



Foundation Stone #1

What Time Is It?

Lessons from history
for a sustainable future

By Dr. Robert Gilman

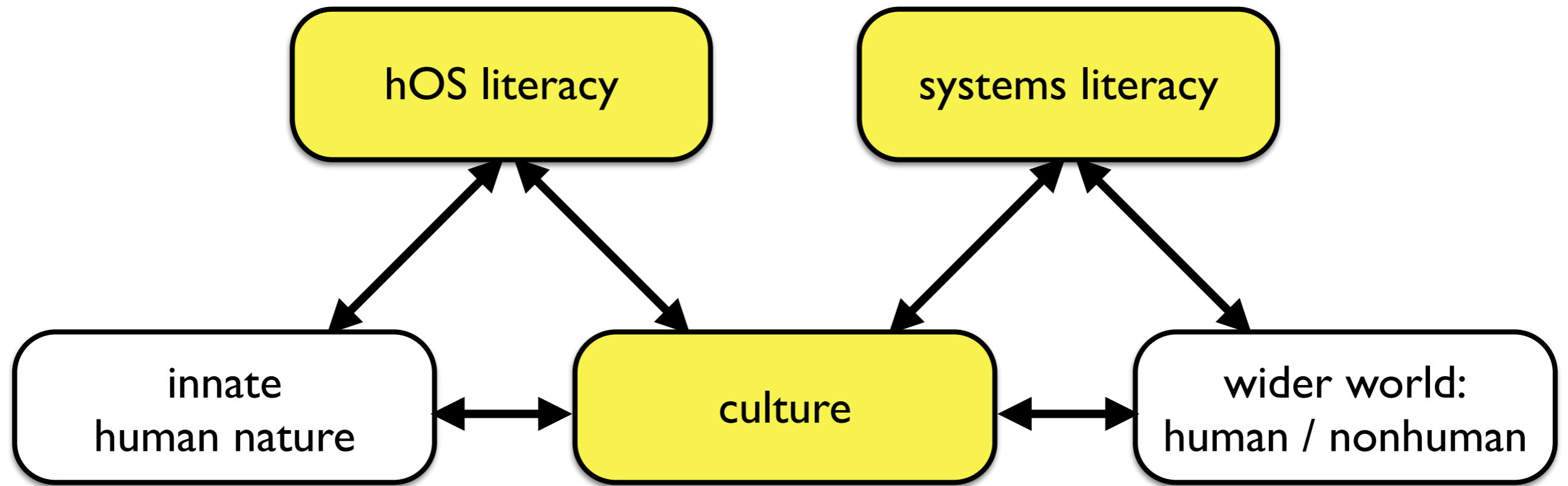


Foundation Stones

Tools For
The
Journey

What Time
Is It?

Tools For The Journey



Living As A
Whole Being

How
Connected
Are We?

Whole-
System
Economics

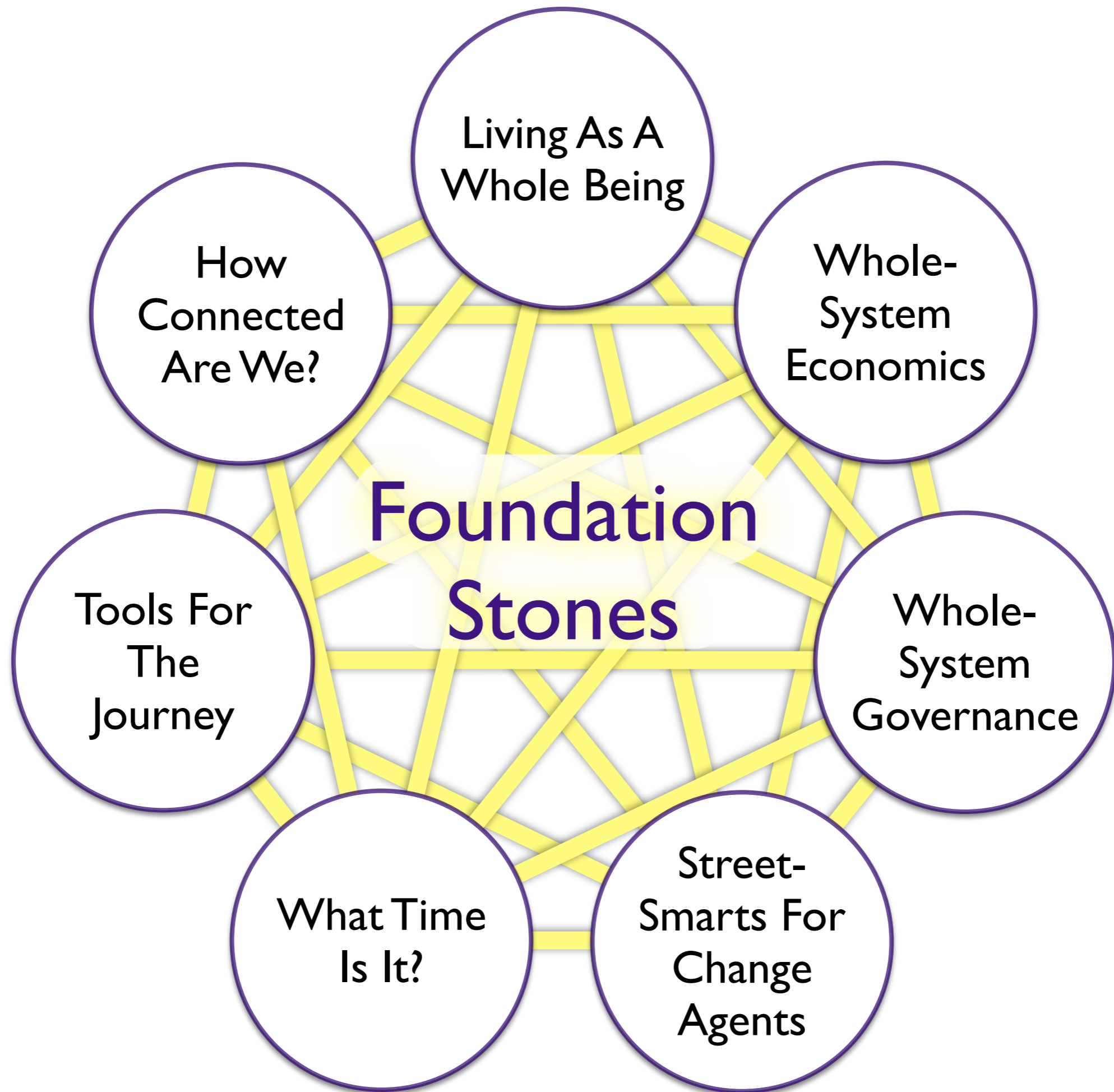
Foundation Stones

Tools For
The
Journey

Whole-
System
Governance

What Time
Is It?

Street-
Smarts For
Change
Agents



A satellite view of Earth from space, showing the Americas and surrounding oceans. The text is overlaid on the image.

I've never been more encouraged about the future than I am today

System
domains

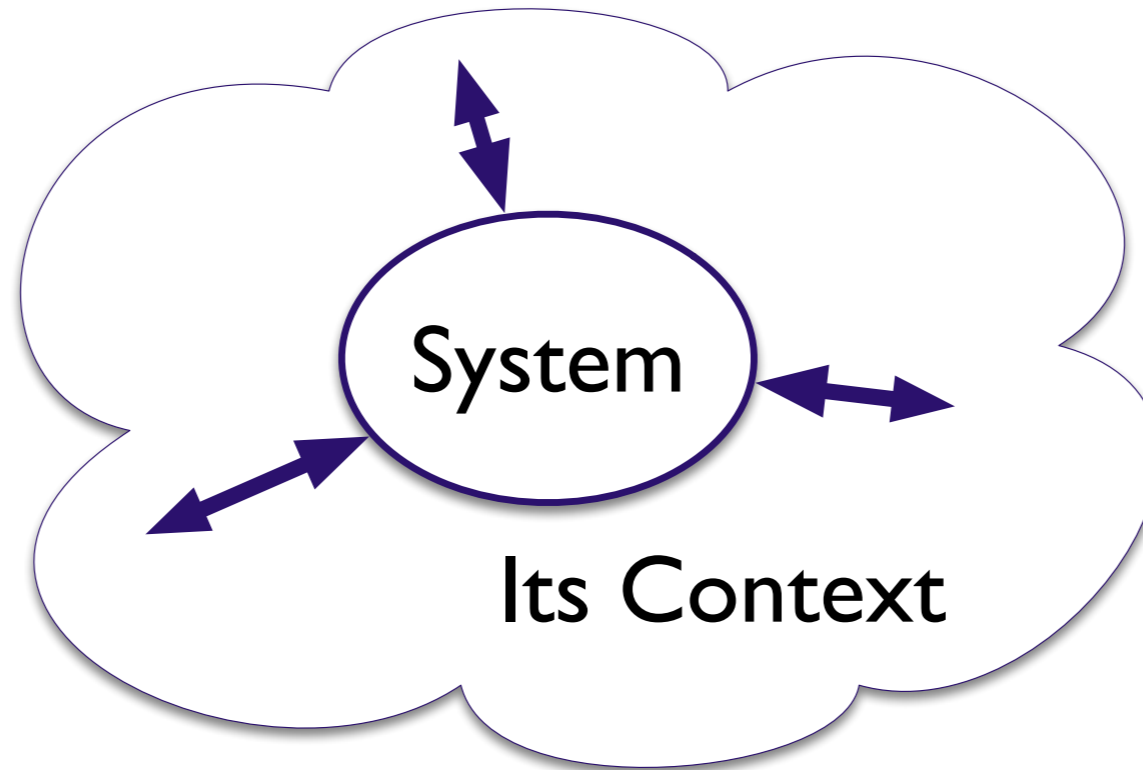


Where are we
in history?



Working *with* the
momentum of history

System Domains



- A *system domain* is a region in the system-context relationship where the system has a *characteristic set of behaviors*
- The *behavior of a system* changes, sometimes dramatically, when it moves from one domain to another

H₂O example

0°C



Solid

100°C



Liquid



Gas

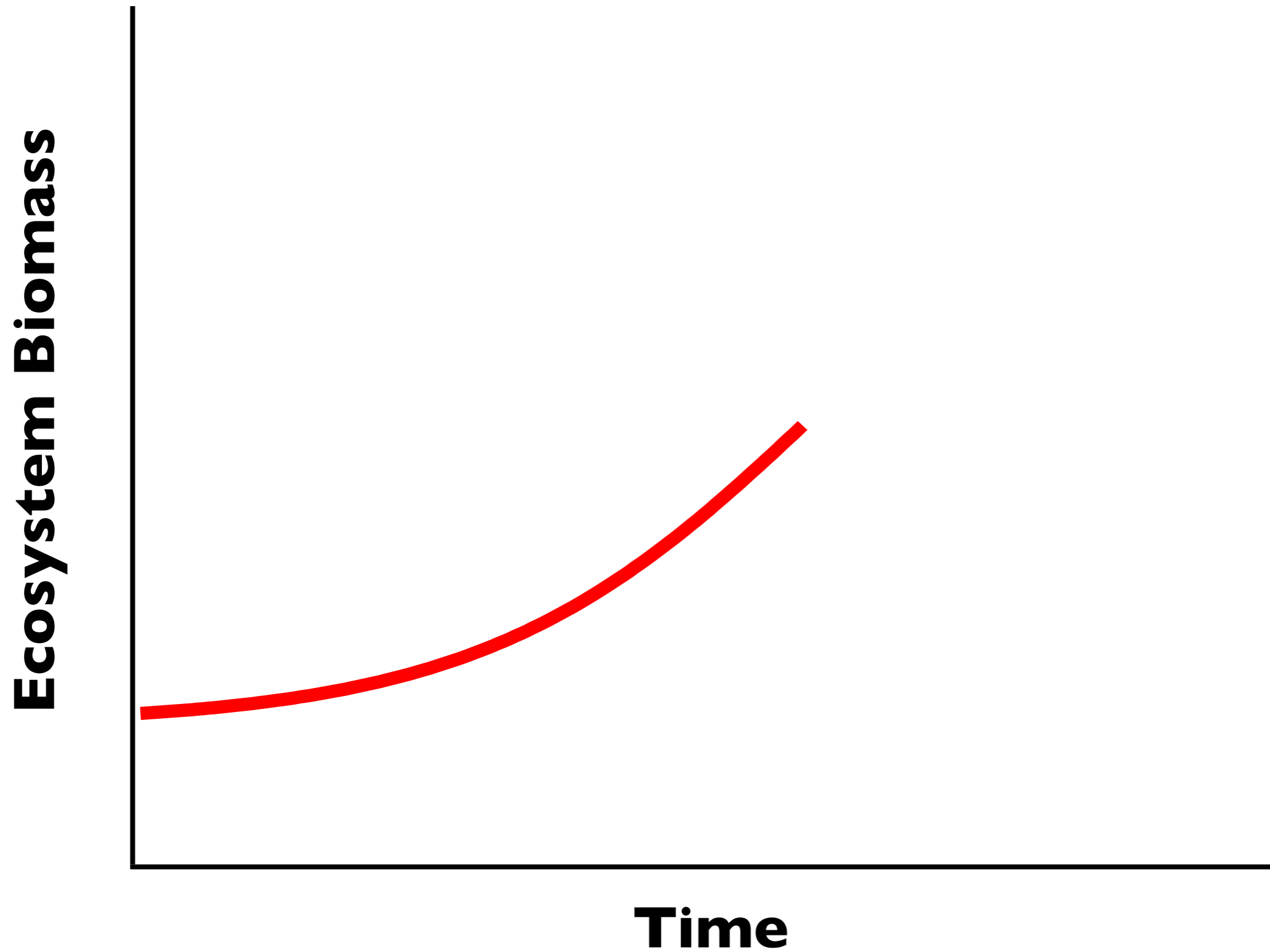
Three very different domains of behavior
with sharp transitions between domains

Ecosystem example

- The system will be a forest
- The context includes sun, rain and soil
- We'll start with bare ground and then watch the forest develop over time

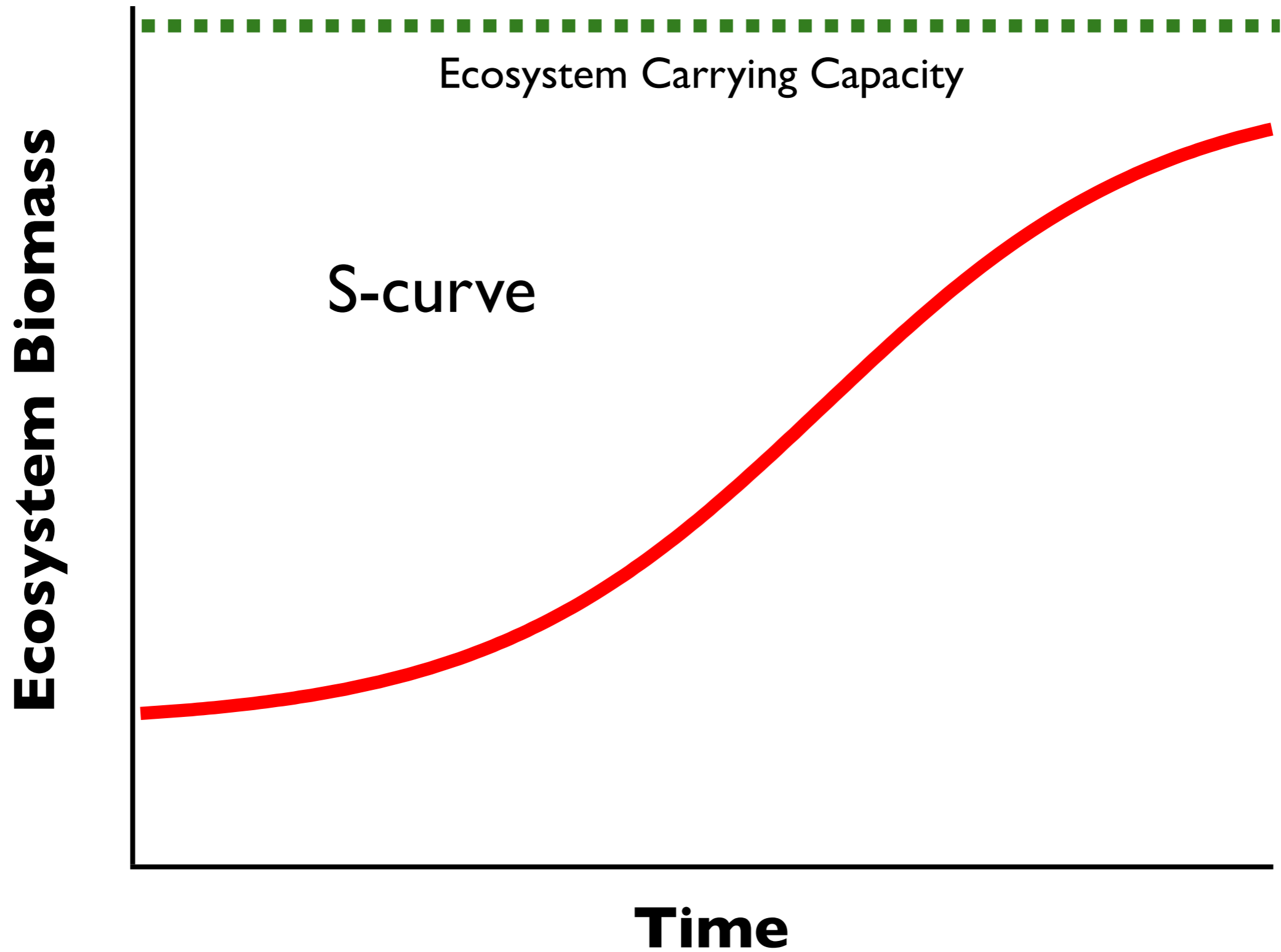


Ecosystem example

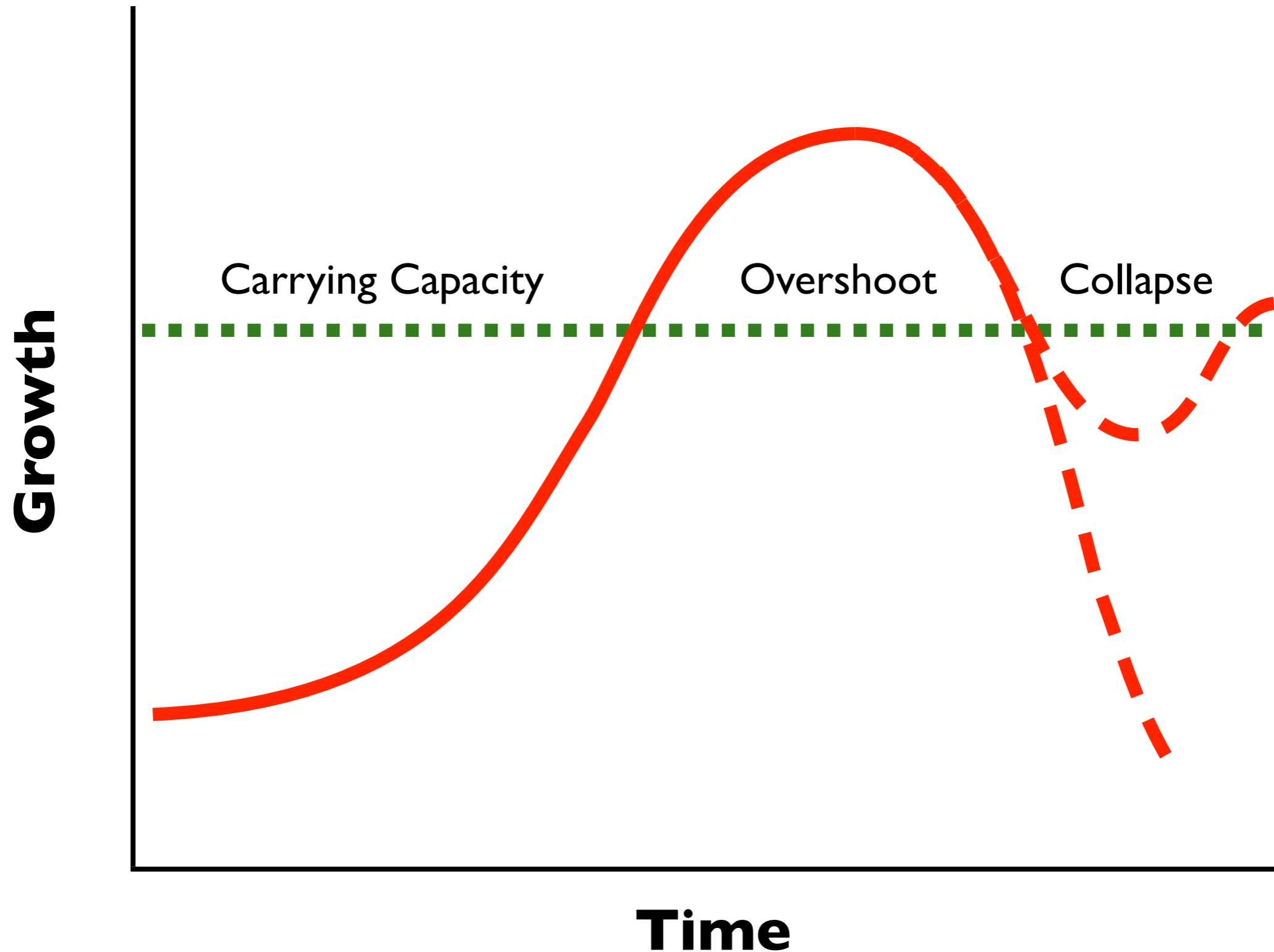




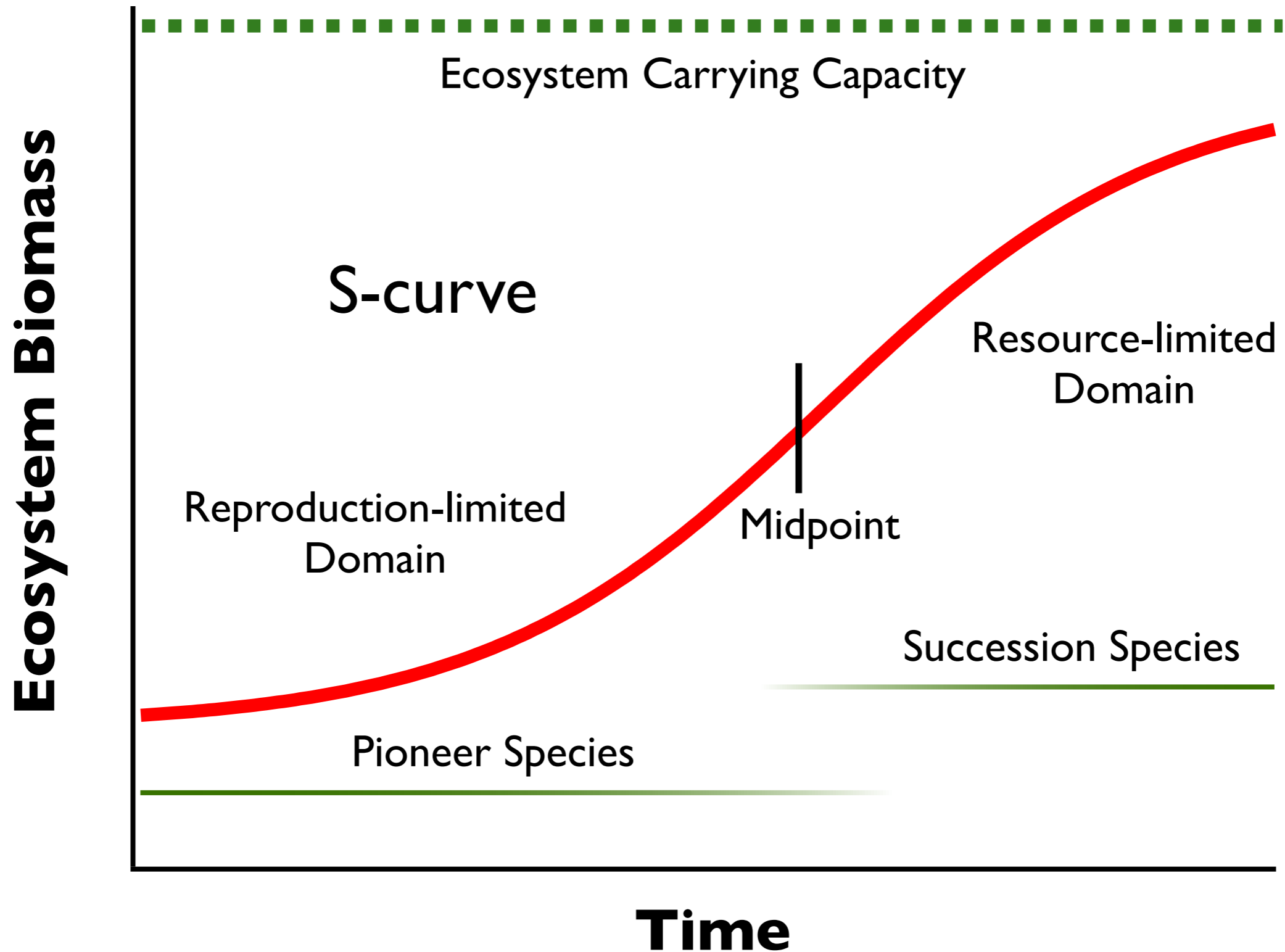
Ecosystem example



Time-lags Allow Overshoot



Ecosystem example



Success Strategies

<i>Attribute</i>	Pioneer	Succession
<i>Resource Consumption</i>	high	low
<i>Resource Efficiency</i>	low	high
<i>Growth Rate</i>	high	low
<i>Longevity</i>	short	long
<i>Diversity</i>	low	high
<i>Complexity</i>	low	high
<i>Relationship With Others</i>	isolated	cooperative

