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Aerial view of the Bezdin Monastery, 2019 by Alexandra Sabo, Alexandru Todirică

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The Journal of Architecture, Urbanism and Heritage is a peer-review academic journal which publishes original research papers and advances theory, research and practice in the fields of architecture and urban planning.

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# Interior design

## Contemporary trends in cake shop design

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### ABSTRACT

The study aims to make a contribution to contemporary cake shop design. The main objective is to highlight the key elements in designing a successful interior design project, while looking at the personal project of Zephira shop that serves pastry and bakery goods. The article is composed by a short historical overview of the chosen domain, followed by the case study analysis. The next chapter talks about types of services, trends, concepts and how they apply to the presented project, followed by a conclusion which talks about how is it possible to create a contemporary interior design with ethnical touches. The interior design project of Zephira tries to extract elements from the Mediterranean culture and raw materiality in order to create a contemporary expression.

**Keywords:** pastry, bakery, mediterranean, trends, materiality.

### I. INTRODUCTION

The origins of pastry making start in Egypt, where one of the earliest pastry was made by combining flour and water which resulted into a paste that later was wrapped around meat to be baked. Later the pastry products started to develop in the Middle East and then they were brought eventually to Europe, gaining popularity over years [1]. By the 1600s, different types of pastry were developed, such as flaky pastry which is made from many thin layers or puff pastry which is a very light mixture with a lot of air in it. In 18th and 19th century the popularity of pastry making has grown exponentially thanks to the new developed techniques and technology. Besides the history, this study will present contemporary examples of good practice when it comes to bakeries and pastry shops with conclusions regarding the concept and more, followed by the next chapter who shows important business-related principles when choosing the pastry/bakery program. Those principles are very important to keep in mind regarding a future interior design project. The next step is about creating the concept and choosing the right elements to begin with. Even if the project follows a classical line, there are key trends that can interfere with the concept. All these information will be applied more or less in the proposed project of Zephira. The last chapter will show the results of the study and how they applied successfully in the interior design project.

### II. SHORT HISTORY AND EVOLUTION OF THE BAKING PROCCESS

The first evidence of baking occurred when people discovered that grass seeds soaked in water which resulted into a paste, so this paste was cooked on a hot rock, the result being a product similar to bread. As people learned how to manage the fire, the baking process started to develop. Later on, the cooking process and techniques started to vary from a culture to another [2].

#### II.1. Ancient Greece

In Ancient Greece the baking started around 600 BC and that lead to the invention of the closed ovens (Fig. 1). Around 400 BC, Greeks already had around 50-60 types of bread, most of the house-

holds having their own baking oven. The Greeks also invented the millstone, this being represented by two square stones placed one above another, which made the processes of making flour much easier. After the 5th century, commercial bakeries were developed, which were active during the night, so that bread could be found in all stands in the markets of Athens [3].



Fig. 1. Sculpture from Ancient Greece of people making bread [4]

#### II.2. The Roman Empire

When it comes to the Roman Empire, inevitably was influenced by the Greek culture, as they later started to improve the baking technique (Fig. 2).

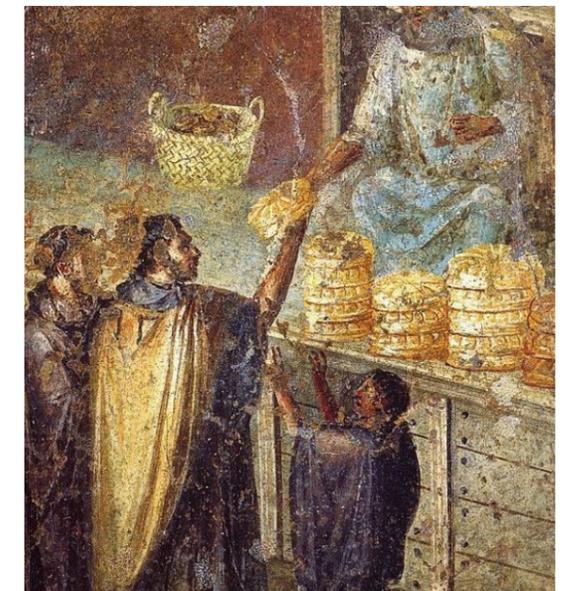


Fig. 2. Bread stall, from Pompeii. 1<sup>st</sup> century [6]

During the fourth century A.D., we can see evidences of the first pastry kitchens called 'pastillarium'. The most sophisticated Roman city,

Pompeii, used to have shops with street front, called 'pistrinum', which had points of sale for various types of bread, under the name of 'thermopolium', and for other types of food the name was 'popina'. In such points of sale the entrance to the space was often mixed with the entrance to the living area. "Pistrinum of Sotericus" was one of the thirty-three bakeries in Pompeii, its entrance containing a place of stay for the owners of the bakery, the area that continues both to the living area and to the bread preparation [5].

### II.3. Ancient Egypt

According to evidences in Ancient Egypt, in the years 2600-2100 BC Egyptians were cooking bread made with flour generated by gridding stones, though it's believed that they took this tradition from the Babylonians. One important source is a relief representing the royal bakery in Rameses (Fig. 3), which presents breads and cakes, having different shapes, and then placed into a vertical oven. When the cooking process was done, the goods were placed on trays and carried away from the bakery [7].



Fig. 3. Baking Scene in the tomb of Ramses III [8]

### II.4. Middle Ages

During the Middle Ages, baking wasn't that common, we can say that it was a luxury, since only those with wood stoves could make bread. The quality of the bread indicated the social status, the finer the flour was milled, the quality of the bread was increased. During this period of time the baking ovens weren't a popular thing in the household, so the baking process used to be a niche commercial activity. The flour processing in the mill and the bread baking were crafts

administered by craft guilds. When it comes to sweets, only the wealthiest could have access to such products. In conclusion, that period is characterized by economic instability and a very large number of diseases that affected the society, so hunger was a common thing in the community in the middle ages, also called as Dark Ages [9].

### II.5. In the 16th and 17th century

As a result of economic growth and social changes, people are beginning to diversify their food, while baking bread and pastries has become more accessible. At the end of the 17th century, sugar became cheap, so sweets appear on the market more often. Also during this period, the kitchen equipment started to show up and develop. Also at the end of the 17th century, pastry shops started to be more popular, the British excelling in this area, with cooking schools in London where pastry techniques were taught.

### II.6. The 18th and 19th century

The popularity of cakes has grown exponentially in the 18th and 19th century, the development of this technique being based on both technology and the evolution of taste. This development was favored by the fact that at that time traders and merchants had enough capital to buy ovens [10].

### II.7. The evolution of baking and pastry industry nowadays.

Today the simple process of simply creating an interior design isn't enough, the marketing industry reach a very high growth and strongly impacted the organizational behaviors. In the creating process for an interior design concept, the designer must expand his knowledge by including topics such as marketing, psychology and anthropology. Today digital marketing plays an important role when starting a business, thus building the branding and the visual identity for a company represents a key to success. The patisserie industry today relies heavily on the visual identity, often offering creative designs of the space, design that will be reflected in the online environment, thus creating a connection between interior design and visual design, graphics. The relationship between the place itself and the online environment is es-

sential in the current period, based on the digital marketing concept, which is a form of advertising. Therefore, the design concept of the place will take into account current trends in interior design, also into a strong relationship with the visual identity which also takes place in the online environment.

In the following chapter we'll see some examples of good practice that combine different themes and elements, so the result is an attractive contemporary environment with a great success for the public.

## III. CASE STUDIES OF SUCCESSFUL CONTEMPORARY BAKERY AND PASTRY SHOPS

### III.1 Ladurée Aoyama, Tokyo

Ladurée is a French luxury chain of bakeries and sweets founded in 1862 [11]. For creating this shop the designer chosen was the Paris-based architect and designer India Mahdavi. This shop has a capacity of 50 seats and it's located in Tokyo, in the vibrant area of Omotesando. What makes this design unique is the approach of the concept, which brings the shapes of sweets into the real world, so they become literary forms expressed in every detail of the room, starting from the furniture, light design, to the color picking (Fig. 4).



Fig. 4. Photos inside Ladurée Aoyama [12]

Besides the sweets inspired shapes of furniture, there are also accents of Marie Antoinette XXI style, the last Queen of France before the French Revolution, style which can be found in some of the chairs of this patisserie, but in a reinterpreted way. The table trunks are inspired from the candy canes, detail that can

be seen even on the ceiling. The benches and pillows are also inspired from sweets, with organic shapes and vibrant colors inspired from pistachio and berries. Even the lightning is no exception, having the shape of meringue desert (Fig. 5). "I wanted to bring some Frenchness to Tokyo and make this place a full experience inside and outside."— India Mahdavi. Therefore, the concept of this project reassembles shapes and colors of sweets in a very creative way, creating a strong and unique visual identity [13].



Fig. 5. Photos inside Ladurée Aoyama [12]

### III.2 Lolita Café, Lubljana - Trije arhitekti

Lolita is a pastry/ coffee shop in the heart of Lubljana, located in a former warehouse of a classical palace with over five meters height, the concept of arrangement representing a tribute to both the building and the local tradition for coffee and sweets [14]. The shop was designed in close collaboration with the marketing team, thus creating a unique concept, with an eclectic theme and high impact. The design team borrowed motifs from the classical and baroque periods, combining them with closer elements, such as the original Thonet pieces, followed by contemporary elements such as the cherry shaped lightning fixtures.

In this project the ceiling is a very important piece in the entire design, with a strong visual identity which reflects history and art, represented by graphic elements. As we can see, the ceiling holds a form of Alegoría del triunfo de Venus made by Bronzino, in a reinterpreted way, followed by the designer's self-portrait combined with a local reference of the city, more precisely old Ljubljana's lady's napkin (Fig. 6).



Fig. 6. Photos inside Lolita Café [15]

Not least, the end of the main room's ceiling contains a detail of Gustav Dore's "Creation of Eve", this is followed by a big chandelier cross shaped, which is aligned with a painting on the brick wall which represents a shadow. In this project we can see layers of history, represented by graphic elements, furniture, textiles, and so on (Fig. 7); all combined resulting in an eclectic concept, with a strong identity. What makes this project special are the proportions between old and new, so it can generate a fresh and contemporary look for the space while using elements from different periods of time [16].



Fig. 7. Photos inside Lolita Café [15]

### III.3. Elektra-bakery, Edessa, Studioprototype Architects

Elektra Bakery is one small shop, part of a chain of bakeries, run by a family with the same name. This project is situated in Edessa, Greece, on the corner of a building which can be found on a crowded street. The floor plan of this location is very narrow and linear, the main marble countertop becoming the focal point of the space. The atmosphere is very clean, being generated through materiality and lighting. The main light-

ing in the space has a neutral tone, while the accent lighting that falls on the products has a warm tone, the effect generated by the light on the bakery products transforms their color into a golden one (Fig. 8).



Fig. 8. Elektra Bakery, Edessa [17]

Natural lighting also plays an important role; since the windows are very large and arranged on two of the vertical surfaces of the room. Also this small store also offers the possibility of serving the products at the location, the facade combined with one of the big windows, creates a big frame which is turning into a bar, with chairs both inside and outside. The facade is designed to make both spaces, interior and exterior, more efficient by folding the windows, while the outline of the window as a box made of metal, becomes a large serving area. Due to the great placement of this bakery, during summer the clients can enjoy the products outside on the terrace (Fig. 9).



Fig. 9. Elektra Bakery, Edessa [17]

Comparing the inside with the outside, we can see how the façade of the window has more of a rustic style, by using a cladding made of cedar wood, while the inside has a very minimalistic vibe generated by the clean and neutral colors and textures, such as white marble. In this case we can see how designers have articulated the facade with the building [17].

III.4. Ble', Thessaloniki, Greece, 1+1=1 Architects  
When it comes to Ble', the entire concept stands in the center of tradition, so the most important piece in the entire project is represented by the bread oven.

The designers managed to integrate a unique handcrafted oven, which besides the fact that it's perfectly functional, its aesthetic tailor the whole concept for this space. This oven becomes a sculptural piece of art, with a monolithic shape, speaking through its materiality, the texture of clay and the earthy tones (Fig. 10). When it comes to fire oven placed in a place like this one, besides the aesthetic appearances, it represents handcraft and quality for the products. There is an entire story about the fire of this oven and its shape and meaning that designers thought of while creating the entire concept.

The rest of the space is very simple, with straight lines, yet sophisticated. The vertical surfaces transform themselves into shelves for the products (Fig. 11).



Fig. 10. Ble', Thessaloniki, Greece [18]



Fig. 11. Ble', Thessaloniki, Greece [18]

The space was treated very architecturally, by focusing on shapes as a whole and letting them speak for themselves. The tones of the entire space are very unit, designers using earthy shades of color and stone texture [18].

Following the analyzed case studies, we can observe the different types of approach regarding the interior design concept. The first example of Ladurée uses real elements of the pastry as an inspiration and transforms them almost in a literally way into furniture and so on. It also uses elements of history and redesigns them, just like the second example of Lolita, which has strong historical references. The third example of Elektra is based on functionality and making the most out of a small place. Not least, Ble' uses a concept based on natural elements, with ethnic influences. Designers chose to use uniqueness of natural materials, such as clay and stone. Materiality plays a major role in spaces, sometimes it can speak by itself and generate the entire atmosphere and identity.

### IV. THE CREATIVE USE OF CONTEMPORARY TRENDS STARTING FROM THE TYPE OF SERVICE TO THE ENTIRE CONCEPT

While designing a cake shop there are aspects beside the design itself that need to be considered, a very important aspect that influences the interior design is the type of service chosen. Besides the fact that it influences the way the space is configured, the way of attending the client is also closely related to the business plan that the shop will approach. Therefore, we list the possible serving styles when creating a cake shop.

The first type of service is the one of a "patisserie / bakery café", a bakery café or a sit-down bakery that is characterized by a space that offers the customers the possibility to serve the products right inside the shop. This type of service will be implemented in the proposed interior design project for Zephira.

When we talk about the pastry shops that also offer a coffee serving area, such spaces require a wider location. Usually this kind of locations, besides the commercialized products, they also offer coffee, tea or appetizers. Speaking of Zephira, besides the destination of pastry shop

and bakery, there is an area dedicated to coffee serving, but also a small conceptual shop with culture-specific products related to the entire design concept.

Another type of service is the “counter service”. This one is very similar to the previous one, because the first one requires space for customers who want to purchase products, while this one doesn’t. However, for such a destination there is no longer a need for an wide space, because the clients don’t have the option to serve the products in the pastry shop anymore, so tables and chairs aren’t needed, yet there is an option for customers who want to arrange the purchased products in their shopping bags, so the shop has a special countertop (Fig. 12).

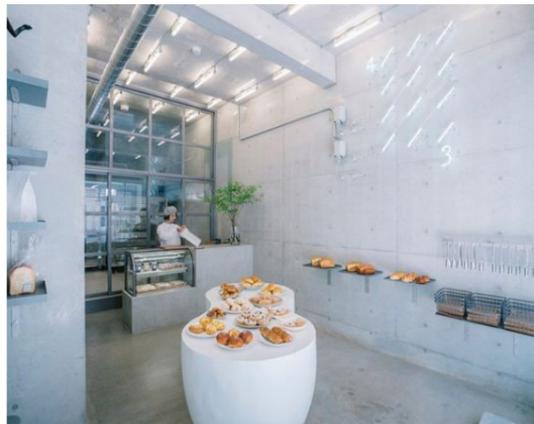


Fig. 12. Ripi Bakery, Japan [19]

When choosing the arrangement that includes the “counter service” type, from the beginning the costs of this arrangement and the entire interior design become lower, while another advantage being that in comparison with the first type of service, this style sells just as well the same type of products, the only difference being the fact that you can’t sit and enjoy the products inside the shop. Usually, many franchises, besides the big shops that they own, which serve by approaching the first style, have much smaller stores that serve in the “counter service” style, a good example in the city of Timisoara is the ‘Prospero’ store, which has both big shops with the possibility of serving products, but also small shops that operate in the second style presented.

Another serving method very popular today are the “food trucks”. This method of service has become more and more used in the last period, being a very efficient in terms of costs, also having a great advantage when it comes to mobility, so it can be placed anywhere. Such food trucks require another space where products can be made. However, this type of service doesn’t have to be necessarily independent, many of these food trucks having a main shop/restaurant, which among other services has the option to deliver goods this way. A good example in the city of Timisoara is ‘Street food festival’, a festival dedicated mainly to gastronomy, where dozens of restaurants, bakeries, cafes and many others, meet in a specific place, serving their products from their custom made food trucks (Fig. 13). This kind of event besides the ‘good-looking’ food, also attracts people because of the creative and fun design of the entire place, design generated by the flashy food trucks and the theme of the event.



Fig. 13. Timișoara Street Food Carnival [20]

Therefore, a great advantage of these food trucks is their design, when it comes to creativity, the options for these are unlimited. Usually this style of service is based on the idea of “fun and bold” that attract people’s eyes on the street. Such food trucks not only have the possibility of being placed in public spaces, but can also be rented during various events, for exam-

ple the concept of candy bar is transformed into candy truck. When it comes to Zephira, this it could be a very good investment for a future development of the shop.

The next type of service is “home bakery”. This style of marketing products is very common in the beginning of small businesses, as a start. Usually the owner doesn’t have enough capital for opening a location for their business, in this case the whole production will take place usually at home. This type of service requires a good marketing plan, usually with the help of the online environment [21].

The last one on the list is the one of specialty bakery, which focuses on creating a small number of products, usually handmade products, these products are usually thought of in detail, following a quality / quantity ratio. However, this method of service refers more on the concept of the goods, in this case, it’s a very flexible one, because despite focusing on a specific type of product, the store decides if it will produce in large or small quantities, so you can have a ‘wholesale shop’ or a ‘counter service’ one. In our case, Zephira can interfere with this concept as well, being an artisanal pastry and bakery shop, which also sells handcrafted ceramics.

Thus, by choosing one of the types of service listed, the business plan can develop and it will answer many questions related to how many personnel is needed or the choice of the location. In the end all of these will reflect also in the interior design of the shop.

