



# MinFuture

## Workpackage 3

Indicators for raw materials

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# Indicators

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To transform the **socio-economic metabolism** in a desired direction.

- complex
- Poorly understood
- Indicators overly simplify
- Direction not clearly defined
- Diverging interests

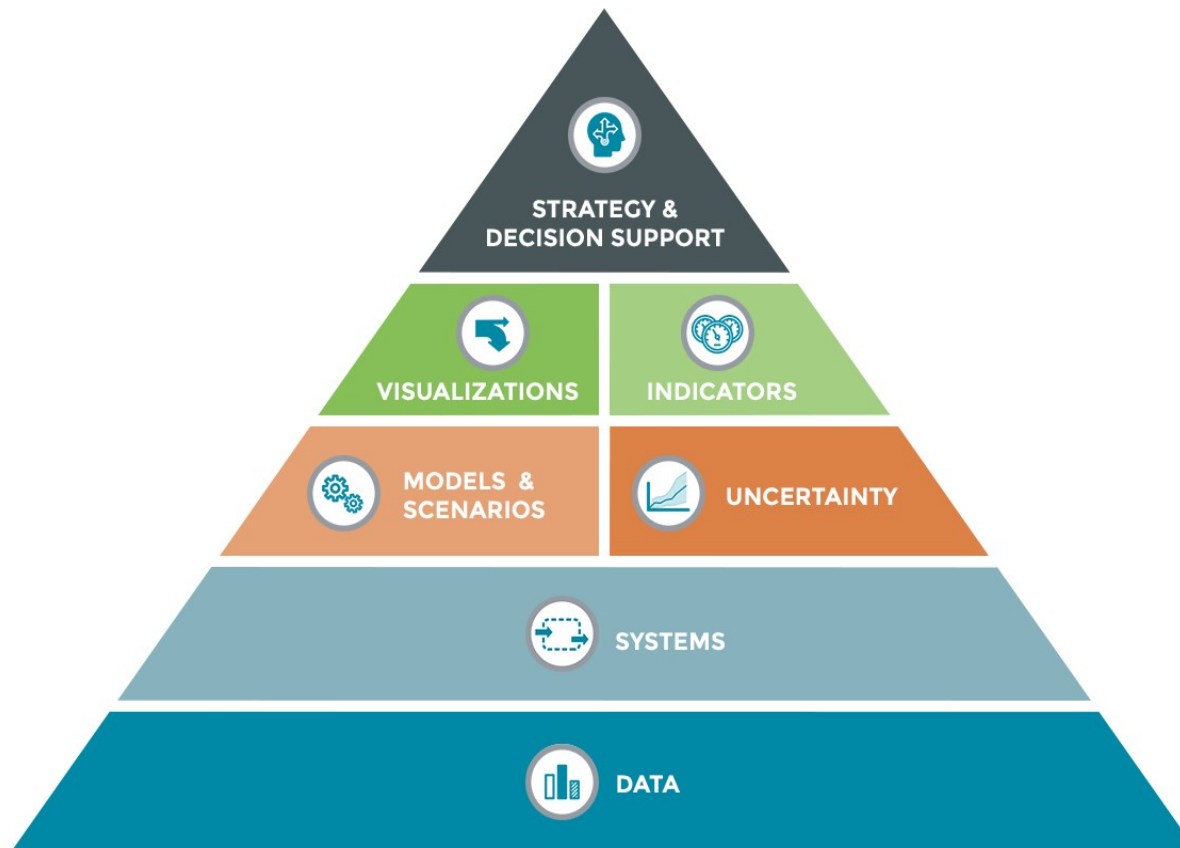
# Indicators

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Answer policy-relevant questions that address the systemic nature of material cycles, including their linkages with other materials, with energy use and with emissions.

# Indicators



## Discussion- team work

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Main question to address:

**How can indicators inform policy from a systems perspective?**

25 participants, split into five groups (4-5 people in each group)

Each group has: excel characterization scheme applied to all indicators the partners have analyzed and assessed, and your own expertise and knowledge!

# Characterization scheme



- Indicator, Description, Units
- Life Cycle Stage
- Classification / Cluster
- Production: Use: determines in-use urban stock and its location
- End-of-life (EoL): estimates EoL stock and its location
- Recycling: determines EoL-recycling rate
- Future: estimates future extraction rates and demand
- Criticality
- Energy use
- Environmental impacts
- Social impacts

## Activity: 15 min



EU policy: Many materials used by the EU industry come from secondary or recycled sources. Producing goods **using recycled materials** is often much **less energy** intensive than manufacturing goods from virgin materials.

Recycling can thus **reduce production costs** and **carbon emissions**. Even though it cannot meet the EU industry's entire demand for raw materials, recycling has a great potential to **improve Europe's resource efficiency**.

Using **lower quantities of materials** in **product design** can also play a part in **improving access** to raw materials in Europe.

# Questions

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- What is the **system definition** that should be considered for this policy?
- What indicators** can we use to inform/monitor about these targets?
- Do these indicators do a **good job representing the system**?
- How would you design/improve **indicators** to **better represent** the entire system so we don't have fragmented information?
- What **options** do consumers have to reach policy targets?  
Reflect on how goals can be reached as a means to also identify side effects of policy.



## Activity: 15 min

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The EU is highly dependent on imports of “high-tech” metals such as cobalt, platinum, rare earths, and titanium. Though often needed only in tiny quantities, these metals are increasingly essential to the development of technologically sophisticated products in view of the growing number of their functionalities.

The EU will not master the shift towards sustainable production and environmental-friendly products without such high tech metals. These metals play a critical role in the development of innovative “environmental technologies” for boosting energy efficiency and reducing greenhouse gas emissions.

The EU seeks **reliable and unhindered access to critical metals** for development of new technologies.

## Activity: 15 min

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The EU is dependent on the imports of many raw materials. Even though the potential for mining and quarrying in Europe is strong, the land area available for extraction is constantly decreasing.

To **facilitate the sustainable supply of raw materials from European deposits**, the European Commission aims to secure the right **legal and regulatory conditions**.