d'Architecture) is founded, as the result of a private initiative as a gesture of rebellion against the Ecole des Beaux-Arts system.
The transformations of architectural education in the Industrial Revolution Era are the creation of the school's workshop, the new relation master(patron)-group of students, and the creation of the new schools for engineers: Ecole Polytechnique, Ecole des Ponts et Chausses, Ecole des Mines. The mutations include the development of a more complex syllabus and the development of the architectural competition notion.

2.3 The third dissociation

The events that happened during and around 1968, almost 300 years after Colbert, were a global phenomenon that hit Europe's both communist (Czechoslovakia and Prague Spring, Poland, etc.) and noncommunist states (France, Germany, Italy, etc.), The United States of America, South America (Brasilia and Mexico) and Asia (China and the Cultural Revolution). The events began as a response to the changes that took place in society in a 20 years post World War II timeframe: massive urbanization and industrialization, demographic growth, mass-media development, the development of the public education system, etc. New values appeared in education. These values focused on the individual and his fulfillment, on creativity, they questioned authority and traditional society. Authority gave way to freedom of speech, debate and collective decision making.
In terms of architectural education it signified a revolution against the Beaux-Arts system and it had as result the integration of architectural education in the University system. Two models of architectural education can be distinguished: the French model and the Anglo-Saxon model. The French model is characterized by the creation of the UPA's (Unités Pédagogiques d'Architecture), independent units of architectural education, out of the old architecture units from the Ecole des Beaux-Arts and by its 1970 Plan Construction. The Anglo-Saxon model is characterized by the integration of the old architecture units from the Ecole in the University system (Technical Universities, Metropolitan Universities, Arts and Crafts Universities). Both models will be strongly influenced by Bauhaus' concepts and syllabus. Students became more aware of their academic context and began to develop their intellects by getting in contact with such fields as history, philosophy, kinetic arts, etc. Project proposals, hybrids of art/cinematography and architecture, gave way to very interesting propositions where the word *theory* played a key role.
Out of this kind of architectural education a new type of architectural practice emerged: *theoretical practice. That leads me to the third dissociation. Theoretical practice does not build, it publishes. We increasingly witness within the ranks of architects themselves a split. This split is between the 'idea' architects, the media 'stars', the 'signature' architects, who do a well publicized sketch design, and the near anonymous firms that do all the working drawings and pay liability insurance.* [8] Apart of the split in architectural practice, one can notice another split, in architectural education. Architectural education entered the University system as one branch and it ended being separated in three branches: architecture, interior architecture and urbanism. Some schools of architecture are now awarding three type of diplomas across Europe and we are witnessing the creation of a another professional body, as equivalent to the institutes/chambers of architects, institutes/chambers of urbanists or urban planners.
The transformations of architecture and architectural education in the 1968 Socio-Cultural Events Era are: the creation of two new branches (interior architecture and urbanism), academic architectural research, the experimental studio. As a mutation we can consider the furthermore development of the syllabus that will include courses on philosophy, history, sciences, etc.

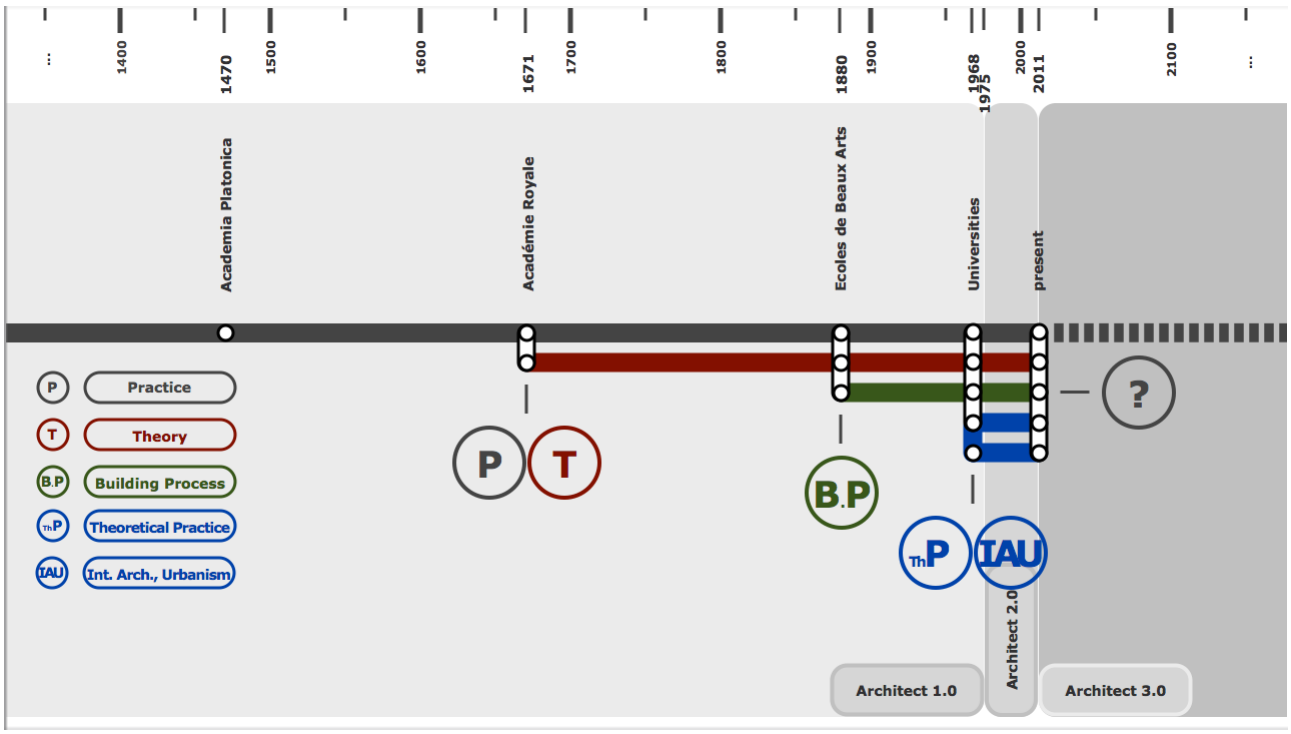

Figure 2. Timeline representation of architects major versions

3. Digital Era. Architect 1.0. Architect 2.0 . Architect 3.0...

Having analysed all the three dissociations we can try to visualise them in a metro line like map (Figure 1). What we find interesting about this typology of representation is that it can be, like our research, an ongoing project open to further development and questioning. Looking at this map we can observe a lot about the rhythm of the major changes in the history of architecture and its education... Questions can be asked and issues can be raised by analysing this map... Are we to expect another dissociation? Or, on the contrary, expect certain associations that will take place in the light of the Digital Era? Whatever answers our work might unveil we notice a very interesting aspect about this evolution: that despite the fact that we talk about three major dissociations/changes, the way that architects have worked changed only after the computer began to influence the architectural society. Architects have worked using the same tools and in almost the same way since the beginning of time. And the way in which they are working now is on the brink of change. Finding inspiration in computer software's assembly versioning [9] (we will only use two out of four items form the assembly version number - *major version* and *minor version*) we will try the following classification of architects: Architect 1.0 (up until the mid 1970's), Architect 2.0 (from the mid 1970' to the present day) and Architect 3.0 (the architect of the near future). (Figure 2.pdf)

3.1 Architect 1.0

Even though we know from L. Hasselberger's (1985) research at Apollo's temple at Didyma that ancient greeks might not have needed paper; or as earlier suggested by J.J. Coulton (1977), once the orders were established, they might not have needed even drawings, architects carried their work on the same principle, hand drafting, and using the same tools (compass, square, etc.).
For the next major version of architects, relying mostly on Raoul Cenan's research [10], we will take a close but brief look at the way computers and their software suits started to impact the architectural society. A major architect version will be assigned to each decade as follows:

3.2 Architect 2.0 (1970-1980)

It is the decade in which the first personal computers are launched: Altair 8800 (1974), Apple I and II (1976 and 1977), TRS-80 and Commodore PET (1977) etc. However, due to its size and graphical capabilities Xerox-Alto (1974) is considered to be the first real personal computer. It never left the PARC research centre for commercial production due to its extremely high manufacturing price.
IBM's 2250 Graphics Display System allowed the transfer of manual drafting in the digital world. The terminal was introduced in 1965 but only around 1000 pieces were installed until 1971. The transfer was done by replacing the physical bi-dimensional drafting with the digital one using graphic entities. One architectural experiment using the computer in this decade was conducted at Cambridge University by John Frazer. The projects name was Reptile (repetitive tile) and part of the experiment was published in 1974 in Architectural Design magazine. Another experiment, Generator Project, was conducted by Cedric Price in 1976 at the request of the Gilman Paper Corporation. By 1978 John and Julia Fraser join the team to design a building capable to adapt and readapt to its users ever-changing needs but also to be capable to correct its own errors leading to the birth of the *self-conscience building*. The decade marks the birth of a new tool that will replace the old ones and the birth of the concept of what is called today CAD (computer aided design).

3.2.1 Architect 2.1 (1980-1990)

Its a decade that marks the improving and spreading of equipments. Computers get faster, smaller, sleeker and most importantly affordable. The decade is also marked by the democratisation of the CAD software for the mechanical industries (Romulus - ShapeData, UniSolids - Unigraphics, CATIA - Dessault Systemes) as well as the launch of the CAD software for architecture. In 1982 John Walker, co-founder of Autodesk, launches AutoCAD, mainly for mechanical engineers. In the same year Bojan Gabor, founder of Graphisoft, launches ArchiCAD for architectural conception. In 1984 Keith and Barry Bentley, co-founders of Bentley Systems, launch PseudoStation which will later become MicroStation. Skidmore,Owings&Merill, one of the major pioneering architectural practices in the world, started investing in electronic equipments in 1963 by purchasing a computer destined to help structural analysis. S.O.M.'s major projects of the decade using the computers and CAD software (e.g. Kuwait Insurance, Malaysia Corporate) lead the practice to the conclusion that the product of an architect's work using computer technology is information and not drawings. Menil Collection, of Renzo Piano Building Workshop, is one of the first buildings of the decade to be designed and delivered using CAD software in a 5 years timeframe (1981-1986). Piano's politics of using CAD software on this project was that the team needed to understand each element of the building and the building as a whole before integrating CAD technology on the work process. It was the architects belief that the simple use of CAD technology can lead to superficial solutions leaving any project unfinished. By the end of the decade, in 1988, the same practice begins working on the Kansai Airport, a project they will deliver in 1994. This time the computer will be perceived as a fundamental tool in the development of the project and it is one of the first projects where the engineers admit that the computer is the tool of the modern master. This is the decade of the computer aided design, where computers help to visualise and draft but they don't influence architectural conception.

3.2.2 Architect 2.2 (1990-2000)

This decade is represented, aside of what we have seen at the end of the past decade (the computer starts influencing the design decisions and the architectural conception), by communications - the

internet. Another aspect of this decade is the specialisation of CAD software in four branches: for drafting and 3D modelling (object based libraries), for rendering, for image and text manipulation and for animation. [11] The architecture CAD software market establishes its key-players: Autodesk, Dessault Systems, Bentley Systems, Graphisoft, Nemetschek N.A. Aside the well known architectural movements (e.g. Minimalism, Deconstructivism, High-Tech) we are assisting the definition of John Frazer 1970s informatics movement with concepts from genetics as Genetic Architecture. James Steele (2001) finds three main ways that architects made use of the computer technology in this decade.

The first one would be characteristic for architects/practices that had developed a method before the computers impacted architecture. It is a method in which the computer only assists the development of projects that start the same way they did before: pen and paper.

The second one describes a more direct relation with CAD's informatics roots by transforming them. The most eloquent example would be that of CATIA software which was transformed into a complex architectural application destined for design and construction process management as well. This process helped design and deliver Frank Gehry's projects through the decade (e.g. The Big Fish in Barcelona, The Guggenheim Museum in Bilbao and the Walt Disney Concert Hall in Los Angeles).

The third way of using technology considers the computer as a *muse* while the architect limits its intervention during the design process - a pawn who takes decisions in key moments from the multiple solutions offered by the computer.

The forth combines the first and third methods. The computational process is stopped in key moments and external data is inputed by the architect in the computational process. That data derives from the critical personal analysis of the architect, leading to digital-graphic hybrids.

Amongst the projects that were on the cutting edge of both design and construction technology can be counted The Eden Project by Grimshaw Architects in Cornwall, Ghery's Walt Disney Concert Hall in Los Angeles, Foreign Office Architect's Port Terminal in Yokohama, etc. Whatever the case, computer technology becomes a *sine qua non* element in architectural practices across the world and starts influencing design decisions and architectural conception.

3.2.3 Architect 2.3 (2000-2011)

The past decade was the launching platform of the *object oriented* CAD. That was the moment that lead to the concept which is currently replacing Computer Aided Design and is called BIM (Building Information Modeling). The idea is to replace the CAD way of woking (which basically mimics with it's two dimensional layers, the way architects designed on their drawing boards using spreadsheets) with a way of working where the *sheets* are the result of the virtual 3D model. The idea is borrowed, from other industries such as the automotive industry and aircraft industry. There is still no definition of the BIM process that is platform independent. Each major software vendor will try to define it in its own way. *BIM represents for architectural design what hypertext meant for the internet, connections*. [12] One can imagine that the process of implementing BIM is an ongoing one, as Darren Tims, of Sydney based Rice Daubney, puts it: *These are the formative days*.[13] Rice Daubney delivered in 2010 Australia's first completed BIM high rise and shared some of the problems they had during the process: the lack, as we've earlier mentioned, of protocol in the industry, cost of BIM software (and hardware capable of running BIM software), consultants (structural engineers, service engineers, etc.) are not getting into BIM leaving a lot of their work to be implemented in the model by architects, lack of understanding BIM concept from clients, contractors, subcontractors, etc. We are, *At the moment of architecture's undeniable flourishing - architecture has never been this good*. (Kipins and Somol, 2006) In what concerns architecture examples of this decade we need not look very far. One might even attempt to say that it was the decade of Star Architecture. Amongst the practices that are active through the world a certain number of them stand out with the way they use computer technology in their day-to-day

operations: ONL (Kas Oosterhuis & Ilona Lenard), UN Studio (Ben Van Berkel & Caroline Bos), Greg Lynn Form, Asymptote Architecture (Hani Rashid & Lise Anne Couture), etc.

3. Conclusions - Drafting. Network. Code.

It is our belief that architectural education in the Digital Age is done according to the three part methodology we called 'drafting | network | code'. This methodology relates to the way that digital mediums are used and have impacted the architectural society.
In almost all of the architecture schools and their studios the digital mediums (computers, *tablets*, *smart-phones*) are used as drafting tools. The computer serves as a replacement tool for the old ones used until now.
The second part of our methodology tries to capture the specificity of Digital Era's architecture as a profession. This is done in order to underline one of the main aspects of architectural education in this Era - it's ever more intimate relation with the profession. This relation is fueled by a number of approaches. One would be the ever-growing number of professionals invited to take part in the academic life - the richer the school the more famous the body of architects invited will be. *Many cannot afford to even think of going towards the celebrity end. But the basic ambition of schools, like that of each member of faculty, is to move towards the right hand side of the graph, maximizing the contact with the force of fame, paradoxically bringing the professional world into the school by allowing the faculty to be out of the school so much.* [14] One other way to get students closer to profession is by creating interdisciplinary school studios (e.g. Interprofessional Studio - London [15], ex Textiles et Architecture - Grenoble). Another approach is creating school studios or departments which try to mimic/explain the working conditions of an architecture practice (e.g. SADD - Strategic Architectural Design Development - Delft [16]).
In our wish to emphasize the most significant aspect of the Digital Era we called the third part of our methodology *code*. Code is used in architectural education from the digitization of existing book stocks in the schools libraries and birth of the Virtual Knowledge Centers to the creation of the computational design studios/groups/institutes (EMTECH MSc/MArch - London[17] , Hyperbody - Delft [18], ICD - Stuttgart [19]).
Nowadays all major architecture practices employ architects and computational design experts for their various operations. The so called *f(x) architecture* gives us a hint on the way in which the next *major version* of architect, the 3.0, might manifest himself. For the first time in history architecture is taking the lead in the industry and everybody else (consultants, contractors and clients) needs to keep up with the pace that architecture is slowly setting as a standard. Even though computer technology started to affect the architecture society through practice, at the moment education has taken the lead in what concerns computer technology. It is therefore our purpose to see what were/will the *educators major versions* be: Professor 1.0, Professor 2.0 and Professor 3.0. To study the relations between practice and education, the overlapping of the parallel versions (if there were any) and to see if at any stage the two coincided or will coincide.
According to the first point of our methodology, digital *drafting* is the one part common to all of the schools of architecture. The majority of the graduates end up working as simple digital drafters in various practices around Europe. This phenomenon is part of our architectural society for quite a while and it should therefore trigger a reaction. We should, maybe, reconsider the old idea of architectural technician that would fit quite well in the actual climate.
According to the second point of our methodology, *network*, it is our conviction that one of the transformations in architecture and its education in the Digital Era will be the integration of education(theory) and practice. We don't mean by that a turn back in time when practice and theory were one and the same. It is a process that already began with the approaches we acknowledged in our methodology, but that needs to go further to the point in which it can develop a *constructive* dialogue between the university and the regulatory bodies of architects (e.g. chambers and institutes). By *constructive* we mean a more efficient way to resolve matters like standards of

admission in education, standards of admission into profession, the ever growing number of graduates that is more and more difficult to be *absorbed into conventional architectural roles* [20] of the industry, just to name a few.
Some of the schools spaces are/will be influenced as well by what we called *code* in our methodology. The new Virtual Knowledge Centers tend to change the meaning of the library; podcasts of classes and lectures, online examination, etc. threaten the meaning of the classroom; as Weiner sees it, even the model of *the studio* is threatened. *The Studio in an Age of Distraction* is threatened not only as a physical space but as a pedagogical instrument as well, because a *studio depends on a lack of distraction*. [21] Finally the new wave of computational design and computer aided manufacturing processes studios/institutes show us a different way to look at technology. This way is regarded in mosts schools with a certain reticence and questioning on what impact it might have on the status of architects and architecture. *Rather, the focus needs to be on integration, which is the core of design*. [22]

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References:

[1] Tschumi B. One, Two, Three: Jump. In Pearce M, Toy M, editors. *Educating architects*. London: Academy Editions; pp. 24-25, 1995

[2] Choay F. *De re aedificatoria et l'institutionnalisation de la société* (Patrimoine: quel enjeu de société?). Saint-Étienne : Publications de l'Université de Saint-Étienne; 2006.

[3] http://www.britannica.com/EBchecked/topic/399695/mutation

[4] Deleuze G, Guattari F. *Mille plateaux*. Paris: Les Editions Minuit; 1980.

[5] Radu F. *În căutarea unei școli (de arhitectură) pierdute* - unpublished PhD Thesis. Bucharest: University of Architecture and Urbanism 'Ion Mincu'; 2000.

[6] Denès M. *Le fantôme des Beaux-Arts. L'enseignement de l'architecture depuis 1968*. Paris: Les Editions de la Villette; 1999.

[7] Tschumi B. One, Two, Three: Jump. In Pearce M, Toy M, editors. *Educating architects*. London: Academy Editions; pp. 24-25, 1995

[8] ibidem.

[9] http://msdn.microsoft.com/en-us/library/51ket42z(v=vs.71).aspx

[10] Cenan R. *Impactul și Influența Calculatoarelor asupra Arhitecturii* - unpublished PhD Thesis. Bucharest: University of Architecture and Urbanism 'Ion Mincu'; 2009.

[11] http://en.wikipedia.org/wiki/Computer_graphics

[12] Cenan R. *Impactul și Influența Calculatoarelor asupra Arhitecturii* - unpublished PhD Thesis. Bucharest: University of Architecture and Urbanism 'Ion Mincu'; 2009.

[13] http://www.archdaily.com/139868/australia'

[14] Wigley M. Mutations of fame. *Volume: Ambition*, **Vol. 3**, pp. 5-9, 2007.

[15] http://www.aaschool.ac.uk/STUDY/GRADUATE/AAIS.php

[16] http://www.bk.tudelft.nl/en/about-faculty/departments/architecture/organisation/chairs/materialisation-of-buildings/

[17] http://www.aaschool.ac.uk/STUDY/GRADUATE/emtech.php

[18] http://www.hyperbody.bk.tudelft.nl/en/about-faculty/departments/hyperbody/

[19] http://icd.uni-stuttgart.de/?p=3343

[20] http://www.buildingfutures.org.uk/assets/downloads/The_Future_for_Architects_Full_Report_2.pdf

[21] Weiner, F.: "Five Critical Horizons for Architectural Educators in an Age of Distraction", in E. Harder (ed), Writings in Architectural Education, From&co, Copenhagen.

[22] Sorvig, K.: "Virtual and Real: Teaching the Paradoxes of Design", in E. Harder (ed), Writings in Architectural Education, From&co, Copenhagen.

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ISSUES IN CHURCH BUILDING IN MODERN DAY TRANSYLVANIA

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Abstract

After the Revolution of 1989, with the dissolution of the communist regime, the prohibition to build new churches also disappeared. Thus for two decades, there has been a very intense activity in the construction of churches in Romania, as in other former communist countries but perhaps even more. These new churches were many and had to be built quickly and large enough to accommodate the large number of believers. Problems occurred because of the speed with which this process took place, and we cannot unfortunately talk about a programmatic approach, as it was in the interwar period, but rather about a general trend, without too much concern for the quality of church architecture. In Transylvania, now facing the end of a second such period of restrictions (at least in the matter of Orthodox churches), these problems, be they of aesthetic, financial or urban nature, may feel even more acutely than in other regions.

Rezumat

Prezentul articol constituie o tratare foarte sumară a principalelor probleme de care se loveşte construcţia de noi lăcaşe de cult din arealul nord transilvan în prezent. El este un rezumat al unui capitol din teza doctorală a autorului. Capitolul, în care este prezentată situaţia din ultimele două decenii (de după 1989) încearcă o sintetizare a fenomenului construcţiei în masă a noilor biserici şi a problemelor care derivă de aici. Aceste obiecte de arhitectură, rezultate de cele mai multe ori dintr-un demers pripit, nefundamentat uneori pe nevoile reale ale comunităţii, riscă să distrugă mai curând decât să reîntregească imaginea cartierelor urbane în care se inserează fără prea multă reverenţă faţă de contextul deja chinuit al acestora. Este necesară astfel atragerea atenţiei asupra uneia dintre cele mai stringente probleme urbane la ora actuală. Bisericile care au potenţialul şi obligaţia morală să redevină centrul fizic şi spiritual al parohiilor aferente riscă totodată dacă sunt prost concepute să se transforme în nişte coloşi de beton, la fel de respingători ca blocurile aflate în imediata lor vecinătate.

Keywords: churches, architecture, Transylvania, today

1. Historical Background

Transylvania (we include here the Banat region as well) had a totally separate path in the evolution

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of its places of worship as compared to the other Romanian historical provinces. Obviously, this is due to the mixture of nations living here, all with significant weight and exercising strong influence in one area or another up until the middle of the past century[1].

Unlike Moldavia and Walachia where the influence of Byzantine architecture is most obvious, resulting in the creation of the specific yet uniform neo-Romanian style, Transylvanian Orthodoxy displays various forms of expression in architecture. We see old stone churches later replaced by wooden ones (mainly due to ban a more durable material for Orthodox churches by the Austrians[2]). Even the few masonry churches before the Great Union of 1918 that remain are, with rare exceptions, a tribute to the western architecture, Catholic and Reformed, pointing out precisely the mimetic desire not to arouse controversy and to be allowed to exist in peace. That was the reason much of the Romanian population shifted to the Greek Catholic Church, which adopted the same baroque architecture manifest required by the Habsburg Empire.

Even the Orthodox Cathedral in Sibiu (whose architects are of Hungarian origin, by the way) is aesthetically rooted in the Byzantine imperial architecture of the Hagia Sofia and not in the already well structured national neo-Romanian style. We see it is treated somewhat similar to the synagogue on Dohany utca in Budapest, with two towers flanking a central dome and with similar alternating façade materials (red brick and white stone).

The Interwar period was the first in which Orthodoxy was brought up to the rank of official denomination in Transylvania. It is the era of urban cathedrals in all major cities: Alba Iulia, Cluj, Timişoara, Satu Mare, Bistriţa, Târgu Mureş, etc. It is also a time when Orthodox churches receive the same message no longer, their desire to be overlooked is replaced by that of an unmistakable and ordering presence in the urban tissue. This is what Augustin Ioan called the second generation neo-Romanian style[1], because the Romanians hadn't felt the need until then for large urban cathedrals, their cities in the Kingdom of Romania were somewhat smaller and their allegiance to Orthodoxy was not disputed like here.

And to join the great Romanesque, Gothic or Baroque cathedrals pre-existent in Transylvanian cities with some new but small Orthodox churches, however minutely decorated, would have left the impression of an inferior culture, suburban and, of course, was unthinkable.

It was a very short period of only two decades when a great number of cathedrals and churches were built, without major discrepancies with the neo-Romanian style on one hand and without serious tissue permutations in the cities that crystallized centuries before on the other. It is interesting to note how much trouble the church architect of that period went through to insure the proper insertion of his cathedral in the urban context[3].

Problems arise during the communist period when, after only two decades, the prohibition to build Orthodox churches returns, this time affecting other cults too, especially the Greek Catholics. Total lack of activity in the construction of churches in urban areas was a hiatus whose consequences we unfortunately see today. Church building technique, so hard brought to a certain level in the interwar period is nowadays almost entirely forgotten and architectural approach, in the absence of constructive dialogue between the participants in erecting churches is doomed to fail.

Today, when aesthetics and architectural ideals could re-flourish like in the early 20's, we cannot help but wonder what is the message churches have to say nowadays and, especially, how they mean to achieve their goal.

2. Current Situation – The Public Space Issue

A special feature of Transylvanian religious architecture would be, as always, ecumenism, meaning that, in addition to the new Orthodox churches that have emerged after the revolution, some Catholic Protestant and neo-Protestant churches came to be. Of all, however, only the Pentecostal Church managed to keep up with the Orthodox in the number of new worship places compared to the total number of believers.

At national level, we find in the press a series of data on the increase by over 4000 churches in the last twenty years, according to APADOR Switzerland and to the Freedom of Conscience Foundation, quoted by *Le Courrier des Balkans* [2], the equivalent of a new church every two days [3], during a period when the number of schools and hospitals has decreased alarmingly. Our study questions not only the legitimacy of building new churches, especially during economic distress, as Andrei Pleşu would rhetorically ask in the incisive article "Onoarea Bisericii" in *Dilema* [4], but how were all these churches built in terms of aesthetic quality.

Regarding the issue of inserting the new object in the city, one can see the lost interest in the sacred dimension that would usually determine the place of the temple. The genius loci, the church as centre of the community idea was lost and its loss is most strongly felt in the case of parish churches.

The drama of churches uprooted from the community was first felt during the communist era when entire neighbourhoods were destroyed and their churches were "hidden" behind the new blocks of flats. But if this is understandable in a period of dictatorship, it is incomprehensible today.

The churches of today, instead of retaking their role in the neighbourhood, that of respite from the mundane, are subjugated by the compulsory opulence and the often ridiculous dialogue they have with the other buildings nearby. The church will often rise in an area already crystallized, sometimes on a green space or a playground that most of our cities lack anyway.

It can be a generalized defect of our new neighbourhoods that were developed during the communist era, that they try, sometimes ridiculously, to reiterate the periphery based on the city centre image, despite the very different function they accomodate.

Necessarily aligned with a main road, especially in rural areas but not only, the new churches rival cathedrals in size but fail to provide access and a decent entrance where parishioners could gather for the Resurrection service, which was unthinkable for George Cristinel back in the ’30s.

If we were to consider the size of All Saints Church Negreşti-Oas and its ratio to the sidewalk width alongside it we see that it is very problematic when most crowded (Fig. 1). We find an even more problematic scene at Saucani in Bihor county, where the entrance to the church does not even correspond to the gate in the fence that surrounds it (Fig. 2).

Figures 1, 2. Believers flocking in the street in Negresti Oas (SM) and Saucani (BH).

3. The Issue of Aesthetics

Besides the above mentioned issues related to the church's role in the community and the city, even more issues remain regarding their aesthetic symbolism. Differences between Orthodox aesthetics on the one hand and Catholics and Protestants on the other are, at present, the most pronounced. Orthodox tradition requires a certain silhouette which is closely followed and did not yet give rise to manifestations of contemporary architecture worldwide. This does not mean, however, that the silhouette cannot be inferred and even styled in some traditional and geometric-established form and, at the same time, develop into a new phase of the Orthodox churches, but it seems this natural evolution encounters a series of obstacles and resistance from the clergy and authorities in the field.

