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BULGARIAN AND WESTERN EUROPEAN INDUSTRIAL DESIGN IN THE SECOND HALF OF 20TH CENTURY. MODERN PRACTICES IN BULGARIAN INDUSTRIAL DESIGN

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Abstract: *Industrial design, as an innovative design activity in the field of industrial production, having its beginnings in Europe from the middle of the 19th century, experienced a real rise in the first decades after the end of the Second World War due to the strong social attitudes during this period for a better and fairer a world where man and his well-being were placed at the center.*

The subsequent geopolitical changes shook the continent to its foundations, dividing it into two ideological - political and military blocs, heralding a race and competition in all possible areas of the economic life of European countries, especially in the sphere of the processing industry, where the processes of creating products that determine a person's life and work. In order to increase their quality values, the implementation and application of new design methods in the face of industrial design have reached high levels of priority among the countries of the continent in order to give such important additional functional, ergonomic and aesthetic qualities forming the social and market appearance of industrial objects. Aesthetics, presented as the main artistic building block in the design structure, unites in itself the special spiritual and cultural values of the societies, which are the basis of the construction of identity, from where the differences in the visual appearance of the objects come.

The differences between Bulgarian and Western European industrial design appear not from the methodological standards of design, but from public attitudes about need, possession, beauty, aesthetics, production possibilities and level of technological development. Today, in the era of digital technologies, design acquires various forms of manifestation not only in European industries, but also in Bulgarian ones, and it is essential how and on what scale they will be applied so that the native engineering production reaches high levels of technological development and productivity.

Keywords: *Industrial design, industry, production, society, aesthetics*

INTRODUCTION

The examination of Bulgarian and Western European industrial design is not aimed at highlighting which is better, but by following it to describe in the course of the exhibition the similarities and differences necessary to determine the state of modern industrial design in our country and the possibilities for its development using modern methods. The study of the "two" design models in the post-war period Europe requires a completely objective specification of the economic systems imposed among the countries of the continent, the reasons for implementation and the significance of the design methodology in the industries, distinctive features in the process of form formation and the cultural features of the societies directly affecting the processes of formation of industrial forms. In the exhibition, the general concept of "industrial products" will be understood as technical ones according to the true essence of industrial artistic construction.

EXHIBITION

The economic system as a factor for forming the essence of the design process in Bulgaria and Western Europe

The "economic system" factor is essential to the way in which the industrial design profession is shaped in practice depending on financial and production-technological constraints. The economic system presented in the form of an economy management model highly dependent on the type of social structure has a direct impact on the applicability of design in the sectors of industries, design priority, manufacturing technology, the overall process of form formation, stylistics and other impacts

related to the design through its economic levers for determining priority sectors in industry and regulating production processes in the direction of "quality" by means of the competitive principle appearing as a fundamental factor for determining and evaluating the value of each industrial product. The priority development of certain branches in the industries actually determines the course of the design activity by transforming it according to the specifics of the designated industrial sector, but preserving its basic principles. The competitive beginning or the competition, in turn, creates above all conditions for diversity through which design, given its creative essence, lives and develops in all possible dimensions.

In Bulgaria, the planned economy imposed and confirmed by the socialist authorities after the Second World War led to a strong limitation of the "private competition" factor due to the nature of the planned economic system, expressed in the fact that the means of production and resources are public property guided by the government and their regulatory bodies. As a result, the absence of private trademarks and reduced competition among collectives in enterprises caused by the rules of the planned economic system and the imposed state control through coordination bodies such as the "National Center for Industrial Aesthetics"[30] was a catalyst for the manifestation of uniformity of industrial production in terms of functionality, vision, technology, despite the large-scale industrialization, electrification, high degree of automation of production and the construction of numerous enterprises that took place during this period, through which life was breathed into the industrial design activity, which subsequently became an organized phenomenon with a strong social orientation.

The case of the economic system in the European Economic Community[31] created during the Cold War[32] is diametrically opposed. The economically developed Western European countries of the community in the person of Great Britain, France and Italy apply a market economic model of economic management characterized by decentralized regulation of resources allowing private entrepreneurship guaranteeing free internal competition that increases the utility values of products for the simple reason that rivalries between the masses give rise to high quality or the pursuit of such quality. The continuous competition among the market participants becomes like a sieve through which the shortcomings of a certain industrial production are sifted and perfected according to all quality assessment criteria.

