

Next steps in MFA

The PANORAMA project

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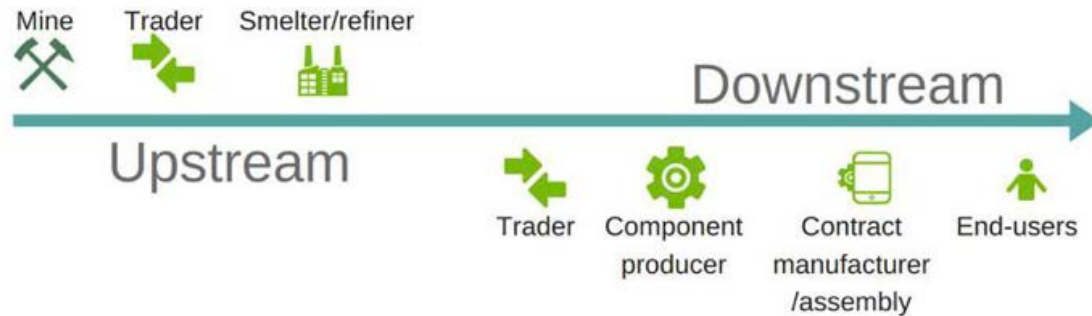


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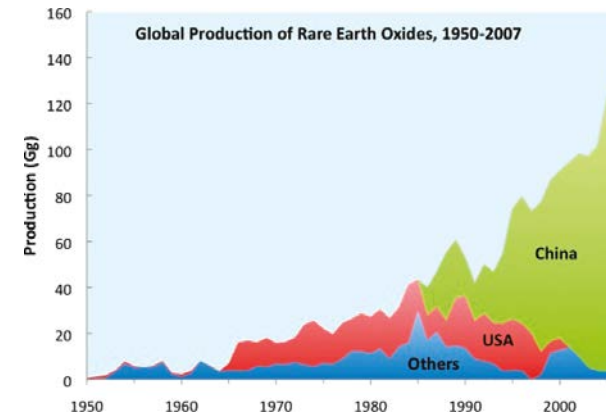


