



# MODULE 5

AGE-FRIENDLY PRODUCT DESIGN

## UNIT

# 1

HOW TO DESIGN AND DEVELOP AN AGE-FRIENDLY  
PRODUCT DESIGN FROM SCRATCH

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# DESIRE

## DESIGN FOR ALL METHODS TO CREATE AGE-FRIENDLY HOUSING

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DESIRE will provide professionals in the building industry and home furnishings sector with the tools and skills to apply Design4All methods as an integral part of the design process, with the aim to create or adapt age friendly housing as a solution for the wellbeing, comfort and autonomy of the older adults or dependents at home.

The DESIRE training platform consists of six modules and 21 units.



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## AGE-FRIENDLY PRODUCT DESIGN

The goal of this module is to give an overview of product design with a focus on older adults and their household environment. Design matters and is one part of the solution to a more inclusive world in which all people will have equal opportunities for independence, autonomy, and participation.

Within this module, the participant will learn how to incorporate age-friendly product design into their projects given the importance of the group to an ageing or special needs population. The module is designed to involve other types of publics apart from the product designers themselves who may be interested in these issues such as older adults, their relatives or caretakers so that they themselves can create or adapt their homes.

### UNIT 1 – HOW TO DESIGN AND DEVELOP AN AGE-FRIENDLY PRODUCT DESIGN FROM SCRATCH

An effective design makes the goal of the product explicit and serves as the foundation upon which is built. Developing a design demands a clear understanding of the type of problems to be solved, the ideal aesthetic style, the target audience, and their needs. This introductory unit will provide to participants an overview

of what it is understood by age friendly design, but also the culture and methods around the term. Moreover, creativity plays a big role when creating new ideas to design new perspectives on existing ones and there are ways to develop and improve it.

#### 1.1 WHAT IS MEANT BY AGE-FRIENDLY PRODUCT DESIGN?

##### 1.1.1 Design

Today we live surrounded by objects, machines and constructions that ease and support almost all our daily activities. These elements can be of quite diverse types and functionalities, such as household appliances, clothes, cars, houses or furniture. Part of our lives, they are unreplaceable.

One of the features differentiating us from other animals is the manufacture of objects. It is part of our existence as species. Over time, humans have designed and manufactured objects and tools by progressively improving manufacturing techniques.

## 1.1.2 Definition

Design is a discipline whose products have a strong impact on people's daily lives, but, in turn, are conditioned by the particularities of the society or group to which they are addressed.

In a broad sense, design is defined as the process of materialising an idea that seeks to provide a solution to a previously defined need or problem. These range from the creation of items or furniture for our homes to the construction of housing and urban planning. In any area of our lives, we can find something to design.

In addition, design refers to different fields, such as graphic, industrial, architectural, or urban design, making it an ambiguous term.

Until the Industrial Revolution, objects were produced handcraft and their design and manufacture were craftsmen's responsibility, who carried out all the production processes. Before the Industrial Revolution, the systematic introduction of machines into the production process led to the mechanisation of work and the elimination of manual labour. Consequently, these new objects were dehumanised. A lack in many designing aspects led to a need of rethinking the product. Industrial designer as a profession was born in response to this problem.

## 1.1.3 Definition

Industrial design is the human activity aimed at creating, developing and humanising industrial products. As an applied art, it seeks to resolve the relationship between form and function of items that can be produced industrially. Its purpose is the industrial production of objects that responds to society's demands by considering the functional and structural relationships that make an object a coherent whole, balancing technical and aesthetic aspects.

Industrial designer as a profession was born in response to this problem. Industrial design is the human activity aimed at creating, developing and humanising industrial products. As an applied art, it seeks to resolve the relationship between form and function of items that can be produced industrially. Its purpose is the industrial production of objects that responds to society's demands by considering the functional and structural relationships that make an object a coherent whole, balancing technical and aesthetic aspects.

## 1.1.4 Inclusive design

Inclusive design is based on the recognition of human diversity, which is the right of all people to enjoy the environment and objects on equal terms, seeking total accessibility to any good or service. In this way, greater integration and equal opportunities are provided for all citizens.

The purpose of inclusive design is to simplify everyday tasks by making products, services and environments easier to use for everyone, with as little effort as possible. In addition, it seeks people's comfort in using objects or spaces they inhabit.

Inclusive design aims to benefit all people, regardless of their age and ability. It seeks suitability for all, either through the same design or by offering options for different needs. In addition, inclusive design has the capacity to create shared value, both for the user and for the production company. On the one hand, it improves the societies in which it is distributed and, on the other hand, by being useful for a greater number of people, it increases the company's competitive capacity. From this perspective, human diversity, social inclusion and equality are to be valued through the generation of ideas and the creation of products, systems and services.

To learn more about inclusive design you should read Module 3 Unit 1.3.

### IN A NUTSHELL

To sum up, inclusive design can be defined as the design of products, services or spaces that enable access to a large majority of people, in the most reasonable way regardless of their location, in a wide variety of situations and to the greatest extent without the need for any special adaptation or specialised design.

Its main features include the following:

- Flexibility: ability to adapt objects or spaces to various circumstances, situations or needs.
- Equal use: standardise the existing opportunities so that there is fair equality among disabled and non-disabled people.
- Appropriate spaces: spaces must have the right size and comfort so that most people can make use of them.

## 1.1.5 Gerontodesigning or age-friendly design

### IN A NUTSHELL

#### GERONTOLOGY

“The science that studies the process of ageing in man, i.e. it investigates the morphological, physiological, psychological and social changes that follow the action of time on the human organism, independently of any pathological phenomenon”.

(Fontanine, 2000, p. 26).

#### AGE-FRIENDLY DESIGN. DEFINITION

Age-friendly design is the combination of gerontology and design intended to transform the existing productive systems, projecting and developing them in order to include older adults and improve their quality of life. Age-friendly design not only seeks to develop goods or services for older adults, but also to break taboos and social stigmas about ageing.

Ageing is part of the very nature of human beings. However, it has not been a priority prior to the current perception that it is a looming problem in the coming years.

This problem stems from the imminent ageing of population. By 2050, around a quarter of the world's population is expected to be over 60 years old. As a result, more and more designers are looking at improving the quality of life of this increasingly important population group, and solutions are being considered from a universal and inclusive perspective, not exclusively for older adults.

In order to narrow down a definition of age-friendly design, the science on which it is based should be specified.

Having this in mind, the target of age-friendly design is older people who require products, services and spaces that respond to their needs, regardless of their dependence (or not) on other people. The approach adopted by age-friendly design is based on a single user and not on groups, where design is a discipline for the resolution of human problems and seeks the integration of any user in the use of a product or space. These products or spaces are not for people with different abilities (for example, it is not a medical equipment or a geriatric product), so age-friendly design is not focused on people with ailments or disabilities.



Figure 5.1.1 Older adults

## 1.2 AGE-FRIENDLY PRODUCT DESIGN CULTURE

We live surrounded by objects, products of industrial design, which frame our daily lives and aim to make them more comfortable and pleasurable. The following is a summary of the main movements that in one way or another have influenced and have been linked to Industrial Design. The origin of the profession of industrial designer is taken as a starting point, which is determined at the beginning of the first Industrial Revolution (early 19<sup>th</sup> century).

The term **industrial** is a direct reference to the system of manufacturing goods that was born during the first Industrial Revolution and replaced the craft production system. This historical process began in England in the late 18<sup>th</sup> and early 19<sup>th</sup> centuries.