The Orthodox Church is characteristic for Eastern Europe and, as such, has many oriental aesthetic aspects in its architecture. Whether we talk about onion-shaped spires of Russian churches coming from Samarkand and Bukhara, or lacing rich stone work in old Romanian churches, like Cozia, Văcăreşti and Curtea de Arges Monastery or the appearance of simple, white specific architecture of the Eastern Mediterranean to the Greek churches, all have been influenced (or have influenced the) architecture of neighboring Islamic states.

A key feature of Orthodoxy is a gradual and successive perception of the architectural object. No matter how large Orthodox cathedrals, and there are some old but successful examples, especially since the time of the beginning of the Byzantine style, they never lose contact with the human scale, with the humble being who crosses its threshold.

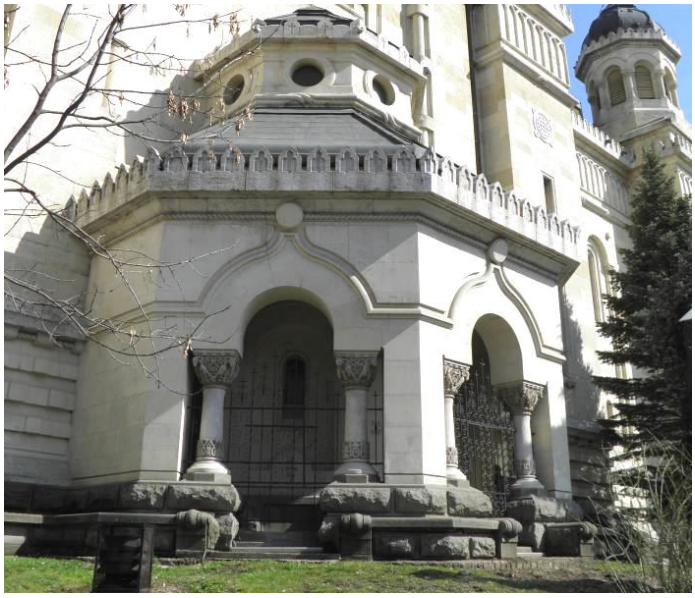
If Gothic cathedrals wanted to glorify the greatness and glory of God, the Renaissance exalted the rank of the ideal divine proportion, which was the same, regardless of object size, Orthodox philosophy preferred to a condone a humiliation in front of the mystery of God, an apparent exterior sobriety offset by a greater richness of the interior, once you get inside the area and thus have taken part in this miracle.

We find a great example at the Metropolitan Cathedral of Cluj where Cristinel and Pomponiu meet these precepts. Urban scale figure is clear, it has a dialogue with the Opera, and constitutes an orderly presence in the market that, prior to its introduction, was suffering from a vacuum. The entrance is generous, but as you get closer you realize that it also respects the refined precepts of Orthodoxy. Thus the three main entrance doors are small, just like the porch is low, forcing the visitor to lower his voice, to feel that he is entering a different, more intimate space.

Inside, the space is gradually restored to greatness, perhaps too vertical but this is justified as a gesture of common sense, as the church plan is constricted by the exterior shell and the square it resides in. Perhaps even more interesting are the side entrances, providing a space for reflection and contemplation in the full bustle of the square, among vegetation that completes this picture.

We close this parenthesis to return to the current situation where, unfortunately, we can say that these basic precepts have been forgotten altogether. Under pretext of traditional silhouettes, the anachronistic bell towers of today become enormous concrete objects, with total lack of attention to detail and fail to send out the same symbolic message the older ones did.

Frozen in a wrong perception of what is tradition, new churches do not seem to want to catch up with western religious architecture that has gone through a revolution following the Second Vatican Council[4]. Perhaps more open to these changes, although sometimes suffering from questionable interpretations, the Romanian Church United with Rome seeks today to differentiate itself from its eastern traditions, a differentiation from the Orthodox who may yet want to bring it back under their influence and are thus in total conflict with the modern doctrine of ecumenism.



Figures 3, 4. Amplifying one element to a ridiculous size does not work for Orthodoxy – lateral entrance at Cluj and Baia Mare Cathedrals.

A different situation, but we will not dwell on that a lot, the architectural values of the true old original models specific to us are either left uncared for because of a lack of interest on the part of parishioners or are "restored" in often tedious and mutilating ways.

4. Urban and Rural Examples

It is indisputable that in 1989, Transylvania was suffering from a lack of churches, especially in urban areas. Entire neighbourhoods, such as Mărăşti or Mănăştur in Cluj haven't had a place of worship for their believers. But let us see how several of these churches came to being and how well they are integrated.
Most of these new urban churches are made of reinforced concrete and masonry. Very rarely we find new wooden churches, often with temporary status, until the end of the big church in the immediate vicinity.

Wood is preferred only to new convents founded in the last two decades, perhaps for lack of funds or the desire to keep it smaller and more in the spirit of those who serve here.
Most of the masonry ones are so-called formal copies who take their silhouette (but not often their scale) either from the Byzantine model, found in Walachia, or from the Moldovan model with sharp spires. The most often preferred plan is the conch, paradoxically specific to monastic churches in historical periods. Sometimes these copies include baroque elements that are grafted on the same planimetry.

Some examples of successful, even though copied interventions are found like the Rohia Monastery, in Maramures County. A special category, rarely seen but even more valuable, are the symbolically inspired churches that take the symbol of liturgical worship and sometimes interpret it properly, giving rise to new forms, or iterations of old forms in other materials. We note eloquent examples of the transposition pattern of the wooden church in masonry at the Church of Resurrection from Bogdan Voda, in Maramures county. Other interesting examples can be found at Gherla (though the proximity to the highway is a problem), or in Baia Mare (the two Greek Catholic churches, St. Mary and Exaltation of the Holy Cross).

With regard to the examples of the other Christians in Transylvania, the Catholic Church and Protestant denominations (Reformed, Lutheran and Unitarian Churches) all have a more relaxed and also innovative perspective. Unfortunately, due to the exodus of the German population from Romania during the communist period, the number of parishioners has droped and with it the interest for building new churches.

Figures 5-7. Protestant church (arch. Csaba Muller, Imre Makovecs), Orthodox Church (arch. Clement Moldoveanu) and Catholic Church (arch. Gh. Elkan) Donath Street, Cluj-Napoca, less than 100m away from each other.

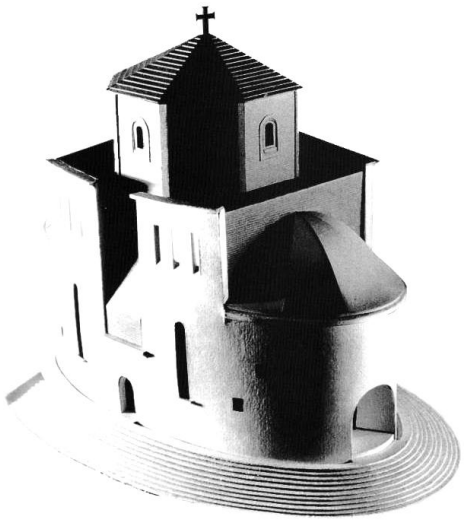
Some examples can still be found at Orşova – Church of the Immaculate Conception, in Cluj - the Reformed and the Roman Catholic Churches, both on Donath Street, the Xth Reformed Church, also in Cluj, the Roman Catholic Holy Family Chapel in Satu Mare, etc.

The decision not to include in this study the neo-Protestant churches is based on the fact that these cults indicate a desire for desacralization of the religious space and for its transformation into community space, their architecture looking more like secular institutions such as theaters or auditoriums. Thus, they seem to go in a different category of buildings and, as such, a parallel treatment with the other more "classic" denominations would be difficult to correlate.

5. State Contests for Churches in Transylvania

Currently the main problem of newly built environment in Romania is the low quality of most of the new objects (not analyzing here the few successes that occur in architectural magazines). The problem is not relying on the urban context, often already devastated by the blind tendencies of the anterior regime. As long as a new building will be judged only by the cost of execution and design, architecture and quality of life in the town will suffer.

A solution to this problem, widely practiced in the West, is replacing the award of major projects by tender with more beneficial architectural practices such as the competition. In the words Vintilă Mihăilescu, architects have a moral duty to "protect the public interest" [5]. Thus, he remembered that "in Switzerland, architectural competition is considered a cultural value, one of heritage, the idea itself being an institution - of architectural competition" [6].



Figures 8, 9. St. Stephen's Church, dedicated to the Heroes of the Revolution, 1994, Timişoara, arch. Radu Mihăilescu – model and view.

In the early '90s began a series of architectural competitions for the realization of the main cathedrals that have not been finished in the interwar period and stagnated under communism. In the beginning there was enthusiasm but after the innovative architectural approach met with some inertia from the Church and a significant part of the congregation, it came to turn into a prolonged dispute and, more recently, into an apathetic resignation that led to a conservative copy trend.

St. Stephen's Church in Timişoara, dedicated to the Heroes of the Revolution, having Radu Mihailescu as the architect is one of the few successful ones. An oval plan is a shell that leaves a white octagonal tower coloured in red (Fig. 8, 9). The contrast between the two is obvious and reminiscent of the same contrast between profane and sacred inner world and outer vertical, connecting with the Divine. A relatively small church, it has clear references to a paleo-Christian period before the Great Schism.

The Cathedrals of Arad and Oradea were also originally designed as competitions but seem to have favoured local architectural firms drawn from the former State Institute of Construction with branches in the two counties, Arad and Bihor. Here we see a clear choice for formal copying, doubtful and massive proportions in relation to neighbourhoods. It seems that all new churches take as a standard Timişoara's Cathedral capacity for 5000 believers. I.D. Traianescu, its architect, stated that the size of the Cathedral was tributary to the surrounding buildings of the Opera Square that surrounded it and that required such an object, anything less being considered as ridiculous in that noble context.

But perhaps nowhere is this tendency more obvious than in Baia Mare where the megalomaniac cathedral under construction for years, wants to reach a final height of 90 m, as high as the People's Salvation Cathedral doubtful project in Bucharest. In both cases, these giants are not supported by a proper urban context and their indifference to the city is matched by their indifference to the human scale.

One last contest worth mentioning is that for the Greek-Catholic Cathedral, Cipariu Square Cluj-Napoca, which prof. arch. PhD. Mircea Moldovan wrote a book about, giving some of the students' solutions that might have been more appropriate for it than the final solution adopted by the Romanian Church United with Rome.

6. Conclusions – A Few Good Examples

Adolf Behne said on the expressionist architecture: "the view that architecture is a so-called useful arts has penetrated so deeply into the consciousness of Europeans, that everyone is horrified when this view is questioned and when the belief that architecture should actually be a free and sublime art, which turns to her own deep resources that glorify the world is stated" [7].
Asserting "irrational" in architecture is much more valuable in terms of religious architecture because we can not speak of the same strict functions or flows as in a hospital or airport but of a symbolic purpose, similar to the katarsis experienced in arts.

So as not to conclude with a pessimistic tone, there is a need for a further review of several good projects designed in this area, some unrealized, others too easily overlooked but all able in one way or another to play a role model for future approaches.

Notably one such project is Şerban Sturdza's ideea for a church (and related outdoor public space) in the campus of Timişoara,. Although apparently a formal copy, this example manages to create an interior space for silence in the full bustle of a campus and also a relationship with it through a small square enclosed by a portico.

Reduced to the essence, Dorin Ştefan's church in Alba Iulia is reminiscent of the clean simplicity of Dintr-un Lemn monastery church, Vâlcea. One cannot see here any redundant gesture and the metal hat floating above the nave of the church gives a unique special effect of indirect light inside.

Radu Mihăilescu's achievements at Vucova (the Roman Catholic Church) and Sighet (Anticomunist Heroes Memorial) are also worthy of mentioning. If the first case we encounter a reinterpretation of Western architecture-specific basilical space by creating an optical illusion image to induce a space larger than it really is. In the second case the feeling of earth pressing down on the visitor is soothed by the leaking of light through a cross shaped whole in the ceiling that symbolizes salvation by faith of those who suffered here.

Radu Mihăilescu is also the author of the project awarded third place in Timişoara Architectural Biennale for the "Râpa Robilor" Monastery in Aiud. Unfortunately the project will not be constructed and has been compared by dilettantes with a UFO. Public opinion seems to favour a more "classical" design by

Thus we see the existence of some valuable projects and ideas just as viable as models as the historical examples of the past. The hiatus of over five decades has left a deep scar in church architecture and the Church seems unconvinced by the importance of the quality of these projects. However once the people's interest for religious practice will start to decline just as it did in the West, the Church will probably have to adapt and put on a new form, closer to the believers and to their essential needs.

Notes

[1] according to the 1930 census, the main Christian denominations in Transylvania (the Orthodox, Greek Catholics, Roman Catholics and Protestants) all had similar influence

[2] after the incursions led by general Nikolaus Adolf von Bukow in 1760 and 1761, a large part of the Orthodox churches in Transylvania were destroyed or handed over to the Greek Catholics and the Orthodox were henceforth forbidden to build any new masonry churches

[3] architect George Cristinel made interesting remarks in his memoire for the documentation of a new Orthodox Cathedral in Oradea. He analyzed no fewer than four sites for the construction from the point of view of relating to the built context, of the public space's capacity for such an object, of the relation it would develop with the town centre and with the neighbouring streets for which it might constitute a favourable background, all this while taking into account the scale of the surrounding site and the human scale. The transcript can be found at the National Archive, Bihor County Branch, according to Adriana Ruge [8]

[4] after this council, the Catholic Church adopted a new attitude which promotes architectural innovation in church building and a symbolic change of interest in religious ceremonies from the altar towards the congregation.

7. References

[1] Ioan, Augustin. Arhitectura ortodoxă şi tema identitară. *Ianus*, **no. 5-6/2002**.

[2] Popescu, Luca Andrei. Romania in plata Domnului. *România Liberă*, 18.01.2010

[3] Benezic, Dollores. România după 1989, o biserică nouă la două zile *Evenimentul Zilei*, 28.10.2009, http://gandeste.org/date/2009/10

[4] Pleşu, Andrei. Onoarea Bisericii, *Dilema Veche*, **no. 367** / 24 feb - 2 mar 2011

[5] Mihăilescu, Vintilă. Arhitecţii şi protejarea interesului public. *Dilema Veche*, **no. 326** / 13-20 may 2010

[6] idem

[7] Vais, Dana. *Caractere expresioniste în arhitectura contemporană*. Cluj-Napoca: Presa Universitară Clujeană; pp. 50-68, 2000

[8] Ruge, Adriana. Arhitectura ecleziastică românească din Bihorul interbelic. Estetica faţadelor. *Crisia*, **no. XL/2010**, p. 317

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Questions of Identity. Romanian Architecture in the Context of the Balkans.

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Abstract

The paper inqures the broad question of architectural identity in Romania, which is strongly pervaded by a negative outside and inside perception. In doing this, the first part tracks the history of identity creation and east-west ideology from the Middle Ages, imperialism, through the World Wars, the year 1989 and afterwards, concluding that the identity stereotypes of the eastern of Europe were created and imposed by a western-centred ideology for destabilizing and dominating the Balkans. The second part exemplifies the ideollogically loaded architectural discourse in Romania and the degree to which the ideology was absorbed by the intellectuals and general population.

Rezumat

Articolul ridică unele întrebări legate de identitatea arhitecturii din România, care este puternic pătrunsă de o percepție negativă atât internă cât și externă. În acest sens, prima parte urmărește istoria procesului de producere a identității culturale și prezintă pe larg ideologia est-vest incepând cu Evul Mediu, perioada imperialista și cele două Războaie Mondiale, până la anul 1989 și ulterior, concluzionând că stereotipurile identitare ale estului Europei au fost create si impuse printr-o ideologie vestică pentru destabilizarea și dominarea Balcanilor. A doua parte exemplifică discursul arhitectural ideologizat din Romania și gradul la care aceasta ideologie a fost absorbit de către intelectuali si populația generală.

Keywords: identity, essentialism, architecture, culture.

1. Introduction

Cultural geography is one of the most important topics of debate in an ongoing globalizing world. While some cultures may disappear completely, others are transformed and reshaped by dominating cultures. Thus, fundamental questions about Romania's architecture and architectural culture rise: where is it situated in the European cultural landscape? What is its identity and how is this identity created and defined?

There is a broadly spread perception of Eastern Europe (Romania included) as the

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underdeveloped, under civilized, ignorant and corrupt half of Europe. This image is most evident in politics or in economics, where there are hardly any arguments to support the contrary. But when one speaks of culture (literature, arts, and architecture included), the general perception of under civilization begs the question of its verity. Is Romania's architecture indeed inferior? And if not, how was this identity produced? How do we relate to this identity?

The press is full of lamentations about monstrous buildings that lack common sense or style, dirty cities, unattended public spaces, ghetto neighborhoods, construction failures, incompetent professionals and public administration, backward teaching system and so on. These are some of the images of Romania's architecture that come to mind almost with surprising persistence. It clearly shows a negative architectural self-consciousness of Romania: from architectural history to contemporary architecture, from public administration to private enterprises and so on.

Furthermore, the practitioners, the educated elites of the field, the teachers and the students alike, all seem to share a common disappointment and lack of faith in Romania's architecture and culture, a certain resignation to failure, and even a stingy irony and harsh criticism. At this point I wish to clarify that I will not enter the debate bringing justification or supporting national values and superiority of Romania's culture. Critical thinking is a treasured value; however the passionate and resentful faultfinding hardly seems to come out of critical self-evaluation. Rather, it seems to be the result of a meticulous comparison on a western scale.

2. Defining cultural identity

All cultures are essentially defined in dialectical terms, having the two categories of comparison: *the self* and *the other* - as the opposite of *the self*. It is important to mention that the roots of defining cultural essence come from the time of western imperialism, which is "*the creation and maintenance of an unequal economic, cultural and territorial relationship, usually between states and often in the form of an empire, based on domination and subordination*"[1]. As a consequence, as Wallerstein clearly puts it, „*instead of understanding groups of people, and consequentially their intellectual, economic, and political capability as vital and contributory to the global community, it renders all but one culture's ideology and systems worthless*"[2]. This is called essentialism, and western cultural theory has been strongly permeated by essentialist discourse in the past centuries, as Western Europe has traditionally seen itself at the center, defining itself as the hegemonic pair of the relationship and dominating the other, not just politically, but also culturally.

Needless to say, that this essentialist standpoint has been discarded by many researchers in the past decades as a reductive, profitable and uncritical way of approaching cultures. The strongest arguments against essentialism come from Edward Said, a Palestinian post-colonial critical theorist, who studied the identity of the Orient. He argues convincingly that the invention of Orientalism was dictated by the West who imposed upon the Orient stereotypes of lack of civilization, of crudeness, brutality and despotism, of religious fanaticism, of sensuality, of persecution and violation of human rights, and so on. Said explains that the tactics employed for creating the image of the Orient is done by emphasizing their weak points, as to to justify the "moral need of the superior power to educate, to convert and to civilize"[3]. The conclusion of his research on orientalism is that the image of the Orient was invented by the imperial West by reducing the dynamic and complex human reality of the Orient from an uncritically essentialist standpoint, and has little to do with the true identity of the oriental peoples.

Coming closer to the cultural area of Romania, a research done by Maria Torodova presents the process of inventing the identity of the Balkans. She argues that the image of the Balkans was

constructed neither as *the self* (part of Europe, part of the empire), nor as *the other* (part of the Orient, part of the colony – as in Said's *Orientalism*), but rather as the marginal, conflicted and less priviliged part „in between", a quasi-collonial area of transition between „antiworlds"[4]. The outside perception of the Balkans is synonymous with "dehumanization, de-aesthetization, destruction of civilization" [5], and there are many sources to indicate this:

"In addition to the some 750 million of disfranchised colonial peoples there are more than half-billion persons in nations and groups who are quasi-colonials and in no sense form free and independent states […] In the Balkans are 60 million persons in the '*free states*' of Hungary, Romania, Bulgaria, Yugoslavia, Albania, and Greece. They form in the mass an ignorant, poor, and sick people, over whom already Europe is planning 'spheres of influence'"[6].

Todorova argues that the Balkans were not always bearers of the inferior culture. Before the fall of Constantinople the "unrivaled center of the civilized European World"[7] was the Byzantine Empire, and the West was the barber region. Todorova shows that the hegemonic shift appeared mainly because of the Ottoman occupation of the Eastern Europe. "The consolidation of Ottoman rule in the Balkans definitively isolated the peninsula from European developments and left it untouched by the great ideas and transformations of the Renaissance and the Reformation. It further brought a deep cultural regression, as the conquerors put an end to the existence of Balkan political and intellectual elite. […] This picture of the dark period in Balkan history makes the five centuries of Ottoman rule the historiographical counterpart of Western Europe's Dark Ages" [8]. Thus, having suffered an economical lagging behind during ottoman occupation, "the Eastern Europe came to be identified more often with industrial backwardness, with lack of advanced social relations and institutions, and with irrational and superstitious cultures unmarked by Enlightenment"[9]. Subsequently, in the XXth century, the geographical appellation for the Balkans was saturated with political and ideological overtones. The disintegration of the Habsburg and Romanov Empires, at the end of the First World War, brought about the proliferation of small states characterized by "hopelessly mixed races…. with more or less backward populations, economically and financially weak, covetous, intriguing, afraid, a continual prey to the machinations of the great powers…."[10]. Later, after the Second World War and at the beginning of the process of decolonization, the term of „balkanization" was used „to perpetuate a sense of disgrace and dishonor among the luckless people of the earth, while rationalizing the practice of the dominant western powers to keep smaller countries within their sphere of influence"[11]. Thus, all reference of the Balkans and of Eastern Europe came to have a pejorative meaning in the first half of the XXth century. In the last decades and especially after 1989, eastern countries made special efforts to catch up on the western countries, but the negative image of the Balkans still remains. "Balkan—this was once a synonym for unreliability, lethargy, corruption, irresponsibility, mismanagement, blurring of … the order of law and much else. The term was initially limited to the southeast European states. An annoying development has taken it outside its geographical borders"[12]. Unfortunately, the Balkans were retroactively identified with their former negative ideologically loaded designation, being identified even more with uncultivation, backwardness and disorder, with a population that "does not conform to the standards of behavior devised as normative by the civilized world" [13]. As the pejorative identity became less and less contextualized, stereotypes of inferiority were once again employed to dominate and to influence the newly democratic countries of Eastern Europe, as they became investment centers and opened new markets.

Post-structural theorists agree that the reflected image of the Eastern Europe is a continuous and reductionist invention of the West. However, what is astonishing about it is the degree to which eastern countries have internalized and absorbed ideological impositions from the West. This altered significantly the self-perception of the eastern countries, acting as self-fulfilling prophecies and setting in motion the identity of the place. With this in mind, I would like to proceed with a couple of examples of Romanian architecture, that illustrate best the pejorative ideologically loaded

discourse, stemming from the process that Todorova explains so eloquently in her book.

3. The Identity of Romania's Architecture. Case study.

There is no better example to show the degree to which Romania's architecture is identified with failure and shame than the controversial Palace of Parliament in Bucharest. Practically every review of this building, foreign or Romanian, manages to turn this megaproject of Bucharest into "Ceausescu's lasting, loathed legacy"[14], to quote the name of an article on the subject. Although this has not been the first example of totalitarian architecture the world has seen, nor has it been the first megaproject to employ demolition of historical buildings, yet it somehow was brought about that this building bares the shame and disdain of Romanian people towards their history and towards themselves, and shows clearly that they are not acceptance of their own past. The building is rarely described in terms of its architecture, of it's ornaments and of construction details, but always impregnated by a self-hating ideological discourse, using words as *power and megalomania, poverty, outrageous extravagance, indefinable architectural style.* Any comments on the exquisite craftsmanship of the marble works or wooden works are left out or are minimized. Any other information that would indicate at least constructing performance is made to appear questionable: "*apparently it was constructed strictly from Romanian materials, though most locals seem skeptical of this."* And every information that shows recent happenings is accompanied by a malicious comment: "*Tours of the building are of course available and cost about €2.50; watch out, though - there's a rather outrageous 30 lei tax for taking photographs (over €8). Guided tours are available in several languages though you may have to wait over half an hour for an English language tour. And don't expect your guide or anyone else who works there to be cheery; they're about as self-loathing as they come."*[15]. Mockery is recollected with every occasion: "*the balcony was first used by pop star Michael Jackson, who declared to the adoring crowd below, "I LOVE BUDAPEST!" [Moments later MJ was forced to escape by private helicopter back to his Neverland Ranch.]*"[16]. This clearly is no critical discourse on the building, but is filled with ideological impositions, and permeated by strong feelings of disgust.

There is another heated debate around the Orthodox National Redemption Cathedral. There was a short reportage by Deutsche Welle on the Church, which reflected exactly the same kind of tendentious ideological thinking we try to unveil. In short, The Church is rendered as despotic, greedy and politically involved. The state is depicted as corrupt. The government silences democratic protests. The people's need for spirituality is justified away through poverty. Romania is a country without schools, hospitals and electricity and wastes its sparse resources on an unjustified project. And the architecture of the church is gigantic and accomplishes the unimaginable: that is to compete with the grotesque architecture of the Palace of Parliament [17].

Not all stereotypes of Romania's architecture and culture are this much loaded of today's political ideology and interests. Another very famous one is the stereotype based upon the historical motif of "Balkan violence", stemming from the alleged eastern barbarities such as impaling, which struck the imagination of all western travelers. In 1897 Count Dracula was invented by the novelist Bram Stoker, and with that a new identity of violence, horror and mystery spawned around medieval castles in Transylvania. Agatha Christie also added to the stereotype, by inventing "imaginary balkanoid principalities with a homicidal atmosphere". But these were "less an illustration of Balkan violence", and more an attribute of morose Gothic imagination."[18]

Another strong stereotype is that of the primitive, elemental life, such as the one that would be found on Romania's countryside and in isolated mountain villages. Along with this, is the stereotype of the untouched, wild, and somehow exotic nature: in the Carpathians, in the Danube Delta and so on. Conversely, we have Emil Cioran, one very important figure among Romania's

intellectual elite, who is famous for his strong aversion towards the backwardness, passivity and fatalism of Romania's people: "*hating my people, my country, its timeless peasants enamored of their own torpor and almost bursting with hebetude, I blushed to be descended from them, repudiated them, rejected their subeternity, their larval certainties, their geologic reverie*"[19]. Cioran does not refer directly to architecture, but his confessions reflect a perspective of ultimate failure that is more than ever resonant with the perspective of the large majority of the educated people in Romania: *"I confess that I was once ashamed to pe a part of an anonymous nation, made up of a collectivity of a defeated people."* It is not the purpose of this paper to enter the debate for or against Cioran's standpoint, but to bring into light the load of pejorative ideology that pervades most discourses on culture and architecture in Romania.

4. Conclusion

We turn back to Todorova's argumentation that the Balkans are, in fact, a "land of contradictions", due to their multiple contrasting legacies: the roman-greek, the byzantine, the ottoman, the Austro-Hungarian and Russian, and the more recent western influences. Todorova asserts that the Balkans began losing their identity once they began to "Europeanize", to "westernize", by shedding the last residue of their ottoman legacy, and so bringing them to "an advanced stage of the end of the Balkans"[20]. In agreement with her, we conclude that in the face of a persistent hegemonic discourse from the West, continuously repudiating the East, it is hardly realistic to expect the Balkans to create a liberal, tolerant, all-embracing identity celebrating "ambiguity and difference".