As a conclusion related to the interior design project of Zephira, our shop combines the first method of service, being a pastry and bakery shop with a café and also a concept store, but in the same time the marketed goods are ‘specialty products’, with Greek / Mediterranean feature. No least, the business plan can expand by adding in the future the option of owning a food truck, so the shop will be even more visible.

Once the business plan is established, the next very important step is the concept of the place. Besides the main ideas that stay in the center of the concept, it is important to combine them with the contemporary trends. There are few key trends that we can rely on in 2020, such as organic and geometric shape, textures and col-

ors, creating a ‘social-media’ friendly environment, sustainable design and many others [22]. When it comes to shapes, both organic and irregular geometric with simple lines shapes had a comeback. Today we can see many interiors inspired by the Memphis Group aesthetic, a brand from the postmodern times, with asymmetrical shapes, but in the same time very basic when it comes to decoration, yet extremely colorful and with a playful design. When it comes to organic shapes, we can see how designers took advance of the material’s technology, so they managed to be very creative in their interior design creations.

Speaking about textures and colors, besides the new technological materials, there are plenty of materials that made a comeback, such as terrazzo or gold decorations. When it comes to colors, this may vary. A good trend setter is Pantone, which announces the color of the year, for example, in this year 2020 we have Classic Blue 19-4052. Of course, this isn’t a general rule when choosing the colors of the space, but it can be a good indicator. Other trendy colors for 2020 can be warm pastels or bold monochromatic tones. Another important trend in the 21st century is the ‘social-media friendly’ environment. Since everyone is connected to the social media, digital marketing took advance of this and most of the advertising is happening there. A very interesting process was the unexpected free advertising generated by the clients, by posting pictures online with the trendy interiors, so other people came to check the place, not necessary for their products, but for the looks. Lots of businesses took advance of this and started to create interactive places that look good in the pictures. A good example is “The pool club” by the studio ‘DesignByGemini’, a project in the form of a container, with a 90’s thematic, with fluorescent colors and a tropical vibe, installed in Milano, during the Design Week 2019 (Fig. 14) [23].

The main public was represented by the millennials, also known as generation Y, and Gen Z generation. All of them stayed in lines to get pictures in the interactive installation. The main goal was advertising of the design studio, which had a great success.

Last, but not least, one important fact that we need to keep in mind is the sustainable design, also known as ‘zero-waste’ design (Fig. 15). Since the environment is experiencing big difficulties and the pollution is higher than ever, lots of designers try these days to use recycled and sustainable materials in the process of creation.



Fig. 14. “The Pool Club” installation, Milan Design Week 2019 [23]



Fig. 15. Sustainable lighting fixtures made from fungus and wood [24]

The central idea of Zephira concept is the ‘texture of Greece’, which combines important elements that defines Greece visually, but also popular traditions like family gatherings and so on. If we think about Greek islands, visually we are surrounded by the famous blue and white tones, same tones that can be found on the Greek flag. Besides the colors, there is stone, Greece being famous for its marble, which can be found in every corner, starting from the paved streets to people’s houses. Terrazzo flooring is also very popular in Greece, this being a popular traditional craft which found its popularity during the 20th century. All of these elements are timeless and by using them a unique concept with ethnic influences can be created. The chosen ancient Greek root name Zephira

for the interior design project, a female version of Zephyr, which represents a personification of the “west wind” [25].

The concept can be also influenced by the Mediterranean cuisine, with important elements that can be an inspiration for the project, such as the olives, wheat and grapes.

The entire idea of this place is to recreate a greek atmosphere once through the products sold, but also very important, through the visual identity of the place. Besides the tangible elements of the shop, there are two other important facts that have to be considered, such as smell and sound. The smell is obviously given by the baked products, but the materials used can also generate senses for the space, for example the smell of natural elements like wood. When it comes to sound, this one can bring more clients or drive them away. The sounding system is more important that it may seem, the music played has to be quite neutral and with a moderate volume, not to quiet, so it will go unnoticed, not to loud either, so it will be disturbing for the clients and also the shop staff.

The term Xenia (Greek: ξενία) means “guest-friendship” and represents the ancient Greek concept of Hospitium, which mean hospitality, associated with generosity and courtesy shown for the people who were guests [26]. Even today Greece is well known for its hospitality and friendly environment generated by the inhabitants of this country. This behavior can be seen very often in shops, restaurants and cafes, usually places where people like to hang out more.

The purpose of Zephira is to create a friendly environment for its clients, by making a neutral space that attracts people of different ages. The place’s supposed to be friendly for young generations, families and elders (Fig. 16).

There are mixed styles of seating furniture in the shop, so it can fit all age groups. While younger generations may prefer the ‘bar seating’ with stools, there are also options with benches and chairs.

Episunagó (Greek: επισυνάγω) which means “to gather together”, is another important aspect about Greece, gatherings [27]. Same as other countries from the Mediterranean area, for the

Greeks, having all family together is very important and these meetings usually happen at the dinner table. Based on this tradition, besides the ‘2 seating’ tables, Zephira wants to focus on the ‘sitting together’ concept by having large tables that can host from 4 people to 10 or more.

The Greek term for clay is Keramos, while the action of producing pottery is Kerameikos. Besides the mythology, philosophy and famous architecture, Greece is very famous for its pottery tradition since ancient times [28]. Even today there are many who practice the art of ceramics and you can buy them almost everywhere you go around Greece. When it comes to ceramics, they are very related to food and drinks, so there is a wide range of shapes, starting from cup to plates, to massive amphorae. Because this project it’s about serving food and drinks, the investor behind Zephira doesn’t want to bring the Greek spirit only through the pastry and bakery goods. The shop won’t only offer you the products in beautiful table ware, but will offer you the occasion to bring the unique ceramic objects at home. In this case the shop will also have a section for ceramic objects and table ware, so the Greek experience will continue even at home.



Fig. 16. Zephira project –perspective view

It is important to mention that the chosen building for this project it’s a monument, being part of the Timisoara’s heritage, designed by architect László Székely and bears the name of the Hilt-Vogel Palace (Fig. 17). As many other buildings from 1912-1913, we can see notes and decorative elements of Secession style, art movement closely related to Art Nouveau which started in Austria; Timisoara being administered

in the past by The Austro-Hungarian Empire and architecture and culture being similar [29].



Fig. 17. Hilt-Vogel Palace, Timisoara [30]

This is a very important fact that we need to keep in mind while designing the space, once because we can’t change the structure of the building, and also we need to choose the way we design the front windows of the shop so it will be in harmony with the façade. There are two options while creating the front window display, one it is to articulate the display with the old façade by creating an artful contrast between the old and new, while the second one keeps the architectural style of the building when recreating a display. In this case the façade will be treated as an articulated addition for the building, very neutral, by using straight lines, so it won’t interfere with the actual style of the building (Fig. 18).



Fig. 18. Zephira project –frontal view with the proposed facade

## V. CONCLUSIONS

The study aims to find methods regarding the creation of a concept that combines notes from traditional elements with contemporary trends for the interior design of Zephira. The design project starts with a research in the history of the program, but also the history of the chosen culture as inspiration, in this case the Greek / mediterranean culture. So all these elements

added together resulted into a contemporary design with ethnic notes, such as materials and some accent pieces of furniture.

Another aim of this project was the integration of several services to the shop, so we can list the pastry and bakery area, the coffee shop and the concept store. Besides the goods that give the function of this shop, the clients can continue the greek experience at home by buying artisan tableware made by greek artists.

The relationship between the delimited areas is the following: the access will be modified and positioned between the central front pillars, the front view will be with the pastry display counter, this will be the center of the whole interior which makes a connection (as we walk by) in the left with the coffee shop area, while in the right we have the serving area and the ceramic shop zone. When it comes to furniture, each zone was treated with attention, with custom made solutions. Starting from the left, in the coffee zone are there is a countertop for coffee preparation, there is the small shop area represented by few racks that hold artisanal coffee (Fig. 19), followed by the window seating area which has a special feature, the vertical folding window which turn the serving space into a two-side table, so the coffee can be served from the inside and outside as well, this style of serving being very popular in the Mediterranean area.

The next area, the central one, represents the pastry countertop, where you can choose what

you want to serve, place the order and pay. This area has plenty of space around the countertop, so when people create a waiting line there will be a good circulation. The countertop is L-shaped, so the first view when walking in is the display with the goods, followed by the space where you can place orders and then the pay-point (Fig. 20).

This countertop is very close to the focal point of the serving area which is the "tree-island". This counter island is surrounded by bar stools that can hold up to 12 people, and the center of the island is represented by a tall pot with a tree. Next to this island there is a custom made double sided bench with tables and chairs. The same style of bench will be seen in the window area, so there will be serving spaces between the pillars that can hold 4 people each. The space between the pillars will be treated with custom made pots for plants that will be part of the benches.

As general conclusion of this study, we can say that it is possible to successfully create a space inspired by Mediterranean greek culture into a heritage building with secession notes, while keeping in mind an artful approach which is harmonized with the entire building. The desired result represents a balance between the youth-oriented design and the ethnical references, the raw materiality of stone and the finished wood, in conclusion, a place for all.



Fig. 19. Zephira project –perspectives from the coffee shop area



Fig. 20. Zephira project –perspectives from the main countertop

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## Remodelling airport public spaces Holo café & bistro with lounge in Timișoara's airport Traian Vuia

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### ABSTRACT

The proposed hypothesis of remodelling public spaces in airports, such as the example of an airport Holo Café & Bistro with Lounge, is aiming beyond the creation of a successful dining environment but is rather targeting behavioural change and travellers' education, as well as producing a social space in order to evoke a humanising travel experience. Last but not least, one of the desirable side effects of designing with the above in mind would hopefully be hinting towards the fact that the current hectic, queuing oriented airport spaces can become history, opening the gates for a positive and conscious experiential travel.

**Keywords:** interior design, language of space, behavioural change, aviation, education, café, bistro.

### I. INTRODUCTION

The aim of this paper is to reiterate the impact of design on the air travel experience, as well as the need for design and technology to intertwine with the purpose of educating and influencing the general public regarding the value and essence of travel. In the aftermath of a successful connection between design, technological advancement and air travel, we may conclude that this ultimately also brought back the experiential magic of flying, the motivation to overcome our limits and fears, or the gratitude that we have achieved what once was thought to be unattainable.

The essence of this spirit can be found in one of the letters of Traian Vuia, the Romanian inventor and aviation pioneer, who wrote to his mother saying: "Mother, I go far away, to Paris, but don't be sorry because I will either come from there flying, or I will never come at all" (Traian Vuia).

Interior design in the area of airport amenities finds itself following repetitive patterns, generally because of the obvious need to follow norms. Nevertheless, even the areas that could spark more interest from the experience of the environment point of view, like cafes or bistros, also reflect a rather utilitarian approach. Divided between technology, art or economic constraints, the design of a space often risks becoming a mere product, lacking the social and psychological component or the thought of how the users will actually connect with that environment. The routine of the aviation professionals is a living testimony of the fact that many passengers face the fear of flying, arrive late for their boarding or embark frustrated because they lack to understand the relevance of certain protocols, or do not react accordingly in life-threatening situations.

The idea of terminal buildings providing more than a cumulus of seating and queuing areas with basic amenities and being an environment where travellers can enjoy themselves, get educated about air travel in subtle ways, or simply relax puts the travel experience into a much more enjoyable light. This scenario has a positive behavioural impact on the travellers and can also generate revenues, which help

offset a consistent part of the overall costs of an airport. A well-designed airport space is built around how various passenger groups move through the airport and the amount and type of shopping they do or the hospitality services they acquire. Airports in Asia go beyond the retail experience to provide inviting spaces such as gardens to their public. The idea of travel being a worthwhile experience was most vivid in the commercial air travel genesis when flying had a lot to do with exclusivity, elegance, and exploring the uniqueness of simply being airborne. This was reflected in the design and function of all the airport's amenities from the check-in until after the landing (Fig. 1).



Fig. 1-a. Airport bar 1933

Fig. 1-b. Airplane sleeper seat 1958 [1]

Throughout the evolution of the aviation industry, we are well aware that design had to shift its accent and conform to the current norms for safety and security. This has definitely taken its toll on airport design and the routine of air travel. The strict focus on safety and security has often stripped airport spaces of identity and has left us with impersonal, crowded environments. Consequently, the interior design can be seen as the rescuing tool to balance the optimisation of the commercial potential of, for example, an airport café or lounge, with the experiential magic of travelling, as well as with the operational requirements of airlines.

The basic hypothesis of this paper is rooted in the need to balance good design, positive travel experience and comprehensive way-finding by considering the needs of all users, that is, anyone who may benefit from the space (children, the elderly, those carrying heavy luggage items, etc.) [2].

## II. SHORT HISTORICAL OVERVIEW OF AIRPORT AMENITIES

### II.1. Spaces dedicated to leisure

Looking at the first examples of airport amenities (Fig. 2) which included restaurants or cafés, we discover that these started to surface in The United States of America around the 1930s [3].



Fig. 2. Early airport amenities [4]

The main incentive for developing these facilities was the strong competition from the aviation's transportation rival-the train. Trains had already existed for around one hundred years at that time, more or less the same period that we have had commercial aviation around. The luxury restaurant wagons present both in the United States of America, such as the Pullman cars, or the Orient Express in Europe, stand testimony of what travel could provide for the fortunate few, probably for the same category of people who were affording to experiment flying in that beginnings of the commercial aviation [5].

Naturally, travellers would not settle for poor food options or unwelcoming spaces in comparison to the available train services. In addition to this, as running airports was as much of a costly business back then as it is now, income from concessions was needed desperately. Pictures of airport restaurants dating from 1940, such as the Sky Room (Fig. 3a) at the Burbank CA's Union Air Terminal, or The Newarker at The Newark NJ terminal in the early 1950s (Fig. 3b), show elements of a tasteful dining atmosphere with white linens, goblets, boudoir-style table lamps and leather sofas [4].

Apart from using correct design elements popular in those times, the other big step towards the progress of airport dining areas was made when airport managers understood that they can sell

much more than a meal, or a service, they can sell the experience. People were enthusiastic about seeing planes take off and land, therefore dining areas could maximise their potential by overlooking the airfield (Fig. 4). This experience was built on the foundations of a catchy theme and an elegant environment, where the unique atmosphere represented the selling point of how for example the Fort Worth's dining area at Amon Carter Field was described in 1953: "a wonderful, quiet spot to have a leisurely evening meal and then sit on the observation deck and look at the bright lights of booming Dallas nineteen miles away." [4].



Fig. 3-a. The Sky Room

Fig. 3-b. The Newarker [4]



Fig. 4. Sky Room restaurant advertisement [4]

Looking at how design and technological progress have brought successful airport themed restaurants into existence makes us understand that the terminal spaces designed in the times referred to as the golden age of air travel had a strong sense of identity and community pulling in locals, not only travellers. As we are looking at the historical elements of these amenities, we may argue that the beginnings of air travel had both its ups and downs, nonetheless, in order to strengthen the concept of social relevance and uniqueness of an environment, we may consider the theory of H. Lefebvre who interpreted space on three levels: the physical, the mental and the social space. "He argues that space is not simply something we inherited from the past or is

determined by the rules of spatial geometry, but space is produced by the people who occupy it and reproduced in the way that they construct their lives." [6] All of the above historical examples support us going back to the roots of airport leisure areas. This attempt is meant to underline the relevance of creating spaces that are not only accurate design products but also meaningful mental and social spaces.

### II.2. Education oriented spaces

Apart from generating leisure-oriented spaces, airports had to dedicate a part of their site to educate the public on the rules and benefits of safe air travel. The educational display of information had generally been organised in the form of walls with posters or magazine stands at the airports (Fig. 5). However, even these scarce publications were rather focused on advertising the rail and runway connections than the public's education for flying.

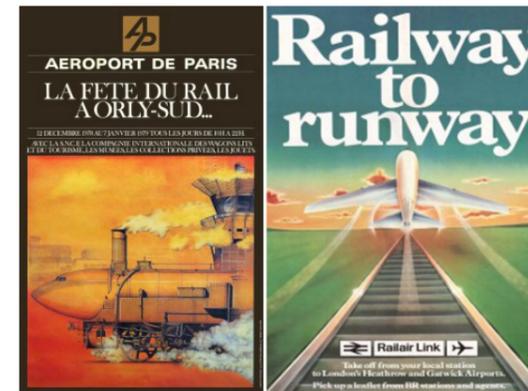


Fig. 5-a. Publication France 1978

Fig. 5-b. Publication England 1982 [7]

Throughout the history of commercial aviation, educating the public was seen as the main responsibility of airlines and far less as one of the airports. Despite the fact that the impact of airport space onto travellers' behaviour was insufficiently addressed by aviation regulators or by the architecture and interior design norms, one may view the past as means to facilitate understanding, rather than to find faults and invite to defensiveness.

Attoe W. used to write that 'criticism will always be more useful when it informs the future than

when it scores the past' [6].

## III. BEST PRACTICE EXAMPLES AND CASE STUDIES ON THE SET-UP OF AIRPORT SPACES

### III.1 Case study on designing for behavioral change in airports

Starting from the premise that all airport spaces can be designed with the potential to educate the public and trigger positive behaviour, a study organised by a student design team from the Utrecht Applied Sciences and Wageningen Universities in the Netherlands has targeted improving the waiting experience at Schiphol Airport security and check-in.

The result of the study showed that Agile and the Behavioural Lenses Toolkit methods are extremely useful when designing for behavioural change.

The Agile method drove the students' work through several sprints, repeating the same sequences: plan, design, build, test, review. The Behavioural Lenses Toolkit implied that the five lenses that can drive behavioural change are: habits and impulses, knowing and believing, seeing and realising, wanting and being able to, doing and persisting. One of the most relevant research steps was to analyse the first lens: the habits and impulses.

This was done by distributing short quizzes (Fig. 6) to the people waiting in the airport's lines. The content was targeting eight areas of questioning:

1. What is your flying experience, age, gender?
2. How often do you fly per year? Are you travelling alone? Are you flying business or leisure?
3. What are the first three things that pop into your mind when you think of airport, waiting, security?