The term **design** refers to the process of materialising an idea that seeks a solution to a need or problem previously defined. In industrial production, the previous conception is key, since it is impossible to industrially manufacture an object without defining its tangible attributes and production features.

### 1.2.1 End-of-millennium design

#### NEOCLASSICISM

The overcoming of the Baroque period was mainly due to the series of archaeological discoveries that took place during the 18<sup>th</sup> century, when different archaeological sites in Italy began to be exhumed. History itself became fashionable and there was an eclecticism so broad that it embraced any previous style.



Figure 5.1.2 Neoclassical sofa

Regarding design and object manufacturing, the production system was based on artisanal handicraft, and earlier styles were revived but adapting them to new needs. Thus, Egyptian, Neo-Indian, Neo-Greek and Neo-Gothic art came back into fashion. However, the lack of a new language for the applied arts became apparent.



Figure 5.1.3 Chippendale Neo-gothic chairs



### ONE OF THE FIRST PRECEDENTS: THONET CHAIRS

In the first half of the 19<sup>th</sup> century, Neo-classicism and eclecticism (with all its neo-) were the predominant styles in the Western World. Industrial design has its origins in the questioning of the aesthetics of these early objects of industrial production, and Thonet furniture is an early precedent. This furniture is made using bent wood, whose mass production dates to the 1940s.



Figure 5.1.4 The No. 14 chair by Thonet (1859)

In contrast to solid furniture, Thonet proposes finesse, lightness and comfort. The Industrial Revolution was at its height and Thonet moved from handcrafted to mass production. Its products transformed the concept of furniture at that period gaining universal fame, with 50 million chairs produced until the outbreak of the First World War, when production had to be halted.



Figure 5.1.5 Rocking chair, model 1 (1860)

## 1.2.2 Iron architecture and the Great exhibition 1851

### IRON ARCHITECTURE

The Industrial Revolution saw the arrival of new materials such as iron, reinforced concrete, glass and, in the second half of the 19<sup>th</sup> century, steel.

The development of iron architecture was linked to new needs, such as railways, bridges, stations, factories, libraries, markets, hospitals. These were buildings that had to be built quickly and in a cheap way. Iron was first used to build infrastructure, such as bridges and railway stations.

In the second half of the 19<sup>th</sup> century, glass, iron and reinforced concrete were used. The latter is cheaper than iron, can be made in moulds and does not have the problems of dilatation that iron has. So, it was used in public buildings such as markets, museums and libraries. A great example of a central market is Les Halle, in Paris, designed by Víctor Baltard in 1853.



Figure 5.1.6 First metal bridge over River Seven



Figure 5.1.7 St Lazarus station, hall England (1777–1779) Paris (Source: Wikipedia)



Figure 5.1.8 Les Halle, Paris

### THE GREAT EXHIBITION 1851

The Great Exhibition of the Works of Industry of All Nations was an international exhibition and the first of a series related to industry. Crystal Palace was built to hold the exhibition. It was an ephemeral, modular and demountable iron and glass building designed by Joseph Paxton. The nature of this building completely broke with old Classicism patterns, which were typical in that period.

The exhibition offered the opportunity to get to know and take stock of the industrial production of many countries, revealing, from an aesthetic point of view, the evident lack of harmony in industrial products. In consequence, the relationship between art, aesthetics and industry needed to be solved.

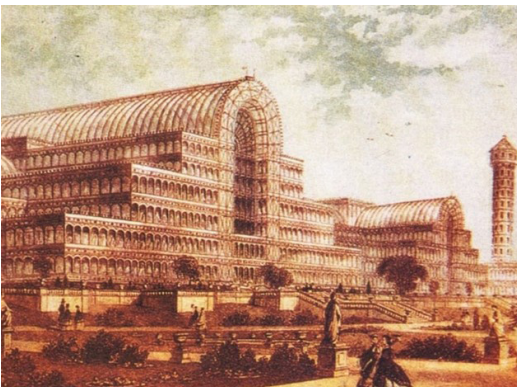


Figure 5.1.9 Interior and exteriors views of Crystal Palace. Drawings by Pilar de Miguel Egea (Source: Wikipedia)

## 1.2.3 The arts and crafts movement

### IN A NUTSHELL

The Arts and Crafts movement's main characteristics are summarised as follows:

- The search for unity in form, function and decoration.
- Inspiration in Gothic Historicism, using linear and organic motifs, mainly in its first period.

- Simple and elegant in form, structure was not hidden.

The trend was essentially British and later spread to the United States.

Questioning industrial products lead to a movement connected to decorative arts and crafts: the Arts and Crafts movement. This trend emerged in Britain as a response to the effects of frenetic industrial development. Its main theorists were John Ruskin and William Morris.

The movement encompasses artistic, social and moral aspects, questioning both the product and the process, reaching a point in which machine was considered a cause of moral and artistic perversion.



Figure 5.1.10 Armchair by Henry Mather



Figure 5.1.11 Piece of furniture by Gustave Stickley

## 1.2.4 Modernism

Modernism is an arts movement developed during the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. It was named differently depending on the country and had its own aesthetic and formal features. In France it was called Art Nouveau; in Great Britain, Modern Style; in Germany, Jugendstil; in Austria Sezessionstil and in Italy, Stile Liberty.

It is characterised by an opposition to any imitation of pre-existing styles and by the search for new artistic forms inspired by diverse sources, such as elements of nature or foreign arts (Japanese art). Besides, its style rejected a return to the past, and it was marked by a rich

linear vocabulary composed of sleek, sinuous curves and undulating lines.

The movement is said to represent the nexus between the Arts and Crafts movement and the Industrial Design of the Avant-Garde, but, unlike the first one, Modernism had no philosophical basis of social commitment and was clearly aimed at the newly rising social class, the bourgeoisie, which sought to stamp its own image.

The movement arose in Belgium and its first representation is the Hôtel Tassel, a townhouse in Brussels designed by Victor Horta.



Figure 5.1.12 Exterior and interior views of Hôtel Tassel



Figure 5.1.13 Chair by Eugène Gaillard (Organic Modernism)

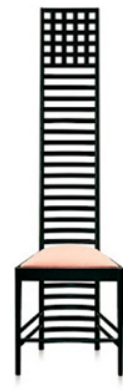


Figure 5.1.14 Chair by Rennie Mackintosh (Geometrical Modernism)



Figure 5.1.15 Stoclet Palace by Joseph Hoffmann

## 1.2.5 Avant-garde

### THE DEUTSCHER WERKBUND

Shifting from handcraft to industrial production resulted in a shift from applied arts to industrial design. The new production system posed some aesthetic problems and Germany led the way in the search for a solution. To be competent in international markets, it took an organised approach to industrial development and set about improving the design and quality of its products.

The Deutscher Werkbund was an association born to satisfy these needs and grouped artists, artisans, designers, architects, art critics and industrialists to design quality products.

The Werkbund promoted a simple aesthetic appropriate for this new machine era, emphasising materials and elements from industrial manufacture. The unity, functionality and quality principles taken from art, handcraft and industry were set up within the Werkbund programme. The search for simplicity set out the need for reducing everything to its essential parts, basing aesthetics on pure, rational forms, which gave rise to the origin of machines' aesthetics. Thus, the Werkbund can be considered a direct predecessor of the Bauhaus.



