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Systemic market simulation

- **Thematic Areas/Technology/Topic of focus + key elements of the idea/problem:**

- Concepts of circular economy and outcome economies are based on complex ecosystems. In these environments, a missing systemic big picture and poor understanding of the interdependencies between different entities would easily lead to sub-optimal solutions or be even detrimental for a company. For example improved circularity increases the number of potential sources of raw materials, and outcome economy together with result based revenues will open space for new actors that could put sole device producers out of market.
- Still today impact assessment culture of circular economy concentrates on techno-economic, compartmentalized, linear assessment, which creates very narrow view of those complex ecosystems

Solution: Simulation tools using structural systemic modelling paradigms, such as, system dynamics, to assist firm of creating clearer view on the market changes

- Access to confidential data is well-protected, and controlled by owners

- **Expected synergies and complementarities:**

Simulation tools will be run on Modelling Factory (on-going project Virtual Upscaling) platform

- **Outcomes:**

Firms could assess market changes, in particular to simulate the market situation, both on strategic and operational levels, and perform company foresight:

- Strategic focus: creating future scenarios, evaluating business models and market and ecosystem transformation under various uncertainties. Impact assessment of different strategic decisions and external disturbances.
- Operative focus: Decision support for optimizing raw material market changes, including supply, price, demand, ecosystem variations, sensitivity analysis with emphasis on business resilience and agility.

- **Market & Business opportunities:**

- Must for all the companies operating as a part of a value-chain ... this is a tool for winners
- This model could be adapted to practically any industry sector

- **Partners already identified:**

Outokumpu, Boliden, Umicore (not yet confirmed)

- **Wanted additional partners:**

- System model builders; RTOs, Universities or firms
- Owners/producers of market data

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