5. References

[1] JOHNSTON, R.J., et al., *The Dictionary of Human Geography*, 4th Ed. Malden: Blackwell Publishing, p. 375, 2000

[2] WALLERSTEIN, Immanuel, *World-Systems Analysis - An Introduction*, Duke University Press Durham And London, 2004

[3] SAID, Edward W., *Orientalism. Western Conceptions of the Orient*, New York: Vintage Books, 1979

[4] TODOROVA, Maria, *Imagining the Balkans*, New York: Oxford University Press, p 15, 2009

[5] TODOROVA, Maria, Imagining *the Balkans*, New York: Oxford University Press, p 36, 2009

[6] DU BOIS, William E.B., *Color and Democracy: Colonies and Peace*, New York: Harcourt, Brace, 1945

[7] WOLFF, Larry, *Inventing Eastern Europe, The Map of Civilization on the Mind of the Enlightenment*, Stanford, Calif.: Stanford University Press, 1994

[8] TODOROVA, Maria, *Imagining the Balkans*, New York: Oxford University Press, pp.182-18, 2009

[9] TODOROVA, Maria, *Imagining the Balkans*, New York: Oxford University Press, p 13, 2009

[10] MOWRER, Paul Scott, *Balkanized Europe: A Study in Political Analysis and Reconstruction*,

New York: E. P. Dutton, 1921

[11] TODOROVA, Maria, *Imagining the Balkans*, New York: Oxford University Press, p 35, 2009

[12] VODOPIVEC, Alexander, *Die Balkanisierung Österreichs*, Vienna and Munich: Verlag Fritz Molden, 1967

[13] TODOROVA, Maria, *Imagining the Balkans*, New York: Oxford University Press, p 3, 2009

[14] Bucharest-Life.com, *The People's Palace: Ceausescu's Lasting, Loathed Legacy*, 2007, http://www.bucharest-life.com/bucharest/palace-of-parliament

[15] Bucharest-Life.com, *The People's Palace: Ceausescu's Lasting, Loathed Legacy*, 2007, http://www.bucharest-life.com/bucharest/palace-of-parliament

[16] Bucharest-Life.com, *The People's Palace: Ceausescu's Lasting, Loathed Legacy*, 2007 http://www.bucharest-life.com/bucharest/palace-of-parliament

[17] Deutsche Welle, *Reportage on the National Redemption Church Bucharest*, 2011, http://www.ziare.com/stiri/eveniment/romania-construieste-o-catedrala-cand-se-inchid-trei-scoli-pe-zi-reportaj-deutsche-welle-video-1111182

[18] TODOROVA, Maria, *Imagining the Balkans*, New York: Oxford University Press, p.122, 2009

[19] CIORAN, Emil, *The Temptation to Exist*, translated by Richard Howard, London: Quartet Encounters, 1987

[20] TODOROVA, Maria, *Imagining the Balkans*, New York: Oxford University Press, p.13, 2009

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Space an Allegory of Space

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Abstract

Space is an abstract concept, which means that it possesses a wide range of interpretability. Each domain, each context defines space differently and probably the appellation 'space', being so comprehensive can actually gather countless definitions under one roof. But what does space *mean for architecture? How much of its definition belongs to the physical space, the actual built space, the architectural space; and how much does it deal with its interpretation, with the concept's philosophy? Through design we assigned space with function, but through the way in which we dwell, we assigned it with character, meaning and identity.* [1] *In time the concept of* 'space*' changed, space itself changed, it covered a long way from the mere shelter to virtual space. Today we no longer* dwell *a space, a place, but we navigate through the global village; architectural space is not any longer* a place, *but it has become* a path. *In the current context, in which different cultures collide, we must be able to operate among different meanings and understandings of space.*

Rezumat

Spațiul este un concept abstract, ceea ce înseamnă că are o marjă foarte mare de interpretabilitate. Fiecare domeniu, fiecare context definește spațiul altfel, și probabil că într-adevăr denumirea de spațiu, fiind atât de cuprinzătoare, chiar poate aduna sub o singură umbrelă nenumărate definiții. Dar ce înseamnă spațiul *pentru arhitectură? Cât din definiția termenului arhitectural ține de spațiul fizic, spațiu construit și cât ține de interpretarea lui, de filosofia conceptului de spațiu? Prin proiectare dăm spațiului funcțiune, dar prin modul în care îl locuim dăm spațiului caracter, însemnătate și identitate.* [1] *În timp conceptul de „*spațiu*" s-a modificat, spațiul în sine s-a modificat, a parcurs un drum lung de la simplul adăpost la spațiul virtual. Astăzi nu mai* locuim *un spațiu, un loc, ci navigăm în satul global; spațiul arhitectural nu mai este un* loc*, ci a devinit un* traseu*. În contextual actual în care diferite culture se suprapun, trebuie să fim capabili să operăm între diferitele semnificații și înțelesuri ale conceptului de spațiu.*

Keywords: space, architectural space, *heterotopia*, meaning of space, swarm intelligence, parametric design.

1. Space in Geometry

When talking about space - pure space, mathematical space, abstract space - we are actually talking about *a concept* and not a physical entity. Space is pure expansion. In its geometrical sense, space is

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homogenous and infinite in width, length and height. A homogeneity in which each part is identical with the next, in any direction. There is no up or down, left or right, neither close or far. There is simply just one infinite void. And this absolute void has no landmark, nor any possibility of orientation, it lacks any type of relationship, while distances are infinite. [2]

2. Space in Architecture

Nevertheless, the space that we dwell, *the architectural space,* has limits, it is subdivided, physically it comprises countless successions of spacial units. However *perceptually* space is much more than a simple sequence of rooms. What we perceive around us is a *relationship pattern,* links, processes and connections established between the objects that furnish the space and space itself. We perceive space as being interior or exterior, we are either close or far, the object is either small or large, it is cramped or not compared to *the context* in which it finds itself. Space can be perceived only when it becomes the setting, the framework of *life*. It can be measured, studied and understood only when there are landmark-objects against which we can compare it and orient ourselves. [2]

In an architectural sense, *the wall* is the most basic way of defining space, the most fundamental architectural gesture. It is a border which established the primeval relationship of inside-outside. Space, alongside the demarcation imposed by the wall, becomes interior or exterior (to the wall), the first quality assigned to space. The wall defines, encloses and becomes the limit of inside, the personal space, a space which belongs to us and to which we belong to, *home.*

But how does space belong to us? How does it become ours? How do we assign the place/a place with character or symbol? Christian Norberg Schulz defines architecture as being the one that transforms *a site* into a *place*, into a space with *character.* We each relate in a different way to the context. Actually these links define the process of *dwelling* a space: '*in every place, at a certain time, a certain group of people will create their specific way of dwelling, as part of their own culture*' [3]**.** We give space a new identity, it becomes ours, we can relate to it in our own personal way, integrating ourselves within it. Our perception of space belongs to us and it is a unique experience. The way in which we define the space that surrounds us, defines our identity. Once assimilated, this space becomes sacred to us, just as Mircea Eliade defines it.

3. Space in Tradition

Most traditional cultures conveyed a great significance to the process of choosing or erecting a certain *place.* The foundation, creation or building rituals are nothing else then a display of the transformation process of a *space* into *a place*, of spatial sacredness. [1] Marking *the centre* plays a crucial role in this process. The centre is marked by driving a post or a pole into the ground. This custom marks the physical *origin of the world,* '*axis mundi*', the reference point of all three space dimensions. The actual origin was marked in different ways: through a totem, a column, a hearth, the sacred tree, and then the cross tree in the Cristian world etc.. [4] (Fig. 1)

This ritual consecration is so powerful, in some cases, that it surmounts the boundaries of rationality and the community comes to depend existentially on the element/ritual that consecrates space with sacrality. Mircea Eliade presents the case of the Achilpa tribe who carried along everywhere their scared pole. Thus, moving (their) world origin, practically they were never leaving *the place* - the space which they considered sacred, thus safe. Moreover they decided which path to follow based on the way in which the pole would tilt - the world origin decided for them. When the pole broke, it was a catastrophe, their *place* disappeared and they lost their identity: '*the members of the tribe wondered for a while and then they set down on the ground and let themselves die*'[5]. It is

extremely interesting to analyse this case because it exemplifies very keenly the difference between *real space* and *perceived space,* the *assimilated* space. In the objective reality the gesture of carrying a pole has no effect whatsoever upon the space, but in the eyes of the Achilpa community the world, as they knew it, starts from the point where the sacred pole is placed and depends utterly on its presence.

Figure 1. Space in Tradition - Torii (Gates) at Fushimi Inari Shrine Kyoto, Japan.

4. Spaces inside Space

Even today (architectural) space is filled with meaning and character, but in a more diffuse manner. In certain circumstances the interpretation of its message changes in time - because the ones interpreting the message possess a different kind of background and relate to a different context - or it is replaced by an entirely new meaning. Thus the space hosts more than one *places* or, put in other words, the space is lived/dwelled in parallel ways. A particular instance of (architectural) space is exemplified by *the monument: 'the original significance of the monument does not survive the generation that built it, the future ones will re-signify its meaning according to their own*

exigencies and interests' [6]. Namely an architectural space, when created, has a certain function, a specific way to be used in by that generation and period. Then it loses its *function*, its initial role and it preserves just its *meaning*, it recalls a period and a context which no longer exist. It is no longer used in the way it was initially intended. In certain circumstances the monument, its space is being used according to a new set of rules, in a new context and thus we have an overlap of the original *meaning* with a new *function*. It is what Foucault defined as *heterotopia:* overlapping a series of *places* in a single space. Foucault talks about folding more than one metaphorical meanings, more than one characters in a single physical space. [7]

5. Folded Space

This concept of *the fold* has a rather interesting path within the architectural space. First it was theorised and it mainly dealt with *the character* of the space and with the overlapping of messages, symbols, but then, alongside Gilles Deleuze's theory of the fold, it entered the physical dimension of space.'*How to physically shape matter in a continuous field, how to work with entities which are now firmly enclosed, but are rather defined as intensities, as differences within a continuity*'[8] From a perceptual point of view, it loses the stability of the three axes, and it rather becomes a field charged with intensity, a field which folds in successive layers and which compresses surfaces into volumes. Space becomes a single sheet which bends in order to become slab, wall, ceiling (Fig. 2). The interior and the exterior are interchangeable. The building is being perceived as a fluid, an uninterrupted and multidirectional space, where the interior and exterior are no longer limited and the levels lose their traditional partitions. The architectural space becomes a topographical surface, an extension of public space, a transformation of the traffic diagram into a surface - the fold. These folds generate pockets - interior - which host different functions. The whole building turns into a succession of areas with compressed or diluted intensity, thus one can no longer distinguish between up-down, inside-outside.

Figure 2. Folded Space - Yokohama International Terminal designed by Foreign Office Architects,

Yokohama, Japan.

6. Space of the Non-place

This type of *fluid space*, the product of different field intensities, does not overlay any longer over *the centrality paradigm.* The centre, from a perceptual point of view the most stable point in space, of our individual universe, disappears. Rem Koolhaas's [9] nomad man, always on the move, rather lives in airports. He no longer identifies himself with *a place,* he has no longer roots, his transitory state becomes his daily reality. This state, of being a passenger, becomes universal and gives birth to new architectural and urban structures which are antithetical to the notion of *place: non-places,* as Marc Augé has named them. [10] The non-place is the product of 'super-modernity' and, in contrast to *the place,* it is a space you cannot belong to and which does not belong to you either, it is a space you only pass through, to which you cannot attach yourself, which you don't notice and which does not mark you in any way. The archetype of the non-place is the space of the traveler - the airport, the railway station, the subway station, the hotel - spaces which we only vaguely remember, to which we no longer relate to and which no longer have a symbolical, sacred meaning for us. [11]

Figure 3. Space of the Non-place - Airport crowd, Helsinki Finland.

7. Space of the Swarm

The *individual* disappears, and so does the idea of *place*, he is now part of a compact mass which moves in unity. He is part of the swarm. [12] The concept of swarm was theorised for the first time in the '90s. This concept, inspired by natural studies, especially by the biological systems, describes a system in which the individuals follow very simple rules and, even though there is no unified control which could dictate the way in which each individual should behave, the interactions between different individuals lead to *global 'intelligent' behaviour*, but which remains unknown to the individual. Examples of this type of behaviour can be found within ant colonies, flocks of birds, herds or shoals of fish. [13]

Applications of this type of concept facilitated studies of crowds and their behaviour, of the group dynamics and mob psychology. These types of studies included even collective social behaviour associated with meetings, protests, concerts, sport events and religious. [14] These studies are the foundation for a new type of design, *the parametric design* which gives birth to a new architectural space, which lacks centrality, it is no longer *a place,* but it becomes *a path.*[8] The spatiality of the American grid-city which is undifferentiated and unadapted to its site, is being replaced by *relational fields.* Neil Leach's urban theories [12] are based on this particular type of intelligence, the swarm intelligence. He argues that, when planning cities, we have to take into account the existing urban texture, the common transportation system, the urban rhythm, cultural features, the frequency with which urban poles appear in the urban texture and, last but not least, the swarm dynamics of the individuals who inhabit the city. Neil Leach claims that only parametric design is able to operate with so many variables and that this is the new paradigm. But how does this affect the *quality* of the architectural space? Architectural space today tends with an increased frequency to be the result of a parametrical computation, thus an architectural object tends to relate rather with an orthogonal system, occupying any position in space, it is just *a space* inside space, it is no longer a *place.* Built space can be translated through a binary code of *full* - in contrast to the rest of the space, which remains empty; or in a relationship of positive-negative. As Ciprian Mihali states:'*thus we operate a double abstraction, meaning a double reduction of space; first the particularity of the place is being reduced to the diversity of intersections between the three axes; in other words, spaces are being reduces to space; then, this diversity itself is being reduced to pure analytical-algebraical relationships, pure quantitative differences*'[6]. This cold, calculated perspective of space seems to forget an essential component: the *one* to whom it is addressed.

8. Conclusions

The paper is setting the groundwork for the research of the concept of *space* and the wide range of connotations its definition could imply. We have seen that space can mean a lot of different things, for different fields of research and that even just within the field of architecture the concept and the meaning of *space* has changed very much, mainly during the last twenty-thirty years. Thus the aim of this paper is to make us aware of all these different meanings and definitions attributed to the concept of space, so that when designing new spaces we are better equipped to cope with the physical and philosophical requirements of the environments we create. The paper is trying to suggest that we will only be able to reach a complete image of the concept, only if we are open to interdisciplinary and trans disciplinary studies. Space is an abstract concept, which means that it possesses a wide range of interpretability. In the current context, in which different cultures collide, we must be able to operate among different meanings and understandings of space.

9. References

[1] Norberg Schulz C. *Genius Loci - Towards a Phenomenology of Architecture*. New York: Rizzoli International Publication, 1979.

[2] Arnheim R. *The Dynamics of Architectural Form.* Berkley & Los Angeles, Londra: University of California Press, 1977.

[3] Vais D. *Locuire (Dwelling).* Cluj-Napoca: U.T.Press, 1997, 1999.

[4] Gaivoronschi V. *Matricile spațiului tradiționale (The Patterns of Traditional Space).* București: Paidea, 2002.

[5] Eliade M. *Sacru și profan (The Sacred and the Profane).* București: Humanitas, 2000.

[6] Mihali C. *Inventarea spațiului - arhitecturi ale experienței cotidiene (Inventing Space - Architectures of Daily Experiences).* București: Paidea, 2001.

[7] Foucault M. *Of Other Spaces, Heterotopias.* In: Foucault.info, http://foucault.info/documents/heteroTopia/foucault.heteroTopia.en.html (accessed June 28, 2012)

[8] Vais D. *Global și local în arhitectură (Global and Local in Architecture).* Cluj-Napoca: Editura U.T. Press, 2011.

[9] Koolhaas R. The Generic City. In: *S,M,L,XL.* New York: Monacelli Press, 1995.

[10] Augé M. *Non-Places - an Introduction to Supermodernity.* London, Broklyn: Verso, 1995.

[11] Pop D. Place, un-place and non-place. In: *Arhitext* No. 223, 2012.

[12] Leach N. Parametric Design Workshop. In: *Digital Technology Architecture Lab,* http://dtarchlab.wordpress.com/2010/05/14/neil-leach-uauim/ și http://www.youtube.com/watch?v=zGXGbF3AziI (accessed November 6, 2011)

[13] *** *Swarm Intelligence.* In: http://en.wikipedia.org/wiki/Swarm_intelligence (accessed November 6, 2011)

[14] *** *Crowd Simulation*. In: http://en.wikipedia.org/wiki/Crowd_simulation (accessed November 6, 2011)

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Along the Tracks.
Interdisciplinary Challenges in the Research of Historic Railways

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Abstract

With a history of almost two centuries, railways have been 'rediscovered' as one of the answers to the manifold problems posed by the increasing mobility of the contemporary society. The consequent need for modernisation of the railway infrastructure brings along the double challenge of preserving and enhancing the railway heritage as well as of remedying the negative inheritance of the railway. These in turn require a thorough knowledge of the railway site, in terms of its historical evolution, its values and its conflicts, a knowledge which must expand beyond the railway property as such. This article outlines a methodology for approaching historic railway lines as specific landscapes, explaining the spatial complexity and interdisciplinary challenges implied by the study of the railway territory. In the light of the European Landscape Convention (Florence 2000), it is argued that such historic studies should be conceived as planning tools, destined to inform decision-making in conservation and spatial policies in both town and countryside, in both exceptional and ordinary places.

Rezumat

Cu un trecut de aproape două secole, căile ferate au fost 'redescoperite' ca o posibilă soluție la multiplele probleme ridicate de mobilitatea crescândă a societății contemporane. Curenta sau iminenta modernizare a principalelor magistrale feroviare e marcată însă de dubla provocare de a conserva și pune în valoare patrimoniul feroviar, dar și de a remedia aspectele spațiale negative cauzate de calea ferată. Aceste obiective necesită o cunoaștere aprofundată a teritoriului căii ferate, d.p.d.v. al evoluției istorice, al valorilor și al conflictelor pe care le include, cunoaștere ce trebuie să se extindă dincolo de proprietatea propriu-zisă a companiilor feroviare. Acest articol conturează o metodologie de abordare a căilor ferate istorice ca peisaje specifice, explicând complexitatea spațială și provocările interdisciplinare implicate de studiul teritoriului feroviar. În lumina Convenției europene a peisajului (Florența 2000), susținem că aceste studii istorice trebuie concepute ca instrumente de planificare, menite să informeze deciziile luate în politicile patrimoniale și de dezvoltare teritorială, atât în context urban cât și rural, atât în locuri excepționale cât și în locuri obișnuite.

Keywords: railway corridor, railway landscape, European Landscape Convention, interdisciplinarity, landscape history.

1. The railway line as object of architectural research

As pointed out by architectural historian Antoine Picon, architectural history is evolving into

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something closer to a history of the built environment, passing "from a history of authors and objects to a history of people and environments"[1]. This shift in focus, towards more complex object-types and/or increasingly contextualized approaches is allegedly shared by architectural history with other connected fields, such as preservation, architectural design, urban planning. At the same time, architectural concerns are getting closer to disciplines like anthropology, geography, sociology, as the so-called 'spatial turn' has been noticed therein [2].

At the advent of the railways in the 19th century, the task of the architect was limited to that of designing the most representative edifices, *i.e*. the passenger buildings within the railway stations [3]. Conversely, this article argues that it is nowadays the entire railway line which requires the architectural profession's skills of fostering and producing spatial quality in the environment at large. If we refer to architecture in its wider sense, as the designed (planned) formation and transformation of the built environment at all scales, a railway line is as much an architectural object in itself, as is one of the stations along the line, or as is the passenger building within that station. And it is arguably not by chance that S. Giedion evoked the railway as a metaphor in order to seize the changing nature of the object of (modern) architecture:

> "It seems doubtful whether the limited concept of architecture will indeed endure. We can hardly answer the question: What belongs to architecture? Where does it begin, where does it end? Fields overlap: walls no longer rigidly define streets. The street has been transformed into a stream of movement. *Rail lines and trains, together with the railroad station, form a single whole*." [4]

Moreover, we would add, they form a single whole together with the traversed places: for it is this interaction between transportation infrastructure and the traversed territories that generates specific landscapes - the railway corridor landscapes. But what is the present-day relevance for choosing the railway landscape as the object of architectural historic research?

2. "Back on the Track. The Global Railway Revival"

The booklet carrying the above title was published in the *World Watch Papers* series in 1994, to draw public attention upon the upswing of railways, following decades of eclipse by the other means of transportation.[5] With a history of almost two hundred years, railways have been 'rediscovered' as a possible answer to the manifold problems posed by the increasing mobility of the contemporary society. Among the advantages of rail over highway and air transport identified in the above study, the facts of being more economical, ecological, and democratic means of transportation are perhaps the most outstanding.[6]

In the European Union, a fundamental document advancing the turn towards railways has been issued in 2001, namely the so-called *White Paper of Transport*.[7] Among the top objectives listed are the shifting of the balance between the modes of transport by increasing the railway share therein, and fostering the development of intermodal services. The *White Paper* was shortly followed by a concise programmatic document (2002, upgraded in 2004) giving further guidelines towards the creation of an integrated European railway area.[8] One of the main means towards this integration is the creation of the so-called *pan-European transport corridors*.

Three pan-European corridors traverse Romania's territory: While corridor VII is represented by the Danube, corridors IV and IX are multimodal ones, including rail and road components, but also river and sea ports.[9] Interestingly, historical railways, among the oldest on the Romanian territory, represent the defining axes of both the IVth and the IXth pan-European corridors. Therefore, at a time when significant modernization works are already being done or about to be done, with the aim of achieving more sustainability of railway transportation, the need of studies focused on the history and present-day situation of these railway-generated places appears evident. One such

contribution was intended to be our doctoral research (2003-2009), dedicated to the *First Transylvanian Railway*, which forms a major stretch of the IVth pan-European corridor. The *First Transylvanian Railway* is actually composed of the trunk line Arad – Alba Iulia (opened in 1868) together with the branch line Simeria-Petroșani (opened in 1870). This article summarises some of the main premises and findings of the doctoral dissertation.[10]

Achieving more sustainability of mobility cannot be done without shifting the conventional paradigm that sees transportation infrastructure as purely utilitarian and technological objects, ignoring their spatial significance in terms of their capacity of giving shape, transforming or deforming our living milieus, from the immediate scale of the building, to the large, territorial scale. Hence, we argue that the ongoing and foreseen railway revival challenges the designing profession - architects of all denominations - to pay more attention to space-quality concerns, besides the concerns for traffic efficiency and performance, typically favoured by economists and transportation engineers.

3. Railway corridors as landscape development axes

In the EU, there seems to be a general consensus at the official level, that spatial-quality concerns have been too often neglected in favour of economical concerns. Thus, the *Guiding Principles for Sustainable Spatial Development of the European Continent*, elaborated by the *European Conference of Ministers Responsible for Regional Planning* (CEMAT) in 2002 promote "harmonization between economical and social requirements and the ecological and cultural functions of the territory." Regarding mobility and transports, this means that

> "[the Eurocorridors] must not be viewed solely as elements of the overall provision of transport infrastructure. Their interaction with the settlement structure […] and the needs of environmental and landscape protection must also be taken into account."

In other words, *transport corridors* should be understood and planned not only as economical- but also *as spatial development corridors*. This awareness should open the way to large-scale spatial planning as integral to the planning of transport infrastructure.

In the light of these, in 2000, the Council of Europe elaborated an ambitious document, aimed at empowering landscape in legislation, policy as well as participation and education: *The European Landscape Convention* (Florence 2000). The foremost merit of the *Convention* is to have promoted *landscape-planning-towards-landscape-development* as a pro-active policy in its own right, instead of merely assessing and trying to mitigate landscape effects of developments initiated in other sectors. At the same time, the *Convention*'s approach is original in recognizing the *landscape as an important life-quality determining factor*,

> "in urban areas and in the countryside, in degraded areas as well as in areas of high quality, in areas recognised as being of outstanding beauty as well as everyday areas."[11]

Thus, the *European Landscape Convention* proposes to understand the landscape as a unique kind of connector between pairs of opposites such as city and countryside, nature and culture, the exceptional and the ordinary, detail and panorama etc. From this perspective, we argue that the railway is an excellent example of such vector of landscape continuity and, potentially, of landscape development, since the railway connects and embodies those very pairs of opposites in one complex territorial entity.

The intention of this article is to analyse the spatial complexity and consequent disciplinary challenges raised by *the study of historic railway lines as specific landscapes*. Such historic studies

should be conceived as tools and meant to inform decision-making in spatial planning and conservation.

While the implementation of the *European Landscape Convention* remains a challenge, international and national organisations and policy makers are increasingly concerned with developing tools to enhance the landscape dimension of spatial planning and of other related policy areas. *Visual* and *Landscape Impact Assessment* have become statutory requirements of *Environmental Impact Assessment*, but these are procedures *following* the decision-making over a certain development, checking its potential impacts, *rather than preceding* it. Only in few countries such as the UK, national-scale programs, aimed at assessing landscape character at several territorial levels are being implemented to facilitate and double-check punctual assessments. These should ensure positive change in the landscape, by informing planners, promoters of development, other stakeholders and the public at large about *what gives a certain landscape its specific character* and what are (have been) the *forces of change* active therein.

In Romania, the *European Landscape Convention* has entered into force in March 2004. Landscape issues are being tackled at the national level within several ministries. In the context of built heritage, governed by the *Ministry of Culture and Cults*, one of the three listing categories - "site," can be designated for its cultural landscape significance. Thus, this is obviously limited to landscapes of exceptional value. At a much more inclusive level, landscape-quality concerns are expressed in the *National Strategy for Romania's Sustainable Development Horizons 2013-2020-2030* elaborated at the *Ministry of the Environment and Sustainable Development*, referring both to natural and built, patrimonial and ordinary landscapes. Within the *Ministry of Transport*, the 2007 Strategic Environmental Assessment dedicated to transport-generated issues refers repeatedly to traffic sustainability and the mitigation of environmental effects, though explicit reference to landscape (fragmentation) is only made sporadically. Clearly, landscape quality concerns are on the Romanian public agenda too, yet tools and techniques to ensure their taking into account within the relevant sectors are still to be developed or just being developed, and our work aims to bring a small contribution in this direction.

4. Railway heritage and inheritance: largely unwritten histories

If the notion of heritage implies the recognition of aspects considered positive by certain groups and from certain points of view – patrimonial values - the interaction of the railway with the traversed places engendered also a wide range of negative mutual impacts, which could be called the railway inheritance. Ironically, yet unsurprisingly, part of the railway heritage will be lost to the railway revival and it is much more than some (perhaps obsolete) rolling stock items and railway buildings that could be lost. Likewise, modernisation can offer the opportunity of mending some of the negative impacts generated by the railway, thus improving its inheritance. Some of the potential threats of the ample upgrading programme foreseen for the Romanian railways have been already signalled in a 2003 work issued by the Government.[12] It is argued that given the pursuit of sustainability, which ultimately motivates the on-going railway revival, the status of railway stations has changed from simple terminals for trains coming and going, into complex "urban machineries", and that their evolution in the coming years has to be integrated with their rich history. There is a danger of sacrificing, for the sake of modernisation, a valuable and diverse, yet largely unknown, ignored and neglected railway heritage, missing the opportunities provided by the upgrading process, to its rehabilitation or, if necessary, functional conversion. Thus, awareness is crucial in order to take informed and sensible decisions about transforming the railway and/or its vicinities if necessary. A thorough knowledge of the railway site, which expands beyond the railway property as such, in terms of its historical evolution, its values and non-values, would ensure that the opportunity of modernisation is seized both to preserve and enhance the railway heritage and, if possible, to remedy the negative inheritance of the railway. If the necessity of

producing specific historical knowledge to inform these processes appears evident, recent scholarship has pointed out that "the notion of the railway as a prosaic technological element and its unwritten urban history are intertwined."[13] A. Nevanlinna contends that

> "the values of urban historians can have lasting effects on contemporary cities and on their relation to the past."[14]

5. (Transylvanian) railways in different historic disciplines

5.1 Railway History 'Proper'

By railway history 'proper' we understand historical research that has the railway as its main study object, as opposed to historical research that uses the case of railways to investigate developments in other areas such as economy, urbanization etc. These will be analyzed in the following subsections. Railway histories are mainly monographs, aiming to present *a history of railways with national character*. Naturally, they are indebted to the period in which they were produced. Given the territorial reorganization following the dissolution of the Austro-Hungarian Empire after WWI and the formation of Greater Romania, railways on the Romanian territory have been studied both by Romanian and by Hungarian and Austrian researchers.

Railway histories appeared already by the end of the 19th century, praising the transportation revolution of the last decades, both in the pre-1918 Old Romanian Kingdom and in the Austro-Hungarian context.[15] Among the most representative of this category is the 1898-1908 extensive history of the Austro-Hungarian railways, a comprehensive survey of the railways of the former empire, meant to celebrate the 50 years of reign of the Emperor Franz Joseph I.[16] The *Geschichte der Eisenbahnen…* is richly informative '*in Wort und Bild*,' extending over 13 volumes of about 3000 pages, among which 6 complementary volumes up-date the initial ones in 1908. Illustrations range from drawings and photos of stations, locomotives, trains in the landscape, especially by important engineering works, to maps of railway stretches, statistics, constructive details, legal texts, tariff tables and train schedules. Explanations focus mainly on the political debates and financial-administrative devices, the physical and financial challenges faced by the State and private companies in constructing their respective networks. Despite its undeniable apologetic aims towards the Crown, this work remains one of the richest sources of documenting railway history within the dualist monarchy's former territories, not in the least due to the rare possibility of having a broad-encompassing picture of all railway developments within this highly centralised state.

In the inter-bellum period, some railway histories were produced in Romania, summing up the railway developments within the much enlarged territory after WWI.[17] Issued by the national railway administration in 1936, the booklet *C.F.R., les chemins de fer roumains* for instance, although not a proper historical account, provides the international public with maps of the railway system in 1882, in 1916 and in 1936 as well as with statistical data concerning the evolution of the available number of rolling stock, wagons and locomotives, and the variation in the numbers of transported passengers and goods.

