

# Sustainable Studies

A close-up photograph of dark brown soil with patches of bright green moss or algae growing on it. The soil is rich and textured, with the green patches appearing as irregular, somewhat elongated shapes scattered across the surface. The lighting is natural, highlighting the granular texture of the soil and the vibrant color of the moss.

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# Introduction

“The best **design** explicitly acknowledges that you cannot disconnect the **form** from the **material** – the **material informs the form**” – **Jonathan Ive, Former Apple Design Director**

Keeping this ideology in mind, the research would be conducted accordingly in the master's project. Jonathan Ive's approach to designing a product is more emotional and abstract such as the laptops from Apple provided a premium and luxury feel since the body is made from aluminum. But the approach for this master's project will be very literal and in-depth.

The project will be broken into two different parts (i.e. **sustainable** aspect and **design** aspect).

In the sustainable aspect, there would be an immense amount of exploration and experiment conducted to discover a material that can:

- Dwell in the nature when discarded and be an incentive (such as manure and fertilizer). The images below showcase certain examples of consumer electronic products that can be dismantled and discarded to the nature. In the “**Image A**”, Pulp is a **paper based material** speaker that can be dismantled and disposed of to the nature which ends up functioning as a **fertilizer** for the soil. The same concept applies for “**Image B**” and “**Image C**”.



**Image A**



**Image B**



**Image C**

- **No harm** caused while **manufacturing** the material or the product. Most of the organic material (such as cloth, coconut fiber, wood dust, tapioca starch, etc) are either pressed, baked, woven or bonded as a solidified new material. Hence, these **manufacturing processes** cause no harm to the **environment**. The below images are certain examples of organic materials manufactured into a product itself. In the “**Image F**”, dry leaves are crushed and bonded with beeswax in order to solidify the material.



**Image D**

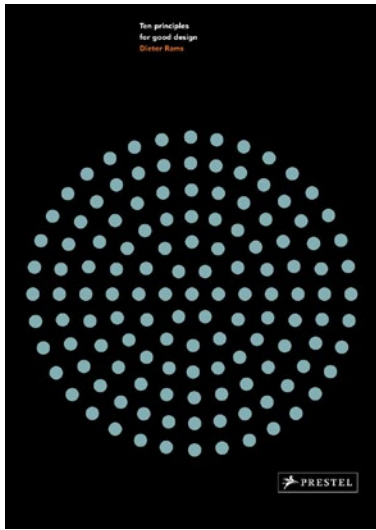


**Image E**

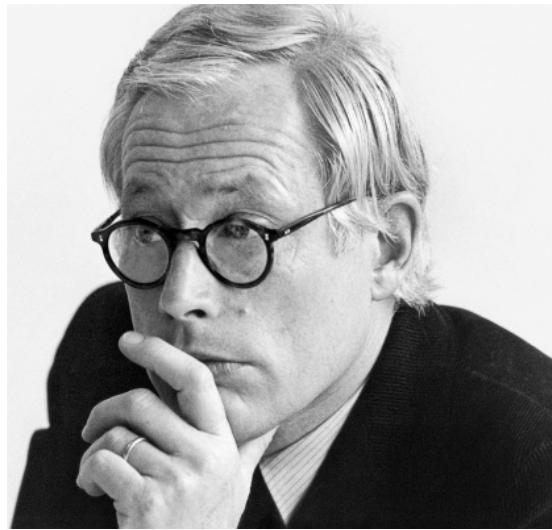


**Image F**

In the **design** aspect, there will be a learning curve and comprehension on **consumer electronic design**. This will be an unknown journey since there isn't any past experiences in this vertical, while there are experiences with other design verticals. It would be a great achievement personally if the design of the product consist of:



**10 Principles for Good Design**  
- Dieter Rams



**Dieter Rams**

- Highlighting the functionality of the product as an important emotional and logical requirement for the user. For this particular aspect, research and inspirations will be taken on how **Dieter Rams** has applied his **"10 principles for good designs"**. Where few principles for applying to the master's project. This book contains explanation on each principles and how the designer himself has applied it to his product.

- The interaction with the product should showcase an emotional experience like **"storytelling"**, where the user gets impacted with nostalgia and familiarity. Hence, there is a form of storytelling going on the user's head being reminded about an event or moment from the past. **Marc Newson** is the designer that often plays with psychology and user attraction while designing his product.



**Marc Newson**



**Embryo Chair**



There is another perspective of storytelling that can be included in the research of developing a product. For example, the image on the left showcases a lunchbox that are often used by school children, office workers, etc. There's always a story being told on what kind of dish is being made on the basis of which cutlery it's being packed with it. If it's just a fork then it might be a noodle dish, if it's just a spoon then it might be a rice dish and if there is no cutlery then it might be a grab-n-eat dish. Hence, there is a story about a clue to the most awaited and exciting moment for the day known as the "lunchtime".

