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## GENERAL CONSIDERATIONS ON THE NOTIONS OF FORM AND AESTHETICS IN THE SUSTAINABLE DESIGN FRAMEWORK

Irina Sonia CHIM, Ioan BLEBEA

***Abstract:** Fulfillment of sustainability should be sought in the action of designing aesthetically. Products that appeal to our sensitivity will not only reduce environmental impact, but also honors the cultural spirit of industrial creation. An agenda for sustainable design complies with the natural environment and cultural and spiritual elevation of the user, through the mediation of products. Sustainable design is no longer an option but a responsibility for all those involved in design practice. We undertook this research believing in the possibility of a change in how sustainable design practice is undertaken. Designers have a critical responsibility as form givers, where forms should accommodate sustainable considerations. This paper examines the importance of aesthetic sustainable design, practitioner's responsibility and formal opportunities, intending a mediation framework for, and instigating to dialogue and transformation.*

***Key words:** Form, Industrial Aesthetics, Product Design, Sustainable Design, Sustainability*

### 1. INTRODUCTION

Sustainable design is a movement that seeks to redefine how products are designed, manufactured and operated to be more responsible towards the environment and to users, a movement still in a phase of maturation trying to secure bases and specific vocabulary. The objective of present paper is to bring under discussion the notion of quality, enhanced by proper form and aesthetics. Sustainable design begins with understanding that the purpose of models designed is to create physical artifacts that bring people benefits, apart from functional - spiritual and inspirational through the mediation of aesthetics materialized into products. One of the major goals of the paper is to expose the capacity of form and aesthetic to participate not only in the process of reducing negative impacts on natural environment, but beautifying and revaluating the environment through ingenious forms and aesthetical design. Sustainability represents a revolution in the way we perceive design and manufacture,

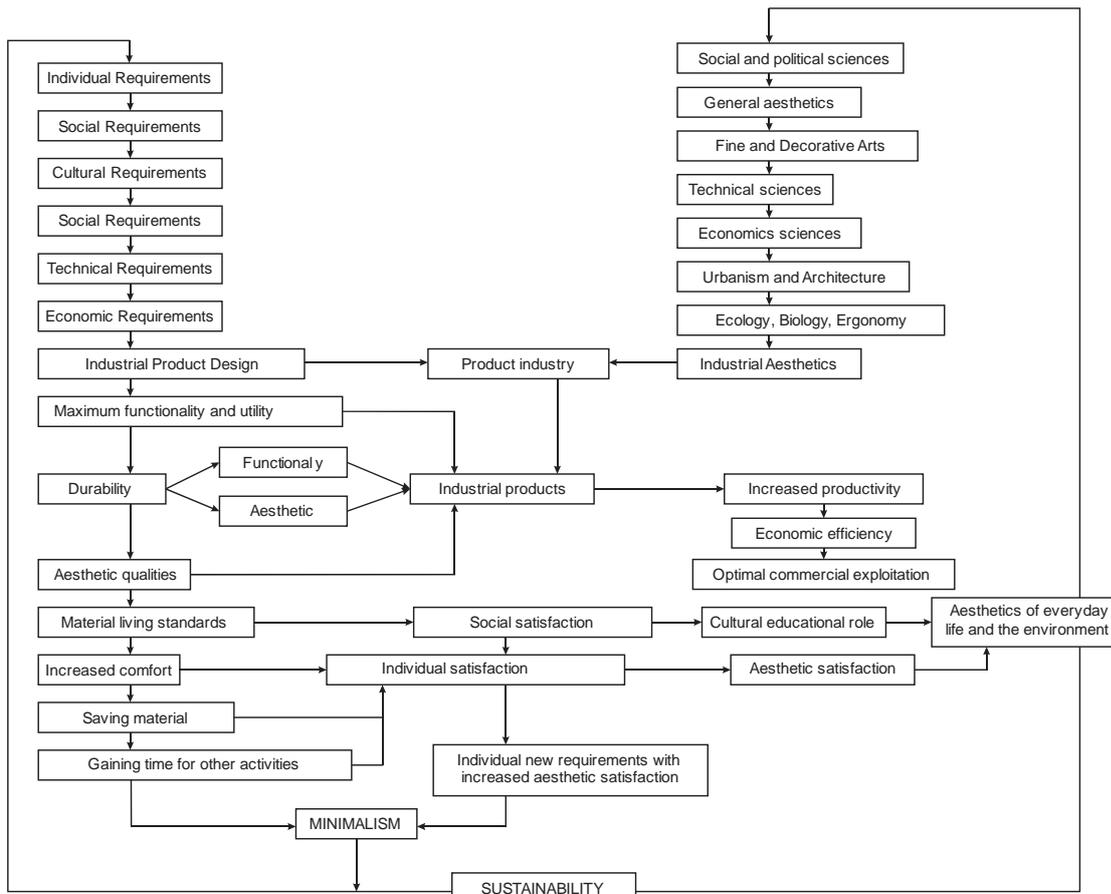
aesthetics holding its role as factor of emancipation and enculturation.