Figure 5.1.16 AEG fan and electric kettle by Peter Behrens

### DE STIJL

De Stijl was a movement that involved art, architecture and design. It was developed in the Netherlands and took its name from the journal by which the group expressed itself. Its main representatives were Theo Van Doesburg, Piet Mondrian, and Gerrit Rietveld.

De Stijl has a clear order, independent of nature, with images and geometrical elements. It is also regular and functional, as opposed to the undefined, random or expressive features of nature.

Inside De Stijl, Mondrian developed Neoplasticism. It was based on a system of geometric-constructive forms, reduced to vertical and horizontal elements, and the use of the three primary colours (red, blue, and yellow), along with black, white, and grey. Neoplasticism represents the inspirational germ of rationalism. It aims to create pure reality, reducing natural forms to its constant elements.



Figure 5.1.17 Red and blue chair by Rietveld



Figure 5.1.18 The interior of the Schröder House

## 1.2.6 The Bauhaus movement

### IN A NUTSHELL

The main characteristics of the Bauhaus are:

- The search for extreme functionality.
- Formal simplicity.
- The absence of ornamentation.
- The reduction to the essential components.
- The reduction in the range of materials used.
- A strong relationship between form, function and technology used.
- The expression of lightness in its forms.
- The predominance of line over volume.

The Bauhaus was a school of art created in 1919 by Walter Gropius in Weimar, Germany. It was one of the most interesting creative experiences in 20<sup>th</sup> century in art and design, keystone of industrial design.

In a technical context and inspired by rationalism, the Bauhaus movement searched for the simplification of forms reducing objects to their geometric elements and reappraising their function. It was influenced by De Stijl and by Russian constructivism.

It was active for just 14 years in three cities: Weimar, Dessau and Berlin, where it was finally closed by the Nazi regime in 1933.

### WEIMAR

In its origins, the Bauhaus was imbued with the spirit and principles of the Arts and Crafts movement, which advocated a revival of the handicraft production. This was contradictory to Gropius's progressive ideas before the Great War. However, post-war conditions in Weimar justified this apparent change of attitude: from a tactical point of view, he needed to engage the conservative Weimar craftsmen with the aims of the Bauhaus.

Initially the Bauhaus was no other than a modernised school of Arts and Crafts, which was reflected by their offer: blacksmith, ceramist, lathe operator, glass painter, wood engraver and similar training courses. Thus, it proposed a dual qualification: masters of the

form (artists) and masters of the workshop (craftsmen).

In 1923, an exhibition was organized to showcase the school's productions. This exhibition marked a change in the Bauhaus, as the creation of prototypes for industry was set as its main objective. The title of Gropius' speech during the event ("A new unity between Art and Technology") reflected this change and a strong influence by De Stijl movement and Russian constructivism were part of the driving force behind it.

In 1924, the right and extreme right won the regional elections, and the school was forced to move due to political pressure at the end of the school year.

### DESSAU

The Bauhaus was relocated to Dessau as a university institution. There, any connection with handicrafts disappeared, and architecture studies were incorporated. The school courses acquired a technical-scientific orientation that guaranteed a theoretical-practical education.

Eventually the seed of an idea was materialised in the industrial designer profession in 1926, as these lines reflect: "In these workshops, the Bauhaus tries to train a new yet non-existent type of employees for industry and handicraft who master technology and form in equal measure".



Figure 5.1.19 Wassily chair



Figure 5.1.20 Breuer chair produced by Thonet



Figure 5.1.21 A design from 2<sup>nd</sup> stage



Figure 5.1.23 Cradle by Peter Keler (1922)



Figure 5.1.22 Walter Gropius office

## 1.2.7 Art deco

Art Deco was an art movement that appeared in the early 20<sup>th</sup> century. There are two main styles: a classical revival Deco style and a style with an emphasis on aerodynamics. Art Deco influenced architecture, interior design, industrial design, graphic design and visual arts, such as engraving, painting, cinematography.

### ART DECO RETRIEVING CLASSICISM

This line, a neoclassical and neo-archaic revival, rescues the volumetry of Napoleonic furniture, but without its decoration, and mixes it with archaic elements inspired by Egypt, Mesopotamia and pre-Columbian America. The great evolution of archaeology in those years nourished designers with new forms and languages. In addition, relationships with avant-garde movements are found in Cubist, Constructivist and Futurist features and indeed it has an evolutionary link with Art Nouveau. In architecture, it was translated into an imprint of robustness, monumentality and elements of strong presence in his compositions.

In interior design and furniture, parallel straight lines inspired by Doric grooves and triglyphs are the most frequent ornamental motif. However, interior design does not recover columns and entablatures, but introduces them surreptitiously with curtains or grooved frames, as the quintessence of the image of classicism, but avoiding their literal reproduction. One of the most influential figures was Émile-Jacques Ruhlmann.

Much of the interwar institutional architecture conforms to Art Deco neoclassicism, and it was also taken over by totalitarian regimes such as Stalin in the USSR, Hitler in Germany, Mussolini in Italy, Franco in Spain. It is acquired as a regime style for two main reasons:

- Naturalistic figuration, due to its easy interpretation, is more likely to become propaganda than the distorted figuration of the avant-garde.

- Classic architecture produces understandable buildings for the people (mostly illiterate). Its monumental and solemn language coincides with the messages of nationalist grandeur from dictators.

### ART DECO INSPIRED BY AERODYNAMIC DESIGN

Named Streamline in English-speaking countries, due to its decoration of parallel and zigzagging lines, as well as its pointed volumes suggesting the air penetration of the vehicles themselves. It had its origins in the interwar period, which saw the great technological development of the means of transport: trains, ocean liners, planes, zeppelins, among others. They aerodynamical style or streamline mostly belongs to the American industrial design developed from 1920 to 1960.

In the 1920s, air and sea navigation and the automobile became cult objects as they represented the realisation of a collective technological dream. The carcasses and bodywork took on projectile shapes and ornamentation of parallel lines, as an anagram of speed, fractioned, crystalline forms, cubist blocks that resulted in a significant geometrization of shapes. The preferred materials were aluminium, stainless steel, lacquer, inlaid wood and sharkskin. As motifs, the straight or broken fretwork line, chevron patterns and the Sunburst (sun disc) ornament should again be emphasised.

Not having any philosophical basis with political intentions, it is considered a bourgeois style, as it is purely decorative. Despite its eclecticism, Art Deco has a clear identity. It hints at the futuristic vision resulting from the Industrial Revolution, its meaning revolves around progress, order, the city and the machine.

As far as industrial design is concerned, the new streamlined aircraft, locomotives and automobiles were the starting point for aerodynamic forms that were transferred to household goods and office equipment.





Figure 5.1.24 Art Collector's Hotel, furnished by Ruhlmann (1925)



Figure 5.1.25 Chair by Eilel Saarinen



Figure 5.1.26 Bureau by Ruhlmann



Figure 5.1.27 Pencil sharpener by Loewy



Figure 5.1.28 Loewy next to one of his own designs



Figure 5.1.30 Bar in Carrión building, Madrid



Figure 5.1.29 Iron by Henry Dreyfuss

## 1.2.8 Modernity and international style

The remarkable widespread of avant-garde ideals took place in the decades after the Second World War and remains an everyday style for many of us. Modern designers became so abundant that they could be studied locally (Scandinavian, Italian, American, and so on).

