Apprehension of Future Uncertainty

Simple Actions – Complex Worlds
Unknowable Implications
Framing 4th Generation Foresight

Foresight Synergy Network
26 Oct 2017

John Verdon - Complexity & Foresight Consulting
johnverdon@gmail.com
@johnverdon +johnverdon www.johnverdon.com

Apprehension of Future Uncertainties

Outline

Changing Conditions of Change
The Digital Environment
Cultural-Economic Constraints
Framing Identity and Meaning
Fourth Generational Foresight

Emergence and Complexity

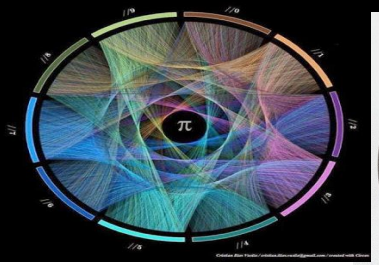
Complex systems have properties that emerge in dynamics of the whole

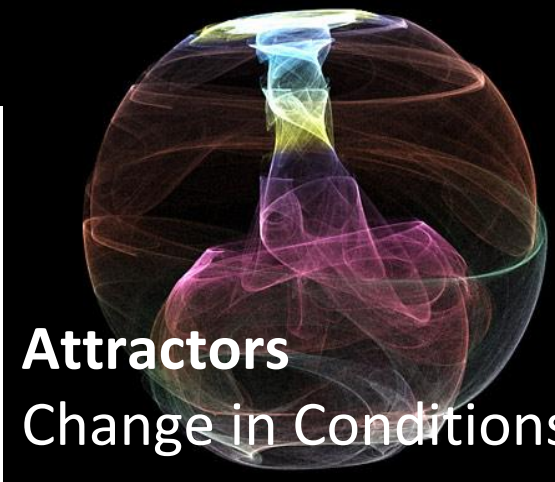
Not reducible to nature of the parts

Change and propagation of change Not Linear

Archetypes - Individual, Collective, Environment

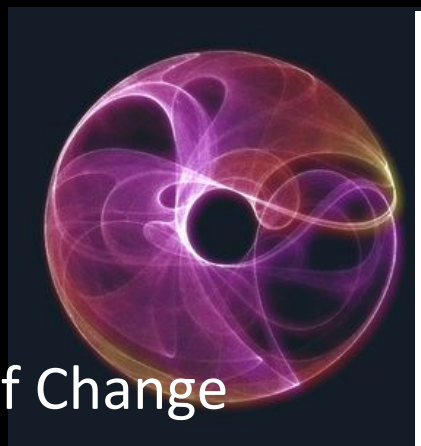
History doesn't repeat But it does rhyme

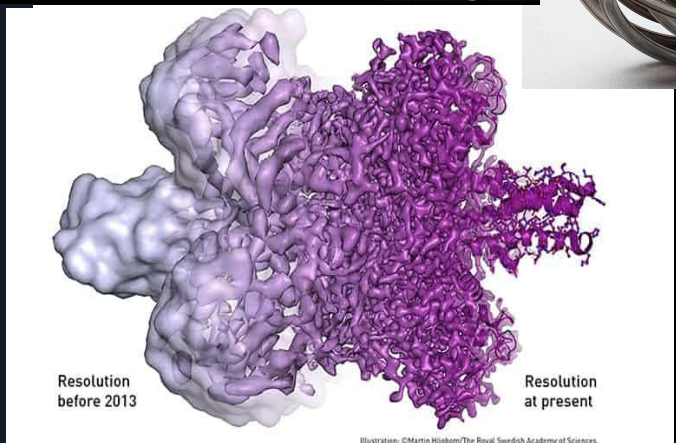


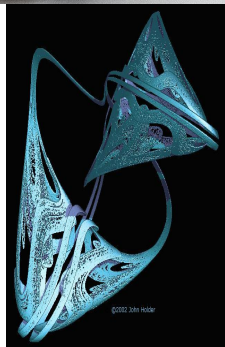


Attractors

Change in Conditions of Change







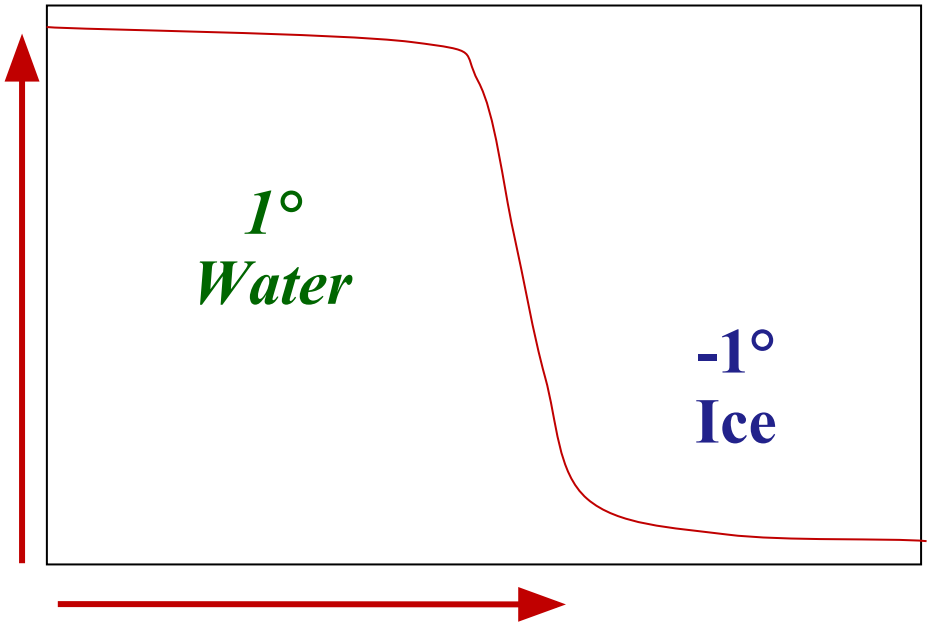
Formal Causality

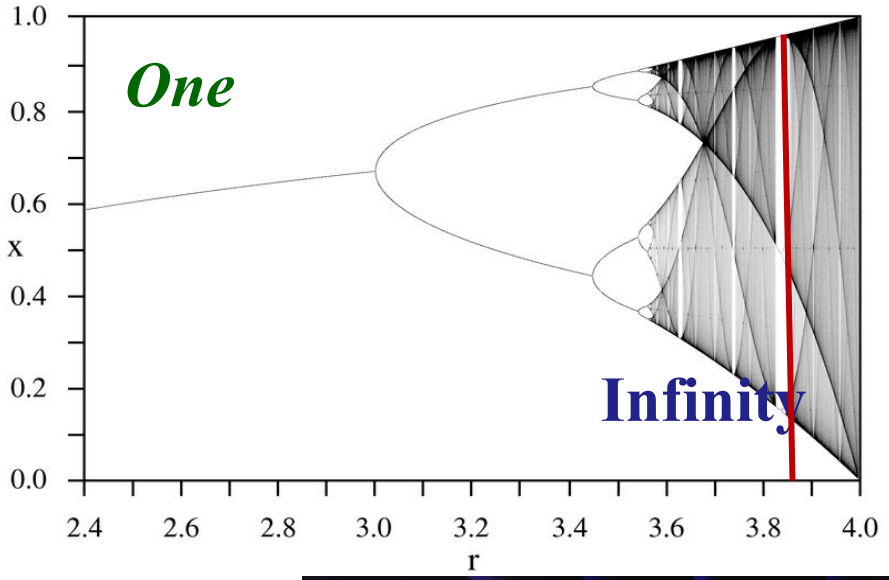
Properties Shaping Change

Extensive Based on Quantity of matter	Intensive Property of Population
• Length • Width • Breadth	• Density • Connectedness • Temperature • Pressure • Malleability • Conductivity

Intensive changes

Density, Connectivity, Temperature, Pressure…



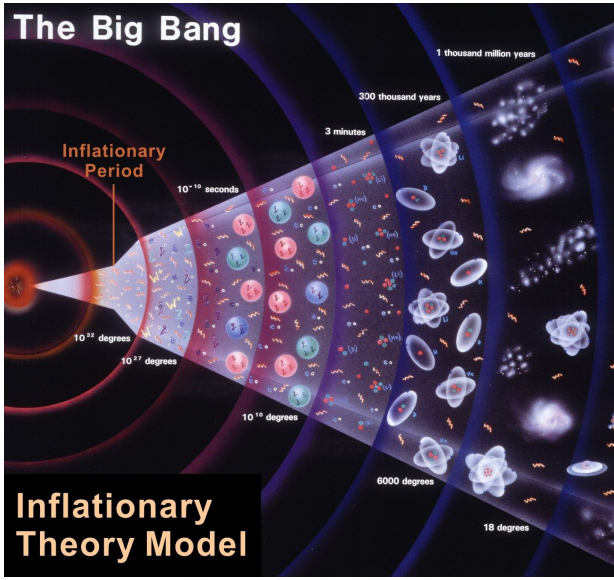


Phase Transition

Trend analysis doesn't prepare observer

***Change in conditions of Change** is*

Not Linear



Narratives as Attractors
Emerging Narratives of Evolving Self

Framing Narratives shape Individual - Collective Perspectives & Possibles

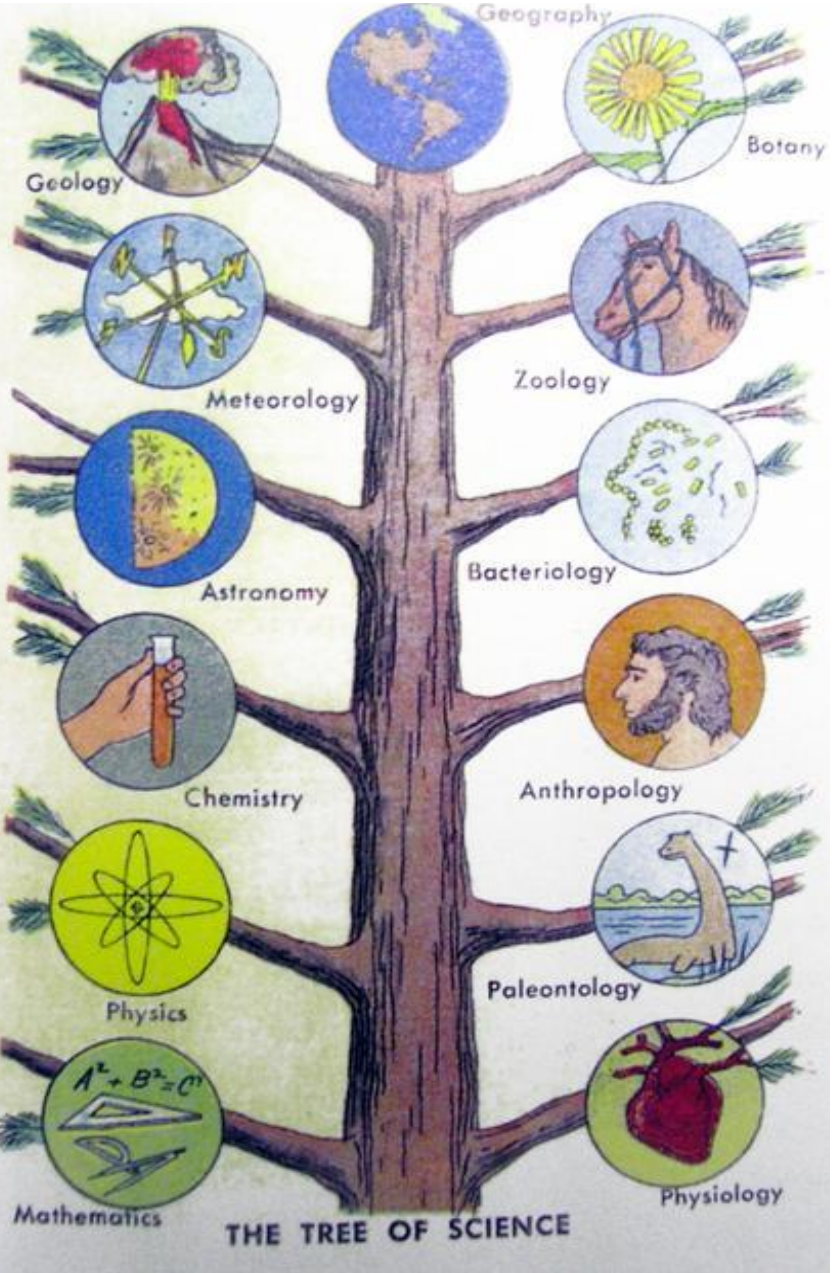
Effect is Affect

Today trajectories are diffuse and complex.
Global & local networks arise as Powerful Attractors
All technology has light and shadows

The 20st Century – Shatters Pillars of Certainty

- Bertrand Russel – mathematics Inconsistent
- Einstein – no objective frame of reference,
- Godel – Incompleteness – inevitable unprovables
- Quantum – uncertainty principle – entanglement,
- Turing – stopping/halting problem
- Chaos – sensitivity to initial conditions,
- Freud, Jung, many others – the unconscious
- Cognitive & social science – Kahneman & Tversky, Lakoff, etc. demolishing 'rational actor'
- Complexity sciences – All models wrong
- Rise of biology-complexity framework
- Entanglement - more - Moore