In the post WWII decades under the communist regime, several comprehensive works on railway history on the present-day Romanian territory were produced.[18] The numerous allegations against the private companies that constructed and administrated the first lines, as well as sometimes against the monarchy which favoured foreign actors instead of the emerging local specialists, are most probably over amplified by the official ideology of the epoch, both nationalist and anti-capitalist. Nevertheless, such broad-encompassing works provide much factual information as to the actors, chronology and main stages in the formation, operation and various transformations of the railway system in general. Also in Hungary and Austria, railway history studies written during the

second half of the 20th century included some references to Transylvania as a former component of their territories.[19]

The post-1990 period brought several other publications in railway history, placing more emphasis on the technical aspects and documenting more constructive characteristics of railways, such as the six-volume monograph of Romanian railways by eng. R. Bellu.[20] Surveying all railways on the Romanian territory, this work presents each railway line is in a separate chapter, divided into a brief historical account and a technical description. Also very informative are contemporary works published by the Hungarian state railway company (M.A.V.) [21]

Despite belonging to different historical and geographical contexts, the above mentioned works share nevertheless a similar kind of approach to railway history: Typically, it is the railway itself that is being studied, rather than its relationships within the social or spatial realms. We termed this an *internal railway history*, its main research questions being:

- which railways were built over the time - making an inventory of railway lines;
- who built the railways - outlining the actors as well as the administrative contexts;
- why was each line built - identifying the intended economic or strategic purposes of each line;
- to different extents, how were the lines constructed and transformed, from the technical, engineering and rarely architectural points of view, but never from the urban or rural planning perspectives;
- how did the railways operate - studying aspects of frequency, capacity and fares.

5.2 Railways in Political History

Scholars concerned with political history are interested in the way different states have used railways as tools for implementing policies. They are naturally concerned with the relationships between the actors with effective decision power, i.e. the central administration (the state), the private railway investors and the local (regional) administrations. Therefore, in these studies, the railways are mostly conceived as strategic lines on a map. It is the large, regional scale of the overall trajectory that is studied by political history. What is especially relevant for railways in political history is the strategic importance of their location, from the administrative, economical and military points of view.

The history of early Transylvanian railways occasioned quite a lot of writing, since the choice of the first trajectories was preceded by many other attempts which, for different reasons, failed to become reality. Due to their geographical location, railways in Transylvania and in the pre-WWI Romanian kingdom were highly important at the larger European scale, as they complemented the access provided by the Danube to the Black Sea and further to Istanbul and other Eastern markets.[22] Railways also had an important role in the economical relations between the Austro-Hungarian monarchy and Romania.[23]

While the above studies tackled the role of railways in international (commercial) relations, other research on railways in political history focuses on internal politics, as those occasioned by the first railway projects in Transylvania.[24] H. Muresan's research on the numerous debates that preceded railway construction in Transylvania reveals the complexity of the political interests at stake: the Austrian, respectively the Hungarian central authorities, as well as the local Romanian, Hungarian and German elites of the main Transylvanian towns with their often divergent agendas. A similar historical approach to railways appears in S. Retegan's doctoral dissertation on the activity of the Sibiu provincial government (*Dieta de la Sibiu*).[25] Railway debates provide one of the several case-studies through which the provincial government's activities are assessed. Retegan offers an insight into the reasons for which the two major options, Arad – Alba Iulia – Sibiu and Oradea – Cluj – Brasov, were preferred respectively by the local, provincial and central authorities.[26]

5.3 Railways in Economic History and Geography

Naturally, transportation received an important place in economical history. We find chapters dedicated to the railways both in wide-encompassing surveys of economical history in Romania [27], and in general historical monographs in which economical and in particular transportation developments are studied in separate chapters.[28] Other studies in economical history focus on the industrial development in the last decades of the 19th century, thereby naturally dedicating an important part to railway development.[29] Most relevant here are however studies specifically dedicated to the railway impact on economical development.[30]

These studies show how the railways contributed to industrialisation through their own factories, as well as through stimulating other industries that produced material used by the railways (rolling stock production and repairs, building material, fuel, etc.) and by economically integrating the province's territory as well as the province with its surrounding regions. D. Turnock also outlines some of the indirect economic-geographical effects of railways, such as the affordability of national and international mobility and the rise of migrations, the selection of administrative centres, the growth of large towns, the emergence of an urban network and the differentiation of towns, the appearance of development axes.[31] A. Egyed considers the advent of railways as being the third factor that fostered the relatively vivid development of heavy industry in Transylvania between 1867 and 1873.[32]

5.4 Railways in Urban and Planning History

An interesting yet isolated approach to railways in urban history is to be found in a richly contextualised historical study of the Iași station.[33] Written by a railway engineer, in the form of a novel rather than as a scientific work, this monograph uses railway history as a special lens through which urban history is looked at. There is a multitude of aspects of the *urban culture* which come into more or less close connection with the railway station during the time: These range from the decision making framework, the construction period with the workers involved and the materials used, to aspects of the daily life in an around the station, as viewed alternatively by the citizens, by the railwaymen or by travels; from the urbanistic transformations triggered by the railway station, to its representations in literature etc. Here, railway history is ultimately the pretext that occasions a manifold survey of urban and regional history through the social, physical, economical or cultural aspects of the *railway and city interaction*.

Other studies deal specifically with the urbanistic (urban planning) aspects of urban history. These range from historical monographs of towns (sometimes of regions) to articles dealing with case studies in urbanistic development.[34] The information provided by these works is usually limited to the context in which railway facilities were provided to the town, chronology, actors, with an emphasis on the economical impact of the railway and, to a lesser extent, on its urbanistic implications (urban structure, fabric and functions). More relevant here are studies specifically exploring the railway-and-city relationship as a particularly influential factor in the urban history of a town. Several works on this topic were occasioned by the 1994 conference on the impact of transport ways on urban development.[35] The examined phenomena include town extensions towards and beyond the railway station, new residential and industrial areas occasioned by the railways, issues of articulation between the new railway infrastructure and the existing urban fabric, and possibly problems generated by ill-planned urban schemes and attempts to their remedy. Less explained are the reasons for the station locations and the location of approach lines to these; also, the specific cases lack the discussion of their relation to other stations of the railway line which they served. Another less-tackled aspect is the power balance within the decision-making framework, in order to clarify to which extent the local administrations determined railway planning and design

and to which extent this was a choice of the railway company and/or of the state.

While the aforementioned studies were dedicated to one and rarely to several towns, two extra dimensions are added by M. Tanase's research which addresses the historical transformations of communication ways and their effects on the traversed or by-passed settlements in the South of Transylvania.[36] Not only that M. Tanase includes the villages in his investigation too, but his case-studies are territorial fragments between two settlements linked by a river valley, where the evolution of road and settlement systems is examined. At the same time, the changing hierarchical relationships between the different valleys as territorial lines of force are highlighted. Ascribing his approach to the field of geohistory, M. Tanase's work is based on historical cartography analysis with input from etymology and statistics.[37] In this history of deviations, doubling, substitutions, or trimming of roads, the railways as well as the modernised roads of the 19th century, belonging to a larger territorial planning vision, that of the Austro-Hungarian Empire, contribute essentially to the continuity or the change in the extant hierarchies. Despite his own acknowledgement that the presented results represent but partial stages and await further studies, M. Tanase's work represents nevertheless a landmark in the Romanian historiography of the territorial impacts of communications ways.[38]

5.5 Railways in Architectural and Construction History

In the two main syntheses of architectural history on the Romanian territory, railway architecture is parsimoniously mentioned, arguably because of the very broad scope of these works.39 Contemporary, both works are structured chronologically and represent architectural history primarily as a narrative of styles, according to which the various architectural programs are addressed. The early generation of railway architecture, starting in the 1860's, is briefly represented in relation to the romantic current.[40] Two other references to railway architecture are made in relation to the introduction of new materials and building techniques by the end of the 19th century.[41] References to the railway architecture of the interwar period are completely absent as contemporary examples of other industrial architecture are considered more worthy of being mentioned.[42] Neither does the railway architecture of the socialist period receive much more attention in these grand historical narratives, whereas other major architectural programs are richly illustrated.[43]

Surveying the table of contents of *Revista monumentelor istorice* during the last 32 years (1974-2006), no article specifically dedicated to railway architecture has been found.[44] This is hardly surprising, since the proportion of studies dedicated to 19th and 20th century architectural heritage in general is quite small. The limited resources allocated to historical research during the period of radical transformation of the urban and rural environments represented by the communist decades, partly explains the choice for studying religious monuments with predilection. When dedicated to the 19th century, research was usually focused on official or residential architecture, whilst industrial programmes were once more less of a priority. Equally absent is railway architectural historiography from the 40 reviewed years of *Arhitectura*, the periodical of the Romanian Architects Union.[45] Although regularly publishing under the title 'our forerunners' (*înaintașii noștri*) one or two historical essays on architecture and urbanism or on conservation, as well as some issues entirely dedicated to the architectural heritage, references to historical railway architecture are missing.

A positive initiative to compensate this obvious lack of historical research on railway architecture in Romania, was taken in 2003 by the government, through the elaboration of an 'encyclopaedia' of Romanian railway stations.[46] Although, as admitted by the authors too, it cannot be considered more than a starting point for such an ambitious project, this work brings a first contribution towards documenting, classifying and evaluating railway stations on the Romanian territory.

Dealing with the passenger buildings only, short articles are dedicated chronologically to the most representative buildings in the authors' view, ranging from the lines built under the first foreign concessions, through the formation of national expertise in railway engineering and of a 'national style' in railway architecture.[47] Included are also the most remarkable interwar and post WWII stations and the few recent projects for new stations. Nevertheless, because of the limited extent of this work, information as to Transylvanian stations for instance, is minimal. This positive but isolated initiative clearly points to the need for in-depth historical studies on railway architecture on Romania's territory. Research questions awaiting their answers should include the stylistic influences and complementarily, the stylistic impact of railway buildings on the architecture of their surroundings, the challenges of using type designs, the formation and transfer of expertise, the sources and production of building materials, the social and organisational aspects of the railway construction site, the evolution of functional criteria, etc.

Focused on Cluj, G. Vais' 2008 doctoral dissertation brings an important contribution to the architectural historiography of the dualist period (1867-1918).[48] The thesis studies the public and civil architectural programmes of the period, with particular emphasis on the analysis of functional aspects. Although, according to the dissertation's focus on public architecture, only the reception buildings of the railway programme are discussed, an interesting contextualisation is given both in relation to contemporary architectural programmes in Cluj and to the railway architecture in other Austro-Hungarian locations. The author argues that the studied period was crucial for the transformation of Cluj into a modern city, whilst the prevailingly eclectic architecture of the new buildings superseded the previous mediaeval character. The difference between the initial (1870) and the late-19th-century reception buildings of the station Cluj is significant as to the concerns for monumentality and representation that became increasingly important, besides the increase in complexity of the architectural programme itself.

6. Merging internal and contextual histories

Among the analysed disciplines, a fundamental delineation has to be made between the so-called railway history 'proper' and the rest (political, economical, urban and architectural history): To the latter, *railways represent a research tool rather than a research question*, as they are ultimately concerned with broader historical developments, either of economical, social or of physical-spatial-visual nature, which might have been significantly influenced by - or might have influenced – the railways. Hence, it is the interaction between railways and the economical, social or physical realms that is being brought under scrutiny. Conversely, to the internal railway histories reviewed in the first section of this text, it is *the development of railways per se*, in other words, their technical, constructive or economical performances, that constitutes the prime research question. It is remarkable that political, economical, urban, architectural and other historical disciplines dealing with the railways have jointly led to the emergence of *a contextual railway history*, which enriches substantially the internal or intrinsic knowledge about the railways, and ultimately transforms the concept of railway history 'proper' altogether.

What is remarkable indeed is that the variety of standpoints from which railway history is addressed makes it an interdisciplinary field by excellence, acknowledging the railway's dual nature of "socio-technical system," as pointed out by G. Dinhobl:

> "[…] nowadays the railway is considered to be a complex socio-technical system. This means it is not only impossible to separate the technical aspects from the social – it is also impossible to separate them from the cultural aspects."[49]

Or, as asserted by M. Cotte, railway history will be considerably enriched by evolving at the confluence between the merged fields of the history of technology and culture, as 'internal,'

respectively 'contextual' histories.[50]

7. A history of railway and landscape interaction

Informed by these fragmented yet overlapping histories, a method for *addressing railways from a landscape historical perspective* has been devised, taking the *First Transylvanian Railway* as case study. The study consists of three stages: (first) a deconstruction of the original railway project in order to reveal the ideas and concerns that determined its morphology; (second) an exploration of the immediate landscape-generating effects of the railway line; (third) a survey of the long-term changes to the railway corridor landscape, identifying traces of change and patterns of permanence therein.

7.1 The railway project as territorial-scale architecture

If, as stated by C. Macchi Cassia, "[t]o see the construction of the territory as an act of architecture means taking a compositional approach,"[51] could the *First Transylvanian Railway* be considered an architectural object at territorial scale? To which extent, at various scales, the railway design architecturally (re)composed its territory?

This analysis has been informed by the international theory regarding early railway design, namely railway, urban planning and architectural treatises.[52] These helped identify the specific scales and the negotiation (sometimes the conflict) between the program's requirements (efficiency of transportation, economy of construction, public utility, military, etc.). Five types of spatial problems confronting the railway-building actors are identified: (1) establishing the trajectory at the macro, regional scale, in competition with the other possible routes; (2) choosing the fixed points of the trajectory (the railway stations and halts); (3) linking the fixed points by using gradients as small and segments as straight as reasonably possible in relation to the other constraints; (4) locating the railway stations in towns and villages and ensuring their connection with the road system; (5) designing the railway edifices in stations and along the line.

Firstly, it is significant that the actual realization of the trunk and branch lines was foremost a response to external (state and private) profit-making, export- and transit-oriented agendas, rather than to locally-born ones. We have shown that these initial determinations of the overall trajectory influenced the other design choices of the *First Transylvanian Railway* to a large extent. One of these aspects was the minimalist program by which a minimal number of initial stations were chosen, so that transportation needs were met through an infrastructure that was already also necessary operation-wise - a coherent and functional selection of the by-passed settlements according to a clear territorial hierarchy (Fig.1). Also the way in which the fixed points were connected mainly answered the railway's internal needs of construction economy and operation-efficiency. A consistent approach was employed throughout the entire construction, namely avoiding intersecting the natural obstacles (foothills and river meanders) as much as possible, to reduce construction costs, yet treating settlements and roads as rather 'weak' elements of the site, with no important influence on the track route design, to increase efficiency. A further element of control over the entire multi-scale composition was the three-level hierarchy of works-supervision-stretches, sections and sub-sections, which ensured both the coherence of the design, as well as rendered feasible the piece-meal supervision of the works.

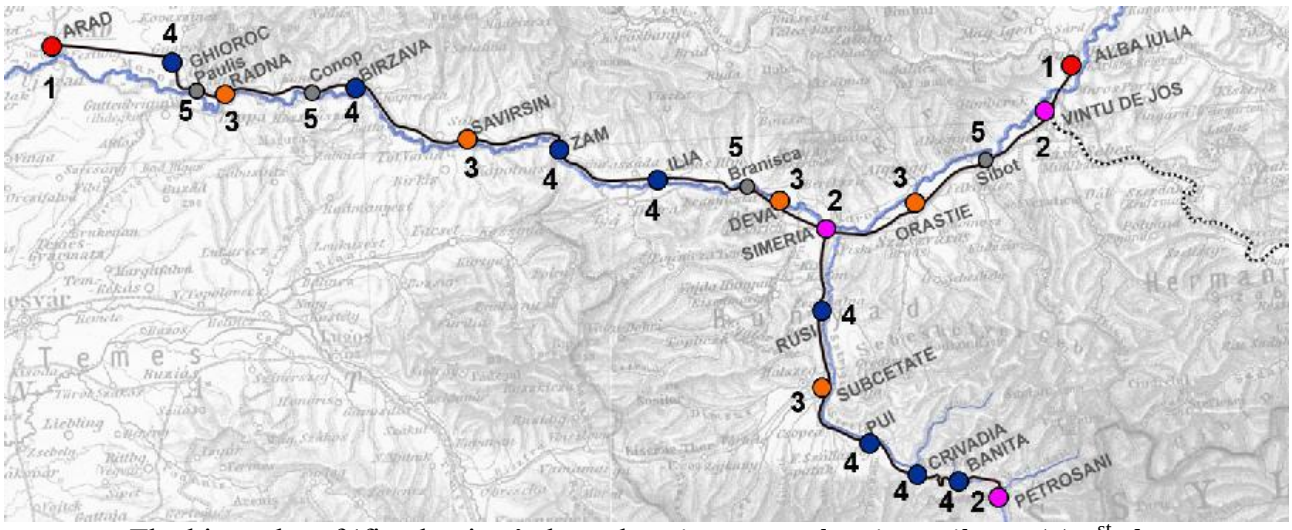


Figure 1. The hierarchy of 'fixed points' along the *First Transylvanian railway*: (1) 1st class stations of the trunk line termini; (2) 2nd class stations of the junctions and at the branch line terminus; (3) 3rd class stations of the 'obligatory points' – small administrative centres; (4) 4th class stations of the 'intermediary points' – required for the water filling of the engines; (5) halts.

A highly coherent approach was also deployed with regard to the stations' urban-scale location. Yet, the systematic remote or marginal location of stations benefited the large-scale rationale of the railway line in the first place, while the resulting better or the poorer urbanistic integration of stations was a matter of consequence much more than a matter of intention. The original situation of railway stations can best be characterised as ambivalent. Because of their marginal or remote location, though supposed to be part of the corresponding towns, stations were rather isolated in the sub-urban or rural peripheries. They were rather 'attached' to towns from without, instead of being established from within, as an integral part thereof (Fig. 2). Well connected to the regional road-system (an exception confirming the rule was Deva), in the beginning, the stations seemed to belong to the countryside at least as much as they belonged to the towns or villages to which they were attached. In fact, among the various scales to be tackled within the railway design process, the urban scale as such was actually missing. From the national-scale maps of the global trajectory on which towns appeared as dots, through the regional scale of the military maps in which settlements were represented as poorly detailed agglomerations, to the too detailed scale of the cadastre, and the architectural scale of the railway edifices, the railway project omitted studying the urban scale apart, since it was not urban coherence that was at stake, but the track route's internal coherence, already determined by the wider region.

Ultimately, at the level of station ensembles and of the edifices composing them too, the design consisted in a unitary, regional-scale hierarchical system of architectural landmarks, additionally fostering a railway-generated regional sense of unity rather than a local sense of identity.

Thus we suggest that the railway project implied a 'compositional approach' articulating the internal requirements of railway construction and operation from one scale to the other, while showing little concern for its articulation with the external, neighbouring places at each individual scale. Indeed, the railway project appears as a unitary-conceived architectural object, forming a self-coherent territorial-scale construction. However, if - as in Giedion's above-cited words - "[r]ail lines and trains, together with the railroad station, form[ed] a single whole," how did the surrounding places and landscapes relate to or become involved in that unity? This was the main question investigated throughout the following part of our research.

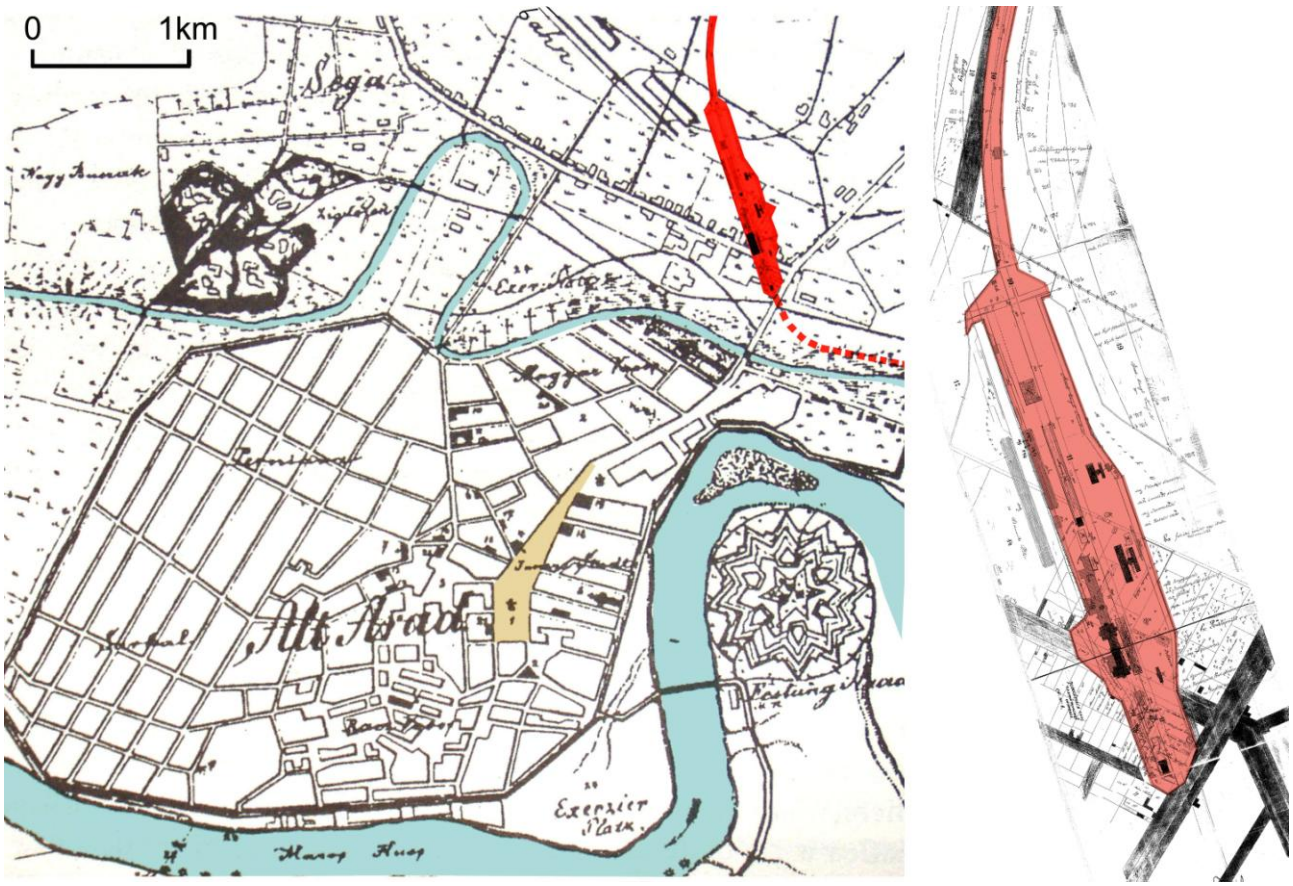


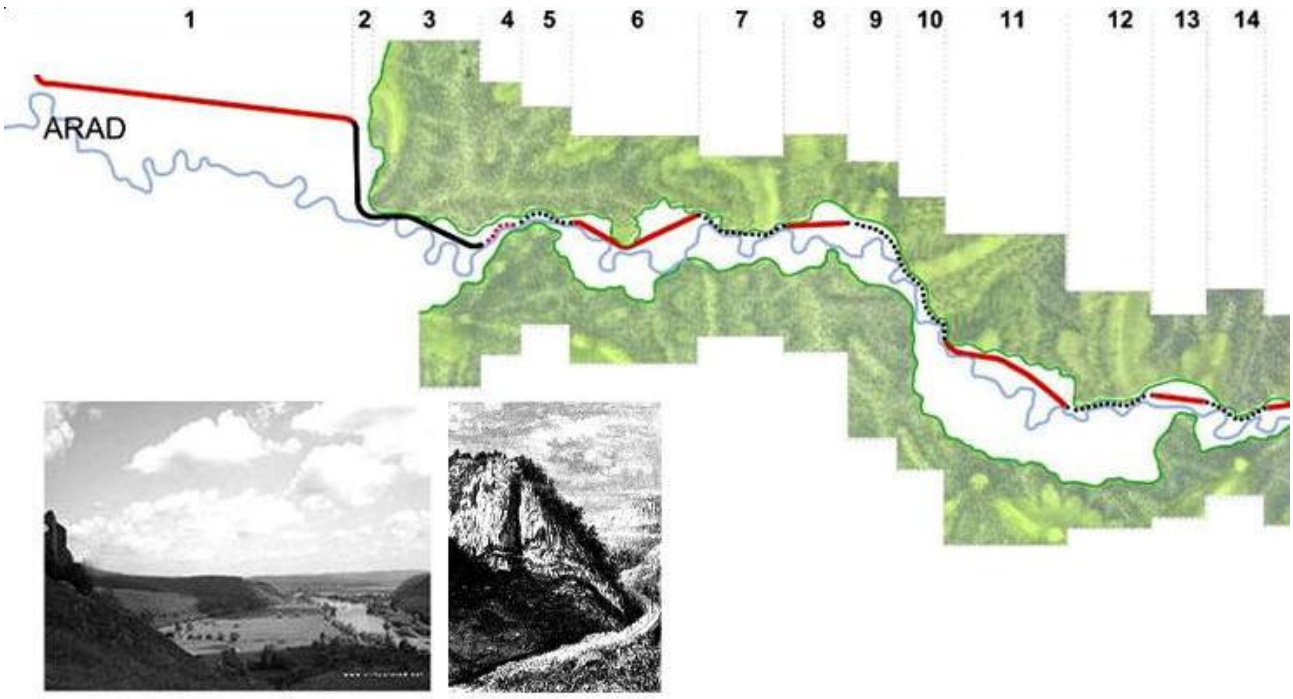
Figure 2. ARAD. *Left*: 1858 plan with the actual location of the station. The annotation *bahn* to the left shows a slightly different location. *Background map* [53]. *Right*: Cadastral map of the station area. Early 1870s. *Source*: Archives of the Timișoara Railway Regional.

7.2 The railway project as unintentional landscape design

This part of our research has attempted to gauge the initial impact of the *First Transylvanian Railway* on the traversed landscapes, investigating changes brought by the railway to the major landscape structuring features. To this end, we employed K. Lynch's famous five constitutive elements of the urban image: *itineraries, sequences, boundaries and sectors,* and *landmarks*.[54]

By establishing alternative itineraries and by reinforcing the recently created road itineraries, the *First Transylvanian Railway* introduced significant change in the dynamic perception of its site. The railway transformed itineraries of local-importance by integrating selectively the pre-existing crossroads and by inscribing new crossroads in the landscape, often frustrating the continuity of road itineraries. Symbolically as well as functionally, the railway became the dominant itinerary through the traversed places.

Moreover, a different range of sequences structured the railway itinerary: If railway sequences are determined primarily by the direct/indirect manner in which distances are covered, road sequences are determined foremost by the settled/unsettled character of the traversed places. The morphologic character of the natural site, the rigid constructive logic of the railway and the importance of economical considerations combined to generate a complex, yet logic sequential structure of the railway itinerary, a sensitive response to the spatial context, albeit motivated by transportation-specific concerns rather than by concerns for spatial quality. We identified a new *sequential structure* of the landscape, generated by the new railway itinerary, alternating the peripheral and undulating sequences (along which the railway trajectory followed the road) with the rectilinear and central sequences, which enabled a radically new perception of the same places (Fig. 3).



	L.C.SEQUENCE	LENGTH (km)	LAND FORM TYPE	TRACK ROUTE LOCATION	TRACK ROUTE GEOMETRY
1	Arad Plain	20.09	Open	Central	Rectilinear
2	Arad Vineyards	5.41	Semi-Open	Peripheral	Rectilinear
3	Paulis-Radna	8.16	Wide	Peripheral	Rectilinear
4	Radna-Lipova	3.38	Narrow	Central	Undulated
5	Soimus	3.08	Narrow	Peripheral	Undulated
6	Odvos	8.81	Contained	Central	Rectilinear
7	Conop	5.74	Contained	Peripheral	Undulated
8	Birzava	4.03	Contained	Central	Rectilinear
9	Capruta	5.16	Contained	Peripheral	Undulated
10	Batuta	5.17	Narrow	Peripheral	Undulated
11	Varadia	9.02	Contained	Central	Rectilinear
12	Halalis	5.58	Contained	Peripheral	Undulated
13	Savirsin	3.17	Narrow	Central	Rectilinear
14	Cuias	4.25	Contained	Peripheral	Undulated

Figure 3. Analysis of landscape character sequences between Arad and Săvârșin, based on land form and on the track route location and geometry.

From the static perspective of the railway neighbours, the original morpho-functional sectors of the landscape were significantly altered by the railway line which defined new boundaries along more than half of its total length and accentuated the pre-existing sectorisation of the other places. Systematically located at the urban fringes, the railway boundary invested the peripheries with new meanings, often challenging the previous front-back or public-private configurations. New accessibility and visibility conditions were established between settlements and their agricultural hinterlands or their waterfronts, while the new railway frontier redefined the urban margins, inserting a new public venue open towards the peripheries, unlike the roads that traversed the town or village centres.

The landmarks perceived from the railway route always include powerful images of the route itself too. While reversing the previous landmark importance of some of the village churches, depending on their location, the railway edifices became landmarks themselves, for both the railway and the road itineraries. Through the different station architectural typologies, a territorial 'code', a hierarchical system of signs marked the regional-scale landscape, signalling the relative importance

of the served places. The railway also inscribed a double, regular rhythm in the landscape by the telegraph poles and guard houses, in contrast with the organically-located crosses and wells, the 'traditional' signs marking the crossroads and village entrances.