- 4.&5. Take at least three pictures of things that you are doing that make you feel: A. thumb up icon/ B thumb down icon?

6. You enter the waiting line. What is the first thing that you notice?

7. What is the one thing you want to do right now in the waiting line?

8. Looking back, do you think that your expectations were the same as the actual experience? If answered altogether, the eight sections of the cultural probe card would clarify some of the background of the responder and the source of potentially biased answers-e.g. if flying for

the first time and elderly or if a frequent traveller and arriving late, etc. The results of the travellers' reaction to the design and impact of space in Amsterdam Schiphol Airport have not been made public. However, the case study has brought valuable conclusions for all design, architecture and aviation professionals:

- when designing a space, the target behaviour of the users has to be formed into an explicit goal;
- in order to establish a relevant social space, one needs to consider the customer experience map (customer's journey) and the results of the cultural probes from Fig. 6 in order to generate meaningful airport design concepts [8].



Fig. 6. Travellers' quiz-cultural probe [8]

### III.2. Best practice examples derived from technological advancement

The spatial layout of an airport terminal, the interface features, its materials, furnishings, ornaments or lighting are all intertwined with the technological advancement related to safety and security. The interior design elements have the power to stimulate the active interaction of people and the environment, thus generating a specific perception. James Gibson, the American cognitive psychologist, considers "perception to be an active pursuit mechanism, not just a passive receiver" [9]. Consequently, we may define airport technology and interior design as key players in the active mechanism of the travellers' perception. The areas of technological advancement detailed below are meant to present possibilities of restoring air travel to its rightful long-lost condition, that of a unique experience reminding us of how much infinitely more we can achieve.

#### III.2.1. Biometrics and seamless check-in passages

The state-of-the-art biometrics system already in use in Asia allows travellers to enjoy a seamless journey through facial recognition technology. Solutions like these mean that after decades of uncomfortable security measures because of events like 9/11 or the shoe-bomber, we may finally rise to a new level of travel comfort without disregarding the needed safety net. Biometrics means no downtime or queues, as well as no need for a physical identification, as this is achieved through pre-existing passengers' data, advanced check-in apps referred to as guest programs, and the implementation of seamless passage gates. These facilities leverage a new era for the use of airport space, as the former snake-like, corded queuing areas could translate into leisure amenities where people spend their time in a desirable manner (e.g. gardens, dining areas, spas, etc.). Easing the passenger flow would enhance the overall travel experience and result in financial benefits based on a higher capacity to process travellers.

#### III.2.2. Seamless bag drop-off

Baggage check-in areas at large airports currently represent a high space consumer due to queuing or the need to interact with trained airport staff in connection to luggage issues. However, another feature linked to biometrics, developed for its specific function, is the seamless bag drop-off machine. This equipment has a built-in totem or avatar, which can interact with the travellers and answer specific questions in several languages (Fig. 7). This concept follows the increasing trend of self-services, embodying a straight forward yet inviting design based on the avatar function [10].

Another worth to mention trial run by Geneva's airport starting with 2017 was aiming for the hold luggage not to enter the terminal building at all, but to be directed straight to the luggage handling area. Leo, "the autonomous, self-propelling luggage robot has the function to check-in, print bag tags and transport up to two suitcases with a maximum weight of 32 kg." from the terminal building's entry to the luggage handling area (Fig. 8) [11].



Fig. 7. Hold luggage robot Leo [10]



Fig. 8. Seamless bag drop-off [11]

#### III.2.3. Virtual reality (VR) and holograms

One of the relevant examples of how holograms started to impact the aviation industry to assist in the process of passengers' education is the London Luton's Airport holographic announcer. The custom-designed holograms in both male and female versions are technically referred to as virtual assistants, placed at the access points of generally congested areas. Their presence aims to improve passengers' cooperation at the filters and to reduce queuing time, as they provide relevant instructions on what is coming up in the chain of travel. Even if the passengers do not understand the language of the holographic announcer, the image is self-explanatory [12].

In the same field of virtual reality, another trending facility is the so-called Holo Café. This leisure option has not reached airports yet. However, it is currently trending in cities like Aachen, Düsseldorf or Cologne. The amenity is usually providing a bistro area and designated gaming spaces for single or multiple players. Immersing oneself in a virtual version of aviation, fantasy, and fun could represent a catchy way to spend time at airports. The Holo Cafés usually advertise their services as a very special experience for individuals and the whole family [13].

It is well known that fields like medicine, aviation, etc., already use VR to train their future professionals better; however, this practice has not yet reached the public at large. Using VR for leisure, fun, as well as for educational purposes at airports can represent a proactive strategy for reducing poorly managed aviation incidents due to the response of the human factor.

### III.3. Airport leisure areas

#### III.3.1. Lounges

These spaces are usually considered more exclusive or luxurious amenities at the airports, where the general public does not have access (Fig. 9). This concept is tending to change in recent years, and providing such areas before the security checkpoints are becoming more frequent. Business meetings often take place at the airports, therefore, facilities like lounges need also to be available to the ones who will not travel. When it comes to the lounge setting design, this generally references a wide range of seating options, everything from sofas to armchairs, libraries, sleek furniture, and amazing views of the tarmac and runway.



Fig. 9. Air France La Premiere Lounge, Paris [14]

Lounges may vary aesthetically and therefore embrace different styles: some are organised around technology or around gourmet food with food theatres as their central piece, whereas others are based on the concept of the local culture or a historical theme (e.g. the proposal of this article will refer to an aviation-themed lounge with a focus on the history of Traian Vuia's pioneering work, as the patron of Timișoara's airport).

### III.3.2. Airport cafés and bistros

These amenities (Fig. 10) usually have their design-oriented towards three main directions:

- a franchise (in which case the environment is built as a replica of the franchisor's view),
- a design concept worked around the pre-existing terminal's interior architecture,
- a themed dining area (where concepts are being reinterpreted to serve the chosen theme).



Fig. 10. Pilots Bar & Kitchen Heathrow Airport [15]

A successful thematic bistro is usually achieved by the discrete intertwining of niche elements that have a decorative or even functional role (e.g. old airplane parts), together with familiar objects that create the feeling of comfort and belonging.

Fig. 10 presents not only a balanced chromatic but also a correct proportion when it comes to the diversity of the used materials (wood, stone, metal, chromed surfaces, etc.). The front of an airplane's turbo engine positioned over the bar, together with the thematic wallpaper in the back of the room, become points of interest and identity for the location, without overdoing the niche elements (e.g. repeated use of curved metal that mimics the fuselage of an aircraft, etc.). Despite the fact that the niche elements represent a maximum of 20% of the decorated surfaces, their central positioning is the key to triggering people's perception and ability to form associations. This empowers initiative, completes the visual exchange of connections between objects, and facilitates an imagination exercise [9].

## IV. DESCRIPTION AND CROSSCHECK OF THE STUDIED HYPOTHESIS

The proposed hypothesis of designing for behavioural change with the aim to educate, to produce a social space as Lefebvre would ad-

vocate in his book *The Production of Space*, in order to evoke a humanising experience which could ultimately restore the air travel from its current hectic condition, is a task going way beyond what this article can resolve [16].

Nevertheless, these needs are the starting point in establishing the pillars of a meaningful design endeavour for the proposed function of an airport Holo Café&Bistro with a Lounge.

### IV.1. Understanding the traveler's experience and expectations

One of the key elements in establishing the strategy for designing an airport facility is, unless cultural probes are possible, to organise the use of passengers' rating websites and survey reviews (see chapter III of this paper). Measuring the customer's reaction to an existing design product will prove itself immensely valuable, as, despite the obvious personal dose of subjectivity of the reviewers, there always is an answer to be read between the lines. This usually refers to what is lacking, what is a nuisance, or what is impressive in the respective environment.

Skytrax, one of the websites dealing with such reviews, shows that the most frequently rated elements marked as high in importance for airport facilities are:

#### 1. Comfort of the amenity:

- Décor and its condition;
- Seat availability, types, comfort, as well as a design to enable maintaining cleanliness;
- Access to power/charging points;
- Availability and proximity of the washrooms, as well as a design to enable the cleanliness of washrooms (including washroom for persons with reduced mobility and baby changing rooms).

#### 2. Food & beverage:

- Wide range of options: e.g. fast food choice, healthy food options, gourmet food, as well as a balanced distribution between local and international brands;
- Language choices for the signage and food menu in the amenity;
- Set-up of the dining area in order to enable prompt serving and fast payment, etc.

#### 3. Vicinity or inclusion of airport extras:

- Waiting times' and departures' screen signalling;
- Educational walls/ corners or free thematic

magazines (e.g. aviation news, "This is my first flight" section, aviation history, etc.);

- Ease of wayfinding towards departures;
- Terminal maps;
- Availability of QR-code scanning or link to the airport free info app;
- Baggage carts drop off area;
- Vicinity to passport scan/ check-in, etc. [17]

Despite this presenting itself as a long list of expectations, it gives us relevant information for laying the grounds of the function and zoning, possible desirable dimensions and shape of the space, as well as the importance of site orientation and climate. The proposed space desires to fulfil as many of the above criteria as possible, like:

- positioning the amenity as a stop in the natural passenger flow towards the departure area;
- incorporating relevant ways to consume time positively and educationally (e.g. free articles, magazines, aviation-themed VR, educational gaming);
- ensuring signalling to keep track of the time until departure or the estimated time needed to cross security checks;
- using design elements in order to create a social space (psychologically and emotionally appealing), with areas that invite to communication, as well as single occupancy posts that hint towards relaxation and contemplation based on the view of the tarmac;
- use of comfortable furnishings that can also be presented as clean at all times (e.g. furnishings that show their legs, rather than upholstered skirts, etc.);
- ensuring enough width on the main aisle of the Café&Bistro in order to allow at least two persons walking with large trolleys to pass next to each other (e.g. minimum 1,5 meters) etc.

### IV.2. Aiming for specific behavioural changes as outcomes of the proposed design program

As concluded in chapter III of this paper, one of the most meaningful take-aways from the case study conducted at the Schiphol Airport was that when designing a space, the target behaviour of the users has to be formed into an explicit goal from the very beginning. Consequently, starting from my personal work experience in the field

of aviation, as well as based on informal interviews conducted among aviation professionals, the main behavioural changes which the proposed, designed program should be aiming to influence positively are:

- increased time awareness regarding the best moment to head towards the security check;
- incentive to read and get more informed about the „why" behind onboard safety procedures or the benefits of compliance (e.g. „did you know that...?!" sections included in the Café's e-library);
- raise awareness on the historical achievement of the airport's patron Traian Vuia and inspire based on his role-model figure;
- address the flying rage or fear of flying by offering a calming environment, which could potentially include familiar elements based on the cultural probe of the main nationalities flying into Timișoara'a Airport (Romanian, Italian, English, Spanish, German).

### IV.3. Proposed design strategies

Except for the obvious conceptual design elements deriving from the aviation theme and the educational scope achieved through the VR section, space should aim to evoke impressions connected to the desired behavioural changes. In a nutshell, the theory of perception tells us that the impression that space makes on us is „the core content of the relationship between human and space. This is a process based on feeling which is the further organisation, recognition and interpretation of sensory information, thus helping people to express and understand the environment. Sensation refers to the active or passive reception and response of human organs to sounds, colors, odors, temperatures...in the environment." [9].

Consequently, the theory of perception lays emphasis on the sensation and impression that a certain design gives to the visitors of the space. A few impressions which the proposed design program should strive to evoke are:

- the feeling of a wide and airy space, as a natural correlation to the idea of flying;
- the space should have a calming and positive effect upon its occupants;
- the flow of the space should be maintained at

all times so that interaction is encouraged, despite the need to partly separate the lounge and the VR section from the busier café area;

-the space should be infused with identity elements of the airport's patron Traian Vuia.

The section below will expand on design strategies that support the objectives of the program.

#### 1. The impression of a wide space

The structural devices which can be employed in order to give the impression of a wider space, as well as to maintain a certain continuity and flow in-between areas, are:

-the use of open plans as much as possible, with only a few structural walls;

-the use of half-walls or glass walls. The VR area could be enclosed with curved glass partition walls; this way, it may potentially represent an attractive observation object for the visitors of the café and also interact with the rest of the space with the help of light and liquid crystal panels (Fig. 11);



Fig. 11-a. Curved glass panels

Fig. 11-b. Liquid crystal [18]

-extensive use of glass in windows and doors;

-expanding the space vertically as much as possible;

-the use of light colours for the walls, where desired for them to seem further away;

-engaging vertical lines in order to direct the eye upwards/ give the impression of higher ceilings; The use of small-scale pattern or no pattern at all and smooth textures are among the elements that support the perception of a wider space [19].

2. A calming and positive effect onto the public Achieving this effect represents a challenge when thinking of the multicultural background of the travellers; nonetheless, there are some universally accepted design notions for a tranquil environment:

-the use of natural materials is a hint to nature and outdoors, therefore fostering a sense

of calm;

-benefitting from the use of light and shadow, as it evolves throughout the day: reflecting surfaces or structures hanging from the ceiling have the potential to create and direct shadow;

-layering a variety of textures;

-incorporating biophilic design in order to boost wellbeing;

-the use of neutral, soft colours (e.g. a light pink hue instead of a plain beige paint is proven to soothe and reduce violent behaviour), etc.

#### 3. The amenity constructed as a social space

Many of the aspects detailed in this article are non-tangible scopes for which one strives to identify tangible solutions. The design challenge is to resume the dilemma of positive behavioural impact into straight forward tasks; however, the few listed ways to resolve this should not be considered as an exhaustive program. The human need for positive interaction reflected in this case in the social potential of a space may be strategically addressed through, for example:

-positioning the furniture in order to facilitate the forming of hubs;

-standing areas with counters or tall tables, as well as rounded tables, are proved to encourage social contact;

-continuity and flow of the textures in order to invite moving from a function of the space to another, without having the impression of intrusion;

-the use of couches encourages conversation as the customers are closer to each other and the seating feels more informal;

-the social space should also allow just being with the others, without direct interaction, but rather the possibility to meditate and observe (e.g. by means of single window seats with smaller coffee tables).

#### 4. The identity of the space

The last endeavour of attempting to contour another intangible design output is forming the identity of a space. In the example of Timișoara's airport patron Traian Vuia, his life and work provide many inspiring elements to choose from, which may contribute to forming the identity of the place like: the display of pictures, sketches, quotes and journal content, or conceptualised

objects hinting towards the inventions of the aviation pioneer. He was the first to demonstrate that a flying machine could rise into the air after running its own wheels. The „Vuia I” machine, or as it was nicknamed „Liliacul” (the bat) due to its organic bat-like wing shape, successfully „left the ground and travelled through the air at the height of about 1 m (3 ft 3 in) for a distance of about 12 m (39 ft)” in March 1906 at Montesson-near Paris [20].

One of the ways to project these conceptualised objects into the design of a space is by elaborating suspended 3D forms and organic shapes created from:

-more recently developed organic materials such as the ones put together by the architect and researcher Neri Oxman (e.g. free-ranging silkworms spinning on a nylon-frame, cazeine structures, etc.) [21];

-non-flammable PVC sheets (Fig. 12) tightened under the effect of heat and fixed with patented track systems, allowing the generation and display of imaginative design elements [22].



Fig. 12. Suspended PVC installations [23]

#### V. CONCLUSIONS

In laying the grounds of this article, the one element that kept emerging from all other rationales were the connecting points in-between aviation and interior design. Each of these disciplines is meant to provide a service with meaning and positive experience attached to it. Both the interior design and flying experience are environments that significantly impact people's physical comfort, emotions and even their sense of belonging.

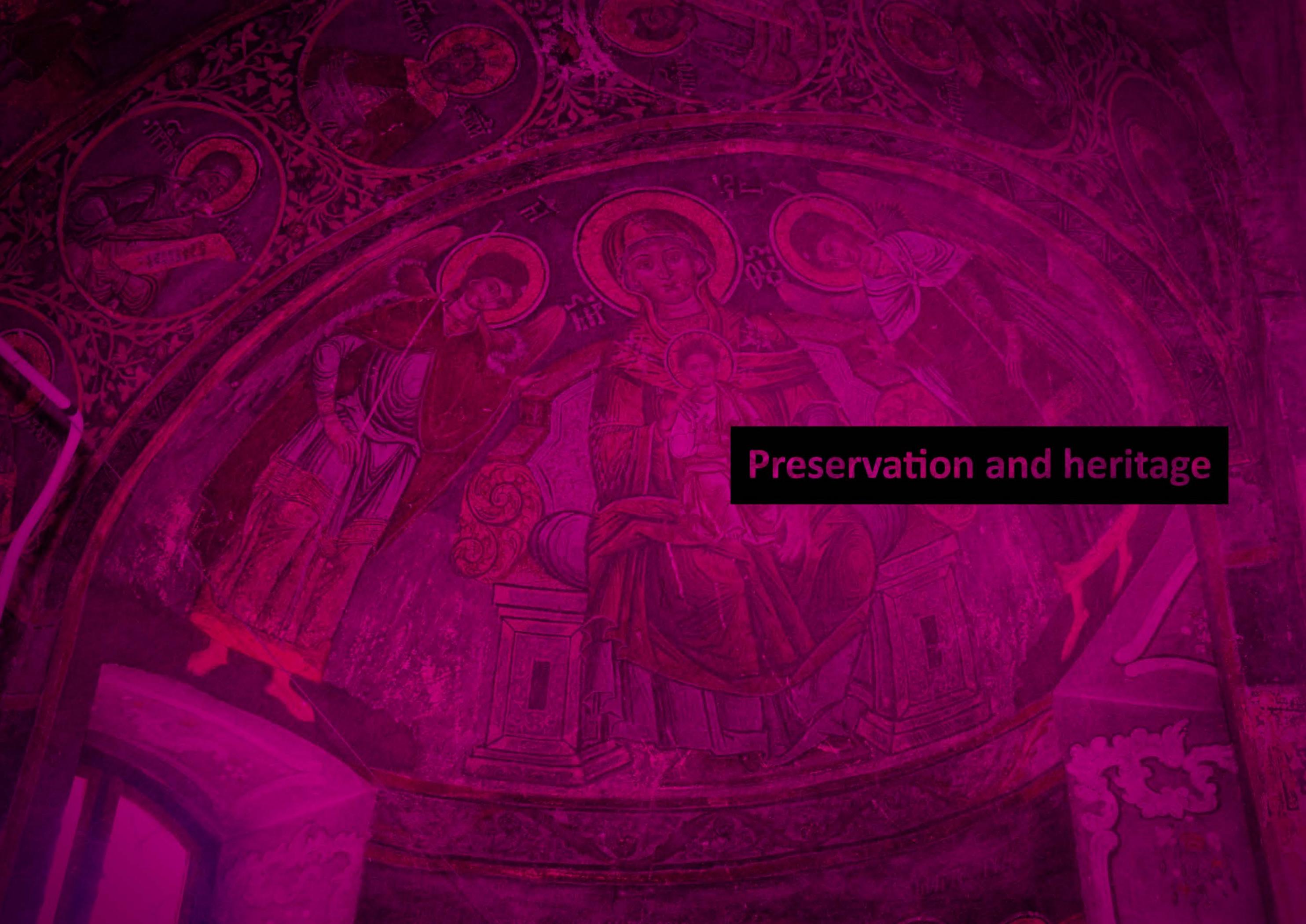
Even though the long-lost glamorous era of flying will never return to us, we may rescue ourselves from the constant rushing through airports with the help of conscious design that would enable attaching positive emotions to the travel environment. It is only by understanding

this concept can interior designers and airport staff work together and rise to the level of liability and obligation to create meaningful spaces that trigger positive behavioural responses. The research results aim to underline the fact that one needs to design with a clear scope and stretch far beyond the goal of achieving a „politically correct” design product. It is more and more obvious that nowadays, design endeavours need to be backed up by professionals from various fields such as psychologists, behavioural experts and professionals of the specific field that one designs for. Ultimately, the design of social spaces needs to be much more open to critique, feedback and customer review in order to evolve into having more complex beneficial effects on society.

