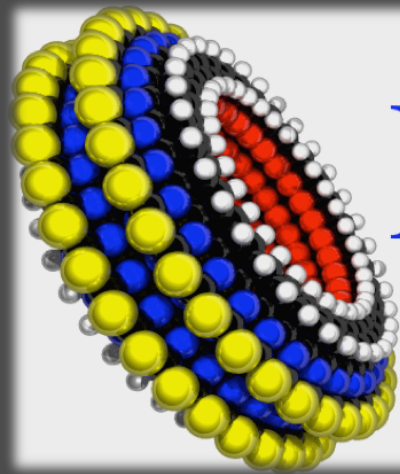


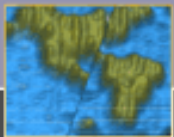
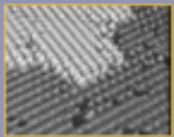
Roadmaps to Nanotech and

J Storrs Hall



FORESIGHT
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Productive Nanosystems and



Productive Nanosystems

A Technology Roadmap



Create a new technology

- A **powerful** new technology
- One that could change the world as the Industrial Revolution did
 - Improve health, lifespan
 - Give average people access to things only elites had before
 - Increase range, capability, and options

How can we know it's possible?

- There's a model in nature of a system that does the kind of thing we want
- We think that if we understand it deeply enough we will be able to build a version that is
 - More efficient
 - Faster or more powerful
 - Leave out design flaws
 - Design for different ends