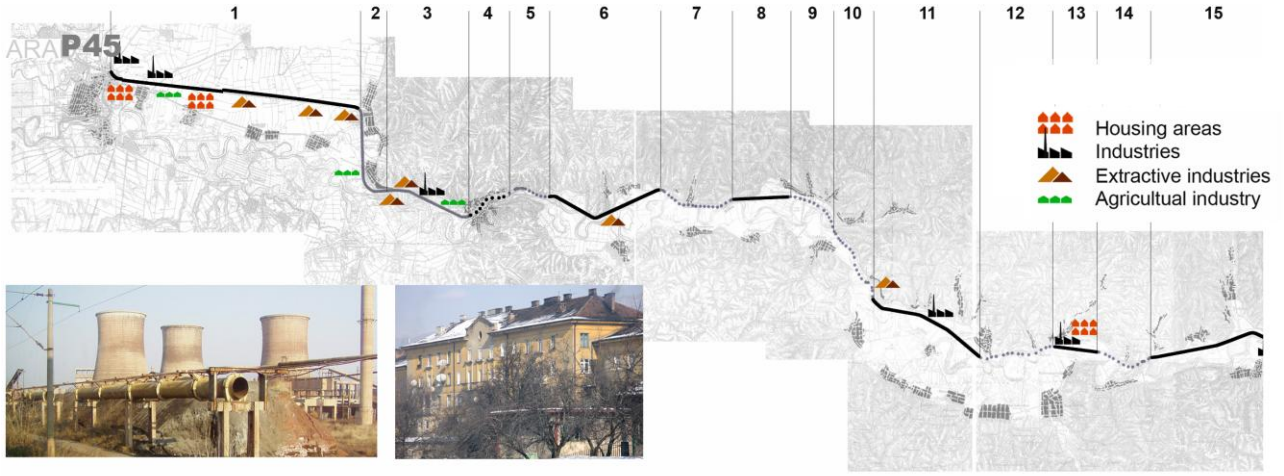
The railway design, conceived as a way to attain specific transportation objectives, generated a diverse, yet structured and hierarchical landscape, significantly different from the pre-existing landscape in terms of its major defining elements and perceptive modalities. Although the initial railway project can only be considered an unintentional landscape design, its outcomes, in terms of highlighting and of adding to the pre-existing landscape character, are no less important to acknowledge and gauge. The railway, self-coherent architectural act at the territorial-scale, at the same time *unintentionally engendered a coherent* mise-en-scène *of the traversed landscapes*, relating similarly to places of similar landscape character, speeding up as a largo appeared and slowing down as the landscape closed up, emphasizing the exceptional natural spots with exceptional railway landmarks (such as the bridge at the Branișca Gates), marking the presence of selected settlements by similar edifice clusters. Hence, *the railway journey appears as a succession of visual events*, occasioned by the never-fortuitous encounters between the pre-existing places and the railway features.

7.3 The railway landscape as locus *of unresolved territorial tensions*

Assessing the most significant aspects of permanence and change in the *First Transylvanian Railway* landscape as it is today, occasioned a new vision of the latter as locus of territorial tensions, in which an overall depreciation of the railway as territorial scale architecture can de distinguished. Still present and unresolved are:

Tensions between the *competing railway itineraries*, such as the Oradea - Cluj versus the Arad - Alba Iulia itineraries, or between the projected highway- and the old railway itineraries, such as the Sibiu - Deva – Timișoara - Arad highway itinerary and the *First Transylvanian Railway* itinerary; between the once dominating role of railway transportation and its present decay, denoted by the ephemeral railway-branch itineraries, especially by the shrinking of the narrow-gauge network;

Tensions between the natural character of *pastoral places* and the marks left by the processes of *industrialization and de-industrialization*; the railway, industrial construction with an industrial purpose, was at the same time the art object enhancing the landscape's pastoral beauty and rendering it comfortably 'visit-able.' The rapid urbanization of the formerly isolated areas such as the Jiu Valley engendered sharp contrasts between the vernacular occupation and the planned developments of the mining towns. Due to the undisputed dominance of the railway in terms of bulk-goods-transportation performance at least until WWI, but to a large extent even after WWII as well, the track route naturally became the preferred location for the new industrial facilities, both in towns and in the countryside. If the original sequential structure of the landscape was determined primarily by landform, track route location and track route geometry, in the present situation the character of landscape sequences is strongly marked by the new land use and land cover patterns, generated especially by the communist industrialisation and collectivisation as well as by their post-1990s dissolution (Fig.4). Perhaps the best way to characterise the situation is provided by Christophe Girot's taxonomy, of a "complex, tripartite division [of nature] that began in the early Industrial Revolution […]: (1) a mythical nature still to be discovered; (2) a tamed and acclimatised nature masterfully arranged in promenades and parks in the heart of cities, and (3) a vast zone of conspicuous neglect where residual nature is mixed with industry, waste and infrastructure." In their present form, the railway landscapes studied here seem perhaps the best illustration of the last category of Girot's taxonomy, since this third realm of nature, is "raw, generated by erosion and dereliction, and completely non-aesthetic. It is the direct by-product of industrial and commercial requirements."[55]



	L.C. Sequence	Length (km)	INITIAL - LAND USE AND LAND COVER PATTERNS - SUBSEQUENT CHANGES		
			The 'Countryside'	The Settlements	
				Proximity	Morphological Type
1	Arad Plain	20.09	Fields	Distant	Rectangular
2	Arad Vineyards	5.41	Vineyards & Fields	Nearby	Rectangular
3	Paulis - Radna	8.16	Vineyards & Fields		
4	Radna - Lipova	3.38		Nearby	Gathered
5	Soimus	3.08	Woods vs Fields		
6	Odvos	8.81	Fields	Distant	Rectangular
7	Conop	5.74	Woods vs Fields	Nearby	River
8	Birzava	4.03	Fields		
9	Capruta	5.16	Woods vs Fields	Nearby	River & Street
10	Batuta	5.17	Woods vs Fields	Distant	Rectangular
11	Varadia	9.02	Fields	Distant	River
12	Halalis	5.58	Woods vs Fields	Nearby	River
13	Savarsin	3.17	Fields	Distant	River
14	Cuias	4.25	Woods vs Fields & Orchards	Nearby	River
15	Petris	12.73	Fields	Distant	River & Street

Figure 4. Analysis of landscape character sequences between Arad and Săvârșin, based on land cover and land use patterns.

Tensions between the railway space as *space of distant communications* and the *urban space* aiming at cohesion and accessibility have been revealed by the study of the evolution of the seven main towns connected by the *First Transylvanian Railway* trunk and branch lines (Arad, Radna-Lipova, Deva, Simeria, Orăștie, Alba Iulia, Petroșani). We have shown that although not everywhere a 'wrong side of the track' did emerge, the segregation and lack of urban amenity affecting the quarters which could be thus labelled is rooted in the failure of generating *complementarity rather than subordination between the two sides of the track*. In the pre-existing towns, the railway acted successively as growth magnet and as growth barrier, whereas in the new towns (Simeria and Petroșani) it constituted the very growth-ordering axis. The prevailing urbanistic vision of the station squares was simply utilitarian, as traffic nodes, rather than as (peri) central public spaces. In several cases (Orăștie, Alba Iulia) the station's front maintained its initial peripheral character all along, while in others (Arad, Deva), despite the intensive postwar urbanisation, the station areas failed acquiring town-centre qualities.

Tensions between the intrinsic representative connotations of railway edifices and the lack of a coordinated vision of what there could/should be represented. Through the emergence of visually competing landmarks, the falling into redundancy and the lack of suitable reuse, and through the loss of internal coherence, much of the initial landmark qualities of the railway structures have significantly diminished during time, resulting in their 'withdrawal' from the landscape's foreground.

8. Conclusions

Our research intended to bring forth a highly specific type of landscape, while at the same time developing *instruments* for understanding its specificity and complexity. The necessity and imminence of upgrading the existing infrastructure in order to harmonize the Romanian network with the European one, efficiency-, safety- and comfort-wise, indicated the railway as an opportune topic, for contributing to the integration of landscape quality concerns in the different sectors that indirectly affect landscapes. At the same time, in the railway's multi-scale territoriality we have recognized the opportunity of grasping spatial realities and complexities in a both comprehensive and in-depth way. The railway, just like the notion of landscape at the conceptual level, connects urban and rural areas, natural and human-changed places into a territorial unity. Unlike territories defined by their physical-, ownership- or political-administrative boundaries, the territory of the railway is primarily defined by its backbone - the railway line, while its outer boundaries shift according to the scale of the approach, whether the individual building or group of buildings, the town, the inter-urban or the wider, regional scale are at stake.

The specific delimitation of the study area and of the analysis scales allowed outlining a holistic vision of the railway line as architectural object with a multi-scale spatiality. This constitutes a significant enlargement in comparison to the usual approaches of railway history 'proper' that mainly address the scale of the global trajectory and the scale of the individual works of engineering art and of the railway edifices. At the same time, the study of the railway-and-adjoining places interaction, along the entire railway corridor rather than at urban locations only, constitutes a significant broadening of the usual, locally-focused approaches of urban history too.

Any original contribution of this research to the existing historical knowledge about the *First Transylvanian Railway*, especially to its relationship with the landscape, was possible also thanks to the combination of sources at several levels. Given the major political upheavals during the studied period, sources are to be retrieved from scattered geographical locations: various local archives and libraries in Transylvania, national institutions in Bucharest, Budapest, Vienna. They can be grouped into the two main categories of railway-focused and context-related sources, the compilation thereof enabling insights into hitherto less explored aspects of both railway history and urban or landscape history. While both categories include published works (railway monographs, respectively local monographs or articles about the more prominent settlements), a large amount of unpublished sources, both (carto)graphical and written, both regarding the regional and the local scales, have been investigated too. For the analysis of the original railway design we had recourse to a corpus of early technical literature, railway, urban and architectural treatises, which have been so far little addressed in scholarly research about the railway. At the same time, these external sources were combined with case-study related, mostly unpublished sources, namely written and graphical archival documents regarding the negotiations and proceedings of the railway concession and construction follow-up. The use of 18th- to 20th-century military cartography has proved an invaluable instrument for encompassing the evolution of the large studied territories both at sufficiently detailed scales and with significant reliability. Other context-related sources such as taxation maps and road or riverbank construction plans provided precious information as to the pre-existing landscape of the railway corridor, especially when combined with contemporary traveller descriptions. The complementary reference to 'objective' and subjective sources also informed the study of the Valea Jiului urbanization process, namely by combining censual data and urban cadastre maps with successive written portrayals of the same places. To give other source-combination examples, it was only through the confrontation between the railway company meeting minutes of the 1860s, the post-WWII building surveys of the Romanian Railways and our field trips, that a systematic restitution of the original configurations of the different station classes was possible. Also, understanding the way in which the detailed design and the works supervision were

coordinated, by subdividing the line into stretches, engineering sections and 'stations,' so as to precisely locate individual structures along the line, was only possible by combining the construction-supervision reports from the Hungarian National Archives with the cadastral maps of the railway plots from the Cluj Office for Cadastre. Similarly, the *in situ* experience of the present-day landscapes by means of the railway journey and by visiting different sites, combined with the 'desk study' of historical (military) maps and of today's web-published aerial views, enabled the identification and testing of the railway itinerary 'sequential structure' as well as the assessment of its transformations.

Dealing with the complex territoriality of the studied object, *visualization* has been a challenge that has hopefully been turned into one of the dissertation's values. Bringing the disparate historical documents together into a single, multilayered model, as made possible by the contemporary digital tools, enabled moving dynamically through scales and thus having a whole new vision of the studied territory, which was available to neither the railway planners, nor to earlier scholars of railway or local history. While the morphological analysis has been one of our main research tools, special attention has been also devoted to visually representing the research results through graphical syntheses. If historical knowledge possesses its intrinsic values beyond its many possible instrumentalizations, in order to be directly relevant for planning, specific historical information must be delivered in specific formats, thus the need to pass from landscape history as narrative, to the planning tool that is the historic landscape assessment.

Addressing the railway infrastructure from a landscape historical perspective provided a quite unique territorial 'stratigraphy': Any railway landscape contains a 'built-in' territorial structure, sometimes evident, sometimes unrecognizable as such anymore, nonetheless awaiting to be harnessed in order to generate quality in the landscape by uniquely connecting town and region, industry and agriculture, urban, suburban and rural, nature and culture. The comprehension of this fundamental continuity should form the basis of any attempt of planning the railway landscapes.

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References

[1] Picon A. Some Concluding Remarks. First International Meeting of the European Architectural History Network, Guimares, Portugal, 2010. *Supplement to the EAHN Newsletter*, No.3/10, ISSN:1997-5023, pp.11-12, 2010.

[2] *Idem*. p.16. Another term currently used to describe this concern with space and place is that of *spatial humanities*: Bodenhamer D. J., Corrigan J., Harris T. M., editors. *The Spatial Humanities: GIS and the Future of Humanities Scholarship*. Indiana University Press. 2010.

[3] We have detailed these aspects in Purcar C. Designing the space of transportation: railway planning theory in nineteenth and early twentieth century treatises. *Planning Perspectives* 22:3, pp.325-352, 2007.

[4] Giedion S. *Building in France, Building in Iron, Building in Ferroconcrete*. First published in 1928. Cited in Heynen H. *Architecture and Modernity.* MIT Press, p.35, 2000. My emphasis.

[5] Lowe MD. *Back on the Track. The Global Railway Revival*. World Watch Papers, no. 118, April 1994.

[6] *Ibid.* p.11.

[7] European Commission. *White Paper. European transport policy for 2010: time to decide*. Office for Official Publications of the European Communities, Luxembourg, 2001.

[8] European Commission. Directorate-General for Energy and Transport. *Towards an integrated European railway area*. 2002, updated 2004.

[9] Corridor IV links: Berlin/Nurnberg-Praga-Budapesta-Constanta/Salonic/Istanbul, while corridor IX links: Helsinki-St. Petersburg-Moscova/Pskov-Kiev-Liubashevska-Chisinau- Bucuresti-Dimitrovgrad-Alexandropolis.

[10] Financed by the Katholieke Universiteit Leuven, Belgium, the thesis (defended in 2009) carries the title *Railway and Landscape Interaction. A History of the First Transylvanian Railway (1868-2000)* and the doctoral supervisors were Prof. K. De Jonge, Prof. M. Smets (K.U.Leuven) and Prof. M. Moldovan (UTCN).

[11] Council of Europe. *European Landscape Convention*. Florence, 2000. Preamble. <http://www.coe.int/t/dg4/cultureheritage/conventions > 01.08.2008.

[12] Tureanu I, coord. *O enciclopedie a gărilor din România.* Ministerul Transporturilor, Construcțiilor și Turismului. Centrul de Documentare pt Construcții, Arhitectură și Amenajarea Teritoriului. Colecția Arhitectură și Urbanism - Programe esențiale. Bucharest, 2003.

[13] Nevanlinna AK. Historians' values in urban preservation in the 20th century. Session abstract, Seventh International Conference on Urban History, Athens, 2004.

[14] *Ibid*.

[15] Tominac J. *Magyar szent korona országainak vasútai 1845-1904.* Budapest, 1905; Manescu CC. *Istoricul căilor ferate din România.* Bucharest, 1906; Képessi A. *A Magyar vasútügy története*. Budapest, 1908; Újhely G. *A vasútügy története.* Budapest, 1910; Sipos K. *A vasutak történetének vázlata Erdélyben*. Cluj, 1911.

[16] Strach H. editor. *Geschichte der Eisenbahnen der österreichisch-ungarischen Monarchie.* Vienna: Karl Prochaska, 1898-1899; still relevant, this work has been reprinted entirely in 1999 by the Austrian Archiv Verlag.

[17] Mear MT. *Povestea drumurilor de fier: date istorice și biografice*. Bucharest: Izvorul, 1926; *Albumul Ceferiada 1869-1939*. Bucharest : Direcția Studii C.F.R., 1939; *C.F.R., les chemins de fer roumains*. Bucharest: Impr. Nationale ; 1936.

[18] Cebuc A; Mocanu C. *Din istoria transporturilor de călători în România.* Bucharest: Ed. Științifică ; pp. 106-7, 1967; Petrescu IG. *Rețeaua C.F.R. – Geografie feroviară*. Bucharest : Editura Transporturi și telecomunicații ; 1965; Botez C, Urma D. *Epopeea feroviară romanească*. Bucharest: Ed. Sport Turism; 1977.

[19] Kalla-Bishop P.M. *Hungarian Railways*. Newton Abbot: David & Charles; 1973; Heinersdorff R. *Die k. und k. privilegierten Eisenbahnen der österreichisch-ungarischen Monarchie 1828-1918.* Vienna-München; 1975.

[20] Bellu R. *Mică monografie a căilor ferate din România*. 6 vol. Bucharest: Ed. Filaret; 1995-2001.

[21] Kovács L, editor. *The History of the Hungarian Railways. 1846-2000*. Budapest: Hungarian State Railways Co. Ltd. 2000; Horvath F, Kubinszky M. *Magyar Vasúti Építkezések Erdélyben*. (Vasúthistória Könyvek). Budapest: Magyar államvasutak rt; 1998; Horvath F. Az erdélyi vasútépítések elözményei. Az Elsö Erdélyi Vasút Arad-Gyulafehérvár és Piski-Petrozsény szárnyvonala. *Müszaki Szemle,* 15: pp.5-9; *Müszaki Szemle*, 16: pp.3-6.

[22] Turnock D. The Romanian railways debate: a theme in political geography. *Journal of Transport History*, 5; pp.105-121, 1977; Rossenger G, Jensen JH. Transylvanian railways and access to the lower Danube. *East European Quarterly*, 29, pp.427-448, 1996.

[23] Moga I. Războiul vamal dintre Austro-Ungaria și România în lumina intereselor economice ale Transilvaniei. In Moga I, editor. *Scrieri istorice 1926-1946.* Cluj: Dacia; pp. 251-268, 1973.

[24] Muresan H. Proiecte privind construirea primelor căi ferate în Transilvania. *Anuarul Institutului de Istorie și Arheologie*, 17, Cluj; pp.268-79, 1974.

[25] Retegan S. *Dieta de la Sibiu 1863-1864.* Unpublished doctoral dissertation, Cluj: Institutul de Istorie si Arheologie; pp.325-336, 1974.

[26] Retegan S. *op. cit.*, p.334, 1974.

[27] Turnock D. *The Romanian economy in the twentieth century*. London: Croom Helm, 1986; Constantinescu NN. *Romania's economic history from the beginnings to WWII*. Bucharest: Editura Academiei Române, 1994.

[28] Köpeczi B, gen. editor. *History of Transylvania*. on-line English translation of the Hungarian original *Erdély története*. Budapest: Akadémiai Kiadó, 1986; New York: Columbia University Press, 2001, <http://mek.oszk.hu/03400/03407/html/343.html#page3-3> 19.03.2007, Vol. III, Ch. XII.1, pp.465-74.

[29] Egyed A. Aspecte ale dezvoltării industriei mari din Transilvania între anii 1867-1873. *Anuarul Institutului de Istorie din Cluj ;* V, pp.145-175, 1962; Egyed A. Unele caracteristici ale dezvoltării industriei în Transilvania la sfârșitul secolului al XIX-lea. *Acta Musei Napocensis*, vol. V; pp.251-264, 1968.

[30] Turnock D. *Railways and economic development in Romania before 1918*. Leicester: Leicester University Discussion Papers in Geography, No. G99/1, 1999.

[31] *Ibid.*, pp.47, 50-77.

[32] Egyed A. *op. cit.* pp.150-2, 166, 1962. 1867 is the year of the dualist pact that resulted in the Austro-Hungarian state, while 1873 is the year of the supra-production crisis that affected negatively all European economies and mostly the German and Austrian ones. The other factors indicated by the author are the formation of a modern credit system and the spreading of shareholding societies, the penetration of capitalism in agriculture, the development of economical relations between Transylvanian and the old Kingdom, and generally, the blooming of capitalism everywhere. While more than 1000km of tracks have been laid down from 1867 to 1873, only 326km have been constructed from 1874 to 1879.

[33] Mitican I. *Un veac prin gara Iași*. Bucharest: Sport-Turism, 1983.

[34] See several examples of historical urban monographs that dedicate a special section to the role of railways in urban development, covering a wide time span: Benedek J. editor. *Aradvármegye és Arad szabad királyi város monographiája*. Arad, pp.361-82, 1898; Pascu S. editor. *Istoria Clujului*, Cluj, 1974; Chiriac A. coord. *Oradea, pagini de istorie. Instituția primarului. Evoluție administrativă. Realitate urbanistică și arhitecturală.* Oradea: Editura muzeului Țării Crișurilor, 2003; Fleisz J. *Varos, Kinek Nem Latni Masat. Nagyvarad a Dualizmus Koraban*. Oradea: Charta, pp.35-45, 1997; See also several articles specifically

concerned with urbanistic developments: Morariu T, Pascu S. Evoluția urbanistică a orașului Cluj. *Bul. Stiint. al Acad. RPR*. Secția Geologie, Geografie, Tom 4, nr. 1, Cluj, 1957; Susan I, Susan A. Evoluția territorială a orașului Alba Iulia. *Apulum*, VII/2, pp.437-44, 1969.

[35] Drumuri și orașe. Transporturile rutiere, feroviare și navale în dezvoltarea orașelor, Bistrița, 7-8 Oct. 1994; several contributions at the conference have been published in *Historia Urbana*: Zbîrnea I. Dezvoltarea căilor de transport la Calarași în secolele XIX-XX. *Historia Urbana*, tomul III, nr. 1-2, pp.125-30, 1995; Anghel E. Evoluția rețelei stradale a orașului Arad în raport cu rețeaua de comunicații pe apă și pe uscat. *Historia Urbana*, tomul III, nr. 1-2, pp.155-162, 1995; Gheorghiu TO. Bulevardul gării. Procedee urbanistice aplicate zonei gării în câteva orașe românești. *Historia Urbana*, tomul III, nr. 1-2, pp.163-69, 1995; Anghel E. Influența căilor ferate asupra dezvoltării urbanistice a orașului Arad. *Muzeul Arad. Studii și comunicări*, III, pp.257-264, 1996.

[36] Tănase M. Contribuție la studiul evoluției drumurilor în Transilvania. Continuitate și substituiri în partea meridională. *Historia Urbana*, tomul III, nr. 1-2, pp.79-104, 1995; Tănase M. Railways, Towns and Villages in Transylvania (Romania) - Impact of the Railways on Urban and Rural Morphology. In: Roth R and Polino MN editors. *op. cit.* pp.45-59, 2003.

[37] Cf. Higounet C. Géohistoire. In : L'histoire et ses méthodes. *Encyclopédie de la Pléiade*. Paris, 1961.

[38] Tanase M. *op. cit.* p.80, 1995.

[39] Curinschi Vorona G. *Istoria arhitecturii în Romania*. Bucharest: Ed. Tehnică, 1981; Ionescu G *Arhitectura pe teritoriul Romaniei de-a lungul veacurilor*. Bucharest: Ed. Academiei R.S.R. 1982.

[40] Through the single example of the central station of Iași, remarkable because of its neo-gothic features, inspired by Venetian palaces. Curinschi Vorona G. *op. cit.* p.286, 1981.

[41] The metallic structure covering Bucharest's North Station platforms (1878) and A. Saligney's bridge over the Danube at Cernavoda, the largest cantilever in continental Europe at its time (1895). *Ibid.*, p.297.

[42] Although the royal stations of Bucharest and Sinaia, or the station of Halmeu for instance are certainly high quality modernist buildings of the period.

[43] Excepting the stations of Constanța (1960), Brașov (1962) and Predeal (1969) that display more spectacular concrete structures. Curinschi Vorona Gh. *op. cit.* p.322, 372, 1981.

[44] *Revista monumentelor istorice* carries this title since 1990 and was previously (1974-1989) called *Revista muzeelor și monumentelor*.

[45] The review *Arhitectura* was founded in 1906 by G. Sterian.

[46] Tureanu I. Coord. *op. cit.* 2003.

[47] The authors consider this national style in railway architecture as being defined in the Old Kingdom by the engineer Elie Radu and the architect Petre Antonescu, at the end of the 19th century and beginning of the 20th century.

[48] Vais G. *Clujul eclectic: programe de arhitectură în perioada dualistă: (1867-1918).* UTPress, 2009.

[49] Dinhobl G. Prologue for 'Railway/Culture'. In: Dinhobl G., editor. o*p. cit.* pp.17-21, 2004.

[50] Cotte M. Railways and Culture: An Introduction. In: Dinhobl, G. editor, *op. cit.* pp.43-64, 2004.

[51] Macchi Cassia C. Architecture and territory. Role, legitimacy, and construction of the contemporary project. Opening speech at Politecnico di Milano, Facoltà di Architettura Civile, inauguration of the 2007-

2008 academic year; <http://www.arch2.polimi.it/Eventi/Conferenze/prolusione_eng.pdf> 09.03.2009.

[52] See Purcar C. *op. cit.* 2007.

[53]Anghel E. Influența căilor ferate asupra, dezvoltării urbanistice a orașului Arad. *Muzeul Arad. Studii și comunicări,* III, 1996, pp.257-64.

[54] Lynch K. *The Image of the City*. Joint Center for Urban Studies, MIT & the President and fellows of Harvard College, 1960.

[55] Girot C. Vers une nouvelle nature. In: Adam H. a.o. editors. *Landscape Architecture in Mutation. Essays on Urban Landscape*. Zürich: gta Verlag, pp.19-33, 2005.

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Measuring/Visualizing the Urban Sprawl
An Application of the Space Syntax Methodology on Cluj-Napoca

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Abstract

The urban sprawl is usually looked at in a subjective manner. An area is described as a sprawl area as a status at a specific time, as a result. Looking at the way that urban sprawl is defined we can see that there are certain characteristics that come up in several definitions. Some of them can be quantified and analysed in an objective manner in order to offer a better understanding of the urban sprawl as a process that takes place in time. This work is the result of an investigation that tried to discover if the Space Syntax methodology can be used as a sprawl measurement tool in the Romanian context (looking at the street network of Cluj Napoca). The method analyses the street connectivity and shows the places where human encounter is most probable. The results are compared with the general perception that the inhabitants have regarding different areas of the city. The aim of the study is to validate the method and use it to find opportunities to improve the "street factor" of the problematic areas.

Rezumat

Sprawl-ul este in general analizat intr-o maniera subiectiva. O zona e descrisa ca fiind „sprawl"ca statut pe care il are la un anumit moment in timp, ca un rezultat. Daca ne uitam la felul in care sprawl-ul urban este definit, vedem ca exista anumite aspecte care reapar in mai multe definitii. Unele dintre ele pot fi cuantificate si analizate intr-o maniera obiectiva pentru a oferi o mai buna intelegere a sprawl-ului ca proces care are loc in timp. Acest material este rezultatul unei investigatii care a incercat sa descopere daca metoda Space Syntax poate fi utilizata ca unealta de masura in contextul romanesc (studiind reteaua stradala a municipiului Cluj Napoca). Acesta metoda analizeaza conectivitatea retelei stradale si evidentiaza locurile unde contactele umane sunt cele mai probabile. Rezultatele sunt comparate cu perceptia generala pe care locuitorii o au asupra diferitelor parti ale orasului. Scopul acestui studiu este de a valida metoda si de a o folosi pentru a imbunatatii „factorul de strada" al zonelor problematice".

Keywords: urban sprawl, measurement, street, connectivity, Space Syntax, Cluj Napoca,

1. Definitions

Different authors came up with their definitions of sprawl. For Ewing, sprawl is a relatively wasteful method of urbanization. He identifies several indicators: uniform low densities, the presence of often uncoordinated extensions along the fringes of metropolitan areas, the invasion of

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prime agricultural and resource land, the development in a fragmented fashion, with much of the intervening space left vacant or in uses with little functionality. [1]

Preiser defines sprawl as "the gluttonous use of land, uninterrupted monotonous development, leapfrog discontinuous development and inefficient use of land. [2]. Squires defines it as a pattern of urban and metropolitan growth that reflects low density, automobile dependent, exclusionary development on the fringe of settled areas often surrounding a deteriorating city [3] while Galster as "a pattern of land use in an urbanized area that exhibits low levels of some combination of eight distinct dimensions: density, continuity, concentration, clustering, centrality, nuclearity, mixed uses and proximity" [4].

The definitions of sprawl become more and more specific as they relate with different indicators of the phenomena. They start to show the complexity and bring into the discussion different kinds of sprawl.

One very important thing that should be kept in mind is that there are some particularities that characterize sprawl in the Romanian context. One example would be the density: most definitions say that sprawl is characterized by low density. Figure 1 shows a newly developed area in Floresti, a village that became a housing satellite for Cluj Napoca. The average density is indeed low, but if we take into account only the plots that are already built we find very high density factors that are relevant if we assume it is possible that the whole area would be built in the future. For realistic measurements any analysis on sprawl should be adapted to the local context and verified as a valid tool.