System Domains - Summary

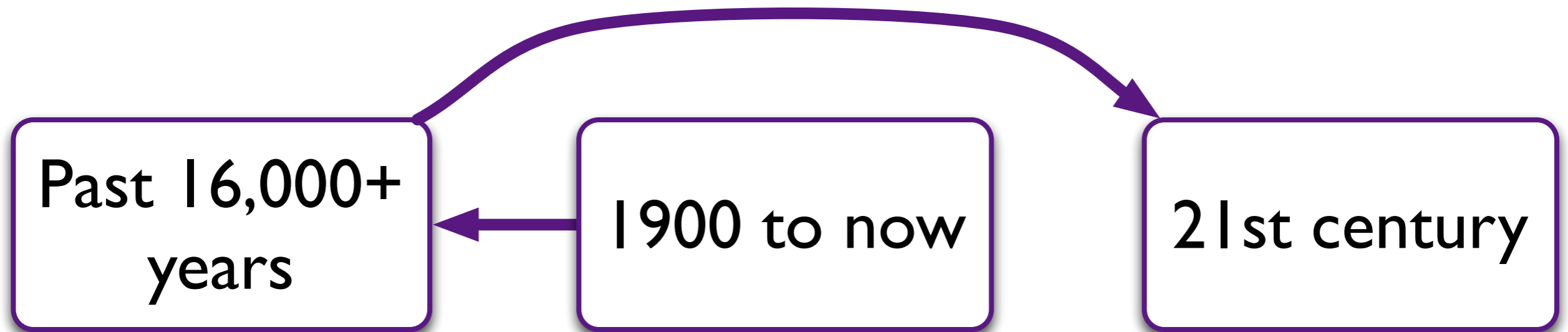
- Created by *system-to-context* relationship
- Transitions can be *sharp* or *gradual*
- *System behavior changes across transition, sometime dramatically*
- If we know only one domain, we *can be misled* into thinking we understand the system (e.g. Newtonian physics)
- *Identifying a system's domains and transitions is crucial* to fully understanding that system

System
domains

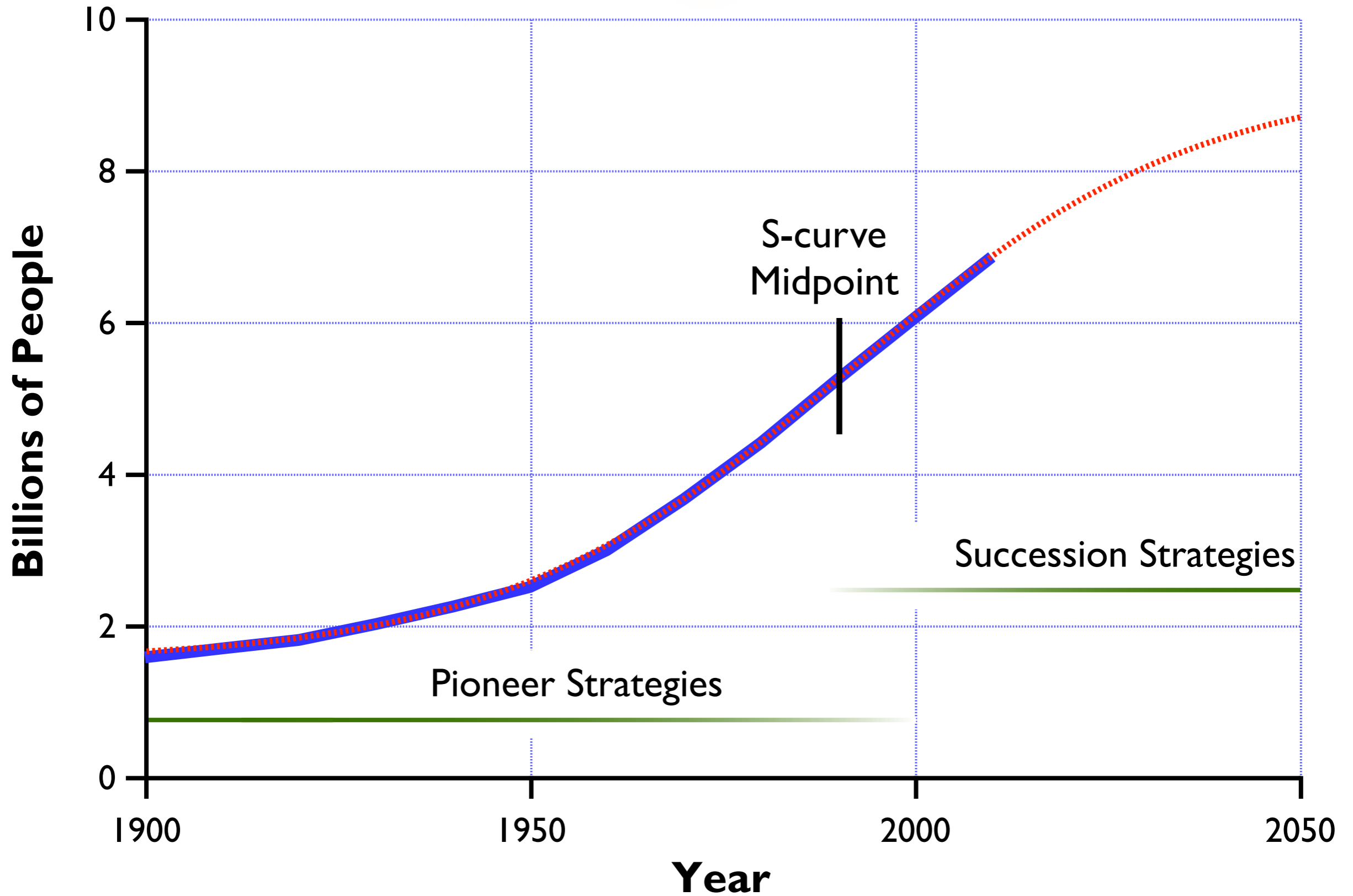


Where are we
in history?

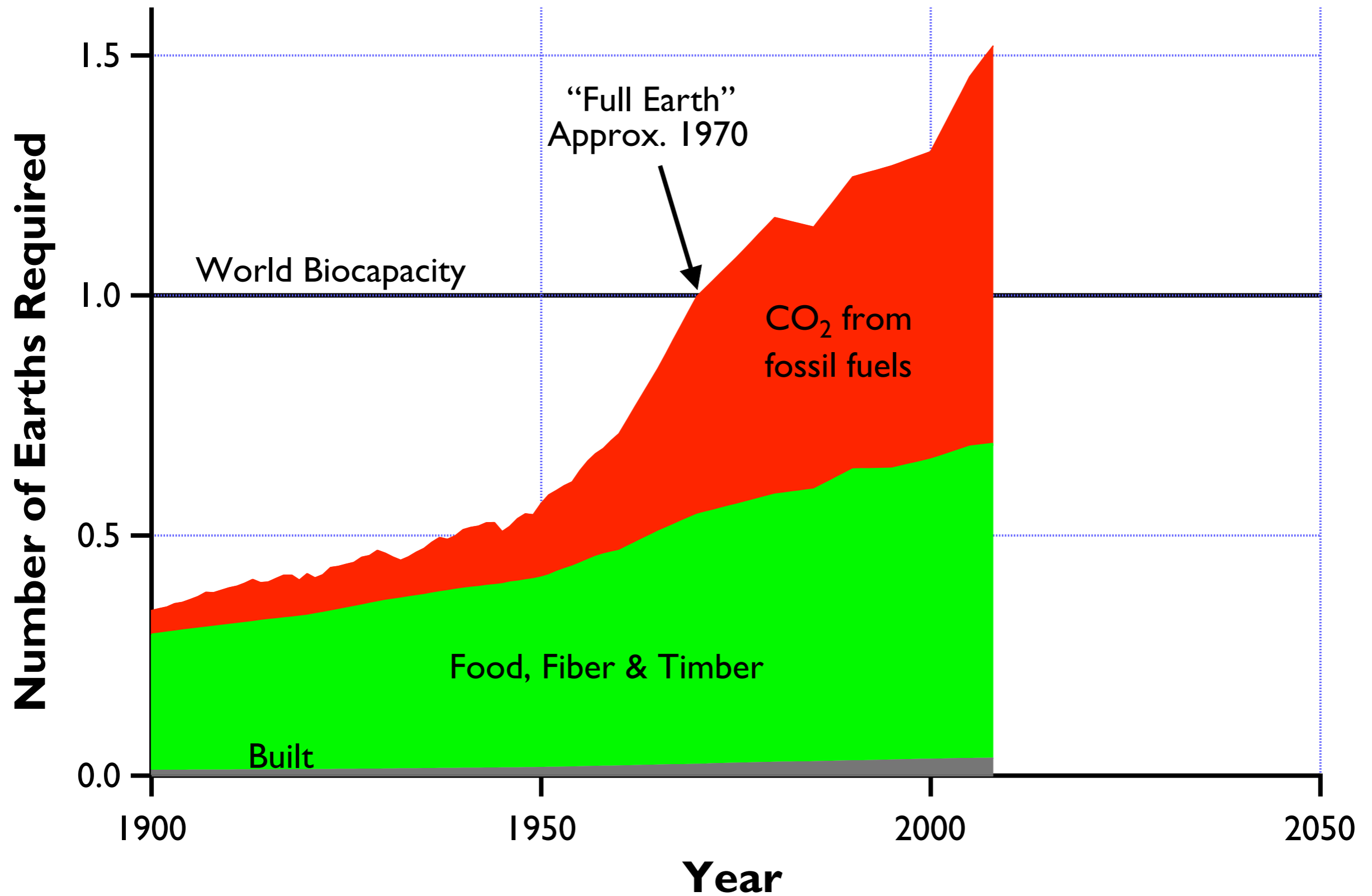
Where are we in history?



World Population



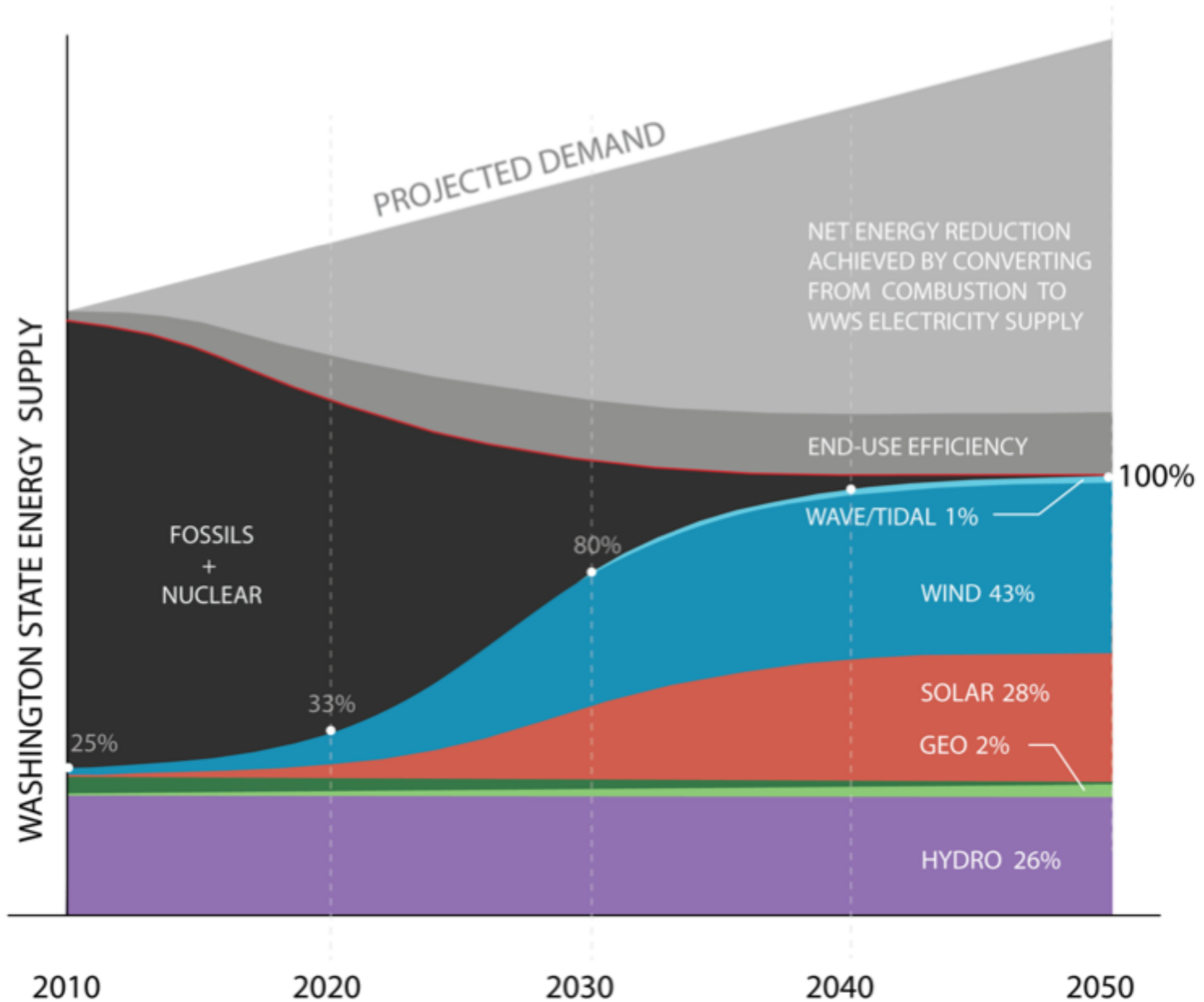
Humanity's Ecological Footprint



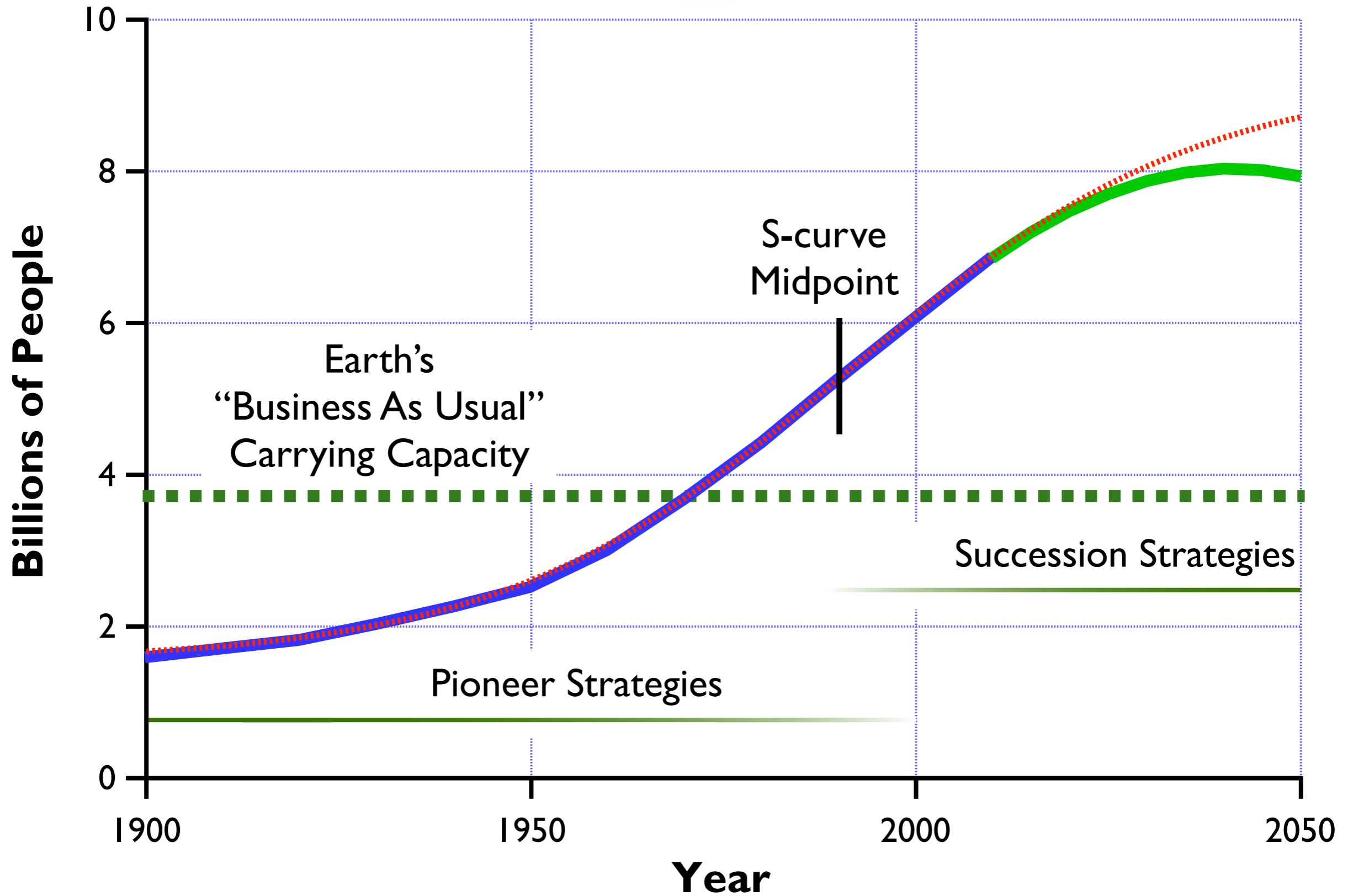
Limits-To-Growth Challenge

- *Non-renewable resources* (e.g. fossil fuels) are finite and get more costly to produce over time
- *Renewable resources* (e.g. fisheries, forests, topsoil, groundwater) have maximum sustainable yields
- *Natural waste processing services* (e.g. CO₂ absorption, water purification) have maximum sustainable loads
- We have overshot in all these areas but time-lags are delaying the full impact