Existential for the industrial design activity - the competition between Western European corporations during the period under review was the driving force for the economic development of all the EEC countries and through the rich palette of goods and services created by it, the Western European society was presented to the world as developed with a high standard of life during the East-West Bloc rivalry. It was design, as an essential part of the industrial capacities of the time and through all its manifestations in the nearly half-century-long competition, that was one of the main means of influencing both public and social life and the material appearance of industrial products that reflected the ideals and aspirations of the peoples of both sides of the barricade by means of external markings.

[30] *NCIA - National Center for Industrial Aesthetics with the main duty of developing the guidelines of the state policy in the field of industrial aesthetics and industrial design. By decree of the Council of Ministers from 1972, it is the main coordinating body.*

[31] *European Economic Community, EEC - international economic organization established in 1957 with the Treaty of Rome.*

[32] *Cold War - a term used to refer to the open but limited rivalry that developed after World War II between the United States and the Soviet Union and their respective allies. As a result of the confrontation, two ideological-political and military blocs had been created among the European countries - Eastern and Western. The countries of the Eastern Bloc imposed the socialist model of government and members of the Warsaw Pact are Bulgaria, German Democratic Republic, People's Republic of Romania, USSR, Hungarian People's Republic, Czechoslovak Socialist Republic. The countries of the Western Bloc, also known as the „Free World", are most members of NATO. Examples of representatives from Western Europe are France, Great Britain, Belgium, Netherlands, Luxembourg. They accept democratic and free governance.*

Significance of the design methodology for the Bulgarian and Western European industries in the second half of the 20th century. Priority industries for design

Industrial design, viewed as a socio-economic phenomenon that arose immediately after the end of the industrial revolution as a result of consumer demands for aesthetics and functionality, considers the problems related to the design of socially necessary objects with a cultural and domestic purpose. Industrial objects that not only condition human existence but also educate the aesthetic sense among the masses. Aesthetics, an integral part of the world of art, apart from its application in the construction of beautiful material forms, industrial or artisanal, can also be a factor in shaping human relationships, because "it is design that is one of the means of forming a rational and scientifically based consumption, because design, above all, creates and organizes a subject-spatial environment according to the material, spiritual and social needs of society" (Stoycheva, S., 1984).

For the Bulgarian industry, the issue related to the importance of industrial design acquires a priority status, for the reason that in the first decades after the war, for the industries, especially the processing one, where the actual processes of product creation are observed, such a design method was needed, which increased enormously not only the constructive-technological, functional, but also aesthetic qualities. "*Industrial aesthetics became a state issue and emerged as an organized activity with the issuance of Decree No. 65 of the Council of Ministers of the PRB*[433] *on May 26, 1963 to solve the problems of industrial aesthetics and the artistic design, construction and shaping of industrial products"* (Gencheva. V., A. Trendafilov, A. Nikolova, 1981).

This decision is, in practice, a natural consequence of the policies implemented by the state authorities for the development of native mechanical engineering and the industries dependent on it. Thanks to the rapid development of microelectronics in the country at the end of the 1970s, industrial artistic construction found a wide field of expression precisely in the electronic industry and in particular in the "Computing systems" category due to the need for the following requirements for the preparation of a salable form: ergonomics; attractive shape; color; texture; multi-functionality. The electronic industry and related productions of household electrical appliances, measuring equipment, computing systems such as the "Pravets" computer, model 16H5[34], has given design a field of expression as large as the transport industry with its included productions of motorcycle and electric trucks, heavy forklifts, buses, motorcycles, car parts, trailers and semi-trailers. An authority among the production of motorized and electric trucks is the state enterprise "Balkancar", which in 1988 produced 1/5 of the world's production of electric trucks and forklifts, and in terms of production per person of the population, it occupied the first place in the world. About 90% of the production went for export and in practice this is a clear proof of the value of industrial design for the sector based on creating external expedient forms, internal ergonomic work spaces with compact furniture, predictability of work movements, and others.

