





# Digital Transformation, Digitalization and Climate Change.



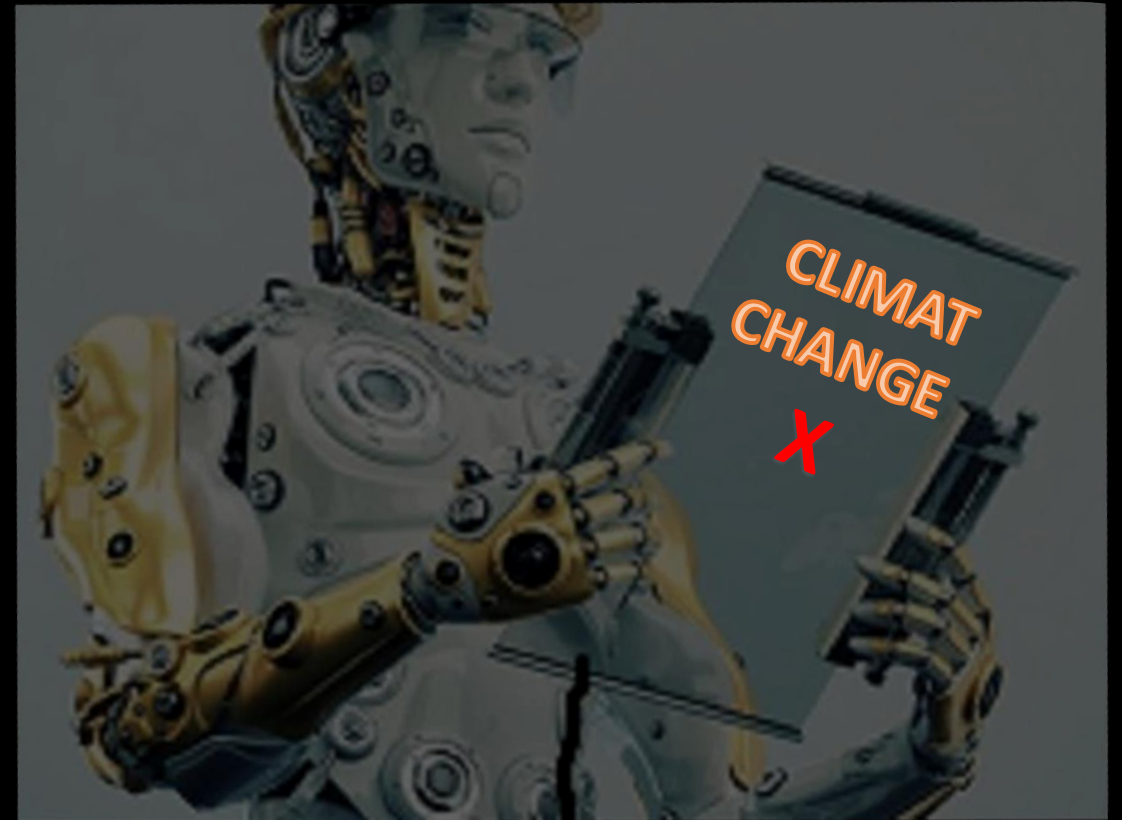
By. Capt. Eugen-Henning Adami

[cyfos@cyfos.org](mailto:cyfos@cyfos.org)