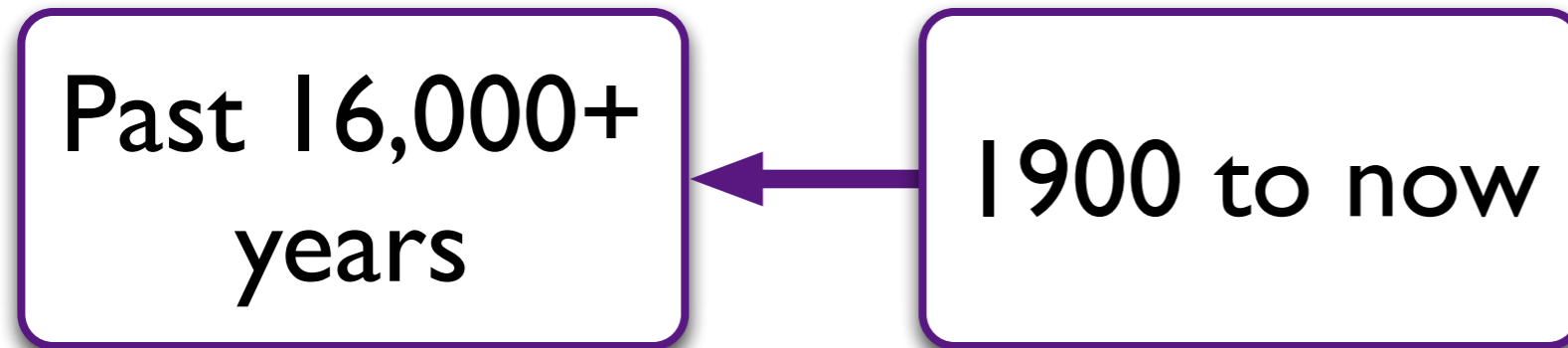
100% Renewable Energy By 2050



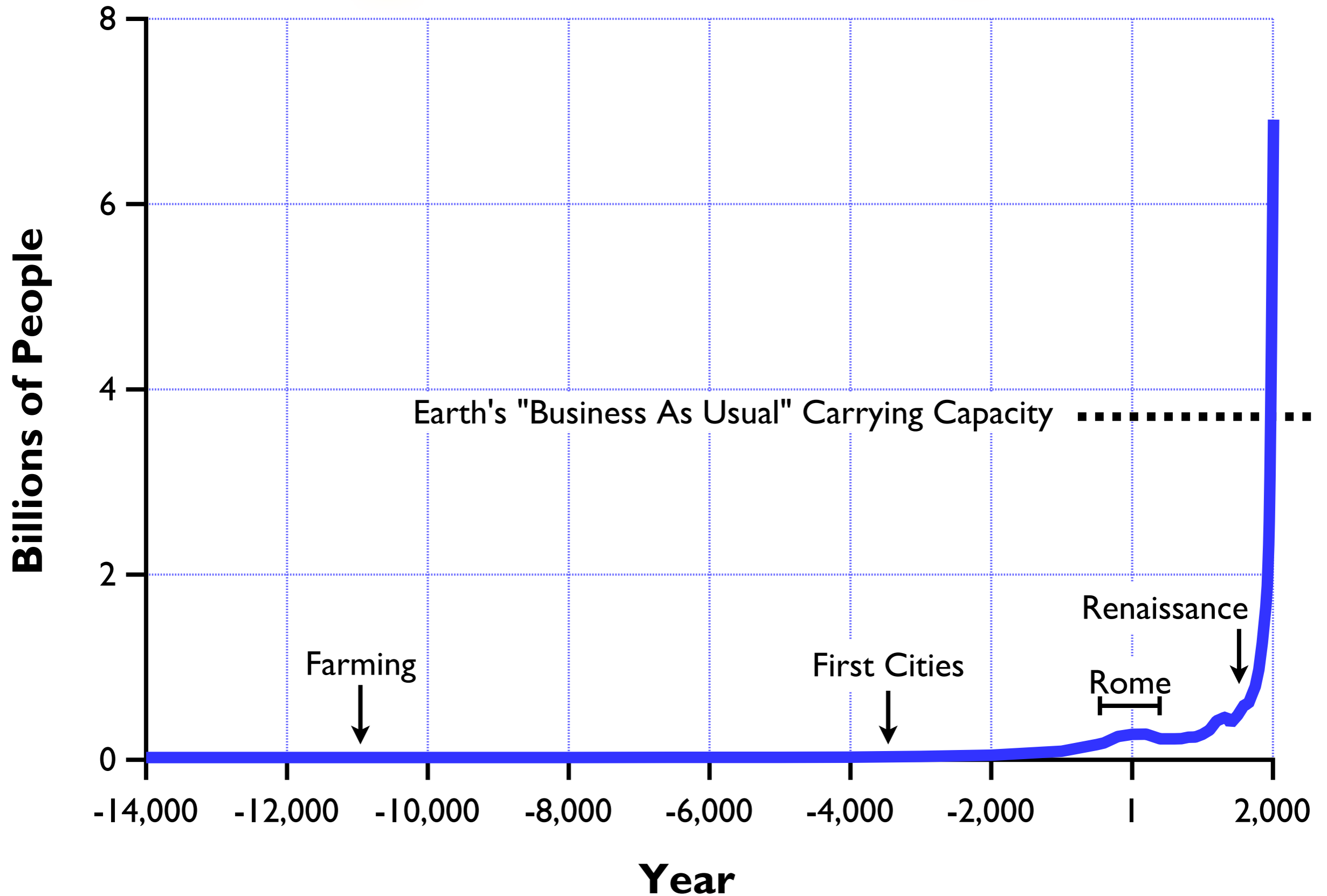
World Population



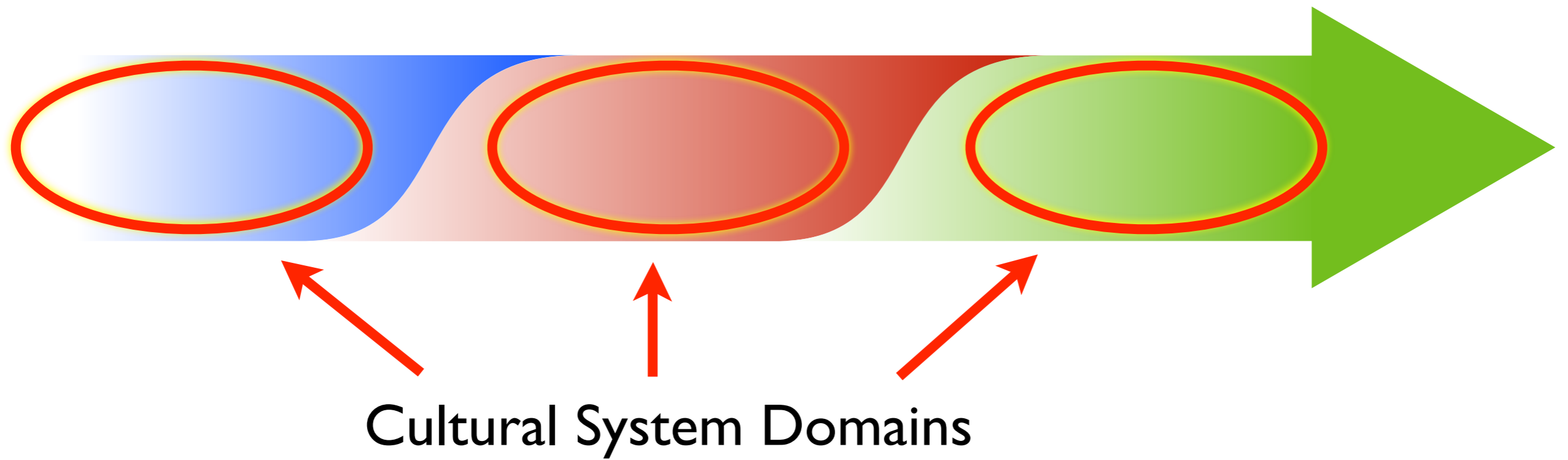
Where are we in history?



World Population From 14,000 BCE



Outline of History



Outline of History



Cultural System Transitions



MAPS OF TIME

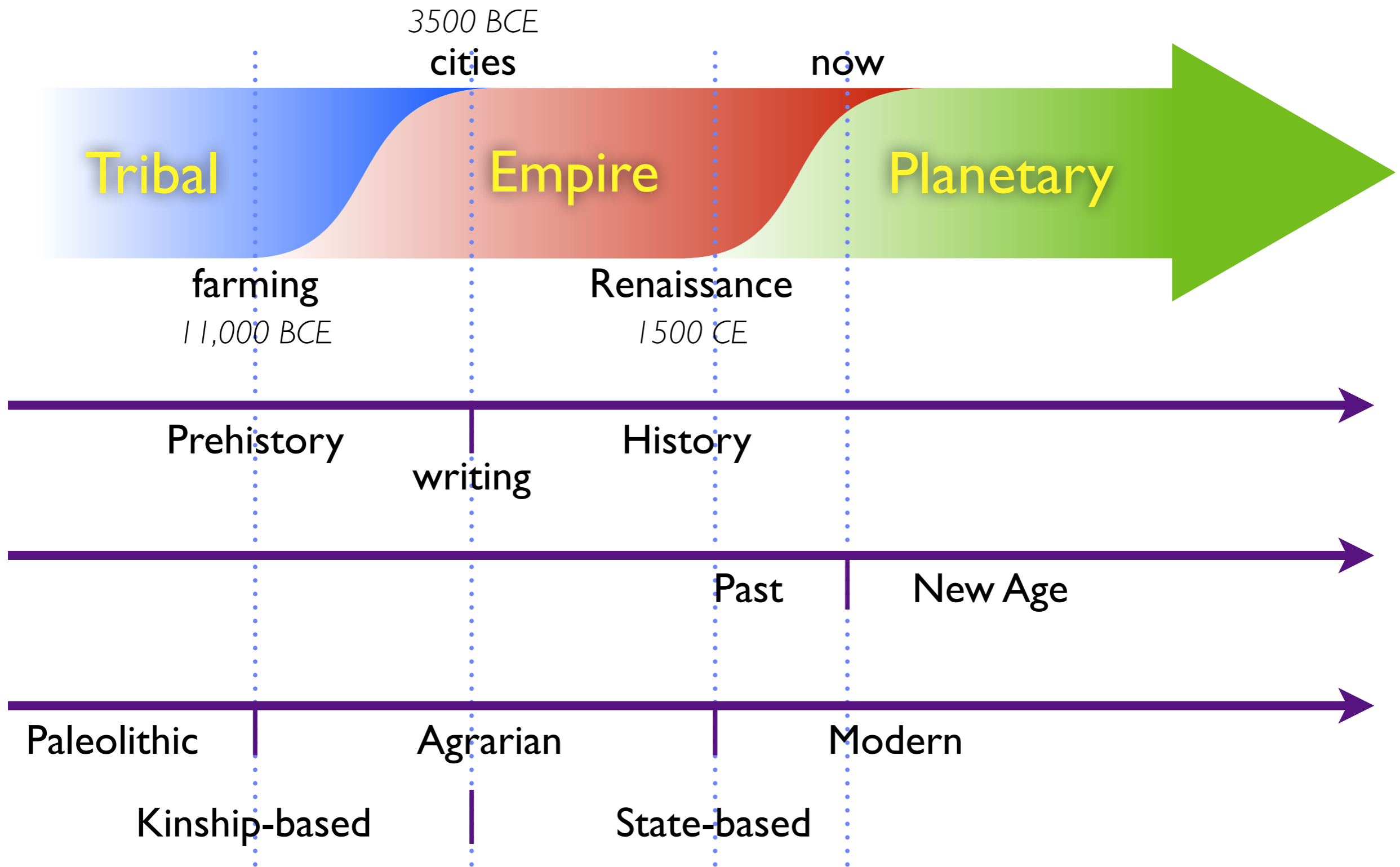
AN INTRODUCTION TO BIG HISTORY

David Christian

Foreword by WILLIAM H. McNEILL

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Outline of History



Cultural System-Domain Qualities

<i>Quality</i>	Tribal	Empire	Planetary
<i>Main Livelihood</i>	Hunting & Gathering	Agriculture	?
<i>Basis For Social Organization</i>	Kinship	Violence-enforced, Religiously-sanctioned Hierarchy	?
<i>Communications Level of Development</i>	Oral Stories, Songs and Verse	Elite Literacy	?

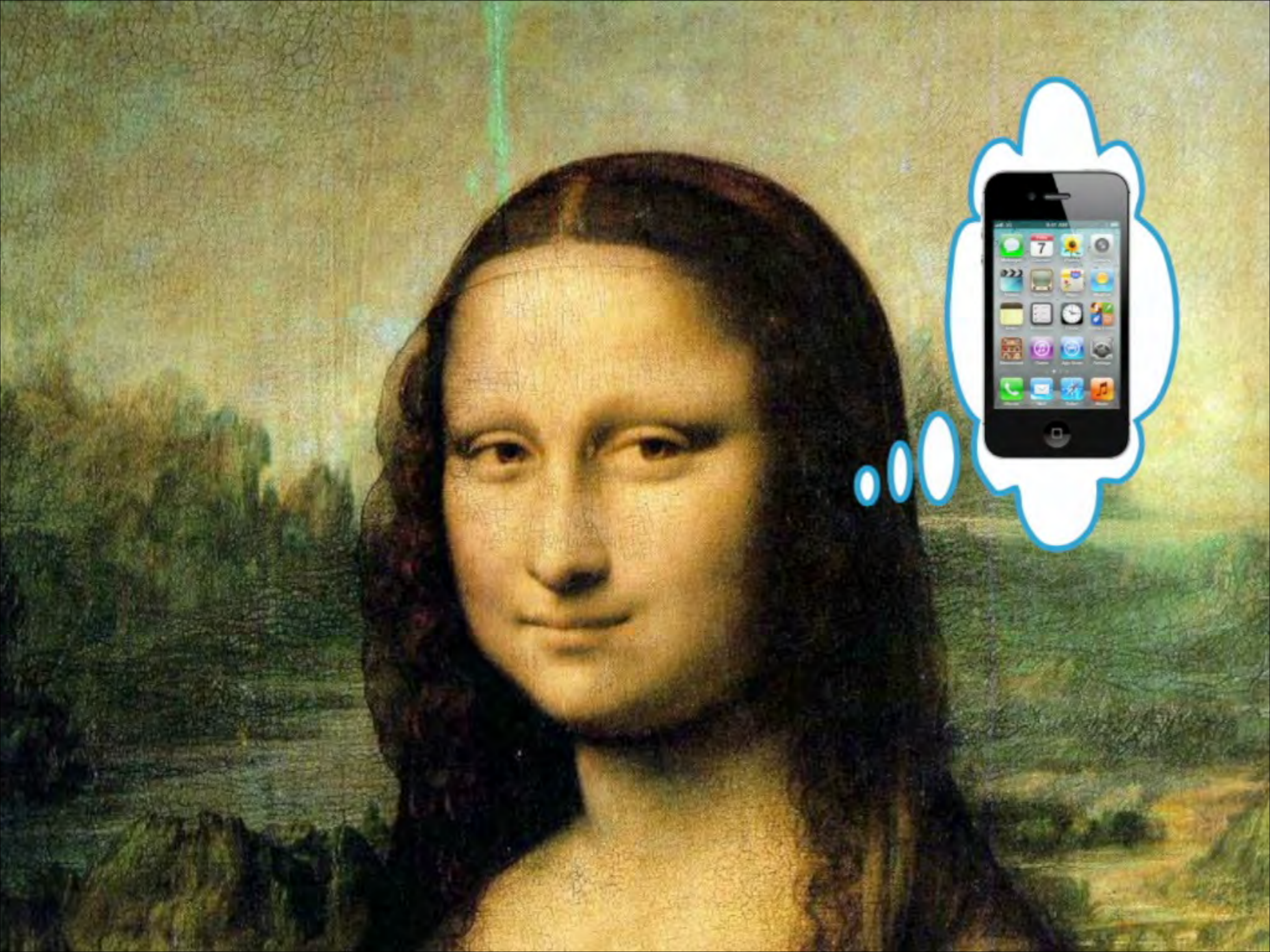
How Shall We Discern The Future?

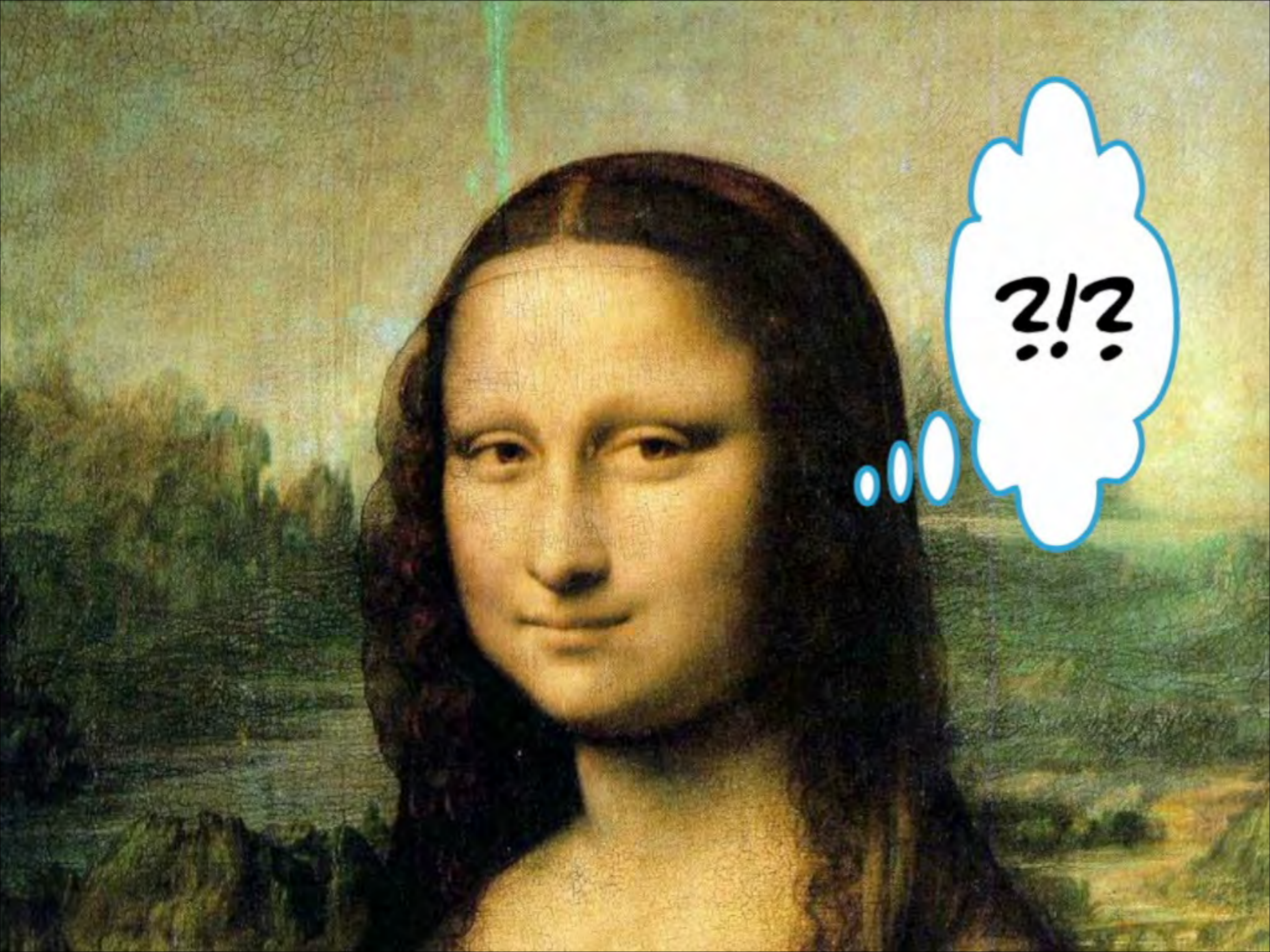
- Humanity's track record isn't good
- Hard to imagine beyond our domain





?!?



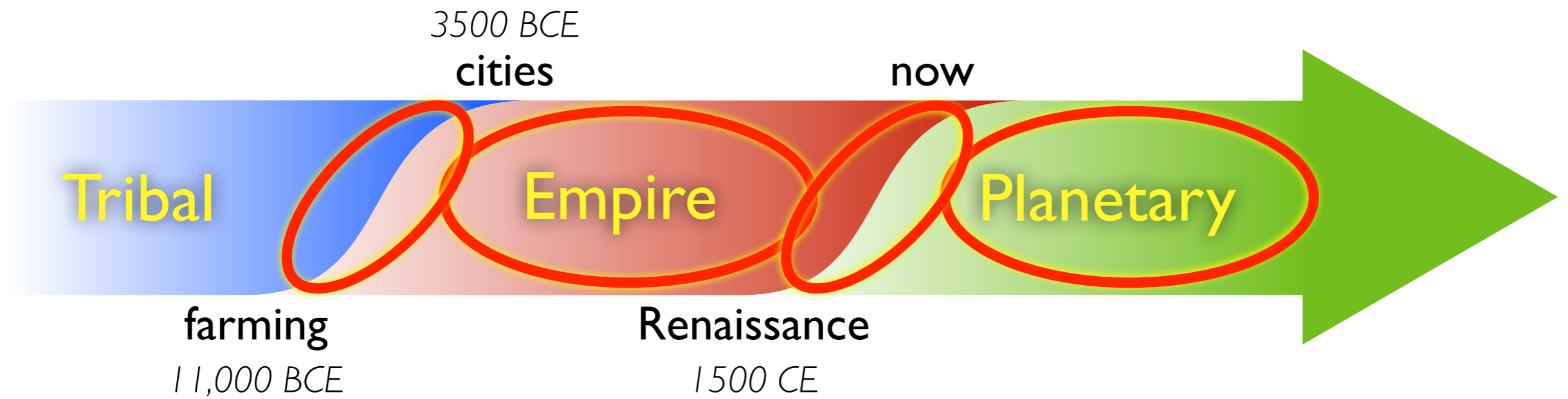


?!?

How Shall We Discern The Future?

