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ARCHITECTURE OF EXHIBITION BUILDINGS AS A TOOL FOR STRENGTHENING THE IMAGE OF COUNTRIES AND NATIONS – DIGITALLY MODELLED PLANES AND FORMS IN THE ARCHITECTURE OF EXPO 2015 IN MILAN

ARCHITEKTURA OBIEKTÓW WYSTAWIENNICZYCH JAKO NARZĘDZIE WZMACNIANIA WIZERUNKU PAŃSTW I NARODÓW – CYFROWO MODELOWANE POWIERZCHNIE ORAZ FORMY W ARCHITEKTURZE EXPO 2015 W MEDIOLANIE

Abstract

For nearly 150 years, international exhibitions have been the main venue for presenting cultural, scientific, and technological innovations. The architecture of EXPO 2015 exhibition pavilions is a crucial factor in creating the image of countries during a global event. Digitally modelled spaces with complex geometry and forms are commonly used to highlight the ingenuity and the technological sophistication of the exhibitors. EXPO pavilions, as architectural projects, constitute one of the most vivid examples of "playful" modern architecture – architecture created only for a brief period of time, as if only for "make-believe", but with a powerful media, image and commercial message.

Keywords: international exhibitions, strengthening the image of countries and nations, creation of brand, EXPO 2015

Streszczenie

Od przeszło 150 lat areną prezentacji innowacyjnych osiągnięć kultury, nauki i techniki są wystawy światowe. Architektura pawilonów wystawienniczych EXPO jest istotnym czynnikiem budującym wizerunek kraju pochodzenia podczas wydarzenia o randze globalnej. Użycie cyfrowo kształtowanych powierzchni i brył o złożonej geometrii jest jednym z zabiegów stosowanych w celu podkreślenia innowacyjności i zaawansowania technologicznego wystawców. Pawilony EXPO, jako grupa realizacji stanowią jeden z najbarwniejszych przykładów „gier i zabaw" architektury współczesnej – architektury tworzonej na krótki okres czasu, niejako „na niby" ale z potężnym przekazem medialnym, wizerunkowym i komercyjnym.

Słowa kluczowe: wystawy światowe, wzmocnienie wizerunku państw i narodów, tworzenie marki, EXPO 2015

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1. Introduction

Digitally modelled spaces are increasingly used in exhibition architecture, and their visual effects have become an indispensable element of "the architecture of the future" poetics, whose foundations lay in advanced computer software. For 150 years, world exhibitions have been the space for presenting and comparing innovative design in all aspects of life, presenting cultural, scientific and technological achievements of countries and peoples. The architectural space of exhibition pavilions goes beyond what is traditionally understood as the spatial context, serving at the same time as a powerful marketing tool; as buildings they do not last long, unlike their visual mass media image. In this sense, EXPO architecture constitutes one of the most vivid examples of "playful" modern architecture – architecture created only for a brief period of time, as if only for "make-believe", but with powerful media, image, and commercial messages. Using digital techniques in their design is one of the methods of highlighting the ingenuity and the technological sophistication of the exhibitors.

2. Expo architecture as a manifestation of transnational culture

The global trends in architecture, interior and functional object design are a consequence of the existence of transnational cultures [1, p. 86–97] that use common symbols and metaphors. The style of the promoted models emphasises the manifestation of its association with global culture. And although its existence is debated among sociologists, the existence of transnational cultures and ideologies is widely accepted. Its basic indicators are: a uniform lifestyle, common moral values, and using common symbols and metaphors. The virtual space for information flow also plays a major role here. The progressing standardization of style clashes with current trends on mass personalization and individualization. The co-existence of these two approaches is one of the paradoxes of modern architecture, which may also be observed in the EXPO 2015 architecture. On one hand the aim is to express individual national characteristics, but on the other, it seems necessary to use a language that is universally deemed to be modern or futuristic.