### 2. CONTENT

#### 2.1. Efficient sustainable products

How to design industrial products reflects a form of social consciousness. Product designers have to answer through their creation as perfect to aspirations and creative capacities of the society to which they belong. According to the sustainable order the creation of industrial products through its multiple interrelationships is part of the unitary ensemble of our material and cultural life.

In the diagram shown in figure1 are schematically presented the interactions engaged in design practice. In the presented system, the industrial aesthetic was assigned the role of creating the necessary theoretical foundation for design practical work, developing a new branch of general aesthetics through criteria revaluation of aesthetic values under the contemporary conditions.



**Figure 1.** Industrial design position within sustainable approach and interference with other science and arts

Sustainable design is an important factor in production, called for optimal answers to new and different demands on the environmental and spiritual crisis, the social and individual requirements. Its role is not to beautify but to design beautiful products resulting from satisfying the real material and spiritual requirements. Economic efficiency of sustainable products will result in: a) High productivity; b) Satisfaction optimal functional requirements; c) Maximum efficiency of proposed solutions; d) Long functional and aesthetic.

By adapting rational man-object relations will result: a) Reduced physical and mental stress during use; b) Increased labor productivity; c) Increased safety at work; d) High quality of work; e) Increased physical and psychological comfort.

Design practice can evolve only through constant and efficient contact with current

demands of production, and the economic, cultural and social conditions [1].

**2.2. Concepts that shape sustainable design**

What sustainable ideology wants to implement regarding design was legitimizing all forms of creation, and their logical interdependence with technological production for personalizing, respectively humanizing products. The guiding principle is that design is not only an intellectual, or material, but simply an integral part of a civilized society. Sustainable design is diametrically opposed to the concept of consumerism practice "new for the sake of new" and its more dangerous philosophy "profit as an end in itself." The goal was to provide a connection between creative exploration and practical action, where designers could learn how their ideas and concepts could be carried forward as an experiment in the broad field of artificial in shaping human experience expanded beyond

traditional, unsustainable forms, supported by green technologies and advances in science.

Concepts that shape sustainable design:

a) Regionalism - products will be designed with local materials, involving alternative energy. The responses to the problems faced by design, suffer dramatic changes according to biome or climate zone. Components were built with local materials that will safely return to the ground, where the useful life has been exceeded;

b) Current solar income - the term used to describe the use of any renewable energy sources, which is currently available. To live on current solar income means getting energy or heat from the sun or a rapid supplemented biomass;

c) Bio-mimicry - the concept of seeking in nature solutions for comfort, awareness of the qualities of indigenous design solutions, and accepting that technologies involve risks and limitations. Respect the wisdom of natural systems is essentially the basic principle behind sustainable movement, because it is an approach to 'site-specific' design, including attitudes toward climate and place, the use of energy and materials and our own comfort and welfare. The principle of bio-mimicry provides a worldview of how we fit into the scheme of things, our own limits and the limits of the world around us. Accepting this vision requires a change in approach to each step of the design process and start forgetting to conventional knowledge and re-learning the whole process of design,

d) Respect - Sustainable design involves a large respect for natural systems and resources, respect for people and respect for the life cycle. It involves upgrading the value of raw natural resources. The principle of respecting energy and natural resources states that we have a responsibility to use as little of any resource necessary without sacrificing the quality of the project and long-term availability of this resource. Any natural resource should chosen in terms of opportunity and environmental impacts throughout the life cycle. Focus should be on renewable resources harvested and

extracted in a manner to ensure that they remain renewable;

e) Aesthetic approach - designers who take sustainable agenda, should opt for a regional aesthetic that respects the unique qualities of the place, contributing to designing models resulting out of specific characteristics of the region, made from local materials and designed to last.