- Humanity's track record isn't good
- Hard to imagine beyond our domain
- We need a strategy to look *across* the Empire-to-Planetary transition
- The strategy I'm using is to
 - * look for *analogous transitions in nature* (e.g. pioneer to succession)
 - * explore deep history *from the perspective of cultural system domains* in search of *essential patterns that transcend any one domain*

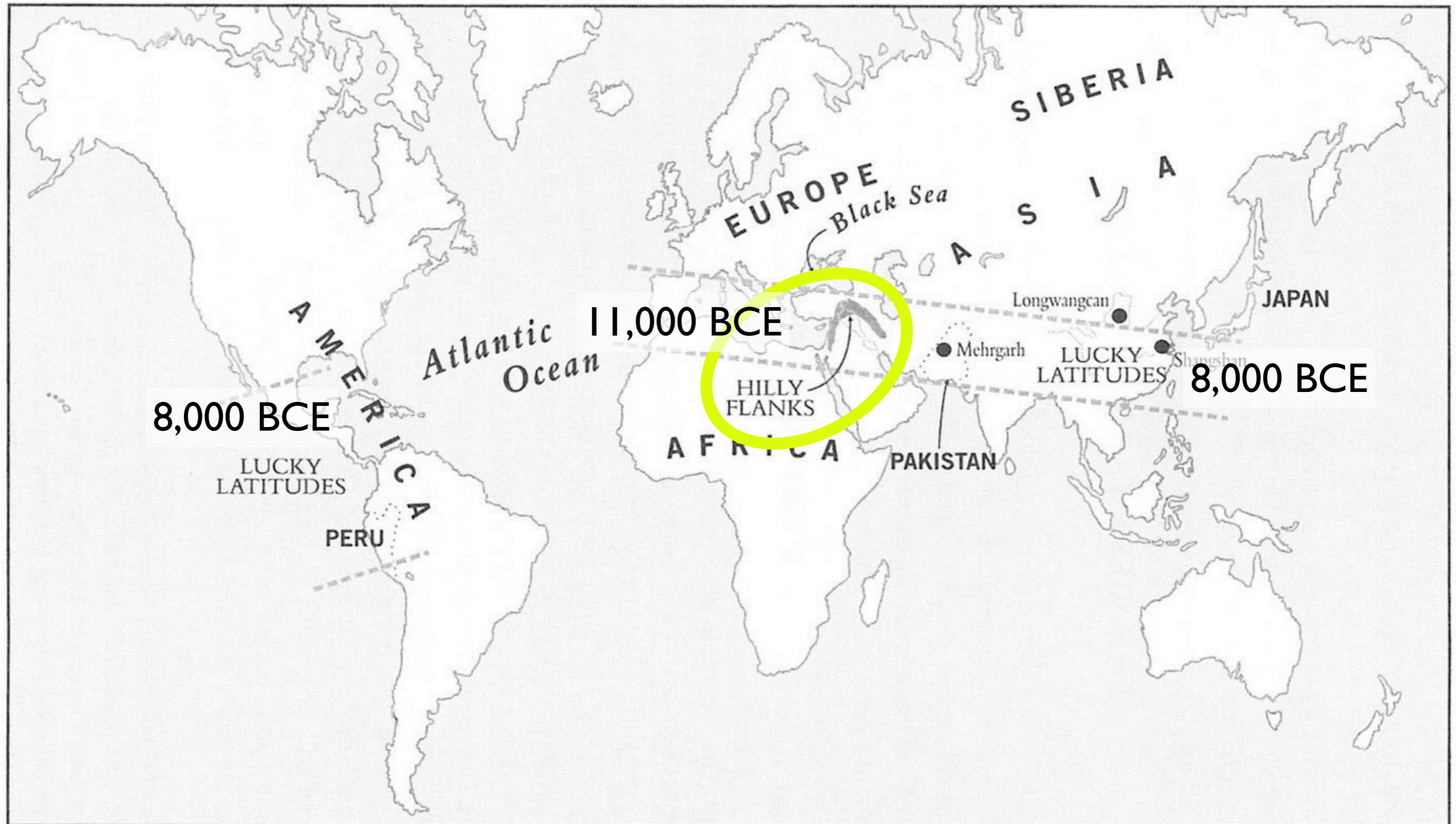
How We'll Proceed



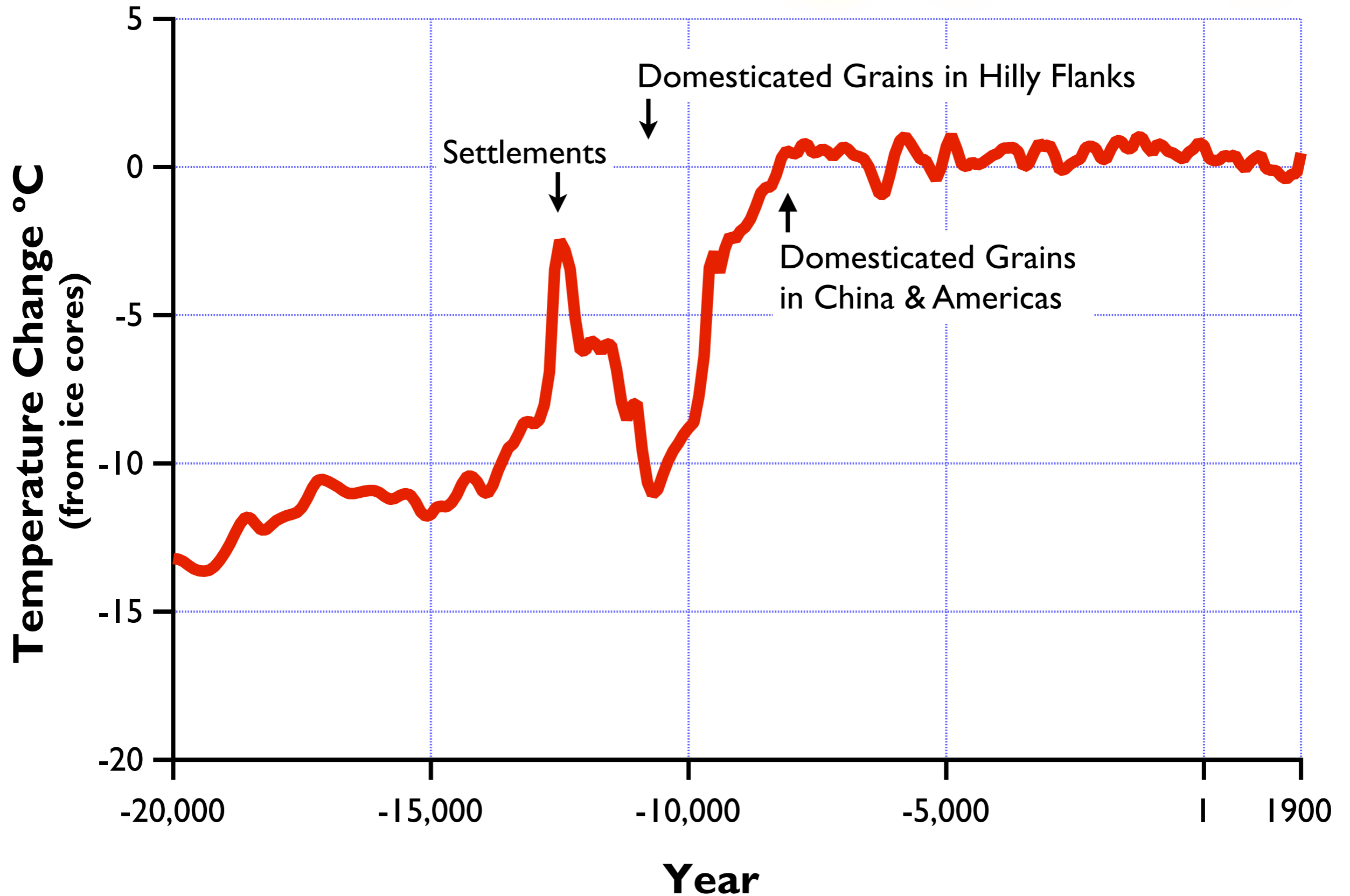
The Tribal-To-Empire Transition

<i>Quality</i>	Tribal	Transition	Empire
<i>Main Livelihood</i>	Hunting & Gathering	?	Agriculture
<i>Basis For Social Organization</i>	Kinship	?	Violence-Enforced Hierarchy
<i>Communications Level of Development</i>	Oral Stories, Songs and Verse	?	Elite Literacy

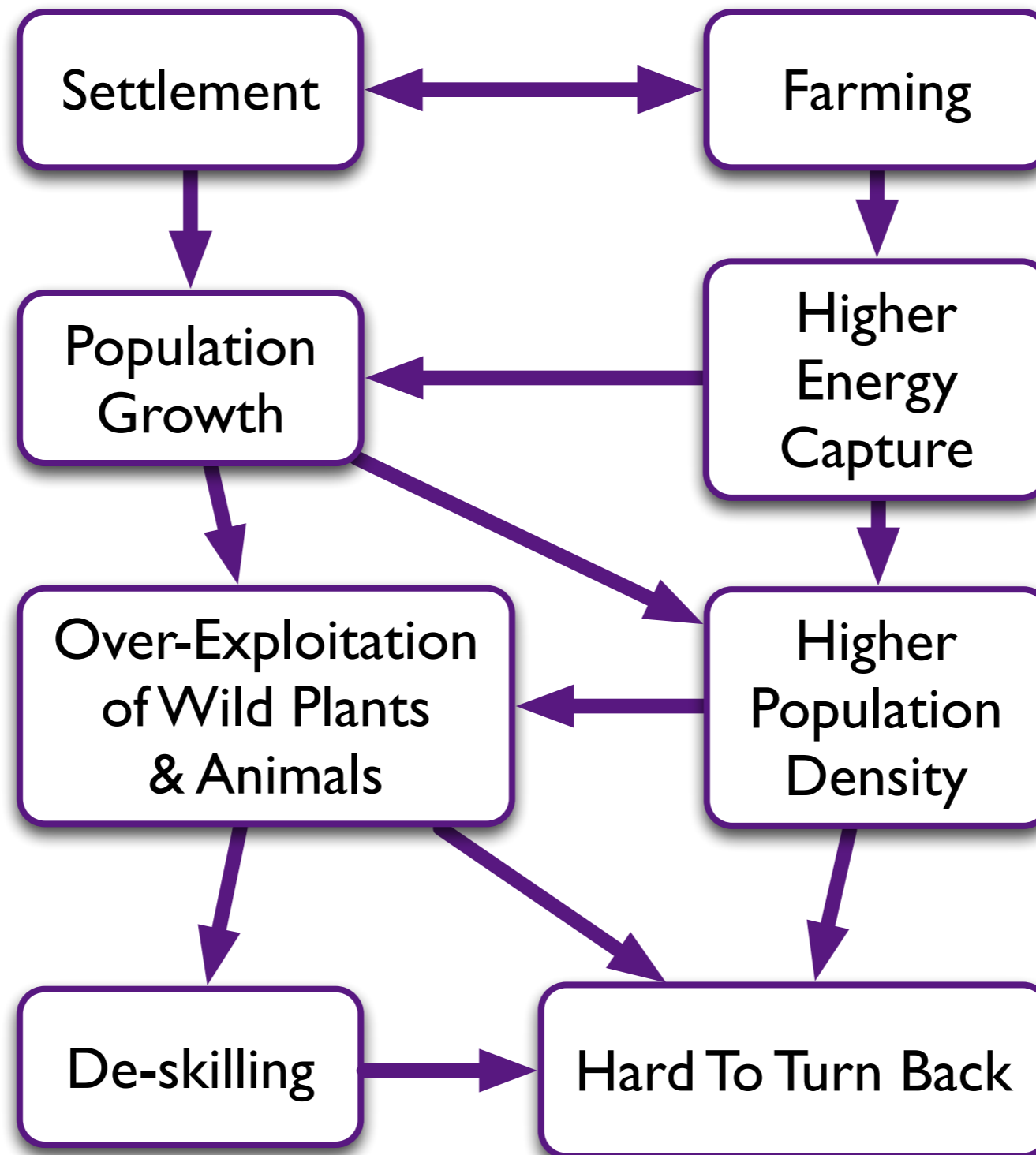
Lucky Latitudes For Agriculture



Global Climate Changes (Context)



Irreversible Transition to Agriculture

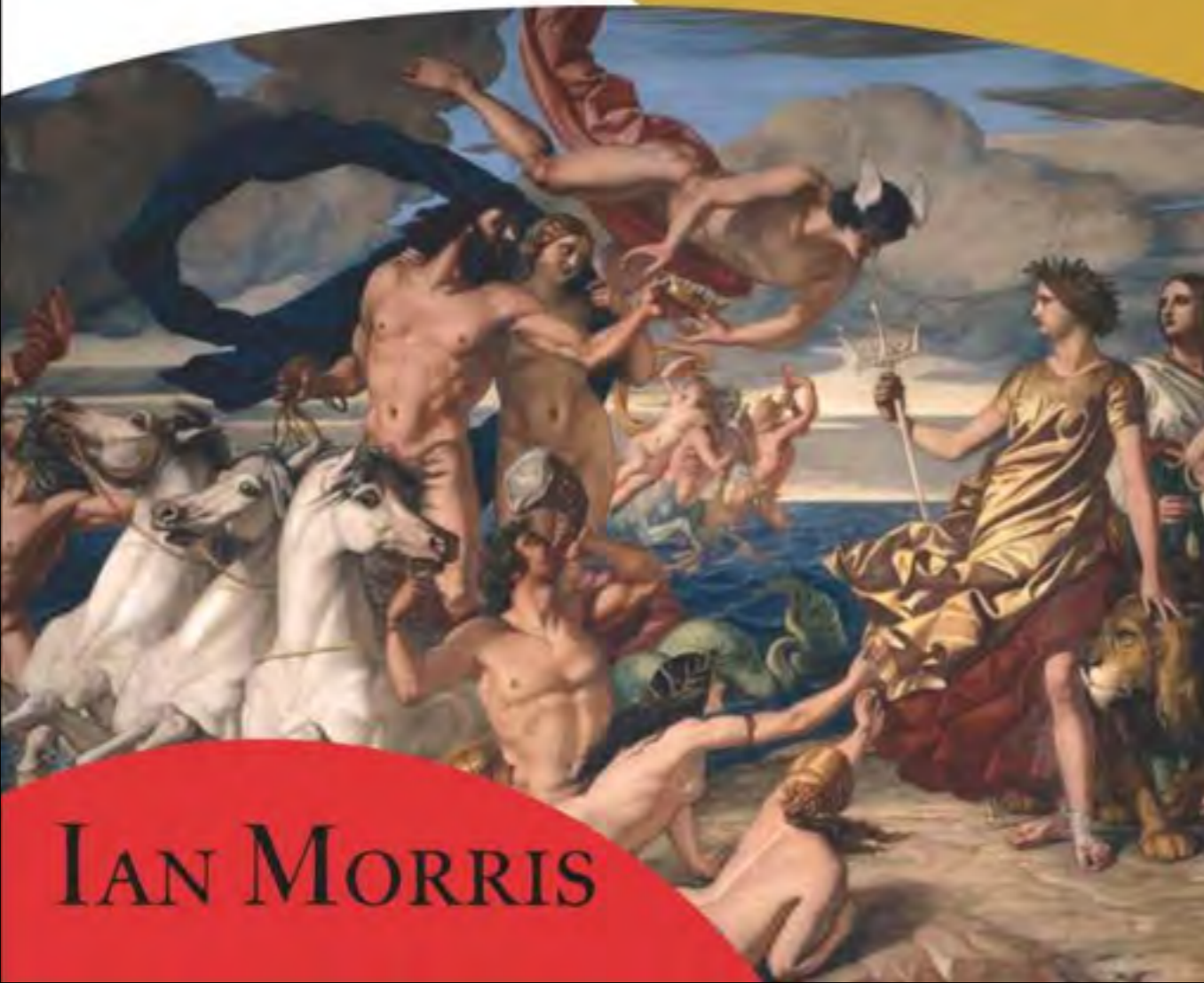


Kinship To Hierarchy

<i>Quality</i>	Tribal	Transition	Empire
<i>Main Livelihood</i>	Hunting & Gathering	Initiated by climate change; maintained by more energy /capita & /area	Agriculture
<i>Basis for Social Organization</i>	Kinship	?	Violence-enforced, Religiously-sanctioned Hierarchy
<i>Communications Level of Development</i>	Oral Stories, Songs and Verse	?	Elite Literacy

WHY THE WEST RULES—FOR NOW

The Patterns
of History, and
What They
Reveal About
the Future



IAN MORRIS

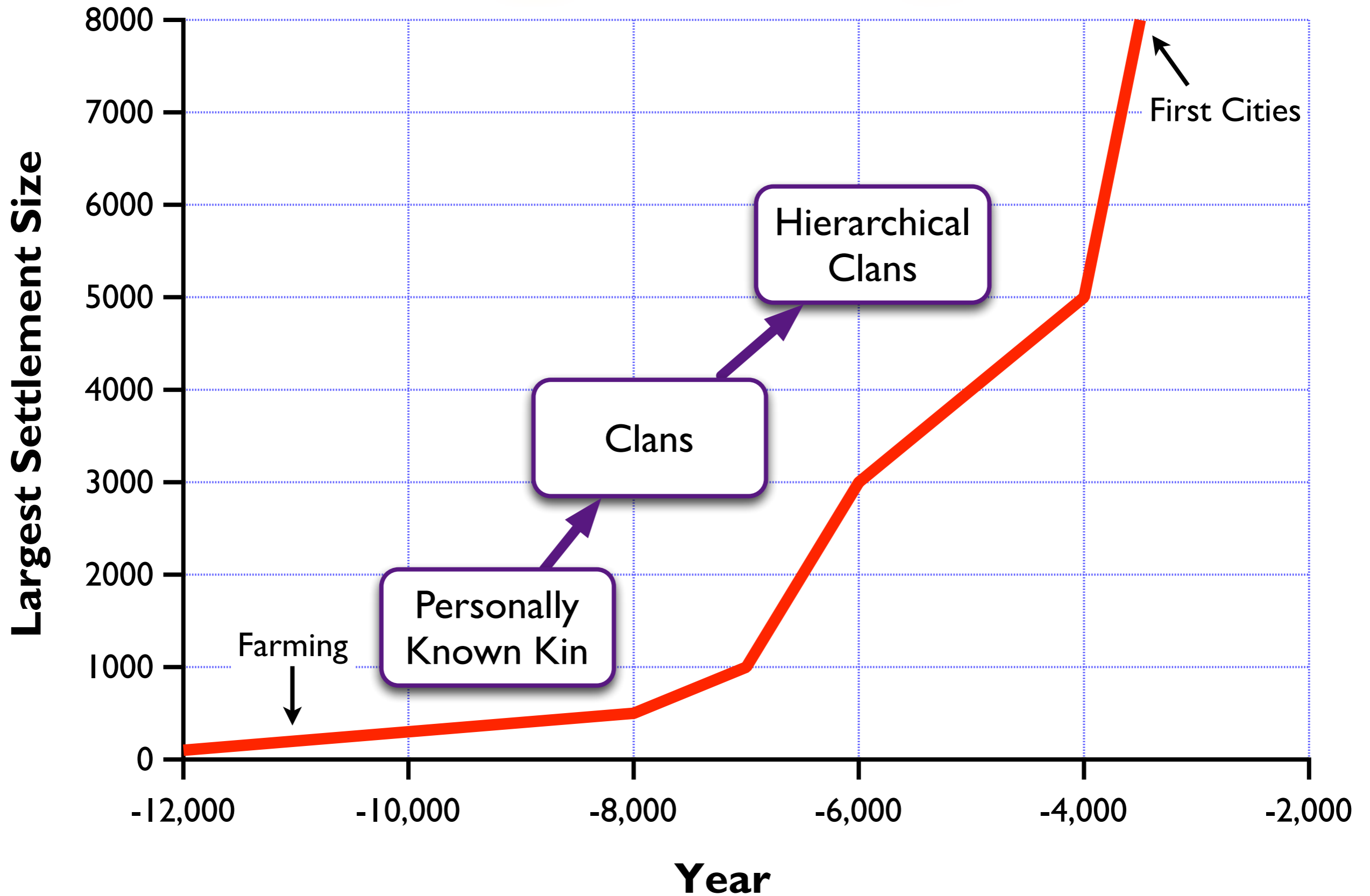
SOCIAL DEVELOPMENT

Ian Morris

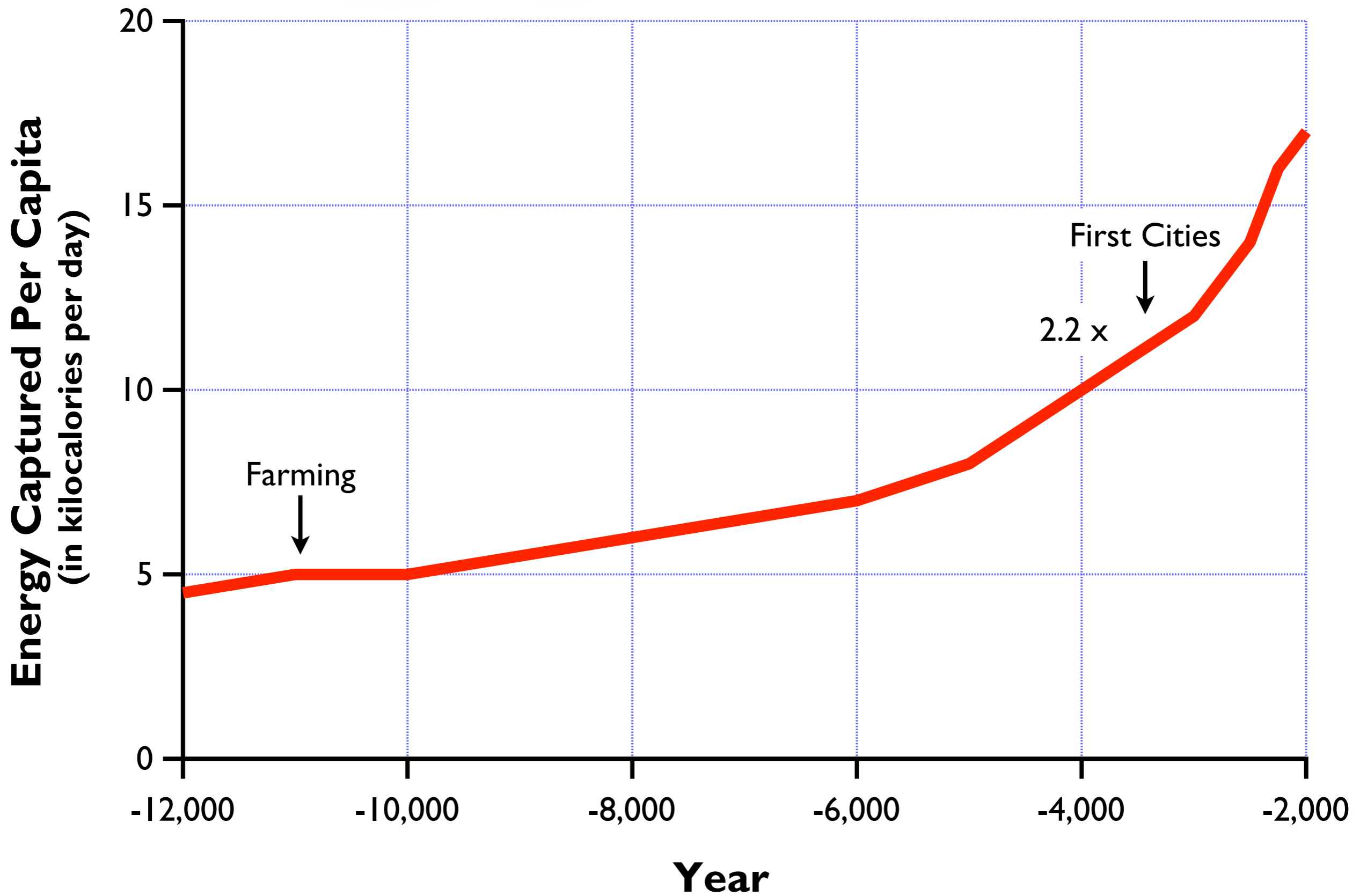
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Free pdf downloadable from
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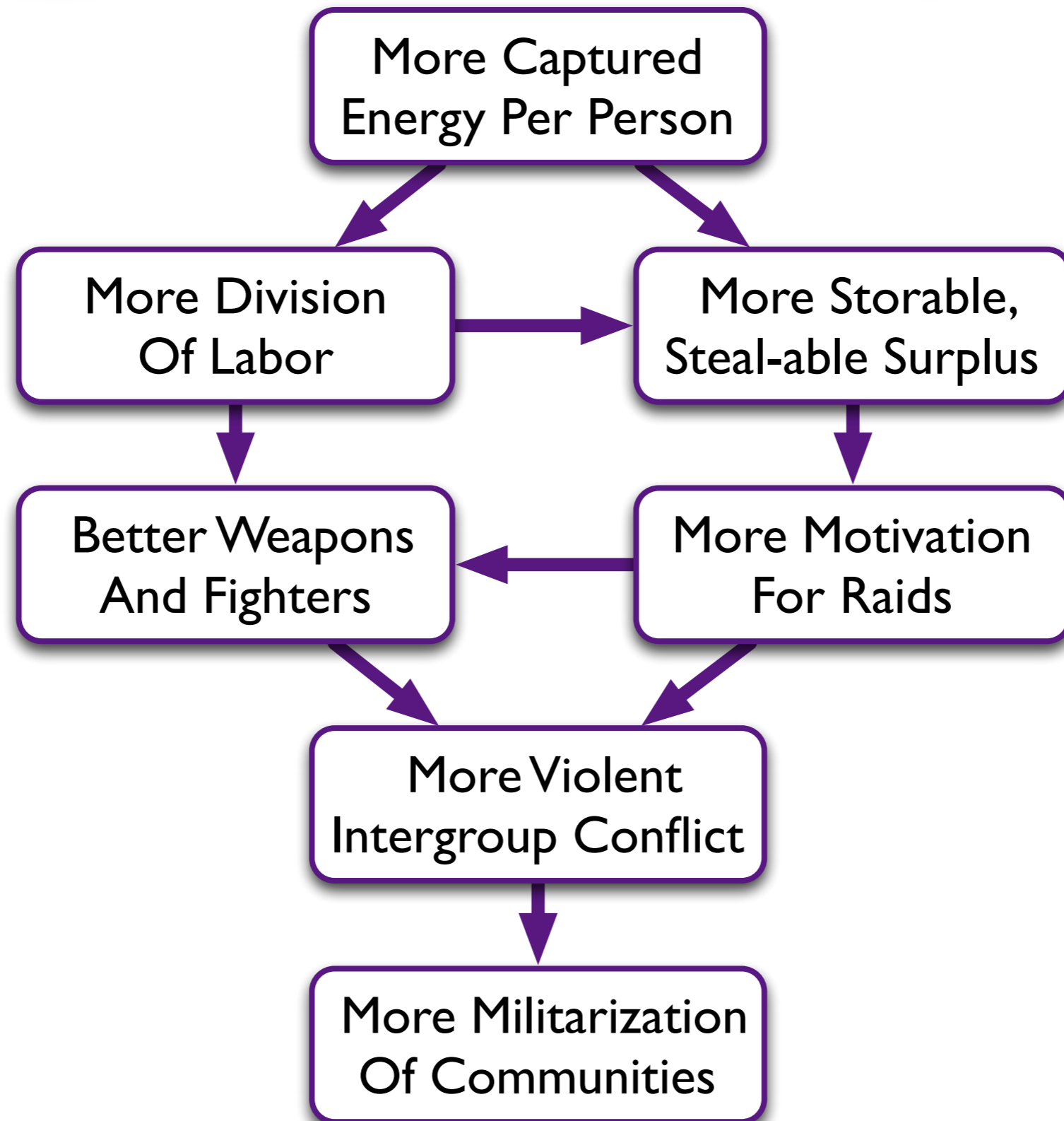
Scale Changes Social Dynamics