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**Preservation and heritage**

## Aesthetic integrations in the restoration process of mural painting

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### ABSTRACT

Respect for the authenticity of the work of art, recognizability and reversibility of an intervention are benchmarks based on which different solutions and restoration technologies have been developed over time. However, no solution / method can be used systematically. Each work of art is unique and requires particular decisions. Only through a critical and philological approach to the restoration project and a proper implementation of all execution phases can an adequate and consistent representation of the image be obtained.

Mural paintings are an integral part of the structure of the building, but the first and foremost function of the paintings is to convey ideas and symbols, which they represent through images.

In the process of restoration of the mural paintings, one of the most important stages is the aesthetic integration. This stage allows the restoration of the visual reading of the painting and the reconstruction of the potential oneness of the work of art. Contemporary chromatic integration methods and techniques solve many problems regarding the treatment of gaps in the restoration process of mural painting, but in some cases, they can be inefficient.

This article discusses the importance and ethical limits of aesthetic integrations in the process of restoration of mural painting. The values and the symbolic functions play an important role in decisions on the aesthetic treatment of the mural paintings. The importance of restoring the narrative content of the mural painting is the aim of improving the perception of the image represented on the picture by the spectators.

**Keywords:** treatment, aesthetical integration, mural painting, narrative context, potential oneness, historical false, artistical value, retouching.

### I. INTRODUCTION

Mural paintings are an integral part of the structure of the building, but the first and main function of the paintings is to convey ideas and symbols, which they represent through images.

The evolution of the scientific methods of conservation and restoration is very important for the correct diagnosis and treatment of mural paintings, but the main way by which the spectators experience and perceive any painting is the aesthetic interaction.

Appreciation and evaluation are often strongly related to aspect. The existence of mural paintings can depend on the values attributed to them. This does not necessarily mean that all paintings need to be retouched or completed. An untouched painting can have an impact as strong as a retouched painting from the perspective of understanding and visualization [1]. The principal restriction regarding the aesthetic integration and completion of the mural painting is that of not producing a historical or artistic falsification.

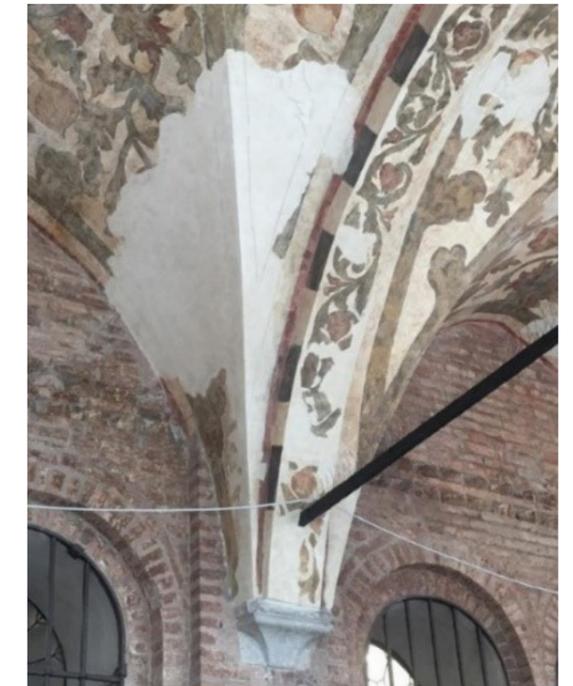
The question is when the intervention becomes a falsification? What is the difference between chromatic intervention in lines abstraction and re-creation of the image, if both of them are recognizable and reversible?

There have always been differing opinions on aesthetic integrations in the restoration of monuments, and the problems of aesthetic completion and presentation were probably among the dominant problems regarding the treatment of mural paintings for many years.

Current solutions cover a wide range of possibilities from minimal or no chromatic integration (see Fig. 1), to the reconstruction of lost content based on archival photographic documentation. The contemporary view is that restoration is part of the concept of conservation, which encompasses all measures and actions aimed at safeguarding tangible cultural heritage while ensuring accessibility to present and future generations [2].

The same level of skills required to perform technical operations should be applied to aesthetic completion. The difficulty is that different skills are needed for these treatments. This is a very important aspect of the problem of aesthetic in-

terventions. Conservators must be qualified in colour matching. Nevertheless, in the process of aesthetic integration, the individual visual sensitivity is also necessary.



**Fig. 1.** Palazzo della Ragione (Padua), Restoration works took place in 2000. (no chromatic integration performed)

### II. HISTORICAL AND ARTISTIC VALUES OF THE MONUMENT

Austrian Alois Riegl proposed (1903) a kind of exegesis of the values of the monument: the artistic value and the historical value. They are considered inseparable, but different, while previous restoration currents considered only one of them (for example, in stylistic restoration, only artistic value has been recognized) [3].

Historical value is a “memory carrier”, considered objective on a philological basis; it belongs to all intact, intentional or involuntary monuments.

The problem remained in objectively defining artistic value. In the contemporary nature of the work, this concept is relative, because it derives from its compatibility with the figurative ideals of the present, differently from subject to subject and constantly changing in time, which

means that artistic value is a “contemporary value”, impermanent [4].

Choosing the value or function that takes precedence over the others is a complex process, often affected by the aspect (style and condition) of the painting, as well as its authorship and age (identity) [5].

The specific nature of mural paintings as historical and artistic objects was described by theorist Cesare Brandi in his publications from 1963 [6], and 1977 [7], recognized by most restorers and conservators even today. Brandi argued that the artistic aspects of an object should take precedence over the material aspects, although its historical nature should not be underestimated. These ideas leave room for interpretation. Where is the limit between the reconstruction of the artistic aspect and the affectation of the historical nature of the object?

The symbolic values and functions that are attributed to the mural paintings are essential in the decision-making process regarding the aesthetic treatment.

There are two major, closely related reasons for implementing aesthetic treatment on mural paintings: to minimize the visibility of damage or repairs, and to maximize the comprehension of the pictorial contents. When discussing aesthetic treatments, most restaurateurs associate it with the application of some form of paint with a fine-pointed brush – retouching. However, when prioritizing historical value, the emphasis is placed on the original material, and retouching is avoided [1, 2]. Although chromatic integration can be recognizable and reversible, visual enhancement can be carried out on degraded areas or fragmentary mural paintings by controlling the texture of plaster repairs, and the tone of the colors.

### III. “POTENTIAL ONENESS” OF THE ARTWORK

The method of the chromatic integration should correspond to the appearance of the original painting and its degree of wear, yet making the integrations clearly recognizable, to develop the potential oneness of the artwork – C.Brandi [8]. “Potential oneness” might be interpreted as a state where the painting is perceived without competition from degradations. However, when

and how we achieve this status are very subjective and difficult decisions. The path to “potential oneness” is fenced in by ethical restrictions, modern principles and guidelines of restoration: respect for material authenticity; improving comprehension; restoring of the potential oneness; ensuring the reversibility; maintaining the aesthetic integrations recognizable.

### IV. METHODS OF CHROMATICAL INTEGRATIONS

Not only is the decision about the extent of an aesthetic intervention complicated, but also the choice of the method of retouching the gaps is fraught with difficulties.

Brandi separates two categories of gaps in the pictorial layer: “integrable gaps” (non-significant) and “non-integrable gaps” (loss of large areas or important elements). This classification is still used in the chromatic integration process [6].

In Romania, the treatment of gaps, regardless of method, is carried out in accordance with the restoration principles:

- Interruption of the “Figure” status of the gap (wear) on the background of the image. Thus, from the second plane, the image will return to the foreground when viewing the ensemble.
- Respect for the principle of authenticity by differentiating the intervention of the original part.
- Reversibility of intervention.
- Treatment of each gap according to the totality of the work.

The operation aims to restore as much as possible the visualization of the image without producing a false aesthetic and historical.

- “integrable gaps” - chromatic integration of the gaps in the colour layer with aquarelle paints in the techniques “velatura”, “tratteggio”, “ritocco”;
- “non-integrable gaps” - appropriate, neutral tone, but also a texture marked by a pattern compatible with the mural aspect of the original, using aquarelle paints in techniques: “velatura”, “tratteggio”, “ritocco” [8].

Description of chromatic integration techniques in the restoration of mural painting.

- Technique “neutro” - When a degraded area or lacuna cannot be reconstructed due to its size, lack of reliable sources, or the artistic im-

portance of the work of art, its negative optical impact on the original can be reduced by toning down the lacuna with a so-called “neutral” colour, thereby moving it into the background (see Fig. 2).



Fig. 2. Church of Santos Juanes, Valencia (Spain), 1698-1700; Photo: 2015, UPV (Jose Luis Regidor) [9]

- Technique “velatura” - small losses in the paint layer, in the preparatory layer or the final layer of an architectural surface, caused by wear/use, abrasion or other damage, are reintegrated by means of reducing the tone with transparent glazes, applied using watercolours or any other compatible and adequate binding media (see Fig. 3).



Fig. 3. Before/after velatura on a column, Cappella Maggiore di Santa Croce, Florence (Italy), 1380; Photos: 2010, OPD (Maria Rosa Lanfranchi) [9]

- Technique “tratteggio” - Based on the conservation/ restoration theory of Cesare Brandi, the shape and colour of a damaged area are reconstructed using short vertical lines (see Fig. 4).

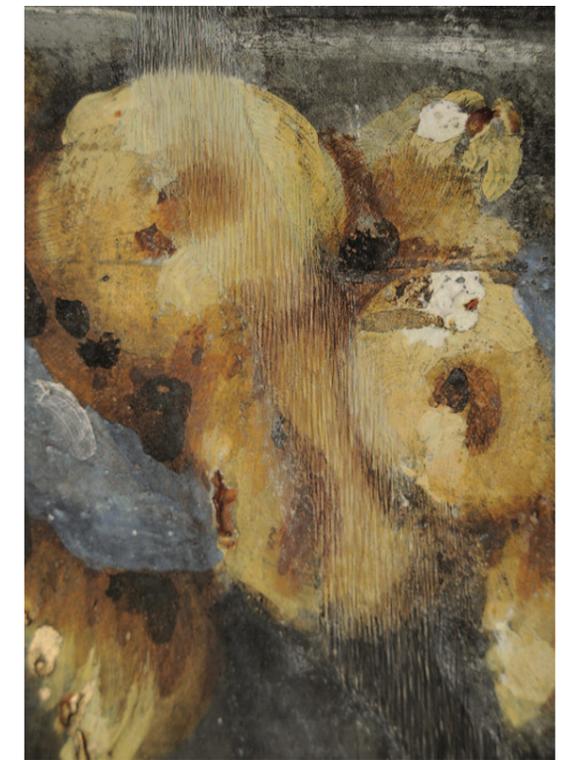


Fig. 4. Church of San Nicolás Obispo y San Pedro Mártir, Valencia (Spain) 1694-1700; Photo: 2014, UPV [9]

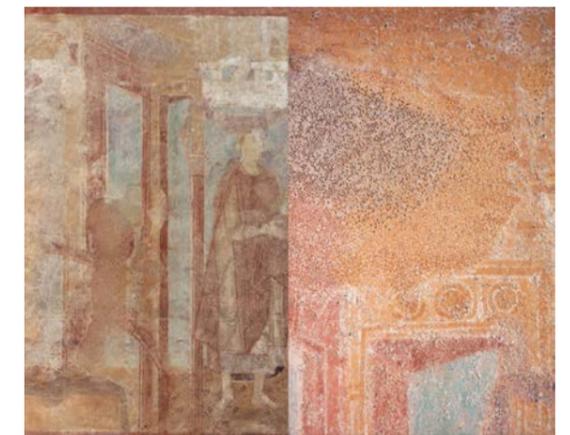


Fig. 5. Ottonian Cycle, St. Georg, Reichenau-Oberzell (Germany), 10th century; Photos: 1988, RPS (Dörthe Jakobs, Helmut F. Reichwald) [9]

- Technique “punteggio” - The colour, and not necessarily the shape of the damage or lacuna is reconstructed using a dense application of dots, wherever possible in pure colours (see Fig. 5).

- Technique “astrazione cromatica” - Using four pure colours on a light background applied with short hatched lines, an abstract structure is created. This structure merges optically with the contiguous original (see Fig. 6).



Fig. 6. Church of Santa Maria Novella, Florence (Italy), ca. 2nd half of 14th century; Photo: 2015, HAWK (Ursula Schädler-Saub) [9]

- Technique “selezione cromatica” - The lacuna is reintegrated with short parallel lines in pure colours on a light background, which follows the shapes and contours of the original alongside them (see Fig. 7).



Fig. 7. Cappella Maggiore di Santa Croce, Florence (Italy) 1380, detail on the right; Photos: 2010, OPD (Maria Rosa Lanfranchi) [9]

Contemporary chromatic integration techniques solve many problems regarding the restoration of the “integrable gaps” (see Fig. 8), but they are not effective and even disturbing in cases, when “non-integrable gaps” are present (see Fig. 9).



Fig. 8. The Church “Birth of the Virgin Mary” from the Monastery from One Wood, Restoration works 2001-2003 Holy Archangel Altar, Images before and after the chromatic integration in the technique – “velatura” [10]



Fig. 9. The Polyptych of Frabcesco di Andrea Anguilla, Restoration works 2009-2010, integration a tratteggio con “astrazione cromatica” of the Madonna face [11]

#### V. NARRATIVE CONTENTS OF THE MURAL PAINTINGS

The main function of the painting regardless of the drawing technique, the epoch in which it is executed is the transmission of ideas and symbols, which they represent through images to the spectators. The attitude, focusing on visual

qualities connected to content, was confirmed in a pilot study from 2006/7 described by Isabelle Brajer [12].

The study examined the opinions of the general public regarding the restoration of mural paintings. It unequivocally showed that comprehension of the graphic content was very important for spectators, and that wall paintings were highly appreciated for their narrative value and less for their historical value. This is interesting, as restaurateurs and conservators are usually more influenced by historical values than narrative values in their decision-making. However, while preserving the historical values of the monument, the aesthetic value and narrative content that may be predominant in the case of the painting are sacrificed.

The problems start when we want to intervene as little as possible, but still help the spectators to perceive the image represented in the painting. How do we know how much help they need? In the case of deteriorated paintings that have not been retouched, studies have shown that even when spectators are informed about the content of the painting, most cannot understand what they are looking at [13].

#### VI. AESTHETIC AND HISTORICAL FALS

“The restoration must aim to improve the potential oneness of the work of art, without committing artistical false or historical false, and without erasing any trace of the passage in time” [6].

The principal restriction regarding the aesthetic integration and completion of the mural painting is that of not producing a historical or artistic falsification. But we need to analyze the concept of “falsification” in the process of restoration.

An example is the interior mural painting of the church in Bezdin Monastery, located near Munar village, Arad. The mural is executed by anonymous painters in several periods. The Byzantine predominance of the paintings executed above the iconostasis and inside the ancient tower indicates a characteristic execution of the end of the XVIII century. - the beginning of the XIX century (see Fig. 10) [14].



Fig. 10. Bezdin Monastery, interior mural painting [15]

The inadequate maintenance for a long time, improper interventions, high humidity and lack of ventilation, caused the advanced degradation of the interior mural paintings of the church. In particular, the lower part of the walls, the southern and northern part of the vault and the ancient tower are affected. Cracks, exfoliations, discolourations, wiping of important surfaces, the presence of salts on the pictorial surface, the development of a fungus can be observed (see Fig. 11).



Fig. 11. Bezdin Monastery. The interior of the church, the southern part of the vault [15]

The process of restoring a mural painting like this can be executed in the next stages:

- Historical and critical analysis, gathering information about the monument.
- Investigation and description of the current state of the mural, and structure of paint lay-

ers, using non-destructive and partially destructive methods.

- Preconsolidation of the colour layer with an organic solution (e.g. calcium caseinate);
- Application of treatment against biological attack.
- Consolidation of cracks and lacunas of the support structures.
- Cleaning the pictorial surface of impurities and deposits, with chemical and mechanical methods.
- Plastering of the cracks and deep holes.

After performing all these interventions, the last step in the restoration process is the aesthetic integration. Due to the advanced degradation state of the painting layer (see Fig. 12), the chromatic integration is very important in the process of restoring the narrative content of the monument.