14<sup>th</sup> September, 2022

**DIGITAL  
TRANSFORMATION  
How in Shipping?**

**They missed the  
CLIMAT CHANGE!**

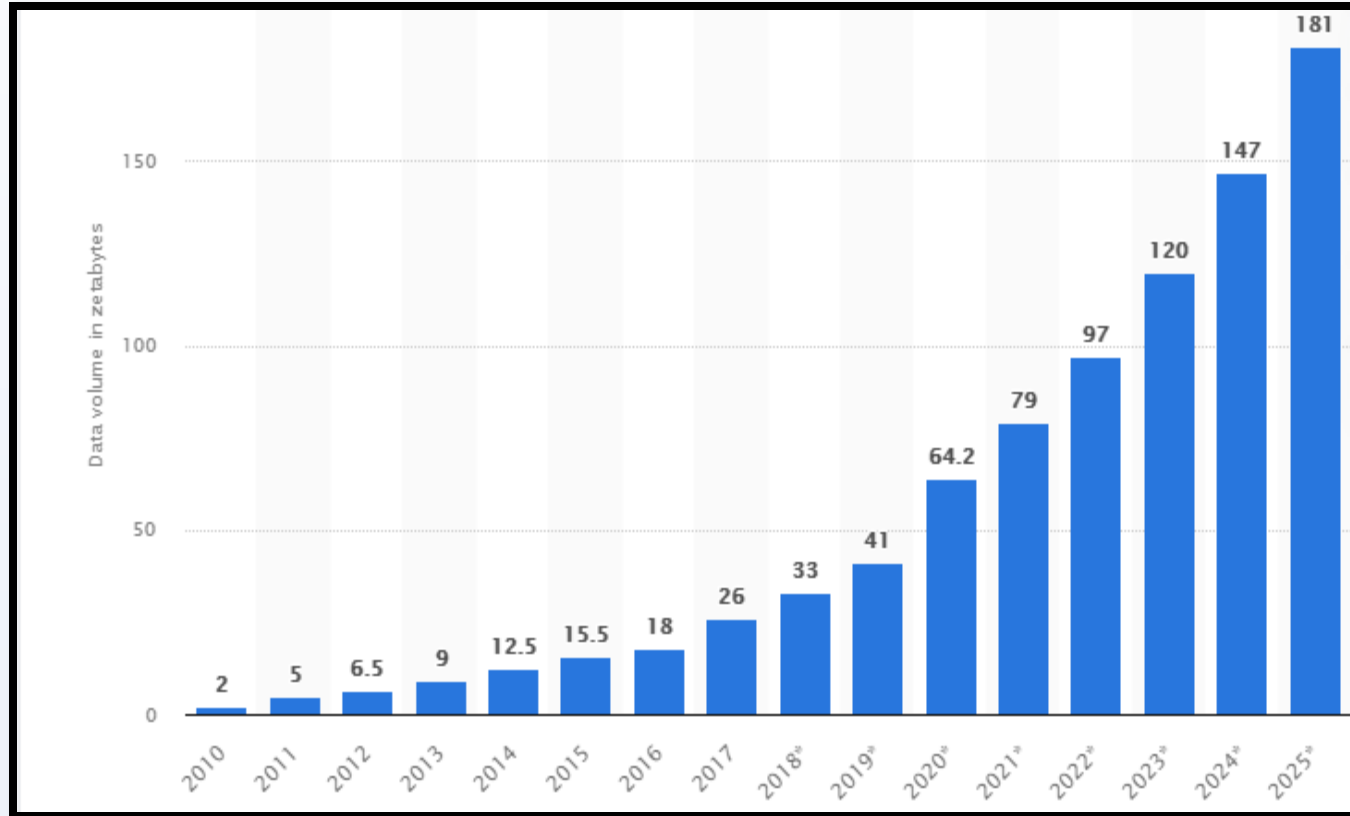


# Digital transformation & Digitization definitions

- **Digital transformation** is the integration of digital technology into all areas of a business, fundamentally changing how you operate and deliver value to customers.
- It's also a cultural change that requires organizations to continually challenge the status quo, experiment, and get comfortable with failure.
- **Digitization** is the process of converting information into a **digital format**, in which the information is organized into bits. The result is the representation of an object, image, sound, document or signal by generating a series of numbers that describe a discrete set of points or samples.

# Increase of data volume

Volume of data/information created, captured, copied, and consumed worldwide from 2010 to 2025



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- Every day, **306.4 billion emails** are sent, and 500 million Tweets are made.
- **4,500 GB** of data are needed for just for one hour of autonomous car driving.
- The **Data Centre** services market was valued at **\$48.9 billion** in 2020. It is speculated that by 2026 this figure will **increase to \$105.6 billion**.