TRADITIONAL MODE EXPLICIT KNOWLEDGE



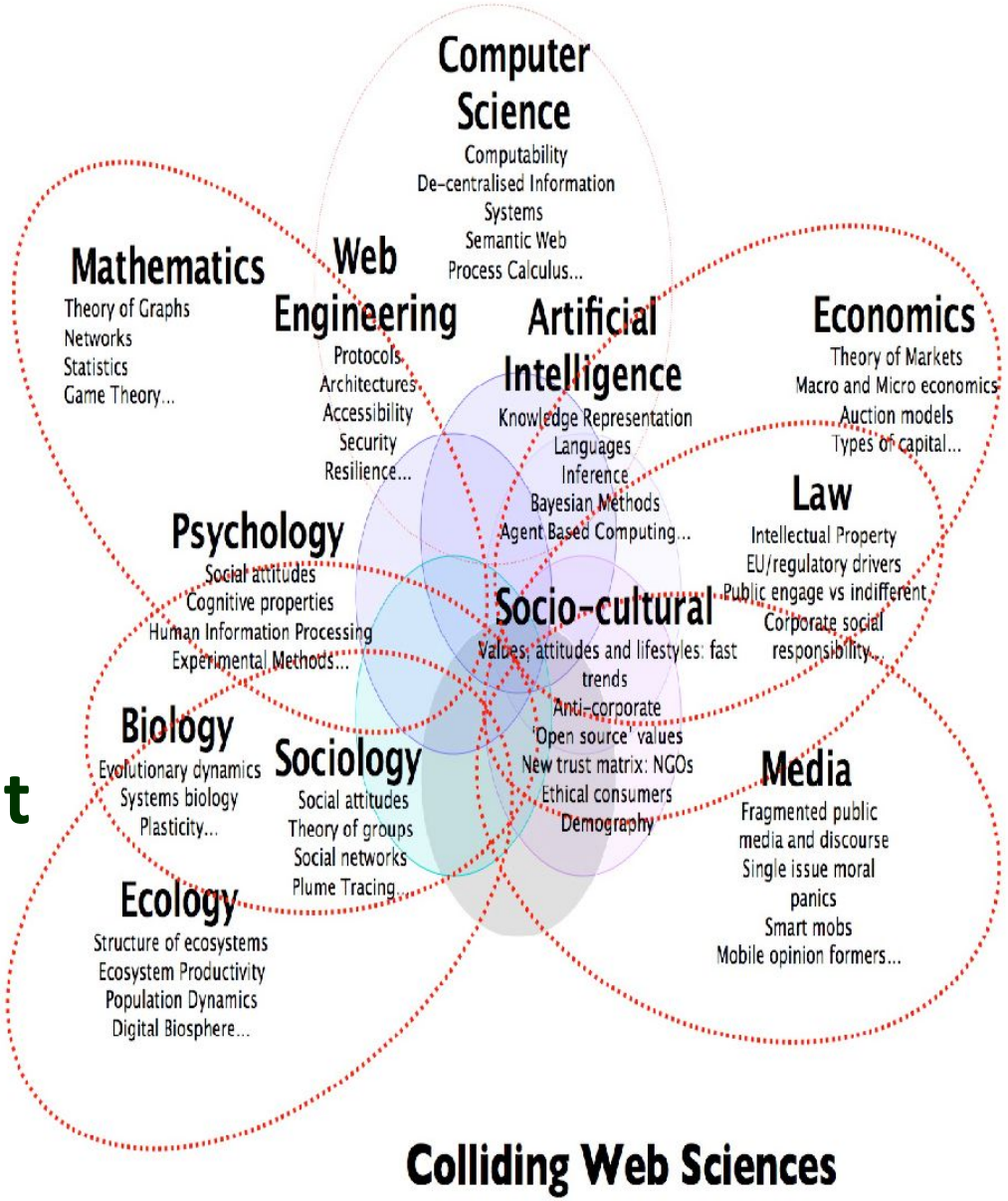
Extracted & Dis-integrated disciplinary domains
Analyse-decompose-reduce
"**Reliable Knowledge**"
Truth

Knowledge of parts
Is Not Knowledge of Whole

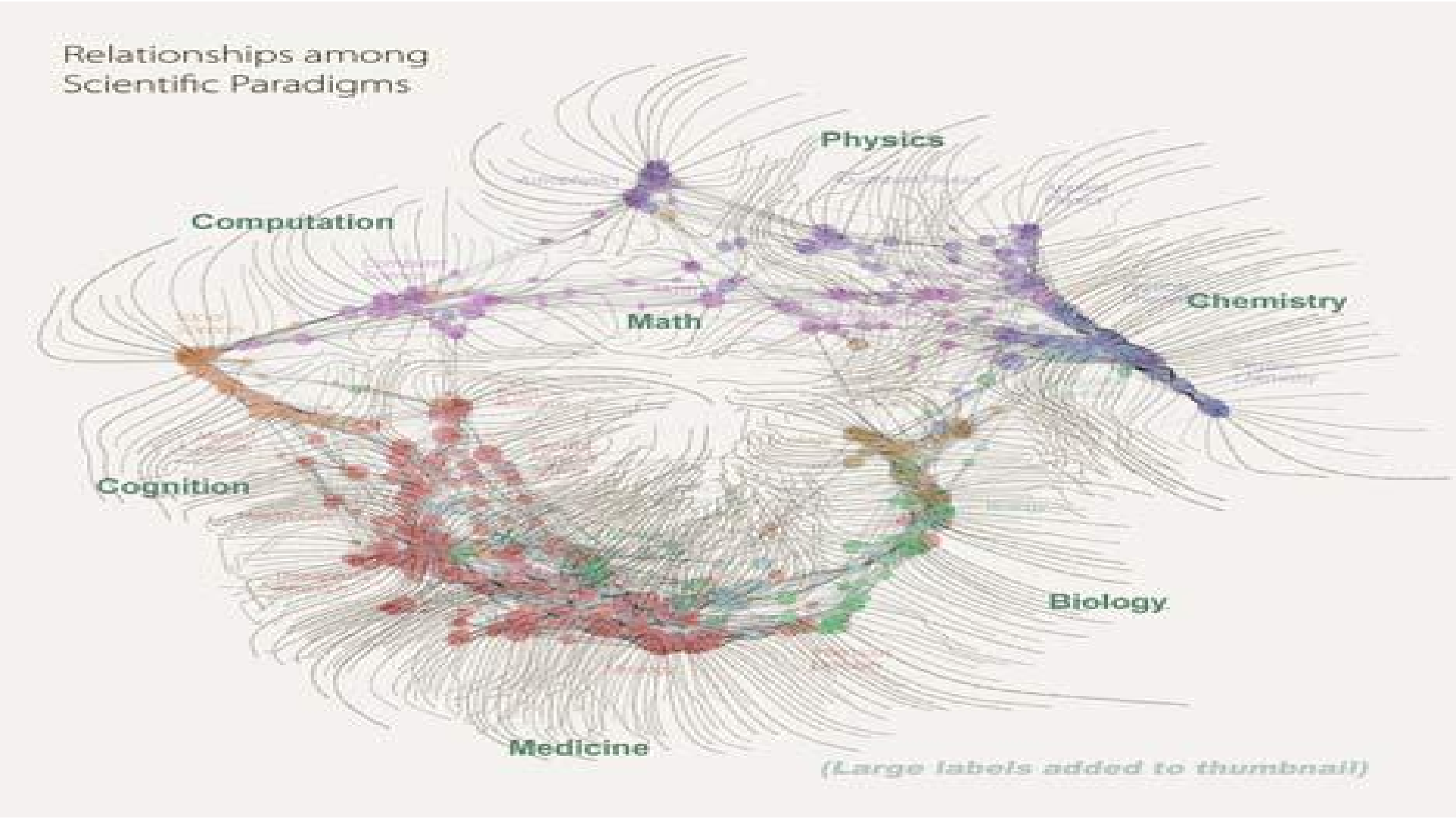
NEW MODE OF KNOWLEDGE PRODUCTION

Socially Robust Knowledge

- Context of application
- Transdisciplinary
- Heterarchical & transient
- Context of implication



COMPLEXITY OF KNOWLEDGE ECOLOGIES



'*Knowers* must cross boundaries & learn other languages Horizontal conversations among peers of different networks

Re-Imagine Everything

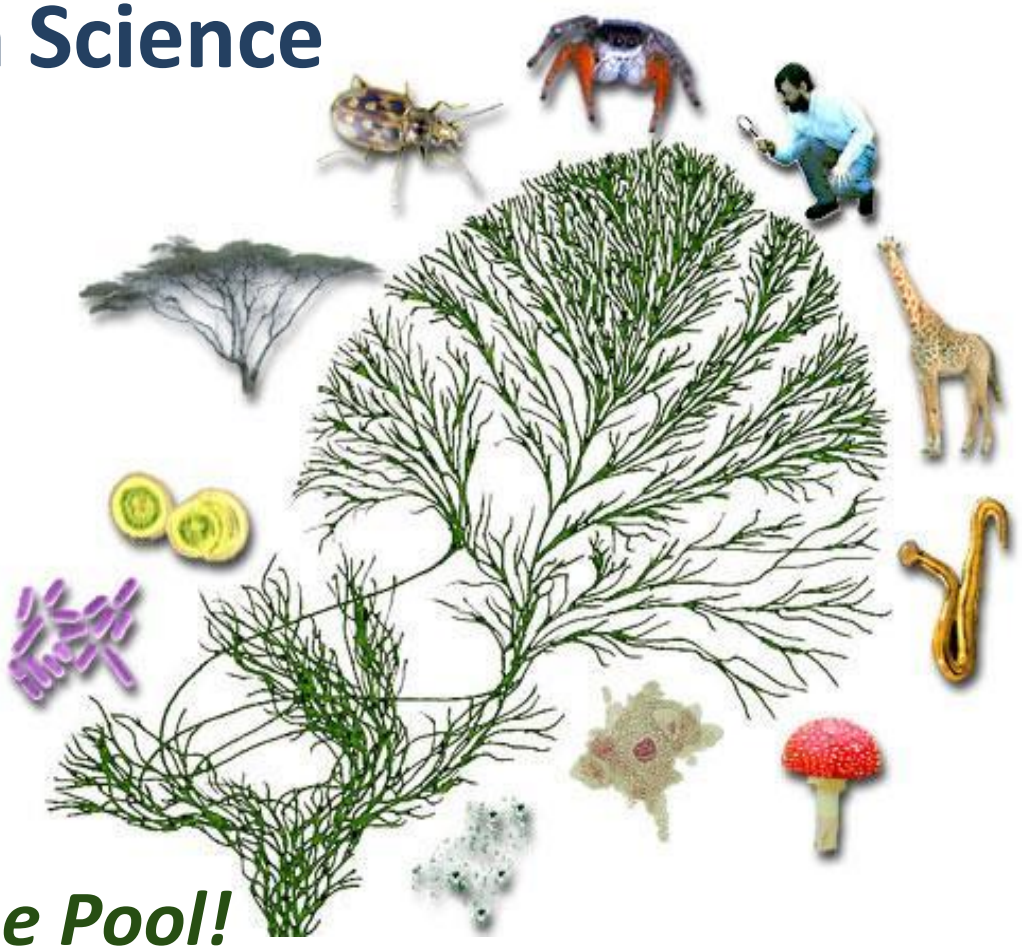
Change in the Conditions of Change

Biology is information Science

We are in the

Post-Species Era

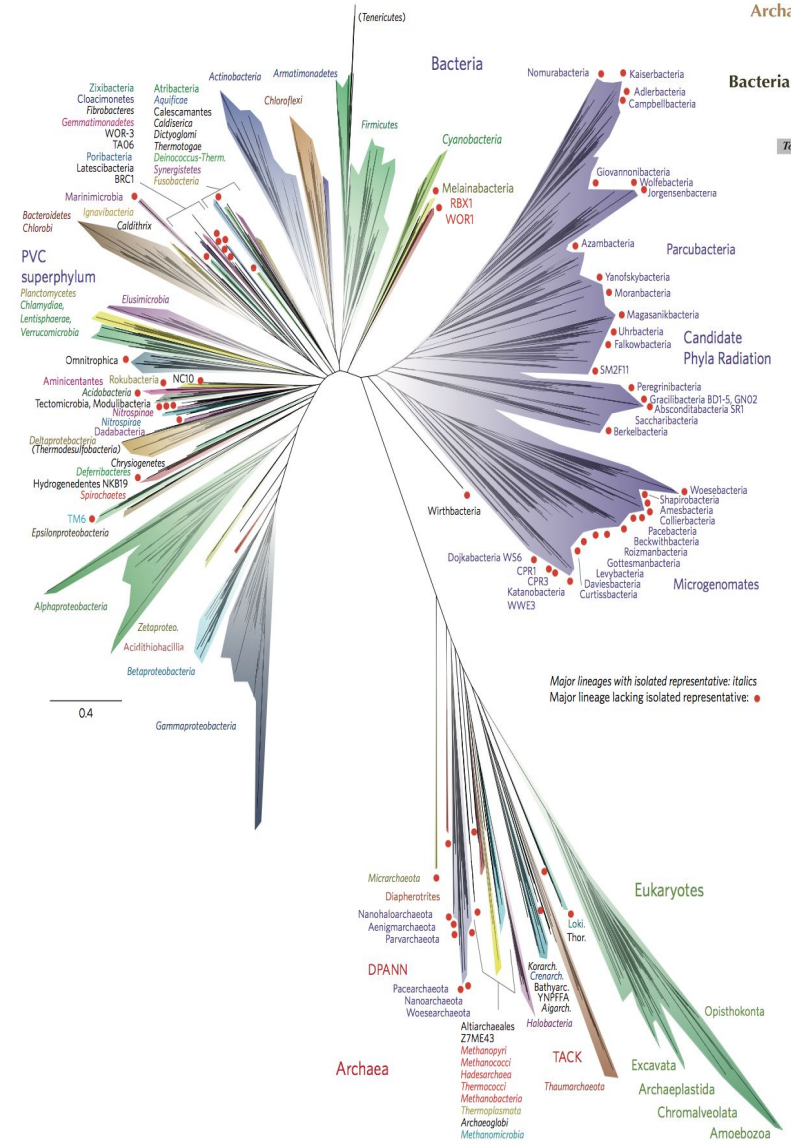
Domesticating DNA

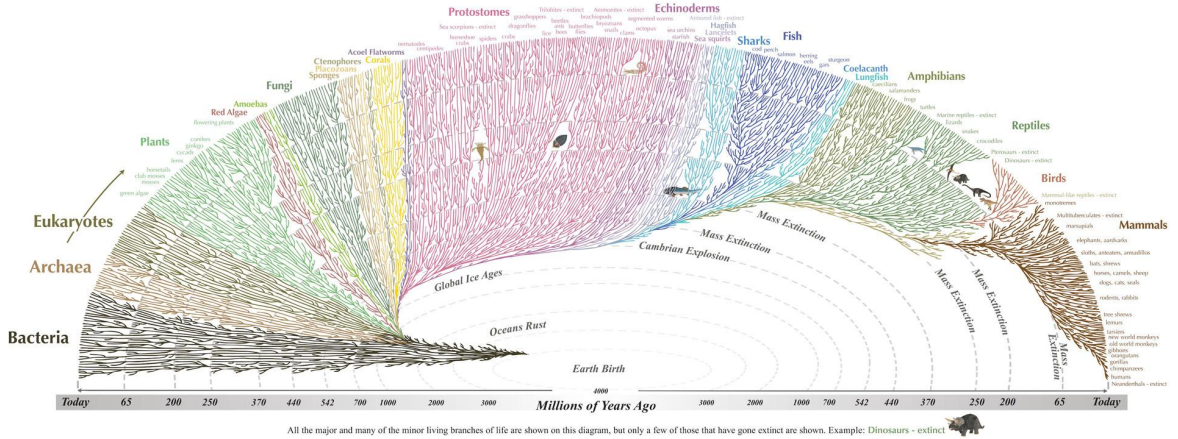


There is now only one Gene Pool!