Fig. 12. Bezdin Monastery. Interior of the church, Painting from the ancient tower [15]

Execution of this intervention in the formal techniques of chromatic integration will lead to a fragmented image and large losses in the content of paintings. This does not mean that all gaps need to be repainted, but the details which have significant importance must be completed either based on information from the archives or even interpreted artistically.

The intervention must be executed with reversible materials, distinct from the initial part of the mural painting by the intervention technique, the tone and the transparency of the colours.

All stages of restoration work must be properly documented and described in detail.

In similar cases, to the situation of mural painting in the church of Bezdin Monastery, the completion is necessary to restore the potential and narrative context of the work of art. Otherwise, the artistic value of the mural will decrease significantly.

## VII. CONCLUSIONS

Aesthetic integration is one of the most important phase in the process of restoring the mural painting because any painting is, first of all, an image that conveys a narrative message through its context. This does not necessarily mean that all paintings need to be retouched or completed. The technique of aesthetic integration and the limits of image completion have a great impact on the comprehension of the narrative context and restore the potential oneness of mural painting.

Decisions regarding the aesthetic presentation of mural paintings are among the most important and difficult choices made during restoration projects. Decisions made by default could occur when restorers always perform pictorial enhancement according to the method in which they were instructed, for example, retouching always done by "tratteggio".

It is difficult or indeed impossible to establish a set of guidelines for performing the aesthetic treatment on the mural paintings because the factors that influence the decisions are unique for each particular case and the right solution must be found for each situation.

However, examples from the past can serve as positive or negative models from which we can learn.

The way in which a painting was treated will affect the values it embodies and projects to the spectators. For example, a mural painting can be predominantly valued as a historical document or treated as a decorative element in an interior, or a narrative, transmitted through the pictorial content or altogether.

Appreciation and evaluation are often strongly related to aspect, and the existence of a mural painting can depend on the values attributed to them.

The decisions on aesthetic presentation has a fundamental impact on the perception of paintings by spectators. This is a responsibility that conservators and restaurateurs assume.

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## Intervention proposal into the fragment of landscape of Bezdin Monastery, part of the “Lunca Mureşului” cultural landscape

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### ABSTRACT

The position of the Bezdin Monastery and its relation with the natural landscape of Lunca Mureşului resulted in considering the built ensemble as part of a landscape fragment, as a component of the cultural landscape found within the limits of the Lunca Mureşului Natural Park. Once the idea of reviving the monastery complex came up, a question of the need for intervention on the surrounding landscape was raised, by integrating the free plot from the church's property. The approach of the intervention proposal is related to the overall image that is to be obtained and aims to improve the already existing landscape fragment, by mixing the existing layers with new elements and emphasizing the value on both the whole ensemble and the cultural landscape to which it belongs.

**Keywords:** Bezdin, cultural landscape, fragments of landscape, threshold, immersion, limit, perspective, multi-sensory.

### I. INTRODUCTION

Any way of approaching the cultural landscape cannot be done without relating to the general concept of landscape, understood in its entirety as an integrative matrix made up of distinct parts - a part that is represented by the concept approached above. In other words, it must be understood from the beginning that the entire concept of a cultural landscape cannot exist without its integration into the concept of landscape itself. If we were to summarize all the definitions that it has received over time, we might find out that the landscape is considered as a fragment of space or territory that has three-dimensional valences in which the natural elements merge organically with the anthropic elements, generating an unique environment, from a physiognomically and functionally point of view [1].

The meaning of the cultural landscape has undergone many transformations since the first attempt to define it - the 1890 statement by geographer Freidrich Ratzel saying that the “landscape is changed by human activity” or later in 1908 Otto Schluter attributes it to the *kulturlandschaft*, which can be translated as a “landscape created by human culture”. A more recent definition, which belongs to Richard Schein (quoted by Calcatinge Al., 2013) states that “the cultural landscape is a geographical palimpsest or an accumulation of geographies ... the cultural landscape is everywhere and always involved in a process of cultural and social reproduction”. In other words, this similarity to a palimpsest captures both the continuous metamorphosis of the landscape through its culturalization, as well as the heritage it integrates when passing between two different hypostases [1].

### II. FRAGMENTS OF LANDSCAPE

Lunca Mureşului Natural Park is a protected area established in Romania, downstream of Arad municipality, up to the border with Hungary, alongside Mureş river, classified as a natural park at a national level and a protected land in the international taxonomy of IUCN. It integrates the embankment enclosure of the Mureş river, respectively the flood zone between the dams on either side of the river and between

the high terraces of the same river. It is an area with periodic flooding, in which the plants and animals that can be found there are adapted to these conditions [2].

Viewed as a cultural landscape within the boundaries of the natural park, it automatically results in a series of fragments of the landscape that determine its general character. Being an anthropic element omnipresent in the natural landscape, the Bezdin Monastery (see Fig. 1) becomes a spatial generator within the landscape of the park, determining the formation of a fragment of landscape.

The fragment of a landscape generated by the Bezdin Monastery co-operates with the Bezdin pond and the free land in the proximity of the monastery complex, being limited by the position of the dam, the watercourse that borders the former monastery park land and the boundary determined by the forest area and the arable land. In the 400 years since the existence of the monastery, the changes undergone by the landscape were determined by anthropic elements, natural elements and elements derived from the connection of man with the nature of the place. The overlaid layers left behind by all the modelling actions, no matter how thin they might be now, can be identified and used in the generation of new layers that integrate in the general structure of the landscape.



Fig. 1. Aerial view of the Bezdin Monastery

### III. WIDE-SPECTRUM STIMULUS

The landscape is often perceived as a succession of images and places, creating a complex picture. Yet the greatest emotional impact appears beyond the visual spectrum, through the

choreography of movements, understanding of spatial features, projecting different fragments of experiences, perceiving coded messages and decoding their meaning.

The main purpose of the strategy is to promote the creation of multi-sensory experiences for visitors following the routes of the monastery visit. In order to create a strategy at the level of the monastery complex that has the capacity to arouse an emotion in the visitor, we started from Pieter Desmet's scheme (see Fig. 2) related to the key elements in producing an emotion: concerns, stimuli and cognitive evaluation [3].

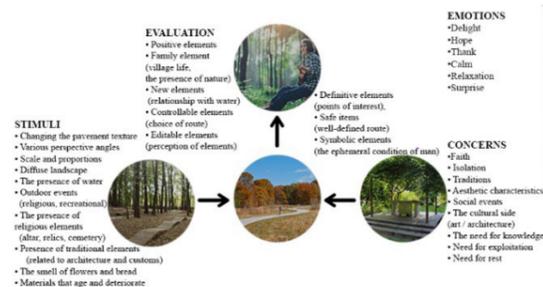


Fig. 2. Scheme of the implemented strategy realized according to the scheme of emotions by Peter Desmet [3]

### III.1. Concerns

Every object, image or event creates an emotion if it matches the particular concern behind that emotion. The variety of possible concerns is directly proportional to the typological diversity of the human being, so in the case of implementing a strategy, it is impossible to satisfy the entire group in a similar way. Given the wide range of possible concerns, these being influenced both by the individual's personality, as well as by his previous culture and experiences, we chose to focus our strategy on three main concerns: motivation, values and sensitivity. In addition to these are the concerns about basic needs, which are valid on a large scale: food, rest, safety [4].

Analyzing the motivational concerns, the group of people visiting the monastery complex is divided into two categories: those motivated by faith and those motivated by the need for iso-

lation and meditation. Taking this into consideration the key point on the pathway should have religious themes like the relics, the altar, the cemetery, the old crosses. As well, secondary places intended for isolation and introspection in the middle of nature should exist.

Taking into consideration the value concerns that the target group may have, we identified four such values: religious values through the need of respecting the tradition and old customs related to the Serbian church, aesthetic values linked with the need of finding a visual unity at the level of the monastery and cultural and social values introduced by the concepts of art and architecture into the natural space.

From this point of view of sensitivity, we focused on people who are vulnerable to the natural elements, religious elements, lived experience, or the need for knowledge.

### III.2. Stimuli

The world lives through stimuli; people connect with the environment by exploring sensations given by stimuli through the senses: sight, hear, smell, taste, touch. Each of these senses has its particularities, and in order to achieve a multi-sensory experience, they have to work together, each of them at a different level.

The sight is the most used sense when it comes to perceiving a landscape; it operates at a distance and offers general information about the subject.

In contrast to sight, hearing is dynamic and uncontrollable. If in the case of sight, we can look at a static element, when hearing comes into operation, we have the certainty that an action is taking place somewhere around. The smell is another sense that can easily trigger an emotion because it is generally connected to the memory of previous events. Taste and tactile senses are more intimate senses that appear when visitors feel the need for a more detailed knowledge of the stimulus.

"Sight also turns into taste. Certain colors and delicate details evoke oral sensations" [5].

### III.3. Evaluation

Evaluation is a process through which the perception of an event or a stimulus is connect-

ed to an emotion. Following the process, the events can be evaluated as positive or negative, familiar or new, controllable or uncontrollable, modifiable or definitive, safe or insecure [3].

After analyzing the concerns and stimuli, we developed the emotion scheme suitable for the strategy (see Fig. 2). The concerns are faith, isolation, traditions, aesthetic characteristics, social events, cultural elements, the need for knowledge. The stimuli are changing textures, perspectives, diffuse landscape, the presence of water, outdoor events (religious, recreational), the presence of religious elements, presence of traditional elements (related to customs), different smells and materials that age. The evaluation process should determine positive elements, family element (village life, the presence of nature), new elements (relationship with water), controllable elements (choice of route), changing elements (perception of key points).

## IV. STRATEGY

The implementation of a landscape architecture solution aims for its integration into the existing landscape by connecting existing landscape elements from the site with new proposals. Starting from the intention to fill the Bezdin pond with mechanically transported water from the Mureş river, the landscape modelling intervention focused on the already existing land of the monastery, which was used partly as a park. The limits have already been preserved due to the existing vegetation as well as the water stream, the cemetery that has a central position on the plot and the two alleys that intersect at a right angle - alleys inherited from the old park arrangements that are represented in older maps.

### IV.1. Strategic points

Considering the whole site as a blank canvas, for the generation of new routes, it was found necessary in the first phase, to position a series of points of interest, attractive for visitors of the monastery. The positioning of the points of interest came as a result of the need of clearing the interior yard, which gathered elements of religious worship which at certain times would have led to the overcrowding of the yard. Therefore, the attractions became: the orchard (1),

the cemetery (2), the holy cross (3), the open-air altar (4) and the pavilion that houses the relics of Saint Kiril (5), the bridge over the river (6) and the floating platform (7) (see Fig. 3).

The most important landmark of the park is the monastery building. A monastery is a refuge, having this role due to the presence of symbolic elements that communicate with the Divine Light. Its form, with the vertical line defined by the tower, has precisely the purpose of connecting the earth with the sky.

### IV.2. Visual Unity

In the implementation of an immersion strategy, the absence of anachronisms is essential. Because of this, all the elements introduced in the ensemble must have the same language. In order to create a visual unity, themes such as the paths, the character of the places, the atmosphere, the orientation and the perception have been approached.

#### IV.2.1 Place definition

In order to satisfy man's physical and psychic needs, there are two important points in defining a place: orientation and identification. Kevin Lynch in his book *The image of the city* treats elements like paths, region, node and landmark as essential in creating orientation. People feel more confident and safe to explore if they have elements of orientation. Based on this, we organized the paths, regions and landmarks so that they connect and can be easily recognizable. From each key point, the visitor has a perspective to the other objectives. The paths material is different from those that take the visitor to a recreation spot and lead him to a key point [6].

The identification idea is related to psychic safety because people feel more comfortable in a place with whom they identify. In order to do this, the park has to contain elements that people are familiar with, elements inspired by the genius loci of the place or its history and traditions. By restoring the old traditions such as those related to baking bread, picking fruit from the orchard and traditional events, the visitor identifies with the place that reminds him of childhood [7].

#### IV.2.2. Atmosphere

Every place, according to some particular circumstances, has its own identity. These circumstances can be determined by natural factors such as topography, water, light, vegetation or can be related to the man-made elements which transform the natural landscape into a cultural one. When it comes to portraying a natural landscape, there are four major concepts that influence the result: things, order, character and light. Things and order are related to the spatial dimension, while character and light give the atmosphere of a place [7].

The spatial borders of the park are vague and are represented by the natural elements such as the lake, the river and the forest. The sequence in which the visitor encounters the various natural elements depends on the route he chooses to travel. In addition to the park interventions, there is the proposal of implementing a floating platform whose level changes at the same time with the increase or decrease of the water level.

The meaning of the platform is to present a perspective in which the church is reflected into the water. The character is defined by the purpose of each place: the meditation places and the key places are isolated, surrounded by vegetal elements. The light is filtrated, and the shadow spots blend with the light ones.

The gathering places like the outdoor altar are opened and filled with light. They have perspective views to the monastery.

Light is the symbol of knowledge and artistic inspiration in Greek culture, but it is also associated with God and the divine light, being the manifestation of spirit.

#### IV.2.3. Alleys

The parking for visitors is 500 meters away from the main entrance of the monastery, which frames by the alignment of trees, the main facade and directs the visitor, pedestrianly, towards it. At point 8 (see Fig. 3), where the information centre is placed, a two-way route



Fig. 3. Area plan regarding the landscape proposal for the monastery's site

was positioned which plays a double role in the discovering of the whole site, being at the same time the beginning or end of the trip, offering different sensations and thresholds depending on the intention of immersion into the landscape of every visitor.

By taking the directions given by the key elements of the area (cross, info point) we created in the first part of the route, from the info point into the park, a rectangular plot that gradually turns into an organic one, with spontaneous development, thus marking the change of landscape from a domestic one with vegetation specific to orchards to a wild one like the forest.

The positioning of the elements of interest in the generation of the routes also aimed at creating perspective connections between them in order to be able to suggest a certain scenography. By introducing secondary paths between these main alleys that connect the important areas, it offers the possibility for each visitor to experience a different route than the regular ones. These secondary paths connect the main objectives with isolated spaces of meditation.

#### IV.2.4 Perception

The perception of stimuli is strongly influenced by the conditions of the environment in which they are, by previous personal experiences with those stimuli and their change in time and space (change in colour, change in size, their disappearance or appearance, etc.).

The strategy includes concepts related to the perception of the elements within the monastery complex, so at a visual level the various key elements located in the park change their visual perception as people get close to or move away from them. The front view of the church is perceived differently from the water having no visual barrier and in a completely different way from the park where besides the trees that partially obscure the perspective, it is also covered by the secondary building bodies, leaving only the tower visible. Shadow and light are two key elements in visual perception. Dark trails with diffused light help visitors focus on the other senses: hearing and smell, while illuminated textures and materials, invites to touch and discovery. At the hearing level, along the route, a

succession of stimuli appears: in the transition areas from one element to another the pavement is made of small stones to remind the individual that he is in a transition zone, search and discovery, while in the areas dedicated to the key elements the pavement changes, the noise being replaced by the silence necessary for meditation. The smell and taste appear mainly in the monastery, where the fresh smell of bread baked in the oven invites the visitor to a snack. "A specific smell makes us enter without realizing it in a space completely forgotten ... we enter enchanted in a daydream. The nose helps the eyes to remember." [5]. From a tactile point of view, the materials used to design meditation areas and interventions in the park are natural, being affected over time by natural phenomena, thus creating the passage of time and the ephemeral nature of life. "The skin reads the texture, weight, density and temperature of matter." [5].

#### IV.3. Thresholds

Due to the wide spectrum of space typologies, the transition zones called thresholds are key areas in which the visitor gradually adapts to the new space they enter. On the one hand, the thresholds have the role of connecting two areas with different characters, facilitating the transition between them and on the other hand they have the role of creating a mental barrier between them.

In the case of the current strategy, a bridge is made between the profane and the sacred, so along the route, the visitor goes through a series of thresholds that gradually disconnect him from the everyday world, transposing him into a calm, meditative and healing world. The thresholds are physically marked in different ways: the crossings over the water, changings into the typology of vegetation, changings into the texture of the pavement, changings into the height level, etc.

There are several thresholds in the landscaping proposal. The main two thresholds mark the beginning of the two possible routes: through the park or on the water. The first threshold is, in fact, a succession of two thresholds and is formed by the route from the proposed parking

to the info point, area in which you are forced to look alongside the main entrance axis, having the visual field limited by the alignment of the trees that lead the perspective towards the main facade of the monastery. The next threshold starts from the info point and passes through the access point and the former courtyard of the monastery, being marked by low vegetation and flower bushes.

The second main threshold is the bridge over the stream that connects the river with the monastery park and gives the visitor enough time to calibrate their mood according to a worship area. The other secondary thresholds would be the following: rising and lowering from the water platform, passing through the info point, the cemetery, the orchard.

#### V. CONCLUSIONS

The purpose of the strategy was to create delight, gratitude, and fulfilment through an immersive experience that transposes the individual into the sacred world characteristic of church ensembles. At the same time, we aimed to achieve emotions such as surprise and relaxation that the visitor may experience, by introducing elements of fusion with nature and interaction with natural elements (crossings over water, nature trails), given the context in which the monastery is located, that is in the cultural landscape of Lunca Mureşului.

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**Urban design and planning**

## The sensitive city. Exploration through the urban sensory

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### ABSTRACT

Exploring the city through urban sensory is a relevant subject for contemporary research regarding the complexities of the built environment. Over time, theorists and practitioners having different educational backgrounds have questioned how urban space and social structures are interrelated and how to address the issues they raised perspective to determine the proper problem-solving methods.

The main focus of this paper is on analysing literature related to human and urban perception and comparing the 19th and 20th century ideas that have a great influence on how cities are documented today. In order to do that, a multidimensional approach has been used: for the theoretical dimension of the city, George Simmel and Emile Durkheim are relevant whereas the literary dimension of it is well illustrated by Benjamin Walter and Henri Lefebvre. The cognitive and social dimensions of the city are eloquently portrayed by Juhani Pallasmaa, Kevin Lynch or Jane Jacobs. Although the physical features of a city are important for how people perceive their surroundings, this paper examines in what way both visual comprehension and social interactions define spatial perception by creating a sense of place.

