

Sklyarenko N. V.,  
candidate. of Arts, Associate Professor,  
Lutsk National Technical University,  
Lutsk, Ukraine

**PRINCIPLE OF INTERACTION DESIGN SYSTEMS AND  
ENVIRONMENT  
IN DESIGNING FACILITIES OUTDOOR ADVERTISING**

*Abstract.* In the article principle of co-operation of the system and environment is exposed as inalienable part of approach of the systems is in a design. The features of this principle are reflected on the example of planning of innovative objects of the external advertising.

*Keywords:* design-system, approach of the systems, environment, principle of co-operation, external advertising.

**Background and problem statement.** Outdoor stands today as an integral part of contemporary art and design culture. Domain of existence of modern advertising design object is primarily the major cities with their complex mass culture , overcrowded information . One type of information transfer in this environment is the city lights , billboards , branding and exclusive designs that represent the design of the system. Specificity of real outdoor advertising as an art is concentrated to deliver information to the consumer through imagery and emotional sphere and through close interaction with the environment. The principle of the interaction design of the system with the environment is used in practice by modern designers, but at present there is no theoretical justification for it .

Creation and design features of innovative outdoor advertising has not yet been considered by researchers from a systems perspective , although the latter is a common practice in various spheres of human activity. Despite the wide range of objects using outdoor advertising, the systemic features in their design was not raised in the writings of modern scholars that determines the relevance of the chosen topic.

The problem of implementing a visual language in imaginative judgment innovative outdoor advertising facilities , the lack of a coherent structure interaction design of the system and the environment against the background of the

intensive application of technological innovations and information justifying the need for a systematic approach to their design development. It is therefore important to study ways of implementing the principle of modern interaction between system and environment, and methods of constructing harmonious and vividly expressive design objects on them. Problems outlined the need to prove depth study of system design features innovative outdoor advertising sites in the context globalistychnyh trends of art and design culture.

**Relationship of academic programs, plans.** Work carried out at the Department of Design Lutsk National Technical University in the context of the theme "Tradition and innovation in design."

**Analysis of recent research and publications.** Issues of research systematic approach to the design of the late twentieth century. treated O.Henisaretsky , H.Schedrovyytsky [ 7] V.Hlazychev , B.Yudin [8 ] M.Kahan et al. A large number of papers related to the systems approach and systems analysis , covering economic, biological and social spheres of human activity ( Surmyn [ 6] S.Kapytsya , F.Kapra , U.Eshbi et al. ). S.Myhal reveals ways to use features of a systematic approach to furniture design [ 2] , considering its practical implementation. In architecture the theoretical and practical principles using a systematic approach to the design of architectural objects like human ecological systems - demoekosystem justifies H.Lavryk [ 1].

Innovative technologies in the outdoor advertising beginning of. ( video installations [4 ] and innovative objects PSAs [5 ]) described by the author in a separate publication . Much of the illustrative material obtained from the Internet and is promotional in nature [9, 3].

The relevance of the topic chosen is undeniable given the large number of publications concerning the systematic approach in general. However, information on a systematic approach to the design of objects outdoor advertising and graphic design in general, the author does not detected because the chosen theme requires extensive research .

**The wording of Article goals.** The aim of the work is to highlight areas of

the principle of interaction between the system and the environment in the design of facilities for outdoor advertising. The objectives of the work are: 1) describe the principle of interaction between the system and the environment as part of a systematic approach to design, 2) describe the main ways to implement this principle in the example design objects outdoor advertising.

**The main part.** The principle of interaction between system and environment is an integral part of a systematic approach to design. It outlines the role of the environment as a condition for the emergence, establishment and operation of systems design. Systems approach to design requires the researcher to consider the design system operates within a much larger system - the environment.

Design the beginning of. - A scientific discipline during the formation and functioning of scientific knowledge within the principle of interaction design and environmental systems, as well as the formation of the preconditions for the transition to a new stage of development. In the design of outdoor advertising sites observed structural complexity of the system by increasing the elements of the design of and involvement in the design elements of the system environment. In order to increase the duration of the maintenance of attention of consumers introduced in shaping innovative real outdoor advertising materials ( metal, plastic, glass, wood, fabric ) and implemented by rethinking the function of the environment - the environment and its elements become active components of the visual design of the system.

