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 wayfinding 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.
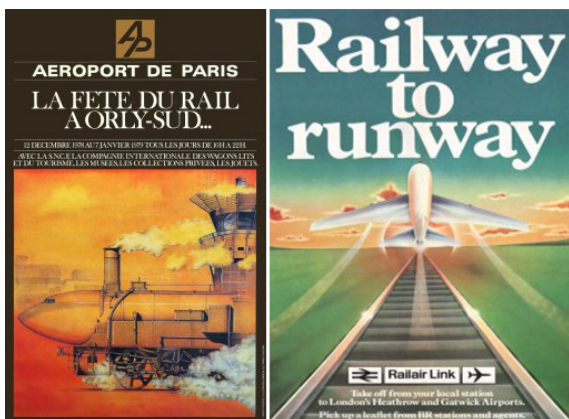

Fig. 5-a. Publication France 1978
Fig. 5-b. Publication England 1982 [7]

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 then 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 tree things that pop into your mind when you think of airport, waiting, security?
4.&5. Take at least tree 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].
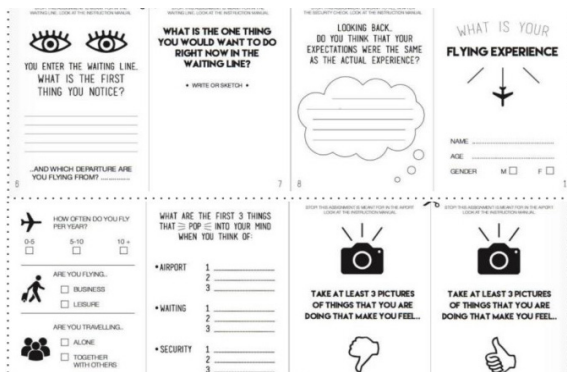

Fig. 6. Travellers' quiz-cultural probe [8]

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.
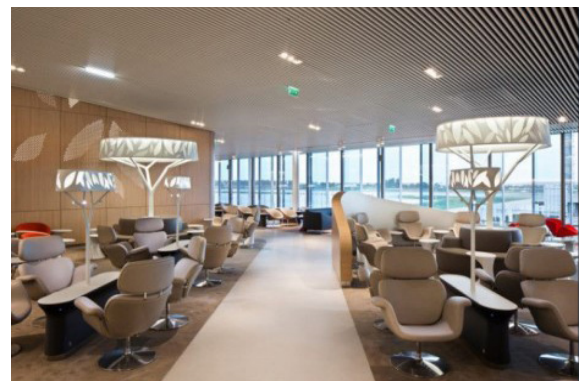

Fig. 9. Air France La Premiere Lounge, Paris [14]

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 advocate 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);
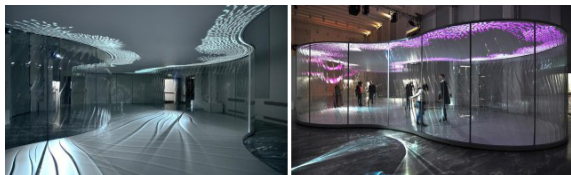

Fig. 11-a. Curved glass panels
Fig. 11-b. Liquid crystal [18]

-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 plane 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 ist 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 glamourous 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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