Figure 1. Recently developed area of Floresti – 2012

2. Measuring the Urban Sprawl

Looking at several definitions like the ones above we notice that urban sprawl is related certain to quantifiable notions like:

- density
- mix of uses
- centrality and radius (lack of centrality = sprawl)
- fragmentation of administration
- expansion vs. population growth
- street connectivity

One specific question was raised in the '60s by Harvey and Clark who were saying that "the

sprawl of the 1950s is frequently the greatly admitted compact urban area of the early 1960's. An important question on sprawl maybe, «How long is required for compaction?» as opposed to whether or not compaction occurs at all…"[5]. Through this question they are introducing the concept of time span in the discourse regarding urban sprawl (see Fig. 2 and Fig. 3)

As the sprawl areas are continuously changing, the urban sprawl should be regarded as a process. It would be misleading to use static measures to understand a changing process, because in many cases we may misidentify as sprawl a "viable, expanding, compacting portion of the city" [6]

Figure 2. Campului Str., Cluj Napoca – 2003

Figure 3. Campului Str., Cluj Napoca – 2012

There are several attempts of operationalizing the urban sprawl in order to have a better understanding of it. Ewing, Pendal and Chen [7] are proposing to use an "overall sprawl index". Their index is based on four factors: density factor, mix factor, centres factor and streets factor, each of them based on several variables.

The most encountered problem in all the studies already done on this matter is the availability of specific data for all the criteria used in the analysis and for all the analysed areas. This means that in order to have a relevant comparison we need to find measurement tools that are easy to apply and that are not based on information with a high level of specificity.

3. Street Connectivity and the Space Syntax method

The "street connectivity" comes up in several of the definitions of urban sprawl. In the "overall sprawl index" mentioned above, the street factor is determined using as input date the block sizes because the authors say that "there is no practical way, from national data sources, to quantify the degree of connectedness or curvature in metropolitan street networks"[8]. A longer street or a street that is connecting several other streets should have a higher street factor since they bring together more people. Also a straight street that offers long views and is easy to recognize should have better ranking. The "space syntax" method is trying to fill this gap by representing the degree of integration in a system using the concepts of intelligibility and navigability [9], as shown in Figure 4.

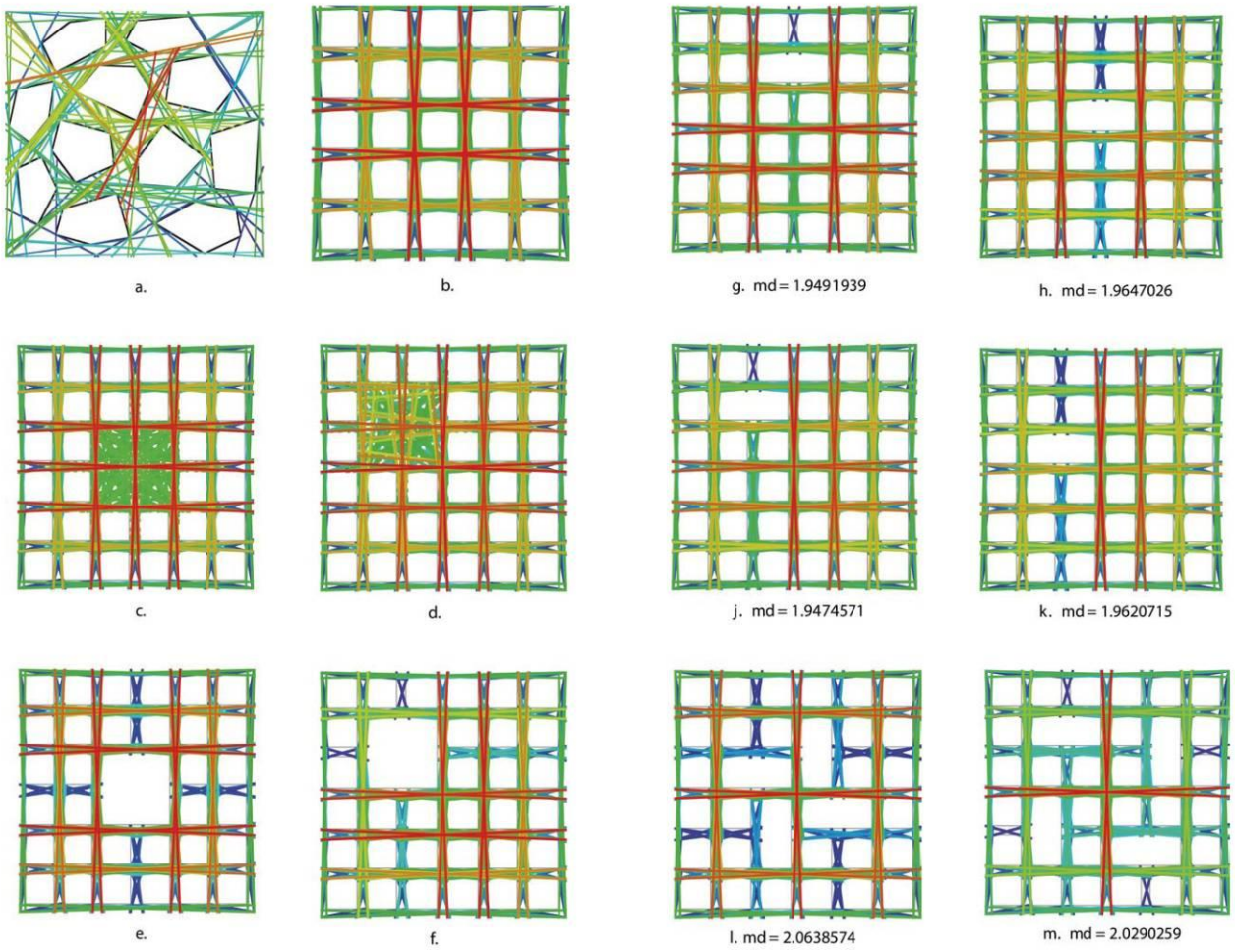

Figure 4. Figure from "Space is the machine" [10]

The highlighted areas in the system show "flows, regions or spaces of high encounter, and hence the potential for greater social interaction" [11].

There are three kinds of space syntax modeling: node analysis (the model used is a "connectivity graph" with nodes and lines), axial lines analysis (the model is an axial line) and visual fields analysis (based on "isovists").

This study choses to explore the relevance of the axial line analysis in understanding urban sprawl, by applying it to Cluj Napoca – Romania.

Figure 5. The Axial Map of Cluj Napoca - Romania

The method is based on an "axial map" as a mean of representation of the city. The streets are represented as linear elements. Transforming the actual plan of the city in an axial map is subject to several interpretations, this is why, before starting to work, one should have a good understanding of the area. Figure 5 is showing the axial map of Cluj Napoca. The limits chosen for the map are the limits of the administrative territory of the Cluj Napoca Municipality. The software used for the analysis was Depthmap and the method chosen was "Integration HH" with radius 4 as a parameter.

The result is the map visible in Figure 6. The analysis offers two kinds of interpretations: one is that compared to what is already known about the city we can validate it or not as a method and the other is to look at the new sprawl areas and their relation with the "old" city.

On the analysis, the cores of the "old" neighborhoods (the ones that are characterized by a certain degree of centrality and that can be identified on the mental map of the inhabitants: Manastur, Grigorescu, Centre, Andrei Muresanu etc.) appear warmer. The physical (geographical or infrastructural) barriers can be read: the Somes River, the railway and the steep hills. The general E-W orientation of the city is also obvious as the main axis follows this direction. All this observations are leading to the conclusion that the axial analysis can be used as a valid tool in the given context.

The recent developed areas, the ones that can be defined as sprawl, appear "colder" on the map. The areas developed in the past ten years are characterized by the lack of continuity of street connections. The majority of these streets evolved in a fishbone-like structure (a street with several "local", dead-end streets starting from it) that on this plan are shown as the "coldest".

While the relative older parts of the city are, as it is mentioned above, following the geography of the terrain, the boundaries etc., the new extensions are sprawling with no consideration for the existing. In the new areas, the street structure is the result of the transformation of agricultural plots and paths, initially intended for another use, into urban tissue. The transformation is done ignoring slopes, surroundings and without any attempt of heading

towards a coherence of the public space, even though the change of use should also imply some structural changes. The process is known to be leading to streets that are difficult to use, parcels with difficult accessibility and difficult to build on etc..

Figure 6. The Axial Analysis of Cluj Napoca - Romania

One interesting conclusion though is that, in some cases, the existing urban structure "irrigated" and imposed itself on the new developments in the vicinity. In figure 7 is shown how two areas, at the moment considered to be sprawling, are somehow well linked because they developed on “main roads” that continue existing streets with a degree of importance in the city.

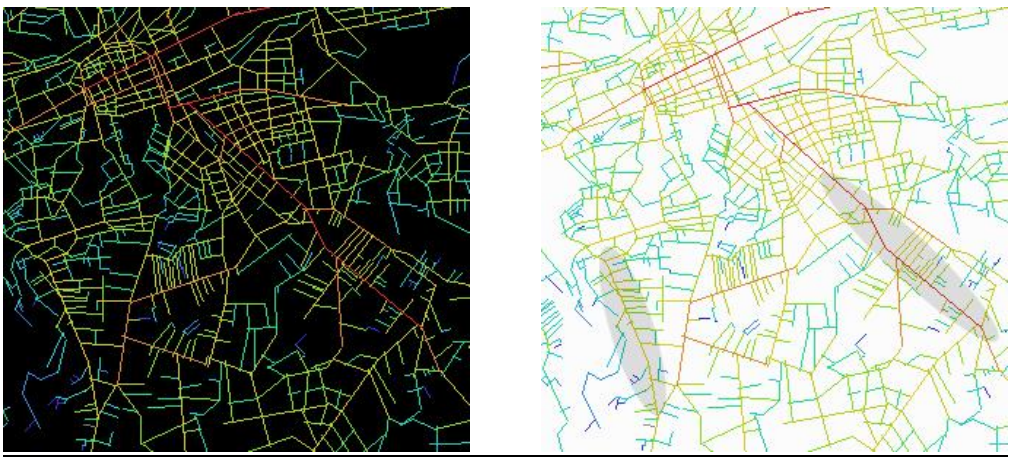

Figure 7. The Eugen Ionescu Str. and Constantin Brancusi Str.

4. Conclusions

There are two main advantages in using this method of analysis:

- the quantity of input data necessary to be able to operate is relatively low and easy to obtain compared to other methods of measuring and visualizing sprawl (relative density, uses etc.)
- the tool is characterised by adaptability and it operates exactly in the logic of a process - the plan can be adjusted easily and the axial analysis can show the evolution and the way the system adapts.

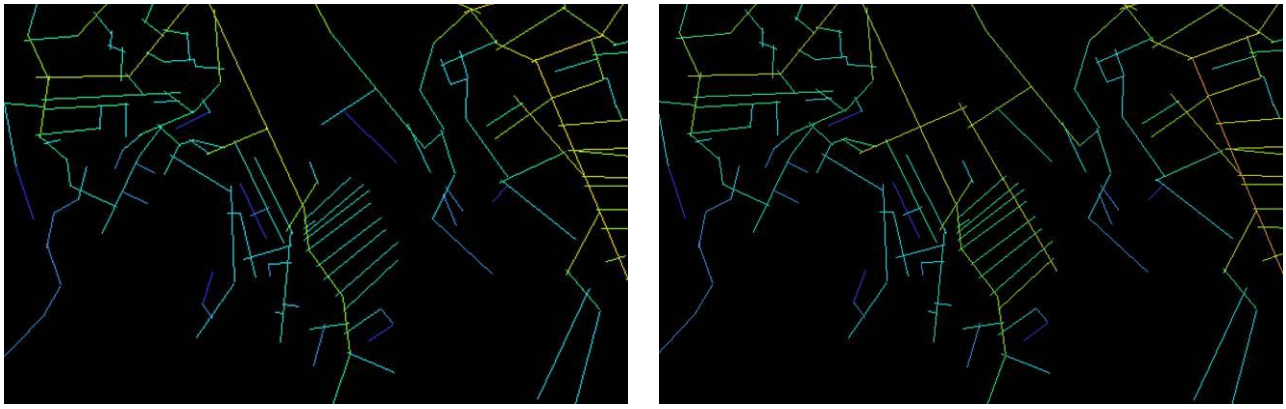

Figure 8. Axial Analysis Campului Str. - Romania

In Figure 8 the image on the left shows the existing situation on Campului Str. while the image on the right shows how the system may develop in case a new street is added. The relevance in researching sprawl is that by repeatedly using this analysis we could make a connection between street connectivity and sprawl compaction (aspect that I'll be interested in my further work).

For this research, one other direction of work from this stage on is to try to find other methods of measuring and visualizing urban sprawl that can be combined as layers with the axial analysis in order to have more precise understanding of the phenomena and to allow other comparisons and interpretations.

5. References

[1] Ewing R. Is Los Angeles-style sprawl desirable?, *Journal of the American Planning Association* 63, (1); pp. 107-126, 1997.

[2] Peiser R. Decomposing Urban Sprawl, *Town Planning Review*, 76 (3); pp. 275-298, 2001.

[3] Squires Gregory D. *Urban Sprawl: Causes, Consequences & Policy Responses*, Washington: The Urban Institute Press; 2002.

[4] Galster G., Hanson R., Ratcliffe M. R., Wolman H., Coleman S., Freihage J. Wrestling Sprawl to the ground: defining and measuring an elusive concept, *Housing Policy Debate* 12 [4]; pp. 681-717, 2001.

[5] Harvey R. O., Clark W. A. V. 'The nature and economics of sprawl'. *Land Economics* 61(1); pp. 1-9, 1965.

[6] Ibid.

[7] Ewing R., Pendall R., Chen D., *Measuring Sprawl and Its Impact*, Volume 1, Smart Growth America

2002.

[8] Ibid.; pp. 24

[9] Hillier B, *Space is the machine*, London: Space Syntax, 2007

[10] Ibid.; pp. 163

[11] Dalton R. C., *Configuration and Neighbourhood: Is Place Measurable?*, Space Syntax and Spatial Cognition, Bremen: Universität Bremen; pp. 53, 2007

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The Forgotten Place – Feroviarilor Park, Cluj-Napoca

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Abstract

Feroviarilor Park was once very popular among Cluj's citizens, but, through the years, it began to deteriorate due to lack of maintenance and, eventually, people forgot about it.
Feroviarilor Park (in English, Railroader's Park) is the second largest park of Cluj-Napoca. The park is adjacent to Abator Square (in English, Slaughterhouse Square, as it is the place where the city's slaughterhouse once stood). As well as Central Park, it is located on the Somes River bank. The Park's position within the city makes it rather easy to reach as it is relatively close to most of the important landmarks.
In an attempt to rediscover the potential of this area, the site of the present day Feroviarilor Park and Abator Square was studied as a school project. The theme proposed a Financial Center that would attract the public, as well as bring the Park to its former glory. One of those projects is the focus of this article. The aim was to revive the area and create a new place of interest within the city that could complete the chain of Cluj's most important public spaces. The Park's old functions are revived and complemented by a cultural building.
A new square is formed, it allows people to enjoy the Someş River, and also connect visually with some of the other city landmarks. The buildings that surround the square conceal interior courtyards that connect to each other and the square as well. These, together with the public functions that spread through the entire ground floor, create a friendly environment that's always alive.

Rezumat

Parcul Feroviarilor a fost cândva foarte îndrăgit de către Clujeni. De-a lungul anilor, însă, datorită lipsei de întreţinere, acesta a început să se deterioreze, iar în cele din urmă, oamenii au uitat de el. Parcul Feroviarilor este al doilea ca mărime din Cluj şi se învecinează cu Piaţa Abator – numită astfel, deoarece este situată pe locul fostului abator. La fel ca şi Parcul Central, parcul este localizat pe malul Someşului. Proximitatea faţă de majoritatea punctelor de interes ale oraşului îl face uşor de găsit şi accesibil.
În încercarea de a redescoperi potenţialul acestei zone, locaţia Parcul Feroviarilor – Piaţa Abator a fost studiată în cadrul unui proiect de şcoală. Tema propunea un Centru Financiar menit atât să atragă publicul, cât şi să readucă parcul la gloria de altă dată. Articolul se concentrează asupra unuia dintre acele proiecte. Scopul era de a revigora zona şi de a crea un nou punct de interes în oraş, unul care să întregească şirul spaţiilor publice importante ale Clujului. Vechile funcţiuni ale parcului sunt puse din nou în valoare şi sunt completate de o clădire cu funcţiune culturală.
Se formează o nouă piaţă ce încurajează relaţia cu Someşul şi în acelaşi timp permite o relaţionare vizuală cu unele din restul reperelor oraşului. Clădirile ce bordează piaţa ascund curţi interioare interconectate ce comunică şi cu spaţiul pieţei. Acestea, împreună cu funcţiunile publice ce ocupă întregul nivel al parterului, crează un mediu prietenos care trăieşte în permanenţă.

Keywords: public space, urban design, green space, financial center, cultural events, dynamic, interior courtyards, interconnected spaces, Feroviarilor Park, Abator Square.

1. Introduction – the project theme

"The city is a complex set of interactions where contradictory logics confront: it is the result of ambitions, needs, struggles and desires of the social classes that live here."[1]. This project reflects the ambition to give back to the citizens an important part of the city, an area that has long been forgotten but still offers tremendous possibility towards renewal.
The main goal of the project was to revive the Abator Square-Feroviarilor Park area and create a new interest point within the city. The theme required the insertion of new buildings with mixed functions that, together with the park's green space, could attract more people. The solutions had to identify and/or propose new trails that allow this site to connect to the rest of the city. It was mandatory to include administration buildings (headquarters for the County Council and for the Neighborhood Branch of City Hall), office buildings, housing, a building for cultural events and businesses of all kinds (restaurants, coffee shops, stores of all types). One of the main features of the site is the Someş River, so the proposition had to consider inserting the new buildings in a way that would affect the River in a positive way, allowing it to be part of the new ensemble.
The project theme, as well as the following project, are hypothetical and represent an exercise, a study developed in order to illustrate the potential that lies in one of the city's spaces.

2. Site analyses

The first step in finding the right way to intervene in such a large area was to conduct proper analyses in order to identify the basic characteristics of the site.
The position of this area within the city and the relation to other landmarks is illustrated in the following figure (Fig. 1).

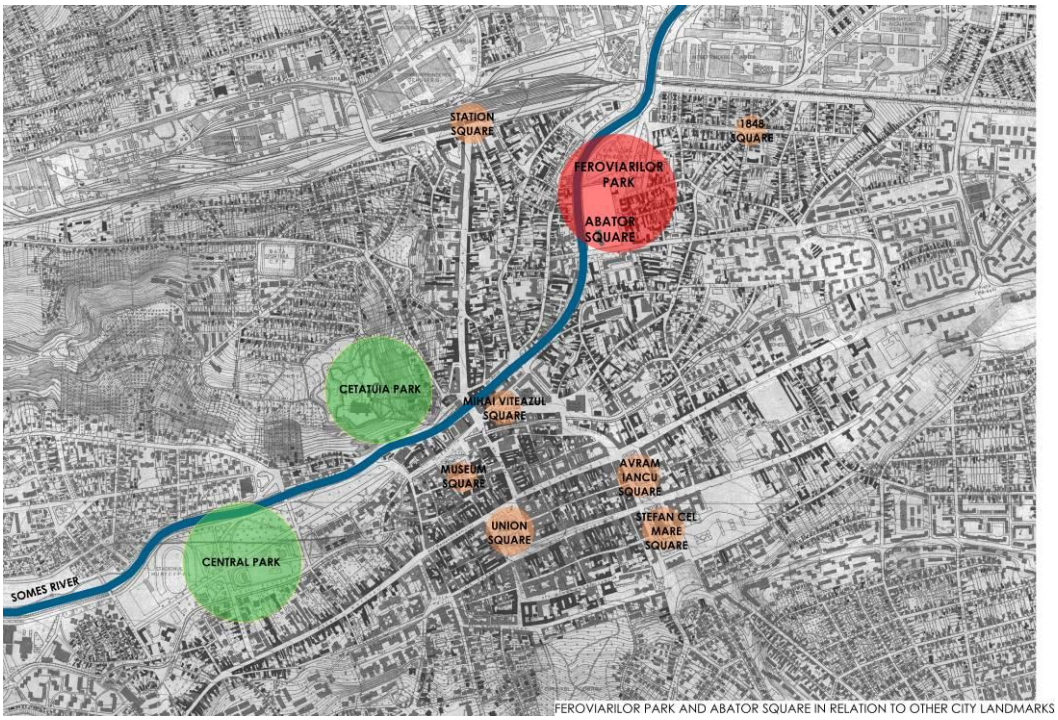

Figure 1. Position within the city.

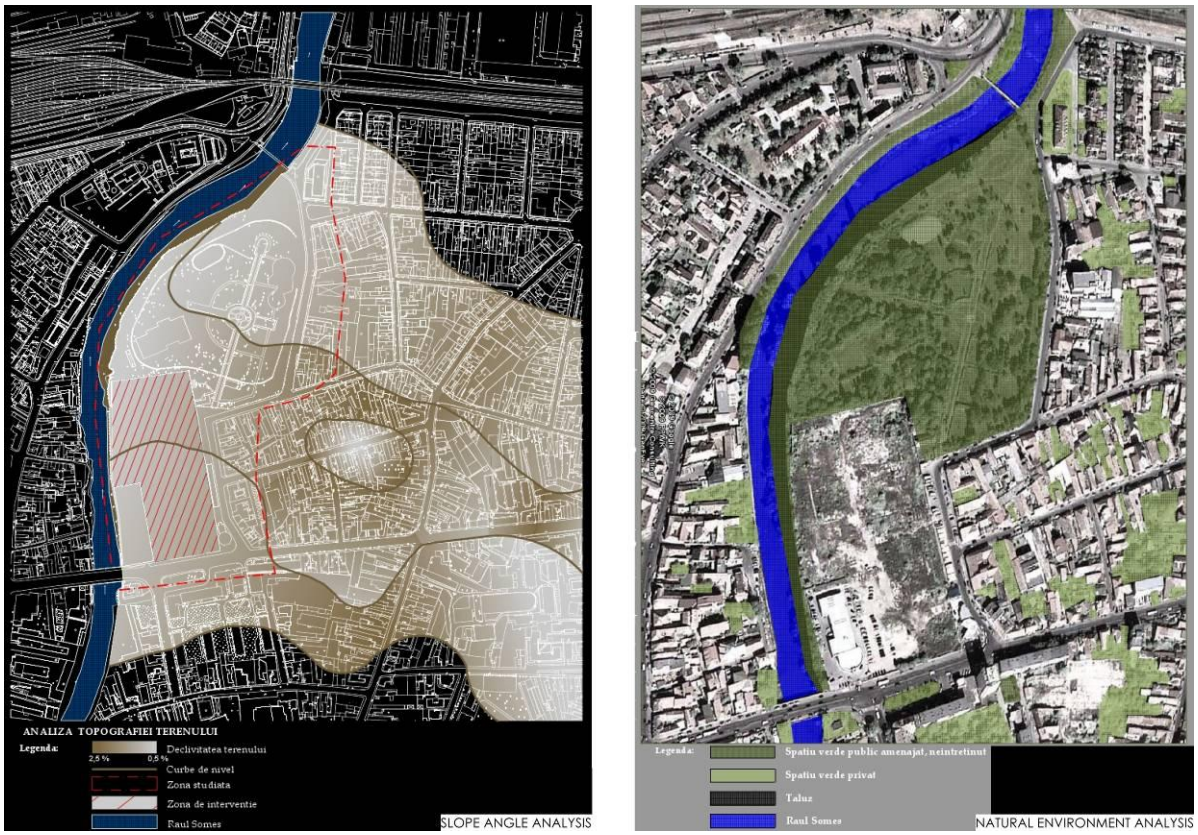

Figure 2. Slope angle and natural environment analyses.

Figure 3. Height regimen, building, functional, paths, nodes and landmarks analyses

The main link to the rest of the city is Bucharest Street. After studying the existing situation, we concluded that the site is relatively flat, with no special occurrences of the terrain's geometry and that the Someş River is one of the site's special features, a natural element that creates new possibilities for improvement. Also, as mentioned earlier, the Parks entire plot consists of unattended green spaces. (Fig. 2)
After observing the buildings, we concluded that the highest ones occur in the southern front of Bucharest Street. The dominant function in the area is housing, but there are also some commercial functions (different types of stores) near Bucharest Street or the alleys connected to it.
The Park itself is a city landmark, and from here, one can see some of the other city landmarks like Saint Michael's Church and Cetăţuia Park (Fig. 3).

3. Concept

The main purpose was to create a new identity for the area, one that respects the past but also welcomes the future. This could be achieved by emphasizing the site's most important features - the Someş River and Feroviarilor Park itself – while at the same time finding a compatible approach to integrate the new built environment.
The intention was to make sense of the potential that was already there and not overwhelm the plot with an enormous block of new buildings. That is why, after establishing the areas where buildings could be inserted, we proceeded by "cutting out" what was unnecessary, thus forming new, interconnected public spaces "hidden" within the buildings that also communicate with the rest of the area's public spaces.
Another important feature that needed attention was the fact that this place could connect visually to the rest of the city by offering views towards other landmarks. This was the premise that gave way to the idea of creating a new square. It would encourage opening up towards the city and the river and at the same time reinterpreting the idea of a market (this is the place where a cattle market once stood).
As Alain de Botton says, "far from being luxury or indulgence, spending time in beautiful spaces is considered to be part of the effort to become an honorable person"[1].
These new interventions are intended to help transform the area into an inviting part of the city that "lives" constantly through the presence of its users.

4. The project

The entire length of the river bank has been developed and allows people to spend time close to the water. The Someş River is now part of the area in every way. A walkway follows the River's path and connects the new square to the Park. The square is the largest of the newly created paved spaces, it is triangular in shape, opening one of its sides towards the Someş River. It is the place where all kinds of events can take place, it is different from the rest of the city's similar spaces because of River's presence. (Fig. 4)
The new buildings create a sort of "public space texture" that wraps itself around the newly formed square. These new public spaces help define the building volumes by putting pedestrian needs for walkways and open spaces first. All of them work together to define the architecture because "architecture is not made of volume alone"[2] (Fig. 4, Fig. 5). The buildings that form the "texture" are 4-5 floors high. The towers are 16 floors high and are part of the textured building that acts like a basis that holds everything together. The four towers face the Someş River creating a rhythm, two of them mark the square's opening towards the River.
Functionally, the towers contain office spaces on the lower floors and housing on the top floors while the "textured" are meant for different types of public functions like stores, restaurants, coffee shops and so on (Fig. 6).

Figure 4. Proposition – site plan and perspective views

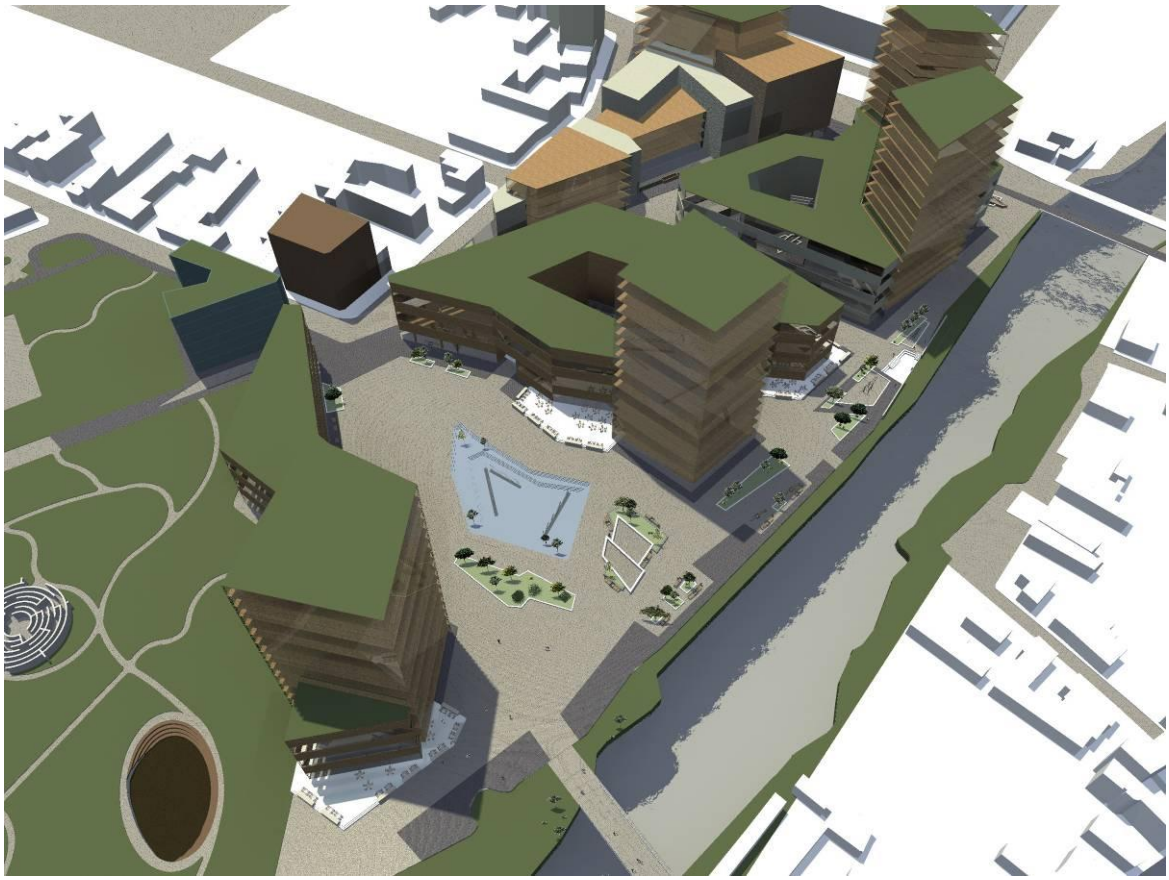

Figure 5. Aerial perspective view towards the square

Figure 6. Site plan detail – the square area

The building that houses the headquarters for Neighborhood Branch of City Hall and the County Council faces Bucharest Street so that it can be easily found and accessed by citizens.