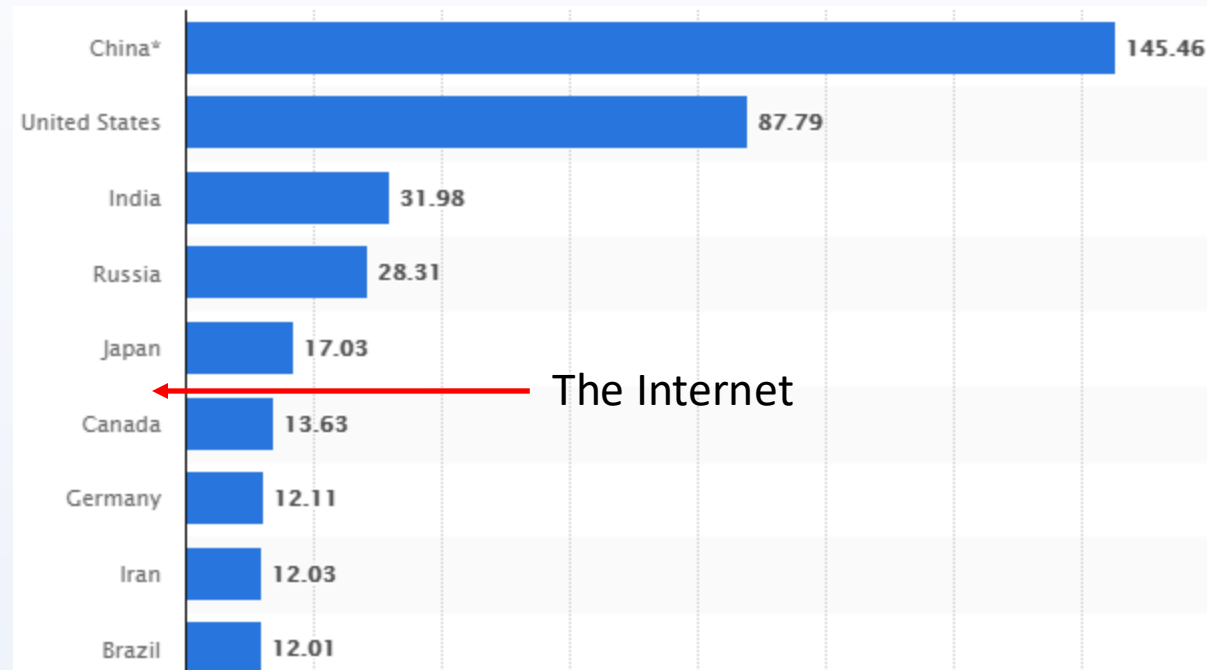
# Electricity needed to run a crypto currency

- According to the Cambridge Center for Alternative Finance (CCAF), the Bitcoin consumes around 110 Terawatt Hours per year.
- 0.55% of global electricity production, or roughly equivalent to the annual energy consumption of Sweden.



# Energy needs to run the internet

If the internet would be country, where would it rank energy wise?



(in exajoules)

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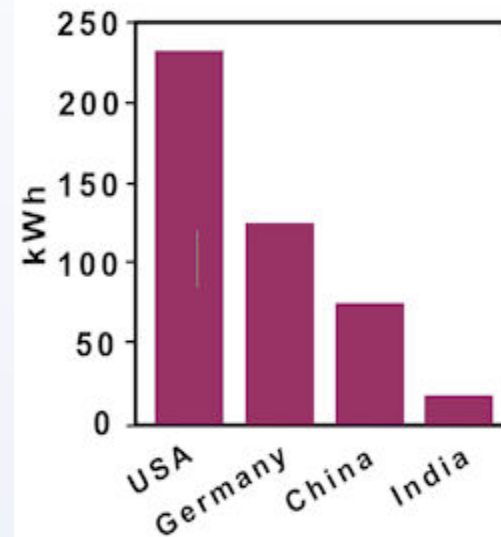
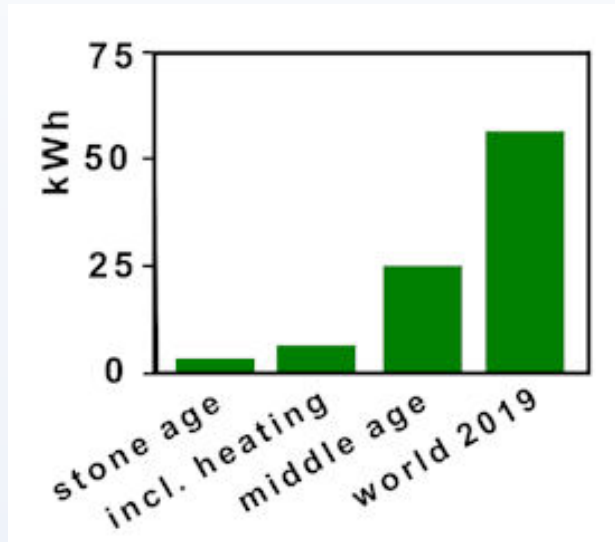
- The energy demand of the internet is expected to increase to **20%** of the world energy demand by **2025**.