To select the most relevant concepts and approaches to urban sensory, personal observations, literature survey and qualitative research have been used. To determine the relationships and connections between the built environment and its inhabitants, further studies will be pursued through the process of planning and developing a research proposal for the dissertation. The topic discussed in this paper is relevant as it concludes with the idea that cities mirror social realities while humans are struggling to adapt to the fast-changing environment.

**Keywords:** social adaptation, urban perception, human senses, spatial cognition, spatial abstractions.

### I. INTRODUCTION

Nowadays, cities face various difficult challenges as they are growing more powerful and attract a great number of inhabitants every day. In the context of political, economic, social and environmental crisis, many cities find themselves in a position where they can no longer meet people's needs and desires.

In order to understand the overall picture of how cities were approached throughout history, ideas from different fields of study – urban geography, urban planning, literature, psychology – were debated. Emile Durkheim and George Simmel analyse the inability of people to maintain healthy social connections while trying to adapt to a new urban environment of the industrialised world. A further study focuses on the image of the city in literature and poetry, through the image of Benjamin Walter's flaneur but also the requirements of capitalism, explained by Henri Lefebvre. In terms of sensory perception, Juhani Pallasmaa and Kevin Lynch offer two different perspectives on how people interact with the built environment. To conclude, Jane Jacobs and her criticism of the modernist's radical break with people-oriented cities.

This paper aims to analyse the way people perform and interact within urban structures and not to describe the direct connection between the human body and the built environment. Therefore, a comparative research method has been used to identify theories that had a major contribution to redefine human vulnerabilities induced by the urban environment.

As cities are the product of social interactions, it is of great importance that the relationship between the urban space and its users to grow in a beneficial way for both sides.

This paper represents the preamble to a subsequent master's degree dissertation.

### II. A THEORETICAL DIMENSION OF THE CITY

Humans have five basic senses: sight, hearing, smell, taste and touch. The information gathered from the environment is collected through the five sensing organs and then sent to the brain for interpretation. Brain processes and previous individual experiences are of great importance

to the way people perceive, understand and act in the urban environment. Hence, the psychological experiences of the city and the aspects of the urban space that are revealed by it are the focus of this chapter.

The industrial revolution was a turning point in the way cities and urban societies evolved or decayed. Cities grew fast and chaotic as many people decided to leave the countryside and move to the city. This massive rural-urban migration had major impacts on social relationships. For Emile Durkheim (1893), one of the founding fathers of sociology, people that traded rural life for cities, abandoned "a form of mechanical solidarity, with social bonds based on common beliefs, rituals, routines and symbols and welcomed an organic solidarity, with social bonds becoming based on specialisation and interdependence" [1]. Durkheim also suggested that the survival of urban societies depended, and still depend, on the "organic solidarity" [1], as people rely on one another to perform specific tasks.

The "division of labor and coexistence of social difference" [1] were the most important and convincing features of the new urban environment that persuaded people to move in. Cities were spaces of liberty and autonomy, promoting "individualism, free-thinking and civility" [1]. At the same time, one's identity was not recognised anymore as it would have been in the rural communities described above. Thus, the lack of identity and the anonymity offered by the city was seen to have "profoundly ambivalent consequences" [1] for urban inhabitants. In order to survive and prosper in the fast-growing cities, urban dwellers needed to adapt to a rich sensory imagery, a great number of stimulus and a rhythm of life that was very different from the one of the countryside. Therefore, maintaining relationships was seen as a challenging task in the context of noise, visual pollution, and sensory bombardment [1].

As a consequence, cities' inhabitants started to develop an attitude of indifference, described by George Simmel in the 1950s, as a "blasé attitude" [1]. Moreover, this was considered as a sign of people's failure to adapt to city life. "Anomie" was the word used by Durkheim to

describe one's feeling of being alone although one is surrounded by many people. 'Anomie' was also used to explain why aggressive or criminal behaviour was likely to emerge in cities. Human's adaptive capacities were equally influenced and altered by the continuous exposure to various stimuli and the increasing-size of cities. Louis Wirth (1938) and Max Weber discussed this idea, arguing that an increased number of inhabitants, exceeding the certain limits of a settlement, affect the relationships between them and the character of the city [2]. The city progressively became money-centred and in George Simmel's view, this was revealed by the lack of depth in urban life, and the reduced quality of urban objects, as quantity, value and productivity became more important. Although economic aspects shaped cities and human behaviour after the Industrial Revolution, they were not completely deprived by their most romantic and pleasant features [3]. What people think about the city they live in is defined by how they interact with it, the quality of the information they collect through their senses. Besides the five basic senses, humans were gifted with imagination, creativity, and language. In the next chapter, further research has been made to discover how people's perception about the city can be influenced by texts, discourses, symbols and images, and how modernism and specialisation mitigated the concern for everyday life in the city, decreasing the role of public space.

### III. THE LITERARY DIMENSION OF THE CITY

Throughout history, cities were imagined 'through antithetical notions of desire and disgust' [1]. The ambiguous distinction between simply pro-urban or anti-urban preferences justifies 'the true complexity of the social experience and representation of urban places' [1]. The role of literature, poetry, visual arts and humanist discourses was fundamental to spreading stories about great or dreadful urban settlements. But regardless of the plot of the stories, one thing is certain about cities: they are "polysemous" (they signify different things simultaneously) [1] and they offer a great variety of opportunities for people to challenge

their true nature, as curious, creative and hedonistic living things.

Stories are powerful tools. They influence, control and bring about change. Cultural theorist Stuart Hall argues that "whoever controls information about society is, to a greater or lesser extent, able to exert power in that reality" [1]. Therefore, well-written stories and beautiful images can create a more compelling portrait of a place than the personal experience. Pocock strongly supported the idea by arguing that "fictive reality may contain more truth than everyday reality" [1]. In this regard, literature is valuable because it offers detailed descriptions of buildings, places but also of social groups, placed in their distinctive context [1].

The France of the 19th century idolised a figure conceived by Charles Baudelaire and promoted in academia by Benjamin Walter: the flaneur [4]. Benjamin Walter inspired his ideas from Charles Baudelaire himself, describing him as "man of the street" that treated the streets as "his own personal realm" [1] and wandered about the city all day long in order to grasp the sounds, sights, and smell of the city, using them afterwards as inspiration for art and poetry. In Benjamin Walter's view, the flaneur used the modern city as a site for observation [1] and captured the more or less mundane events of everyday life. This way, images of the city and the multitude of sensations it induced were translated into words and feelings, and therefore, in new subjective visual representations that emphasised "the sense of place" [1].

Similar ideas concerning street life in cities after industrialisation arose from the work of French philosopher and sociologist Henri Lefebvre. Lefebvre's writing focuses on the influences of capitalism on cities, arguing that "capitalism has survived and flourished because it produces and occupies space" [1]. Moreover, he offers a conclusive example of how spatial abstractions "conceived the city as a coherent, homogenous whole which could be planned and organised to encourage capitalist development" [1]: urban maps. He feared that this model of spatial abstractions "over-coded" [1] the urban space and as a consequence, urban experiences were impoverished by the predominance of functional order.

Henri Lefebvre's writing is relevant for the analysis of public space in a way that it raised awareness of the lack of spaces dedicated to everyday life and not for consumption. This subject was of great concern to a group of journalists, architects and urban planners from the 20th century (Kevin Lynch, Jane Jacobs, William H. Whyte, Christopher Alexander or Jan Gehl) that sought to demonstrate human behaviour and built environment profoundly influence each other.

### IV. THE COGNITIVE DIMENSION OF THE CITY

As seen in the previous chapters, the world inside the human brain and the outside world are interrelated. Cognitive sciences suggest that the mind extends into the external environment and that people actually "live in two worlds at once, the ongoing visual experience being a dialogue between the two" [5]. The interrelationship between body and mind was investigated by urban geographers, architects or researchers from related disciplinary domains.

Finnish architect Juhani Pallasmaa has become concerned about "the dominance of vision and the suppression of other senses and the consequent disappearance of sensory and sensual qualities from architecture" [6]. In his book, "The Eyes of the Skin", Pallasmaa emphasises the significance of tactile sense as being more important for humans as they experience and seek to understand the world. Anthropologist Ashley Montagu confirms this idea based on medical evidence: "The skin is the oldest and the most sensitive of our organs, our first medium of communication, and our most efficient protector. [...] Even the transparent cornea of the eye is overlain by a layer of modified skin. [...] Touch is the parent of our eyes, ears, nose and mouth. It is the sense which became differentiated into the others, a fact that seems to be recognised in the age-old evaluation of touch as "the mother of the senses" [6]. Hence, all the senses, including vision, are extensions of the tactile senses.

While different psychological and theoretical studies separated the body from the mind, the "body being perceived as an instrument of the mind" [1], David Seamon developed in the 1990's a phenomenology of everyday life, re-

jecting the abstract theorisation and categorisation, defining an experiential framework that saw movement, resting and encounter as the primary processes that helped the body collect information about the surroundings. Similar to Pallasmaa's views, David Seamon considers that the body has its way of "thinking" that enables it to perceive the physical space without consciously involving the mind.

The quality of kinaesthetic experiences of the urban space is influenced by a city's morphology and its landscape: buildings, streets, vegetation, squares et cetera. In the 1960s, the interaction between formal characteristics of public space and human behaviour was pinpointed as a field to be studied more carefully [3]. Kevin Lynch and Christopher Alexander turned their attention to the form of the city and its structural components.

Kevin Lynch focused more on space and less on the public life, but his work was decisive for the way public space is analysed in the present [3]. He developed a framework based on the image of the city, reducing its complexity to five basic elements: paths, edges, districts, nodes and landmarks. The five urban elements were used to create mental/cognitive maps in order to suggest that people use and understand their surroundings in predictable ways [5]. Based on his on-site analyses, Lynch could also point out that these elements are not independently perceived and that they form logic and coherent sequences [7].

As mentioned in the previous chapters, cities are equally compounded by form and language (symbols). According to Christopher Alexander, cities are products of "a complex set of interacting rules that reside in people's heads and are responsible for the way the environment is structured" [5]. He also believed that urban dwellers knew more about the city than urban planners or architects did. In his book, "A pattern language" (1977), Alexander defined 253 qualities that should help anyone, not just architects or urban planners, to design their cities, at different scales.

Both Lynch and Alexander criticised the modernistic ideologies of urban planning. A countermovement against modernism in urbanism

began in the 1980's, but voices of activists, protesting against various development plans in the United States, could be already heard by the 1950s [3].

#### V. THE SOCIAL DIMENSION OF THE CITY

Industrialisation is defined by the need for specialisation, order and efficiency. In the field of urban development, responsibilities were divided, and many different experts controlled every aspect of the city. Their main purpose was to assure that the city was developing in a functional, healthy, and effective way [3].

More systematic planning became the response to population growth and the need to expand the city's limits [3]. Modernism in urban planning offered the proper tools for doing that: large-scale projects that looked functional viewed from above but lacked social cohesion at the street level. Modernism approaches were supposed to solve urban inhabitants' problems with transportation, housing, or jobs, but at the same time, they mitigated the concern for public space and public life [3]. Although the urbanisation plans developed in this period had good intentions, they were devoided of human-scale components, and modernism's specific language turned out to be very poor.

Journalist Jane Jacobs "criticised planning as being abstract and human distant" [8] and struggled to save American cities from the "ideals of modernism and traffic planners" [3]. In order to help people understand the importance of public life and space in their own lives, Jacobs used a holistic approach, emphasising the importance of economic, social and physical parameters for the quality and functionality of urban spaces. She believed that going out on the streets is the only way to learn about what works and what does not [3].

Having in mind all the ideas mentioned in the previous chapters, it can be stated that Jane Jacobs played the role of a "flaneur" and she did not let herself overwhelmed by "anomia", using her journalistic skills to write the story of cities created for people. Furthermore, she listened to people's problems, needs and desires, and tried hard to make cities adapt to its inhabitants and not otherwise.

#### VI. CONCLUSIONS

The human mind is complex, and so are the things it creates. Cities are one of the most complex and antagonistic inventions of humans. On the one hand, they help people evolve and progress, but on the other hand, they make them feel insecure and incapable of adapting to the multitude of stimuli.

Although human settlements have been exhaustively documented, their fast-changing nature made the development of an optimal urban framework an impossible assignment.

An important thing to keep in mind is that cities are made for humans, and thus it must protect its inhabitants and create opportunities for them to thrive. The increasing-size of urban settlements and the unforeseeable character of everyday life have major impacts on people's health and well-being. Simultaneously, urban dwellers' movements construct the urban environment, and therefore their behaviour has the power to shape its image and the quality of it. Modern urbanism's approach to planning cities from above may have a positive influence on the way built environment is comprehended, but in order for people to enjoy urban experiences, an approach based on their immediate daily needs is nowadays more suitable. The reason is that with every step they make and with every glance they take, humans transform cities and in their turn, cities mirror the social reality.

Simplifying the processes through which human settlements are analysed or dissected, as Kevin Lynch or Christopher Alexander did, does not mean that our anthropogenic environments lack complexity. On the contrary, it indicates that this is an efficient way to get people (regardless of their educational background) understand the world they live in and encourage them to act in order to improve it.

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## Measures for the regulation of surfaces outside of built-up areas. Case study: Orăștioara de Sus, Hunedoara County

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### ABSTRACT

The present article studies the provisions of the projects and programs for the extra-urban area of Orăștioara de Sus, Hunedoara county, to draw up the Local Urbanisation Regulation related to the General Urbanistic Plan of the commune. The research approach identifies and delimits from the topographic point of view the space under investigation, from the point of view of the relation between the natural (relief, vegetation, fauna) and the anthropic (rich architectural, archaeological and historical heritage), gathered in a common, unifying concept, of the cultural landscape. After analysing the similarities and differences existing in these documents, the measures that can be included in the urban plan through their regulatory character are concluded.

The regulation and organisation of the space through the General Urban Plan has the purpose of identifying, harmonising and highlighting the elements of the natural and cultural heritage, together with the anthropic potential of the area, to ensure the full harmony of man with nature.

**Keywords:** natural area, monument, heritage, biodiversity, accessibility, local community, case study.

### I. INTRODUCTION

Orastioara de Sus commune (see Fig. 1) is in the process of developing a General Urban Plan (hereinafter referred to as PUG) with a regulatory character, which will represent the main spatial planning instrument of the territory of the aforementioned commune. This PUG represents the legal basis for carrying out the development actions and programs whose imprint is manifested in the area belonging to the commune.

The elaboration of a PUG represents the generation of an accumulation of provisions in the medium and long term, which concerns the delimitation of the areas in which development, contraction or regeneration actions are expected, with multiple goals subordinated to the concept of sustainable development. These areas are delimited by clear cadastral boundaries and include homogeneous areas in terms of functions, which require the implementation of integrated operations characterised according to the situation.

The territory of any locality is divided into two clearly defined areas, namely intra-urban and extra-urban. In the case of Orastioara de Sus commune, the territory within the intra-urban

area of the locality has been studied in previous work, therefore it will not be the subject of this study, and the paper will focus on the territory located in the extra-urban of the locality.

Orăștioara de Sus commune is located in the eastern part of Hunedoara county, in an area "loaded with history" and tourist attractions, among which we find several Roman castles, fortifications and Dacian fortresses as well as some archaeological sites. The commune contains the villages Bucium, Costești, Costești Deal, Grădiștea de Munte, Ludeștii de Jos, Ludeștii de Sus, Ocolișul Mic and Orăștioara de Sus, counting a population of 2,079 persons, according to the 2011 census.

Located at the foot of the Șurianului mountains and embedded in the core of the protected areas, Natura 2000, of which the National Park Grădiștea Muncelului-Cioclovina (hereinafter referred to as PNGM-C), the commune creates a specific identity by settling it inside the mountains, also grazed by the transition of Gradistea river outlining a varied relief of ridges with higher heights to the East area and lower to the Western area, such as mountains, hills and different types of meadows. The component that stands out due to the complexity of the erosion



Fig. 1. Orastioara de Sus - 17.04.2019

processes represented by the hydrographic network has built this relief through valleys and interfluviums that stand as testimony to the origin of the territory.

PNGM-C has a rich hydrographic network, being formed of both surface waters such as rivers and valleys and groundwater, these being collected by the Grădiștea river and the Strei river, both of which are tributaries of the Mureș river. Simultaneously, the park has a specific flora and vegetation, varied, and outlines the physical-chemical and climatic conditions, which develop closely.

Due to the existing conditions and the non-specific factors of some common localities, such as the existing historical building elements (Roman castles, fortifications and Dacian fortresses) or the Natura 2000 protected areas (PNGM-C), several problems have arisen that are not specific to some ordinary settlements. It would be the overlap of protected areas with individual properties, the definition of the boundaries of the protected areas or their overlap with private properties and the development and maintenance of these protected areas without restricting the access of tourists. At the same time, we also have the frequent problems of such localities, such as the clear definition of intra-urban and extra-urban areas, especially in the case of dispersed villages, the overlapping of arrangements with privately owned land or the overlapping of lands owned by the local administration with land privately owned [1].

All these problems lead to the need to find viable and adaptable solutions to the current situation without creating a new set of problems that will put local administration or the inhabitants of the area in difficulty.

## II. METHODS

In order to avoid “trial and error” interventions, we considered that the most appropriate and efficient research method would be the descriptive one. Thus we can extract a series of information and results from other situations by making sure of the similarities from the beginning of the study. For this, it was decided to analyse a series of documents that have the basis of documentation both in the area stud-

ied by us and in the international space. These documents hereafter referred to as case studies refer to situations similar or identical to the one in which we are present and propose a series of resolutions of the identified problems. These resolutions can be applied or at least adapted to the considered situations.

## III. MEASURES CONCERNING THE STUDIED AREA

The present chapter deals with the measures that are already foreseen for the studied area, both from the point of view of the natural elements (of the PNGM-C, spread over several communes, as well as the pastoral arrangements with impact in the area), as well as of the international conventions governing valuable anthropic ensembles (UNESCO heritage) (Fig. 2). Regarding the location of the site studied in the national context, by its particularities it is distinguished from other protected natural areas, even from those included in the same typology, its particularities being accentuated by the PNGM-C management plan which aims to regulate the measures that can be adopted and implemented throughout this area.