Energy Capture Per Person



Energy Changes Social Dynamics



Standard of Ur (war side)



Standard of Ur (hierarchy side)



Empire Era Hierarchy

- Penetrates into all aspects of culture, e.g.
 - * adults over children
 - * men over women
 - * powerful men and women over others
 - * humans over nature
 - * mind or spirit over the body
 - * sky gods over everything
- This legacy is still powerfully with us

Orality To Literacy

<i>Quality</i>	Tribal	Transition	Empire
<i>Main Livelihood</i>	Hunting & Gathering	Initiated by climate change; maintained by more energy	Agriculture
<i>Basis for Social Organization</i>	Kinship	Driven by increase of community scale and wealth	Violence-Enforced, Religiously-Sanctioned Hierarchy
<i>Communications Level of Development</i>	Oral Stories, Songs and Verse	?	Elite Literacy

Transition To Literacy

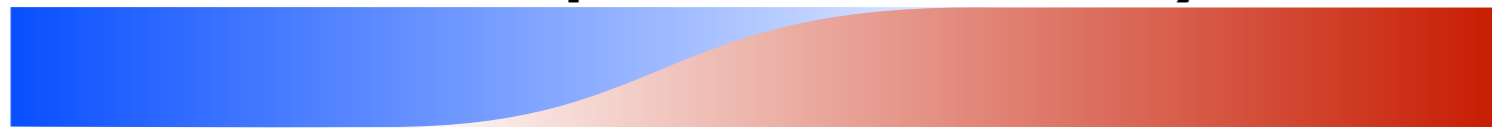
- Full literacy preceded by written numbers
- Much early writing focused on accounting and related record-keeping
- Literacy required enough division of labor and a large enough community to have multiple scribes; not surprisingly, it emerges along with the first cities (about 3200 BCE)
- Record-keeping enabled orderly control of large areas and populations; it was an essential complement to military force

Transition Timing

Foraging to Agriculture



Kinship to Hierarchy



Orality to Literacy



Tribal
Domain

Transition

Empire
Domain

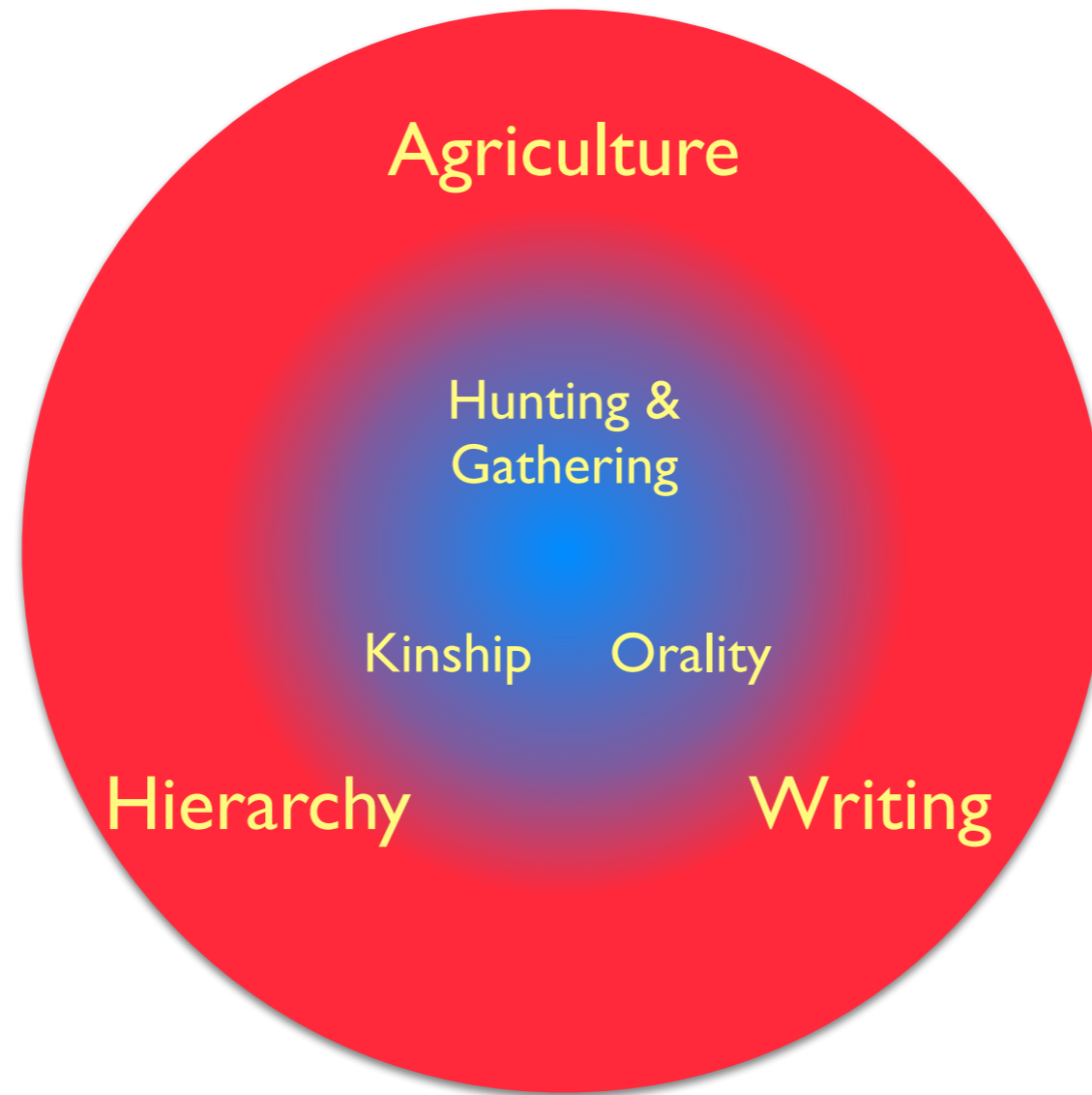
Lessons From The Transition

- The driving forces (e.g. improved agricultural yields, population growth) are gradual and unobtrusive
- Small changes can grow to irreversibility
- Changes in one part of the system can destabilize other parts, driving change throughout the system
- Powered by positive feedback loops, the changes progress until a new stable constellation of qualities is found
- Kinship, hunting & gathering and orality never go away; they just become secondary

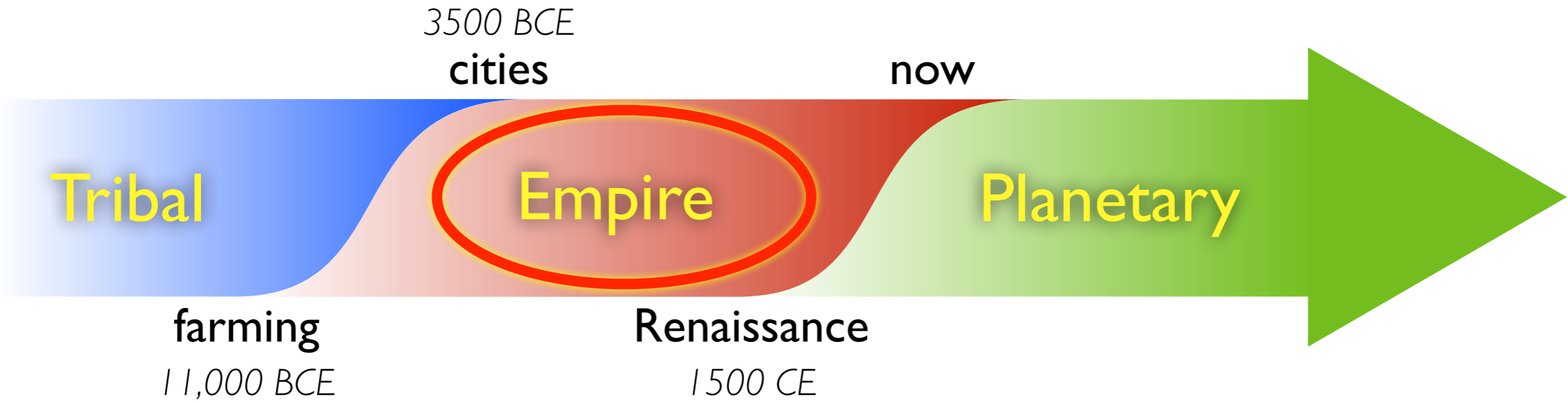
Tribal Era



Empire Era



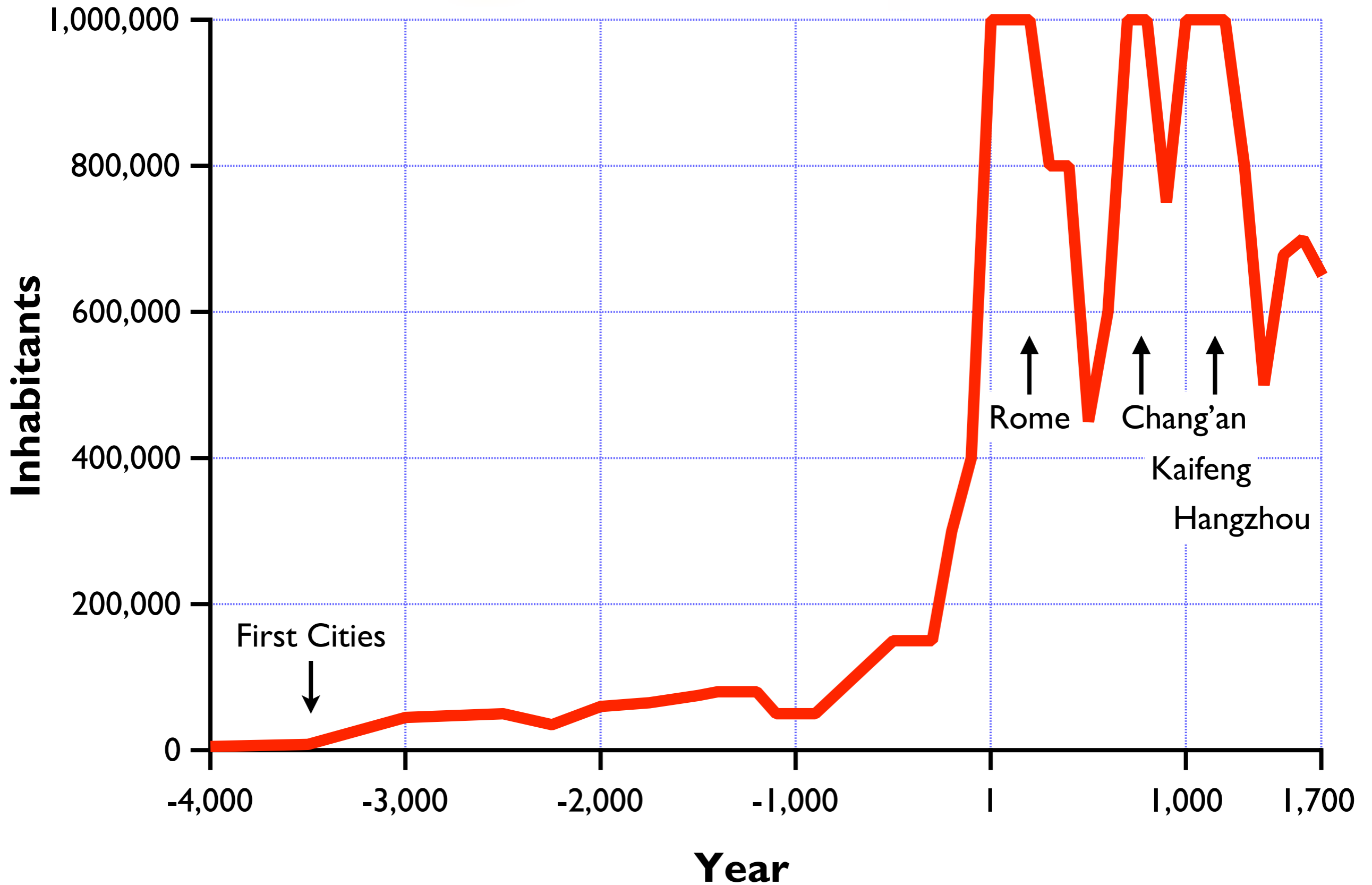
Empire Era



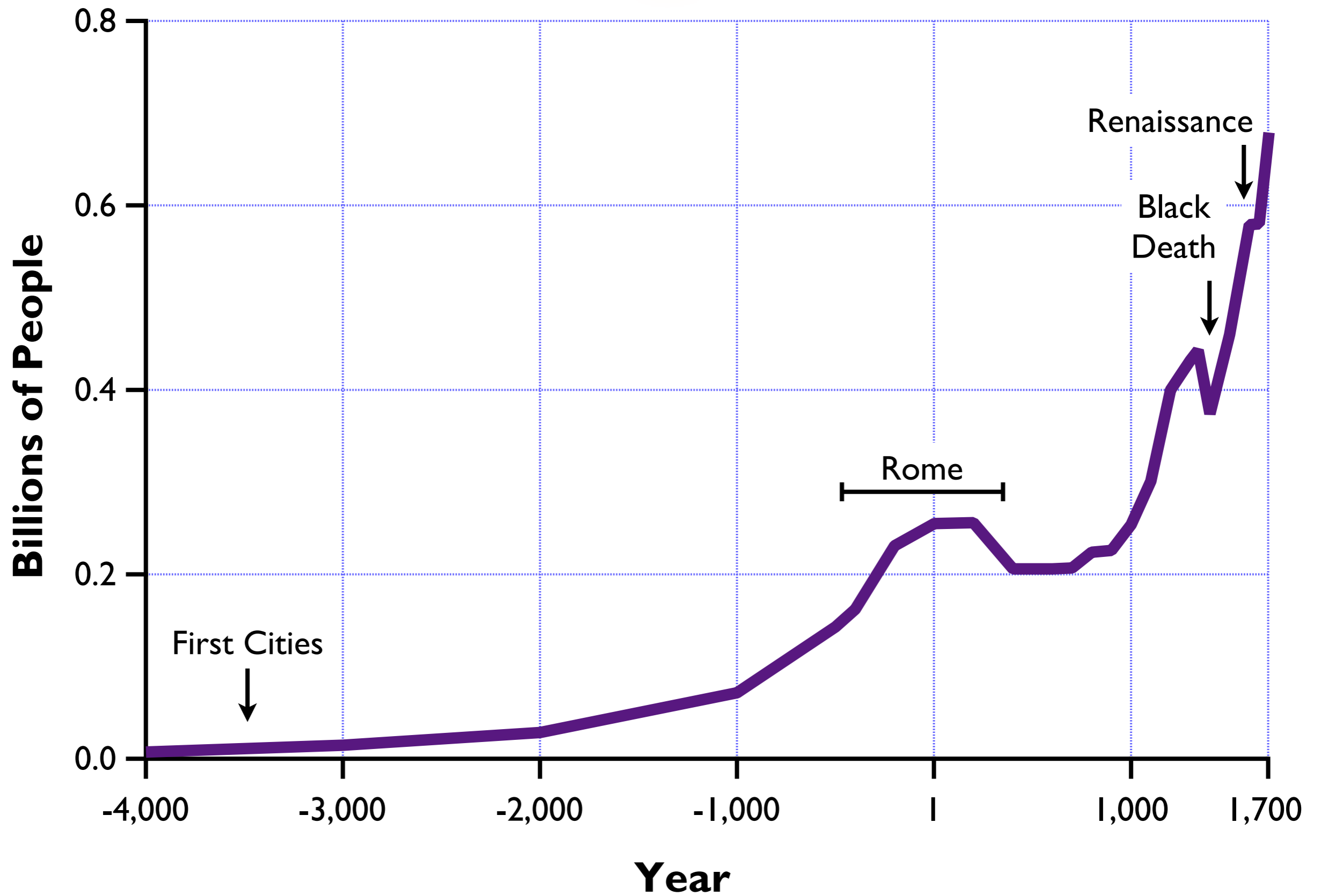
Empire Era Characteristics

- Cultural *system domain* characterized by:
 - * Agriculture (>90% of population)
 - * Hierarchy (violence-enforced, religiously-sanctioned)
 - * Literacy (<10% of population)
- Its basic pattern remained stable for 4500 years (from 3000 BCE to 1500 CE)
- Nevertheless, there were some changes during the era ...