The outstanding designer and winner of the "Golden hands" award Petko Mishev worked on most of the models of moto and electric trucks produced in the 1980s by "Balkancar", who also participated in the constructive development of the forklifts from the "Progress" family through technological changes the structure of the chassis, such as reducing the volume of the tanks, for quick and easy access to the engine - transformation of the floor and the cover above the engine into a common floor of the cabin and other innovations made under the influence of the design methodology inextricably linked to the constructive-technological solutions.

[33] *PRB - abbreviation of the People's Republic of Bulgaria. Name of the country from 15.09.1946 to 15.11.1990*

[34] *"Pravets" computer, model 16H. The design was developed by the designers at Central Institute of Industrial Aesthetics. Authors: Dobrolyub Peshin, Alexander Vassilev, Sasho Draganov*.

The idea that native design in the last decades of the last century was an indispensable tool in the process of creating industrial forms given the fact of the many scientific research centers and institutes built for a negative time in the person of CIIA6[35], the Center for New Goods and Fashion, the Scientific Center for Household aesthetics, is quite justified and symmetrical with the Western European understanding of how valuable the profession is to industries. The work of the Western specialists-designers was most noticeably observed in the direction of the appearance of the object aiming to establish a strong connection between it and the user, which predetermines to the greatest extent the level of marketability strongly affecting private company interests. Hence the difference between the Bulgarian and Western European models of artistic design in the defined time range - while in our country design or industrial aesthetics, as it was also called at the beginning of its organized activity, was a priority problem of the state power according to the economic system and the imposed ideological- political doctrine over public life, it has been significant in capitalist countries to private corporations because of their desires for capital growth. If we leave this nuance aside, as a priority sector for European design, together with the electronic industry, which left a deep mark in Europe through the first European personal computer created by the company Olivetti, it is the automotive industry where the activities of building attractive forms and new for the time have been most distinctly observed his innovative approaches to modeling complex surfaces achieved by the French company "Renault" for which engineer Pierre Bézier in the 1960s developed a method for designing the body curves of the iconic Renault 4CV model through curve manipulation based on guiding control points. A method that has become the main tool of designers for three-dimensional modeling of complex surfaces in modern times. Another argument testifying to the importance of design activity among the countries of Western Europe is the imposition of style trends again in the automotive industry by the Italian designer Giorgetto Giugiaro, known not only for his indisputable technical and aesthetic knowledge, but also for his sense of creating ergonomic spaces. Giugiaro left a deep mark on the world of automotive design with the introduction in the 1970s of the highly angular models called "folded paper models". Through Bézier's approach and Giugiaro's imposed automotive form-building style, we practically see how design among Western European communities was, and still is under certain conditions, a catalyst for technological discoveries and innovations thanks to the desire to achieve unique, attractive and revolutionary industrial forms.

Distinctive features in the Bulgarian and foreign form building process. Modern approaches to their development

A distinctive feature of the native industrial formation during the considered period is the use of ergonomic knowledge for the design of objects serving the correct functioning of work actions according to the imposed ideas of socialism for the working man and his working life – "*The idea of ensuring the well-being of man and more especially of the worker in the labor process is one of the basic ideas of socialist society*" (Gencheva. V., A. Trendafilov, A. Nikolova, 1981). The look of the author who wrote these words in the textbook for technical schools "Industrial Aesthetics" clearly informs us how the ideological aspirations propagated by the then government guided and determined the formation, but in no case should we condemn the specific direction of following, but on the contrary - ergonomics as strongly advocated for man and his physical activity, it reduces fatigue, errors, injuries, accidents, contributes to the improvement of the organization, planning and management of productions based on automated control systems. Through these properties, in addition to modeling the appearance of the design activity, ergonomics also increases labor productivity. Of course, the emphasis on ergonomics as the main means of building the Bulgarian industrial forms during the period humanized the design process, but at the expense of some aesthetic qualities it raised the consumer value and required more expenditure of resources, which was in contrast to the then economic situation and planned productions bound with tech. dependencies.