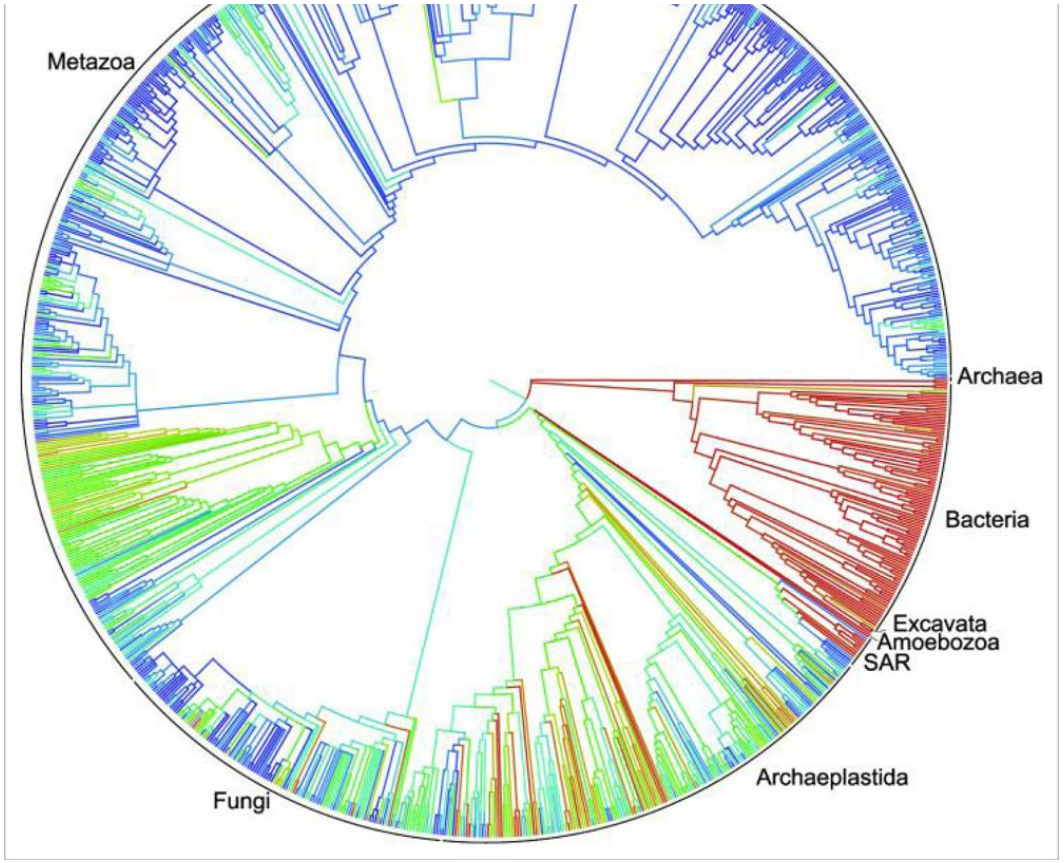
Genes are not destiny they are our Common Wealth

Far from Ecologies





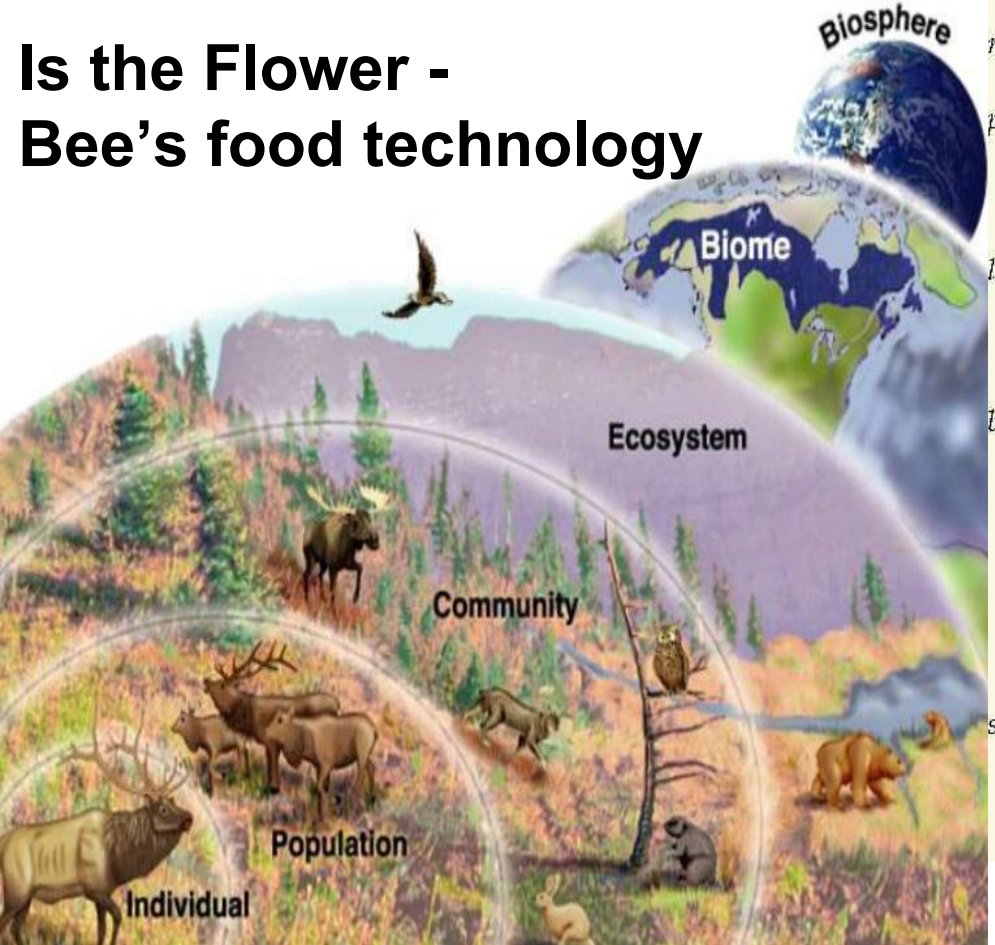
All the major and many of the minor living branches of life are shown on this diagram, but only a few of those that have gone extinct are shown. Example: Dinosaurs - extinct

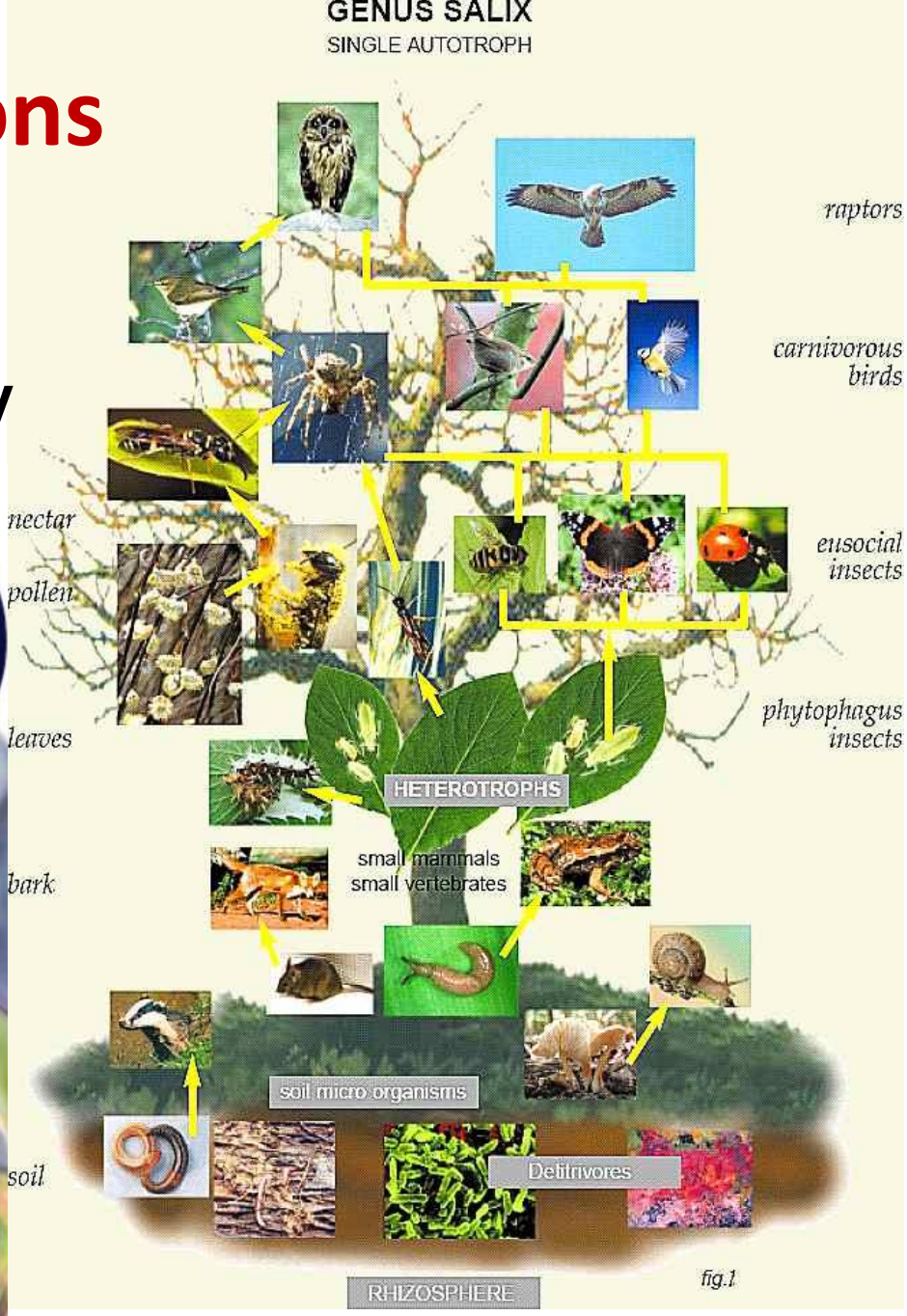


Species as Instantiations of Ecologies

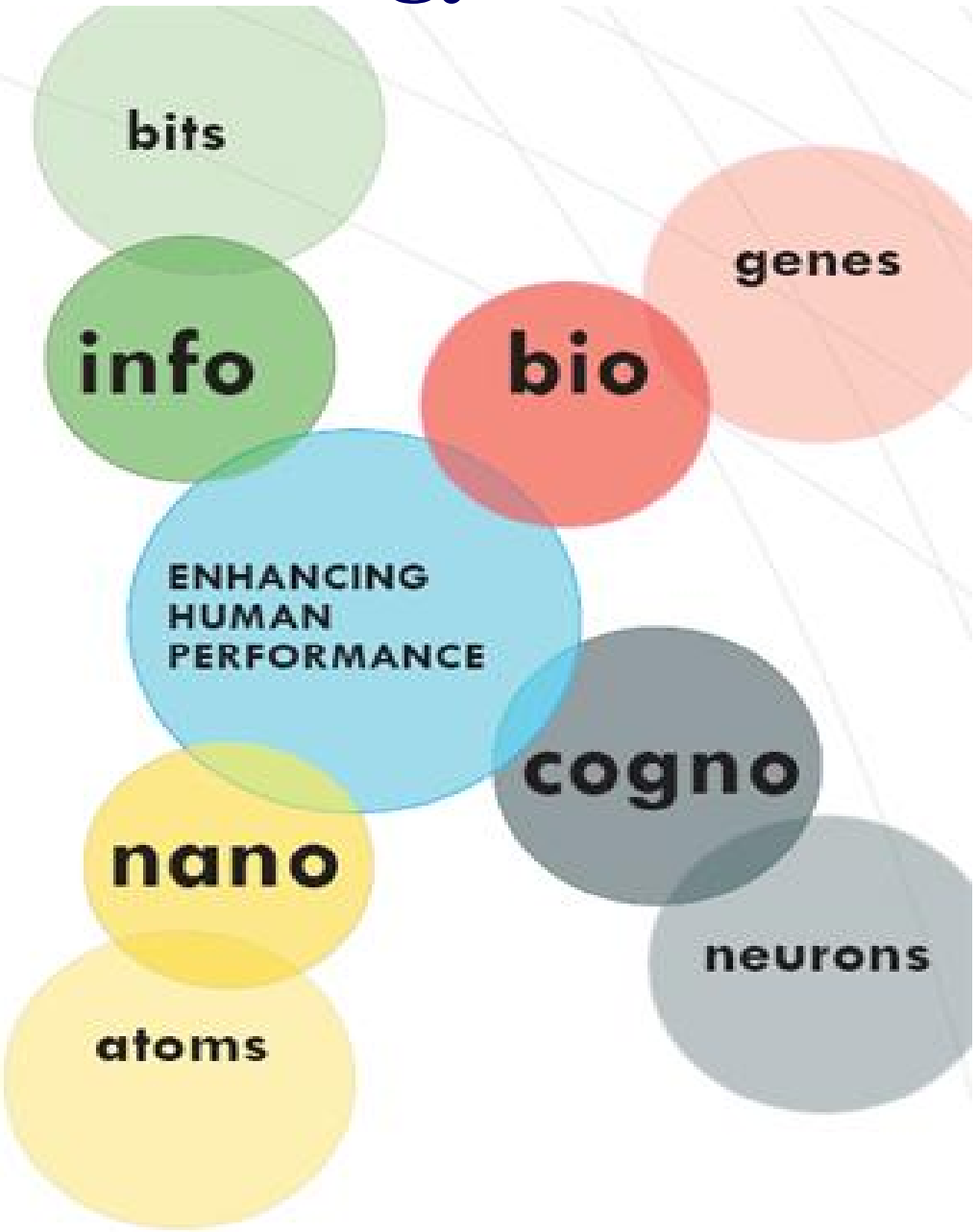
Is the Bee -
Flower's fertilization technology

Is the Flower -
Bee's food technology





Technology's Accelerating Convergence



- Computing
- Quantum
- Material
- Awareness
- Robotics
- Energy

Everything is Information

Enhancing humans

Experience and performance?

