

# **MOVECO Toolbox**

**Schools of thought**

***Blue economy***



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**DATE, PLACE,COUNTRY**

**NAME OF PRESENTER, ORGANIZATION**

# Aims of this tool

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**To understand** what does the term Blue Economy means

**To learn** how to apply the principles of Blue economy

**To define** Blue design guidelines



# Content of this tool

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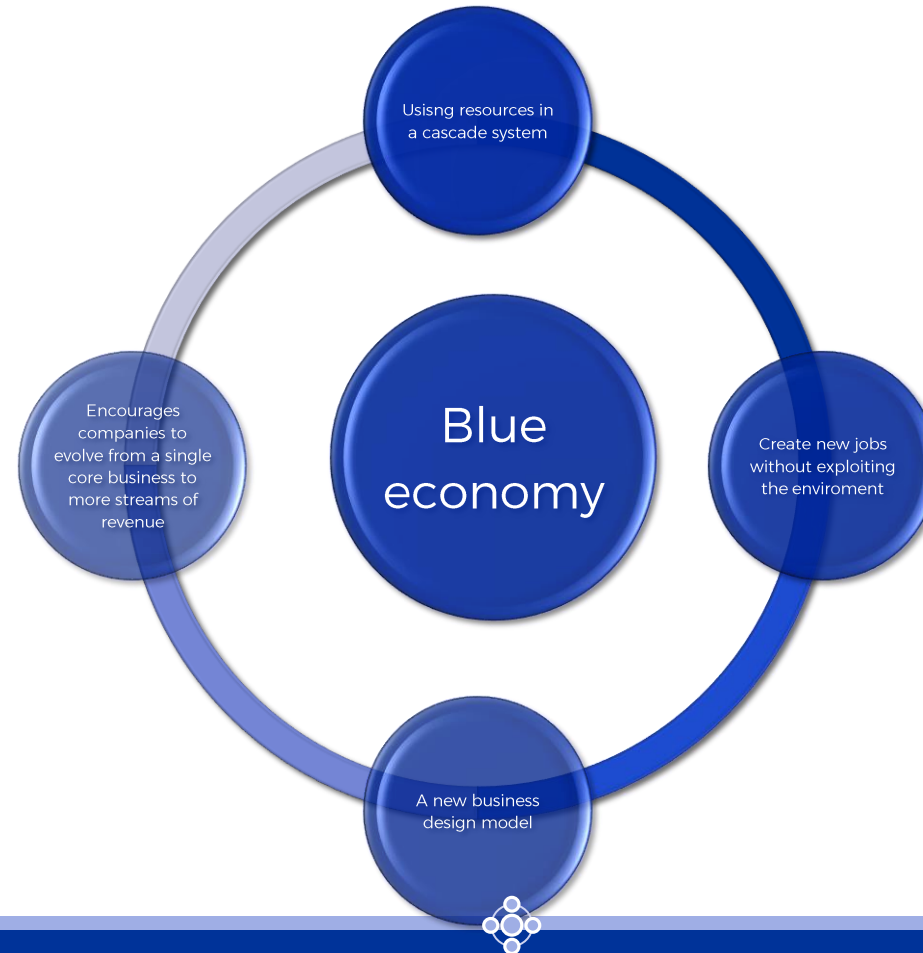
- Introduction to Blue Economy
- Content - General Overview
  - Definition
  - Principles of Blue Economy
  - Case studies: Stone paper and bluer hair dryer
  - Exercise
- Questions & Answers

# Blue Economy-definition

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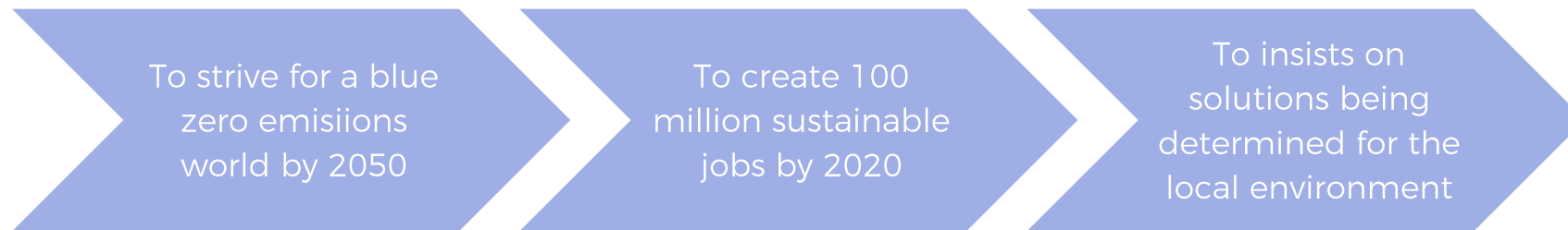
*“Respond to basic needs with what you have, introducing innovations inspired by nature, generating multiple benefits, including jobs and social capital, offering more with less and living in harmony with nature: This is the Blue Economy.” (Gunter Pauli, initiator of the Blue Economy)*

# What does the term “blue economy” means ?



# What is the vision of “blue economy” ?

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# Principles of blue economy

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1. Solutions are mainly based on physics and the major decision criteria are related to “pressure” and “temperature”
2. Investigate every physical resource to see if it is really necessary in the system; if not, it is better to reject it
3. A natural system follows the route “nutrients-matter-energy” (everything is transformed, no waste exists)
4. Nature has evolved from very few species to a wide biodiversity, therefore diversity is necessary for a sustainable equilibrium (which is opposed to the principle of standardization in the artificial systems)
5. According to the natural rules, the idea is to achieve more results with less resources and to interdict monopolization

