



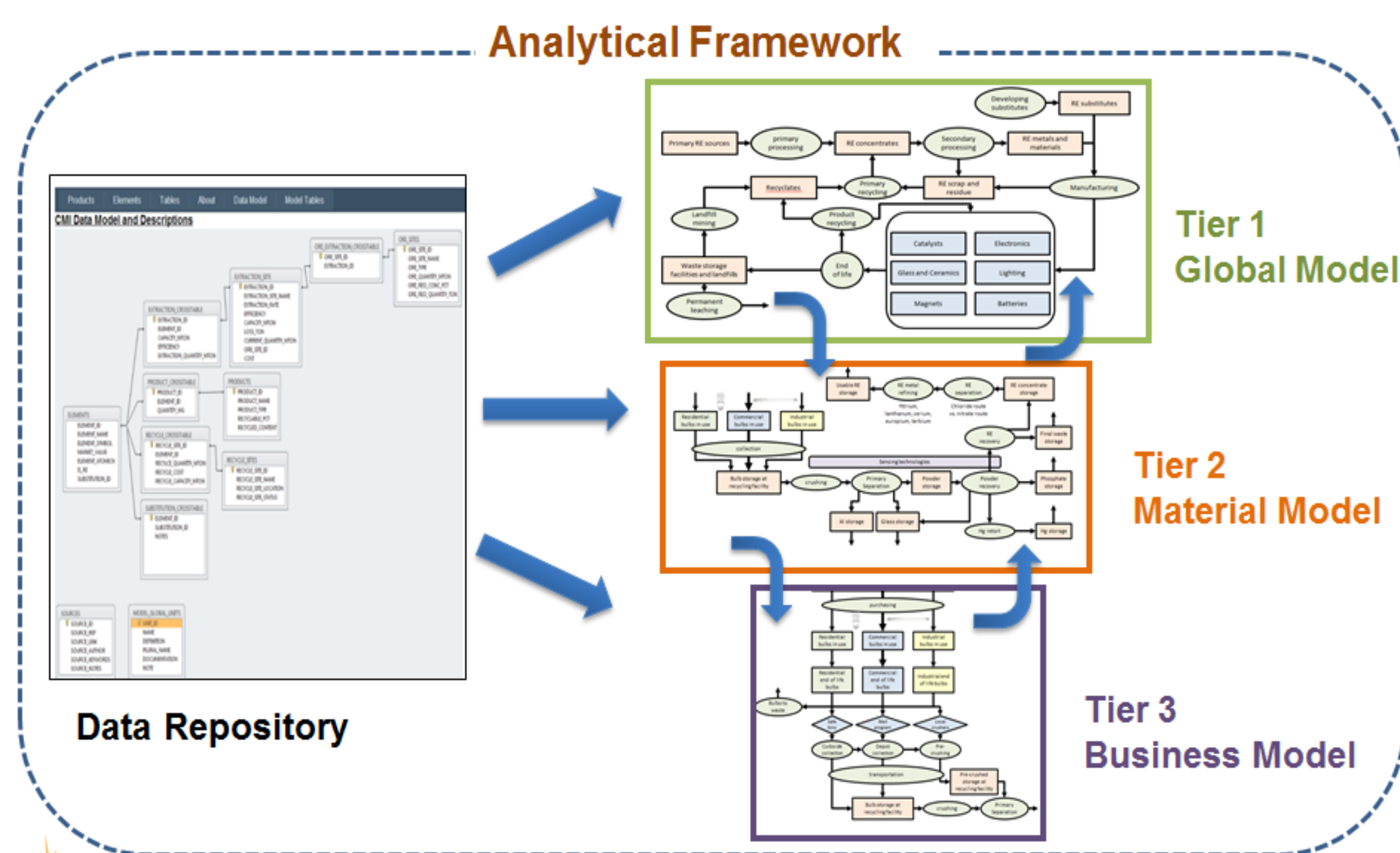
Critical Materials Institute

Accelerating Energy Innovations

Economic Analysis of CMI Research and Global Material Supply Chain

Objective:

The global supply chain for rare earth elements (REE) is a complex and vulnerable system filled with supply uncertainty, market unpredictability, and dynamically changing agendas. To meet the expanding and urgent need for critical materials in clean energy technologies, economic viability and stable supply must be assured.