- Gene & Stem Cell Therapy
- Computer Implants, Nanotech agents
- Connected to dispersed sensors
- Cloning – DNA Design
- Radically New Science ….. And a lot more

Health as Software Problem

The 100 year Healthy life

How important will enhancement be to Baby Boomers?

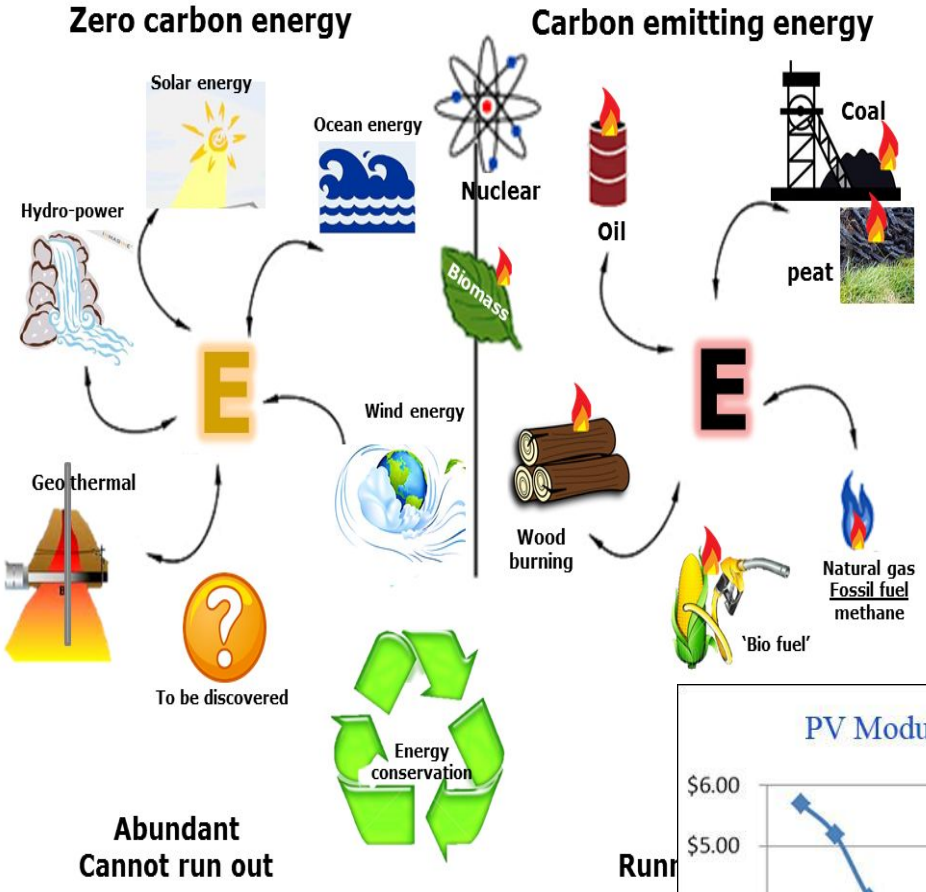
Technology Phase Transition
Global Energy GeoPolitics

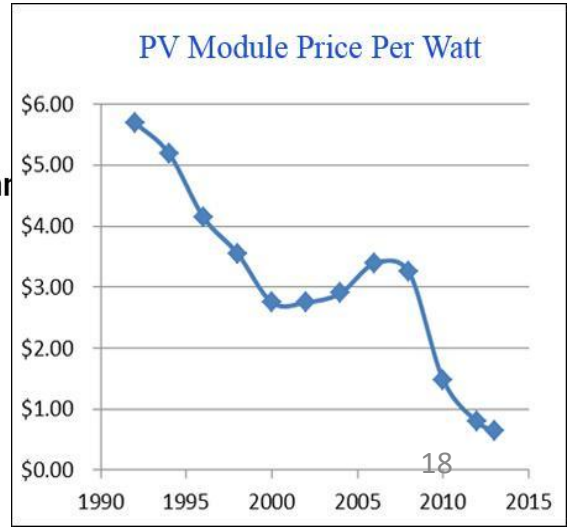
Alternatives

- Solar, Wind,
- Tidal,
- Geo-thermal,
- Hydrogen,
- Bio-fuels,

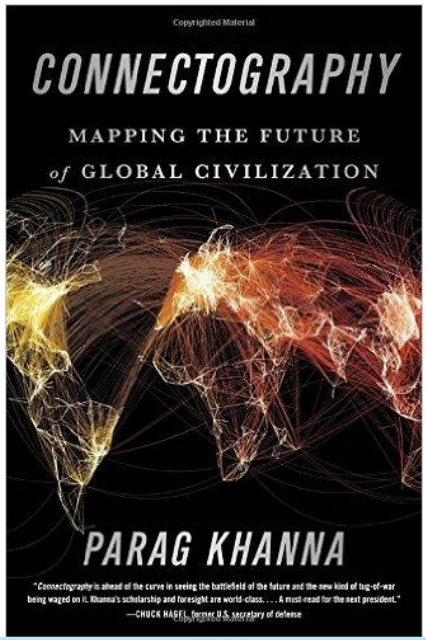
New Sources

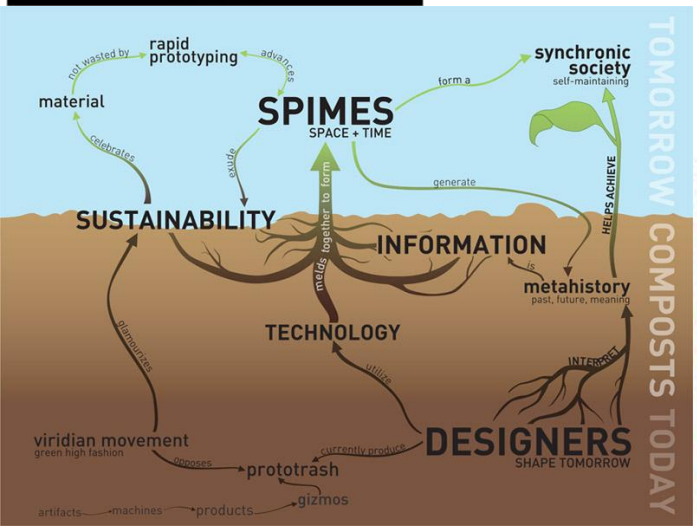
- Biological,
- New Physics
- Models of energy delivery

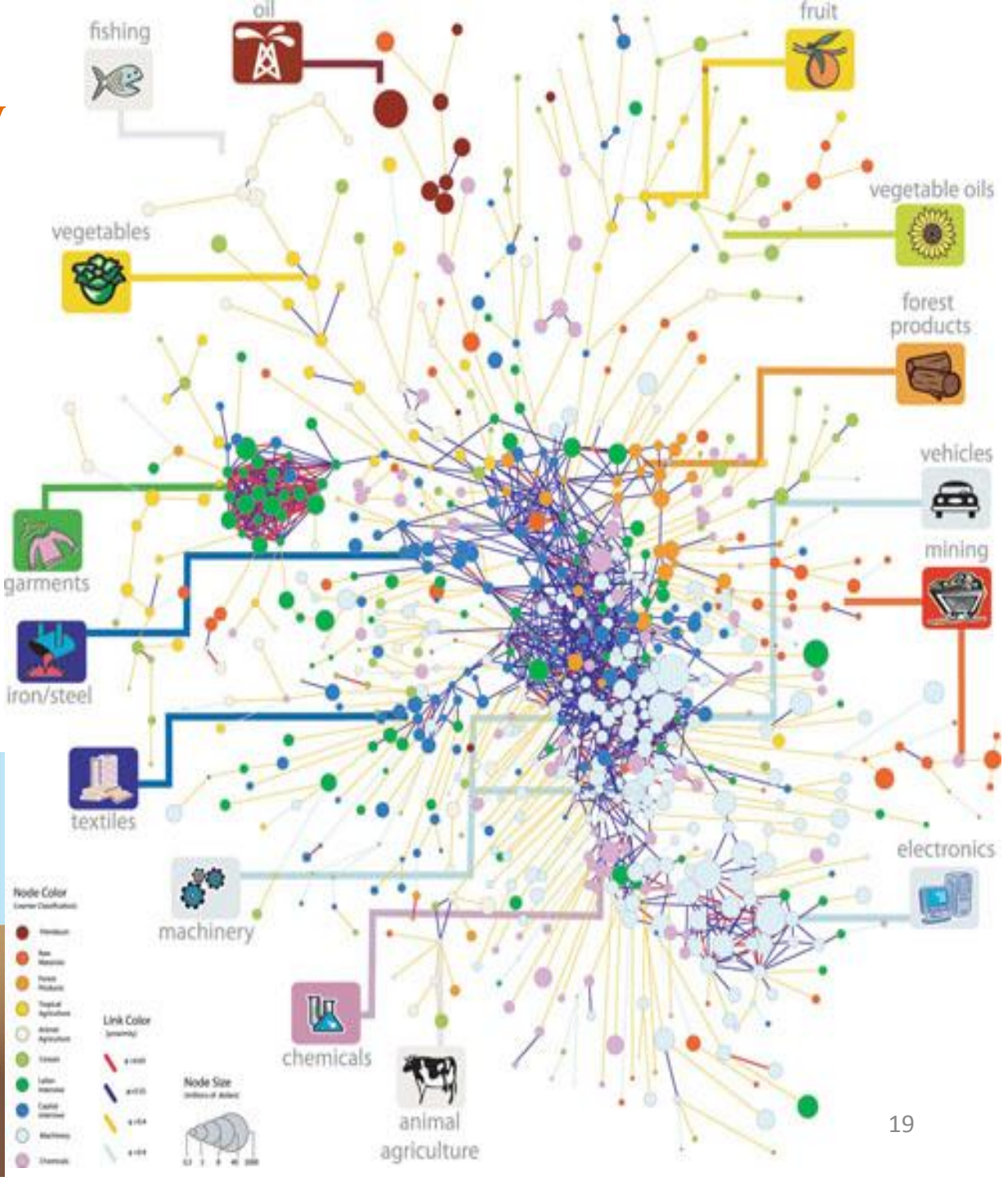


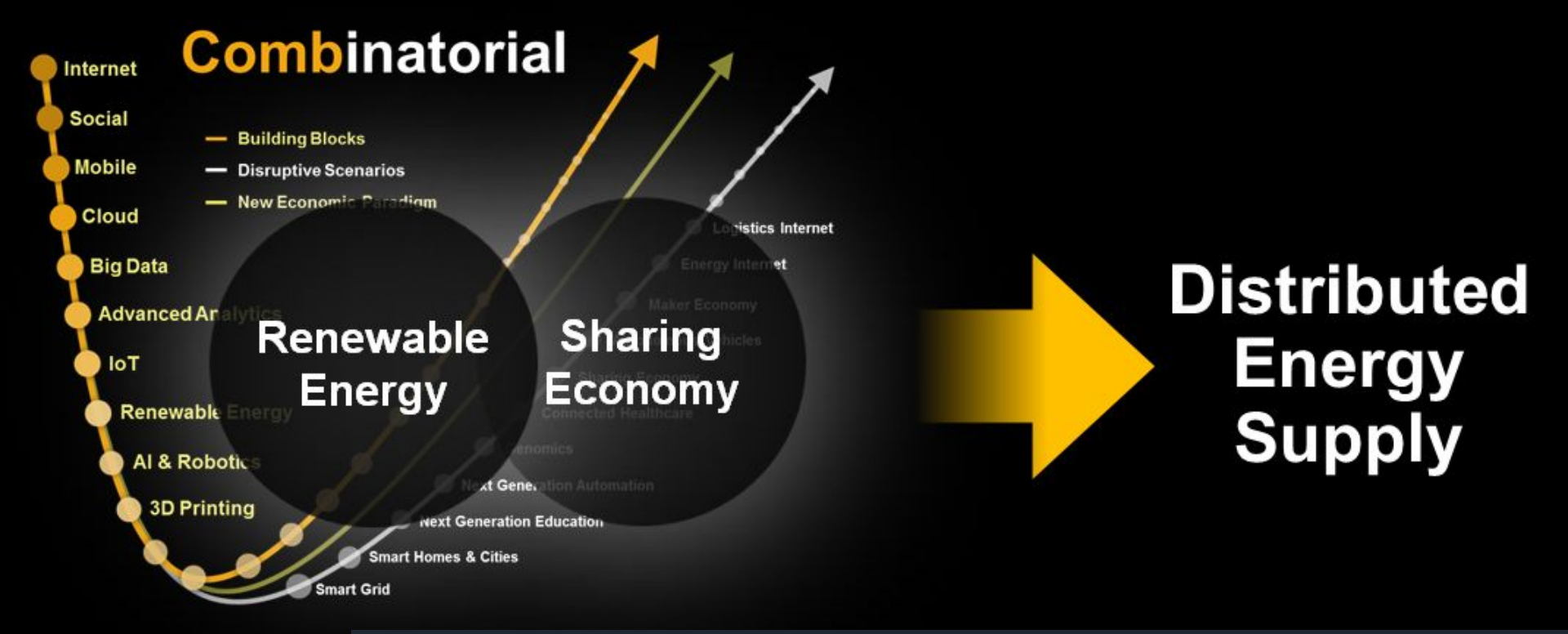


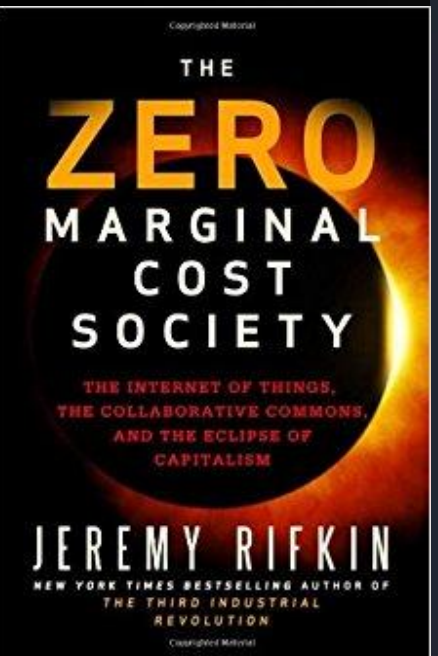
The Atlas of Economic Complexity Connectography