3. Architecture of the EXPO 2015 world exhibition – architectural forms based on creating and distributing symbols and metaphors

The distinctive feature of the architecture of world exhibitions is its recipient – the multicultural, international community. Hence, it is crucial to refer to the collective consciousness, to which the common code of basic meanings, forms, and compositions is clear. The design concepts are thus based on a universal message. The architecture of the national World Exhibition pavilions aims to build or to strengthen the image of the country as a brand. In this case, architecture is devoid of any spatial or social context. The only dimension it formally refers to is cultural. For marketing purposes, the architecture is to create a code of simple, positive, and attractive associations with a specific culture, by using a universal, transnational language – a language that is clear for the widest target group.

To take the Chinese pavilion as an example, we may observe that the form and construction materials recall traditional wooden buildings. Nevertheless, the digitally generated geometry of its roofing utilizes good models of modern architecture.

The French pavilion uses innovative technologies for timber constructions and woodworking, exemplified in the curved wooden lattice created by XTU Architects Anouk Legendre, Nicolas Desmazières. The pavilion was constructed in a manner that allowed it to become an exposition system at the same time. Glue-laminated timber arches were used to create a strong but lightweight structure of lattice girders and pillars. The designers used computer modelling techniques to maximize the static efficiency of all of the wooden components, which were cut using a digitally controlled robot. The elements are interlocked, minimizing the need for additional fixings.

In the United Arab Emirates pavilion designed by Foster and Partners, digitally modelled surfaces create an organic architectural form that resembles desert dunes. Smooth, rippling form of the building effectively combines image references to natural resources and advanced technology.

One of the most characteristic, digitally modelled architectural forms of the Milan Expo 2015 is the Vanke pavilion created for a Chinese property developer by Daniel Liebeskind. Despite its futuristic poetics, the expressive, sinuous geometry of the pavilion was not developed using parametric or generative modelling systems. The designer of the project describes it as hand crafted. The pavilion resembles the body of a dragon, covered with red, shiny ceramic scales.

To sum up, the metaphorical and symbolical message of the Expo pavilions aims to evoke simple associations:
- References to state of the art digital technologies can be found in the architecture of the German pavilion.
- References to protecting national heritage, tradition, and craftsmanship are vividly expressed in the forms of the Chinese, Japanese and French pavilions.
- A manifestation of co-creating modern culture through design and trend is clearly visible in the Italian and French pavilions.
- Using forms drawn from national landscape is characteristic of the United Arab Emirates and Qatar pavilions.
- Placing emphasis on ecology is the conceptual base for the architecture of the British and German pavilions.

4. Reception of digitally modelled spaces and architectural forms

The ability to model planes digitally or to parametrically control the architectural form, along with its optimization, has become crucial in shaping the forms of many exhibition pavilions. Fascination with digital aesthetics has become a fact. As early as in 1997, Rem Koolhaas pointed out that a desire to *design immaterial, nearly non-existing objects* has taken hold among architects [3]. Creating buildings which possess a very specific shine or reflections with digital visualizations has become their primary aim. The projects dazzle with their purity and sterility, but do not seem to be real. Great inspiration with virtual space and the desire to implement its typical forms in the real world can be observed. By relying on state-of-the-art software, more or less influential modern

architectural projects have been carried out. Architecture created from the earliest stages of development in a digital environment is significantly different from the structures developed in the manual tradition. In contrast to architectural hand drawing, digital modelling is an indirect form of designing: the way the software operates and its interface influence the project decisions.

5. EXPO 2015 architecture as scenography
of a media event, supporting creation of brand

Modern mass media events, from the perspective of their audience, are composed of sequences of images. They are the most effective mass medium. By evoking emotions and subconscious reactions, they have an immediate effect and are remembered for a long time. The spatial context, including architecture, usually constitutes an element of the media image: it may be used as background to the event or as its carefully planned scenography. In the former case, it demonstrates the spatial context of the event, and in the latter it shows a world removed from reality, but one that strengthens the presented brand message:
- architecture connected with the media event creates symbols,
- architecture connected with the media message consolidates aesthetic models,
- mass media influence the perception of architecture, allowing us to look at it from different perspectives.