- Let's think.  
How much energy can you save without changing your lifestyle ?

# Inequality of energy usage

The daily world average energy consumption is 58 kWh per person.

19 kWh in India but 219 kWh in USA.



- Imagine what will happen when India and China reach the daily energy demand of America.
- Imagine our world population increases to 10 billion, as expected, and all countries advance to match the present consumption of US, the world energy demand will increase nearly **sixfold**.

# Digital dictatorship



**DATA driven versa decision making :**

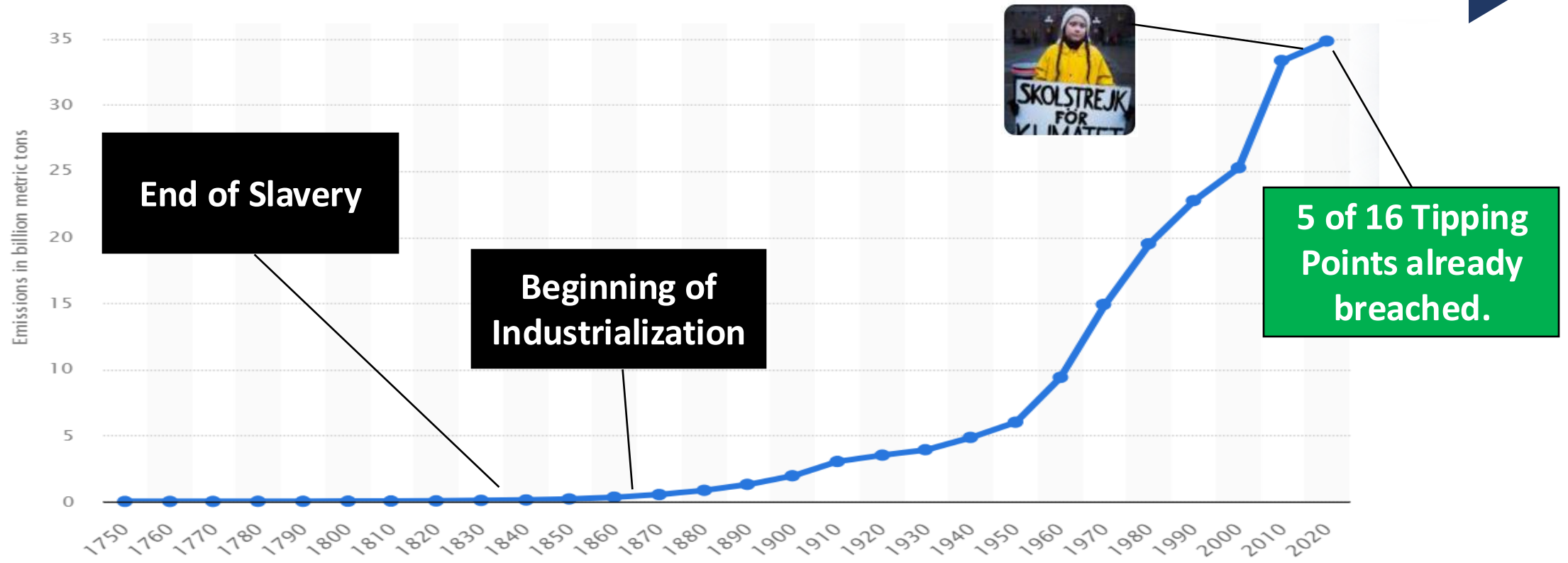
**Control Center to Chief Engineer:**  
“Your exhaust gas is too high.  
Increase the seawater cooling”.