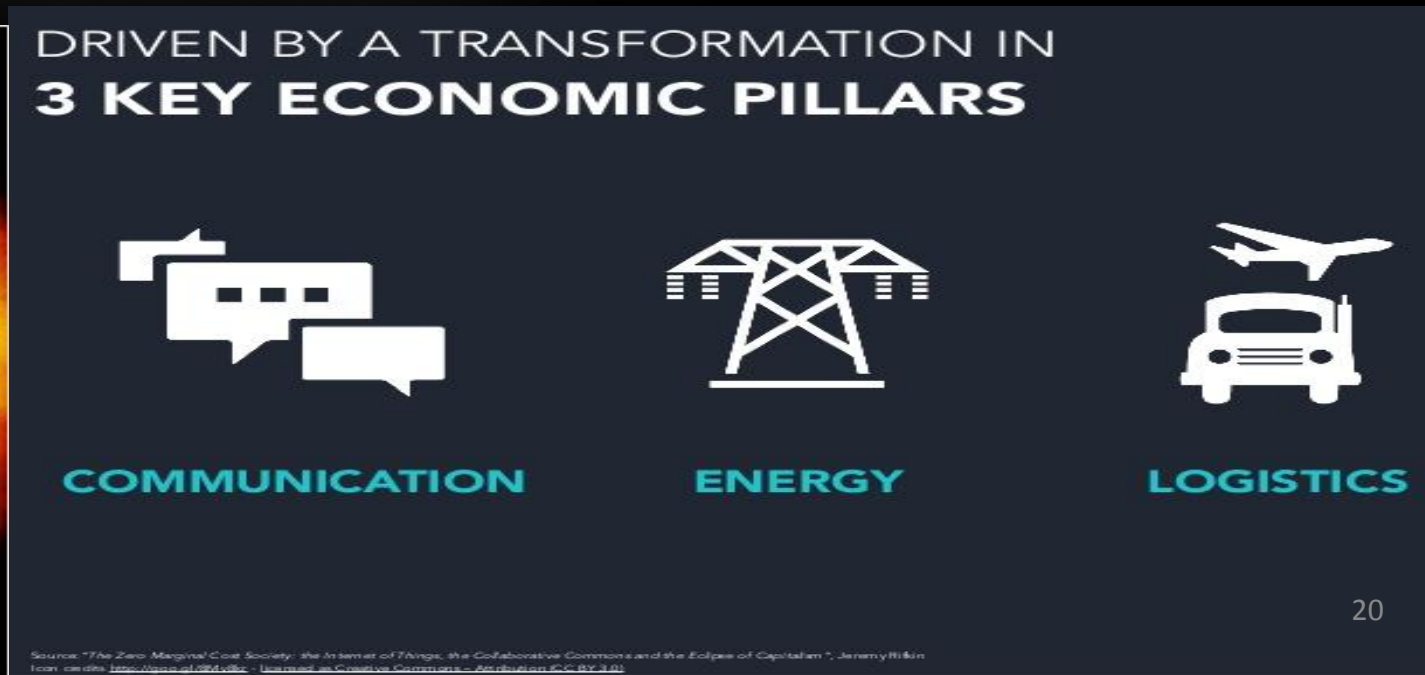







Combinatorial
Internet
Social
Mobile
Cloud
Big Data
Advanced Analytics
IoT
Renewable Energy
AI & Robotics
3D Printing
Building Blocks
Disruptive Scenarios
New Economic Paradigm
Renewable Energy
Sharing Economy
Logistics Internet
Energy Internet
Maker Economy
Connected Healthcare
Next Generation Automation
Next Generation Education
Smart Homes & Cities
Smart Grid
Distributed Energy Supply


THE
ZERO
MARGINAL
COST
SOCIETY
THE INTERNET OF THINGS, THE COLLABORATIVE COMMONS, AND THE ECLIPSE OF CAPITALISM
JEREMY RIFKIN
NEW YORK TIMES BESTSELLING AUTHOR OF THE THIRD INDUSTRIAL REVOLUTION


DRIVEN BY A TRANSFORMATION IN
3 KEY ECONOMIC PILLARS
COMMUNICATION
ENERGY
LOGISTICS

The Digital Planet?

When Sputnik went around the planet in 1957 the earth became enclosed in a man-made environment and became thereby an "art" form.

Instead of being an environment in time, the earth itself has become a probe in space. … an extension of consciousness, yielding new perception of the new man-made environment.

McLuhan

The Digital Universe?

… the real use of computers is not to reduce staff or costs, or to speed up or smooth out anything that has been going on

its true function is to program and orchestrate terrestrial and galactic environments and energies in a harmonious way.

McLuhan -War & Peace in the Global Village, 1967 p.89

*The **Digital Environment** is the **medium***

Social Computing** is the **message

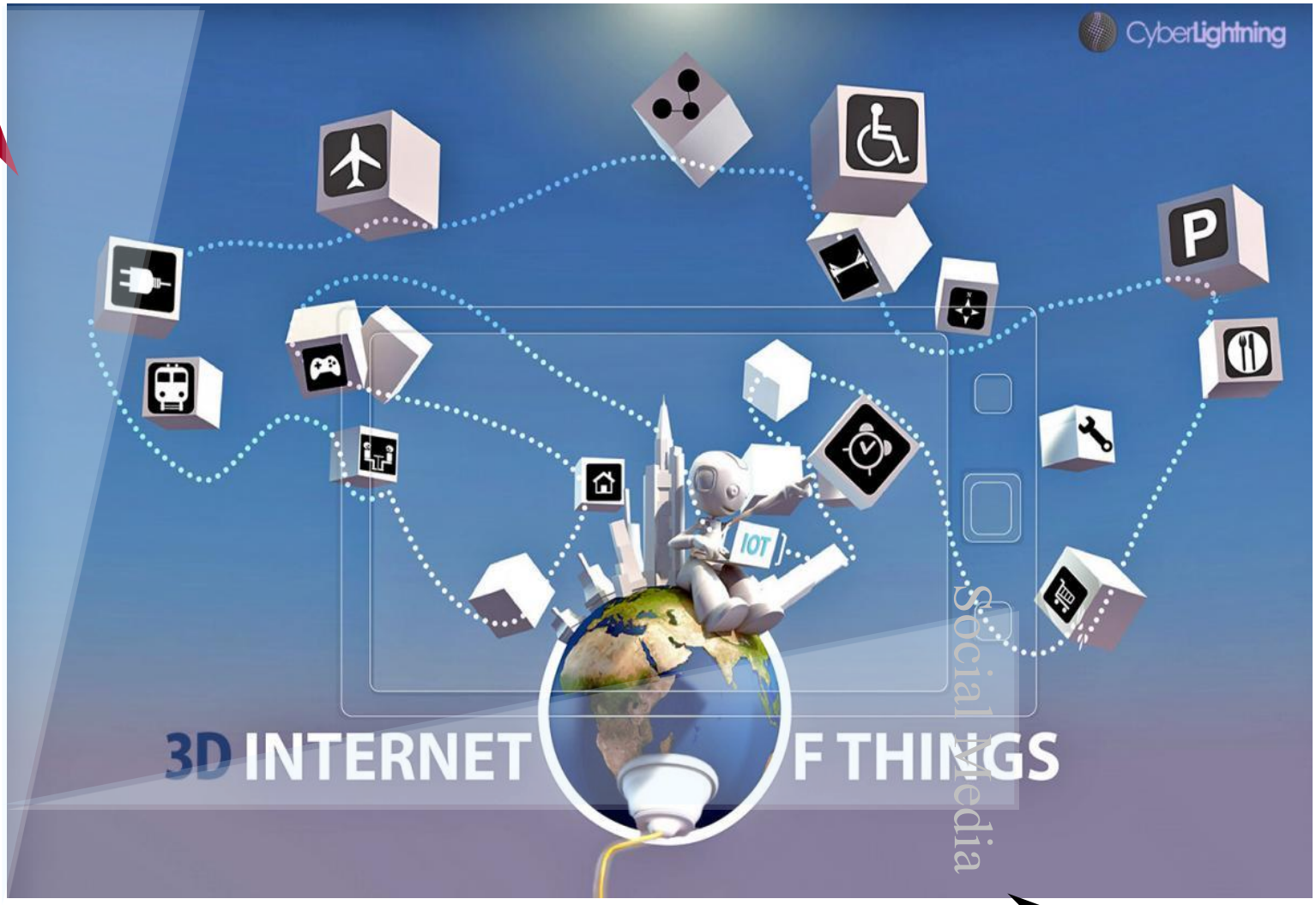
Self-Programmable Networks

The Medium – *The Digital Environment*

What extends the mind, body or senses – Nervous System

Internet-of-Things-Sensors

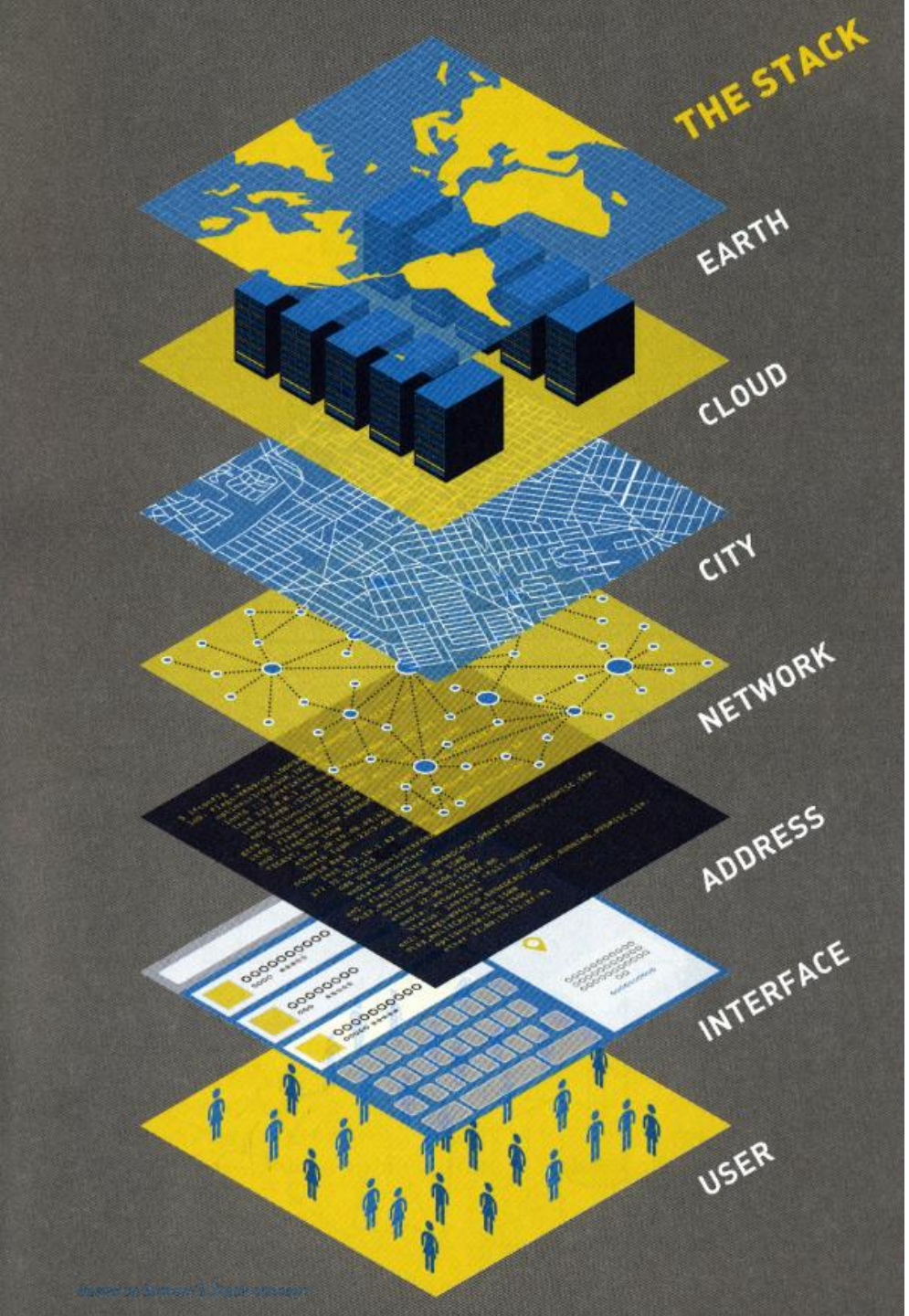
50 Billion -2020
100 Trillion -2030

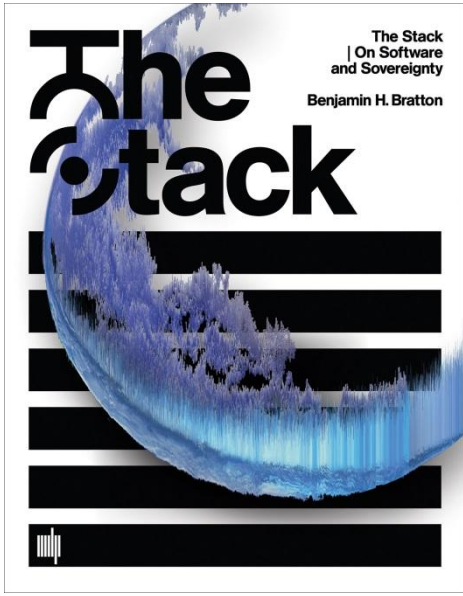


Connecting Machines

One Computer

Connections Between People





Age of global computation and algorithmic governance.