### MODERNITY: FUNCTIONALISM

Functionalism is the most influential architectural thought in the history of architecture. Beauty ceases to be the purpose of creation and is achieved by manipulating the structure. Underlying this aesthetic ideal is a socialist ideal of producing well-designed objects accessible to the whole of society.

Key features are neutral colours, pure geometric volumes, economical industrial materials, as well as machine and factory aesthetics, making functionalism a very important style nowadays.

Regarding a conceptual level, its ideals are as follows:

- Ornament is a crime.
- The truth of materials.
- “Form follows function”.
- The idea of housing as “machines for living”.

Regarding formality, emphasis on orthogonality characterises functionalism:

- Smooth, polished surfaces, devoid of ornamentation.
- Visual appearance of lightness: cantilevered construction.
- Use of new techniques and materials: reinforced concrete to create large interior spans.



Figure 5.1.33 T3 Transistor designed by Dieter Rams

### “A HOUSE IS A MACHINE FOR LIVING” (LE CORBUSIER)

Le Corbusier pursues the maximum economy of lines in undeniably functionalist solutions. His vision of architecture for housing can be summed up in these points:

- Elevation of the building so as not to damage the natural habitat.
- The playful roof (garden, swimming pool).
- The continuous window.
- Free floor plans and façades thanks to the load-bearing structures.

His first exponent is Villa Saboya, 1928, and his most emblematic residential building is the Marseille Housing Unit, 1946.



Figure 5.1.31 Marseille Housing Unit



Figure 5.1.32 Table designed by Breuer

## 1.2.9 Modernity: neoplasticism and expressionism

In modern culture, there are some styles that look for the prospection of messages, distancing from the more functionalist silence and neatness. Examples are neoplastic modernity and expressionist styles.

### NEOPLASTIC MODERNITY

Neoplastic modernity draws directly from the avant-garde De Stijl movement and is expressed through a language based on simplicity and constructive ingenuity, argued with pure, childish colours and simple geometric surfaces.

### EXPRESSIONIST-CONSTRUCTIVIST MODERNITY

In Expressionist-Constructivist modernity, the main feature is volumetric juxtaposition, which could be considered as a “Baroque of Rationalism”, a dynamic and somewhat extravagant style.



Figure 5.1.34 Interior of a textile shop



Figure 5.1.35 Side table by Eileen Gray



Figure 5.1.36 Rusakov Theatre, by Konstantin Melnikov



Figure 5.1.37 Inga Lamp, by Aleksandr Rodchenko

## 1.2.10 Modern movement: organic style

### INDUSTRIAL DESIGN

Within industrial production, the organic style is the most important of the formal languages. In housing and airframe design, it is used to reflect a certain appearance on the industrial product and in machines, which are initially noisy and threatening, and serves to alleviate these undesirable aspects.

In the interior of transport, organic design offers enveloping spaces that convey comfort, and such shapes, with their lack of angles and edges, are much safer in case of an accident.

In appliance casings, the excessive industrial connotations are suppressed by organic elements, making them ornaments.

### ARCHITECTURE AND INTERIOR DESIGN

In order to create buildings and constructions that are representative from modern movement, organic or expressionist styles are often used.

In the 21<sup>st</sup> century, organic interiors are becoming more accessible thanks to synthetic coatings, with lower prices and fewer technical difficulties.

In relation to furniture, a remarkable advance in this style is the use of bending techniques for wood or plywood sheets to produce chairs. Moreover, as the 20<sup>th</sup> century drew on and plastic manufacturing techniques were introduced, the organic became more important.



Figure 5.1.38 Citroën DS



Figure 5.1.39 Boeing 787



Figure 5.1.40 Coffee machine for Braun by Henry Dreyfuss



Figure 5.1.41 Our Lady of the Heights by Le Corbusier



Figure 5.1.45 Stacking chair by Werner Pantton (1960)



Figure 5.1.42 Sidney Opera House by Utzon



Figure 5.1.43 Shoe shop in Hong Kong by Zaha Hadid



Figure 5.1.44 Lounge Chair by Eames (1940)

## 1.2.11 Modern movement: high tech or structural expressionism

At the end of the 1970s, the fascination for technology inspired this aesthetic. It began with the project for the Charles Pompidou Art Centre, designed by Richard Rogers and Renzo Piano, who left all its technological “guts” visible, attached to the façade, without the need to add any decorative elements, within the maxim of the modern movement of zero decoration.

High Tech aesthetic can be considered a mannerism of the modern functionalist style, since it employs the same materials and colours, but avoiding the timidity and silence of canonical functionalism in favour of expressiveness through technological display.



Figure 5.1.46 Centro Georges Pompidou, Paris



Figure 5.1.47 Richard Rogers, Lloyd's

The use of glass and transparent surfaces means that the container influence the inside of buildings – interior architecture is practically cancelled out.

In furniture, synthetic materials with chrome-plated chassis and transparent surfaces made up furniture in line with high tech.



Figure 5.1.48 Nomos Collection by Norman Foster



Figure 5.1.49 Tizio lamp by Sapper

During this period, and exactly in 1974, at the “Meeting of the Group of Experts on Barrier-Free Design” held in New York, the first precedents were established on the need to eliminate physical barriers that make it difficult for people with disabilities to fully participate in society on equal terms and in which the need to train architects, engineers, urban planners and landscapers is established.

## 1.2.12 Modern movement: minimalism

Minimalism is the coldest and most silent aesthetic within the Modern Movement. Its abstraction aims to be contemplative silence. Compositionally, it exploits the shape of the rectangle, repeating it so that redundancy itself suppresses any message.

There is a preference for using white, the most neutral and pure colour.

In commercial interior design, it has had a great impact. This aesthetic can be seen in many of today's department stores. In domestic interior design, the kitchen is one of the spaces that has been influenced the most.



Figure 5.1.50 Kursaal in San Sebastián (1989)



Figure 5.1.52 Interior of a shoe shop



Figure 5.1.51 Universal series, Capellini, by Jasper Morrison



Figure 5.1.53 Contemporary kitchen

## 1.2.13 The ULM school of design

### IN A NUTSHELL

- The Ulm School of Design based its philosophy in the integration of science in design.
- It was the leading centre of scientific design pedagogy, from where it spread worldwide.
- It set out to redefine the role of design in modern culture by integrating creativity and a social purpose.

The Ulm School of Design (Hochschule für institution created in Ulm, Germany, in 1955. It was born from the Scholl Brothers Foundation, which was created in memory of these brothers executed by the Nazi regime, and promoted by a group of young German intellectuals, with the aim of creating a teaching and research institute to collaborate with the cultural reconstruction of post-war Germany. The school was inaugurated by Gropius, who referred to it as the “university of form”.

In the mid-1950s, a successful collaboration between the HfG and Braun AG began, leading to the Braun style.



Figure 5.1.55 Electric shaver by Hans Gugelot



Figure 5.1.54 SK4 radio and record player by Braun



Figure 5.1.56 KM 321 blender by Braun



## 1.2.14 Scandinavian design

Scandinavia has a particular love for nature and a sense of social equality that are present in its culture and daily activity. This is reflected in its technical-aesthetic manifestations.

These aspects had an important influence when design began to be incorporated into industrial products, giving rise to a creative expression based on criteria of simplicity and beauty, proposing a socialisation of aesthetic values, seeking to create a happy society through the beauty of everyday life.

In creative design environments, a new current appeared linked to the design of daily objects, which proposed aesthetically resolved and low-cost objects for a society based on equality. Thus, products based on a humanist interpretation of the formal, technical and aesthetic principles of the Modern Movement were created.