Need to better grasp element flows

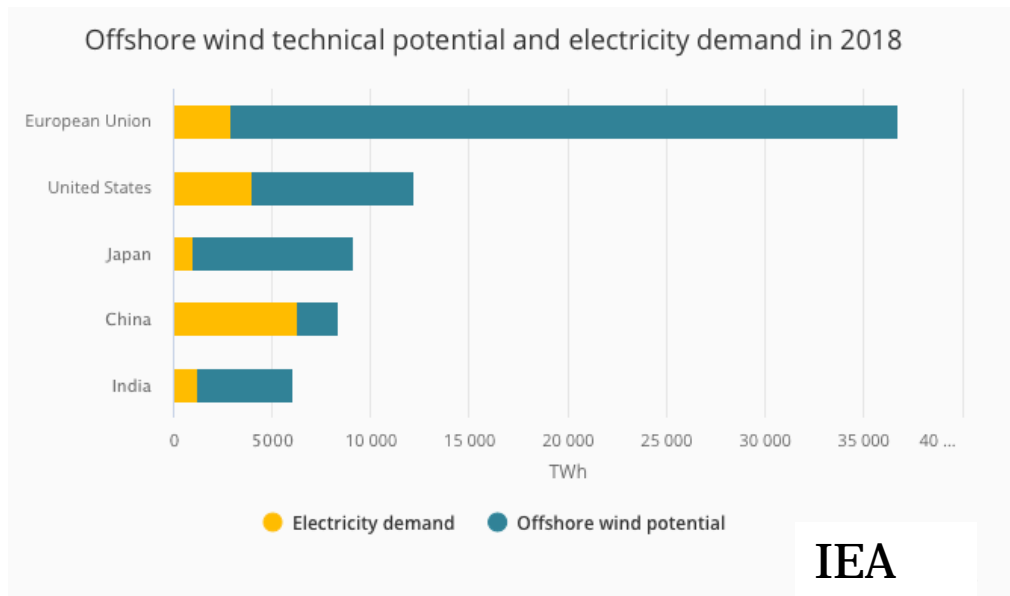
1. Resilient and responsible sourcing



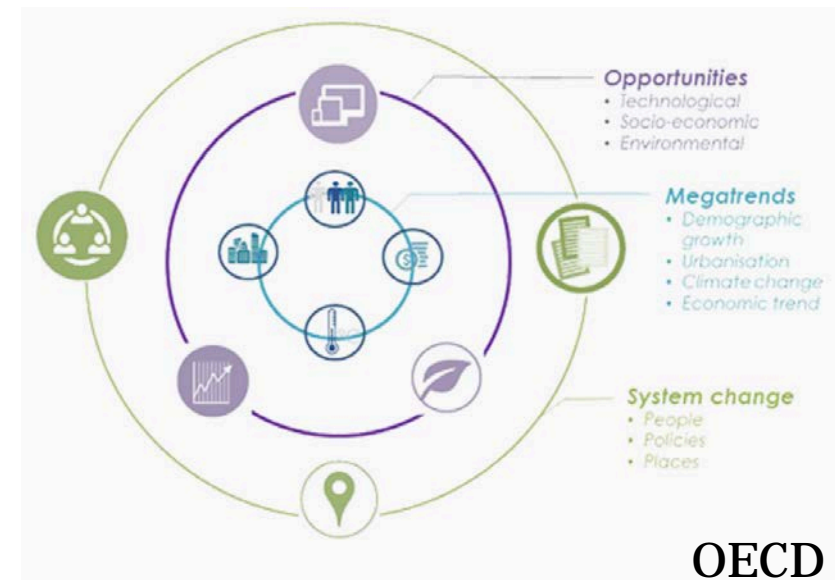
3. Supply Crisis



1. Energy transition



4. Capacity for secondary sourcing



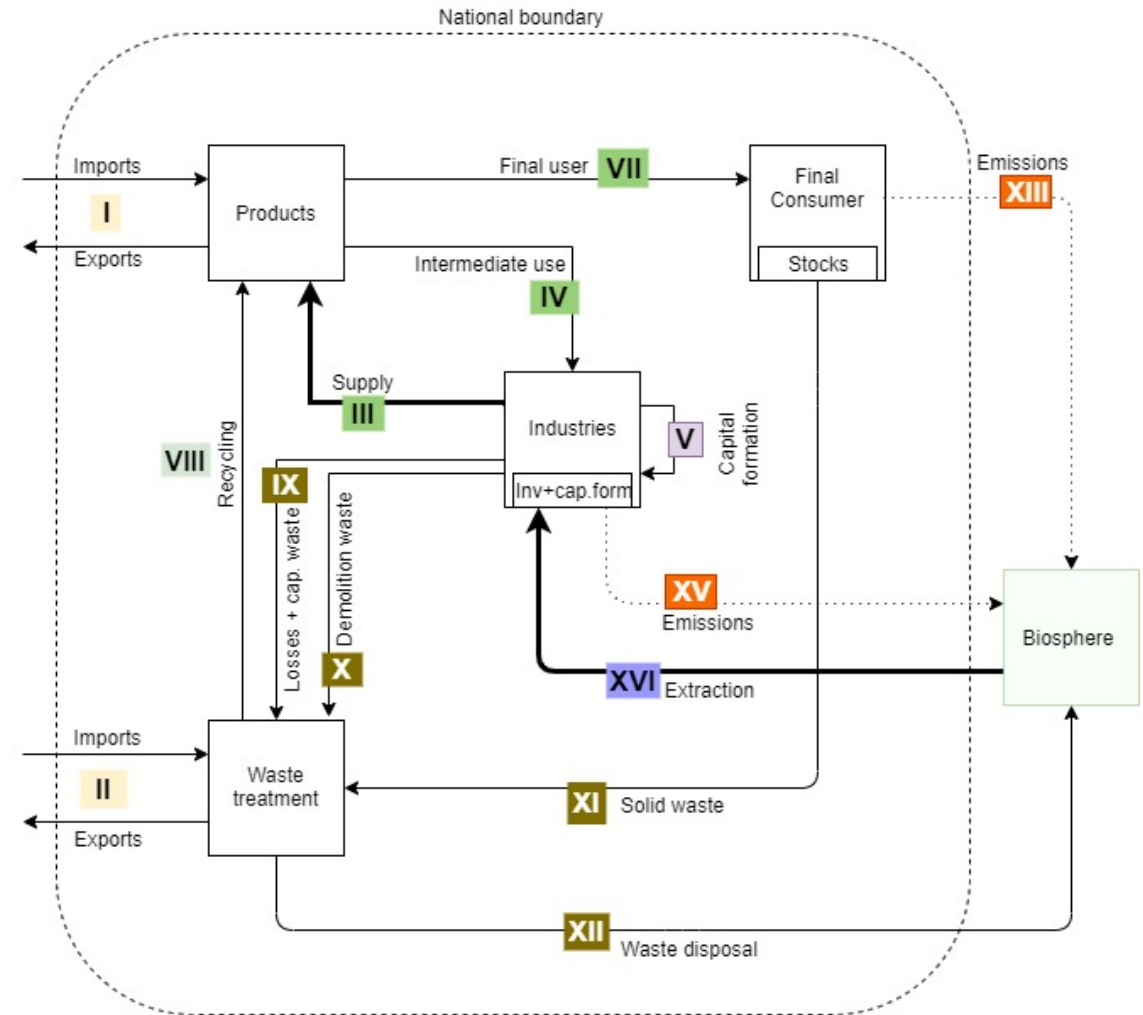
Building blocks

Project example	Activity/Result
EU Criticality list	Assessment of supply risk & economic importance
H2020 Eurare	Knowledge system on REE
H2020 Minerals4EU	Knowledge system on primary and secondary materials
H2020 PROSUM	Urban mining database (cars, batteries, EEE)
H2020 MICA	Minerals knowledge platform
FP7 CREEA, DESIRE	Detailed Global Physical & Economic Input Output database
World Bank	“What a waste” reports
Prodcom	Production of manufactured goods
Comtrade (BACI)	Global commodity trade
EXIOBASE	Global hybrid input-output table
Global Material Flows Database (IRP)	Global material extraction
Other: JRC and Eurostat Datacenters on Natural Resources; various other major EU projects; a large number of MFA studies done in the EU, Japan, US	

PANORAMA

Physical Accounts Of RAW MAterial stock and flow Information Service

- Look at the global supply chain
- Provide a physical overview of how materials and elements move throughout the economy



Bold flows include original composition data
Dotted flows will not be considered in the project

What are the steps?

1. Data harmonization

- CPC, HS6, NACE1, NACE2
- Few national SUTs and they report in different categories
- → Solve data inconsistencies using conversion tables

2. Data balancing

- Ensure that total mass is conserved
- Ensure that elemental mass is conserved
- Take into account changes in stock additions and waste accounts

3. Procedure

- Try for 1-2 materials
- Try for 1 region and ROW
- Once harmonization and balancing are established at this scale, we can go to the global scale.