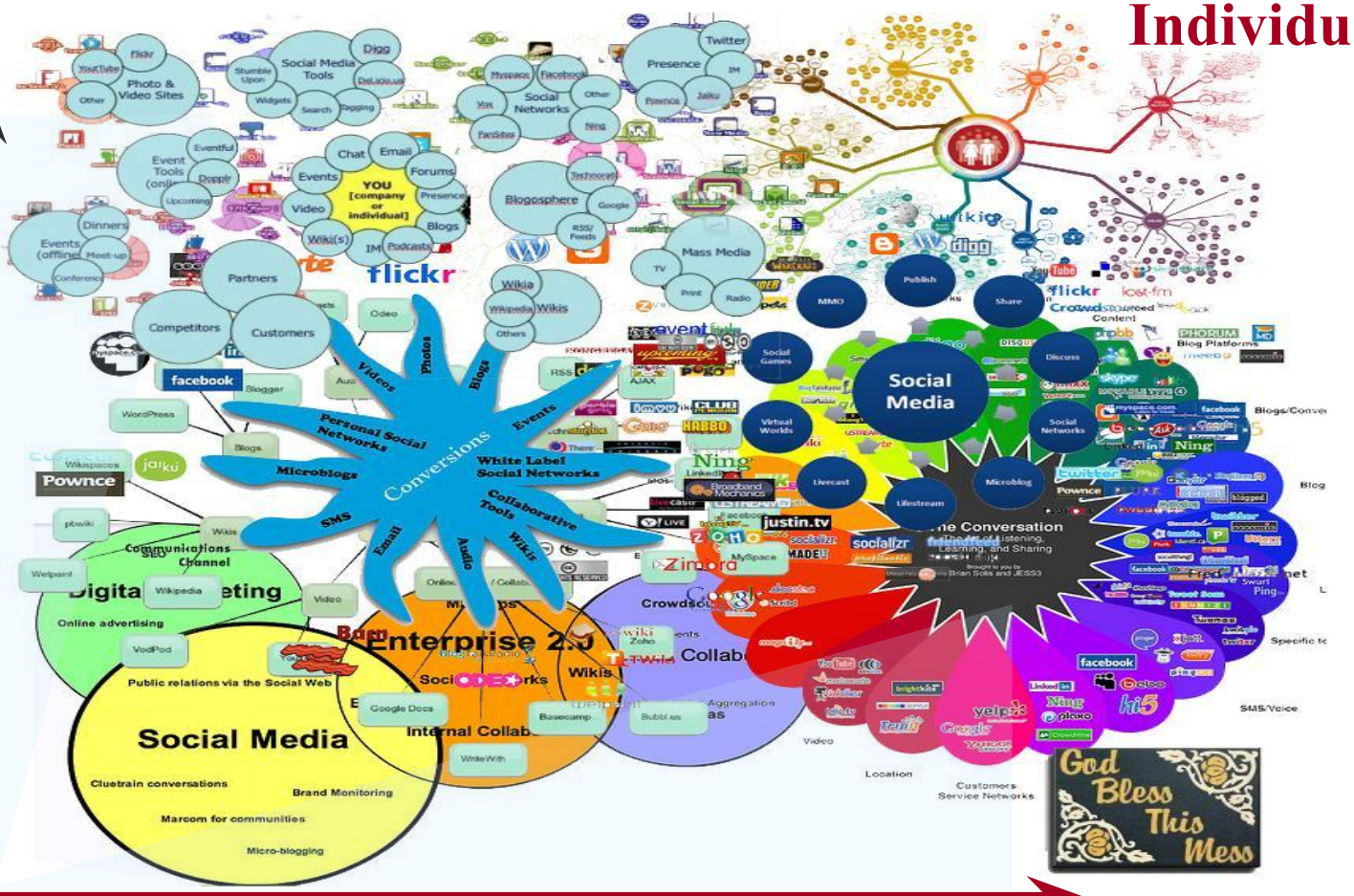
Planetary scale computation -smart grids, cloud platforms, mobile apps, smart cities, the Internet of Things, automation- forming a coherent whole

Medium – extends mind-body-senses

Collective Intelligence
Network Individualism

One Computer

Connecting Machines



Close-Ties Loose-Ties Audience

Connections Between People

Medium

extends mind-body-senses

In ten years, nearly every person on the surface of the earth will be online & own a mobile device.

One Computer
Internet-of-Things

Making Visible New Forms of Value

Noosphere
Global AI

Big Data

Information Commons

Massive Real-time Measures Behavior & Value

The Quantified Self - Social Physics

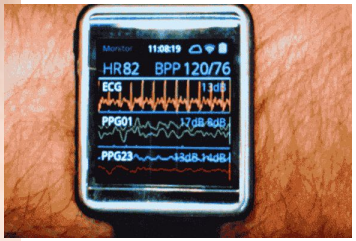
Emergence of New Institutions

Close-Ties Loose-Ties Audience

Connections Between People

The Medium

Platforms for Productivity



Big Data – New Measures

New Transparency

Institutional Innovation

The Socio-Metric Badge

Behavioral Data Collected

- **Face-to-face interactions**
- Meetings & turn-taking
- Trust, Stress, Anxiety
- Persuasiveness & interest
- Conversational Dynamics
- Location - movement

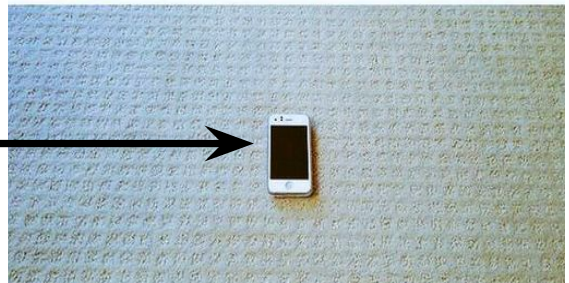
accelerometer
gyroscope
magnetometer
front and rear cameras
NFC
barometer
speaker
microphone
proximity
light sensor
Bluetooth
GPS
WiFi + cellular
humidity
temperature

Medium - **Changing Boundary Conditions**

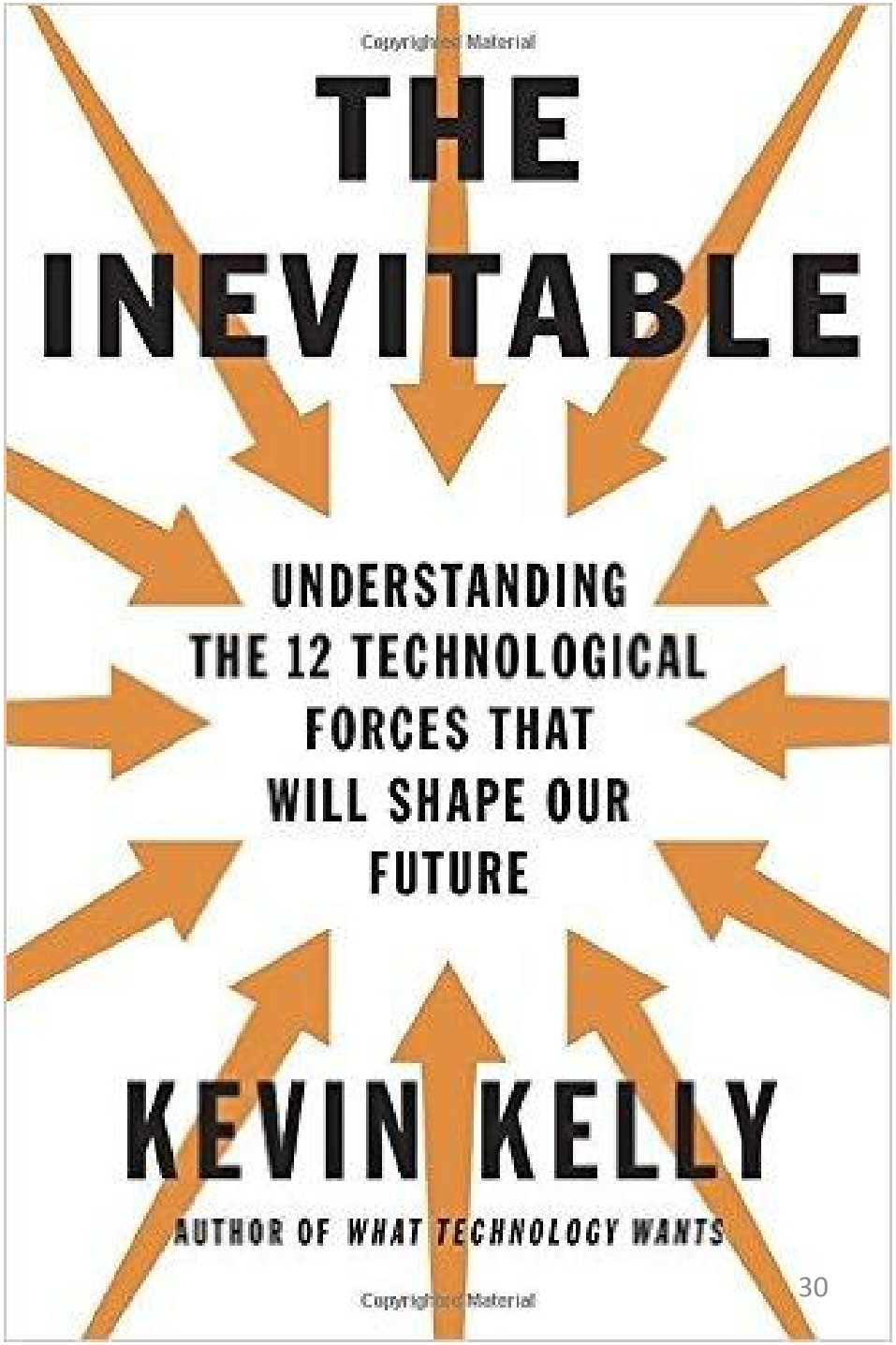
Unprecedented
Collapse Transaction costs
Search; Coordination; Communication,
Zero Marginal Costs
Exponential Marginal Value

Accelerating Change
Opportunity Costs exceed
***Traditional* benefits of efficiency**

Phase Transition to a Beta World

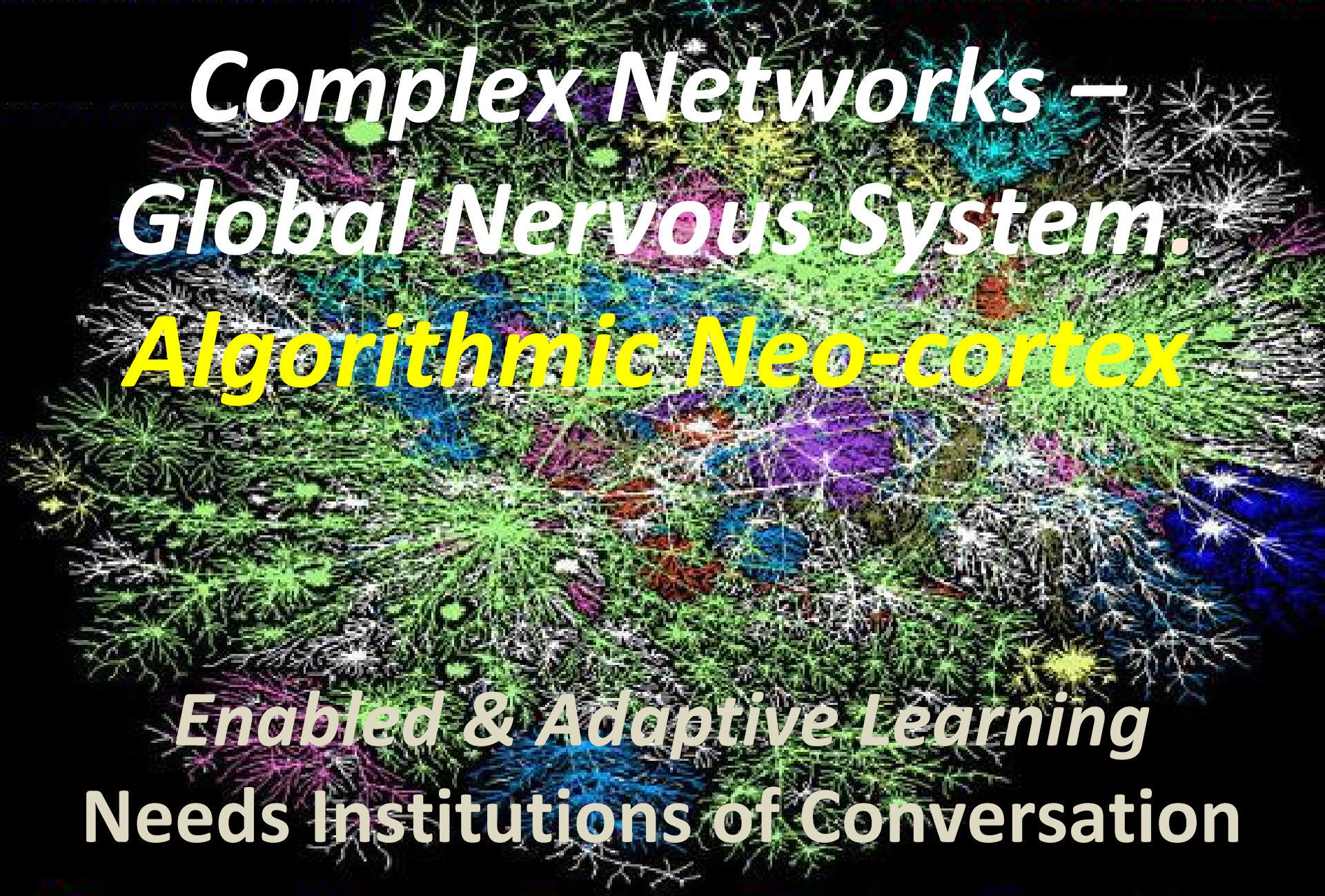


- Becoming
- Cognifying
- Flowing
- Screening
- Accessing
- Sharing
- Filtering
- Remixing
- Interacting
- Tracking
- Questioning
- Beginning



Complex Networks – Global Nervous System.