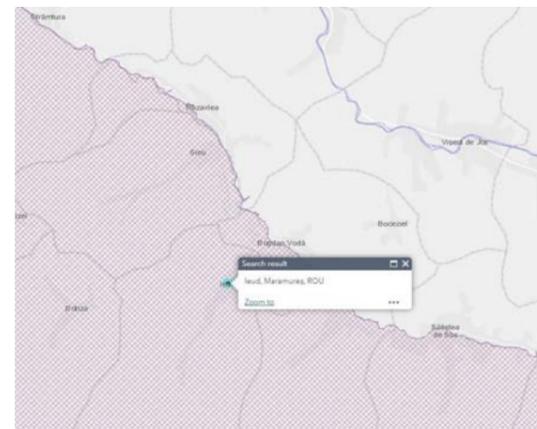


Fig. 2. Ieud Deal - Natura 2000 and heritage site positioning

From the perspective of the UNESCO objectives that stand out by overlapping with Natura 2000 areas, the only element of similarity is the wooden Church of the Nativity of the Mother of God” from Ieud Deal, Maramureș. In relation to this, the particular element is represented by the fact that the church is included in the compact

urban area of the locality, on which regulations are applied for the area of development of human activities, this area not being regulated by measures proposed in management plans [2].

### III.1. The management plan of the Grădiștea Muncelului-Cioclovina Natural Park

In order to conserve and protect habitats of community interest, several general management regulations have been laid down. Thus, the aim is to transpose on a map the existing habitats, their improvement and preservation, as well as the surveillance of the populations. Regarding the cuts from the forest habitats, the construction of forest roads in these areas that have priority community interest appears their prohibition, as well as the prohibition of some works to eliminate the surplus of water.

Therefore, the aim is to restore the natural and mixed elements using species specific to the area, the norm of harvesting some plants, fruits or mushrooms from the areas of community interest and at the same time the removal of the building materials is prohibited.

Maintaining control of livestock in these areas and regulating grazing are essential measures to avoid the destruction and deterioration of existing pastures. It also requires the controlled use of chemical amendments and fertilisers as well as deterioration of vegetation through burning.

Particular or specific measures are intended to preserve and restore the favourable conservation status of each habitat according to its ecological characteristics.

Regarding the caves “Cioclovina, Drycata, Șura Mare, Călianu”, public access is prohibited (see Fig. 3). The visits during the maternity interval of the bats have strict prohibitions, except for the actions of the chiropterology researchers. Existing protection systems must be protected and their damage prevented, as well as leaving organic matter or waste in the cave, the use of various objects that generate fire, and any movement within the caves will be made without exceeding the limit of the existing path.

Suppose we were talking about species-rich pastures with *Nardus*. In that case, there are regulations regarding the common pasture to

prevent overgrowth which can cause the degradation or reduction of the potential of these grasslands or even the change with other plant typologies; all regulations will allow the preservation and arrangement of the existing habitat. It is also prohibited to use certain Ca-based substances, which can cause degradation or even extinction of the species “*Nardus stricta*”.



Fig. 3. Grădiștea Muncelului-Cioclovina Natural Park - 2019 - author Mircea Bezerghianu

The regulations established for the mountain meadows revisit the temporary overgrowth, having as main objective the preservation of the meadows and the maintenance work such as the cost will be executed at the end of July when in most species they have been fruitful. Certain specific measures have been established regarding the sensitivity of the fauna and flora specimens, both general and particular to each species. It aims to monitor the already existing species, but also preserve and improve them and prohibit the disturbance and help of the environment in which mammals live or the exercise on the forest roads of sports with motorcycles or ATVs or other field machines. It is forbidden to extract from the protected area some plant species in order not to cause the disappearance of certain species for their conservation and preservation.

The hunting actions will be regulated for certain mammal specimens, the approach of strategies of elimination of poaching and at the same time, the training and training of the young will be followed to protect the species in the habitats. Controlled use of harmful substances and chemical fertilisers to avoid the loss of valuable species [1].

### III.2. Pastoral arrangements within Orastioara de Sus

We can argue that grasslands outline functions of great importance both in rural development and in the environment. The grasslands are the ones that reflect the functions by conserving biodiversity, improving the soil but also their fertility, offering symbiosis links and confirming a hydrological balance at the soil level. It also represents a shield against landslides, prevents floods, improves the quality of the landscape but also gives importance to the cultural heritage.

Regarding the conduct of the activities under normal conditions, it is recommended to carry out different investments and interventions on the sheepfolds, the wells drilling but also the construction of troughs to adapt the animals. In certain situations where drinking water is lacking, certain wells will be executed, which can be used manually or mechanically. The spread of the grasslands is varied, meeting on large varieties of relief, thus outlining a crack in the national wealth, thus supporting and supporting an important segment of the economy [3].

### III.3. Measures in accordance with UNESCO conventions

According to the UNESCO convention, the responsibility for protecting, conserving and harnessing effectively and sustainably the cultural and natural heritage rests primarily with each State party. Also, as a general obligation in order to achieve the above-mentioned objectives to the Member States of the Convention, it is their obligation to identify and delimit the elements of natural or cultural heritage, as defined in the Convention.

In order to ensure the effectiveness of the measures initiated and to carry out the national but also the community's wish to protect and conserve the cultural or natural heritage, each state must take a series of measures.

In a first phase, the state must adopt a general policy aiming to provide cultural and natural heritage with a meaning in the life of the community and to integrate the protection of that heritage into comprehensive planning programs.

Secondly, States have an obligation to establish in their territories one or more services of protection, conservation and promotion of cultural or natural heritage, where they do not exist.

In other news, States have an obligation to start and develop scientific and technical research and studies and develop such methods of operation to counter any dangers or threats to their natural or cultural heritage.

Also in pursuit of the fulfilment of this wish, the state authorities, parties to the convention are required to take the most appropriate legal, scientific, technical, administrative and financial measures, necessary to identify, protect the conservation, promote and restore this heritage if necessary.

Finally, it should be mentioned the responsibility of the signatory States to encourage and support the establishment and/or development of National or Regional centres for training in the field of protection, conservation and promotion of their natural and cultural heritage but also the promotion of scientific research in this field. The signatory states of the convention are also obliged to support the fund to protect the world cultural and natural heritage, called the "World Heritage Fund." In this respect, Member States agree to pay, on a regular basis, every two years to the World Heritage Fund, a contribution in the form of a single percentage applicable to all States. Failure to do so, or failure to fulfil this obligation, may result in the loss of the right to be elected as a member of the World Heritage Committee.

Along the same lines, States are working to support International campaigns to raise funds for the World Heritage budget.

Each state participating in the Convention shall as soon as possible submit to the World Heritage Committee an inventory of the properties located in its territory which, in its opinion, may be classified in the category of heritage assets and may thus be included in the World Heritage List, as it is—provided for in Article 11, paragraph 2, of the Convention. In any case, the list submitted by the States should not be considered exhaustive.

In order to have access to the international instruments for the protection and conservation of

the elements of natural or cultural heritage, the convention must be ratified by the States that have acceded to it, by means of an instrument of ratification in accordance with their constitutional procedures. The instruments of ratification shall be communicated to the institution of the Director-General of the Scientific and Cultural Educational Organization of the United Nations. Also, as a general obligation, the members of the Convention must carry out all due diligence by their own means and in particular through educational programs to strengthen the appreciation and respect of their citizens with regard to the National and Cultural heritage as defined in Articles 1 and 2 of the Convention.

As signatory parties to the convention, States must prepare and submit to the general conference of the United Nations Scientific and Cultural Educational Organization periodical information in the form of reports containing the legislative and administrative measures adopted and all actions taken to implement the convention together, with all the details of the practice experience and the special cases encountered in this field.

### III.4. The management plan of the Plitvice Lakes National Park

#### III.4.1. Location

The park (see Fig. 4) is located in the inland mountain region of Croatia (about 60 km in a straight line from the sea), between the high mountains of Mala Kapela in the southwest and Lička Plješivica in the northeast. Administratively, the park falls into two counties: Lika-Senj (90.7%) and Karlovac (9.3%).



Fig. 4. Plitvice Lakes National Park - 2018 [4]

#### III.4.2. General purpose and classification

Based on the biological, geomorphological, social-economic and tourist evaluation of the park, a series of measures had to be taken to conserve the natural resources and cultural heritage existing here. Thus it was considered necessary to create this management plan valid for ten years detailing the activities planned in different areas and coordinating action plans specific to each area. Implementation of management policies that emphasise transparency and openness of authorities to the public is an attempt to increase external involvement, educate the public and create new public-private partnerships to help develop the area, monitor it and the necessary scientific research.

#### III.4.3. Objective dimensions

The protected area occupies over 286.95 sqkm, the system of lakes being composed of 16 lakes which were given names and a series of several unnamed lakes. The 12 lakes that make up the Upper Lakes are Prošćansko jezero, Ciginovac, Okrugljak, Batinovac, Veliko jezero, Malo jezero, Vir, Galovac, Milino jezero, Gradinsko jezero, Burgeti and Kozjak; and the four lakes that make up the Lower Lakes are: Milanovac, Gavanovac, Kaluđerovac and Novakovića Brod.

#### III.4.4. Biodiversity

Plitvice Lakes National Park is at the southern end of the slopes of the Mala Kapela chain, at elevations between 369 and 1279 meters. This is an area of alpine topography that has a considerable impact on climatic phenomena and, consequently, on the vegetation of the area. Thus the park is divided into areas where different species of vegetation predominate, each area having its own specific.

The biodiversity of aquatic ecosystems is exceptionally valuable. Three significant types of Natura 2000 habitats are represented in the national park's aquatic ecosystems, each comprising a series of fauna and vegetation species specific to them.

#### III.4.5. Local community

The settlements that were partially or entirely in the National Park the Plitvice lakes have a

population of about 1300 people at present, while in the 1990s the number of people was almost double, the most important cause of this population decline being war. The park administration has long recognised that there is a need to improve cooperation with the local community to increase sustainable tourism development opportunities. They want to develop cooperation on the part of traditional activities in the area, starting from the dwelling, up to the production of local foods and breeding of animal species specific to the area and they want the integration of the locals in the tourist activities in the form of guides.

#### III.4.6. Tourism and recreation facilities

The development of the current system of visitors to the National Park began at the end of the 19th century and was completed in the 1930s. With minor adjustments, the trails and small bridges continue to respect what was originally built. Visitors can travel in the park individually and in groups, either by hiking or by a combination of means of transport, such as guided tours, guided boat tours, or solo boat trips on Lake Kozjak.

The current management plan aims to maintain the current facilities and create a series of new facilities without any visible intervention in the natural environment. Thus, a series of guidelines are proposed: qualitative increase of tours for tourists without diminishing the level of impact on natural areas, awareness of the value of lakes by employees, residents and tourists and increasing the quality of services and accommodations using local and regional resources.

#### III.4.7. The objectives of the management plan

The objectives of the management plan have been divided into several levels meant to differentiate and help organise the structure of this plan. Each of these levels was also subdivided to provide more precise directions for each of the proposed objectives. As well as general terms, the management plan aims to develop measures designed to help conserve natural resources and cultural heritage existing here.

#### III.4.8. Measures taken

The first step was to create a series of action plans based on the levels proposed in the objectives part in order to be able to control all aspects of this management plan.

- Biodiversity Action Plan - proposes the conservation and monitoring of the entire park system and the existing routes and those to be built respectively.
- Marketing Action Plan - proposes to improve the infrastructure, to adapt the routes to be used by people with disabilities, to introduce eco-friendly technology and to develop tourist centres.
- Action Plan for Heritage - proposes the creation of a study for the protection and revitalisation of heritage areas, together with the analysis of the localities that are part of this park to identify the possible objectives that can be introduced in the general process.
- The action plan for land ownership problems - proposes the creation of a cadastral program specific to this area and the measurement of all the plots that make up this area for its clear definition and integrity.
- Action plan for the local community - proposes regular meetings for educational and research purposes. This plan aims to ensure transparency towards the local community and its inclusion in the management part of the park [5].

#### III.5. The Upper German-Raetian Limes management plan (Obergermanisch-Raetischer Limes - ORL)

##### III.5.1. Location

Obergermanisch-Raetischer Limes represents the furthest boundary of Roman expansion in Germany and extends from the Rhine to the north of Koblenz, through the Westerwald and Taunus forests, Wetterau, along the Main River, through the Odenwald and Swabian-Franconian Jura forests, encompassing the fertile lands of the Nördlinger rivers and ends at the Danube, west of Kelheim (see Fig. 5). On his route through present-day Germany, the Obergermanisch-Raetischer Limes passes through several different natural and cultural landscapes.

who live in their proximity, and there is an increased public awareness of the uniqueness of these monuments.

#### III.5.6 Tourism and recreation facilities

According to UNESCO philosophy, the needs of the tourist functions cannot be more important than preserving a monument and the space surrounding it. Thus, all the measures taken for the development of the ORL must be designed not to affect the monument. At the same time, these measures cannot restrict the possibility of researching the monument but should be designed in such a way as to improve the visitor's perception of the monument and the conservation process.

The local community should accept future tourism developments in the ORL area; thus it is intended to create a scheme by which, at those times, all entities that can and should be affected should be consulted.

#### III.5.7 The objectives of the management plan

The main objective of this plan is to generate an attractive and organised presentation to a target audience, so all the materials related to this plan should be presented locally, regionally, nationally and internationally.

#### III.5.8 Measures taken

Due to the condition of the monument and the fact that it represents part of the cultural landscape, any action on it should be limited to restoration and conservation interventions. In order to be able to control the interventions on the ORL, a series of guidelines have been created meant to direct any action clearly:

- Any action on an area of the monument must have a direct historical or regional connection.
- Any intervention aimed at helping to visualise the monument should be done without harming the historic fabric.
- Forestry and conservation must work together and combine their objectives.
- The preservation of the monument must be done without creating a new monument without losing its authenticity.
- All new materials must be easily distinguishable from the original materials.



Fig. 5. Upper German-Raetian Limes - 2019 - unknown author [6]

#### III.5.2 Purpose and general classification

This management plan aims to create a basis for the maintenance, preservation, research and development of this archaeological monument and to identify different methods to implement these plans in the individual lands of Germany.

#### III.5.3 Dimensions of the objective

The Upper Germanic-Rhaetian Limes is a 550-kilometre long section of the former outer border of the Roman Empire between the Rhine and Danube rivers. The central area of the ORL covers an area of approximately 36.5 sqkm, while the safety area has approximately 246 sqkm.

#### III.5.4 Historical and archaeological objectives

Along this border, besides the typical ORL structures, there are about 900 guard towers and 120 fortresses of different sizes. Besides these visible constructions, there are also many historical remains buried in the earth. Due to these circumstances, they have remained in their original state for over 1800 years.

#### III.5.5 Local community

Both in the post-Roman era and at present in some places, ORL has had an important influence on people's lives. From the names of cities, forests, pastures named according to the ORL elements near them and up to the identity of the entire area, the influence of this monument can be observed. The entire network of monuments is very well anchored in the lives of the people

- In areas where there are intact or almost intact monuments, any new construction is prohibited. This applies especially in those areas where the monument is an integral part of the landscape.
- Reconstructions are allowed only in those areas where in-situ discoveries have been strongly affected, or modern constructions affect its visualisation. Reconstructions must be reversible [7].

From the point of view of reporting the studied site to the case studies, there are several similarities. Although our site has a number of aspects that make it quite different from other situations - a good example would be the overlap of the Natura 2000 area with Unesco heritage areas - these examples offered as case studies have essentially very similar parts to the given situation.

Plitvice Lakes Natural Park is a Natura 2000 area with many species and habitats that had to be protected and with great tourist potential. This park also needed interventions and regulations as well as the area we studied. Following a very well developed management plan and regulations sometimes considered drastic, the park has become a true European landmark and an example for other countries with similar areas. The Upper German-Raetian Limes - this historic site does not resemble our situation only because it is a UNESCO World Heritage Site and its antiquity. Both this site and the one we studied were part of the Roman Empire and represent a true landmark in history. Due to the extent of this patrimonial object and the areas with which it is interposed, it was easy to observe its influence both in the urban development of the adjacent localities and from a cultural point of view. Thus, this ensemble is very similar to the one in the area studied by us due to its influence from the past, present and future on the area it surrounds. Like the Plitvice Lakes Natural Park, many management projects and regulations were needed to ensure the conservation of this site and the possibility to open it to the public. These projects that have proven to be successful are why it was considered a landmark in the study.

#### IV. RESULTS AND MEASURES TO BE TAKEN

Following the analysis of the case studies and the other documents that establish clear directions both at a regional and national level and internationally regarding situations similar to the one we are in, we can observe a series of measures that will directly influence the decisions taken for the existing problems.

With regard to protected natural areas, several measures must be taken to conserve and monitor these areas without destroying or affecting the existing fauna and flora. However, due to the fact that these natural areas are open to the public at the moment and will have to continue functioning for tourist purposes, it is necessary to conserve without restricting the access of the people.

From the point of view of the elements of fauna and vegetation existing on the studied surface, it is necessary to regulate some well-defined areas where it is impossible to intervene with anthropic elements except for the maintenance and conservation of the area for research projects in the field. It is necessary to regulate the areas that are kept with the current functions and those that will be re-functionalised to be added to the existing ones to create a favourable area for the conservation of habitats with well-defined characteristics. Simultaneously, where this is required, the access of unauthorised persons must be prohibited to conserve the natural habitats that would otherwise be endangered.

For all natural areas where access to the present time is allowed and will continue to be allowed, clear measures should be taken to define routes or areas to be visited, which may have maintenance when needed, provide points of interest and not destroy or generate important changes in natural habitats, changes that are not reversible.

All these measures must appear in an action plan for the biodiversity of the area. This action plan must be created in conjunction with the Local Urban Planning Regulation and the Management Plan of the area to clarify the measures envisaged therein and ensure a safe and easy to understand climate, without any possible interpretations.