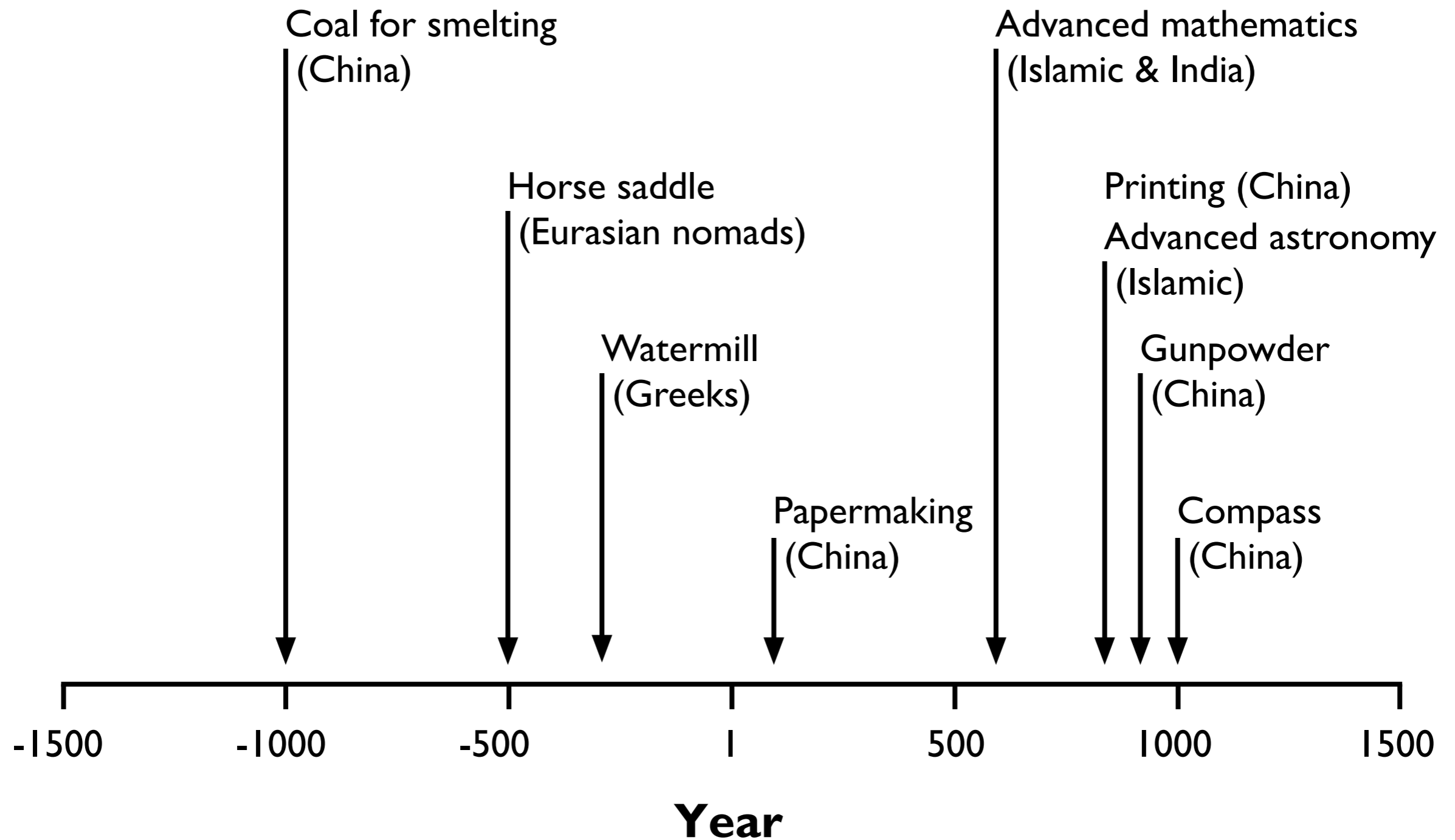
Largest Settlements



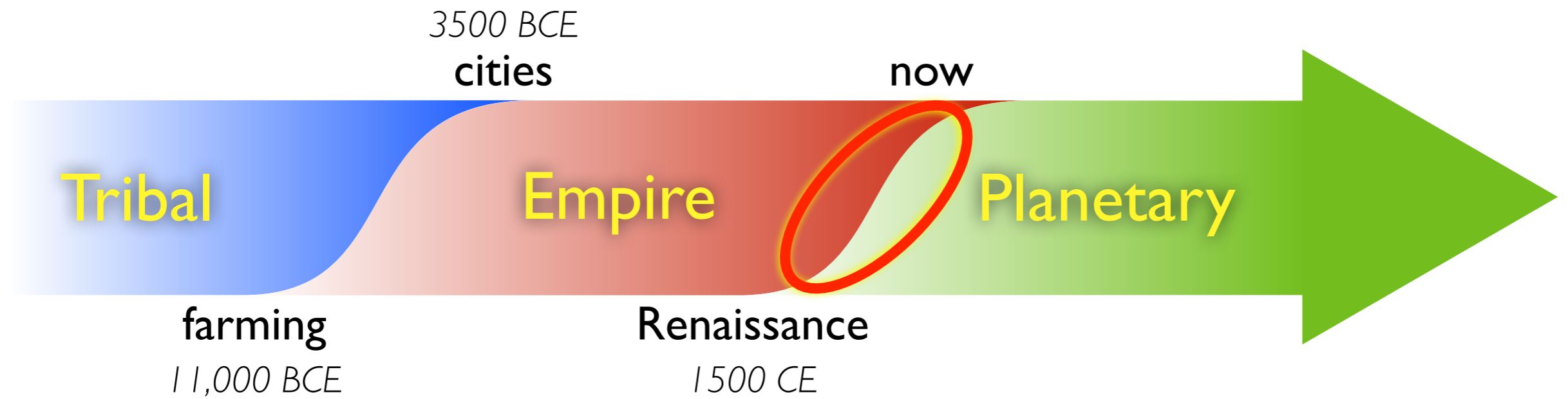
World Population



Later Empire Era Inventions

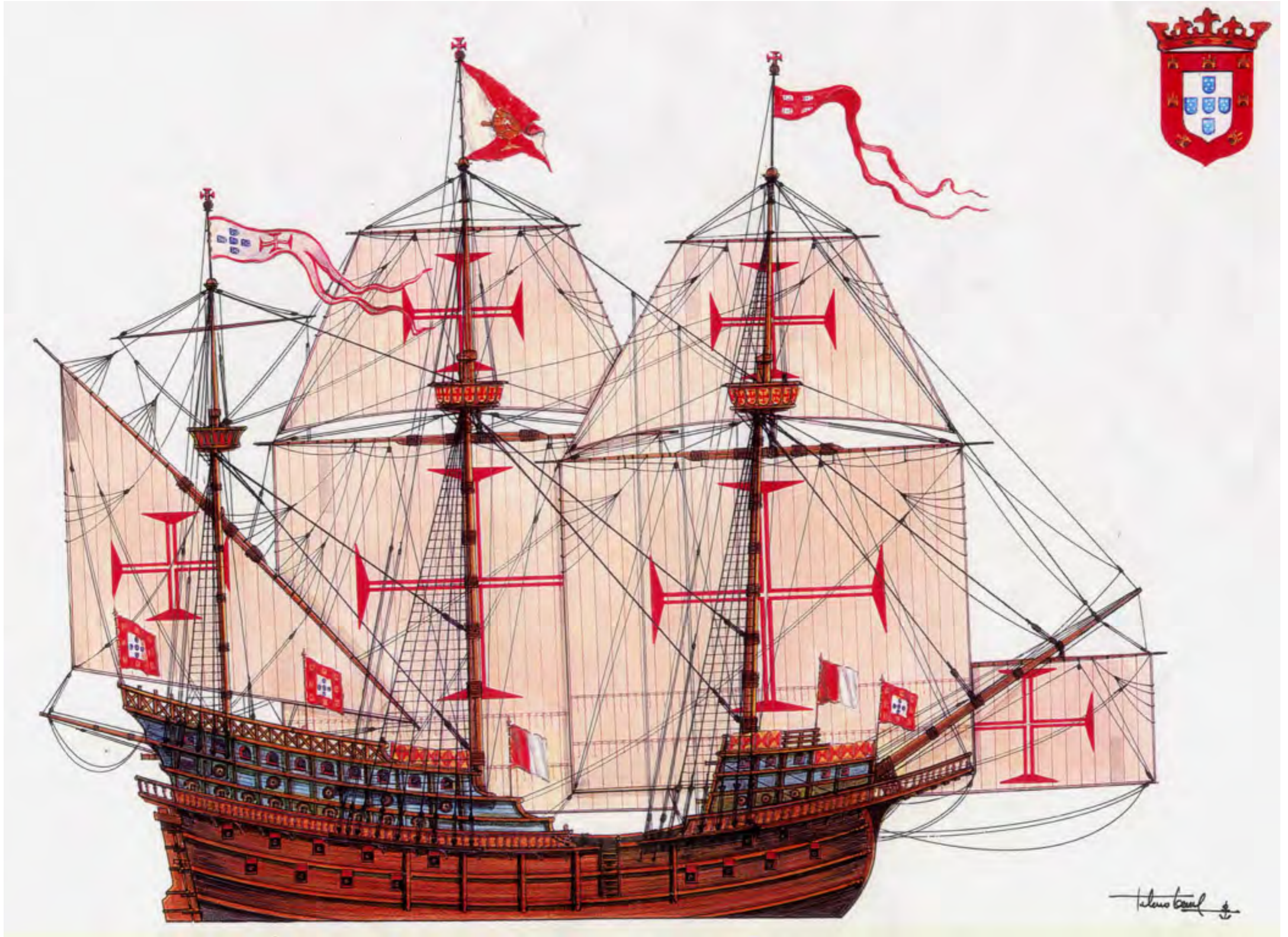


The Empire-To-Planetary Transition

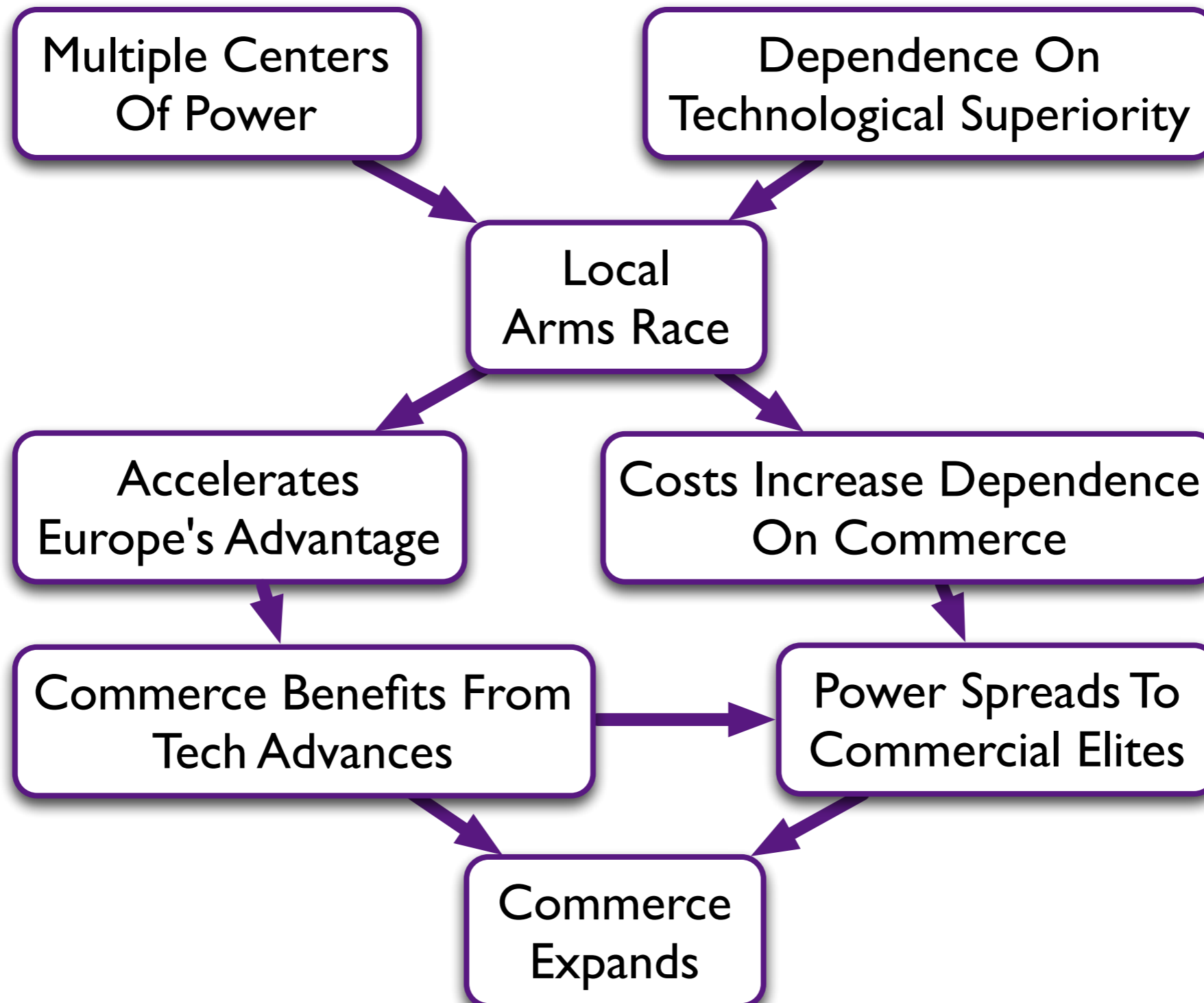


Innovation Seen As An Asset

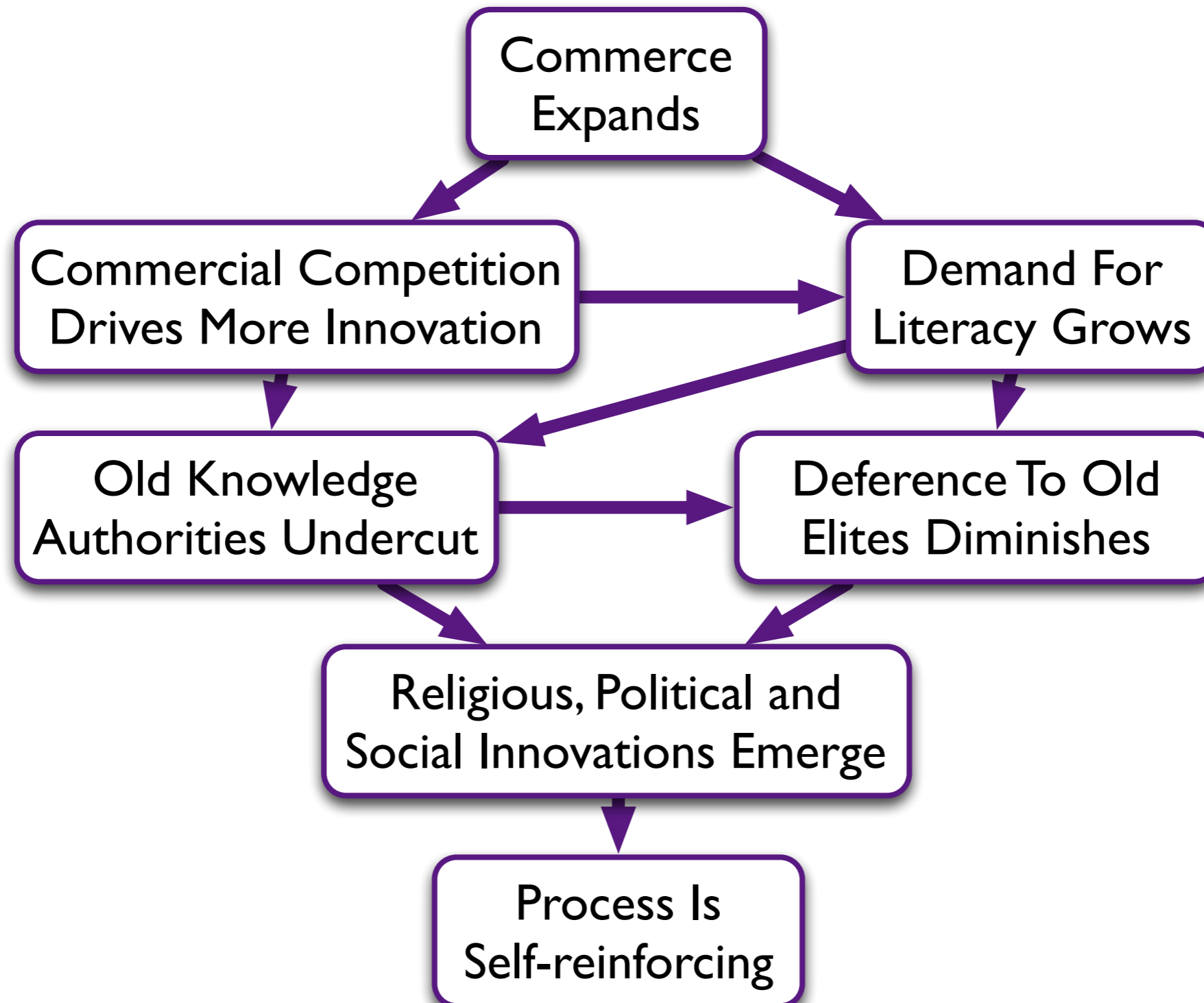
- “Innovation” includes technological, social, economic, philosophical change
- Innovation has always been a factor
 - * Before Empire Era, too slow to be noticed
 - * During Empire Era, elites wary of innovation
- Europe best positioned to lead on using innovation (like the Hilly Flanks were with agriculture)
 - * Multiple competing centers of power
 - * Knew that others (Greece, China, etc.) were more advanced; could learn from them
 - * Major initial success with warships



Innovation's European Dynamics



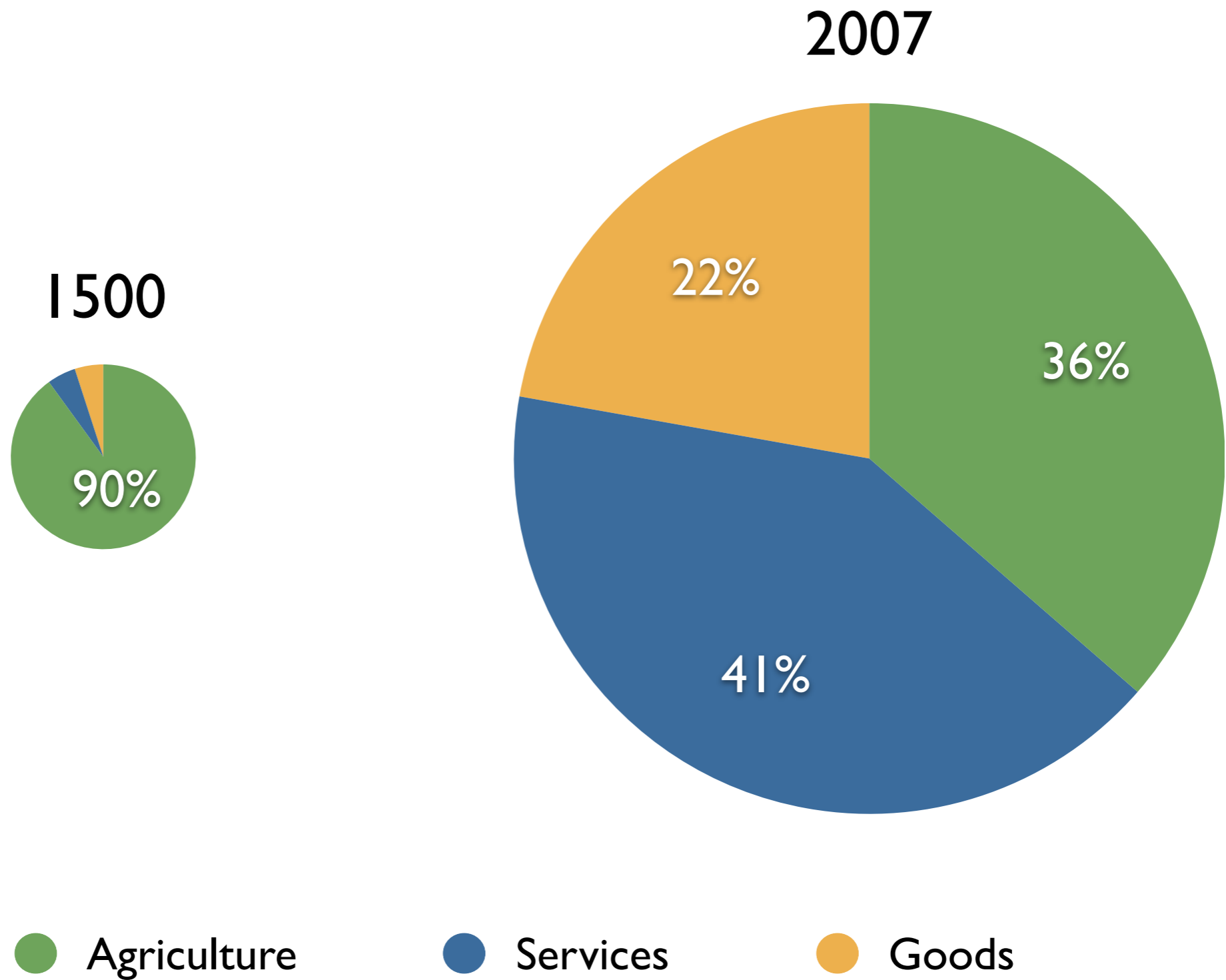
Innovation's European Dynamics



The Empire-To-Planetary Transition

<i>Quality</i>	Empire	Transition	P.E. so far
<i>Main Livelihood</i>	Agriculture	?	?
<i>Basis for Social Organization</i>	Violence-enforced, Religiously-sanctioned Hierarchy	?	?
<i>Communications Level of Development</i>	Elite Literacy	?	?

Worldwide Workforce



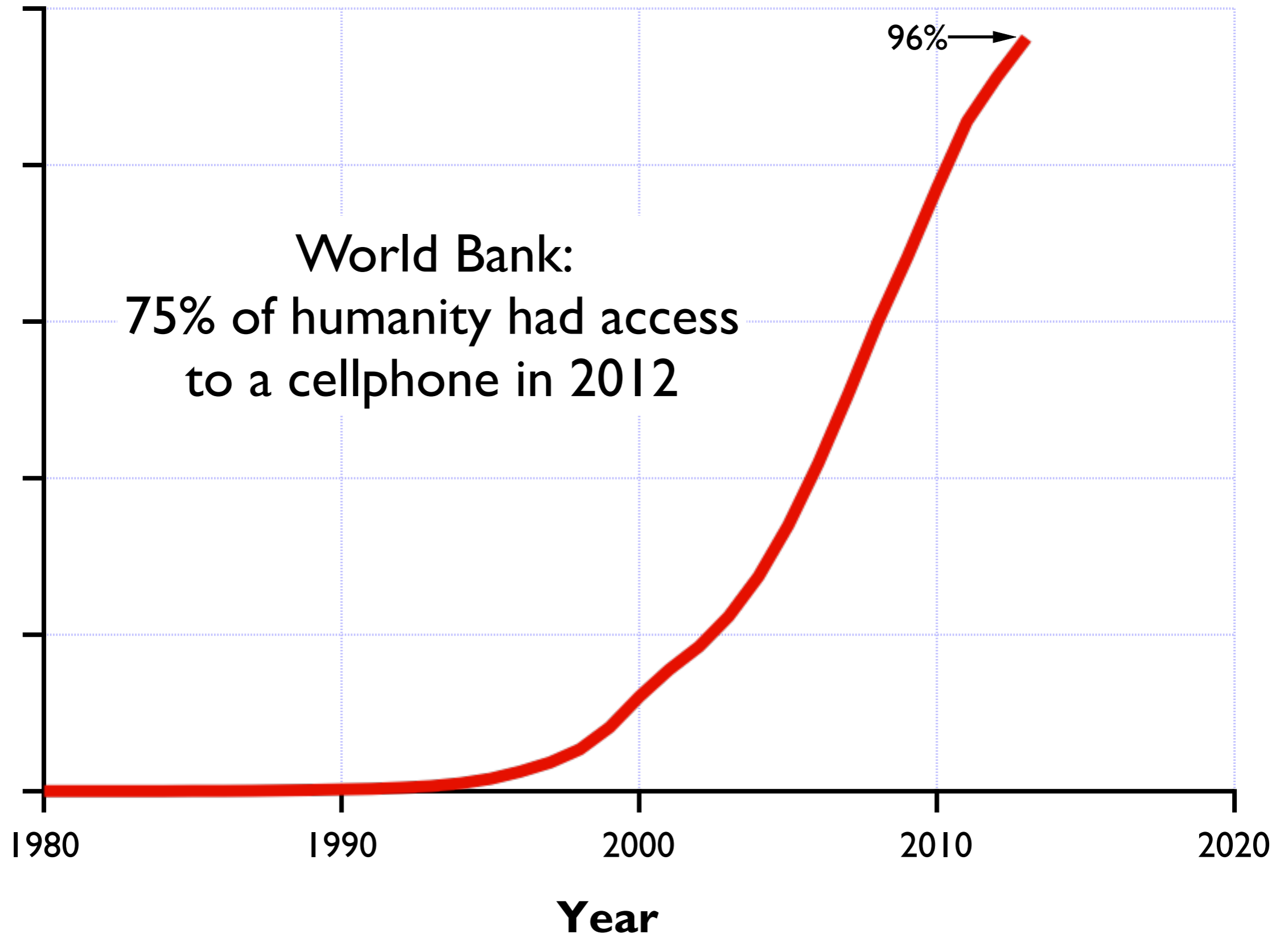
The Empire-To-Planetary Transition

<i>Quality</i>	Empire	Transition	P.E. so far
<i>Main Livelihood</i>	Agriculture	Steady growth of diverse goods and services	No more “main”; huge diversity of occupations
<i>Basis for Social Organization</i>	Violence-enforced, Religiously-sanctioned Hierarchy	?	?
<i>Communications Level of Development</i>	Elite Literacy	?	?