The surface of the Park has only been modified in order to accommodate a new cultural building that's located inside the Park, at the end of its main alley. The insertion of this cultural building is meant to bring more people in the area. It was positioned in the park precisely in that place because it acts as a perspective end from both the main alley of the Park, as well as from Barbu Patriciu Street that links the site to 1848 Square. The Park's main entrance is marked by two buildings that form a visual "gate" letting people know they are about to leave the buildings behind and enter green space. The rest of the Park's surface has received all sorts of new facilities like sports fields, a small area for open air cultural events, a playground for children and other small functions that offer visitors something interesting as they pass through. The overall volumetric approach is dynamic, playful, successfully working together with the public spaces in order to achieve an appropriate

setting for all types of activities and people of all ages.
Two new small bridges have been placed in order to ensure more access points in the area. The necessary parking spaces are located underground, beneath the "textured" building.
The project proposes that some of the areas from the eastern part of the site should be developed in a subsequent phase. This intervention would be necessary because of the junction between the new mixed functions and the residential areas.

5. Conclusions

Rediscovering one of the cities most valuable remaining green areas was an interesting and challenging experience. Although the project is hypothetical and may not ever have the opportunity to materialize into something real, it offered the possibility to find out more about a small, but important piece of the city. Jan Gehl says that "encouraging people to express themselves, to play and enjoy sports within the urban space represents an important subject connected to the creation of cities that are healthy and alive"[3]. This thought reflects fairly well the purpose of this project, it was a good exercise in creating not only buildings, but spaces that people can use and enjoy. It was a lesson in respecting the natural environment and the average pedestrian.

Acknowledgements
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6. References

[1] Agachi, M. I. M., *Modern Cluj – urban planning aspects*, Ed. U.T. Press, Cluj-Napoca, 2009.

[2] De Botton, A., *The Architecture of happiness*. Ed. Vellant, Bucharest, 2009, page 118.

[3] Aymonino A., Mosco V. P. *Contemporary public space – un-volumetric architecture*. Ed. Skira, Milan, 2006, page 60.

[4] Gehl, J., *Cities for people*. Ed. Igloo Media, Bucharest, 2012, page 158.

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Labour migration-Vernacular/Traditional-Limits and buffer zone (the specific case of Maramureş county)

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Abstract

Major phenomenon facing contemporary era is the process of globalization at the world scale. The causes which have determined are the rise of the internet; the digital age which has revolutionized science; transport development; the end of cold war; trade liberalization. Direct consequence of globalization is the free movement of citizens by opening the borders between countries and uncontrollable labor migration at the economically developed areas. Thus arose some intense socio-cultural exchanges between different ethnic groups, religions and distinctive social areas. In the light of this background the present article is studying mutations upon vernacular/traditional romanian architecture who suffers important changes in technical field and artistic conceptual approach. Than we restrict the reference to a case considered specific by the authors namely the Maramures County in north-western of Romania. Study progress on two major axes of reference – the worship buildings (public sector) versus housing architecture (private sector) – and it alternates comparative methods of insight to sketch the final conclusions. Preliminary presentation was held during session 2' of International Workshop "Questions?" proceedings organized in 4-7 July 2012 by the Faculty of Architecture and Urban planning, Technical University of Cluj-Napoca, Romania.

Rezumat

Fenomenul major care astăzi confruntă contemporaneitatea este procesul globalizării mondiale. Cauzele ce l-au determinat sunt internetul, era digitală ce a revoluţionat ştiinţele, dezvoltarea transporturilor, sfârşitul războiului rece, liberalizarea comerţului. Consecinţă directă a globalizării este libertatea de mişcare a cetăţenilor prin deschiderea graniţelor între state şi incontrolabile migraţii ale forţei de munca spre zone dezvoltate economic. Implicit au apărut schimburi socio-culturale intense între etnii, religii si grupuri sociale distincte. Prin prisma acestui context articolul studiază mutaţiile arhitecturii vernaculare/traditionale româneşti care suferă modificări importante în registrul tehnic si în demersul cultural artistic de concepţie. Vom restrânge aria de referinţa spre un caz considerat specific de către autori şi anume ţinutul Maramureşului. Studiul evolueaza pe doua axe majore de referinţa - clădirile de cult (public) si arhitectura locuinţei (privat)- alternând metode comparative de introspecţie pentru a creiona conluziile finale. Prezentarea preliminară a avut loc in cadrul sesiunii 2' a Conferinţei Internaţionale „Questions?" organizata in 4-7 iulie 2012 de Facultatea de Arhitectură si Urbanism, Universitatea Tehnica din Cluj-Napoca, România

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Keywords: architecture, globalization, labor migration, craftsman carpenter migration, vernacular architecture, traditional (folk) architecture, comparative analysis, public and private sector, housing.

1. Introductions. Contextual approach. The problem in focus.

Globalization is the process of international integration required due to the increasing connectivity and interdependence of the worlds markets, socials and businesses. Globalization can thus be defined as the intensification of worldwide social relations which link distant localities in such a way that local happenings are shaped by events occurring many miles and vice-versa [1]. At the cultural level globalization is a phenomenon by which the experience of everyday life, as influenced by the diffusion of commodities and ideas, reflects a standardization of cultural expressions around the world. Propelled by the efficiency or appeal of wireless communications, electronic commerce, popular culture, and international travel, globalization has been seen as a trend toward homogeneity that will eventually make human experience everywhere essentially the same. This appears, however, to be an overstatement of the phenomenon. Although homogenizing influences do indeed exist, they are far from creating anything akin to a single world culture [2] [2].
Previous research on globalization reports that it is not an omnipotent, unidirectional force leveling everything in its path. Because a total global culture has not demonstrated the existence, any search for it would be unproductive. It is more appropriate to instead focus on particular aspects of life that are indeed affected by the global phenomenon. Today is faster globalization era caused by the internet; science developments through computational innovation, free trade market, affordable high speed transportation. Everything happens to fast so people cannot assimilate it correctly (or they lack training). Generated problems are multiple because implies major transformations: rise of consumer society induce resources depletion and pollution so people migrate to areas economically more attractive where they are facing intense social-cultural exchanges. High speed connectivity contributes to alienation of individuals from their traditions and supporting this statement a fine example must be written: globalization is spreading pop culture particularly via the internet and satellite television thus practices including traditional (folk) cultures can be lost and/or turned into a fusion of traditions. Globalization can trigger a state of emergency for the preservation of cultural heritage.The question in focus is: why architecture? As a cultural phenomenon, architecture most closely examines the artistic dimension of human social needs of the individual and collectivity. Being determined by the creativity architecture is best able to propose solutions for countervailing the announced danger. Architectural developments in folk cultures areas need comparative analysis to establish influences upon tradition and sources of becoming tradition. *Influences upon traditions* induce an evolutionary factor concerning labor migration (past/present), contacts with other cultures styles, regimes changes, legal system change, new constructive methods appeared. *The sources of becoming tradition* involve a genetic factor regarding the vernacular[3]/traditional[4] elements existing in a folk region [3].
These are the two pillars of interference in our study regarding insights on Maramureş county architecture. Genetic and evolutionary response factors, influences and sources of tradition cannot be studied separately because they stood in a permanent interdependence. For a better understanding of the case studied we alternate between past and present briefly to outline clarity of the idea.

2. Basic notions. Labor migration. Vernacular architecture. Traditional architecture. Limits and buffer zone

Labor migration usually defined an migrant worker as a person who is to be engaged, is engaged or has been engaged in remunerated activity in a region (internal[5]) or a state (external[6]) of which he or she is not a native and. The process happens from economic reasons and involves two types of people: temporary labor migrants[7] (TLS) and highly skilled business migrants[8] (HSBM)

Like transnational migration, national (internal) migration plays an important role in poverty reduction and economic development. For some countries, internal migrants outnumber those who migrate internationally. There are four spatial patterns of internal migration [4] which in extension of types I, II and III could be transfer to both internal and external migration kinds:

I. Rural-rural migration: in many poor countries, rural-rural migration occurs when laborers from poorer regions travel to agriculturally-rich and irrigated areas which have more working fields or workers with specific skills exchanging and spreading their knowledge (TLS), (HSBM)
II. Rural-urban migration: migration of poor agricultural workers move to larger cities and manufacturing centers. Generally (TLS) kind and less (HSBM)
III. Urban-rural migration: migration that occurs when individuals retire back to their villages. Oftentimes, migrants who return bring back skill sets that benefit their home areas tremendously (HSBM), (TLS). In some cases they return home because they could not adapt, have reached a saturation level regarding skill development or simply get old for the labor market needs.
IV. Urban-urban migration: as the predominant form of internal migration, this movement takes place from the center of towns to the outer areas of the town. This kind does not concern the paper subject and more investigation is necessary.

Vernacular architecture is the term used to refer to constructions carried out by persons whose principal activity is not necessarily in the building area. The process is based on empirical knowledge of materials gained over time through trial and repeated failures, is influenced by climate, culture (the way of life of building occupants, the way they use their shelters), environment and local materials. This knowledge is sent from generation to another through oral transmission. The term vernacular architecture can be assigned different facets depending on trends in the country in which it is used, reason or cause for which this term contains a small dose of ambiguity.

Why not vernacular architecture is called the simplest traditional architecture? The explanation is because ***traditional folk architecture*** means craft-constructions performed by specialized people who will not use the future building. These craftsmen have taken orally knowledge of their ancestors usually through their families. In time, the materialization of their knowledge has led to a specific architecture in areas where they belong, the phenomenon we call folk-tradition today. *"Vernacular architecture" can become "traditional architecture" by the persistence of its authentic forms and concepts*.

The link between all these enumerated notions above is our contemporary global life that faces them together. How, then, can the notion of the authenticity of the place be reconciled within this framework of transformative states of identity and multiple sources of local and global influences? The challenge before this moment is to visualize regional expression as a dynamic cultural process. Recognizing that regional settings are linked to a cultural process it strikes at the heart of much of vernacular architecture studies today, just as the desire to preserve distinctive ways of life is part of the emerging cultural conservation movement. Vernacular buildings and settings are regionally distinctive, regionally representative and regionally understood. How, why, and by what means such spaces, forms and features occur is determined by a particularized set of local as well as by the external influences? **9** [5]

3. How labor migrations change the traditional folk architecture in Romania?

In ***history before XIX*** century the population was more static. In rural areas of concern farming was the poor lifestyle with difficult and expensive transportation trough regions and countries. Challenge in architecture was made by itinerants 'craftsman. They migrated seeking or giving knowledge improvement, get in touch with other socio-cultural influences and every time the challenge was required by political demands and/or by the noble families who lead the region. Foreign influences upon tradition and cultural indigene genetic sources were mixed mostly in public architecture which was usually churches. Domestic architecture remained vernacular but in the

beginning of XIX century (increasing craftsmen number) houses borrowed artistic elements from churches around the area, in the absence of other models.

To demonstrate the innovative capacity and synthesis of process remembered we first chose a religious wooden itinerary that starts in Scandinavia and descends the Carpathian mountain chain to reach in the area of Maramureş County situated in the north-west side of Romania. The course-way is supported by the predominant feature of the area namely a mountainous region rich in forests which made possible the apparition of a wooden civilization over time. The reasons for choosing this itinerary are both archetypal similarities that make the distinction with other wooden buildings in Europe dated the same periods and the mix between the pre-existing elements and imported ones.

As the church applies to different nations, as well church architecture assimilates distinctive ethnic features, which reveal in sacred architecture regardless of style. Bright national peculiarities take place inside each denominational tradition: as in eastern orthodox as well in roman catholic.

In the related figures between fig.1 to fig.9 we can observe common archetypes that could be traced in those religious buildings such as the massive tower in the western side erected from the roof which is an raised roof than it will rename a double eaves roof (when the interior pillars are missing), the beginning basic shape raised from a single nave positioned directly on the earth ground and completely timber structures and wooden facades, shingles, finishes.

But there are noticeable differences at the structural, formal and stylistic level that completes the authenticity arose by social, historical and cultural distinctiveness. The oldest timber churches in existence today date from the 12th century (fig.2)[10]. About thirty have survived in Scandinavia where because of the specific structural solution in which the central section is raised on four high pole-masts, they are generally referred to as "stavkirken" (fig.1), (fig.2). The wall structure continued to be a *post frame structure*[11], but the lower section of the wall posts was set in timber sill beams, which protected them against decay – finally a *vertical timber frame* structure**.**

fig.1 Lom; Norway

fig.2 Urnes; Norway

fig.3 Haczów; Poland

fig.4 Sękowa; Poland

fig.5 Ulicske Krive; Slovakia

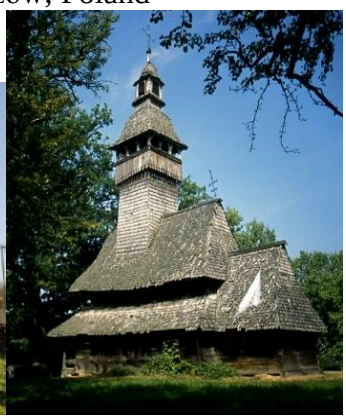

fig.6 Kolodne; Ukraine



fig.7 Nyzhnia Apsha; Ukraine fig.8 Ieud; Maramureş fig.9 Şurdeşti; Maramureş

The two basic structural systems for late middle age wooden churches were[12] the *timber frame system*—a spandrel beam system ("fachwerk" in German) - that was primarily characteristic for northern Europe, and *log construction* (fig.3 up to fig.9), also known as notched beam structures ("blockbau" in German), that may be universally, though not exclusively, found in the remaining European regions starting with the VIIIth century.
Log beam constructions were used for defensive and *public buildings* because of their durability (despite the huge quantities of material that were demanded) in a *flush joints technique*, whilst more economic timber frames, which also represented a sophisticated building technique, were used for shelters and houses. It is quite typical that *log constructions* were widespread in those regions where forests abounded, whereas in the regions that were less rich in wood, the framework system was much more common. Technological and typological topography is also quite adequate, which means that log timber buildings was commonly used in early medieval north-eastern Europe on mountainous routes, whereas framed timberwork was spread in north-western european territories. In *domestic architecture* where the log beams could be seen we recognize the *projecting simple joints technique* (usually this happened up to XIXth century when increasing number of carpenters the flush joints were spreading in wealthy families shelters) – see (fig.11) up to (fig.14)

However, these factors were not enough for the creation of the solid culture: the carpathian wooden log construction did not represent an independent carpathian style. Wooden churches were constructed at the same time as the stone ones. *A genesis of form and spatial layout is however still unclear and remains a matter of dispute*. Renowned art historians held that wooden churches might be considered as a heritage of the past that is itself older that the Gothic one, as well as a classical example of people's conservativeness. In connection with the more up-to-date research there is no doubt that wooden churches, regarding their form, functional and spatial layouts, were a projection of the structures constructed of masonry. However, they were built by local carpenters to satisfy the needs of the local community and were based on the available building materials. Everything that in the course of the centuries has influenced the shape and character of those wooden churches had its beginnings in principles which *were born in western cultural stereotypes but was generally influenced by the necessities of liturgy*: protestant (fig.1), (fig2), roman-catholic (fig.3), (fig.4),byzantine greek-orthodox (fig.7) and byzantine greek-catholic the rest remained up to figure 9. Timber eastern orthodox and greek–catholic churches are spread throughout vast areas of eastern Europe in the southern and eastern Carpathian Mountains all the way to the White Sea in the north. The oldest preserved historical monuments of such architecture date from the XVIth century and are few in number. Guidebooks and studies often state the date of the founding of the church, which generally has little in common with the date of the construction of the existing building - usually a successive one on the site. Many of those were moved from the original location because of fermented history events during last centuries; the chosen churches in photos are located in regions

near borders of their belonging countries where the history and religion tensions in the past years were much more sensitive. It is for this reason that it is important to approach the pedigrees of Polish, Romanian, Slovak, and Ukrainian Orthodox churches as noted in middle age literature with great care, especially as the traditionalism of technology and the occurrence in these monuments of detail bearing late gothic qualities up to the end of the 18th century greatly impedes formal analysis. Moreover dendrochronological studies also rarely provide definitive dates of construction due to frequent replacement of individual members during multiple renovation work as well as the reuse of beams from older buildings. [6] – P67; P10-11.

In this studied itinerary presented, it might be said that the unique character of that kind of building results from a symbiosis (specific for each one church) of traditional materials, traditional cultural rituals and carpentry - craftsmanship – with architectural composition rules for spatial definition that came from the western examples. But we could not forget reminding the important contribution - in that development - of those who demanded such buildings namely the founders. (fig.5) (fig.6) (fig.8) (fig.9)

In many written sources starting with the XVth century it is provided copious information on woodworkers who were professional carpenters often specializing in engineering work associated in municipal crafts associations. They had built bridges, timber fortifications, and the wooden roofs of major masonry churches. The second half of the XVth century provides information regarding carpentry tools such as compasses and squares. *For this reason it is not possible to discuss about the wooden churches ranking them uncritically as vernacular (folk) structures as is done by some researchers, although it is true that many jobs at the construction site were performed by the parishioners themselves under the guidance of a professional builder. The highly skilled carpenters were itinerants' masters during the XVI - XVIII. They exchanged knowledge between them with high capacity of synthesis.* It should be stressed that also in masonry buildings in which walls and vaulting was of stone or brick, the roof structure (and in the case of churches without vaulting, the ceilings as well) was built of wood. Bell towers adjacent to masonry churches were also of wood. Often, the erection of a masonry church was started with the raising of timber frames of solid beams that were subsequently encased and remained within the masonry walls serving as something akin to reinforcement up to the time of the final setting of the mortar, which significantly accelerated the construction process. [6] – P10-11.

Restraining the area to Maramureş county we could say this historical Romanian region, partitioned between Romania and sub-carpathian Ukraine after the second World War, is one of the specific places where traditional log building was not interrupted and where a rich heritage in wood survives. The tradition of building wooden churches in central and southern Maramureş can be traced from the beginning of the XVIth century to the turn of the XVIIIth century. Since the knowledge used to build the local wooden churches circulated throughout Europe, their understanding is of high interest far outside the region. The few recent studies of Alexandru Baboş in this matter shows to us that the craftsmen from Maramureş who were able to reach such levels were not simple peasants but well specialized church carpenters who inherited and maintained this advanced knowledge to exclusively build houses of worship.. [7] – P217-277.

In his research A. Baboş wooden churches from Maramureş reveal the existence during the XVIIth and XVIIIth centuries of at least two main family schools of church carpenters, one residing in Nyzhnie Selyshche and mainly covering the parishes in the lowlands of the Tisa Plain around Hust, while the other one potentially living in the lower Iza Valley and covering the parishes from the southern part of Maramureş. The standing churches and their particular features help him to recognize there are further distinguishable three main itineraries and numerous smaller ones, indicating the work of some of the most important church carpenters ever active in the region and in some cases even shifts among generations. Their artistic refinement excelled sometimes in intricate *compositions carved on the portals*, used as marks of identity and high status. The symbolically charged compositions and the dedicatory inscriptions reveal a good literacy, high grade of religious education and openness towards new ideas among the foremost church carpenters. The structural and formal language was especially recognizable in the plane and *well sealed log walls*, as well as

in the *flush joints*, in the famous *double eaves* or the recognizable *elongated tower* with special roof. [7] – P217- 277.

In a long perspective, the true creators of the local wooden churches were actually not the engaged church carpenters but the commissioning founders. Especially the role of the noble founders of Eastern rite was decisive in the formation of a regional character among the local wooden churches. In the continual fight to preserve the inherited rights to land and rank, which assured liberties and privileges, the local nobility of eastern rite also strived to build churches able to signal their social status, resources and ambitions. They continually founded, modeled, endowed and took care of their churches after their own interests and needs. At least for the XVIIth and XVIIIth centuries it was easier to document the successive introduction of new fashionable features along with the disappearance of some other ancient ones. It can be considered that the wooden churches from Maramureş were a mirror of a society of modest country landlords manifesting themselves along several centuries in their *double condition of eastern Christians and western nobles*. [7] – P40-49; P217-277.

The home of the numerous small country villagers of Maramureş was usually referred to as a manor (*curte*). According to the local custom only one of the children remained in his parents' house while the others were helped to build new houses on their inherited lands nearby and they formed together a distinct part of the village. These family groupings, often named after them, actually built the core of the villages into the XXth century (such families became in time the so called with noble rang). In reality, all the farmsteads of the noblemen were considered manors, no matter how small, but the manor of the ancestor seems to have always retained a higher status within the family. It was probably there the precious medieval diplomas attesting the nobility of all the branches of an extended family were kept in safe. The early wooden manor-houses of the small land lords of the county were first mentioned in the royal diplomas of the XVth century, at the beginning only as *simple houses* (*domus*) but later well individualized as *manorial seats* (*curia*). The historian Adrian Rusu suggests the manor houses became already by then more personalized within the rural architecture. [8] – P235-236. Between the XVIIth and XVIIIth centuries, the local rural nobility built their wooden manor-houses on one side with concern for the models in the nearby towns, seeking to signal their prestige, and on the other side attached to the traditional customs of their community. This ambivalence of the country nobility was one of the driving factors for changes in the local architecture. Increasing number of carpenters in the end of XVIIIth century made possible multiple exchanges and over time the most ambitious country nobles introduced in their residences new fashionable features adapted to the *vernacular local architecture.* [7] – P40-49. These manor-houses served as models for the other householders and then became *tradition.*

Now, **in the *present day***, the population is highly marked by mobile transportation, industrialization, huge dynamics of information via satellite and television. People (mostly with poor education) seeking a better and richer life (offering themselves to work in domains in which they were not specialized) migrates all over the world and quickly assimilates a consumer society model. There was an internal labor migration (inside the country borders) during communist regime from villages to cities and a massive international one since last decade. When migrants return home (or get in touch with relatives left home) they bring also modern lifestyle principles in the approach: old houses became too small, unequipped accordingly, "a sign of poverty and shame" in their eyes. The sentence: the houses are breaking down getting place to fit the "new big house". They became not aware by consciousness of cultural heritage, intoxicated by TV news, magazines images and publicity. Refined synthesis which had taken place in centuries of rural life does not have time to produce. The global life happens so fast and people are exposed to many models and the effect is the lack of landmarks.

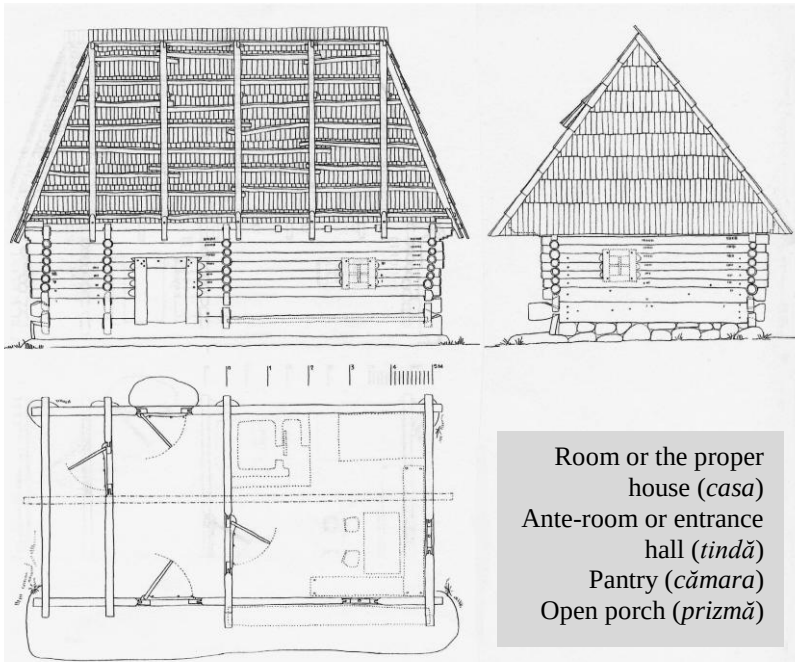

fig. 10

Fig.10 *Săliştea de Sus*. Residence house from a strong noble village, probably from beginning of the 18th century.(draw. A. Baboş 2004 – P43)

Fig.11 *Projecting corner joints*. The *round* joint, the *double-slot* joint. (drawings A. Baboş 2004 – P60)

Fig.12 *Flush joints type covert joint* (drawings A. Baboş 2004 – P64)

Fig.13 *Flush joints type tabled joint* (drawings A. Baboş 2004 – P66)

Fig.14 *Flush joints type dove tail* (drawings A. Baboş 2004 – P69)

Projecting and flush joints (first used in domestic buildings, second in public ones – the so called church joint up to 19th century

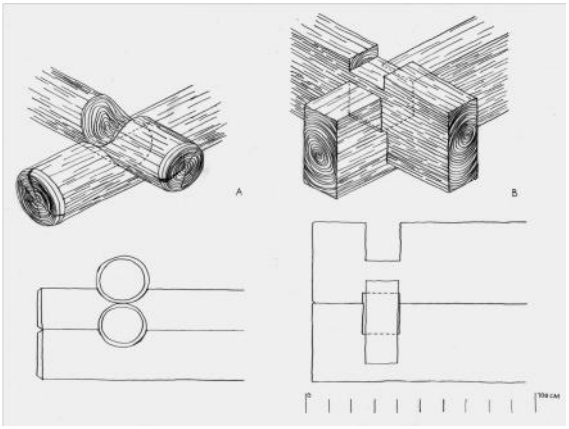

fig. 11

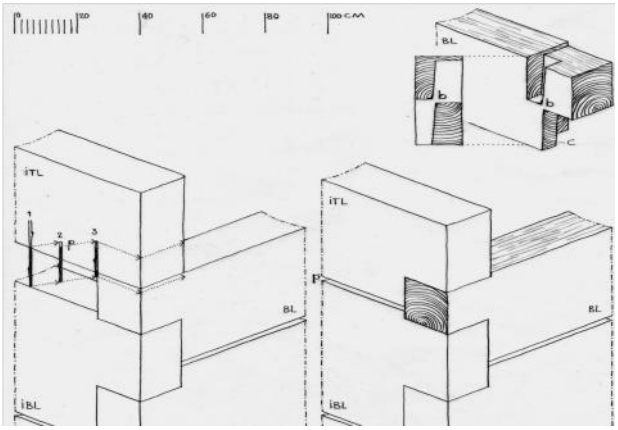

fig. 12

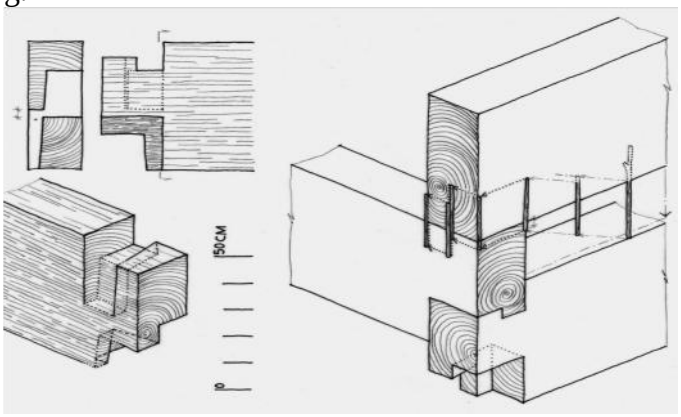

fig. 13

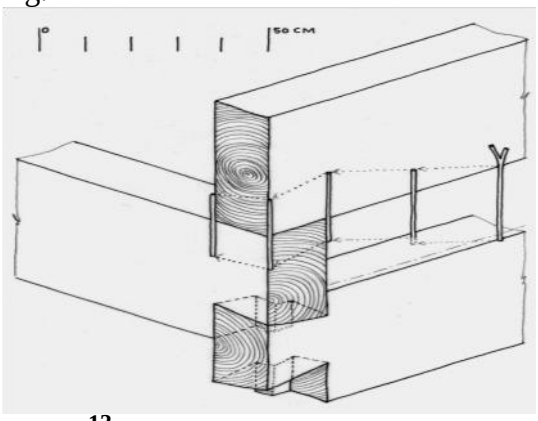

fig. 14[13]

Finally, in the vast majority of cases the immigrant will return to their own country. A situation occurs and this is referred to as the *reverse culture shock*[14]. Upon arriving back, the returning resident will be eager to share their experiences of another culture that have made them a different person. However, they have returned to a group of people, and indeed a country, that has changed over the time. These changes can be subtle or far-reaching, but they will affect the way that the returnee is accepted by, or accepts, their own host country and its residents (his new affects are most sincerely reflected in the construction style that he produce – a new conceited architecture and

the wood totally missing in the appearance: an opulent modern house too big for their necessities and hardly future household maintenance). Even if many of the new houses are used as accommodation for local rural tourism it is sad that their owners don't realize that soon it might not be tourists looking for once famous *old wood region* what is no longer found in these pictures.

fig.15

fig.16

fig. 17

fig. 18

The new erected churches and monasteries built in the traditional architectural fashion prove some interest in the field but those are criticized in the academic environment as making archetypal confusion, manifesting opulence and destroying the old proportions (for example the past wooden churches was never erected on the stone base level) (fig.19)(fig20). But we have to note that there is a vivid monastic life in the areas (as opposed to other western european countries that have passed this phenomenon in museums preservation) and there was a concern to revitalize the building in wood that has been disrupted by almost 150 years. The old traditional craftsmen remained have had the opportunity to spread their skills and knowledge to consolidate their weakened guild which, lately, was used only in the restoration of old wooden churches.