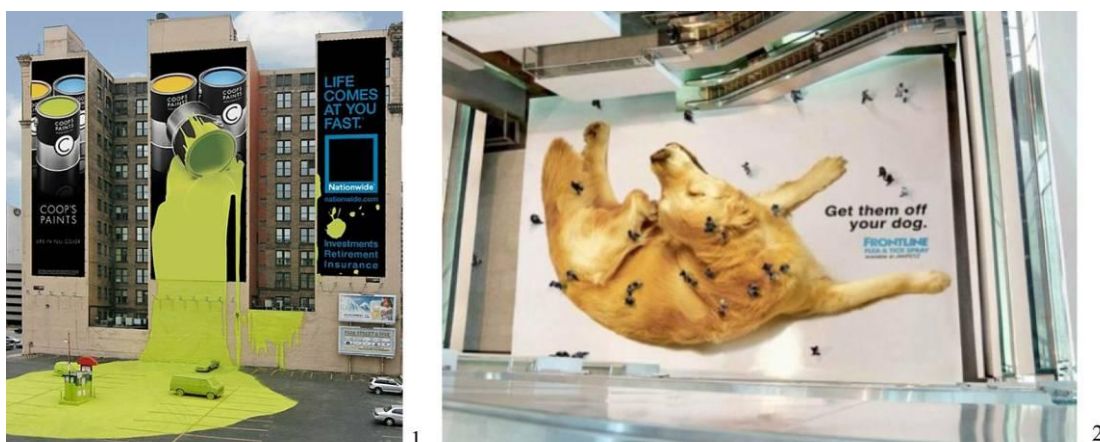
In the design of modern systems there has been increasing interaction with the environment, which can identify plane ( front, interior ), architectural space and landscape design, installation and environmental systems as complex (and often self-organized) travel system. Planar design system in outdoor advertising (in two or more planes) are posters that are on different structural elements of the internal and external subject- spatial environment - walls, ceiling, corners of walls, buildings and other structures. Complications planar design of the system is not only due to the involvement of many components of the environment, but also because of the division structure of the design system. The appearance of advertising "Although the world Go round" on the facades of buildings parallel to create the illusion of walking provided the traveler, standing with one foot in the U.S., and the second - in the UK, through the MTS is always connected. Thus, the environment has become a mediator in reading the content of the advertising message (Figure 1.1). Architectural and spatial design system is based on the involvement of small architectural forms or functional elements of the architectural environment ( fences, stairs, bridges, fountains, benches, garbage, etc. ). Rods fence as harpoons were elements of the design of outdoor PSAs protect marine animals (Figure 1.2) or a structural element of advertising trimmer nose ( Fig. 1.3 )

are the wire lines. Landscape design systems contain elements of nature , plants , sunlight , etc. . Yes, the billboard may consist of frame construction so that advocated by nature (advertising game consoles ). Posters «Science World» image she bite beavers trees placed in trees , creating the illusion of naturalness (Figure 1.4).



Rice. 1. Kinds of design of outdoor advertising:  
1 - a surface, 2, 3 - architectural space, 4 – Landscape

Static and dynamic design complex systems that are built on the principle of interaction with the environment and the person represented by environmental installations. An example of the static design of complex systems is «Nationwide and Coop's Paints», which together promote the insurance company and the paint (Figure 2.1). To implement the project involved elements of the environment - the walls of buildings, parking and three cars. The installation represents banks, which poured paint down on the car and the parking lot, calling insure the car.



Rice. 2. Sophisticated design of outdoor advertising:  
1 - static, 2 - dynamically samoorhanizovuyutsya

Complex system design of outdoor advertising can be so self-organizing : a dynamic system in which to deliver information expressed in the restructuring of the system. Environmental Installation was formed by «LG» in 2011 during the Rugby World Cup to showcase the unique features of washing machines LG. A poster placed in front of the players tunnel . Players ran on the field in clean clothes after the first half, they turned to the washing machine dirty. At the beginning of the second half, the players returned from the tunnel washer clean, thus showing the possibility of machines to handle large loads. Dynamical systems, self-organizing ad serving in a pet shop «Get them off your dog» ( Fig. 2.2). Poster dogs placed on the floor of the mall, where people walk around like fleas ( contemplation pest occurs on the second floor ).