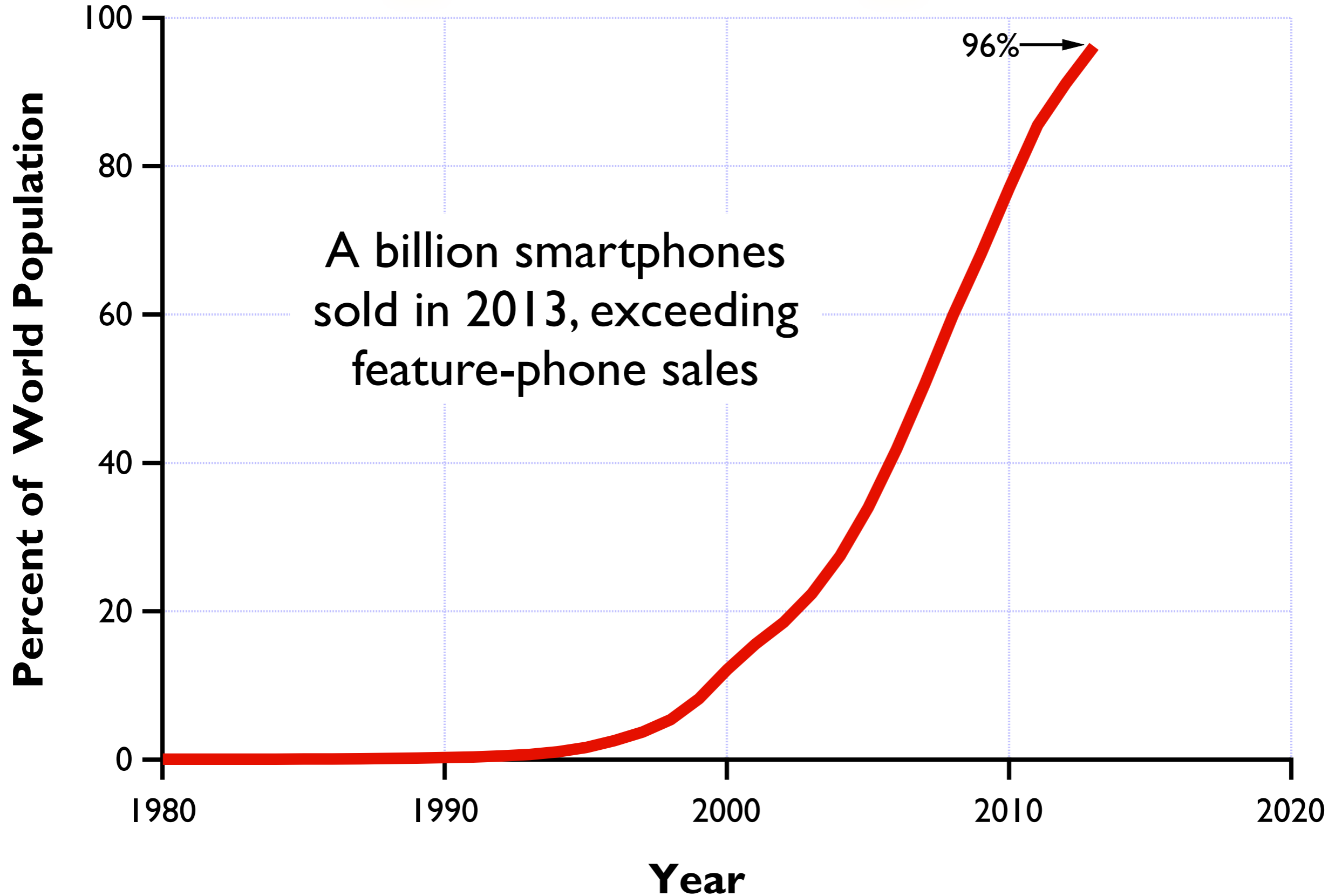
Communications Level of Development

- Expansion of travel
- Expansion of literacy (now 84% worldwide)
- Increase in speed of communications
- Beyond language: multi-media, multi-sense
- Increase in person-to-person access

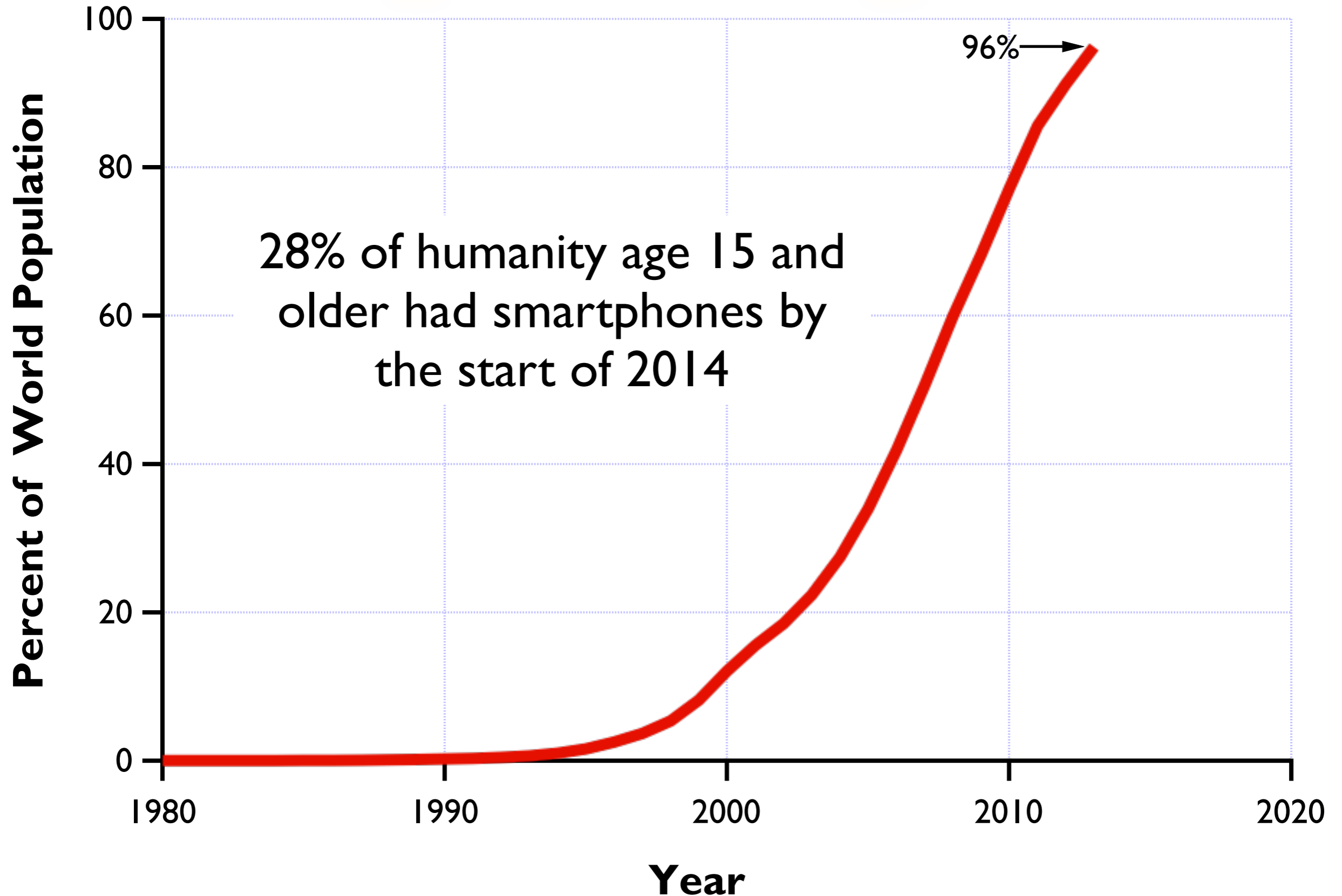
Cellphone Subscriptions



Cellphone Subscriptions



Cellphone Subscriptions



Communications Level of Development

- Expansion of travel
- Expansion of literacy
- Increase in speed
- Beyond language: multi-media, multi-sense
- Increase in person-to-person access
- Just as the Empire Era needed literacy to come into full form, so the Planetary Era needs the new telecommunications and multi-media tools

The Empire-To-Planetary Transition

<i>Quality</i>	Empire	Transition	P.E. so far
<i>Main Livelihood</i>	Agriculture	Steady growth of commerce and industry	No more “main”; huge diversity of occupations
<i>Basis for Social Organization</i>	Violence-enforced, Religiously-sanctioned Hierarchy	?	?
<i>Communications Level of Development</i>	Elite Literacy	Major increases in literacy, modes, speed and reach	Widespread electronic multi-media

More People Get More Choice

- Choice of
 - * occupation
 - * place of employment
 - * political leaders
 - * friends and associates
 - * marriage partners
 - * where to live
 - * information sources
 - * beliefs
 - * goods and services
- All have increased dramatically in past 500 years, enabled by better communications, travel, trade and courageous pioneers
- Choice destroys the power of coercion

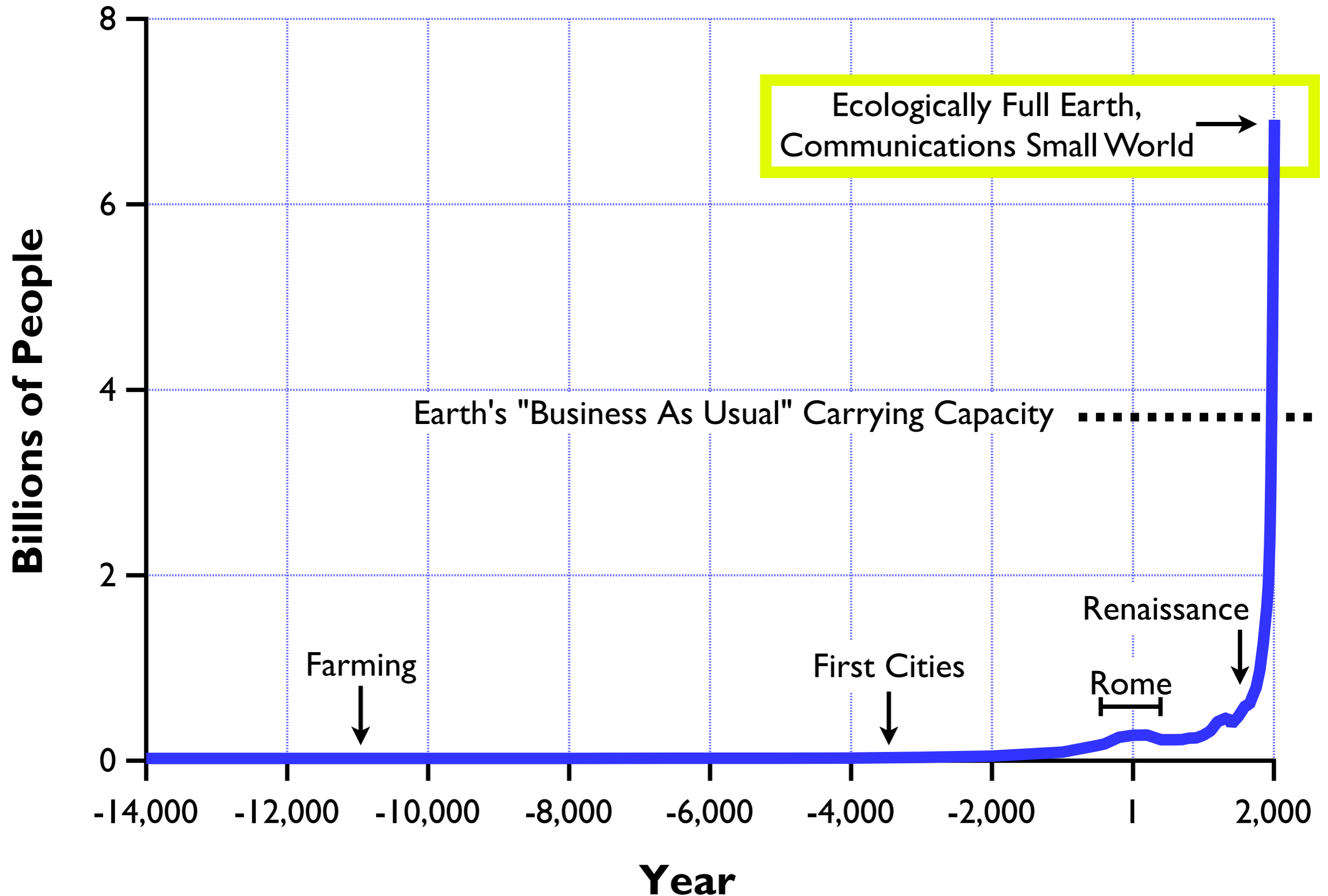
Two Responses To More Choice

- A shift to more indirect, covert and psychological methods of control
 - * Depends on control of the flow of information
- The growth of self-organized consensual collaboration on scales from personal to global
 - * This is analogous to the way nature organizes complexity -- through co-evolution and symbiosis

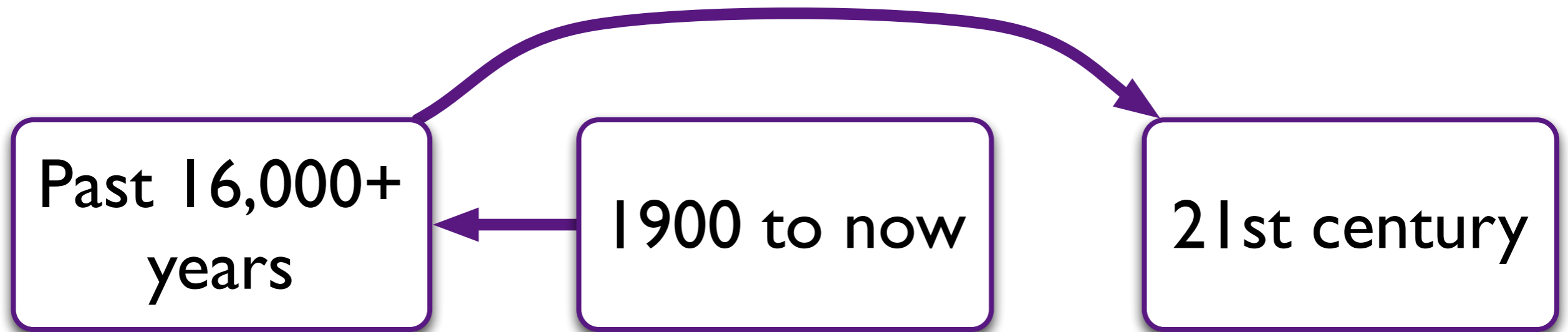
The Empire-To-Planetary Transition

<i>Quality</i>	Empire	Transition	P.E. so far
<i>Main Livelihood</i>	Agriculture	Steady growth of commerce and industry	No more “main”; huge diversity of occupations
<i>Basis for Social Organization</i>	Violence-enforced, Religiously-sanctioned Hierarchy	More people have more choice in their lives	Self-organizing consensual collaboration
<i>Communications Level of Development</i>	Elite Literacy	Major increases in literacy, modes, speed and reach	Widespread electronic multi-media

We Are In A Different World



Time To Look Forward



Thinking About The Future

- The Empire Era is still strong in our minds

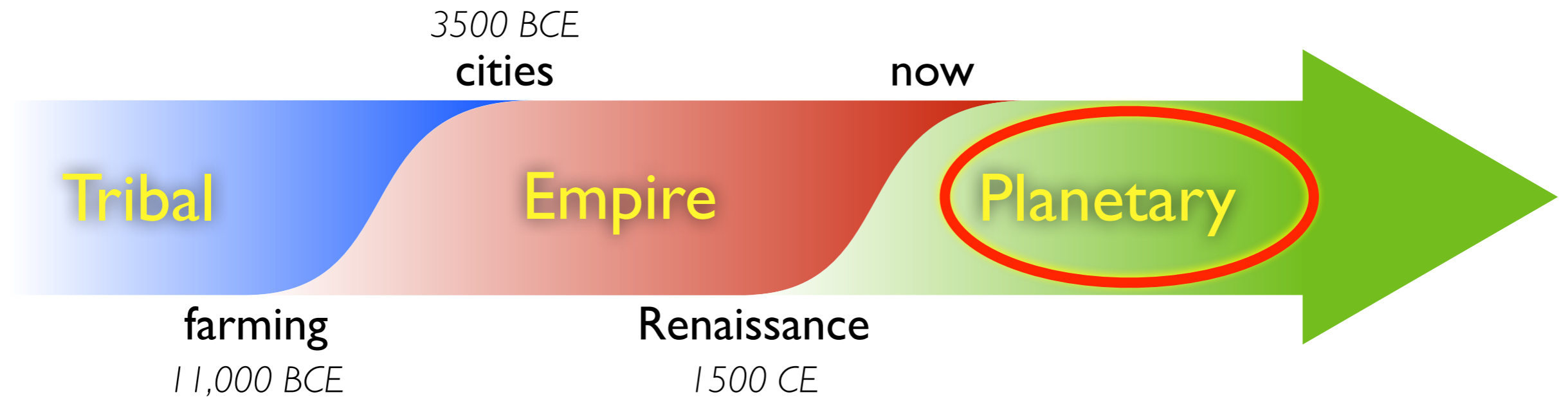
Consciousness & Communications

Empire	Planetary
Linguistic	Linguistic, visual, kinesthetic, etc
Categorical, polarized	Pie charts, gradients, continuous variation
Linear, hierarchical	Multi-dimensional
View life as a power struggle	View life as discoveries to make, puzzles to solve, mysteries to live
Moralistic, absolute, redress-oriented	Systemic, contextual, healing-oriented

Thinking About The Future

- The Empire Era is still strong in our minds
 - * Language and beliefs
 - * Ideas about human nature and how life works
 - * Leads to misunderstandings and cognitive dissonance
- There will be surprises
 - * Truth is stranger than fiction
 - * Some things will turn out better than we expect, some things worse
 - * Some things will just be totally unexpected
- Nevertheless, with our systems perspective, the big picture is potentially discernible

The Planetary Era



Small World Meets Full Earth

How will the limits-to-growth challenge impact the Planetary Era qualities?

How Bad Could It Get?

Species extinction,
food scarcity,
environmental refugees,
storm damage,
economic disruption

Massive social
breakdown,
major human
population decline

Uninhabitable
tropics (+10°C)

Nuclear winter
or runaway
greenhouse -
Venus effect

Neutral

Lifeless Earth

Small World Meets Full Earth

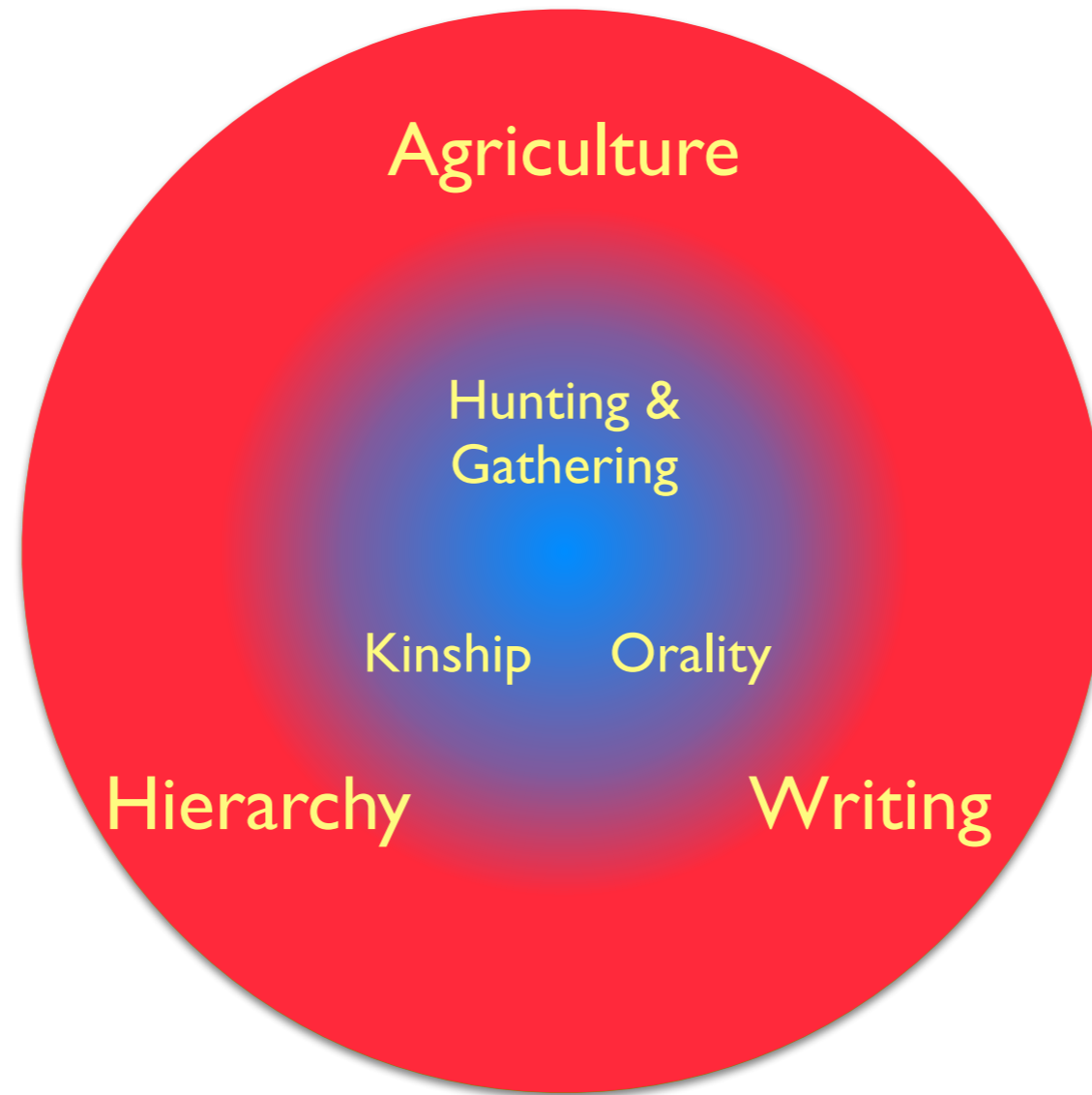
How will the limits-to-growth challenge impact the Planetary Era qualities?