f) Commitment- The transition from aesthetic to engineering design and the concomitant change from user commitment to user unburdening lead towards commitment extinction; commitment being a term specifying symmetry that links humanity and reality. The commitment is to describe the deep realization of measuring human and reality. While diminishing commitment, fell the aesthetic design quality.

### 3. STYLING OR QUASI-QUALITY

Contemporary design movement turned into an eccentric and accidental fragmentation. A cause of this fragmentation is rooted in economic processes. Consumer goods must seem always new. Through the mediation of industry, marketing and advertising, the consumer learns to seek and recognize these changes, to expect and to demand them. Real change –basic changes - means retrofitting or reconstruction: but their costs are prohibitively high. But styling surfaces can be made relatively cheaply. The vital parts of a mechanism may remain unchanged, while the outer dressing (control mechanisms, color and material) can succeed regularly. Automation tends to determine the periodic reassessment of the basic design almost as prohibitively expensive. The result is that the designer has become a beautician or a stylist. Mechanisms and structures are often given in the account of a production engineer and the result is meaningless and discordant. To overcome the buyer's intention to keep the old product instead of replacing it with the latest version were invented materials aging ugly. The opposite, organic materials have successfully withstood time until they finally disintegrating into organic components. This split between the functional mechanism and more transient outer

case led to further specialization and an aesthetic based solely on outward appearances [2].

Products evaluated according to their quality. By the concept of quality, being understood technological features, along with the social, cultural and aesthetic conventions corresponding to numerous general requirements of contemporary society. Where products are not technically improved, they are continually beautified - process called quasi-quality. What is innovative from a technical standpoint is easily define because these characteristics can be measured according to objective criteria and generally accepted. It is more difficult to formulate and identify what is aesthetically modern. Beauty and aesthetic preferences are part of subjective sensitivity domain of personal meaning that a consumer gives to a product. The result of creative industrial design must find its way into the public, the market itself is on hold, in both cases there is need for aesthetic message reception resulted in products [3].

### **3.1.Industrial Aesthetics**

Products aesthetic renewal is an important reality of our contemporary world. In the general and especially the visual environment the weight of objects produced by industry tends to exceed, and even replace many images offered in the past by natural elements. Creation of industrial forms put its mark on the wide range of objects, old folk unitary style have been broken by capitalist production, driven by the pursuit of profit. Sustainable societies tend to forge a new living environment. In these circumstances the spiritual values of tradition, preserving their own specific will find new expressions via modern technologies.

Industrial aesthetic design has no existence or function outside effects on human observers. It has the power to assert and enforce its own premises placing entire categories of society in new positions and relationships to understanding their own living environment. Designer experiences are translated and transferred to society into new forms and objects [3].

According to Demetrescu, [3] industrial aesthetics is used in product development program aimed at improving product quality and functionality. Product development by improving style calls for industrial aesthetics. Products styling gives great advantages to manufacturing company:

- It leads to the rapid identification of the brand and such to a strong market deployment;
- Contribute to product differentiation and sale of industrial products on the market;
- An active part in the strategy of product differentiation and diversification;
- It is the main way of achieving new products or creating new requirements;

The higher will the new or upgraded products be characterized by aesthetic values, resulting from organic combination of function, shape and structure, the higher will increase the revalorization possibilities of such products on existing or new markets. Industrial aesthetics can be an effective tool for the design of products that differ in functionality, structure or form of similar competitors products or to meet different market segments.