[35] *CIIA - Central Institute of Industrial Aesthetics, established in 1978. The main tasks of the Central Institute of Industrial Aesthetics were the study of consumer attitudes and the production needs of equipment, design of industrial products, creation of prototypes, control over the production process of designed products, popularization of the design profession by organizing exhibitions and seminars. The previous name of the institute was the Center for Industrial Aesthetics and Artistic Design founded in 1963. to the National Academy of Arts - Sofia.*

Exquisite and complex volumetric-spatial structures, high quality surface finishing, additional artistic elements, attractive color solutions - all these aesthetic requirements for increasing the commercial value of most types of household appliances have largely been unfeasible for economic reasons, unlike enterprises in the countries of Western Europe, where have been characterized by priority above all to build such an important emotional connection between object and user, because the philosophy of the beautiful and the exquisite has been and always will be leading in the creation of industrial objects among Western European societies given their rich cultural past. Attractive packaging, attention to detail, product presentation are leading elements in Western design philosophy even today as aesthetics presented as a priority component in the Western European industrial design process builds a sense of organizational ideal to form a more perfect appearance of the subject. In the image of Western European societies, the beautiful thing is not just an inanimate body, but a material embodiment of their spiritual and cultural desires and a symbol of class belonging in society. The feelings of industrial art and harmony in the construction of forms intertwined with technological innovations quite naturally assigned a leading position to Western European design on the international stage since the beginning of the last century. In the true sense of the context, the words of Giotto Stoppino (President of the Association of Industrial Design in Italy) spoken during the meeting of ICSID7[36] in Milan in 1983 are collective and give a perfectly clear idea both of the attitude of Italy, which largely embodies world design trends, towards the design profession and of the visionary thinking of the participants in the industrialization of Western Europe: “high artistry based on modern waste-free technologies” (Gencheva. A, A. Trendafilov., A. Nikolova, 1981). The insightful vision of using zero-waste technologies is particularly relevant in our time, considering the problem of past pollution and its environmental consequences. Recycling or reviving expired products interlaced with functionality and attractive appearance is an efficient and working strategy for the improvement of the industry and the products created by it, and only through this method guaranteeing a minimal absorption of funds and resources of any type can looked to the industrial future.

However, the drive of the aforementioned production processes and the associated design activities with the distinctive form-building marks cannot be carried out without the help of the computing machines evolved to perfection these days. Thanks, in particular to the development of computer technologies, computer design and digital animation of images and movements used in the video game industry are particularly important in the toolkit of design activity. The computer machine has become an indispensable assistant to the human operator and a powerful tool for optimizing the design and creation of technical industrial products. The generation of three-dimensional objects through computer graphic modeling based on mathematical calculations already in the design phase, in addition to saving technological time, guarantees an overview of the overall project and the elimination of errors of an ergonomic, technological, constructive, aesthetic nature. Virtual prototyping technology builds a complete architecture optimizing the cycle of creating a final quality product and it is essential to master it because it guarantees the future of the engineering and design professions, but it cannot be sufficient for the creation of technical products of high design value. due to the fundamental condition that before 3D visualization stands a complex, multi-layered process related to generating ideas, researching problems and analyzing them, turning user requirements into technical specifications, sketching shapes, building style and many more fundamental operations that are important for the final result, because it is in the past that the basic principles of our profession were encoded, and only when we get to know them well in today's technological world will we be able to build a future through the creation of industrial product brands embodying our essence and that of the homeland.

[36] *ICSID - International Council of Societies of Industrial Design. Founded on 29 June 1957 in London. The organization officially registered in Paris. Today it is called the World Design Organization. The main purpose is to promote and develop the discipline of industrial design and its power to improve the economic, social, cultural and environmental quality of life. WDO serves over 180 member organizations worldwide.*

CONCLUSION

The existence and development of industrial design as a professional activity largely depends on the economic model, level of industrial development, consumer culture and folklore of the respective nation. The morphological essence of the profession of draftsman or industrial designer remains the same to this day for practitioners worldwide because of its universal methodology and toolkit. The difference in the design models and the scale of application comes from the way of incorporating cultural features from the respective region, public attitudes and above all from the level of development of the economy. The distinctive features of native industrial design encoded in the past such as ergonomic design must be preserved nowadays, but also developed according to modern requirements and trends, because it is essential to emphasize the improvement of the good foundations created and only intertwined with our cultural characteristics it is possible to create a kind of modern object appearance of the industrial technical product expressing our identity as a people. “In today's global economic life, industries can and should take root where the best professional knowledge exists in the relevant field” (Ross, A., 2017). Bulgarian industrial design has been and will be, although with reduced functions these days, functional, compact, technologically aligned with production possibilities and the most important of them – social, thinking about man, his being and culture.

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