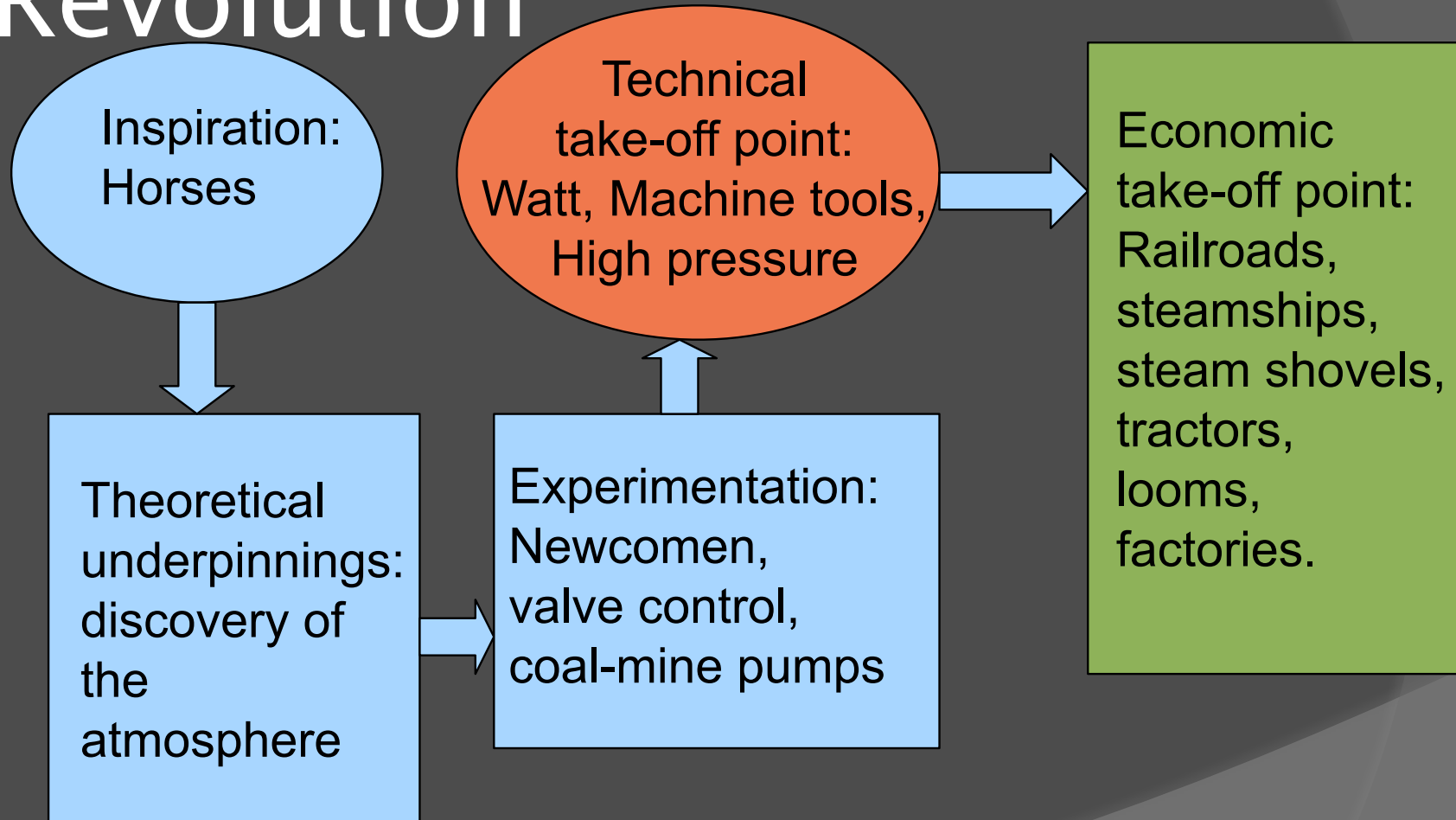
Example: airplanes

- We observe heavier-than-air birds
- Study them and understand:
 - The shape of the wing gives lift
 - Flapping gives propulsion
 - Wing-warping gives control
- We can separate these and use fixed wings, propellers, ailerons