We cannot say the same thing about the new orthodox churches of bricks and concrete built in recent years in Maramureş in localities like Breb, Bogdan Vodă, Săpânţa, Botiza or the monastery in Rohia (this are only some few examples). This topic will be developed in a future research but we have to mention that in most cases the new massive buildings were forced into the landscape without the integration studies. So the old wooden churches, monuments of architecture, became cramped, shadowed and sometimes totally blocked behind new places of worship

fig. 19

fig. 20

4. Conclusions

Today architecture can no longer be any vernacular or traditional because legal system cannot allow building any construction which is not based on a project-paper and this project without being authorized. The problem is actually the country life in general - getting illegal - in recent years. Approaching to this point the related paper demonstrates that it has reached a critical point in the evolution of architectural development, a so called *chain brake.*

What caused "the chain brake"? The old masters decreasing number? (the majority is working in churches building and restorations; even controversies this "chain" of church building are still not brake and that is one of the reason we called Maramureş County a "specific case"). The highly educated architect not managing with legal system and clients needs? The client (usually former migrant worker, with no esthetic education) who wants "to fit" in global standards? (because we cannot ignore the natural human desire to achieve a higher quality of life)? The orthodox church who wants to show its power demanding buildings with no composition rules?

From the psychological point of view the problem of national heritage preservation is connected with self-identification. Unfortunately in our modern dynamic and integrating world the people experience a mass disorientation. There exists a real danger of losing individual, group, social, cultural and even citizenship identity. It is particularly important for growing generation because personal and social identities are the main regulators of self-consciousness and social behavior. Under current situation the developing peoples' identification with their cultural heritage is becoming a real problem because the financial situation in many post-communist countries does not allow saving the heritage that is gradually lost. New generation cannot appreciate their cultural heritage in its primary beauty. That is why they do not identify themselves with it. To tell the truth it is not easy to be identified with ruins that are neglected, demolished, miserable exposed and feel proud of objects of cultural value. [6] – 177-179.

But as Kingston Heath said[15] that forced and rapid cultural exchanges induce a stage of "hibridity" and all vernacular forms are, in fact, transitorily we can concluded this enounced hibridity could be prolonged to much more fields (for example: the "no consciousness local political authorities with no educated employees not applying the law because in small communities this will lose votes; the permissive legal system which still need improvement and constantly changing; the lack of education in promoting strategy which can countervailing the faster globalization effect; pure lack of education in rural areas). There is a vast domain in urge for further research.

5. Notes

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E-mail address: dani_adg@yahoo.com
2. "Some observers argue that a rudimentary version of world culture is taking shape among certain individuals who share similar values, aspirations, or lifestyles. The result is a collection of elite groups whose unifying ideals transcend geographical limitations."[2]
3. "...a building designed by an amateur without any training in design; the individual will have been guided by a series of conventions built up in his locality [...]. The function of the building would be the dominant factor, aesthetic considerations, though present to some small degree, being quite minimal. Local materials would be used as a matter of course, other materials being chosen and imported quite exceptionally."[10] – P27-28.
4. "... (Vernacular) is not to be confused with so-called 'traditional' architecture, though there are links between the two. Traditional architecture can also include buildings [...] which normally would not be included under the rubric of 'vernacular'. In architectural terms, 'the vernacular' can be contrasted with 'the polite', which is characterized by stylistic elements of design intentionally incorporated by a professional architect for aesthetic purposes which go beyond a building functional requirements. Between the extremes of the wholly vernacular and the completely polite, examples occur which have some vernacular and some polite content, often making the differences between the vernacular and the polite a matter of degree." [11]
5. the terms '*internal*' and '*external*' are used to defined labor migration as inside or outside the borders by a state of people nation origin.
6. ibidem 5
7. *temporary labor migrant* also known as guest workers or overseas contract workers: People who migrate for a limited period of time in order to take up employment and send money home.
8. highly *skilled and business migrants*: People with high qualifications, who move within the internal labor markets. Many countries welcome such migrants and have special skilled and business migration programs to encourage them to come.
9. …"this blending of pre-existing and imported elements assembled into distinctive localized expressions has been characterized variously as 'cultural weathering' […] or 'hibridity'. The first notion, cultural weathering, views regional settings as the product of layers of collective change over time, whereas the last ('hibridity') stresses the amalgamation of two fixed entities into a third, identifiable thing […] ('Hibridity' is often used to illustrate the effects of immigration on built form and cultural practice; it represents the redefined cultural identity of both the immigrant people and , ultimately, that of the host setting) […] Nazar Al Sayyad argues that all cultural experiences are hybridized and that all vernacular forms are transitorial." [5] – P5-6, P19.
10. *Urnes Stave Church* (norwegian: *Urnes stavkirke)*, Luster, Sogn og Fjordane County, Norway, The church was built around 1130 or shortly thereafter, and still stands in its original location; it is believed to be the oldest of its kind. It provides a link between 'christian architecture' and the architecture and art forms of the 'viking age' with typical animal-ornamentation, the so called 'urnes style' of animal-art. The church is built with a rectangular nave and a narrower choir. [12]
11. ...it is referring to 'post church' (norwegian:'pallisade') is a term for a church building which predates the 'stave churches' and differ in that the corner posts do not reside on a sill but instead have posts dug into the earth. Posts are the vertical, roof-bearing timbers that were placed in the excavated post holes. Posts were often placed in trenches filled with stone, but were still susceptible to decay.
12. …analogical construction systems were discovered at the end of the 19th century by a norwegian scholar Lorens Dietriechson, who defined the 'corner-joining' or, also called, the 'blockwork' system - german 'blockbau' and the timber frame system - german'fachwerk'. [6] – P67-68.
13. …'projecting and flush joints' - the term is used by David Buxton [9]

14. … the term is provided from John Schumann's *theory of acculturation* who explain the four stages that an immigrant goes through from arrival to eventual assimilation. As Schumann himself acknowledges, very few people will stay long enough in a foreign country to fully assimilate, but those people that stay for a year or more will move along the continuum to some extent. The stages are: 'the euphoric stage', 'the hostile stage', the acceptance stage' and, finally 'the reverse culture shock stage'.
15. … see chapter 2 and note 9 of present paper

6. List of references

[1] Giddens, Anthony. (1991). *The Consequences of Modernity* Cambridge: Polity Press. P 64. ISBN 9780745609232
[2] *Encyclopædia Britannica Online*, s.v. "cultural globalization", accessed October 01.2012, available from: http://www.britannica.com/EBchecked/topic/1357503/cultural-globalization
[3] Curinschi, Vorona. (1991). *Introducere în arhitectura comparată,* Bucureşti, Editura Tehnică, România, P.30-32, ISBN 9733104345, 9789733104346
[4] Deshingkar, Priya & Grimm, Sven. (2005), (online PDF), "*Internal Migration and Development: a Global Perspective*", P14-18, accessed October 01.2012, available from: http://www.prb.org/Source/mrs_19_2005.pdf
[5] Kingston, Heath. (2009). *Vernacular architecture and regional design: Cultural process and environmental response* Oxford, Ltd Published, P 5-6, P 19, ISBN-13: 978-0-7506-5933-8
[6] Fondazione Romualdo del Bianco, Collegio degli Ingegneri della Toscana and the authors. (2006), *Rescuing the Hidden European Wooden Churches Heritage. An International Methodology for Implementing a Data Base for Restoration Projects*, FLY Events and Alter Ego Ing Arch S.r.l. (a Subsidiary Company of the Collegio degli Ingegneri della Toscana), Free Books S.r.l. – Città di Castello (PG) Italia, P10-11, P67-68, P177-179, P181-182
[7] Baboş, Alexandru .(2004): *Tracing a Sacred Building Tradition.Wooden Churches, Carpenters and Founders in Maramureş until the turn of the 18th Century*, Lund University, Sweden, P40-49, P60-69, P217-277, ISBN 91-7740-069-0
[8] Rusu, A.Andrei .(1999): *Ioan de Hunedoara şi românii din vremea lui*, Cluj-Napoca, PUC, P235 – P236
[9] David, Buxton.(1981)(reissued edition 2008).*The wooden churches of Eastern Europe: An Introductory Survey*, Cambridge, England, Cambridge University Press, P22-25, ISBN-10: 0521090547, ISBN-13: 978-0521090544
[10] Brunskill, R.W. (2000). *Illustrated Handbook of Vernacular Architecture* (4th Ed.). London: Faber and Faber. P 27-28. ISBN 0-571-19503-2
[11] *Wikipedia the Free Encyclopedia Online*, s.v. "vernacular architecture", accessed October 01.2012, available from: http://en.wikipedia.org/wiki/Vernacular_architecture
[12] *Wikipedia the Free Encyclopedia Online*, s.v. "Urnes Stave Church", accessed October 01.2012, available from: http://en.wikipedia.org/wiki/Urnes_Stave_Church
[13] Godea, Ioan. (2008). *Biserici de lemn din Europa,* Bucuresti, Romania, CD Press, ISBN 978-973-1760-91-9
[14] Ritzer, George. (2011). Globalization. The essentials, West Sussex, UK, Willey-Blackwell, ISBN 978-0-470-65561-0.
[15] Johnson, G. Allan. (2007). *Dicţionarul Blackwell de sociologie*, Bucureşti, Romania, Ed. Humanitas, ISBN 978-973-50-1632-6.
[16] Jones, Andrew. (2011). *Globalizarea.Teoreticieni fundamentali*, Cluj-Napoca, Romania, Ed. CA Publishing, ISBN 978-606-8330-00-6.

7. List of figures

Fig.1 *Lom Stave Church* (norwegian: *Lom stavkyrkje*), Lom, Gudbrandsdal dst., Norway, available from: http://commons.wikimedia.org/wiki/File:Lom_stave_church.jpg, accessed Oct.02.2012

Fig.2 *Urnes Stave Church* (norwegian: *Urnes stavkirke)*, Luster, Sogn og Fjordane, Norway, available from: http://en.wikipedia.org/wiki/File:Urnesstavkirke.jpg., accessed Oct.02.2012, photo Nina Aldin Thune

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Fig.8 *Wooden Church Birth of Virgin Mary*, Ieud Deal, Iza Valley, Maramureş, Romania, controversies upon dating (1388)? or the second decade of 17th century?; initially it was greek-catholic and today is orthodox rite, available from: http://ro.wikipedia.org/wiki/Fi%C8%99ier:Ieud_deal.jpg, accessed Oct. 02.2012 photo Bogdan Ilieş,

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Fig.15, fig.16, fig. 17, fig.18 *New houses erected in Maramureş County*, available from: http://ciprianmihali.blogspot.ro/2011/07/maramures-play-cu-fluor.html, accessed on Oct. 04.2012, photo Ciprian Mihali

Fig.19 *The church of Sapânţa Peri Monastery,* architect D. Cordoş, available from: http://commons.wikimedia.org/wiki/File:RO_MM_Sapanta_Peri_monastery_1.jpg, accessed on Oct. 04.2012, photo Andrei Stroe.

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Pedagogic Approach of landscape issues in Faculty of Urbanism UAUIM- Bucharest

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Abstract

The Romanian school of architecture [The "Ion Mincu" University of Architecture and Urbanism, Bucharest] locates landscape issues in a strong philosophical, technological, cultural and historical context, as a practice integrated with architecture, urban planning, arts and engineering. The present paper refers to the philosophy and pedagogic approach of landscape in the Faculty of Urban Planning within UAUIM, structure that provides in our teaching field rich information content that can be used in most of the faculties/ subjects within the university framework.

Rezumat

Universitatea de Arhitectură SI Urbanism "Ion Mincu" Bucuresti abordează problematica peisajului în context filozofic, tehnologic, cultural si istoric, ca practică integrată arhitecturii, dezvoltării urbane, artelor si tehnologiei. Prezentul articol face referire la abordarea pedagogică a Peisajului în cadrul Facultătii de Urbanism, abordare care face posibilă integrarea unor noi concepte, sensuri si semnificatii atribuite termenului de peisaj în cadrul procesului educational.

Keywords: landscape, education, architecture, urban planning, sustainable, quality, context, policy, sustainability.

1. Introduction

The Romanian school of architecture [The "Ion Mincu" University of Architecture and Urbanism, Bucharest] locates landscape issues in a strong philosophical, technological, cultural and historical context, as a practice integrated with architecture, urban planning, arts and engineering. The present paper refers to the philosophy and pedagogic approach of landscape in the Faculty of Urban Planning within UAUIM, structure that provides in our teaching field rich information content that can be used in most of the faculties/ subjects within the university framework.

During the six years of study (4+2 Bologna System of Education), an increasing pedagogical approach on landscape is emphasized. The summarizing of the curriculum shows that there are two ways of approaching landscape-related problems, so that we have: general and specific approach,

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from context to object and from project to policy.
The extent to which the landscape education constitutes an acknowledged body of abilities and knowledge provided in the curriculum is represented by means of graphs and schemes which measure in terms of time, credits and content the importance that landscape problematic presents within the two faculties in the UAUIM: Faculty of Architecture and Faculty of Urban Planning. The pedagogic approach is different between the faculties during the years, but some of the courses are common and different integrated in the architectural /urbanism landscape design studio.

Including landscape issues within urban planning education helps students acquire knowledge, skills, values and the commitment they need in order to effectively manage the existing resources and to assume responsibility for maintaining the quality of the environment and life.

2. Theoretical framework

Social and cultural changes that took place in last decades, mostly in Eastern European Countries, associated with globalization and economical switch to market economy have overwritten social and cultural practices and generated a changing landscape in which places lost their uniqueness and distinctiveness [1]. The connection between rapid industrialization, the acceleration of everyday life, and the decline in the quality of collective life that were first noted by Walter Benjamin [2] have been intensified as post- industrial society has become fragmented and re- organized by the acceleration powers of information technology and transmission. In this context, representation, speed and advertising have become the guiding lines of today practice and experience of space design, referring also to landscape design, result being a homogenous frame.

Starting from the nineties, in many European cities landscape projects have been a primary tool to establish preservation and identity valuation measures in planning and policy procedures. The alignment of political and technical tools necessary for achievement of landscape goals [3] has provided an important role to the traditional city experts (urban planners, architects, economists, mobility experts, engineers).

All European entities at different territorial levels (countries, regions, counties and cities) are involved in these processes, sharing a similar development perspective: preservation and valuation of landscape (cultural, rural, coastal, productive, urban, etc.) in accordance with quality landscape objectives imposed by European Landscape Convention.
Marked by different traditions, different evolution and approach, landscape is treated different in every European country (starting from education to practice and design) in accordance with it particular approach.

Landscape can be defined in multiple ways, depending on the discipline. The uniqueness of landscape experience for individuals or groups shows that all landscapes are cultural [4]. Modern definitions of the landscape refer to its cultural sense: the landscape is the synthesis of space used as a collective space [2] or – as an extension of this definition – the space perceived by the population to whom it gives meaning and shape in accordance to their aims and objectives. Landscape concept describes the combination of cultural and natural elements, both forms showing natural geographical and cultural elements from the people who live or have lived there.

By extrapolating these definitions to the practice, it has resulted that landscape is directly related to its present use, modern activities designated to valuate and promote cultural assets, in fact on long term development are modifying the structure of landscape and consuming its values. Landscape concept refers to individuals and groups of individuals who perceive and use the landscape in different ways (production, consumption of landscape) and for various purposes [6]. From that

point of view contemporary approach of landscape problematic is related to sustainable development.

Landscape dynamic can be approached and studied as a result of temporal and spatial reorganization of the territory due to social and economic demand [6].

3. Romanian Background

The political changes that have place in Romania in 1989 induced economical, social and cultural transformations both at urban and rural level. These transformations generated new patterns of urban development (urban sprawl in most cases), of mobility for population and activities (inside urban cores and at territorial level). We are facing with the increasing degradation processes that an excessive amount of societies generates, carrying dangers and disadvantages to many areas, in territories with cultural, historical and identity values. Some of the most common effects of these changes are profound alienation and fragmentation of the landscape.

Because urban policies weren't adapted and focused on the provision of an appropriate frame for sustainable development, in most cases the development became a negative factor, by consuming the local resources, affecting landscape and context (as residents, related activities, traditional socio- economic context, traditions and local habits).

Until 2000 these processes were characteristic for the urban space and its influence territory, after 2007 the accelerated development extended these processes also to rural areas (even rural- tourist settlements) which now are threatened to lose their attractiveness due to emphasized consumption of landscape.

Additionally, Romanian Planning Framework was marked in last two decades by existence of strategic and regulatory tools which did not include in most cases landscape problematic, referring only to heritage areas or built frame. Also, if landscape provisions were existent, structure of urban development plans allow alternative development affecting the landscape components.

In this context, landscape education in University of Architecture and Urban Planning Ion Mincu Bucharest was marked by different approaches of landscape, and evolution from landscape approach as component of urban development and architectural project at landscape approach as a complex system, related to architectural, urban planning, socio- cultural, economical or environmental aspects.

4. Landscape planning educational Process

The current configuration of academic training in UAUIM is the result of the reform based on the Romanian tradition in architectural education, contemporary information and influences, as well as on the collaboration with the professional international bodies (UIA – UNESCO, EAAE) and European Schools of Architecture. Educational processes is structured in Bachelor degree (8 semesters) and Master Program (4 semesters) and since 2001 was split in independent sections dedicated to landscape problematic. In accordance, landscape issues are treated with different degrees of complexity related to the study discipline: Architecture, Urban Planning or Landscape Planning (Landscape Design and Planning Bachelor Degree and Landscape and Territory Master Program).

The courses, urban and landscape studios are adapted to the particular aims of the curriculum of each unit, and are generally articulated following the increasing complexity of education (*Figure 1-2*). In first years of studies (Landscape Design and Planning Bachelor Degree), educational process is focused on offering basic knowledge and understanding of architecture, urban planning and landscape and in Landscape Master Program, attention is focused on specific approach (and acquiring of specific competencies) of landscape in different contexts and territorial scales (from micro to macro landscape).

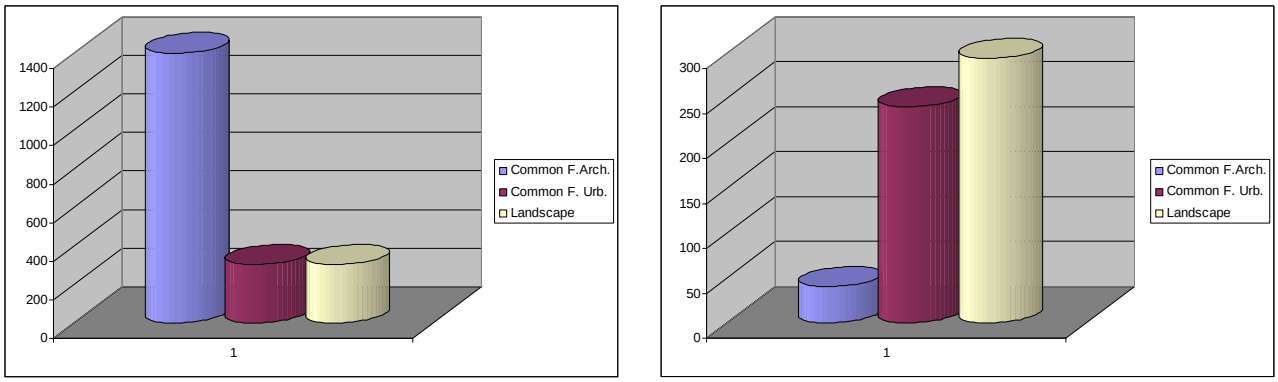

Figure 1. Theoretical Disciplines Bachelor and Master Degree

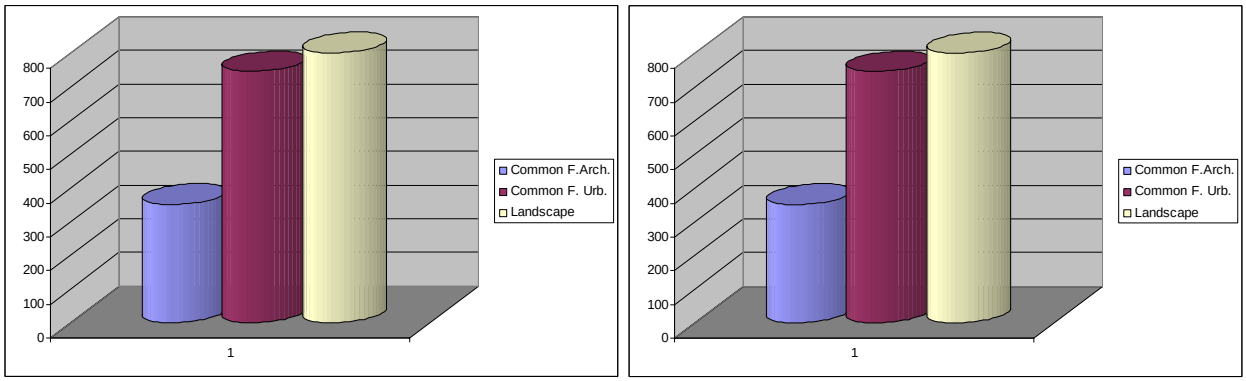

Figure 3. Practical Disciplines Bachelor and Master Degree

In accordance with modern problematic and tendencies in landscape approach at European level, in order to respond to new challenges imposed by accelerated contextual (social, cultural, economical, technological) transformations, have been defined new objectives in landscape design and planning education which would allow the future graduate to confront the architectural, urban and landscape practice in a changing society where common demands tend to be permanently reformulated. This approach is referring to landscape as a complex system in accordance with modern definitions of the concept.

Educational process is designed as a process, approaching landscape problematic from punctual to general, from simple to complex, from object to context in order to provide future planners competencies regarding lecturing, discovery, recognition and micro- scale intervention in landscape, but also planning competencies, with reference at larger territories, focused on specificity and identity preservation and valuation.

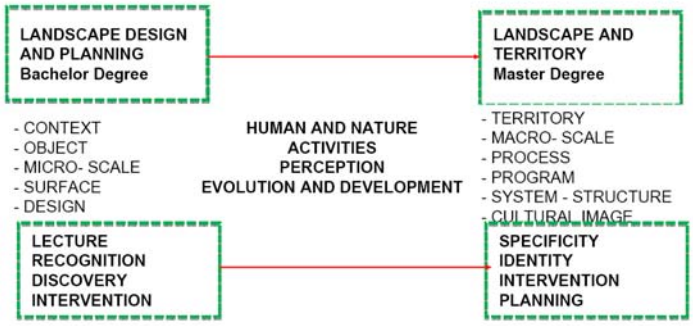

Figure 3. Educational process based on approach of landscape as complex system

From this perspective, landscape issues are meant:
1. To introduce the students to the study of urbanism by training their superior attitude towards urban and landscape structure and teaching about its components, their inter-relationships;
2. To teach them some methods of recognition, analysis and evaluation of various influences on the urban and landscape structure by setting up building / settlements / territories.
3. to form an analytical thinking able to establish relations, necessary in the study of the architectural object within the urban context
4. to guide the student into identifying and resolve the critical problematic of the border-line domain between house/ city/ territory
5. To teach how to think, how to learn, how to deal with economical, social, political and cultural processes in terms of form and development
6. To teach fundamentals, not encyclopedias, to explain not to expose, to stimulate intuition, to encourage discovering through investigation and experimentation
7. to stimulate thinking about future by selecting problems and issues that have within them the 'seed' for engaging the future idea
8. To teach 'sustainability' as a way of thinking landscape and urban planning, to understand the concept of sustainable development specific to environment and ecological problems
9. To make students expressing and defining the "landscape quality" - how can it be used in the global evaluation of architectural landscape and urban design in order to minimizing the impact of some interventions?
10. To investigate the urban phenomenon, territorial organization of space, and, at the same time, the possible ways to approach them.
11. To teach the dialogue between technology, recognition and social pursuit, main focal points of landscape project approach.

Principles that are stating landscape approach in educational process are focused on understanding Landscape as a process, a program and a system and understanding and debating the Paradigm between preservation and development, between landscape policy and landscape as policy component.

5. Preservation and valuation of landscape

Besides all changes in the last decades, new digital technologies have evolved from being simple representational tools invested in the depiction of existing models or space [1] to becoming significant educational and practical instruments that have transformed the ways in which we conceive and configure space [1]. Design and simulation of different development and evolution scenarios have enabled the emergence of new digital diagrams and parametric landscapes that are changing the ways in which we include disparate information within design process, but are also significantly altering the methodological approach [1]. This new technological tools are offering

new methods of space approach that design flexible framework of integration of diverse components that compose space and define its identity (activities, events, humans and social issues). As result, current models of space produced by students are far more continuous, variant and complex, generated by the tools that were used to produce them [1].

For our teaching program this process could start by looking at three key issues:

1. the knowledge that informs design and decision making
2. the landscape performance targets to be achieved
3. the identity features of a certain landscape

The main practical experiences (studios, study excursions, workshops and international contests) in University of Architecture and Urbanism Ion Mincu Bucharest- Faculty of Urban Planning- Bachelor degree program Landscape Design and Planning are focused on understanding the context and local constraints and development opportunities in various environments in order to achieve these three key issues. From this perspective education starts extending the existing vocabulary towards expressing the systemic complexity of landscape, its temporality, identity and contextual evolution. Permanently enriched by socio- cultural, aesthetical (but not only) and economic aspects, the aim is to develop comprehensive perspective of the landscape- planner to be.

Through this educational experience our interest is to envision the landscape that could flexibly respond to all local input factors as well to accommodate desired goals [1].

Figure 4. Landscape representation exercise, 1st year Landscape Design and Planning Bachelor Program; Territorial Landscape Approach, Project in 2nd year of Landscape and Territory Master Program

In keeping with these new conceptual framework, landscape design and planning formation is understood as process and program, corresponding to the complex system of landscape internal and evolutionary relations, its evolution being a temporally state, a result of accumulations of spontaneous and planned, non sequential elements that overlap and fragment, related to economics, cultural, social, technological factors, as well as local resources and traditions.

6. Conclusions

Identifying the elements (including the relations between elements) that give personality to the landscape is the basis for valuing it (classification and hierarchy), but it could become also operational as a basis for decisions on development policies, based on specific methodologies related to the value system of the local population (rural or urban). A proposed scheme of management and development should be enforced by preservation of local values and resources. In the same time, the success of a project depends on the recognition of collective interest and public consensus on development objectives. Also, dynamic approach of landscape and recent criticism to classical planning system have led to differentiation of the formulation of strategies and implementation tools by introducing forecasts based on qualitative not only quantitative indicators and simulation of future evolution scenarios.

Taking into account these aspects has led landscape planning education to consider if as complex system, related to its components evolution, its approach being conditioned by its synergic evolution, as state in landscape becoming.

7. References

[1] M. Hărmănescu, Responsive Architecture trough Urban Planning, Landscape Architecture and Urban Design. *IE Proceedings Rethinking the Human in Technology- driven Architecture*, pp.277- 292, ENHSA-EEAE, no 55, 2012.

[2] W. Benjamin, *The World of Art in the Age of Mechanical Reproduction*, pp. 217- 252, 1936 (1996)

[3] European Landscape Convention, Council of Europe, 2000. [Online].

Available: http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm [Accessed: September 10, 2012].

[4] D. Cosgrove, Cultural landscapes in Unwin, T. (Ed.), *A European Geography*. Longman, Edinburgh Gate, 1994.

[5] A. Popa, Aspects of agricultural landscape as a cultural asset in metropolitan areas: case study for Bucharest city. *Science- Future of Lithuania*, 4 (2), pp: 128- 134, 2012