### **3.2.Aesthetics importance in achieving the hallmark**

For product hallmark achievement is important the application of industrial aesthetic concept. In this regard the issue in question is that the inscription and logo brand mark to be both meaningful, easy to remember and attractive in terms aesthetic. For commercial advertising, applying the concept of industrial aesthetic is especially important in relation to resolving issues of form. To illustrate the relationship between industrial aesthetics and marketing in all aspects, it is proposed the scheme in figure 2, through the analysis of which we can say that a permanent collaboration between industrial design professionals and those in the field of marketing is currently required [4]. Questions to be asked are:

1. What is the importance of aesthetic industrial design in a sustainable business enterprise dealing with the production and sale of various industrial products?
2. To what extent this action item (industrial aesthetic) is able and must contribute to the

overall burden of the sustainable enterprise in industrial production - having regard to the implementation of sustainable rules

without jeopardizing effective increase and profitability of its own sales?

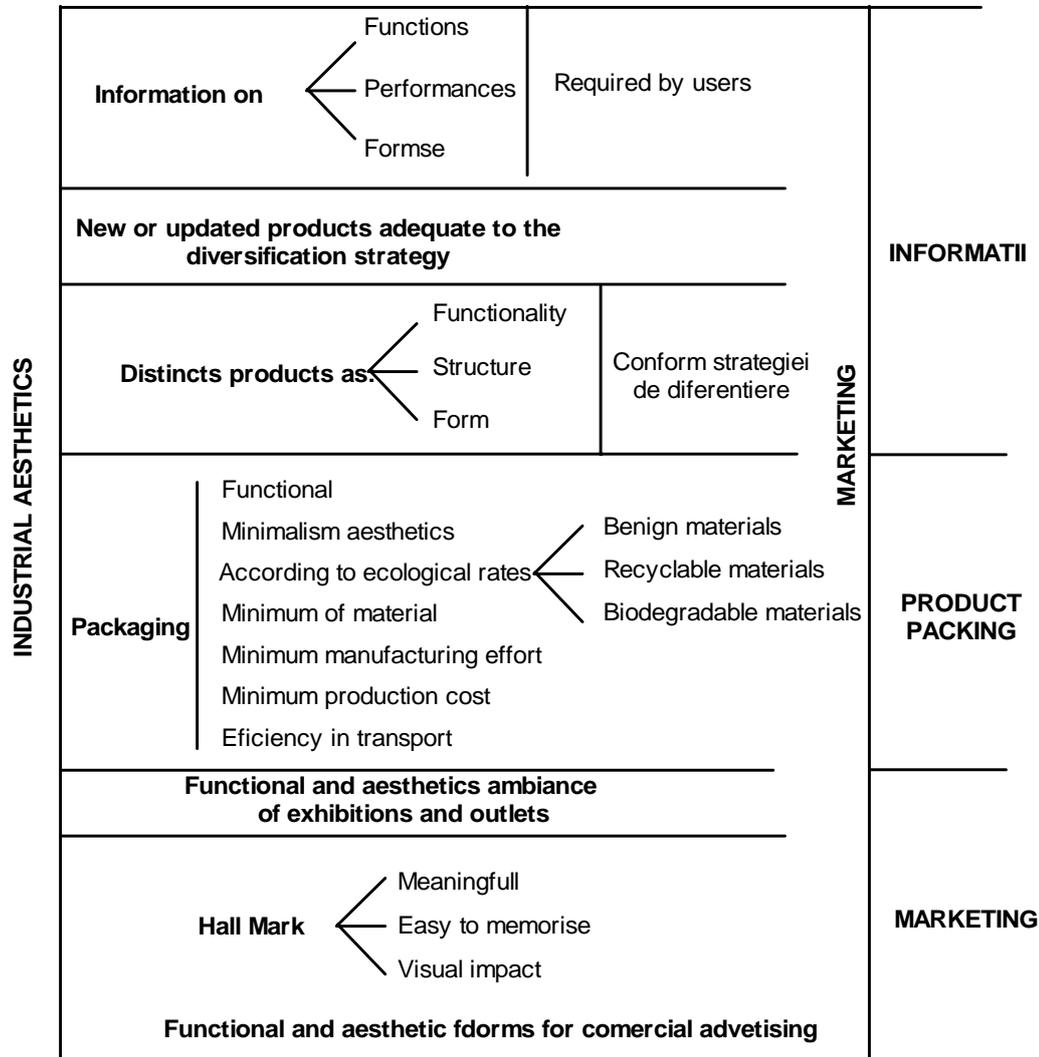


Figure 2. Diagram of industrial aesthetic – marketing relationship

Sale of industrial products presents, comparative with consumer goods, specific characteristics. Buying motives of industrial products are different from those that determine buyers of consumer goods to adopt or reject a product or another. Buyers need to subordinate decision to a variety of criteria due to an improvement targeted and to a technical character by excellence to which the intended product is destined. The choice of products is made by the buyer only on the basis of techniques parameters which must be made with utmost precision and efficiency. The concept of quality gains in this type of products a particular purpose altogether, far from likely