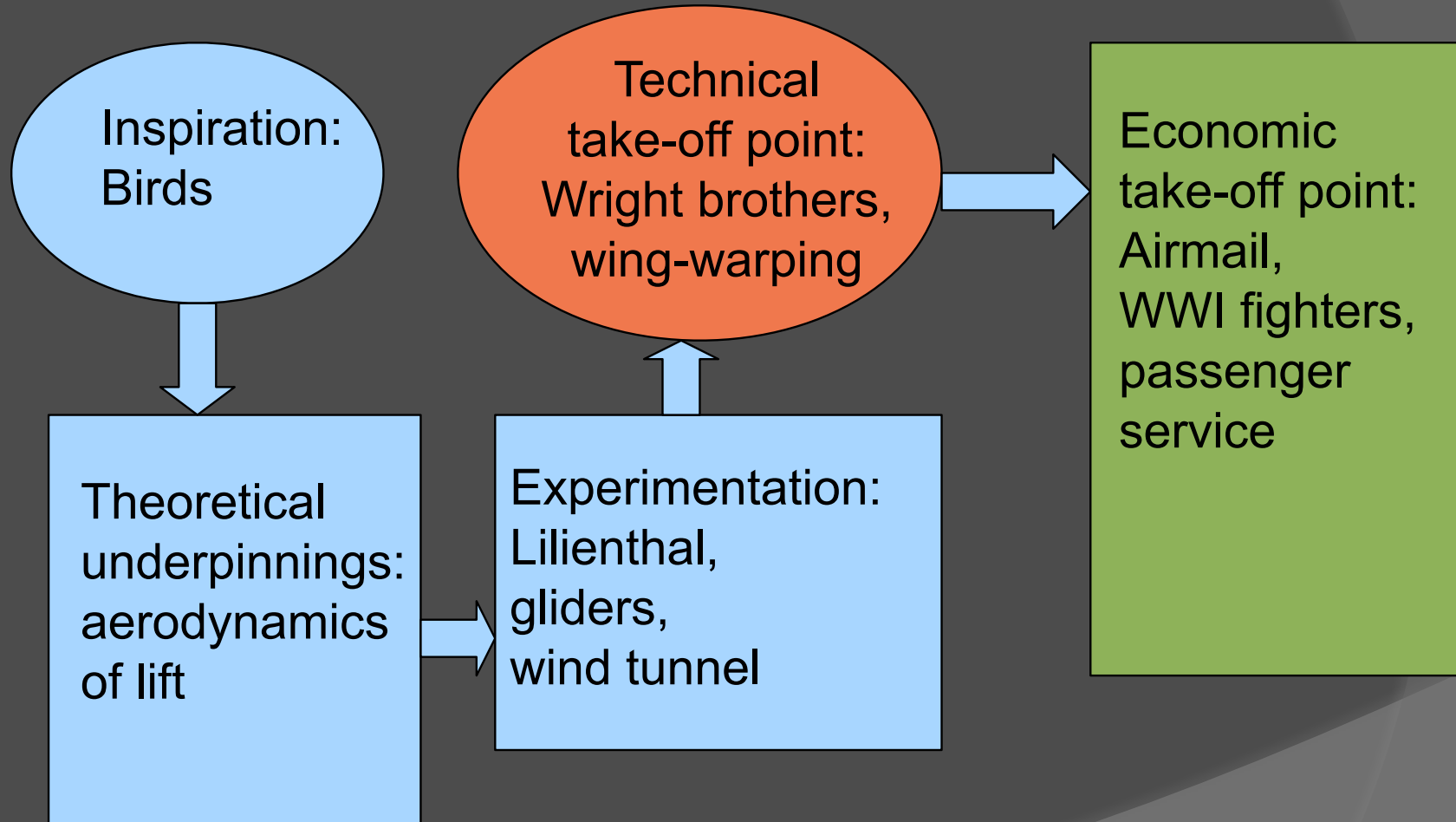
Similarly

- For nanotech, we have the molecular mechanisms in the cell that make life itself work.
- It uses positionally-controlled chemistry and diffusive transport.
- For AGI, we have brains.
- They use imitation and feedback in a massively parallel computation and communications network.