Algorithmic Neo-cortex



Enabled & Adaptive Learning

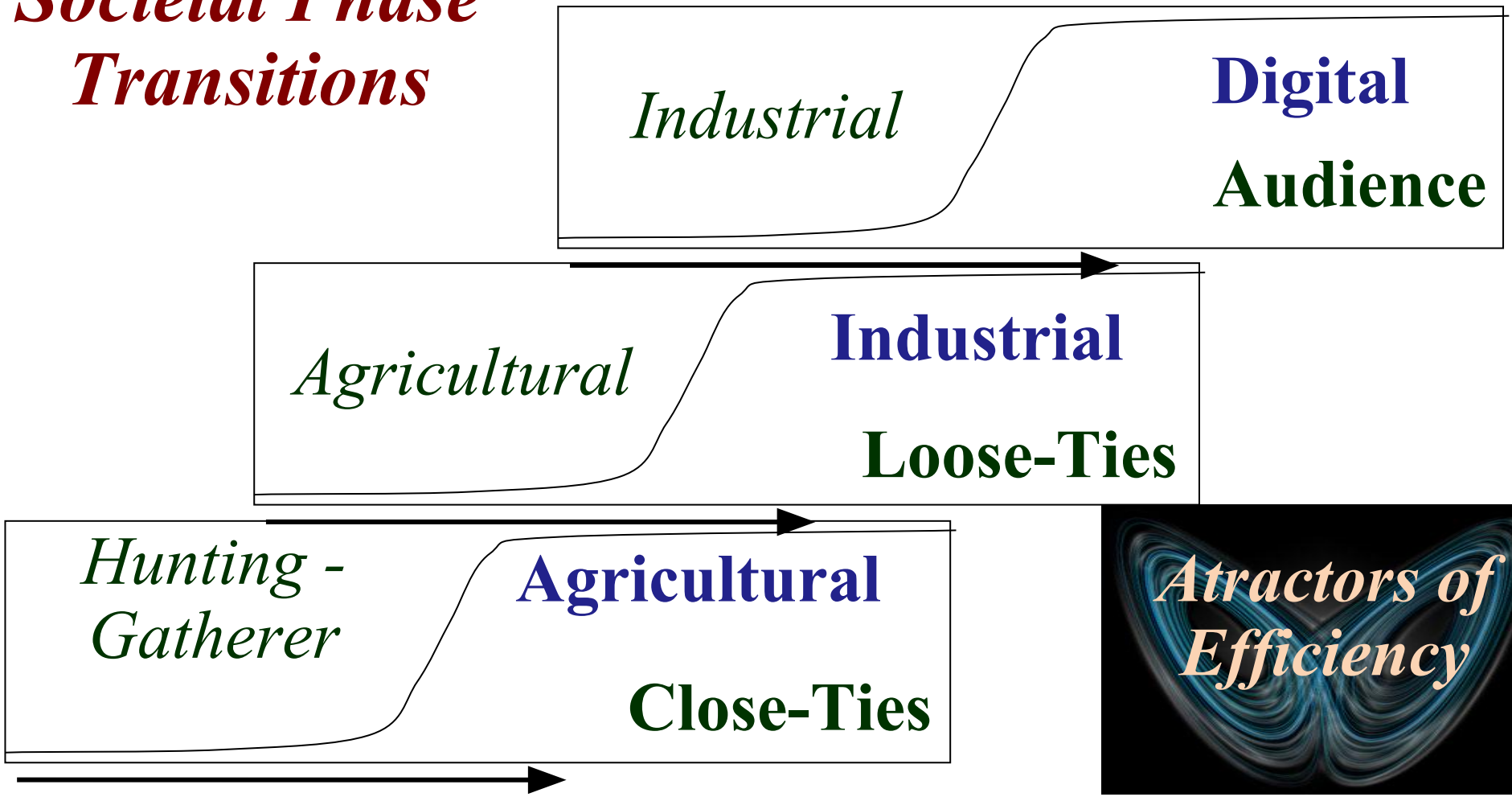
Needs Institutions of Conversation

The Medium's Message

Changes of **pace, scale, scope or pattern**

Intensive Population/Communication – Density/**Connectivity**

Societal Phase Transitions



Smart Money – Social Currency

What is money?

Money = Information Medium enabling Exchange

Imagine a Distributed Non-Sovereign Bank?

KEY Question –How do we value our Values

Distributed Social Currency

***Not** Bitcoin - The Blockchain*

Ledger of all transaction distributed to each Bitcoin User

Complete history Of all valuables belonging to each user.

The Spime

Distributed Social Currency

Not Bitcoin - The Blockchain

More than 2 Billion People 'Like' the behavior of Others

Complete history Of all Valued behavior of each person

China plans to launch Social Credit System in 2020.

Judging trustworthiness of its 1.3 billion residents

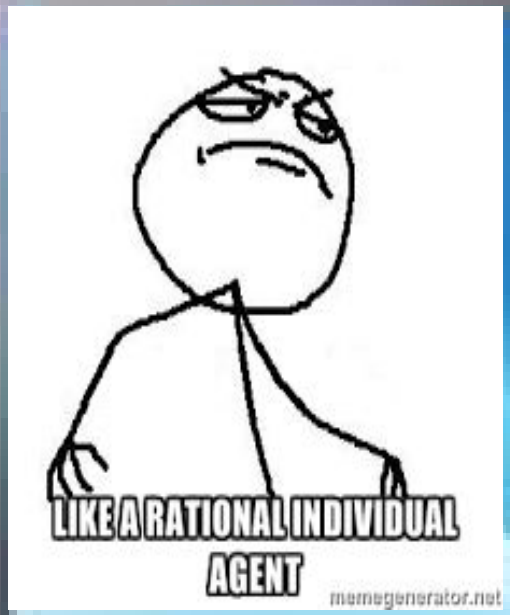
Content of New Media?

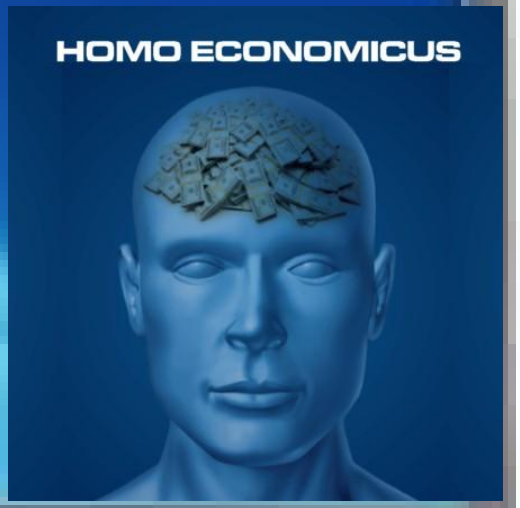
Media for Thinking the Unthinkable
Humane Representation of Thought
Bret Victor

Content of New Media – *Identities of the Past*?

Old Narratives of Self

'The Isolated, Atomistic Selfish Individual'



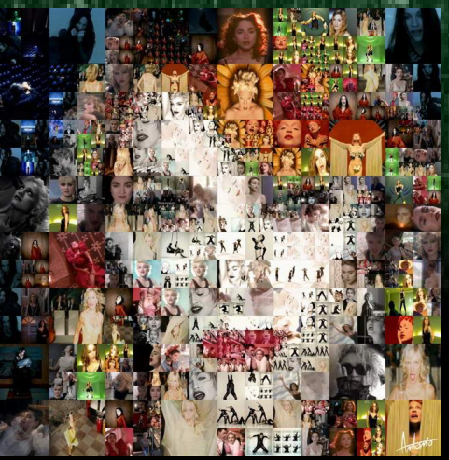


Anonymity Protects

Moving into the future staring in the Rear View Mirror?

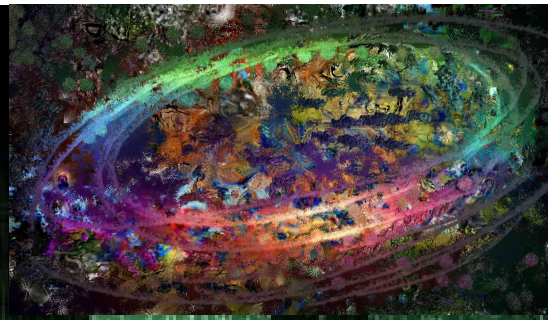
Message of New Media – *Identities of the social self*?

The Social Self
Co-Creation of Value
Open-Source
Commons



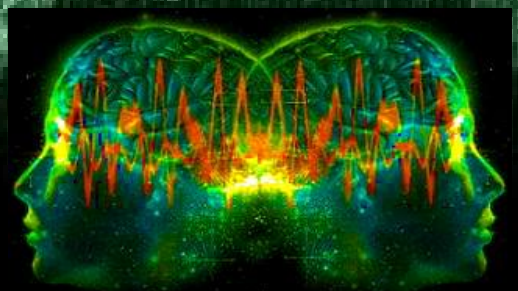
Radical Transparency
Freedom to exchange
New literacies
Scale Learning

Entanglement Ecologies – ***Identities of the social self***?



"Perhaps I didn't live just in myself, perhaps I lived the lives of others … My life is a life put together from all those lives: the lives of the poet."

Pablo Neruda – Memoirs, p1




∞
Species
Many Species
One Mind
Many Species
Many Minds
One Species
One Mind
One Species
Many Minds
0
Minds
∞

Content of New Media – *Efficiencies of the Past*?

Old Social Narratives

'Sovereign leader'

Intelligent Designer-Decider

Moving into the future staring in the Rear View Mirror?

Content of New Media – *Efficiencies of the Past*?

New Social Narratives

'Hero - Anti-Leader'

Wisdom of Crowds

Common Agent-of-Justice

Moving into the future staring in the Rear View Mirror?

Tomorrow's Employment Models?

Near-Zero Marginal Costs - *ABUNDANCE*

Exponential Increase in Marginal Value

Value of Network (n = Node)

- **Metcalf's Law n^2**
- **Reed's Law – Group Forming Network 2^n**


You Can’t Control the Context
But we can frame It

TRUTH is Dead – Long Live Honesty

The TRUTH – All knowledge is always partial knowledge

One Data set – Two Hypotheses

Facts are innumerable – choice of those that matter is more difficult than we often assume.

Observations are contested – and/or have conflicting interpretations.