For most of the Scandinavian population, design is part of their lives and an effective element of social change. This concern for the human being and the environment characterises Scandinavian design, which is warm and tailored to the human being. Its aim is therefore human well-being and not so much industrial competitiveness.

Characteristic of Scandinavian design are wooden furniture and the use of curved plywood, which allows for flexible and strong organic forms linked to nature.

Design for All or Universal Design has its roots in the Scandinavian functionalism of the 50s and in the ergonomic design of the 60s. The Swedish social policy of the late 70s was also influential, where the concept of "One Society for All" referring fundamentally to Accessibility.



Figure 5.1.57 Paimi chair by Alvar Aalto



Figure 5.1.58 Series 7 chair by Arne Jacobsen



Figure 5.1.59 Balans variable by Peter Opsvik (1979)



Figure 5.1.60 Koare Klint (1933)

## POSTMODERNITY

During its expansion, the modern movement became increasingly dehumanised and cold. It also had too many formal prejudices. From 1970 onwards, certain designers revived past styles, such as Art Deco, and returned to the use of applied decoration and colour. Inspired by Semiotics as a philosophical current, post-modernism promotes communication with users and spectators through the plastic arts in order to overcome the non-emotional universal language, which is the basis of Rationalism.

Postmodern criticism accuses modern architects of turning cities into strange monoliths that are not understood by the population. If Modernity focused on syntax, Postmodernity focuses on semantics, i.e. on the symbolic dimension of forms.

An alternative design emerged, highly influenced by pop art, which also rescued some aspects of cultures submerged by the modern world. Led by Ettore Sottsass, the Memphis Group appeared, which brought together important designers from all over the world. Their common denominator was to emphasise the formal content of their products, creating experiences inspired by a diversity of cultural contexts, seeking to go beyond the traditional categories of form, function and technique.

In terms of furniture, anything that departs from rationalist styles by cultivating classical aesthetics, pop colours, unusual materials and a sense of humour is a component of the new designs. In some cases, furniture acts as decorative sculpture.

### IN A NUTSHELL

Its general characteristics are as follows:

- Semantically suitable materials. Wood and brick for housing, recovery of marble and luxurious materials for their representative value in public architecture.
- A sense of humour. Anecdotes, syntax tricks, incorrectness and flaws as elements of design.
- Individual and customised design.
- Picturesque spaces. The oblique and baroque projections that hide surprises are recovered.
- Recovery of ornamentation and colour. Overcoming modern prejudice.



Figure 5.1.61 Robert and Vanna Venturi house (1968)

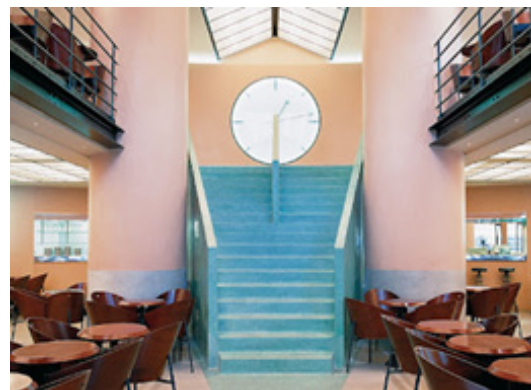


Figure 5.1.62 Café Costes by Philippe Starck (1984)



Figure 5.1.63 Rococo armchair by Alessandro Mendini



Figure 5.1.64 Chair by Robert Venturi



Figure 5.1.65 Hotel Delano Hall by Philippe Starck

### 1.2.15 Current situation

The most remarkable feature of the first two decades of the 21<sup>st</sup> century was the fusion of structuralism and decorativism, named as ornamental structuralism, in which the very structure of objects turned into something ornamental.

From the continuation of late Modernism trends, the most current is the organic hybrid with High Tech. A maximalist style, with a neoplastic base, has also emerged in which the seriation of geometric figures is repeated, but overcoming the restriction of neutral chromatism. On the other hand, classical styles have always been at the basis of Western culture and continue to have some use.

### 1.2.16 Postmodernism

Within postmodernism, eclecticism has become more virulent. Some façades are regaining their decorative application. In addition, originality is in vogue and custom-made, exclusive, personalised pieces are sought after. Some of the pieces produced are essentially conceptual.



Figure 5.1.66 Apartment in Madrid by Izaskun Chinchilla



Figure 5.1.67 Swiss Museum of Transport by Gigon Guyer



Figure 5.1.69 Nimrud chairs by Marc Newson (1997)



Figure 5.1.68 Leaf furniture by Tejo Remy

## 1.2.17 Late modernism

### DECORATIVE STRUCTURALISM

Its maxim is the fusion of structure and ornament, where the underlying idea is to decorate without applying ornamentation.

With this aim in mind, the solution is for the structure itself to become an ornament, with the cladding being die-cut.

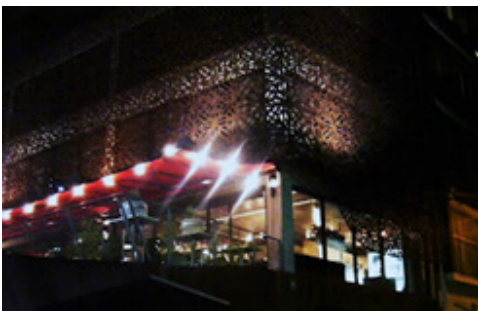


Figure 5.1.70 Artwall shopping mall



Figure 5.1.71 Matsumoto Performing Arts Centre



Figure 5.1.72 Antonietta coffee tables by Alessandra Pasetti



Figure 5.1.73 Flower chair by Marcel Wanders

### ORGANIC HIGH-TECH STYLE

Within the modernist styles, the organic style is the one that has the greatest presence thanks to the use of new, inexpensive synthetic materials. Its organic-technological variant stands out for its suggestion of perfection and immortality.

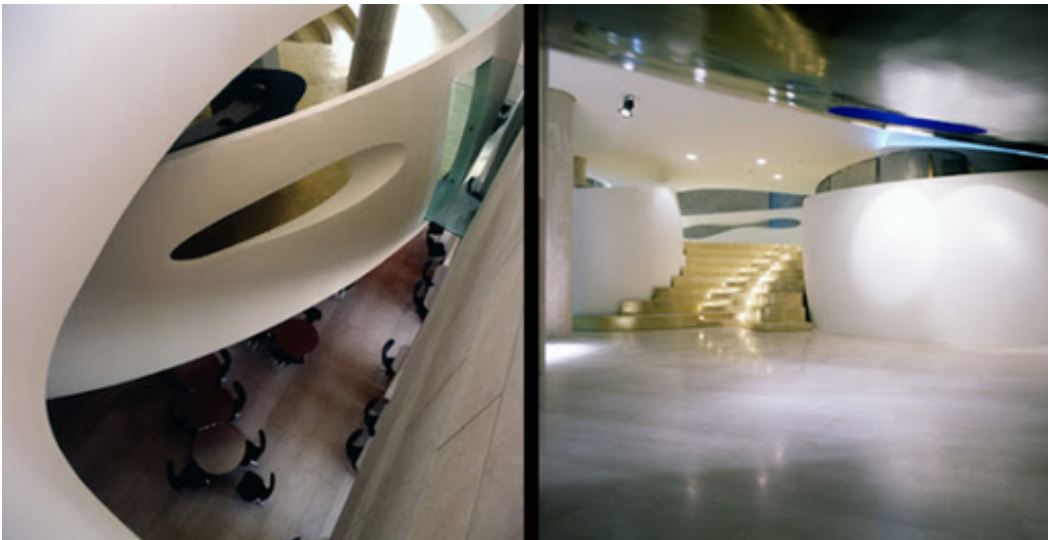


Figure 5.1.74 Tel Aviv Opera by Ron Arad (1988)



Figure 5.1.75 Gingko table by Ross Lovegrove

### ORGANIC POP STYLE

Organic meets pop and takes on a seventies flavour. Decoration with undulating lines brings pop culture closer to modernism. Furniture here looks like toys and rooms become toy libraries.