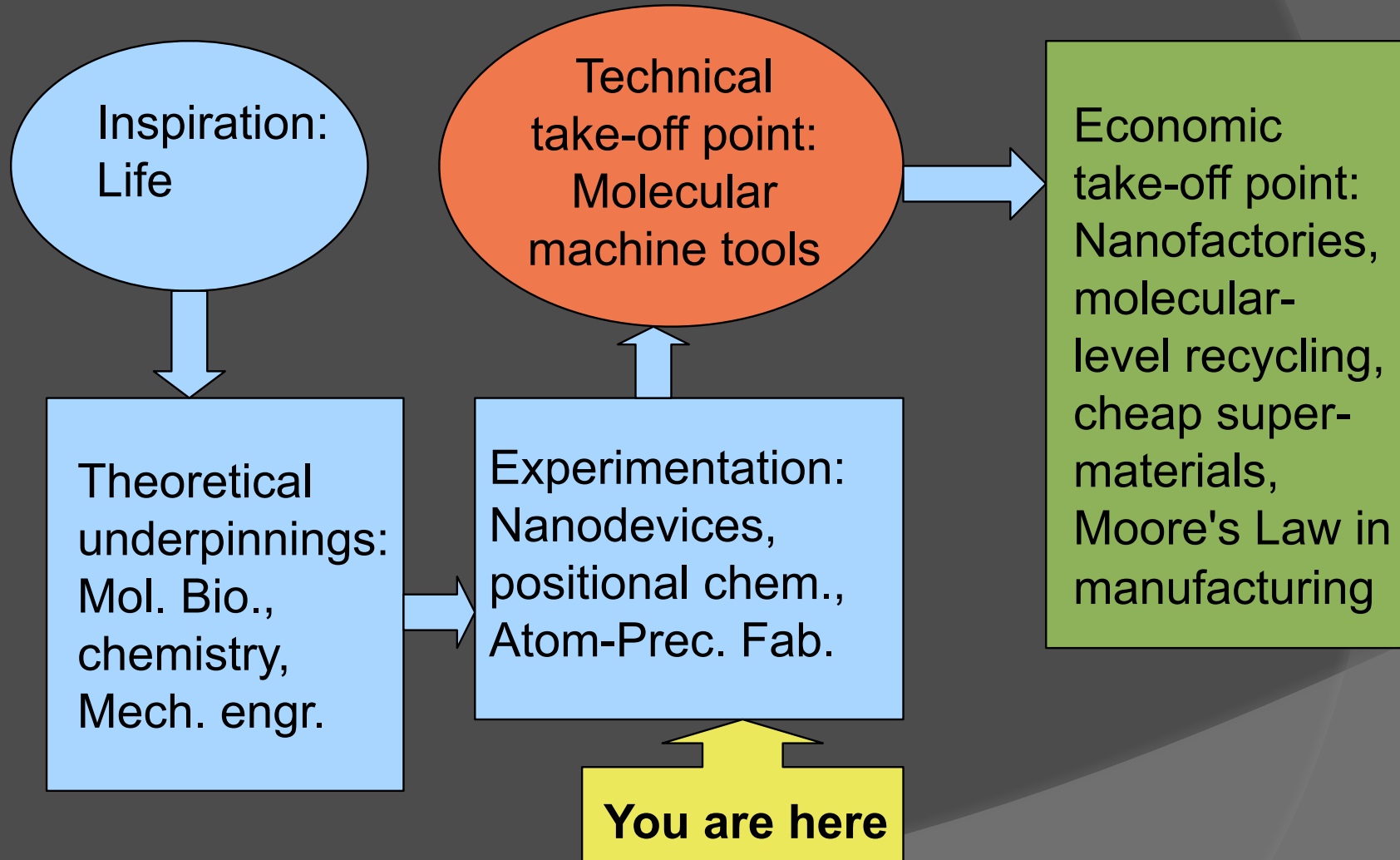
Phases: Industrial Revolution



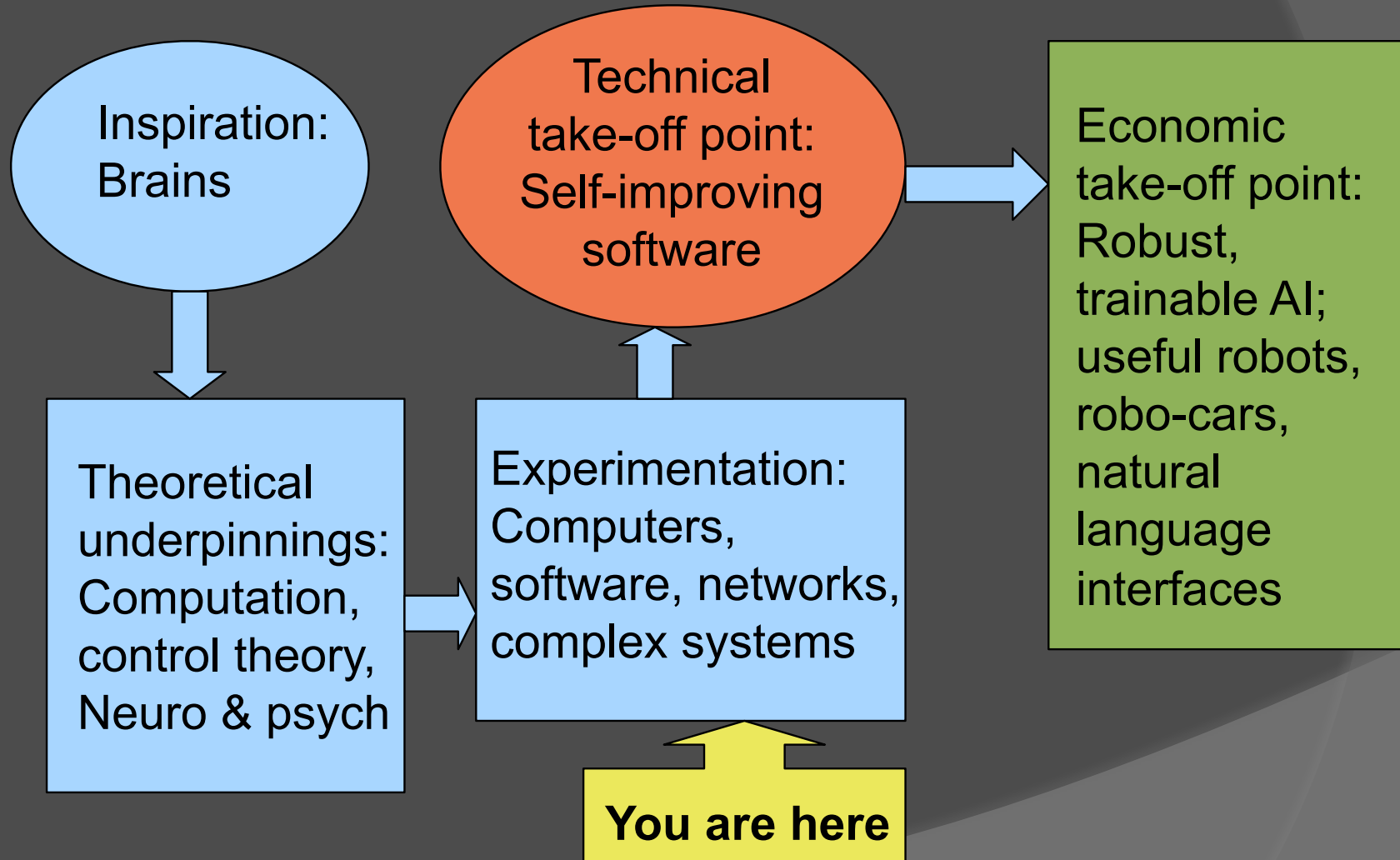
Phases: Air transportation



Phases: Nanotechnology



Phases: General AI



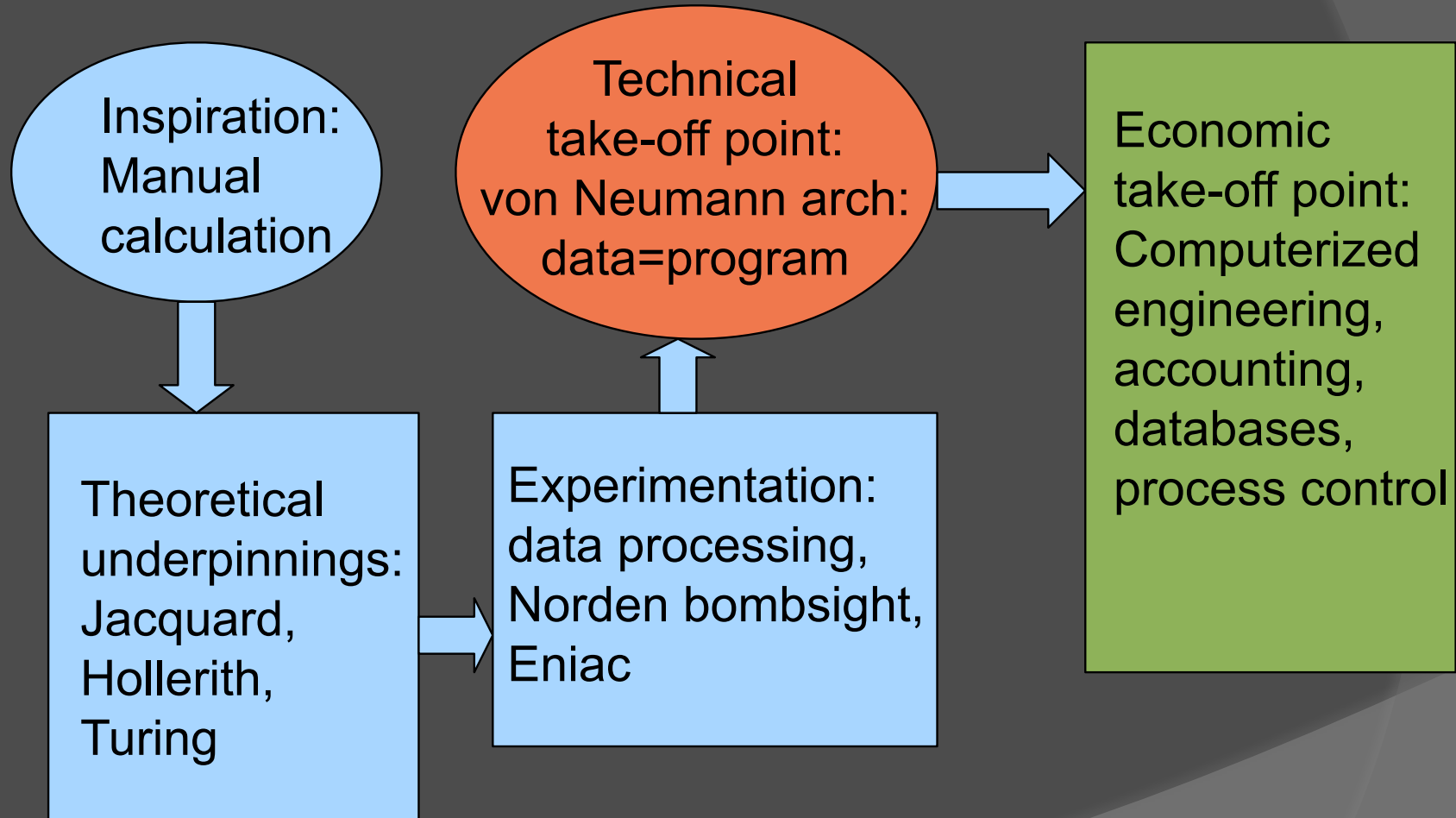
Technical takeoff

- ❑ Embodies the *essential function* of the proposed technology
- ❑ Is proof that the concept works
- ❑ Focuses technical effort
- ❑ Is a vehicle for practical experience
- ❑ Attracts financial (etc) resources
- ❑ Forms a crack in the dam

