MinFuture

Introduction to the workshop

Consortium meeting, Nottingham 30.11.2017

Daniel Müller

30/11/2017

MinFuture is funded by the Horizon 2020 Framework Programme of the European Union under Grant Agreement no. 730330. The contents of this document are the sole responsibility of MinFuture and can in no way be taken to reflect the views of the European Union.

Agenda for workshop with stakeholders

Part 1

09:00-09:30 Welcome and introduction to MinFuture (plenum)

09:30-10:45 4 dimensions and needs for refining (plenum)
- 4 dimensions – current status and limitations: example Al
- Dimension "international trade": example Al
- Reporting and information flows: example Norway
- Initial design principles for placing data into system context

10:45-11:00 Break

11:00-12:00 Case studies for design principles (parallel workshop)
- Cobalt
- Construction minerals

12:00-12:30 Discussion of case studies (plenum)

12:30-13:30 Group photo, lunch, and BGS Geological Walk

Agenda for workshop with stakeholders

Part 2

12:30-14:15 Implementation of 4D refining (plenum)
benefits, options, barriers, cases & illustrations

14:15-14:30 Introduction to WP3

14:30-15:30 MFA and indicators workshop (i)
- EC Circular Economy indicators (Lie Heymans, DG Grow)
- Phosphorus case study (Helmut Rechberger, TU Wien)
- Discussion

15:30-15:45 Break

15:45-17:30 MFA and indicators workshop (ii)
- MFA indicators (Gara Villalba, UAB)
- Practical session on MFA indicators
- Discussion

17:30-17:45 Wrap up

Challenges and objectives

Challenges

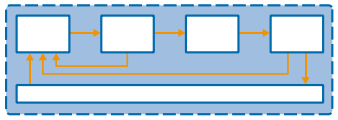
1. Lack of robust **maps** and **forecasting tools** of the physical economy hamper effective strategy development
2. Governments tend to monitor isolated flows, not systems → fragmented information
3. Complexity of system

World map from 1565

Objectives

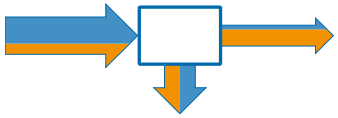
1. Develop a proof of concept for a “Google Maps” of the global physical economy in 4 dimensions (stages, international trade, layers, time)
2. Involve governments and industry in the development and implementation of a common methodology
3. Test the feasibility and usefulness of this methodology and identify relevant barriers

4 dimensions

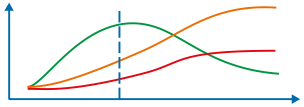


1. **Stages**
   Integrate primary and secondary resources

2. **Trade**
   Integrate international trade with production and consumption for analyzing global supply chains

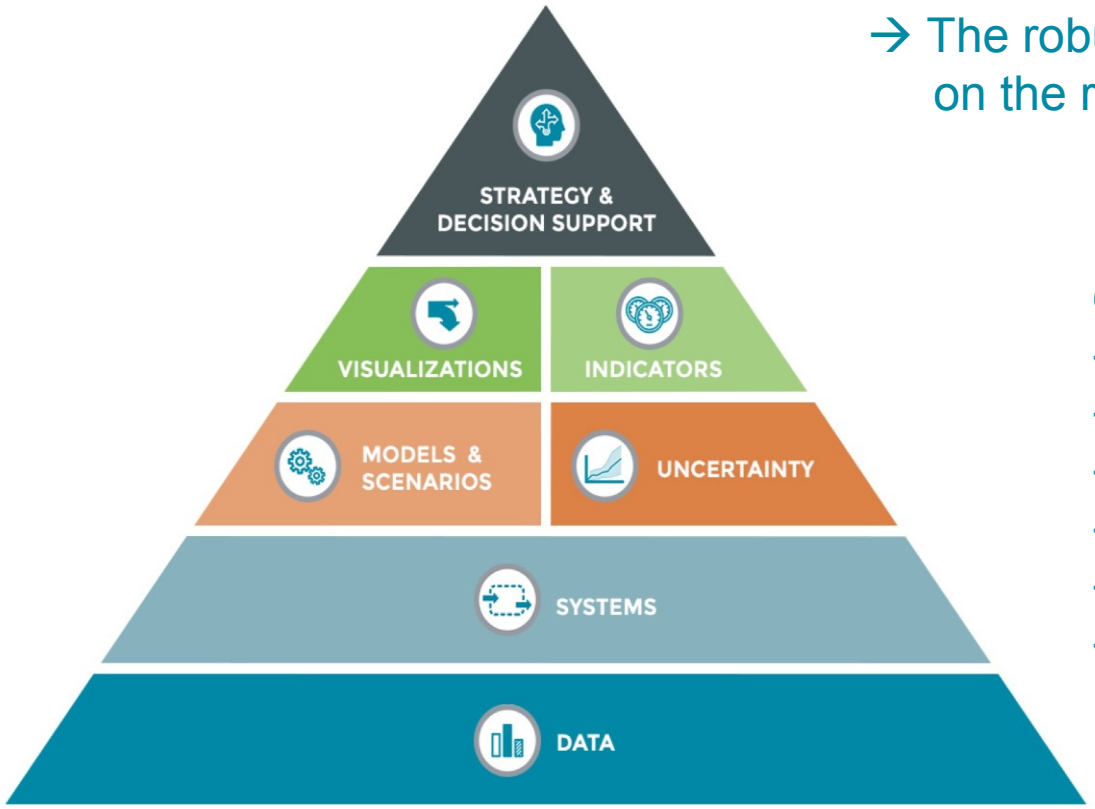


3. **Layers (linkages of materials, energy, value)**
   Capture linkages of metals at all stages



4. **Time**
   Historical development and future scenarios

Conceptual framework of MinFuture



Hierarchy of MFA components

Hierarchical structure of MFA components

→ The robustness of every layer depends on the robustness of the layers below

Demonstrate how this concept can be applied to:

- Material cycles
- Uncertainty analysis
- Model and scenario development
- Indicators
- Visualization
- Strategy and decision support

Motivation and purpose of this workshop

Problem:
Fragmentation of information by material, stage in supply chain, and country
→ different “languages” between different professionals

Solution:
Develop a common language that allows for a **translation** between these languages
→ Bring together MFA specialists and experts in key areas