Thus, elements of design objects in outdoor advertising is visual, structural and environmental components. Fine component design system evolves from an ordinary plane division into several planes , the free articulation and complexity of additional structures and elements of the environment , working with the other elements of the system to form a complete image . Informative links such systems with the environment the most intense and focused information flows in the direction of virtually every element of the node structure. Features of the interaction design of the system and the environment to assess the direction of the design of the system, establish the presence or absence of evolutionary perspectives. Integral party of the progressive development of design systems that enhances the level of organization and the transition to a new quality of the system, is, on the one hand, increasing the number of system components and on the other hand , the simultaneous complexity and improve their relationships.

With the principle of interaction between system and environment follows the postulate that the opportunities of sustainable development can be realized only if the system is equipped with the influx of information necessary for the transition of a new quality . The involvement of a person as an active participant in the formation of outdoor advertising facilities allow to distinguish interactive design system.



*Rice. 3. Interactive design of outdoor advertising:*

*1 - social advertising « anyway!?! »; « 2 - advertising « Hubba Bubba Gum »*

Interactivity is seen as a principle of design of the system, in which the goal is achieved by the exchange of information elements of the system. The ability of the system to a constant update shows PSAs 2011 ( Moscow) Children's Day , provided a clean board with marker and logo project " anyway ? " (Figure 3.1). An interactive design system «Hubba Bubba Gum» involves solving problems using chewing gum on the streets (Figure 3.2). For all lovers of gum that are offered by stand sculpt elaborate gum on a poster , and for each color - a color-coding region .

Another starting point for application of the principle of interaction between the system and the environment in the design is to identify the parties to the main mode of interaction between system and environment , which is implemented through the ins and outs . Sign in - a set of contacts through which information is transmitted system performance environment that is constantly changing ( quantitatively and qualitatively ). Exit - similar to the characteristics set of contacts through which the system affects the environment.

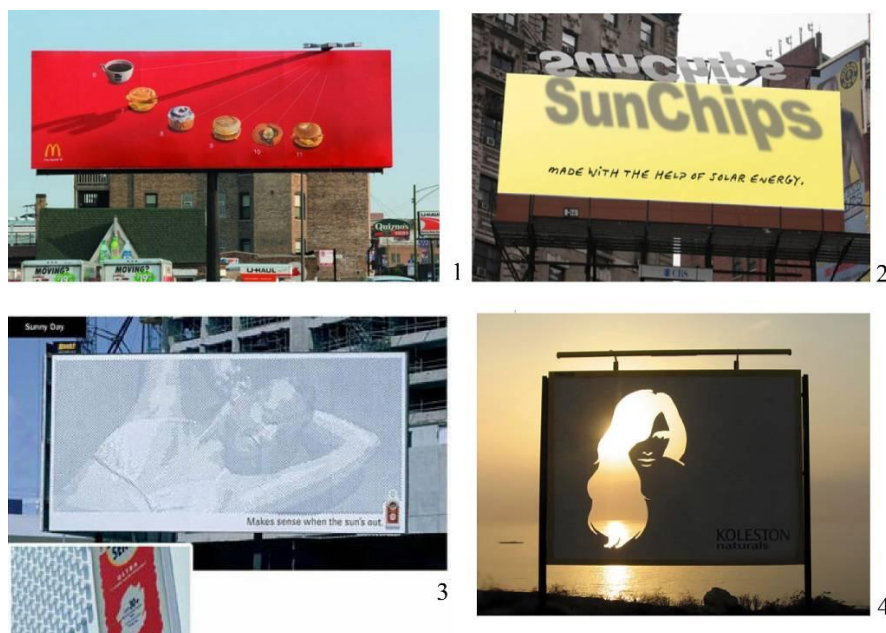
The design of outdoor advertising has always prevailed external to the system and each of its elements, the information flow at the inlet , ie, those that come from the environment . The environment affects the design system primarily through the action of natural forces . Changing the design of the system can be linked to the light ( sun ) rays, precipitation (rain , wind, tide ), etc. (Fig. 4). Advertising «Clemenger» 12148 pegs made from a length ranging from 1 to 27 mm (Figure 4.3). As soon as the sun comes up , these performances through the shadow , create



a black and white picture of a woman who takes sunbath . Campaign slogan - " It makes sense when the sun rises » (Make sense when sun's out). Traditional storage media using environment to create natural effects (promotion of natural color hair dye «Koleston naturals») ( Fig. 4.4). Hair color changes depending on the period of the day, thus emphasizing the natural colors of paint.