The protection systems of natural areas and caves, already existing must be protected and their damage prevented, as well as the leaving of organic materials or waste, the use of different objects that generate fire, and any movement within the caves or protected areas will be carried out without exceeding the limit of the existing path

In view of the situation of protected fauna and flora, a number of measures must be prepared to reduce their exposure to the human factor. Thus the existing species must be protected, and interventions should be prohibited in this environment, including new routes for cars, motorcycles or ATVs. At the same time, hunting actions will be strictly regulated, and measures will be taken to prevent poaching.

From the point of view of the existing historical fabric, woven with an undeniable heritage value, we can say that it is necessary to provide a set of measures at least as important as the one proposed for the protected natural areas. Thus the first problem to be solved is related to the protected area of the historical test. It is necessary to clearly define the areas of protection of these monuments, taking into account the private properties - where they exist - the natural protected areas but also the natural or anthropic elements that can affect these limits.

Regarding the actions on the monuments, it should be specified that they will be done only if they represent an emergency - when we talk about safety interventions - or are meant to help visualise the monument. In this second case, the interventions must be made respecting the historic fabric. This tissue should not be affected, the new materials that will be used must be distinguishable from the old ones without creating a new monument or in any way modernising the original monument, and reconstructions will only be allowed in those areas where the monuments were strongly affected. Any reconstruction of some monuments existing on the site must be reversible and not modernise the monument.

In the protected areas of the monuments, new constructions will be allowed only if they have a historical or regional-geographical connection with it and do not affect the visualisation of the existing monuments.

Given that we are talking about an area that also offers visitors access at this time, the existing routes to and from monuments as well as those passing through protected natural areas must be taken into account. These routes must be preserved and monitored to ensure the minimum requirements for operation and the infrastructure must be upgraded. The newly proposed routes must be designed in such a way as to offer points of interest without affecting the natural areas or the existing monuments. All newly proposed trails in protected areas and protected natural areas must also provide access for people with disabilities.

In the protected natural areas and the protected areas of the monuments, near them will be prohibited the access by motor vehicles to the unauthorised personnel. In the protection zones of the monuments, a new protection zone will be provided around these monuments where the access of the people will be possible only pedestrian in order not to affect the structural integrity of the monuments. Given these requirements, it is necessary to provide parking areas for all types of motor vehicles, but also for bicycles or scooters, near the areas where only pedestrian access is allowed.

From the perspective of tourist areas and recreational areas, the proposed interventions should help consolidate and develop the current situation. Thus for the areas with monuments, interventions are proposed that will facilitate the access of tourists and provide them with clear information about the sights that can be visited. In this regard, a series of tourist centres are proposed to operate under the guardianship of the local administration strategically located so that it can assist tourists. These points will have some areas that they serve and will be able to offer guided tours to monuments and protected natural areas.

The local community must be an important factor in making decisions and generating a local management plan for these resources. Thus, it is proposed to coagulate the community in organisations that will take part in the entire decision-making process in order to provide both support in activities that require human resources and on the side of local traditions. At

the same time, the local community should participate in educational and research meetings to understand the need to protect the existing area but also the monuments.

Besides these, the local community is an important factor also from an economic point of view. Due to the inhabitants, particular objectives can be activated that link the area with the local traditions that are less visible. Thus, they can open with the support of the authorities, accommodation units or restaurants with a traditional character which is itself a tourist attraction. However, these activities must comply with the regulations regarding the protection of natural areas and the monument protection area. Thus, they cannot be located within protected areas or monument protection areas.

All these proposals will be organised into specific action plans to ensure the smooth running

of things and to establish a series of clear development directions. To this end, the following action plans are proposed:

- Biodiversity Action Plan - will cover all proposals related to the protection, conservation and maintenance actions of natural areas
- Heritage Action Plan - covers all proposals related to interventions in archaeological sites and monument protection areas
- Accessibility Action Plan - refers to all access routes to and from monuments and natural areas
- Action plan for tourist areas and recreational areas - covers all proposals related to tourist areas and recreational activities
- Action Plan for Local Community Involvement - covers all activities related to local community involvement.
- All these plans and regulations can be included in a certain timeline that expresses the order of general actions, as follows (see Fig. 6).

		Natural areas	Historical sites	Local community
Short term	1-2 years	1. Defining the protection zones for certain habitats and respectively the zones that allow the access of the visitors. 2. Regulation of areas where interventions with anthropogenic elements are not allowed and delimitation of areas with prohibited access for the general public. 3. Regulation of hunting actions 4. Promoting the sustainable use of resources in the park, which provides support for traditional activities (already proposed in the PNGM-C Management Plan)	1. Defining the protection zones of the monuments and regulating the permitted actions inside them 2. Development of projects for the conservation of the historical fabric 3. Promoting the need to preserve sites with heritage value and their importance in the development of local culture and traditions (already proposed in the PNGM-C Management Plan)	1. Creation of organizations that will be involved in the management process of natural areas and historical areas 2. Encouraging the local community in the development of activities to ensure the sustainable development of the area (already proposed in the Management Plan of PNGM-C) 3. Encouraging the local community in promoting cultural values and traditional activities (already proposed in the PNGM-C Management Plan)
Medium term	2-5 years	1. Designing routes and areas that can be visited, taking into account the way of accessing them - on foot, by motorized vehicle, by bicycle, etc. 2. Realization and maintenance of public routes and areas with tourist access	1. Designing routes and areas that can be visited taking into account the way of accessing them - on foot, by motorized vehicle, by bicycle, etc. 2. Realization and maintenance of public routes and areas with tourist access 3. Facilitating tourist access through infrastructure development projects	1. Creation of projects to help support private investments and respectively the economic development of the area (restaurants and accommodation units) 2. Creation of educational and research projects of natural areas and historical areas
Continuous		1. Conservation, monitoring and management of species and habitats that already exist in the studied area (already proposed in the PNGM-C Management Plan) 2. Reassessing the situation at a given period and ensuring the maintenance of tourist routes and areas accessible to existing tourists and the design of new facilities for them.	1. Conservation, monitoring and management of the existing historical fabric (already proposed in the PNGM-C Management Plan) 2. Reassessing the situation at a given period and ensuring the maintenance of tourist routes, infrastructure and areas accessible to existing tourists and the design of new facilities for them.	1. Reassessing the situation at a given period and ensuring the continuity of the involvement of local community organizations in the process of management of natural areas and historical areas

Fig. 6. General measures timeline

V. CONCLUSION

Following the case studies analysis, a series of similarities between them and the territorial administrative unit studied - Orastioara de Sus, were observed. These similarities, observed before proposing management plans, helped determine the relevant factors and measures in the case studies that can be adapted and used in the current situation. They start from the biodiversity side and continue with the existing heritage, the management part, accessibility and even the involvement of the local community. Considering the similarities between the studied area and the case studies, we can conclude that the measures taken in these areas can be applied directly or can be adapted to the current situation. Thus, we have generated a series of proposals organised in action plans related to specific areas that need improvement.

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## Urban agriculture: The case studies of Havana and New York City

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### ABSTRACT

The article studies two different approaches to urban agriculture. In the first one the implementation of urban agriculture in the city of Havana, Cuba was one of pure necessity, in which the state created all the premises for it to flourish. The degree of mobilization from the population is high, being essential for food security. The second case study is related to New York, where the implementation takes place over a longer period of time, and the concept is getting traction with the involvement from residents and local communities in various neighborhoods with initiatives in this regard. There is support and involvement from the local authorities, the areas of the city with potential for urban agriculture are established, analyzes are made to determine and under what form it could be applied while solving existing problems of urban life. In both cases, urban agriculture has been successfully implemented, being a permanent or temporary layer in the cultural and green fabric.

**Keywords:** urban agriculture, food security, CPUL, green spaces.

### I. INTRODUCTION

Population around the globe is increasing, and urban areas are expanding their borders, a well-founded reason why life in urban areas should be analyzed and examined, but especially in order to prevent our alienation as individuals from our nature, what it means to plant, to grow. Urban farms ensure the enrichment of the community, through food security, jobs, compensate for some expenses, promote social interactions and educational programs, the gardens also help to reduce the effect of urban heat, reduce the impact of storm water and decrease the energy invested in food chains.

### II. CASE STUDY: HAVANA

Beginning from 1917, the U.S. imposed commercial, economic and financial embargo to Cuba through different acts: Trading with the Enemy Act of 1917, the Foreign Assistance Act of 1961, the Cuban Assets Control Regulations of 1963, the Cuban Democracy Act of 1992 and so on. Cuba had to rely on a close relationship with the Soviet Union in order to develop its economy, roughly 85% of Cuba's trade being with the Soviet block.

Due to centuries of colonialism, prioritizing sugar cane, rice, citrus plantations, Cuba neglected its domestic food consumption, forcing it to rely on imports from the Soviet Union.

After the collapse of the Soviet system in 1989, Cuba found itself in a tough situation, an economic crisis, with its food security being threatened. Cuba was thrown in a food crisis, due to the loss of imports from the Soviet block.

Havana, Cuba's capital and largest city, serves as a model replicated throughout the country, being the hardest hit city and being able to regenerate socially, economically through urban agriculture. It transitioned from largely scaled, highly intensive, exotic, single crop plantations to small scale, largely diversified, organic or semi-organic farming system. Food production was decentralized, local markets with a short distribution chain were encouraged.

A big step in promoting urban agriculture was the creation of an Urban Agriculture Department. It implemented a series of different projects in coordination with NGO's, research

centers with the goal of using all of the city's unused space for production. This included: vacant lots, rooftops, balconies, terraces, etc. Its first policy was to establish land use rights for farmers. They would request a specific plot to the local government, typically in the area where they reside, and the local municipality would grant them that specific plot with a lease contract, with the condition that the plot was used for production. If the demander was a cooperative, the state would also provide infrastructure, such as a sales kiosk, tool shed, irrigation system and startup loans.

Another step was creating agricultural extension services, which are organized to respond and serve the needs of farmers. They offer assistance and knowledge to farmers, as well as means to monetize their yields by providing information, promoting agricultural techniques, providing access to infrastructure, coordinating logistics, and offering educational workshops. Also, they organize the community by encouraging members to associate with nearby groups, as well as integrating new members into the food network.

Previously all food was bought and sold through government stores. After the bills have passed the government allowed food to be sold on sites or on farmer's markets so that the logistic chain would shorten or be non-existent. The food would be always fresh and the distribution chain would shorten.

The city farms and gardens were organized into five main categories [1]:

Huertos Populares (popular gardens): cultivated privately by urban residents in small parcels all over Havana (Fig. 1).

Organicoponicos and Huertos Intensivos (intensive gardens): Gardens in raised container beds with a high ratio of compost to soil, run by a state institution or by private individuals (Fig. 2).

Autoconsumos: Self-provisioning gardens that belong to and produce for the workers. They usually supply the cafeterias of a particular workplace, an institution: hospitals, factories and schools.

Campesinos particulares: individual small plots cultivated by farmers, largely working in the peri-urban, greenbelt around the city.

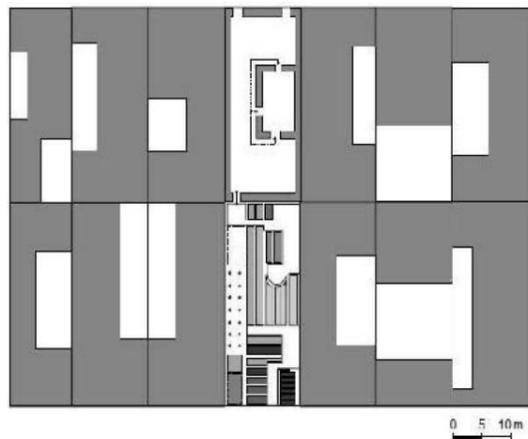


Fig. 1. Temporarily occupying vacant lots for the community in Havana - Huerto Comunitario [2]

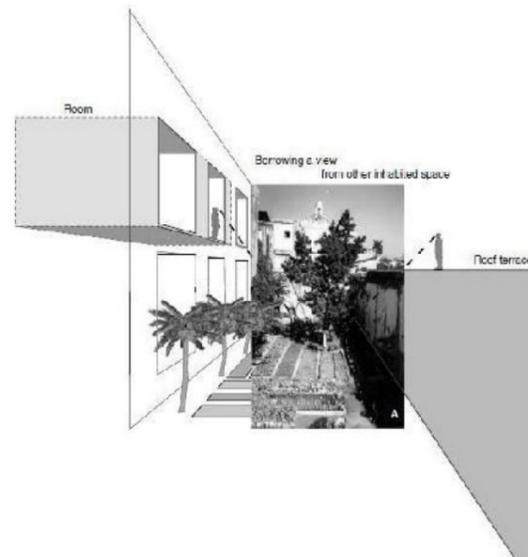


Fig. 2. Representation of Huertos Intensivos [2]

Empresas estatales: large farms run as state enterprises, many with increasing decentralization, autonomy and degrees of profit shared with workers.

Havana has a compact city core, which de-compacts towards the edges, with small plots dispersed through the city center. Larger sites for urban agriculture tend to be found at the edge of the urban fabric or adjacent to major roads. In their work, "Continuous productive urban landscapes" [2], Andre Viljoen and Katrin Bohn researched how big urban agriculture plots need to be in order to provide full-time employ-

ment and to be economically viable. Of those mentioned above, the most productive and probably most representative are the organicoponicos, with yields up to 20kg/sqm/yr. They require at least 500 sqm and imported soil and containers. Organicoponicos are raised container beds 120 cm wide with 65 cm left for paths placed fully above the ground with a soil mixed with compost or manure, suitable for paved areas, or areas where the soil isn't fertile. Usually, the produce is consumed by the farmers, or sold at the farm door locally.

An interesting approach used by the Cubans was using vacant lots in the middle of the urban fabric to temporarily occupy a site for community garden (huertos populares). Although the space isn't enough for large scale urban agriculture, it is large enough to create a social, communal space. Such examples we can find throughout Havana.

In a very short period Cuba increased its food yield, shortened its distribution chain, managed the food security crisis and changed nutrition habits, primarily of the disadvantaged population (in some regions urban agriculture provides 30% of the calorie intake). Its success relies heavily on policy making, the education programs working closely with the population and the will of the community to be involved with farming.

Urban agriculture in Cuba accounts for a large percentage of the total agricultural production (Fig. 3) [3].

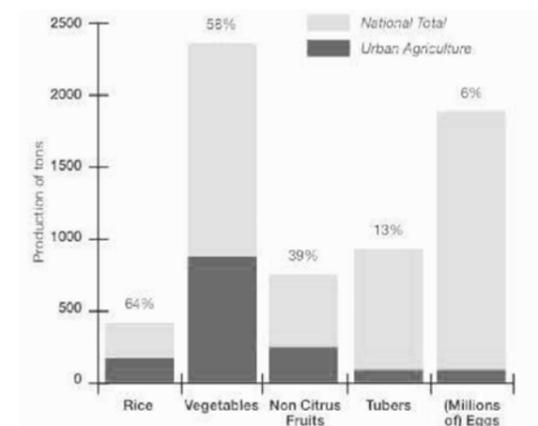


Fig. 3. Urban Agriculture as a Percentage of Total Production [3]

### III. CASE STUDY: NEW YORK CITY

New York City is one of the most densely populated cities in the United States with a population of approximately 8 million people in 5 boroughs. The high price of land makes urban farming seem an inadequate concept but given that urban agriculture relies heavily on local capital, and support from communities who need a healthy lifestyle, food and diversity, this is the perfect place for this movement to flourish.

In this case, the urban agriculture approach is a way of understanding how agriculture works in a synergetic relationship with the city and urban environment, generating a new urbanism movement and a new type of continuous and productive urban landscape (CPUL).

Urban agriculture, in the case of NYC has the capacity to solve a series of problems that the population is facing.

There are many areas where convenience stores, and discount stores that have the major food retailers, are not selling fresh and nutritious produce. The difficulty also comes from the fact that very few inhabitants have a car, so moving to other areas of the city is difficult, but as a solution, a program has appeared that offers tax relief helping small businesses that develop in these areas, and the development of urban farms. In these areas the situation has improved. Recent studies reveal that the percentage of NYC residents suffering from obesity and diabetes is much higher than the national average. The communities that suffer the most from this disease are situated in low income neighborhoods, which suffer from social inequalities situated usually near vacant lots in the city, which are unable to access fresh, healthy food [4].

An environmental issue NY is facing is high temperature in the urban area, which can be up to 12 degrees higher than that in the surrounding rural areas. As a solution, increasing the amount of vegetation is one of the best ways to change the thermal balance, where the ground allows it. Shading and vegetation block and redistribute solar radiation. Many areas, however, are completely paved, leaving only roofs as a possible additional green space for greening the area. If we can think about a solution applied

on a large scale, local farms on roofs could help lower temperatures and significantly cool the urban environment.

This new approach to planning, described in a study done by Urban Design Lab Columbia University, begins with Identifying the availability and spatial distribution of land suitable (soil degradation, water management composting and waste management, energy consumption) for farming in the city [5].

Often, different issues can emerge which require political support from local municipality and cultural support from involved communities.

Available spaces in the urban fabric include vacant lots: belonging to the public administration, to the state or agencies and private land, free of construction.

Public vacant lots.

The approach involved an analysis on the distribution of these spaces in each area of the city, then pondering if it is suitable for immediate real estate development based on the site dimensions and neighborhood needs. Public vacant lots are best suited for this kind of practice because they can be assigned to specific uses through municipal policies; the approach being simple, thus increasing the political involvement in such actions. Encountered problems in this case are:

-the use of water - for public properties costs would be taken care of by the parks and recreation department, which deals with the management and support of agricultural planning in the urban environment. In some situations water was used from hydrants, but for large-scale applicability the department could find different solutions.

-soil contamination: in some situations the solution was to bring soil and excavate the existing one, or use compost beds on the existing soil or biological techniques that require a longer duration, but are done at reduced costs.

-a social problem: the change in zoning regulations or an interest in building on the specific site can spark community opposition which grew attached to its community garden

Private vacant lots.

The decision is made to include tax incentives or even tax exemptions, considering that the state



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