The potential of the EXPO architecture has been successfully applied in media events broadcast by television and followed online. Architecture connected with an important event constitutes its scenography, which is necessary to create the atmosphere and the drama of the event. By being an element that is characteristic, memorable, and attractive to the media, it essentially becomes a part of the *show*.

Hence, the reception of a work of architecture recorded as videos and photographs is a crucial issue. The perception of spatial elements as two dimensional images (even as moving images) limits the possibility of a comprehensive evaluation, including the details of the context. Thus, such reception may be considered partial and often idealized. Creating effects using illumination and adjusting it to day and evening television broadcasts creates an impressive, dynamic and flawless space.

When discussing the notion of exhibition architecture as an image creating tool for countries and nations, it is important to stress the complex role of mass media as brand building medium. Hence, we may refer to the theory developed by Denis McQuail [4, p. 479–491], who distinguishes five functions of mass media: diffusion of innovation and development, social learning, socialization, cultivation, entertainment, and collective reaction. Each of these areas is connected with a different sphere of human activity, which may be the reason why promoting the spatial patterns observed and motivating change is so effective.

The consequences of learning through mass media may refer to understanding the conceptual layer of architecture and its symbolism, spreading trends in architectural style, standardizing patterns, demonstrating state-of-the-art technology.

SOCIAL-CULTURAL EFFECTS OF MASS MEDIA (McQuail, 2007)	EFFECTS ON THE AUDIENCE	EXPO ARCHITECTURE themes, spatial typologies, exhibitions, strategies of national image strengthening
1. Diffusion of innovations and development. Informative function, spreading technical knowledge, encouraging individuals to change and mobility, promoting consumer ideas, education and, health culture. ►	Increasing the awareness of the choices made by receivers, satisfying curiosity, imparting knowledge. ►	– use of innovative solutions in architecture, – innovative use of traditional materials, – seeking environment friendly technologies.
2. Social learning. Correlation – explaining, interpreting the meaning of events and information, and commenting on them, supporting established norms and authorities. ►	Establishing behavioural patterns, principles and good practices with regard to new phenomena. Shaping the opinion about new architectural trends. ►	– creating the aesthetic canon for modern architecture, – transmitting the meaning of architecture, its symbolism, – creating a modern code of meaning, semiotics.
3. Socialization – teaching norms and values. Coordinating individual and communal social endeavours, achieving a social and political consensus, establishing authorities, granting social status. ►	Creating a feeling of social belonging. ►	– manifesting cultural belonging through architectural form.
4. Cultivation – strengthening existing opinions, consolidating conventional behaviours, the dominant culture and common values. ►	Creating a feeling of cultural belonging and a community of tradition and custom. ►	– recalling cultural heritage and generating interest in the achievements of the past, – creating link between old and new in used materials, building techniques.
5. Entertainment – emotional stimulation, influencing the mood, organizing fun, leisure, and reducing stress. ►	Promoting life style choices, including recreation and leisure. ►	– creating social spaces and free time infrastructure.
6. Collective reaction – public campaigns in politics, social life, economy and other areas. ►	Organizing individuals into a collective, a public good. ►	– granting access to resources: public, communal, educational spaces.