be a vague and questionable judgments - as not infrequently happens with consumer products – receiving perfect measurable qualities and being numerically measured [5].

The essential characteristics of industrial products can be summarized essentially to the following: a) They are technical products; b) designed to meet specific needs; c) form the subject of efficiency analysis perfectly expressible with figures; d) their fair value is assessed only according to the services rendered.

The manufacturer shall have the power to adapt the product to particular needs of targeted consumer. Under equal technical and economic

conditions aesthetic factor can often become the decisive element in the process of purchase decision-making. Application of aesthetic design in the sense of the condition of sale and market demand has become today, for all

companies aware of the role of self-image in the market and concerned to master its control over it, a key element in identifying and maintaining the brand.

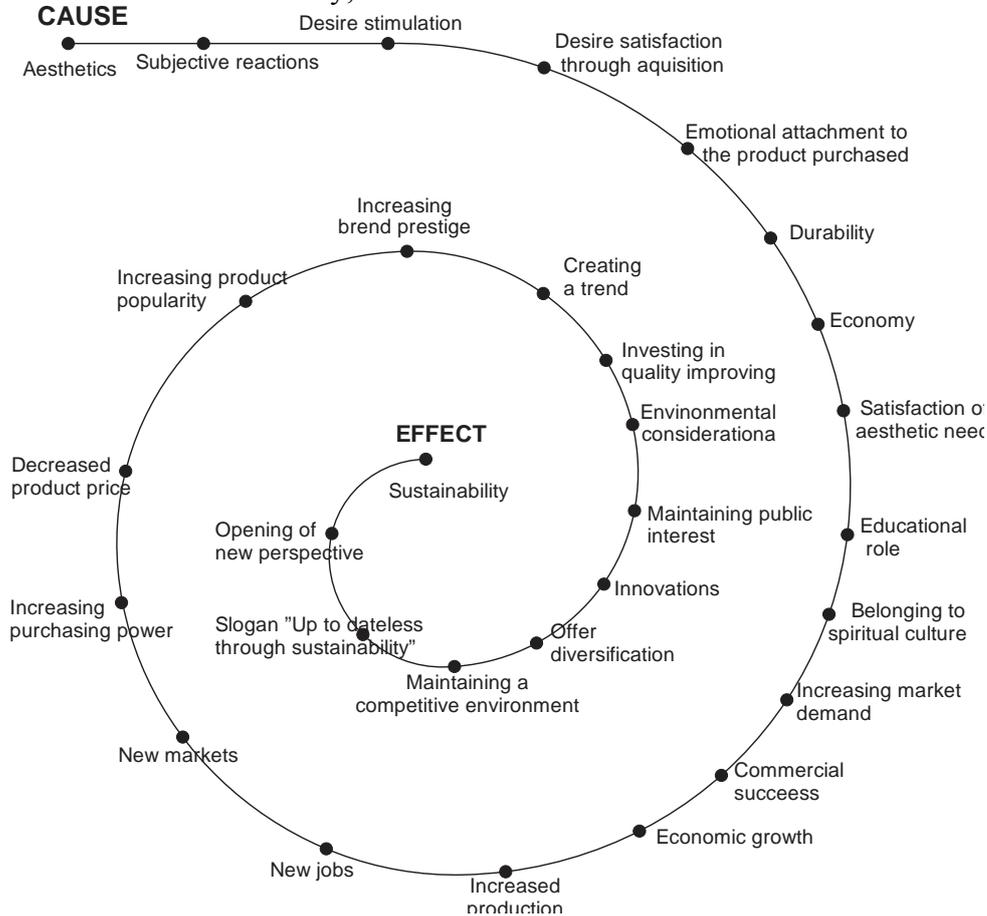


Figure 3. Sustainable effect of aesthetic value in product industry

Design turned into a competition factor - an effective weapon in marketing to maintain and increase product competitiveness [5].