**Chief Engineer to Control Center:**  
“Sorry not possible. The vessel is  
grounded.”

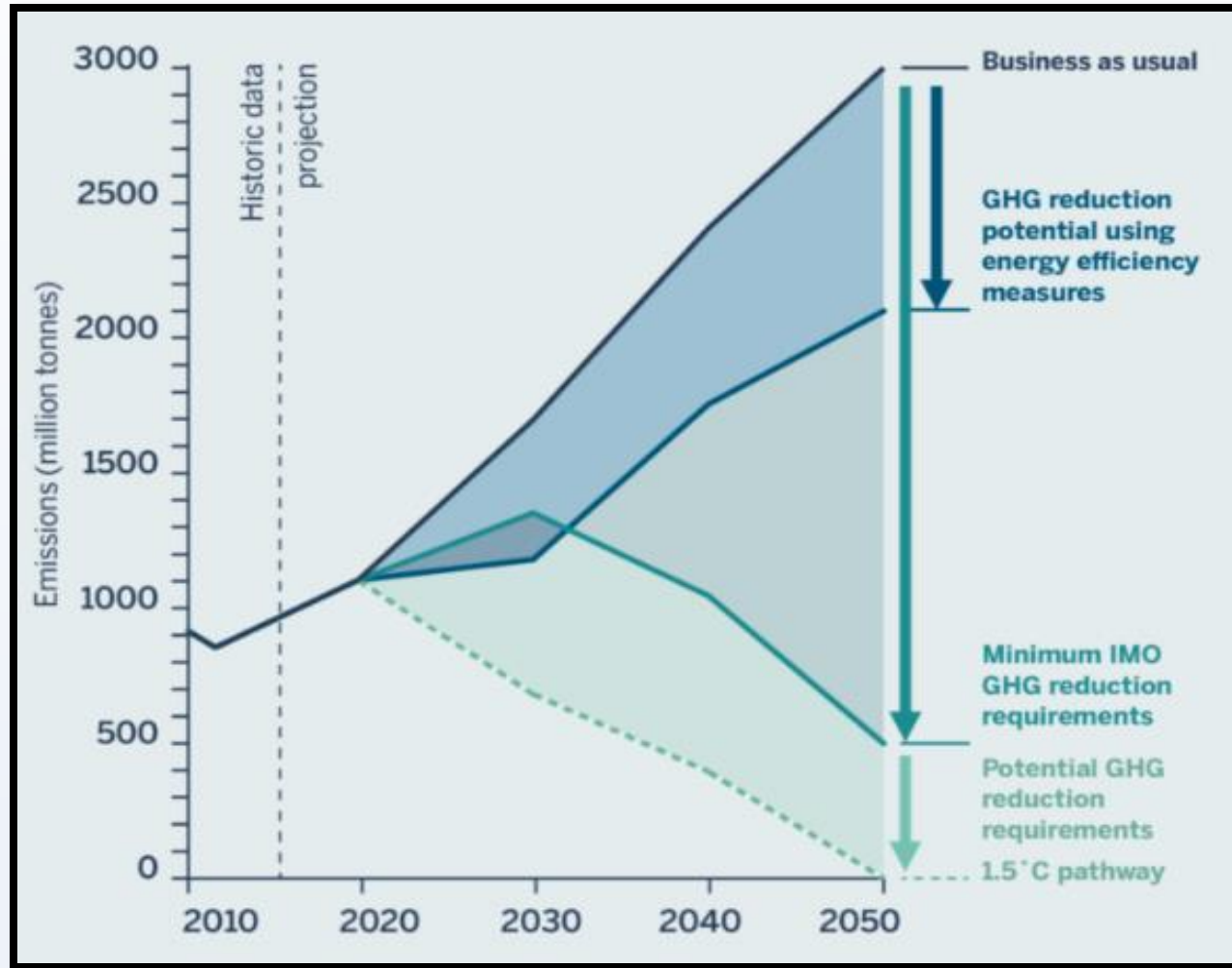
**The danger** that comes to us from fake news and **digital dictatorship.**

Yuval Noah Harari

# CO2 Emissions increase year by year



# Maritime Emissions, AI, R&D, and our Solutions



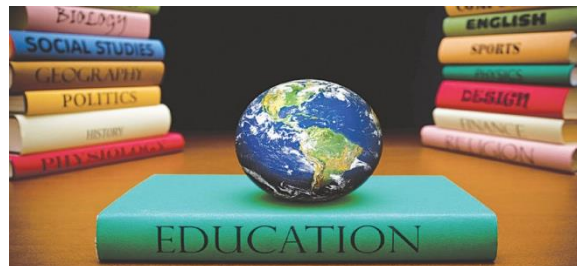
**AI reveals :**  
***"Humans will miss their targets and need in 2022" :***

- **Alternative Fuels**
- **Regulations**
- **Infrastructure**
- **Training**

**20-30 Year Lifespan of ships**

Shipping  
needs new  
ways and  
collaboration  
to transform.