# Existence & purpose of a **Product**

One of the basic purposes of any entity which tangibly exists is to rely, provide or be functional/utilized for another entity. This is a conclusive statement on Charles Darwin's life work as I observed him in Natural history Museum London. The reason for the visit to this specific museum was to understand why there is a history of any kind of knowledge or entity that has been preserved for decades and centuries together, and why they have been passed down through generations and being acknowledged. The concept of preservation to be continuing to exist is something that I would like to question about my product for the project.

Having sustainability as a design element would help the environment and humanity in many ways, but the word itself originates from organic synonyms. Which brings us to the timeline of life and death. There is an end to some organic elements but in the context of product durability it might be even



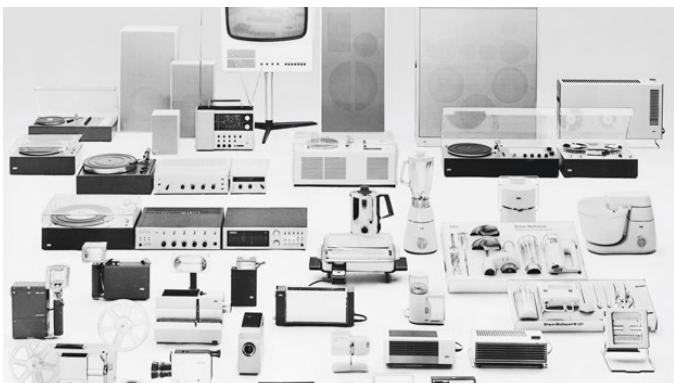
less time to continue itself. The controversy of designing a product that shall make the user re-experience its moments but shall not last longer than expected is possibly the key element for this project. Maybe the user does not have to preserve the product, maybe the product's existence doesn't necessarily have to be forgotten. What if there is a legacy carried on for the product where the user feels responsible about an entity. Since the project is focused on sustainability, the product can die to an incentive for the nature of the user's ethos.

This can also be a possibility to promote and educate a sustainable/green mindset because there is another entity that comes into the user's life who is held responsible for sustaining it. There is also a ping-pong effect created where the user was relying on the product to receive personal satisfaction, while post discarded processes the product will rely on the user to live on. Hence, during this process the user shall get insight on life, nature and sustainability while actively care taking a life.



## Mass Manufacturing and it's **Wastage**

Manufacturing processes of products nowadays mostly consisted of multiple parts that come to one piece. Depending on the form and structure of the product, it is usually quite hard to manufacture the product with lesser or simpler parts. Which leads to more making of molds for each part of the product that are normally injection molding or blow molding, etc. But in the case of mass manufacturing products, the molds are used repeatedly for a long period of time that may not lead to industrial wastage. The material used to manufacture products such as HDPE (High Density Polyethylene), PP (Polypropylene), LDPE (Low Density Polyethylene), Glass, Metal, etc. usually have a bi-product in the making process. Which are claimed to be an industrial waste since there is a small amount of material from one unite that cannot be used for the product, considering there's a mass manufacturing involved in this process there will be a large amount of bi-product waste that can cause landfills, ocean dumps, pollutions, etc.



The consumer electronic industry was influenced by the engineering and design of the "big three" (Philip, Braun, and Sony) during the 1950s and the 1970s. There were multiple iterations and exploration done on material exploration with plastic and metals. The former designer of Braun Dieter Rams had always welcomed all kinds of plastic and appealing the properties of synthetic for its functions and utility. There's no doubt that synthetic is one of the most versatile materials that can provide different forms and structures. Hence, these materials were encouraged during that time where none of the designers and engineers were to foresee the future ahead of landfills, ocean dumps and climate change. The discoveries made by the "big three" in terms of technology and user experience are great, but all they saw was satisfaction regardless of the criteria of population demands and mining material to scarcity. Just recently when the Corona-virus pandemic occurred, the whole world decided to go digital which led to rise in demand consumer electronic devices and shortage of silicon chips which are the processing brain of every electronic device today. For example, gold being a rare mineral made the Japan Olympics 2021 came up with a sustainable solution to recycle gold from used or thrown electronic devices to make medals. It took 72,000 tonnes of electronic waste to make around 5,000 gold, silver, and copper.