**3.3. Aesthetics pack - a sales tool**

In the area of products sale, which raises complex issues in terms of global trade, industrial aesthetics can also play a key role. The possibilities for application of industrial aesthetics in sales strategy mainly refers to product presentation and ambience, the hallmark and form of commercial advertising. The essential element in the presentation of the products is the packaging with a real selling tool value. In this respect, commercial packaging must be both functional and aesthetically attractive. Modern packaging has multiple functionality, to the primary function

of protecting and preserving adding further features such as accessibility (easy to open and close), portability, ensuring product visibility of content, ease the use of the product, volume and light weight, made from recycled materials or biodegradable, transport efficiency (how many units delivered to a transport) [4].

Complex problems pose achieving the aesthetic aspect of the pack, which is determined by: a) geometric form, b) the kind, quality and the combination of colors, c) the graphics of inscription printed, and d) the nature of the material used for its manufacture. Resolving functional and aesthetic purposes meaning organic unity of these two essential qualities of modern packaging cannot be

ensured satisfactory without the contribution of industrial aesthetics.

Another aspect of products outcome to which industrial aesthetic could make the full contribution is the presentation environment. Functionality and appearance of presentation environment are of acknowledged commercial success in this industrial aesthetics may prove useful and in this regard industrial aesthetics could demonstrate its utility with regard to the organization, styling and decorating industrial exhibitions, retail-store and window displays.

### 3.4. The aesthetic industrial product

Aesthetic industrial product is: a) The result of creative activity that produces a series of subjective reactions to the user's consciousness; b) stimulates the desire for possession; c) influences the purchasing decision; d) results in economic growth of the parties involved in the production (design, manufacturing, marketing) to distribution and sales, a detailed description is given in figure 3.

Industrial aesthetic product is a static reality, the end point of an evolution, where the designer is very mobile of these developments, a dynamic reality. Designer shows besides the static reality of its creative proposal, a number of acts pertaining to a spiritual register which constitute that creative soul. The expression has communication role with dual intentionality (active and reflexive): to communicate the designer as individuality while communicating it to those to whom he addressed the products.

As the designer expresses himself (in a subjective manner), he is also answering questions raised by the surrounding reality as objectively and efficiently as possible, with promptness and appropriate moral norms. In order to make his thought understood and his sense communicable they must be translated into sign systems of all men whom it is addressed, and therefore to give up a part of the personal nature of his thoughts and emotions, drawing from it a general expression and the only way transferable.

Through expression, the intimate events of the designer are objectified; unfolding from the link which unites the individuality of consciousness, becoming social realities,

interpersonal. In the case of contemporary industrial design, designer decisions are felt by the target group for whom they channel their creative efforts, the individuality of consciousness is by permutation within generalities, equivalent of social realities (source of its inspiration), personal sincerity of the individual, equating the morality of professional decisions and actions with results in terms of social, behavioral, economic, industrial, cultural, etc.

## 4. ARTIFICIAL SEPARATION OF FORM AND FUNCTION

Form and function are separated artificially. One way to think about sustainable design requires consideration of a product as a meaningful link between man and the environment. We need to see the man, his tools, environment, and his way of thinking as a nonlinear integer, simultaneously, integrated and comprehensive. This approach is integrated design. It deals with the human side specializations that make it possible for him to remain a generalist. Sustainable movement aims at establishing a connection between the environment in which man lives and entire whole psycho-physical human being, through rearranging and redesigning both the function and structure of all products, housing and human settlements making it into an integrated living environment, able to allow the development, change, mutation, adaptation, regeneration as a response to his needs [6].

Designers have disagreed about the need for beauty and aesthetic value of things we use and where we live. Designers and engineers have insisted on optimal function. The result of this obsessive concern for functionality is an ugly world which can not work otherwise. A preoccupation limited only towards embellishing things is a crime against humanity. But to design things that work well but fail in other respects is equally a fundamental error. Man needs structures and tools that are more than strictly useful. Pleasure, balance and harmony inherent in products are considered as psychological needs [6].