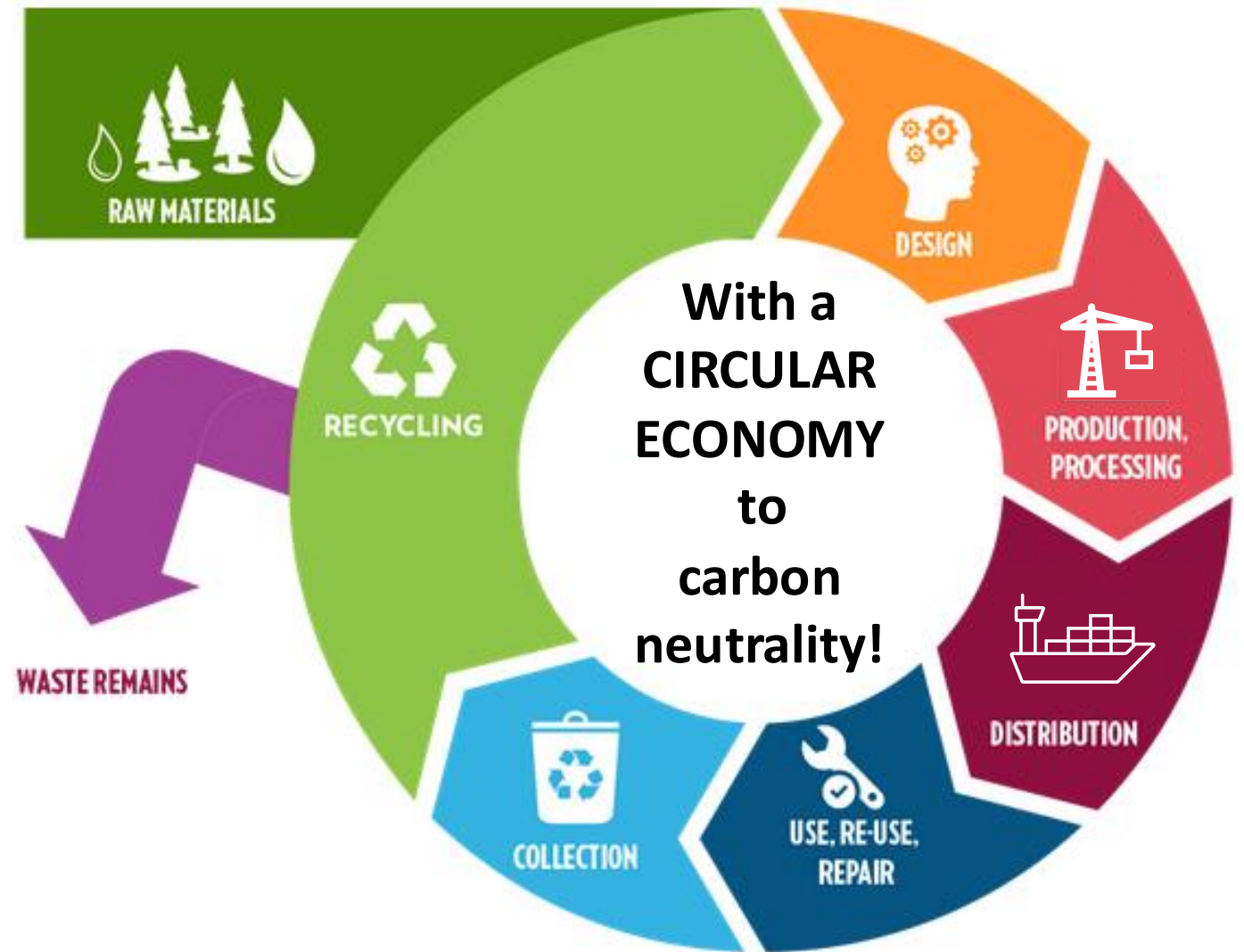
Help to get it  
right!



Society  
needs new  
ways  
to transform.

Shipping matters.  
Oceans are the  
cradle of life.

Harmonize Technology with Nature.



# Conclusion:

- Technology does not exist to reverse the climate change.**
- More research is needed to develop alternative fuels.**
- Maritime training must be developed.**
- Infrastructure (scalable) is needed for handling alternative fuels.**
- New technologies must consider total energy balance.**
- Shipping solutions should not be only task driven.**
- Society should adopt circular economies.**



THANK YOU