Table: Sociocultural effects of mass media juxtaposed with their influence on the receiver and spatial consequences on contemporary architecture EXPO 2015. The black frame indicates points in which digitally modelled planes and forms were commonly used in order to introduce the poetics of "the architecture of the future".
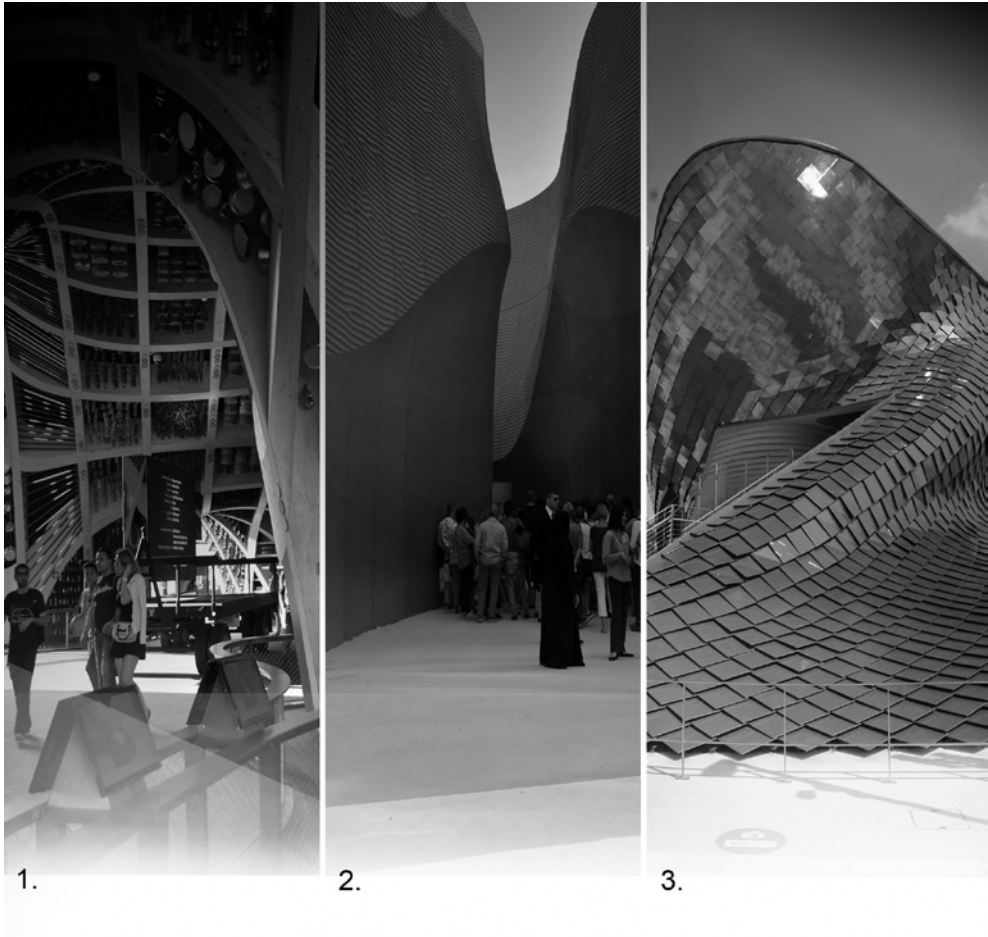
Ill. 1.   National French Pavilion XTU Architects
Ill. 2.   National United Arab Emirates by Norman Foster
Ill. 3.   Vanke corporation pavilion by Daniel Liebeskind

6. Summary

The architecture of EXPO 2015 exhibition pavilions is an important factor of strengthening the image of countries and nations during a global event. It influences the brand message through both spatial and architectural features, for example:
- use of innovative solutions in architecture or innovative use of traditional materials – for diffusion of innovations,
- seeking environment friendly technologies – for spreading technical knowledge,
- creating the aesthetic canon for modern architecture – for explaining, interpreting the meaning of events and information,

- transmitting the meaning of architecture, its symbolism – for commenting on contemporary culture,
- creating a modern code of meaning and semiotics – for supporting established norms,
- manifesting cultural belonging through architectural form – for teaching norms and values,
- recalling cultural heritage and generating interest in the achievements of the past – for cultivation and strengthening the existing.

Predominantly, however, digitally modelled planes and architectural forms have become an element of "the architecture of the future" poetics, associated with the ingenuity, innovation and technological sophistication. This more than anything supports the powerful media, image and commercial message.

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