



Circular Economy Lab & Observatory

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# SUSTAINABILITY

6.d Importance of redesign of products  
and processes for sustainability

**Romania-6.2**



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### Introduction

Sustainability is our world's only current chance of growing and flourishing, leaving the harmful practices of the human kind in the past. A savior of our loose morals, it, most importantly, contains the essence of the ideal, perfect world, meaning to fix overtime a total of 17 world problems, from poverty and hunger to social related issues, gender inequality and inequality in general.

In order to be sustainable, a balance must be struck between economic development, environmental protection, and social well-being. Current demands must be met without compromising those of future generations.



Simple and weak, people suddenly arise on Earth; we become healthy and powerful using the resources provided by the earth and the environment in which we are raised. Not only as a reward, but as a fair act of gratitude, after knowingly or unknowingly destroying everything it stands for, we must put at least an effort in repairing the damage and promising a brighter future.

Because what human can go on without a little bit of optimism.

Not only we benefit from sustainability, but our future generations, that will have a better life than ours. At its foundation, sustainability is just about ensuring that what we consume and how we use it today don't have an adverse effect on the ability of the present and future generations to live comfortably on this planet.



There's no room for selfishness or fake fairness in this matter.

We live together, almost 8 billion human beings, on a beautiful planet.

And although no one compelled us to do so, we are blessed with consciousness, so we are aware of the state of our world, of the problems, and most importantly, of the solutions.

Designing products and services with an eye on sustainability means taking into account all aspects of their life cycle, including their effects on the environment, society, and the economy. We are taking everything in consideration and making sure every step is the right one.

When sustainability is incorporated into design, we become aware of the effects that the product will have over the course of its entire life cycle.

This allows the creator to make sure that every effort has been made to produce a product that fits within the system it will exist within in a sustainable way, that it offers a higher value than what was lost in its production, and that it does not purposefully break or be designed to be thrown away when it is no longer useful.



Incautious waste is not an option in these hard times, as it brings more harm than good. Sustainable design values fairness and equality, acknowledges the consequences of actions and the interconnectedness of everything, and, whenever practical, actively engages social issues. It is also socially responsible, environmentally friendly, and respects the interdependence of everything. It's an essential part of sustainability, as it stands for the same principles.



### Problem's description

Now, you might wonder what redesign of processes and of products for sustainability means. Well, it refers to creating products and processes that sustain the environment, instead of destroying it.

As you might have understood by now, sustainability represents a way of fulfilling our needs without compromising the ability of future generations to fulfill theirs.

It is very important to start thinking of redesigning our products and processes, because we cannot preserve the Earth's ecosystems unless we make more sustainable choices. If damaging processes continue to occur, humanity will most likely run out of fossil fuels, a significant number of animal species will become extinct, and the atmosphere will be irrevocably harmed.



Sustainability advantages include air quality and nontoxic atmospheric conditions, increased reliance on resources, and improved water quality and cleanliness. Sustainable processes are important because they help us discover and change them in order to create better outcomes, such as waste reduction, net-zero energy, energy conservation, social welfare enhancement, or workplace safety. Each product has a life cycle which includes design, creation, manufacturing, use and disposal.

When a product goes through this changes, it impacts the environment by using natural resources such as water or energy, also produces waste, pollutants and greenhouse gas emissions.

In the design and creation stage, to be able to transform materials into products frequently necessitates complicated production processes and the utilization of resources such as energy, water, and materials.



Extraction of these resources, whether by mining, harvesting, or clearing land:

- produces carbon dioxide emissions,
- uses natural resources,
- generates waste products.

In the manufacturing stage, energy is used to create the products, and emissions are generated during the process. During the transportation stage, carbon dioxide, known to be the biggest contributor to climate change, is produced. Products delivered by road or air have a greater effect than those conveyed by sea or rail in most circumstances.

The product's use will be influenced by these factors:

- quality, if the right process of production and materials are used, it could increase the durability of the product, reducing the need for disposal and renewal,
- function and efficiency, if a product is convenient and useful, it is less likely to be replaced by other competing products,
- appearance, if a product's appearance and feel are part of a fleeting fashion, it may be replaced even if it is durable.







## Solutions

One of the solutions could be using eco-design, a process used in designing products that considers the life-cycle of the product and the impact it has on the environment. Eco-design proposes choosing eco-friendly materials and improving the manufacturing processes. Design is everywhere and the foundation of how a good or service is created; by creating a circular system around a product or service, eco-designers can increase its appeal to consumers, reduce its negative effects on the environment, and maximize their financial return.