- Likely to spur yet more innovation
- Successful innovations will use succession species strategies
 - * high levels of diversity
 - * high levels of symbiosis (as in self-organizing consensual collaboration)
- Communications will be prioritized
- Sustainability needs to be added as the fourth domain-defining quality

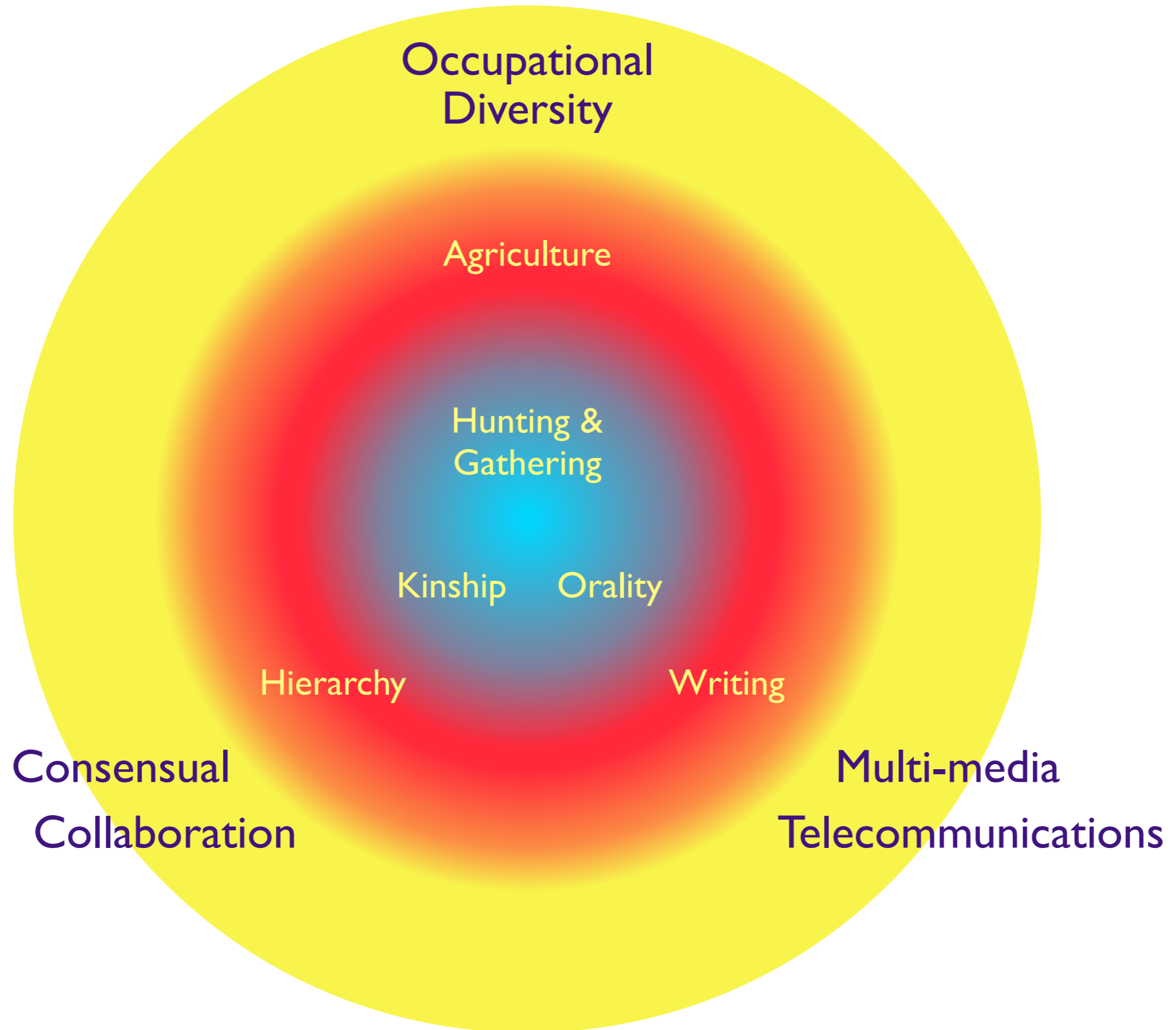
Likely Changes To Come

- Every facet of culture will be affected
 - * Economics, governance, legal system, health care, education, religion, warfare, etc.
- Many of these changes will be resisted - visibly, stridently, even violently - by those who still identify with Empire Era values, but they will be on the wrong side of history and their apparent successes will not last
- On the other hand, agriculture, hierarchies and literacy won't go away; they will just become secondary

Empire Era



Planetary Era



Planetary Era Characteristics

- Cultural *system domain* characterized by:
 - * Sustainability
 - * Diversity (occupations, interests, groups, etc.)
 - * Self-organization (from the personal to the global)
 - * Connectivity (worldwide peer-to-peer >80% of world population)
- It will be at ease with and foster innovation
- Human relationship at all scales (personal to global) will be fundamentally consensual

System
domains



Where are we
in history?



Working *with* the
momentum of history

The Central Issue Of Our Times

It is not whether humanity or the earth will survive; we very likely will.

We will likely find our way through the limits-to-growth challenge and in doing so, complete the transition to the Planetary Era.

The issue is how *graceful* can the transition be? How much suffering can be avoided? How much long-term damage can be prevented?

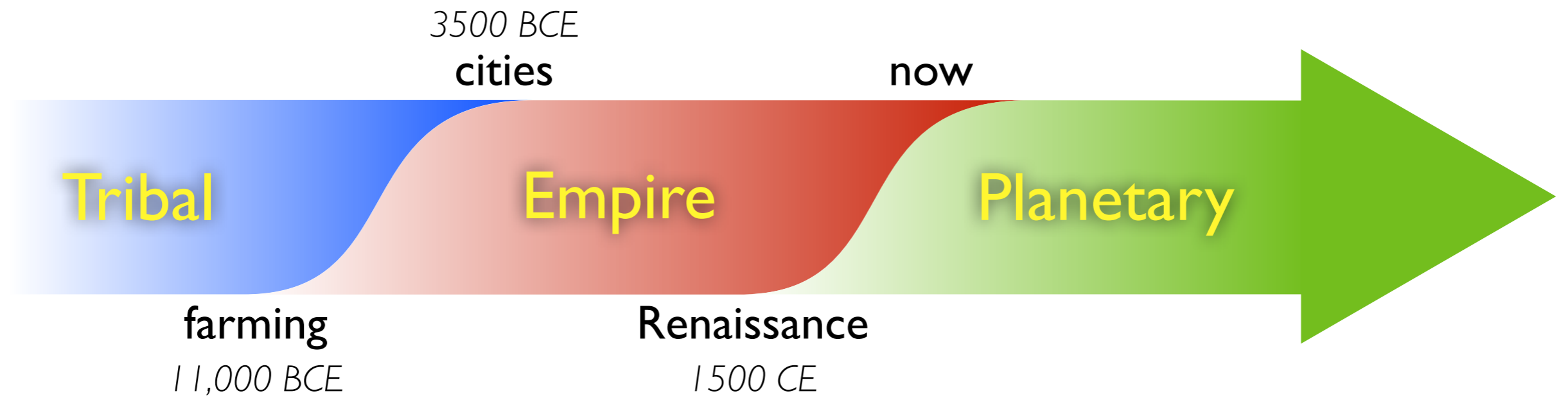
What We Each Do Matters

- It has taken countless courageous choices by millions of people to get this far
- It will take countless more to complete the journey
- Alignment with succession strategies is the path to success
- With the help of today's communications tools, learning and innovation can go faster

How Shall We Work *With* History?

- Step forward into the Planetary Era

Outline of History



Consciousness & Communications

Empire	Planetary
Linguistic	Linguistic, visual, kinesthetic, etc
Categorical, polarized	Pie charts, gradients, continuous variation
Linear, hierarchical	Multi-dimensional
View life as a power struggle	View life as discoveries to make, puzzles to solve, mysteries to live
Moralistic, absolute, redress-oriented	Systemic, contextual, healing-oriented

How Shall We Work *With* History?

- Step forward into the Planetary Era
- Let go of the Empire Era

Consciousness & Communications

Empire	Planetary
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How Shall We Work *With* History?

- Step forward into the Planetary Era
- Let go of the Empire Era
- Do it all with compassion
- Innovate - Implement - Educate
 - * Cultures change by addition,
through innovations that get adopted

Equation Of Change

$$\left[\begin{array}{c} \text{Perceived} \\ \text{value of} \\ \text{the new} \end{array} \right] - \left[\begin{array}{c} \text{Perceived} \\ \text{value of} \\ \text{the old} \end{array} \right] > \left[\begin{array}{c} \text{Perceived} \\ \text{cost of the} \\ \text{change} \end{array} \right]$$

Equation Of Change

[Perceived
value of
the old]



Equation Of Change

Innovate,
Implement,
Educate



[Perceived
value of
the new]

—

[Perceived
value of
the old]

>

[Perceived
cost of the
change]

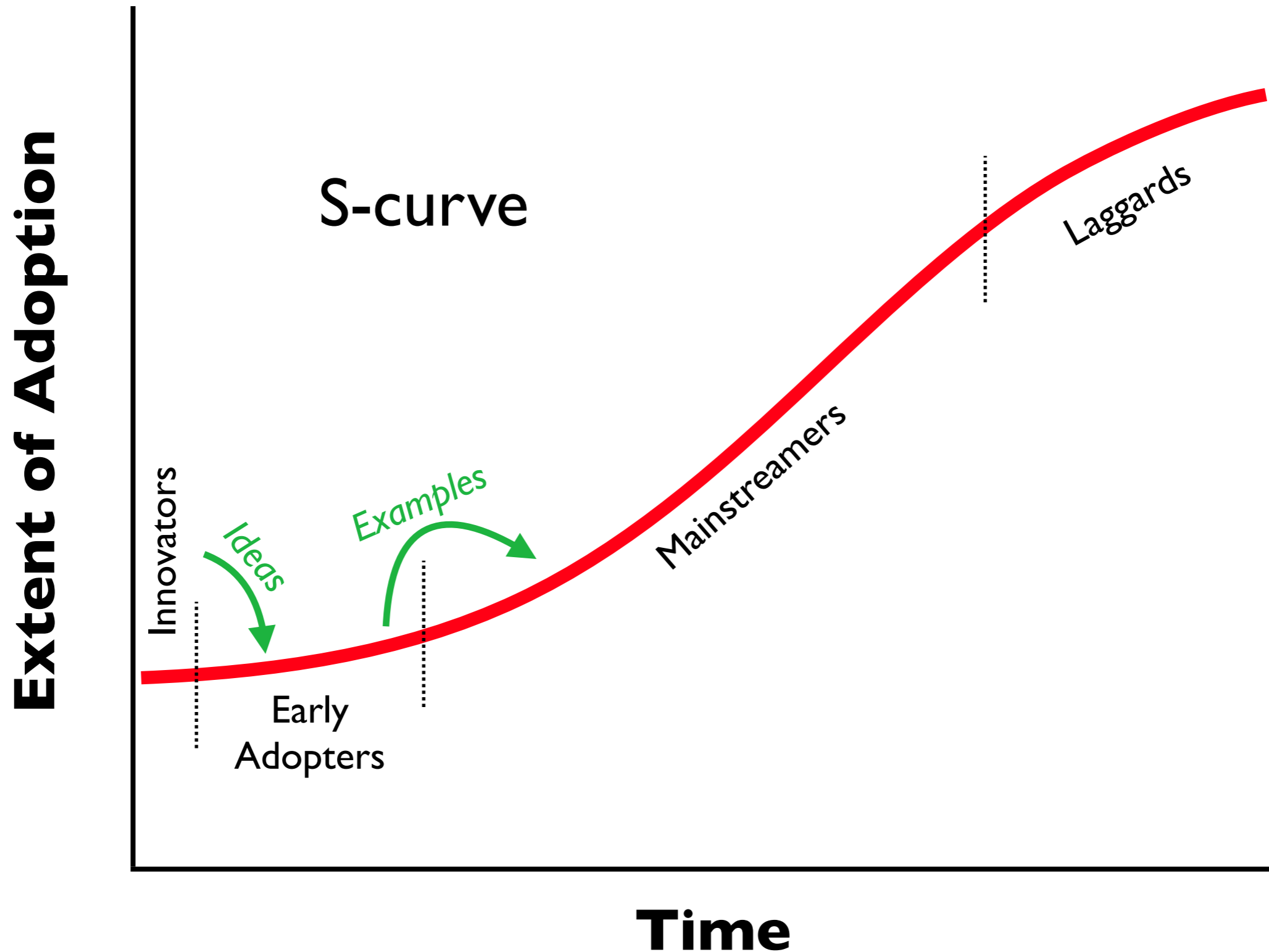


Educate

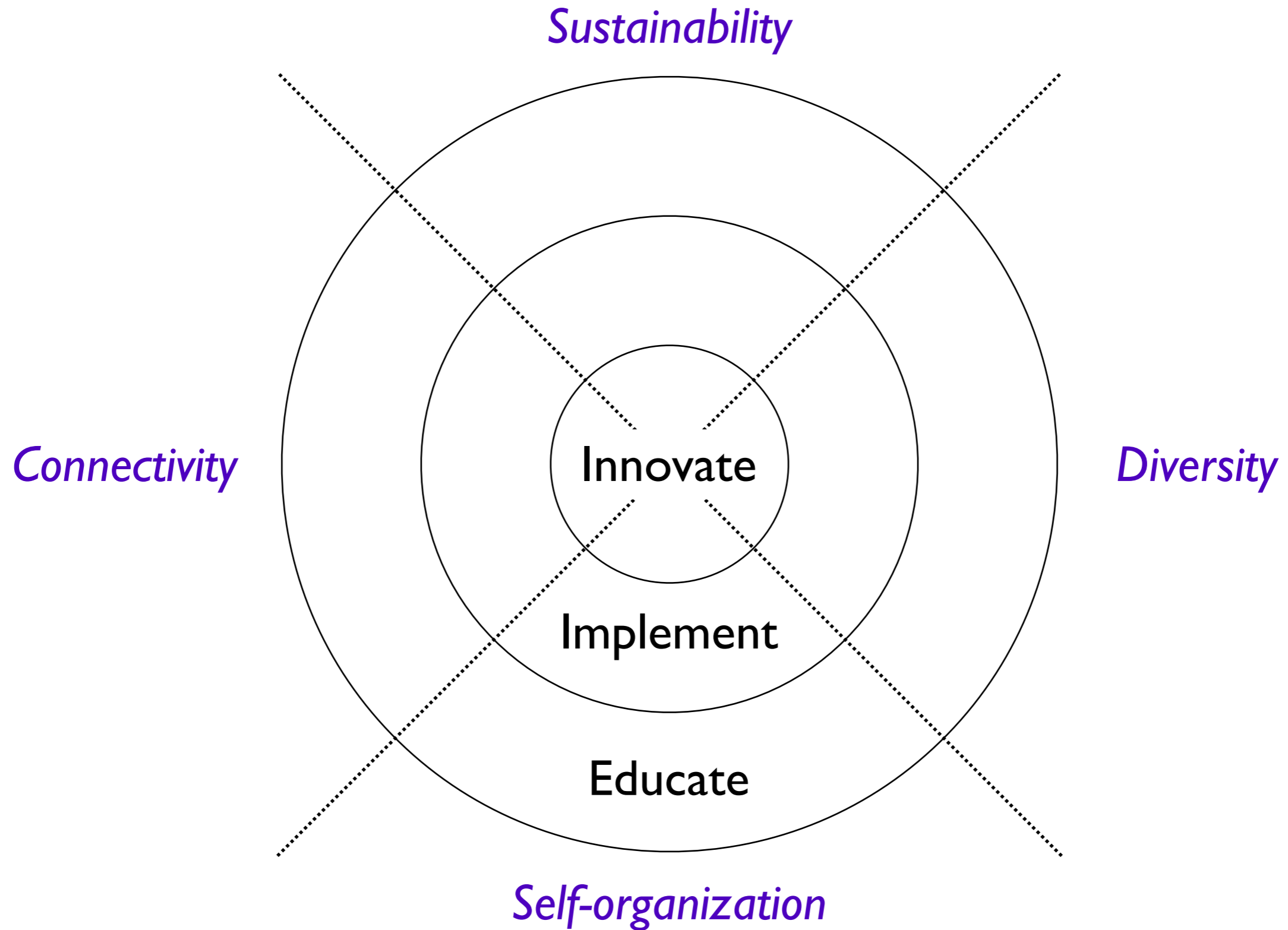


Implement,
Educate

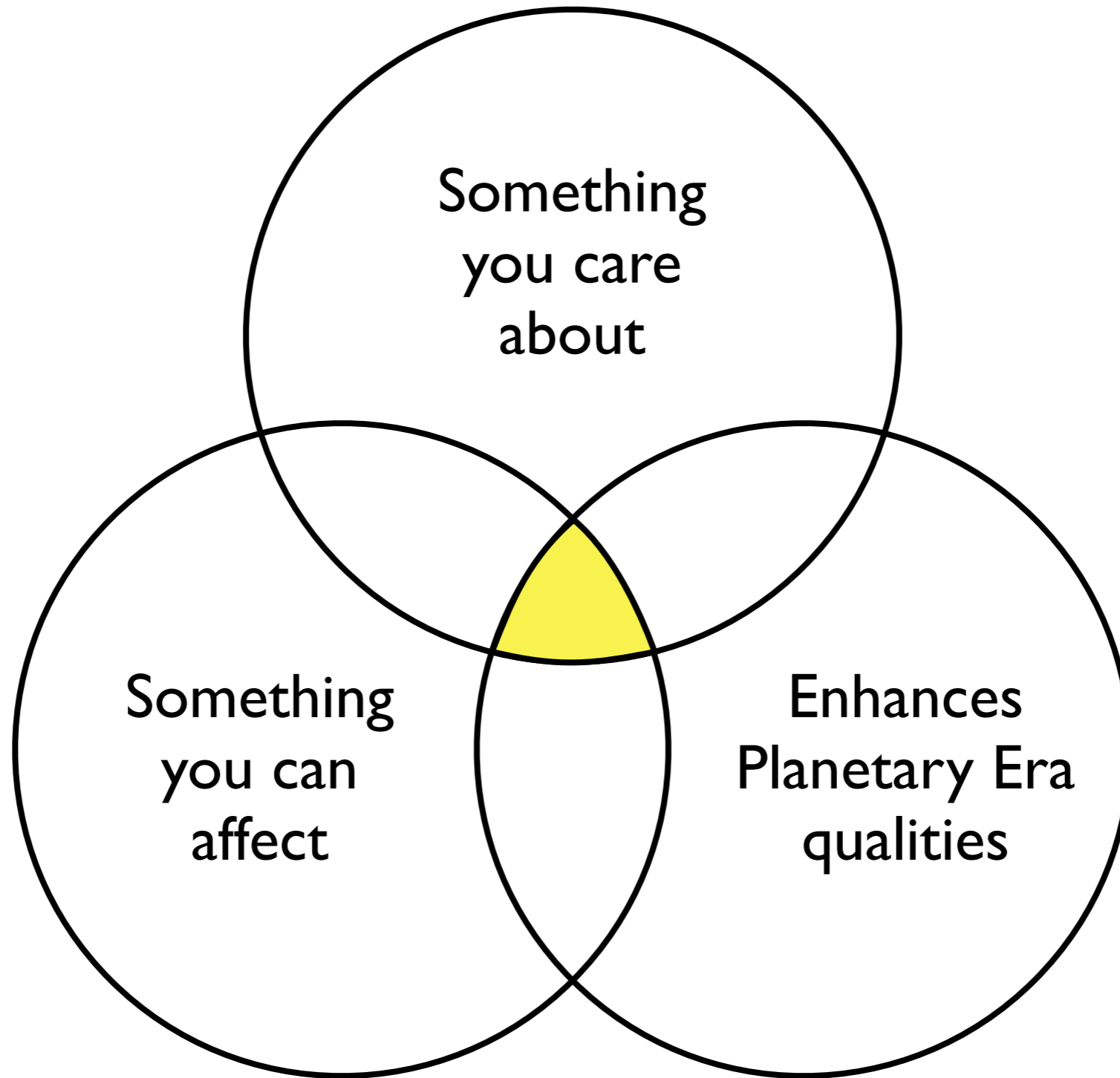
Diffusion of Innovations



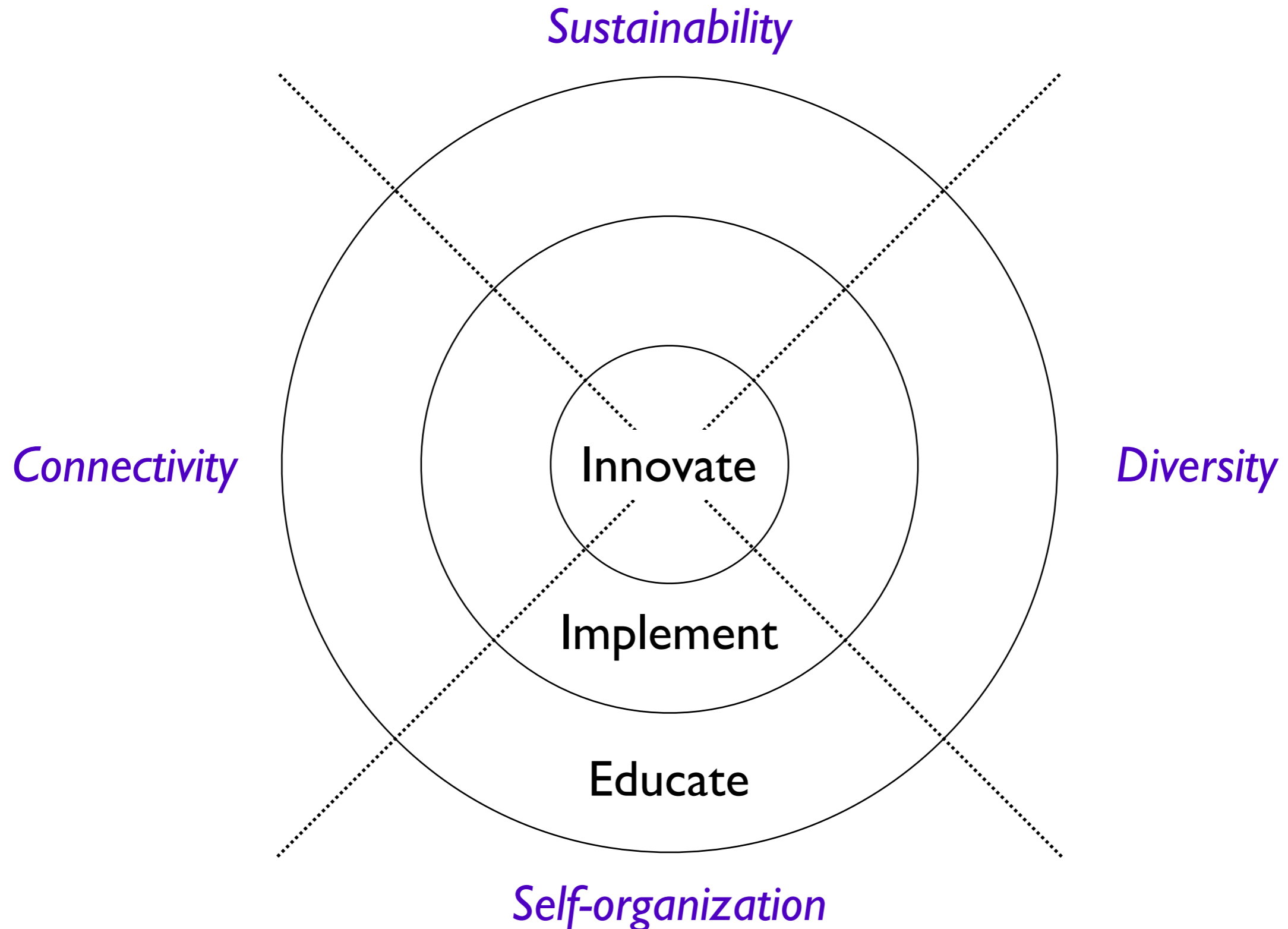
What The World Needs



Finding Your Right Action



Everyone Can Make A Difference



What Time Is It?

- A time of great danger but also great opportunity
- A time of transition between two great *cultural system domains*: Empire to Planetary
- Likely within a few generations of ending warfare: between humans, by humans on nature, and even perhaps within ourselves
- A time when we have the historically rare opportunity to help shape that future

Why I'm So Encouraged

- The momentum of history is moving towards a *cultural system domain* based on:
 - * Sustainability, diversity, self-organization and connectivity
- The obstacles we face are human, cultural and solvable
- People all over the planet are rising to the challenge and seizing the opportunity
- Aware, intentional change agents, aligned with the PE, can have an even bigger impact through *innovate - implement - educate*

Why I'm So Encouraged

All of this gives me the courage

- to sustain me through whatever turbulence the coming decades may bring
- to do all I can to help at this remarkable time in history
- to engage in the creative transformation of the culture at a very deep level



I've never been more
encouraged about the
future than I am today

Thank you

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