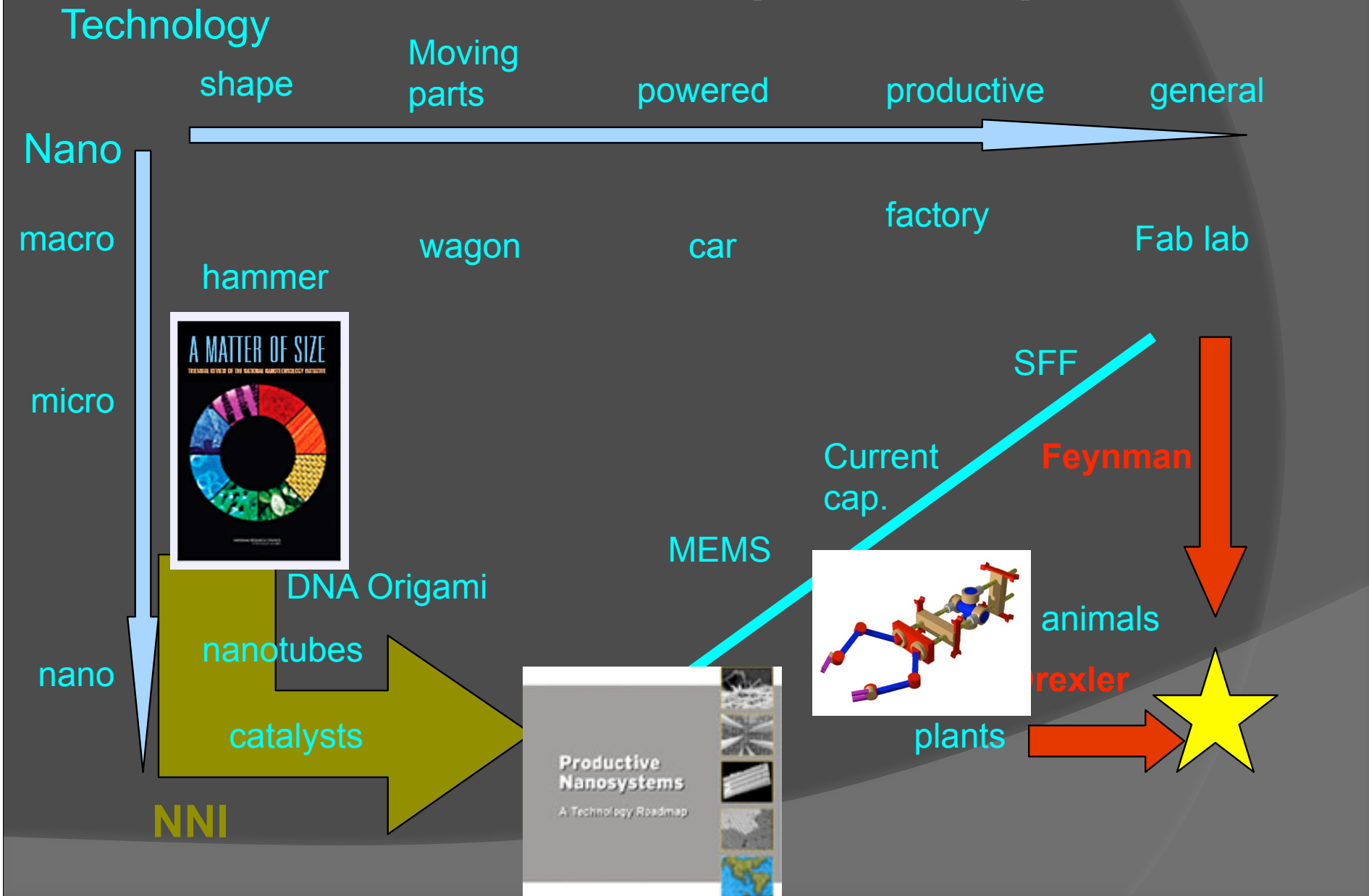
Getting to technical takeoff

- ❑ Precise pathway doesn't matter so much
- ❑ Many approaches should be tried
- ❑ Everything afterward will be done differently anyway
- ❑ The key is to understand instead the properties of the takeoff point
- ❑ For many technologies, autogeny is the key