<https://pixabay.com/photos/solar-panel-city-energy-4478105/>

Long-term cost savings are one benefit of eco-design in addition to better environmental outcomes. It refers to creative design approaches for both goods and services that consider each stage of the product's lifecycle, from the gathering of raw materials through manufacture, distribution, and usage, to recycling, "reparability," and disposal. Pollutant reduction is crucial both throughout the production process and for the life of the product. Eco-design, however, is a flexible and developing idea that is best regarded as a method of design than as a designation for environmentally beneficial goods.

Incorporating a Life Cycle Analysis process for product design projects to be better environmental stewards and reduce your environmental footprint can be very beneficial. Moreover, employing a human-centered design approach that begins with the target audience and culminates in solutions catered to their needs.

This process results in better, safer, more pleasurable, long-lasting, more livable products, processes, and environments that usually sell better too. Things that have to be taken in consideration when choosing materials: making the product durable, by using quality materials that do not harm the environment; using materials that can be easily recycled; reducing the VOCs (volatile organic compounds).

Another important aspect of eco-design consists in improving the production processes through:

- producing design patterns that use up as much fabric as possible to reduce the ecological footprint of the product,
  - trying to utilize green, renewable energy, by choosing energy-efficient manufacturers and production processes,
  - identifying ways to reuse offcuts, scraps, and broken material to reduce trash going to landfill
- Energy savings, measurement, and verification.



If energy efficiency measures are to make a substantial contribution to environmental sustainability, real energy savings must be measured and verified in order to establish their short-and long-term impact.



Energy from renewable sources. Using more renewable energy, such as wind and solar power, is one strategy to reduce greenhouse gas emissions. In contrast to fossil fuels, which will run out one day, they give an infinite supply of energy. In addition, unlike the usage of fossil fuels in power plants, renewable energy creates little or no greenhouse emissions. Increasing our reliance on renewable energy sources reduces emissions while also lowering our need on coal, oil and gas imports.

## Conclusion

Sustainability is our world's last current opportunity of expanding and flourish, leaving humankind's damaging behaviors in the past. To be sustainable, a balance between economic progress, environmental conservation, and social well-being must be struck. Current demands must be addressed without compromising future generations. At its core, sustainability is simply ensuring that what we consume and how we use it now do not have a negative impact on future generations capacity to live peacefully on our earth.



A product's life cycle encompasses design, creation, manufacture, usage, and disposal. When a product undergoes these modifications, it has an influence on the environment by consuming natural resources such as water or energy, as well as producing waste, pollution, and greenhouse gas emissions.



The sustainable design prioritizes fairness and equality, recognizes the effects of actions and the interconnectivity of things, and actively engages in social concerns wherever possible.

As you may have guessed by now, sustainability is a manner of meeting our needs without endangering future generations' capacity to meet their own. And as such, we all should do our part in reaching sustainability and providing the future generations with the bright future they deserve.

Eco-design advocates for the use of environmentally friendly materials and the improvement of industrial processes. Eco-designers may boost the attraction of a product or service to customers, lessen its bad impacts on the environment, and optimize its financial return by establishing a circular system around it.

Eco-design, on the other hand, is a fluid and evolving concept that is better viewed as a design approach rather than a certification for ecologically beneficial items.



The significance of sustainable processes is in identifying and altering them to provide better results, such as lowering waste, reaching net-zero, conserving energy, boosting social welfare, or ensuring workplace safety. It demonstrates how the needs of the present can be satisfied without compromising those of future generations.

Crop rotation and the use of other environmentally friendly fertilizers and sowing techniques are encouraged by sustainable development. This will stop soil pollution from erosion.



It discourages the use of fossil fuels and encourages the use of greenhouse fuels. This will stop the climate from changing. Resources should be distributed to everyone in accordance with their requirements, according to sustainable development.



It supports the preservation and maintenance of our biodiversity. Additionally, it promotes the substitution of fossil fuels with clean energy sources like solar and wind energy. It promotes reforestation to replace any trees or other plants that have been cut down.

This helps to stop soil erosion and will contribute to a cleaner, more environmentally friendly future. Making wise use of water and preserving every last drop of it are equally important.

In terms of environmental needs, it may be claimed that sustainable development promotes stability. For the benefit of future generations, it makes the resources accessible. The preservation of the natural resources offered by the world is made possible through sustainable development. The environment won't be seriously harmed by the use of eco-friendly materials and technology to do this. In order to ensure that the resources we have for use by future generations do not go extinct, we must use them sustainably.

Therefore, redesigning of products and processes for sustainability is indispensable for our and the next generation's future.



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