Figure 5.1.76 Oaza Zdravjla Pharmacy by Karim Rashid



Figure 5.1.77 HI Niza Hotel (2003) by Matali Grasset



Figure 5.1.78 Olivia chair (2004) by Raúl Barbieri

### ORGANIC MONUMENTAL STYLE

The monument of today's society is always a civil monument. Among the most distinguished, there is the international airport – the representative value of an airport is incalculable. Another important civilian building, which is treated as a monument, is the great art museum.



Figure 5.1.79 Elephant stool



Figure 5.1.80 Incheon Airport in Seoul by Tony Farrell



Figure 5.1.81 Gare do Oriente in Lisbon by Santiago Calatrava

## 1.2.18 Perpetual classicism

The luxurious continues to be conveyed through classical style. The reproduction of classicism is not literal, but in many cases ironic, in line with the modern spirit.



Figure 5.1.82 Azzedine Alaïa store by Marc Newson (2006)



Figure 5.1.83 Casino de Madrid restaurant Jaime Hayón (2009)



Figure 5.1.84 Peninsula chair by Philippe Starck



Figure 5.1.85 2008 Ikea collection

## 1.2.19 Short history of age-friendly design

The theme of developing age-friendly spaces, cities and communities emerged from a series of policy initiatives set in motion by the World Health Organization (WHO) during the early 2000s. A leading idea running through these initiatives is related to active ageing. This notion was originally developed in 1999, during the United Nations's Year of Older People. It was further detailed by organisations as the European Union and the WHO. The WHO stated that the term “active” in active ageing reflects the idea that people should be able to continue to participate in all spheres of life in old age – social, cultural, civic, spiritual and economic. Active ageing policies and programmes were regarded to require a diversity of interventions and actions to improve aspects of both the social and physical environment.

The ideas of active ageing were taken further in 2006. In that year, the WHO launched its “Global Age-friendly Cities” project. As part of this project, a number of focus groups with older people, carers, and service providers were conducted in 33 cities in 22 countries around the world, with the aim of identifying those factors that could make urban environments more “age-friendly”. The project defined an “age-friendly city” (AFC) as encouraging “active ageing by optimising opportunities for health, participation and security in order to enhance quality of life as people age”.

The study resulted in a guide which identified the key characteristics of an AFC in terms of three main areas. These areas are service provision, the built environment, and social aspects. This Global Age-Friendly Cities guide has since become the most frequently used document to promote and evaluate the goal of age-friendliness.

The WHO launched the “Global Network of Age-friendly Cities and Communities” in 2010, in an attempt to stimulate the implementation of policy recommendations from the 2006 project. Since its inception, the Network has seen a rapid growth in membership, extending to more than 1100 cities and communities in 2021. The aim of this network is to support its members in becoming more age-friendly.

Between 2012 and 2015, the WHO conducted a series of literature reviews, expert consultation meetings and pilot studies which generated input from over 50 communities across 25 countries. This resulted in a report published in 2015 which set forth a framework and set of indicators to monitor and evaluate progress in improving the age-friendliness of urban environments.

The efforts made on age-friendly cities and communities have been underwritten by a range of other age-friendly organisations, including international NGOs such as the International Federation on Ageing. In North America these include the American Association of Retired Persons (AARP) Livable Communities, and the National Association of Area Agencies on Aging sponsored Livable Communities Initiative.



## 1.3 AGE-FRIENDLY PRODUCT DESIGN WITH METHOD

### 1.3.1 Introduction

Designing becomes easier when you know how to design. Problem solving becomes easier when you know what you must do to get to the solution.

Simply put, the design methodology consists of a series of operations in a logical order to efficiently achieve a design solution. This sequence is based on experience and there is no single method. Moreover, with the acquisition of one's own experience, the sequence is modified and individually adapted and to the needs of one's own project.

The following is one of the methodologies for projecting. Its aim is to serve as a basis on which each student can experiment and gain experience in solving design problems. This experience will give him a way to create

his own method adapting it to the needs and way of working. It should not be forgotten that the design methodology is not an absolute and definitive, but modifiable and adaptable thing.

Design is a discipline with an important social impact and associated responsibilities. Throughout the design process, the designer must be aware of social, ethical and environmental commitments to foster a more egalitarian, harmonious and sustainable society. Within the design methodologies, aspects that allow breaking social paradigms with respect to ageing should be contemplated, using them as another ingredient that allows us to obtain a solution with the widest possible social range. These aspects will be weighted more highly in design problems that are circumscribed to these social groups.

### 1.3.2 Design methodology

Designing without method, in an exclusively intuitive way, looking for a solution without having carried out a previous study of the design problem to be faced is not the way.

Creativity is not improvisation. As mentioned above, the method is flexible but necessary.

The proposed methodology is a framework, a guide that is adaptable to the project and to

the design team's own way of working. It is, therefore, an elastic scheme, flexible and able to change depending on the situation, needs or preferences of use.

Further on, some methods that complete this framework will be detailed, such as people-centered design or design thinking; methods that can be integrated into this scheme enhancing and adapting it to a specific perspective.

### 1.3.3 Design method scheme

#### PROBLEM

The design process is born from a need, from a design problem to be solved. This problem can either be detected by the designer and proposed to the industry or it can be the industry that proposes the problem to the designer.

#### DEFINING THE PROBLEM

Next, we need to define the design problem. Doing so will provide the designer with boundaries to move within. This problem definition will be the basis of our concept of the design problem to be solved.

In order to define the problem, a product briefing can be used, a document whose purpose is to obtain as much information as possible from the project promoter. In addition, a reflection must be made on everything related to the project and an attempt must be made to reflect this in the definition.

#### SCHEME FOR PREPARING A BRIEFING

The scheme consists of five information cores and, if they are related to the project, they should include considerations for: dimensions, materials, weight, manufacturing techniques, cost, packaging, usability, functionality, noise, maintenance, ergonomics, finishes, workability, durability, toxicity, aesthetics, social value, essentiality.

#### THE COMPANY:

Brief description of its history, its activities, its organisation and corporate visual identity or design standards, if any.

The company and the market: Its situation in the market, competition, the image it conveys, its positioning and future strategies must be understood.

#### THE PROJECT:

How the idea came out or the necessity arose. Taking the opportunity. Why now?

What is to be achieved? Objectives and expectations of the project.

How does this project fit into the company's strategies?

#### THE PROJECT AND THE MARKET:

Target market segment.

Consumer/user/recipient profile.

Circumstances and mode of use of the product or service.

Advantages, benefits, differential aspects provided by the new product.

Distribution system. How does it reach the public?

Is there any trend in the market with respect to the project?

#### THE COMPANY AND THE PROJECT:

Specific requirements that may have an impact on the design. For example, technologies and/or manufacturing materials predetermined by the company.

