

# MAT\_STOCKS Kick-off: Modul 3 – Analyzing the Stock-Flow Service Nexus

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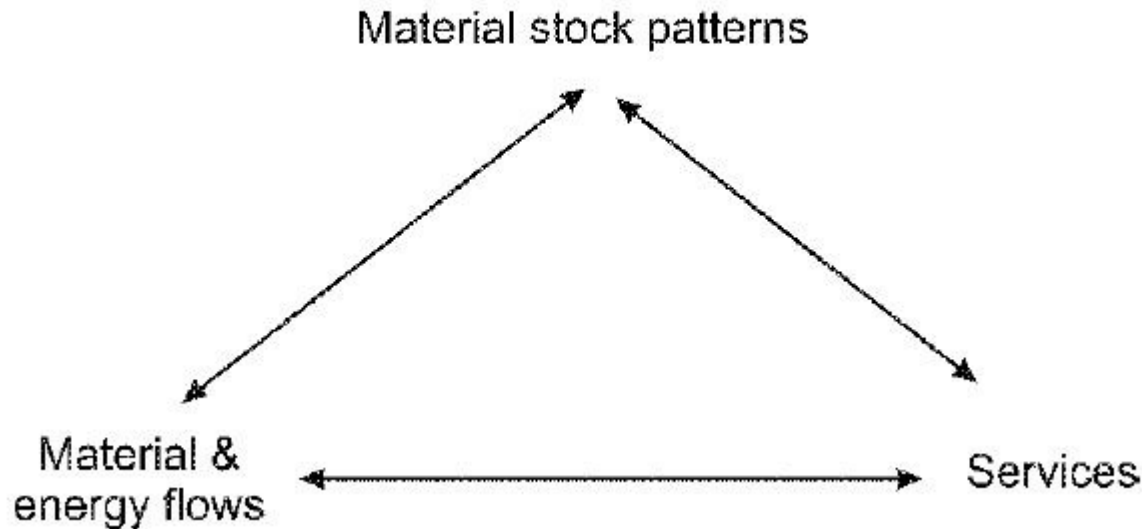
European Research Council  
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**Overarching goal: Empirically analyze the SFS-nexus and relate it to economic (e.g. GDP, HDI), geographic and environmental variables, using statistical methods**

- Across space for national-level and GIS/remote sensing data for a base year (2015?)
- Along temporal trajectories, based primarily on global and case-study long-term time series data
- using data from M1 and M2 as well as auxiliary data from many sources, e.g. CDIAC, World Bank, OECD, UN, climate & soil data, etc.

**Out of the box thinking --- beyond IPAT, resource productivity, eco-efficiency**

# Stock-flow-service nexus



Systematic investigation of the SFS nexus will allow analyzing critical interrelations between the flows used to build-up, maintain and use these stocks and the services they provide

# Questions to be asked (proposal)



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- **Minimum levels of material stocks** required to achieve selected SDGs
- The **role of spatial patterns** (typology of patterns, M2) for the SFS-nexus. E.g. network theory, density-diversity-design framework, entropy-based indices of economic concentration or inequality
- Test for **scaling laws** of social metabolism
- Analyze long-term trajectories using **index decomposition analysis, panel data analysis** or similar techniques



# Timeplan: 03/2019 – 12/2021 -



Table B2-1. Time plan of MAT STOCKS

Year	1				2				3				4				5			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
M 0 Project management																				
M 1 National level data																				
M 2 Mapping material stocks																				
M 3 Stock/flow/service nexus																				
M 4 Dynamic stock/flow model																				
M 5 Implications for sustainability																				

- ~17 MM SEC Staff & 1 PhD
- PhD project:
  - investigate the SFS Nexus with „established“ analytical methods (decompositions, panels, IPAT/STIRPAT, ... )
- Collaborations with
  - Julia K. Steinberger et al.: Sufficiency, efficiency, decoupling & LiLi Project
  - Juan Antonio Duro, Statistics of inequality
  - Complexity Science Hub Vienna, networks and complexity?
  - .... ?



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