#### **4.1. Reflecting the specificity of function - embodiment of higher aesthetic values**

For a form to be stylistically pure, a product must be able to give conscious expression of the designer's intentions, while updating the plan devised by the most perfect, simple and economically appropriate means. The beauty of form is a reflection of economic and technical perfection, and its formal aesthetic effect can be pursued retroactively to implement functional purpose. The more clearly traced this notion, the more significant will the design of a product reflect the specificity of its function. Thus, a product may be considered aesthetically satisfactory when its function can be inferred from its appearance, is found in the shape and fits in each of its components. In this perspective, the interdependence between technology and aesthetics is reducible to a single easily recognizable formula. Product design that enjoys the conducive conditions for a satisfactory aesthetic effect is one where the overall construction is easily understood by an observer [7]. Thus the primary features of a product as a whole and parts are clearly visible.

Designer touches most important contribution of the phases of entry into sales - the psychological. He appeals to the consumer pride, plays with his imagination, and keeps him interested. A well designed object is when it has been reduced to its most simplified form in terms of function and shape.

Forms referring to outward appearances always involve a high degree of quality, distinction and unity with its function [8]. In the broadest sense design means planning in relation to function: product must be fit for its purpose, form or aesthetic value in terms of shape, texture, color and suitability of any decoration. The design is considered to be concentrated on the second of these factors, but the two are inextricably linked to one another, to which are added considerations in the selection of suitable materials and manufacturing processes. There is still an essential element of design - the economic factor - a necessity in producing an affordable article with an appearance that will provide an item ready for sale on the market for which it is intended. All these design elements

are so closely linked that they form an organic whole.

Determination of optimal forms not conducted at random: a) are perfectly adapted to their time; b) are subject to economic and technical considerations; c) respond to functional needs and aesthetic intent; d) follow a formal order justifying the spontaneous nature of creation; e) their capacity varies depending on the material, coverage and capacity technician technology; f) experiences and variations depend on the rigor of formal restrictions.

Other reasons to influence the final form of a product: a) Manufacturing technique and its requirements; b) the aesthetic quality inherent in an object; c) minimal use of material and effort; d) a technical design well done; e) materials used meet the requirements of functionality; f) contextual relationship.

For many products, the design is almost fully functional in the sense that the purpose for which the product is to be used or the technical requirements of the production process to a great extent controls design. Precision and economy are its characteristics, even if aspect is a definite value. Even where the form has a higher share, there is still a natural relationship between the design and the material itself. Design should increase the material and be in tune with its qualities and characteristics. Fashion is a dominant factor in determining the shape of the design. When items are scheduled to be replaced at shorter intervals, it must naturally charge a low price on sale, and therefore a tendency to sacrifice durability and quality inherent to the need for a lower price. The result is that fertility in formal design is now more necessary than before and a prolific release on the market of products is of great economic importance. Influence of commercial considerations prevails. Turnover rate or the cost of marketing can cause selection models. Economic consideration may exercise preponderant influence on the design. Attention should be paid to the distributor assuming the risk of trying to sell goods. A new model, therefore, before reaching the client must pass several stages of criticism and selection, the various checks tending to delay its

development, unless the aim is novelty for the sake of novelty.

## 5. GLOBAL PRODUCT TYPE

Globally, the overwhelming majority of the products must have an overall design that caters to many different tastes of the widest strata of buyers, regardless of the specific ethnographic or social status. A successful overall design is always good design. The products consist of standardized parts becoming increasingly difficult to give them a shape characteristic of manufacturing area, thanks to default model.

Reasoning and perspective openness to formal experimentation is something constructive to a conceptual level. Experience is to be considered a motivational element of acquisition together with aesthetic attractiveness. Concern for ugly and beautiful, for what makes things repugnant and other attractive, and whether our reactions are related to the time and circumstances are valid aspects allowing designers to work with a high degree of awareness towards creating a stimulating product [9].

A good product is invested with aesthetic and utilitarian value. The basic rule governing the award of the aesthetic quality of a product is such that is considered beautiful a product distinguished by its suitability for the purpose for which it was proposed. Different forms are required for different contexts, reasoning questions the current trend of standardization.