Project schedule or timing, the expected time of execution and when the first units are expected to be available.

Number of units planned. Costs.

Production inside and outside the company.

Suppliers and own resources.

Regulations or legislation affecting the product or design.

Additional documentation to the project that may be of help, such as market studies, examples of previous projects, success stories, etc.

Internal team that will collaborate in the project. Maximum responsible person and description of the approval process of what is presented by the designer in the different phases of the project.

#### ELEMENTS OF THE PROBLEM

From the definition of the problem, a decomposition into its elements (or smaller problems) must be carried out. This operation will facilitate the designer's work, helping

him to reach a deeper understanding of the problem by decomposing it into more easily solvable small problems. Each of them has an optimal solution, but these different solutions may contradict each other. The most complex part of the designer's work is the reconciliation of the different solutions to the subproblems in the solution to the global project. This phase of

problem decomposition is reflected in the list of project specifications.

This list should be reflected in a table of specifications, which will serve to analyse the compliance of each of the solutions provided to each subproblem and how they are articulated in the overall project solution.

SPECIFICATIONS		OK	Criteria
	MO UNTING HEADBOARD / FEET BED		You must allow immediate access in a certain time according to 201.15.4.101
	MATTRESS RETENTION		You must keep the mattress in position according to 201.15.4.102
STRENGTH AND DURABILITY			Take into account the tests of durability and effects on the load on the outer edge Annex B. B2
DIMENSIONES			
	GENERAL		It is necessary to take into account the maximum minimum height and the variable length per extension
	BB.3.2 Height adjustment		They would not comply for E4, it is informative both would be outside the adjustment range taking into account that it is taken from the mattress
	OF HANDLES AND PEDALS		They must comply that all handles and pedals must be achievable from normal work and the location and configuration of controls must prevent unintentional activation. Annexes BB.3.3.1 and BB.3.3.2
			BB3.3.4. distance > 35mm from any handle to construction structure // check the CPR handle must exert a force of less than 1 kg
			BB.3.3.5 Steincopedals do not work // Shapes will use an end-to-end lever on the outside of the lower frame
			BB.3.3.6 In central areas of piezero headboard it complies, in the upper part of railings it complies, is it enough?
			BB.3.3.7 the pedals are less than 300 mm from the ground
FUNCTIONALITY			
	COMBINATION MEDICAL BED WITH LIFT TRUCK		BB.4.2 Average height under bed > 150 mm. at any height greater than 400mm.
	COMBINATION OF MEDICAL BED AND MATTRESS		The height of the mattress must be 20 mm higher than any element of the mattress support platform. BB.4.3
	MOVING PARTS ADJUSTMENT RANGE		The angle criteria according to section BB.4.4 should only be saved, indent 3 and indent 5
	PROPER FUNCTIONING		The system should work effortlessly and should be easy to maintain
MATERIALES			
	ESTRUCTURA		
	BARANDILLAS PROTECCIÓN		

Figure 5.1.86 Partial example of a table of specifications

### DATA COLLECTION

Data should be collected regarding the overall problem and its elements.

### DATA ANALYSIS

In data analysis, information should be filtered in an agile way. For this purpose, Key Factors are established for the analysis of the project, generally no more than ten. They show a conceptual synthesis of the specifications. These usually include important specifications such as cost, aesthetic concepts and others that are easily measurable in the data collection.

The result of the data collection is analysed using a table of factors. Data can be weighted according to their importance. This factor analysis will provide us with two or three solutions to the proposed design problem, allowing us to analyse them in detail. If you want to learn more about the research methods to understand the needs and perspective of your clients better, read the Module 1, unit 5.

KEY FACTORS	Value	ANALYZED PRODUCTS											
		ARJO		DESAN FLEX		MALVESTIO		MEDICALIBERICA		PARDO		STIEGELMEYER	
Tranquility / Serenity	3	1	3	1	3	2	6	2	6	1	3	2	6
Formal simplicity	3	1	3	1	3	1	3	2	6	2	6	2	6
Adaptation possibility	2	1	2	1	2	1	2	1	2	1	2	2	4
Safety of use	2	1	2	1	2	2	4	2	4	1	2	2	4
Hardiness	2	3	6	2	4	2	4	2	4	2	4	2	4
Price < 2.000 €	3	0	0	1	3	1	3	0	0	3	9	1	3
Easy cleaning	1	1	1	1	1	2	2	3	3	1	1	1	1
		17		18		24		25		27		28	

Figure 5.1.87 Example of a table of factors for analysis

### CREATIVITY

At this point, we have enough information and material to project. The solutions derived from our creative process will stay within the boundaries of the problem. From an intuitive idea, we replace the solution with a creative idea framed within the boundaries derived from the data analysis and design subproblems.

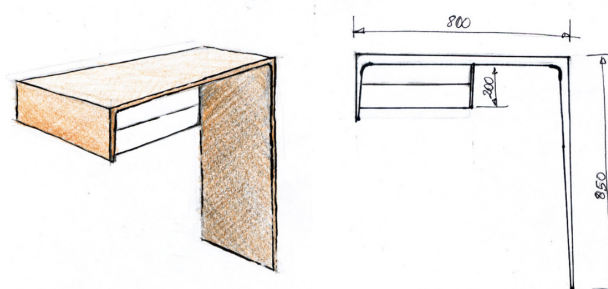


Figure 5.1.88 Sketch of a furniture proposal

### SKETCHES

We can make quick sketches in order to shape our solutions, whether partial or global, to structure and bring together the different solutions that our creative process offers to the design problem.

### TECHNICAL DOCUMENTATION

At this point, we proceed to the development of all the technical documentation required to produce the product. Drawings, three-dimensional models and construction plans, specifications and materials will be produced here.

### VERIFICATION

Each of the proposed solutions will have to be analysed and verified. First, we will analyse them through the Key Factors and then we will carefully check that they meet all the specifications. In case there is more than one solution, this analysis of specifications must be weighted in order to detect strengths and weaknesses that will facilitate decision-making for the final proposal.

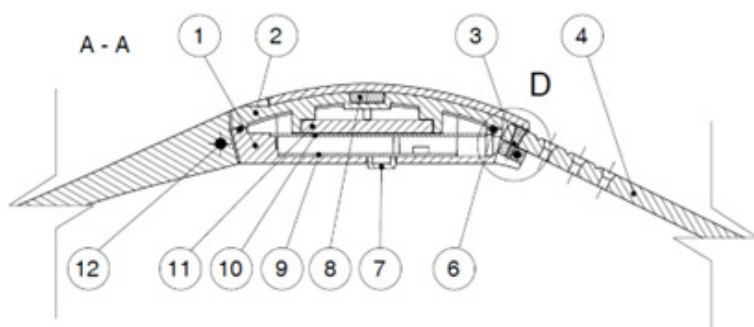


Figure 5.1.89 Detail of a blueprint for a blood-monitoring wristband for elderly people

## 1.4 CREATIVITY AND CONCEPT

### 1.4.1 Introduction

Following the different stages according to the design methodology proposed, just before reaching the creativity phase, our concept of the design problem is defined. This conceptualisation becomes the framework within which our creative process will be developed, defining our creative objectives (our challenge). It will also serve to verify the different solutions provided in our creative process.

It is within this framework that we execute our creative process, which acts as a “transparent box”. In order to diversify the solutions, we can turn to some of the techniques that foster creativity.