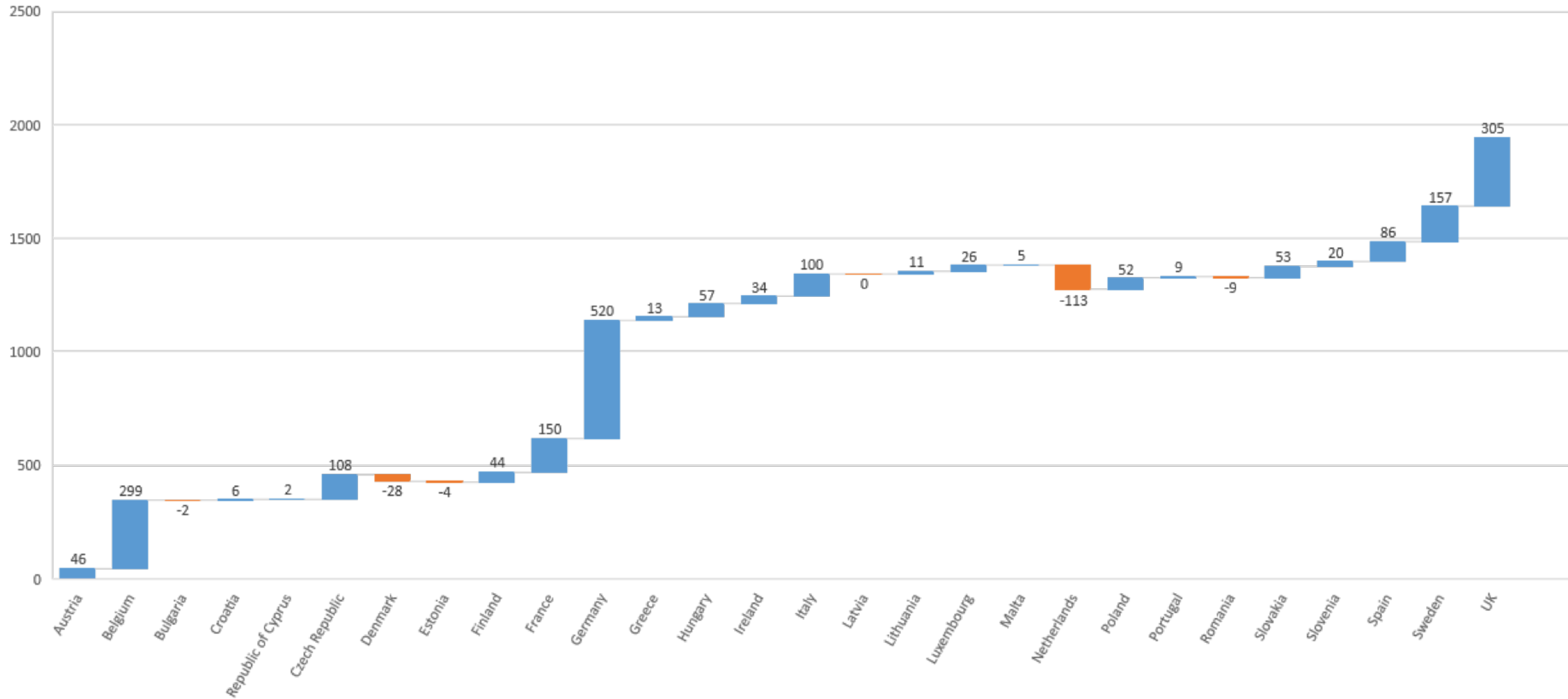
Not that simple!

EX_code	Description	Unit	Production Exiobase	Production (Prodcom)	Import Exiobase	Imports (BACI)
C_CHEM	Chemicals nec	tonnes	826290	150907.6	746799	1706637
C_COPO	Copper ores and concentrates	tonnes	0	0.0	1	0
C_COPP	Copper products	tonnes	1	1.9	5465	36065
C_ELMA	Electrical machinery and apparatus n.e.c.	tonnes	114009	174.8	312567	267401
C_FABM	Fabricated metal products; except machinery and equipment	tonnes	24073	7861.1	509777	721207
C_FURN	Furniture; other manufactured goods n.e.c.	tonnes	63729	442.4	186523	484366
C_MACH	Machinery and equipment n.e.c.	tonnes	106995	925.2	563060	706670
C_MEIN	Medical; precision and optical instruments; watches and clocks	tonnes	24498	166.7	77134	37747
C_MOTO	Motor vehicles; trailers and semi-trailers	Meuro	1330	296.4	3294	608954
C_OFMA	Office machinery and computers	tonnes	2642	0.6	46683	30837
C_OTRE	Other transport equipment	Meuro	2135	6.0	2249	487041
C_PFER	P- and other fertiliser	tonnes	152872	83.2	214844	359211
C_RATV	Radio; television and communication equipment and apparatus	tonnes	14043	29.1	59100	66923

Copper accumulation in EU in 2016 (kT)

Based on extraction (SERI), trade (Comtrade), and compositions data (for all traded commodities)