Beauty is the proper object of aesthetics, being invested with aesthetic value. But the aesthetic value should not be confused with common object or aesthetic good. An object becomes to us aesthetic only when thought in the sphere of that particular value. The same object can be inserted through an act of thinking within other values, its character being changed accordingly. Thus, even an object that passes for an aesthetic good can be thought of as a commodity by trader, it may be subordinate to economic value, thus turning into an economic good. The objective can be understood as a means of meeting a practical task, moral education, as a tool to influence

behavior, and the public image of the holder, as an object of worship, in all circumstances the same object is placed on turn within functional, moral, social and spiritual value and turns in goods belonging to one or another of these categories [10].

## 6. CONCLUSIONS

Design practice split in a branch of engineering and aesthetics. Engineering devices, ingenious structure, relieves us from stress and exercise applications, leaving us with opaque goods, full of charm that we enjoy in the practice of consumption. The design aesthetic is limited to smooth interfaces and styling the surfaces of technological devices. Aesthetic devices become superficial, not because they are aesthetic, but because they have become superficial. They were separated by significant modeling of material culture taken over by engineering. To revive commitment a recovery of depth design is needed, the kind of design that unites engineering and aesthetics once and provides a material context that causes and rewards commitment. The design must have a penetrating character, bouncing license to reshape things in depth.

Aesthetics contribute to differentiation and selling of industrial products on the market. In realizing the strategy of product, industrial aesthetics can have an important contribution especially for the diversification and product differentiation. As part of the diversification strategy, industrial aesthetics may be the main way of achieving new products covering a wide range of existing products or creating new requirements. Thus, the new or upgraded products will be characterized by higher aesthetic values - resulting from organic combination of function and shape structure - will increase the possibilities for exploiting these newly developed products in existing markets. Regarding the differentiation strategy, industrial aesthetics can be an effective tool for the design of products that differ in functionality, structure or form of competitors or similar products, to meet different market segments.

In contemporary design appears the intention of demolition, destruction of conscious form. Harmony and proportion are not complied with, be it construction, shape or color. Beauty is a relative character, which is continuously redefined and rehabilitated. We must try to understand the wider context in which they are located all instances that lead to a new aesthetic revolution. Industrial aesthetics began a wholesale review of popular taste. The content of this new aesthetics is nothing different than looking for a new harmony, for a new structural order. This aesthetic offer new signs to explain its forms, so adding a conceptual dimension – the aesthetic sustainability concept.

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## Considerații generale privind noțiunile de formă și estetică în cadrul proiectării sustenabile

**Rezumat:** Împlinirea sustenabilității ar trebui căutată și în acțiunea de proiectare estetică. Produse ce fac apel la sensibilitatea noastră nu numai că reduc impactul asupra mediului, dar, de asemenea, onorează spiritul cultural al creației industriale. O agendă de proiectare sustenabilă presupune respectarea mediului natural și elevarea spirituală și culturală a utilizatorului, prin medierea produselor. Designul sustenabil nu mai este o opțiune, ci o responsabilitate pentru cei implicați în practica de proiectare, unde gândirea sustenabilă ar trebui să fie parte integrantă. Am efectuat aceasta cercetare crezând în posibilitatea unei schimbări în modul de efectuare a practicii de proiectare sustenabilă. Designerii au o responsabilitate critică de creatori de formă, unde formele trebuie să găzduiască considerente sustenabile Acest articol analizează importanța designului estetic pentru sustenabilitate, responsabilitatea practicienilor și oportunitățile formale, intenționând un cadru de mediere pentru, și instigare la dialog și transformare.

**Sonia CHIM**, Phd, Student. M.A. in Fine Arts, Technical University of Cluj-Napoca, B-dul. Muncii, no. 103-105, Department of Engineering Design & Robotics, Office phone: 0264-401664, [chimsonia@yahoo.com](mailto:chimsonia@yahoo.com)

**Ioan BLEBEA**, Prof. Dr., Dipl., Eng., Technical University of Cluj-Napoca, B-dul Muncii, no. 103-105, Department of Engineering Design & Robotics, Office phone: 0264-401664. [ioan\\_blebea@yahoo.com](mailto:ioan_blebea@yahoo.com)