# Principles of blue economy

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6. The gravitational force is the most important source of energy in nature, followed by solar energy
7. Water is the primary solvent in nature; no toxic compositions are used by nature in this respect
8. In nature innovations take place in every moment
9. Natural systems work with locally available resources
10. Natural systems evolve from sufficiency to abundance; nothing is consumed more than necessary
11. Natural systems have a non-linear and adaptive behaviour
12. Every natural system is biodegradable sooner or later



# Principles of blue economy

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- 13. In a natural system everything is connected to everything and the system evolves towards harmony and symbiosis
- 14. Water, air, and soil are considered commons in nature, they should be free of any taxation and are in abundance
- 15. Natural processes generate multiple positive effects
- 16. Risk sharing is a characteristic of natural systems

# Principles of Blue economy

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- 17. Natural systems are efficient, maximizing the results from the use of available material and energy
- 18. In nature, all individual elements search for optimum
- 19. In nature, negative factors are converted into positive factors and problems are converted into opportunities
- 20. A natural system tends towards economies of scope; thus, any natural innovation generates benefits for all.

# Blue economy Blue design

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- ↳ Blue-design is seen as an engineering approach that supports a sustainable, healthy and cheap economy, capable to offer more with less, including the opportunity to generate more jobs and social capital.
- ↳ Blue-design is applicable to any industry (including services).
- ↳ Blue-design looks for high quality and lower cost price solutions, which additionally inject money back into the local economies.

# Blue-design philosophy

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a “gray” component **is not replaced** by a “green” component, but rather by a novel system that does not rely on that component.

# Blue design guidelines

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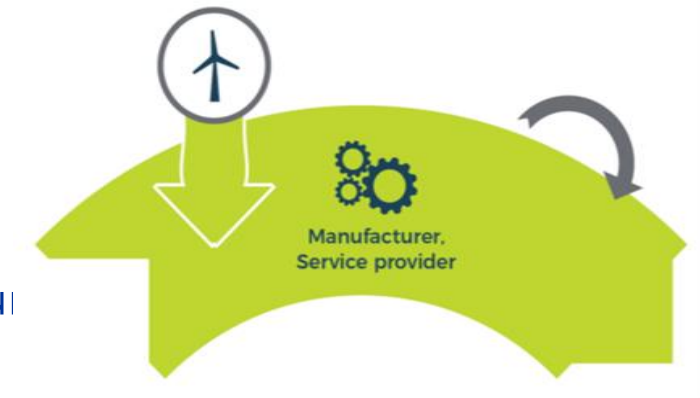
- Design the product in a way that will not affect comfort and mood
- Minimize the variety and quantity of resources used in the solution
- Try to solve a new problem by means of second-hand, used products
- Create solutions with leveraging and diversification effects
- Conceive the solution such as to be easy, fast and cost-effective scalable
- Conceive a highly adaptive solution (e.g. plug-and-play reconfigurable intelligent units)
- Design a solution where all components are interconnected



# Blue design guidelines

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- Search the optimum for every individual element in the system
- Transform “lemon into lemonade”
- Do more functions with less components
- Use gravity and/or solar energy as driving sources
- Avoid the use of toxic materials and exploit rapid renewable natural resources
- Force the other systems to become “blue”



# Case study: stone paper

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After 17 years of work, William Liang and his family succeeded in the industrialization of stone paper. In 2016 the total output capacity is 687,000 tons.

Instead of wood, stone paper makes use of limestone ( $\text{CaCO}_3$ ) obtained from existing limestone quarries. The limestone is then pulverised into a fine white chalk powder and mixed with a small amount of high-density polyethylene (HDPE)

The production of stone paper has been claimed to require less energy, to be less water intensive and be free of chemicals. As calcium carbonate is readily available as waste in limestone quarries, the use of this waste material rather than using up raw materials; trees, has made stone paper seem all the more favourable than pulp paper.

# Exercise 1

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Use blue economy principles to find strong and weak points in your company.

Working in small groups, based on a production flow identified by each group, applying the blue economy principles, identify whether the waste resulting from the production process of your company can become raw material for other products or create new jobs. Then, each group will perform a SWOT-analysis.



Exercise 1- Use blue economy principles to find strong and weak points in your company.



# Exercise 2

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Using the Blue-design principles and guidelines, try to design a new product

## Design :

- Define material flows:
- Choose one or more materials in your product.
- Design the product in a way that will not affect comfort and mood.
- Create solutions with leveraging and diversification effects.
- Do more functions with less components.
- Do not design the “blue” solution in isolation; make it connected with other systems of the ecosystem and share the risk with the other systems.
- Design the solution using at maximum possible local resources (materials, technologies, etc.)

# Exercise 2

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## Manufacture :

- Use gravity and/or solar energy as driving sources.
- Avoid the use of toxic materials and exploit rapid renewable natural materials.
- Manufacture the product considering biodegradable materials (where natural materials are not available/accessible, not technically possible or fewer).
- Conceive the solution of manufacture such as to make easy replaceable any element, when a new one, more advanced is available.
- Conceive the solution such as to be easy, fast and cost-effective scalable.

## Use :

- Does your product can be connected with other systems of the ecosystem and share the risk with the other systems?
- Can the product be down - or upcycled and for what cost?

## End of life:

Make a list of what kind of materials can be recycled

# Glossary

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For Glossary you need to check any module in the handbook

# Contact

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Contact details of the host organization (= MOVECO Partner)

This training was delivered by

Contact details of trainer