### 1.4.2 Concept

The concept is the mental abstraction of the problem, and through it, decisions and proposals are justified. It is shaped through the design methodology, has its basis in the definition of the problem, continues its configuration through research and data analysis. Before creativity, our concept must be formed, as it will help in the decision making and generation of ideas and will end up giving rise to a proposal.

Creativity can be defined as the ability to generate ideas that blossom into original solutions. Although the creative process may seem an alchemical and complex activity, it is a deliberate, conscious and manageable process.

#### IN A NUTSHELL

Stages for creativity

Generally, there are four stages in the creative process:

**1. Preparation.** It consists of studying the subject/problem to be solved, informing and analysing its current state (state of the art or technique, data collection and analysis) and defining our objectives.

**2. Incubation.** The conscious and sub-conscious mind think about the problem and prepare for the generation of solutions.

**3. Illumination.** After incubation, the creative idea jumps from inner to conscious processing.

**4. Verification.** The ideas generated pass a first intuitive feasibility analysis and are assigned a degree of innovation or priority.

### 1.4.3 Creativity techniques

The incubation and illumination stages can be enhanced using techniques that foster creativity. These techniques make us reflect on our way of thinking, help us to break mental patterns, eliminate prejudices and open our minds to new ways of understanding problems and coming up with solutions.

Some of these techniques are summarised below:

#### BRAINSTORMING

Brainstorming is a group-work tool that facilitates the emergence of new ideas on a given problem. It is based on the following basic rules:

1. **Suspend judgement.** To eliminate all criticism during the brainstorming phase and to reserve evaluation for later.
2. **Think freely.** To feel free to come up with any kind of idea, no matter how impossible or crazy it may seem.
3. **Quantity.** The more ideas you come up with, the better, as this will help to generate more creative solutions.
4. **Multiplier effect.** The combination of several ideas may offer an improved idea, or an idea may emerge from improving or evaluating a previous one.

#### DELPHI METHOD

Another creative technique that involves two types of subjects: the coordinator and the experts. The coordinator is in charge of centralising the experts work and the experts must be people who know the design problem well and, if possible, who come from different fields in order to enrich the visions.

It consists of the following stages:

1. **Problem statement.** The problem is presented to the experts.
2. **First solutions.** The solutions provided by each expert are sent to the coordinator, who in turn passes them on to other experts

anonymously. Each expert responds to the solutions provided by the coordinator with new answers.

3. **Closing.** The coordinator oversees closing the problem after the different cross answers that have been obtained.

#### SYNECTICS

This technique aims to overcome certain blocks when generating ideas:

**Perceptual block:** not seeing what the problem is or what is wrong/not working.

**Cultural block:** it refers to any social force that have shaped our lives, which draw rules of behaviour and thinking that hinder creativity.

**Emotional block:** it is internal and caused by insecurities and the stress of everyday life.

The stages for synectics method are:

1. **Turn the strange into familiar.** In any situation where a problem is posed and a solution is attempted, individuals involved are responsible for understanding the problem. This is an analytical phase in which all the ramifications and foundations of the problem must be explored.
2. **Turn the familiar into strange.** It is about distorting, inverting or transposing the everyday ways of seeing and responding that make the world a safe and familiar place. It is a deliberate attempt to achieve a new vision of the world, people, ideas, feelings and things we know. Making the familiar strange requires the use of four metaphorical mechanisms: personal analogy, direct analogy, symbolic analogy and fantastic analogy.

#### MORPHOLOGICAL FRAMEWORKS

This method can be used individually or in groups. It is very simple: taking advantage of much of the work carried out through the methodology proposed in the course. After the initial analysis, the problem is broken down into its essential elements. Once its elements

have been identified, a matrix is constructed to combine them and multiplying the relationships between them.

The five steps to follow are:

- 1. Defining the problem.**
- 2. Identification and characterisation of parameters.** Parameters are the essential elements that form the overall structure of the problem. We must identify those that are relevant and sufficiently relevant to be considered. We can start from our key factors identified for the analysis and expand them with some parameters if necessary.
- 3. Construction of the morphological box.** We build a matrix whose combinations include all the possible solutions. In a basic way, after defining the parameters, all the variations we can think of for each parameter or attribute are identified.
- 4. Combine possibilities.** With the complete matrix, we run through the parameters and narrow the combinations that we think are of most interest.
- 5. Evaluation and analysis of the best possibilities.**

## 1.4.4 Case studies

### DO YOU WANT TO KNOW MORE ABOUT...

#### MOBILITY

The urbility bicycle and mobility concept finds completely new solutions for the road safety of elderly people by focusing on stability, orientation and visibility, without being stigmatising. It was developed by students at the Muthesius Kunsthochschule, a university in Germany, with the aim of developing solutions to preserve and promote the elderly's mobility and independence. From the user research carried out, the strong preventive effect of bicycle mobility on certain diseases was highlighted, as well as its influence on an active lifestyle with social participation.

The group of students followed the principles of geronto-design by conducting user research based on the demands and needs of older adults.

This bicycle has a screen on the handlebars that acts as a rear-view mirror, avoiding the need to make sudden movements and keeping their vision in the direction of traffic. It also has two compartments at the rear to place shopping and to carry objects, among others. These compartments have a system that provides stability when the storage space is enabled, activating a mechanism that provides two additional wheels.



Figure 5.1.90 Urbility by Muthesius Kunsthochschule University (Muthesius Kunsthochschule University)



## DO YOU WANT TO KNOW MORE ABOUT...

### UNIVERSAL TABLEWARE

There is a significant part of users who have difficulty in using certain basic utensils, such as cutlery. The Eatsy tableware system, designed by Jexter Lim, aims to solve this problem improving the dining experience for people with different difficulties. The tableware set has a unique feature: a silicone flap that can be folded to increase ease of use and reduce stigma when mixed with existing tableware.

The product does not focus exclusively on the elderly, but seeks to integrate any user in need. The silicone flap helps to feel the rim of the containers, improves the visualisation of the items and makes them much easier to hold and use. It offers a particular function depending on the utensil.



Figure 5.1.91 Eatsy tableware by Jexter Lim (designboom)

## DO YOU WANT TO KNOW MORE ABOUT...

### FURNITURE THAT ASSISTS

The aging process brings about a natural decline in muscle tone and bone density, which contributes to a decreased stability, strength and endurance. Actions that were once simple may become more difficult with age. For example, simply standing up from a chair can be difficult for some seniors. Assunta chair assists in getting up by using the user's own body weight.



Figure 5.1.92 Assunta chair (Lanzavecchia + Wai)

## DO YOU WANT TO KNOW MORE ABOUT...

### FILMS AS ENTERTAINMENT

Nowadays, the digital age and entertainment services such as Netflix or HBO are making the playback of multimedia content from physical devices increasingly obsolete. Among seniors, there are a certain number of users who do not even have the knowledge or attitude to use a computer or a smart TV.

With this problem in mind, industrial designer Chen Zhigang developed a DVD player in 2020. The aim is to generate ease of use and that the user's interface and experience revolve around this concept of

simplicity. The product has physical buttons that are sized for ease of use, both in terms of being located and operated by the user. In addition, their layout is determined by the function that each button performs. Finally, Zhigang labelled each action of the device with words on the back, including how to place the DVD or how to turn the volume up or down. With this clear and understandable design, he integrates senior adults and opens the door for them to become familiar with new technologies.



Figure 5.1.93 DVDISC, DVD player for senior people (yankodesign)

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