# Circular Economy

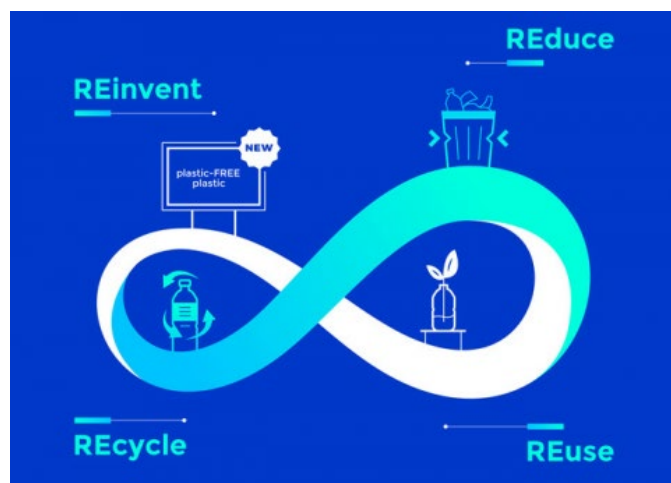
If the industry of today's standard can meet the concept of sustainability and manufacturing with organic material, then there would be a depletion in the amount of in-organic waste going to cause multiple environmental issues. Yet it is hard to invent or explore new organic materials and very difficult to deviate from the world's greed on plastic, metal, glass, etc. because of its durability, strength structure and CMF (colour, material and feel). The possibilities are endless with in-organic materials and limited with organic materials. Another problem with organic material is the availability itself is lesser compared to in-organic material. Apart from metal, plastic is mostly chemically made, and glass is developed from sand which is one of the most abundant materials available on this planet [14]. Hence, the scarcity is on the other side too.

But there is a way that might be able to conquer this problem which is the concept of circular economy. The circular economy is a **model of production and consumption**, which involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products for a longer period. Which is widely being used in the current times of industrial waste. The concept of circular economy has been promoted in various industries such as consumer electronic industry, textile industry, furniture industry etc. And they have been used in their own recycling process but comprising the method of circular economy. But this model hasn't been 100% introduced to the world, there are still manufacturers and engineers producing new material from scratch because of the demand in quality. As we know second time use of anything isn't the best output in terms

of durability and quality, the whites become yellow, and the black becomes brown. At some point the decaying process begins on every material in its second use. The best example that could explain such a process is recycling of paper, as paper gets further recycled it starts to lose its fiber and become more gray/paler. Hence, the last stage of a recycled paper is a newsprint sheet where the fibers are delicate and thinner.

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In theory, if the circular economy can be pushed in 100%, stop manufacturing new material and focus on the growth of the organic material to a level where it can be replaced with the existing in-organic material. There can be a chance to achieve a sustainable ecosystem, but that's only in theory. The education of sustainable mindset isn't promoted well enough for people to realize that [13] their demands of high quality in-organic product is being given birth to a planet killer. And with the large population of this planet having too many minds to convince may not be feasible.



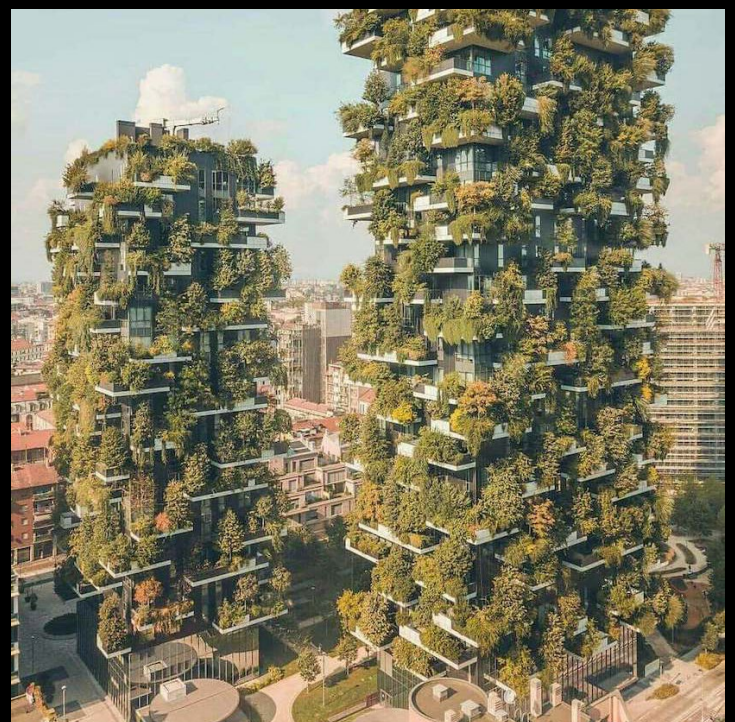
## “The Possible Future”

Michael Dimock, the president of Pew Research Center had documented research from a small portion of demographic changes. The research claims that as the generation changes, a cause/trend that was implemented by the previous generation becomes more concentrated and focused on the new generation. It's a small movement, with a big impact like the butterfly effect (a flap of a butterfly can lead to a tornado on the other side of the world). Hence this can be the advantage of implementing sustainable mindset education to the current generation which wouldn't create much of a change overall since they have been brought up with a materialistic kind of lifestyle, and the upcoming generation which will be braided in their mind to be aware about such situations.