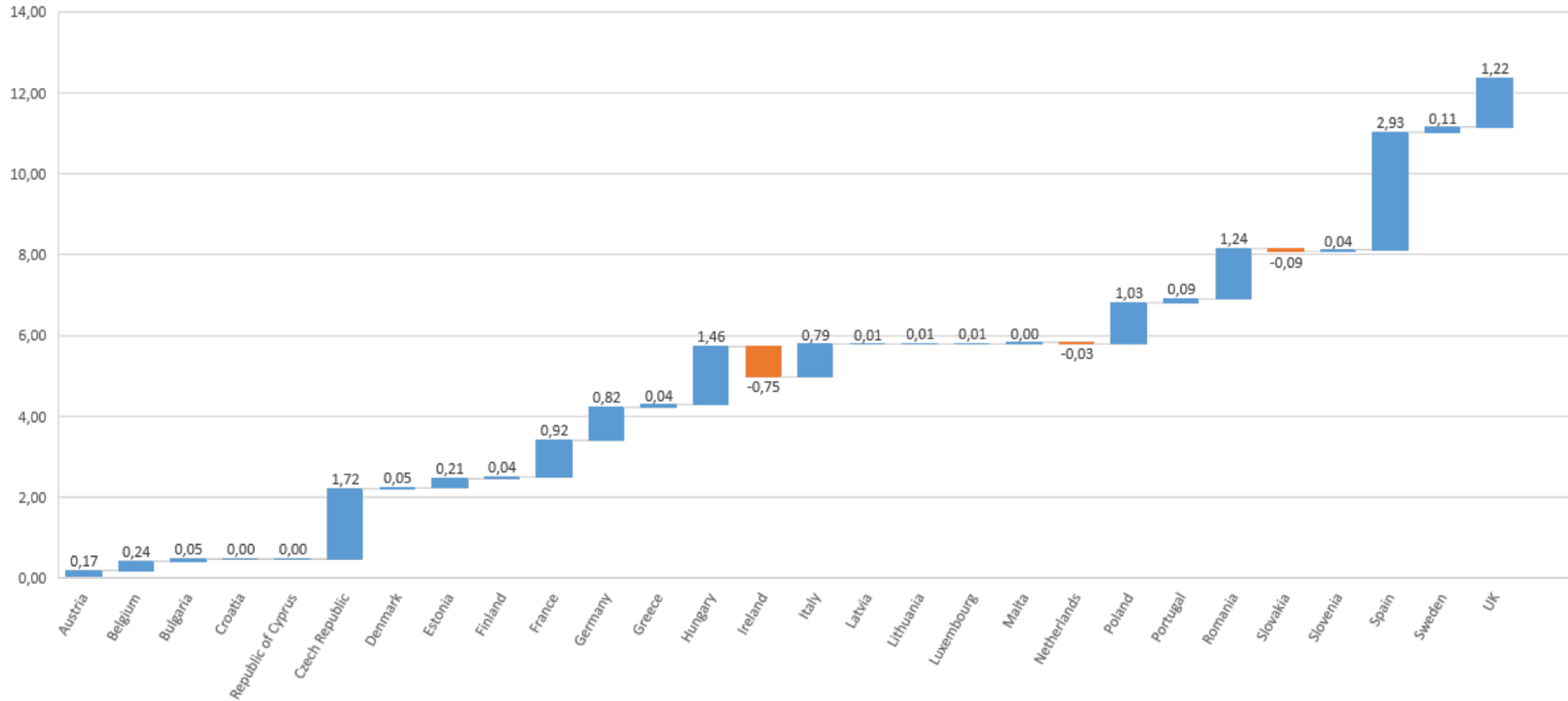
■ Increase ■ Decrease ■ Total



Tantalum accumulation in EU in 2016 (kT)

Based on extraction (SERI), trade (Comtrade), and compositions data (for all traded commodities)

■ Increase ■ Decrease ■ Total



Toward better global MFA studies

- Standardization of reporting is important.
 - Baci vs. Comtrade
 - Exiobase balancing various economic and stock-flow data
 - A lot of data gets lost during balancing and harmonization
- Better information of stocks and capital formation
 - This involves better information on lifetimes
 - More information on hibernating (dormant) stocks
 - More information on how secondary material come back into the economy
- Ensure that we strive toward open data.

Thank you for your time

Questions?



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