Illusion poster «Calvin Klein» with three-dimensional image of a giant T-shirts and underwear adapted to the weather conditions. The image changes. when it rains, the upper shirt gets wet and thin , as seen underwear. The environment as a source of input to the design of the system ensures the creation of creative solutions.

Effects of environment related to human activities, also has influence in shaping the design of systems in outdoor advertising. Advertising «Clean +» posted in the office . Over time, the dust settled and the poster appeared an inscription calling tidy . The poster was a sign of clear glue, which at first sight to be seen and company logo . After a while the label has gathered all the dust that has been around and has opened Fontware message.



*Rice. 4. Effect of sunlight on the design system.*

Changing the design of the system is also carried out by moving parts subject environment . In the early twenty-first century. proliferation of animation design system located on mobile elements ( automatic door transport , buildings ,

elevators , etc. . ). Poster " The disappearance of hair" against baldness is on the door of the elevator and in the middle of it. The movement formed by the elevator doors open , thus creating the animation.

Another way of bringing information from outside the movement stands a human observer . Entertainment Advertising system «McDonald's» zivayuchoho portrays a guy who eats a Big Mac . The image is located at a bus stop , it is printed using variotehnolohiyi to create animations. When one approach closer to advertising, the image changes and said that McDonald's coffee shop open 24 hours. Animated banner (image created by recording successive phases of movement drawn or three-dimensional objects ) can be formed through a series of traditional posters that form one piece poster when moving from the first to the last image , like a storyboard animations .

On the way out - the system affects the environment or changes - information flows involved in designing facilities for outdoor advertising is much less. Most relevant in the design is to spread the smell or sound in the environment to draw attention to the design of the system (" fragrant " shield «Donatos» featuring the smell of pizza and a shield with the smell of steak , fragrant image of dog food «Pedigree» on the sidewalk ).

Important aspects of the interaction between system and environment is the consideration of spatial and temporal characteristics of the interaction design of the system and other systems environment, a dynamic , in turn , varies in space and time. Life cycles of external systems are characterized by individual composition, structure and rhythm of its own time and space, and vice versa. This is reflected in the frequency of information exchange, the temporary nature of interaction consistency , change recipients on exchange of information and many other signs of change in space and time of interaction of the system and its environment. Such influence the design of the environment can be observed on the basis of the video installations for architectural objects [4 ]. Changing environments in 3D and 4D happens involving temporal -spatial characteristics of the design system.

Spatio -temporal aspects of system design , system properties , as the



interaction of the system and the environment has one important direction for research related to the cyclical nature of the system and the historical nature of any complex system.

**Conclusions.** The principle of interaction between the system and the environment as part of a systematic approach to the design implemented in the design of innovative facilities for outdoor advertising. By bringing natural elements or subject- spatial environment into the design of various types ( planar , architectural space and landscape design systems and complex static and dynamic environmental installations ) is provided and there is a complication of its transition to a new level . Design of outdoor advertising developed based on the inflow of new information from the environment to form new principles of design systems ( interactivity, animatsiyunist illusions , eksteroretseptyvunist ). The principle of the interaction design of the system and the environment is realized through space-time dimension system properties that determine the orientation of the system and the direction of its design.

**Prospects for further research.** In these studies, it is planned to reveal the essence of the system properties of design objects based on the study of spatial holograms.

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*Анотація.*

*Склярєнко Н.В. Принцип взаємодії дизайн-системи і середовища у проектуванні об'єктів зовнішньої реклами. У статті розкритий принцип взаємодії системи і середовища як невід'ємна частина системного підходу в дизайні. Відображені особливості цього принципу на прикладі проектування інноваційних об'єктів зовнішньої реклами.*

*Ключові слова:* дизайн-система, системний підхід, середа, принцип взаємодії, зовнішня реклама

*Аннотация.*

*Склярєнко Н.В. Принцип взаимодействия дизайн-системы и среды в проектировании объектов внешней рекламы. В статье раскрыт принцип взаимодействия системы и среды как неотъемлемая часть системного подхода в дизайне. Отражены особенности этого принципа на примере проектирования инновационных объектов внешней рекламы.*

*Ключевые слова:* дизайн-система, системный подход, среда, принцип взаимодействия, внешняя реклама