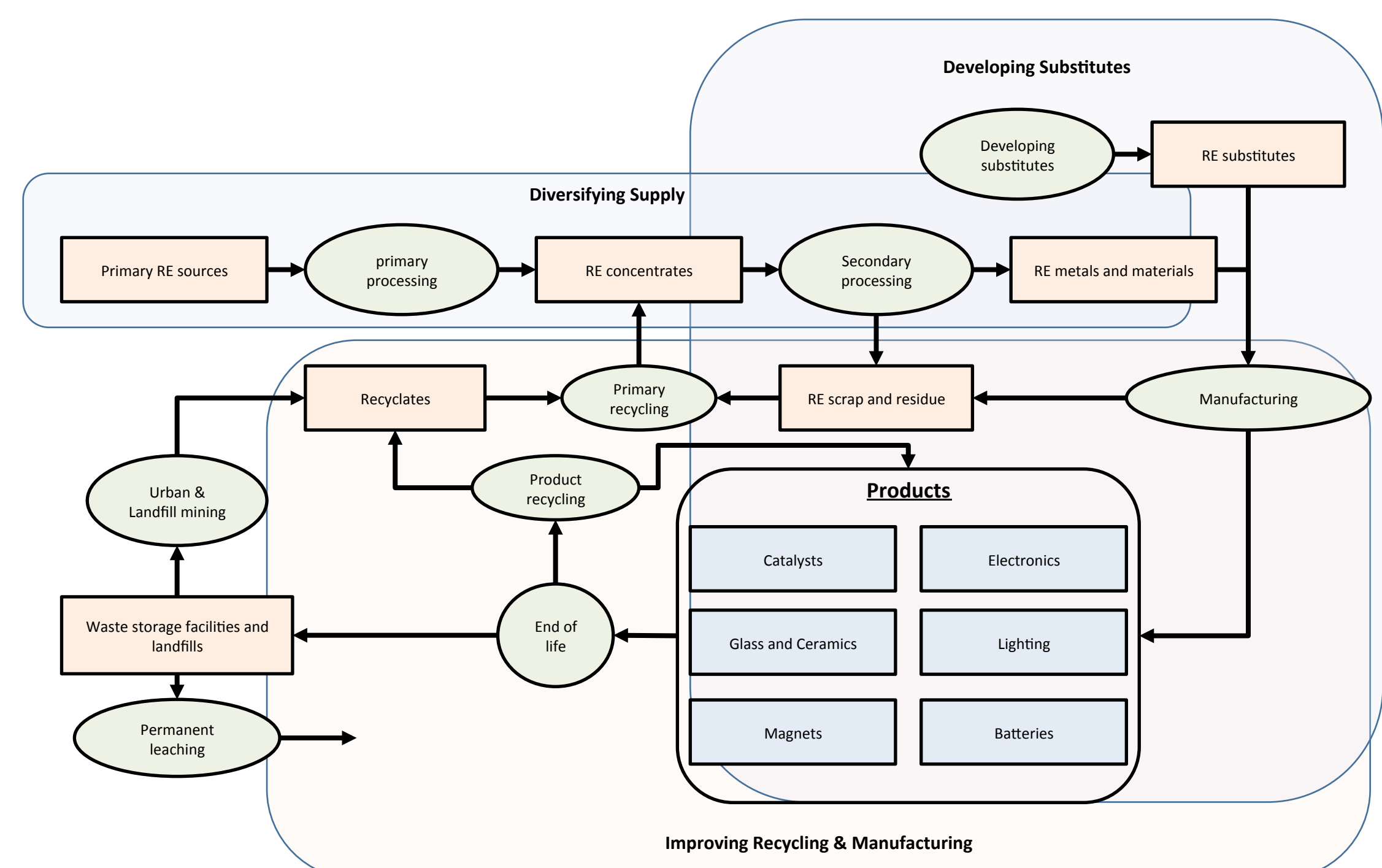


Scope:

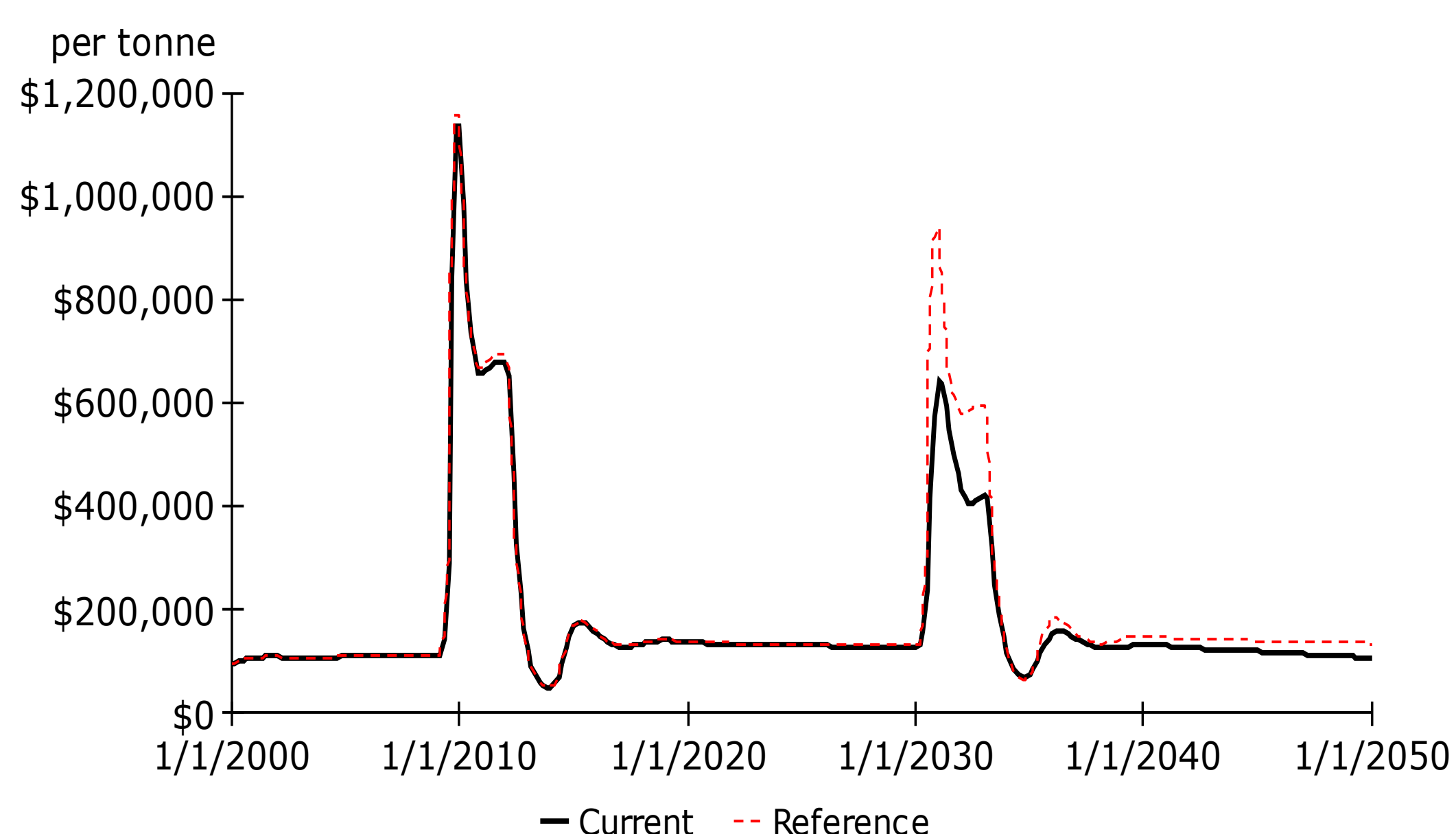
Develop an analytical framework for in-depth understanding of global material supply chains, including CMI's impact on critical material economics. Framework will capture the mechanisms driving the supply-demand behavior as reported as the price of rare earth elements. Framework will allow the simulation of potential outcomes in order to understand the impact of CMI research.

Strategy:

Merge classical economic theory with classical systems dynamics modeling (a methodology for studying and managing complex feedback systems) to develop global supply chain models capable of testing policy and simulating the impact of CMI research.



Neodymium Oxide Market Price



Results:

A hypothetical neodymium market (left) illustrates how CMI strategy could contribute to the future balance of critical materials using the strategy suggested. In the example of neodymium, the red line illustrates the business as usual scenario without CMI influence, while the black line illustrates the potential influence CMI could have on neodymium oxide market price.