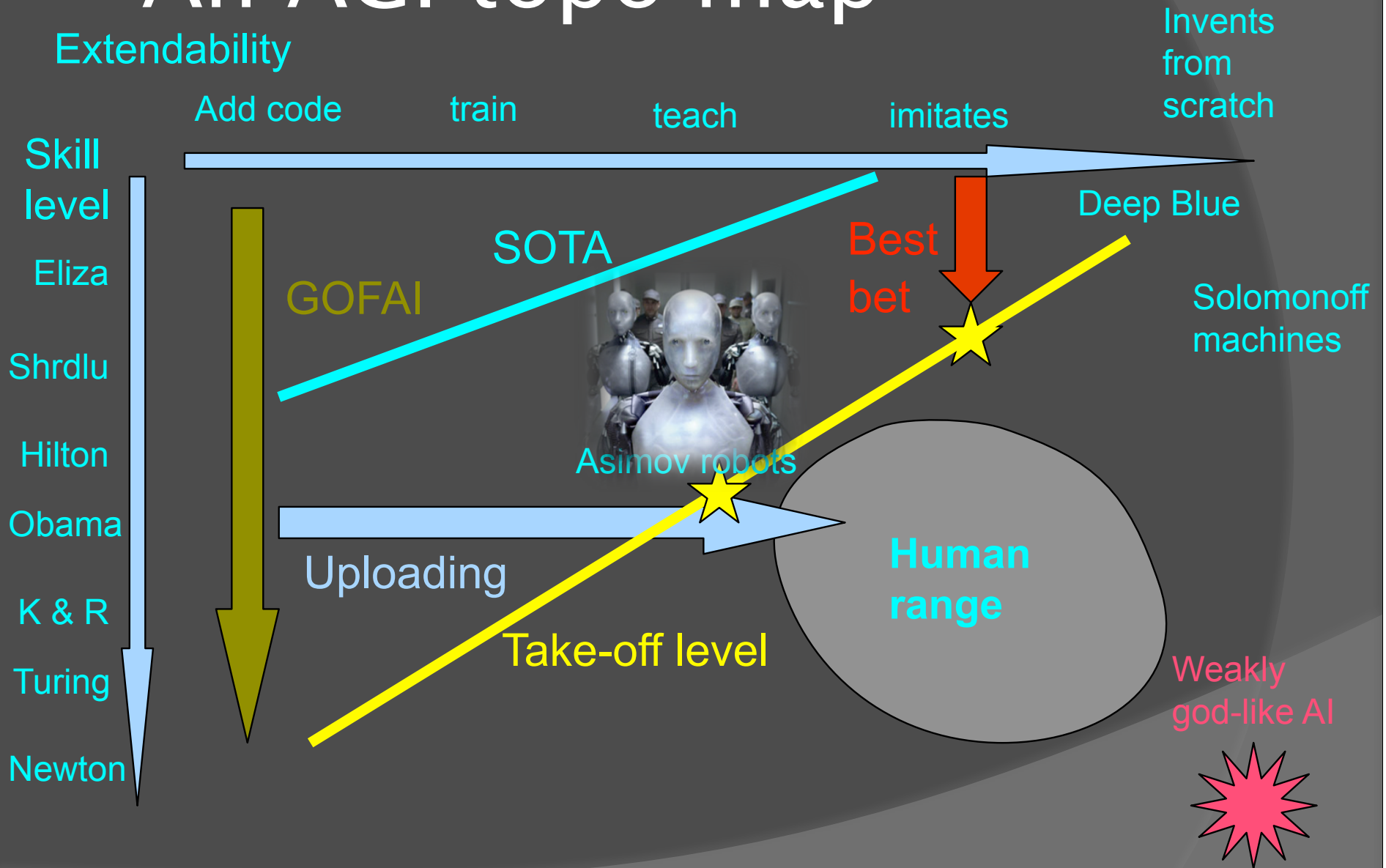
Example: Computers



A nanotech topo map



An AGI topo map



AI/nanotech synergies