Considering if this could be a solution, the techniques, ideology, and implementation would change drastically in the design industry where they focus on the user experience as well as their material exploration and its usage. In comparison to how it was back in the 1950s and 1970s, this will be a major difficulty for designers currently because there is control over the non-organic material where you can come with the rules and property of the material yourself. While for the organic material, studies and observation must be conducted over the material to be explored so that the designers can adapt according to the rule and properties of the organic material for designing.

If there was a world that succeeded with this ideology of promoting sustainable mindset education, one of the industries that would be fighting, and retaliating is the consumer electronic industry. Because if we notice most of the parts inside an electronic device on a PCB (Printed Circuit Board) consist of gold, copper, iron, silver, etc. The disadvantage of recycling any kind of metal would be the reduction of mass, quality, and quantity. Currently most of the electronic industry seeks to satisfy most customer needs with a digital approach and would indeed seek the most profit out of their business. Considering these scenarios in the “possible future”, the behavior of the electronic industry would change.

But all this is in theory because of the vast population and multiple demand with chaotic opinions, there wouldn't be an efficient success rate this type of execution.

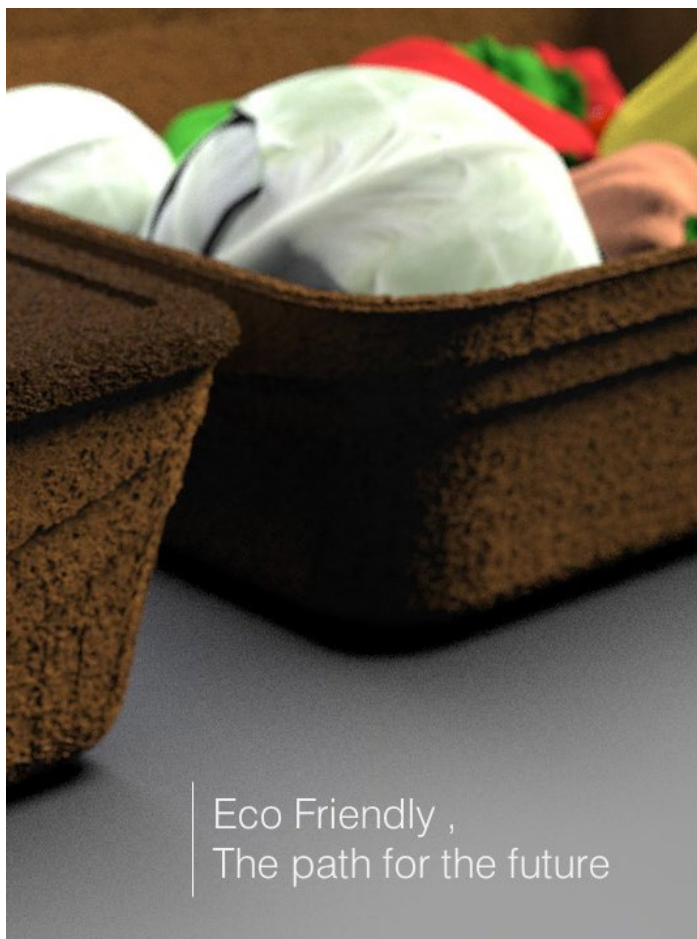




# The Coda

To conclude this research, there are many things to be taken under consideration when it comes to designing a sustainable product or material. There might be certain opinions about how minimalism can be a saturated design language or the effort to achieve such a thing can be exhausting, which isn't considered to be wrong. But Dieter Rams always mentioned and followed the ideology of "Less is Better", if this is to be applied in the concept of materialism things would be desaturated and more controlled.

Currently the market of products from multiple industries are crowded with choices, opportunities, and disruptions in the hands of the consumer. Hence, this will be the purpose of the product to continue to exist because there is always something better than the other in terms of brand image, durability, multi-functionality, costing, etc. Which is what I learnt that if there is a meaning behind designing/creating something, it shouldn't be just logical but also an emotional approach that is unique to every individual.



Eco Friendly ,  
The path for the future



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