* Processes:
  + Natural:
    - Regeneration of renewable resources
    - Depletion of resources
    - Application of fertilizers (probably not)
      * Nitrogen cycle
    - Perturbation of renewable resources (natural system agnostic)
      * Climatic
      * Ecosystem stress
      * Random
      * Exogenous
  + Human:
    - Innovation
    - Trading
    - Investment
* Conditions:
  + Natural:
    - Resource distribution
      * Temporal, geographical, private/common ownership
    - Resource scarcity
      * Absolute (Malthusian), relative (Ricardian)
    - Resource
  + Human:
    - Inequality
    - Labor specialization
    - Wealth
    - Complexity
    - Resilience/Adaptability
* Systems:
  + Natural:
    - Natural Resource
      * Energy stocks (coal, oil, gas), uranium
      * Forest/biomass,
      * Wind, solar, geothermal
      * Water (ground, surface)
      * Minerals & metals
      * Food
    - Biosphere
    - Ecosystem
  + Human:
    - Markets
    - Population
* Coupling:
  + Resource extraction
  + Wastes
  + Access - cost of accessing resources

We can pitch this as a first step in rectifying economic planning models. Vast majority of economic value (i.e. GDP) is based on flows of non-renewable resources (fossil fuels and minerals). Continued economic growth (in models) is predicated on the continual flow of these resources. In actual fact, we are depleting these resources (a dynamic within the natural system). Economic models assume that substitution will fix this issue. However, dynamics within the human system lead to specialization and technological lock-in (increased complexity, decreased adaptability/resilience) that constrains these options. – The transition is the key.

Additionally, economic planning models assume investment decisions within the economy are undertaken via a central agency, with perfect knowledge and perfect foresight (or with some randomly generated, exogenously defined level of ‘uncertainty’). Agent-based models can avoid many of these issues.

Pitch natural system agnostic as a positive aspect of the proposal. Frame wrt Limits to Growth?