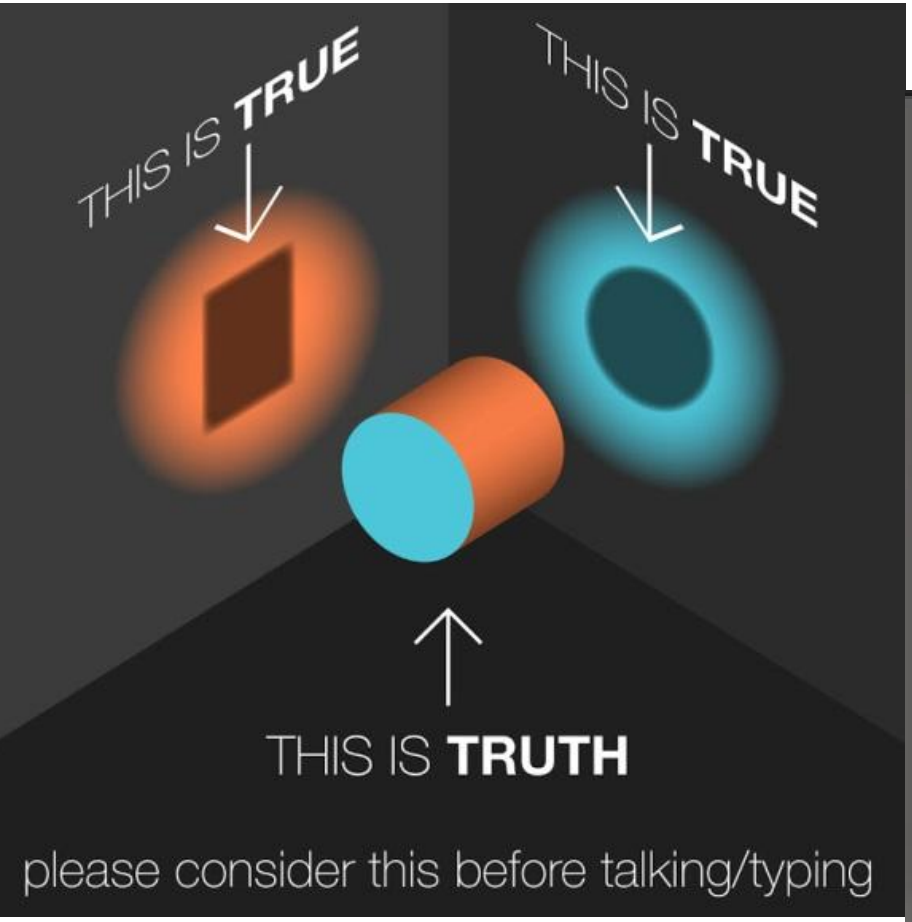
Ocam's Razor is a heuristic choice

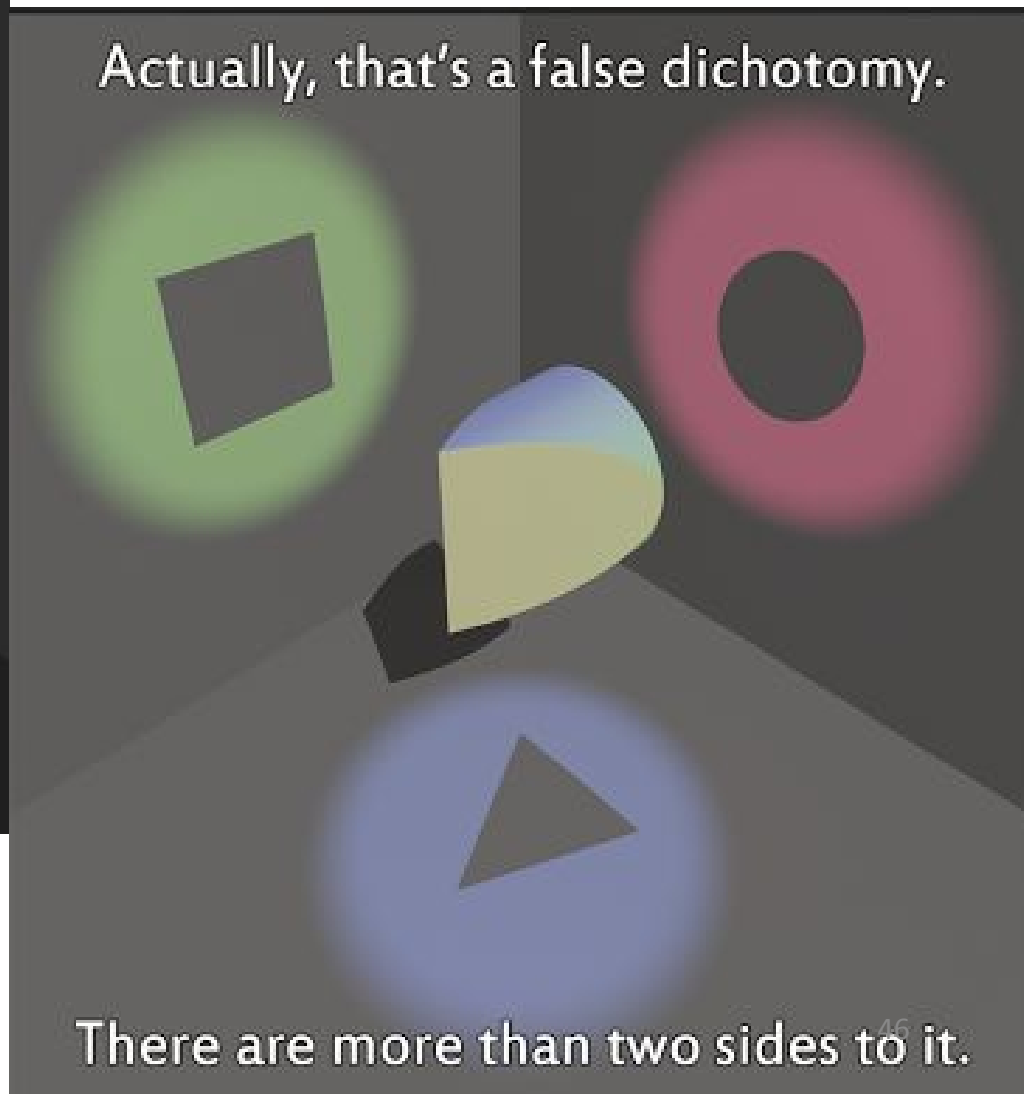
Choice is key to driving enacted, embodied Value/Values

Choice drives institutions of conversation and knowledge

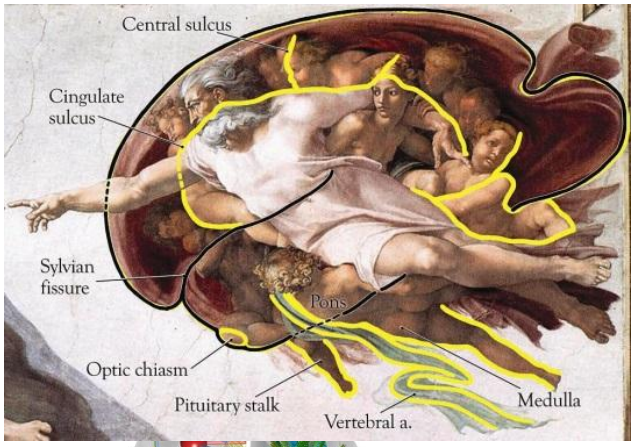
TRUTH is Dead – Long Live Honesty

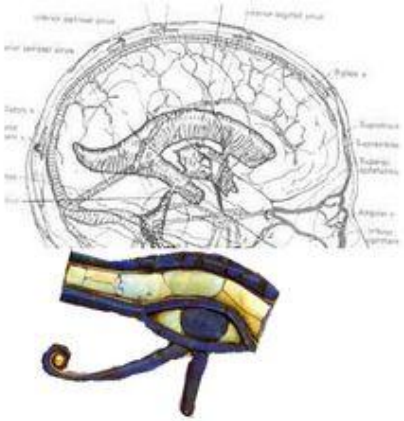
Understanding & Knowledge through conversation

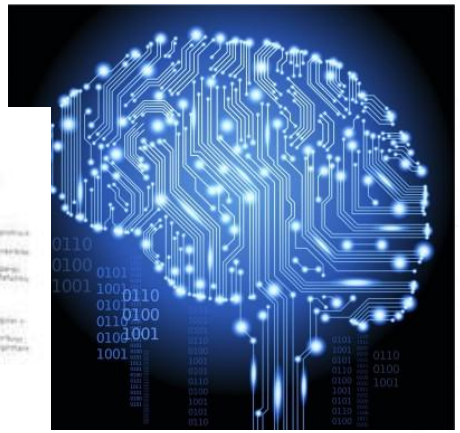


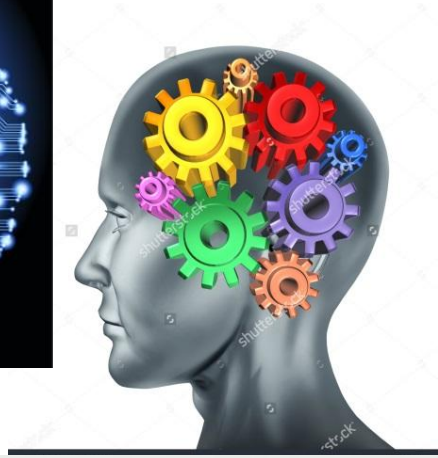


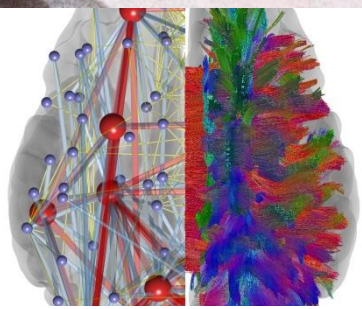
Metaphor Colonizes the Unknown

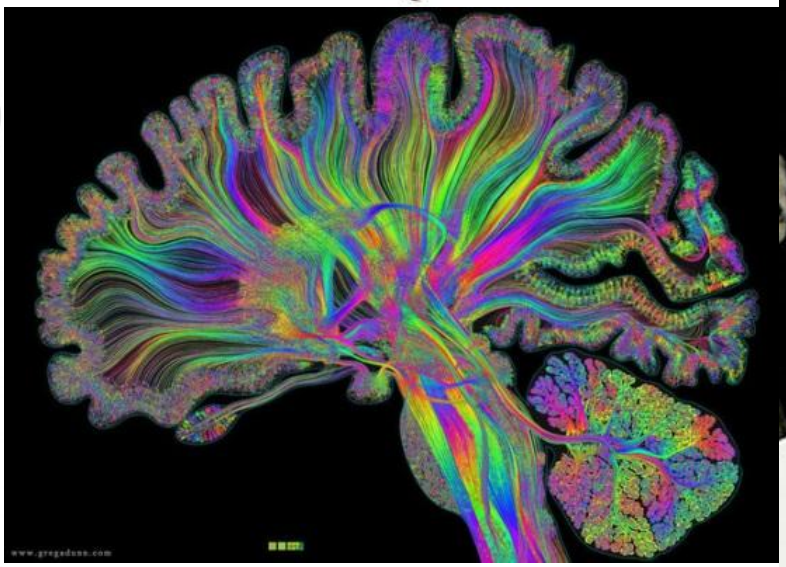






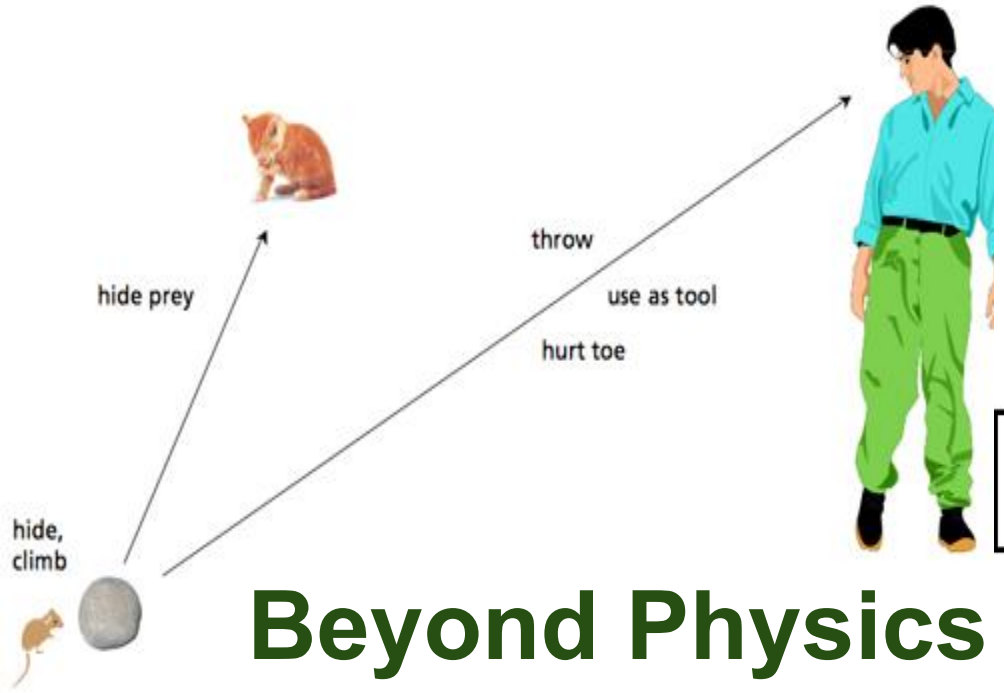


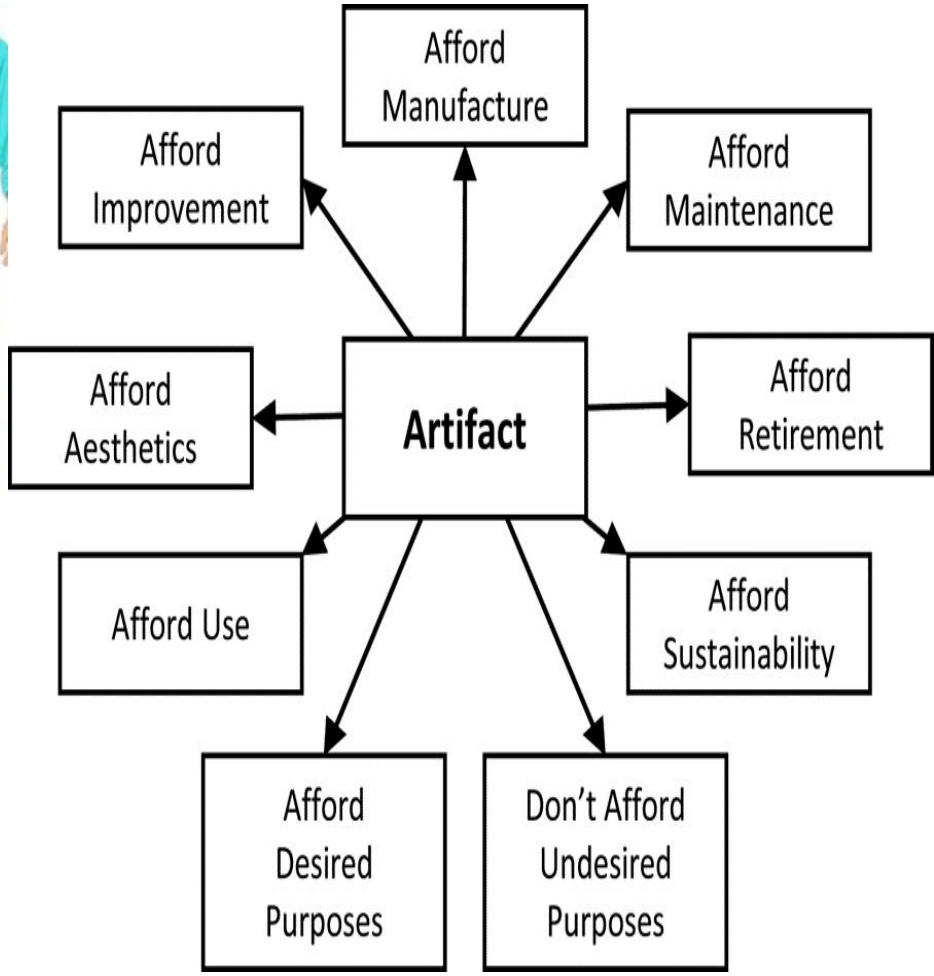




Narrative Shapes our Reasoning

Biology of Affordance, Adjacent Possible, Metaphor, Paradox, Meaning, Function





Beyond Physics
Biology enables
1 + 1 = 1

Affordance enable possibilities-combinations

Biology of Affordance, Adjacent Possible, Metaphor, Paradox, Meaning, Function

LANDSCAPE OF AFFORDANCES:

affordances available in an ecological niche.

FIELD OF AFFORDANCES: affordances that stand out as relevant for a particular individual in a particular situation

Affordances Enable Exaptation - meaning, function, adaptation

The War on Sensemaking

Security is not what you do **TO** people

It's what can be done **WITH** people.

The paradigms of the Digital Environment

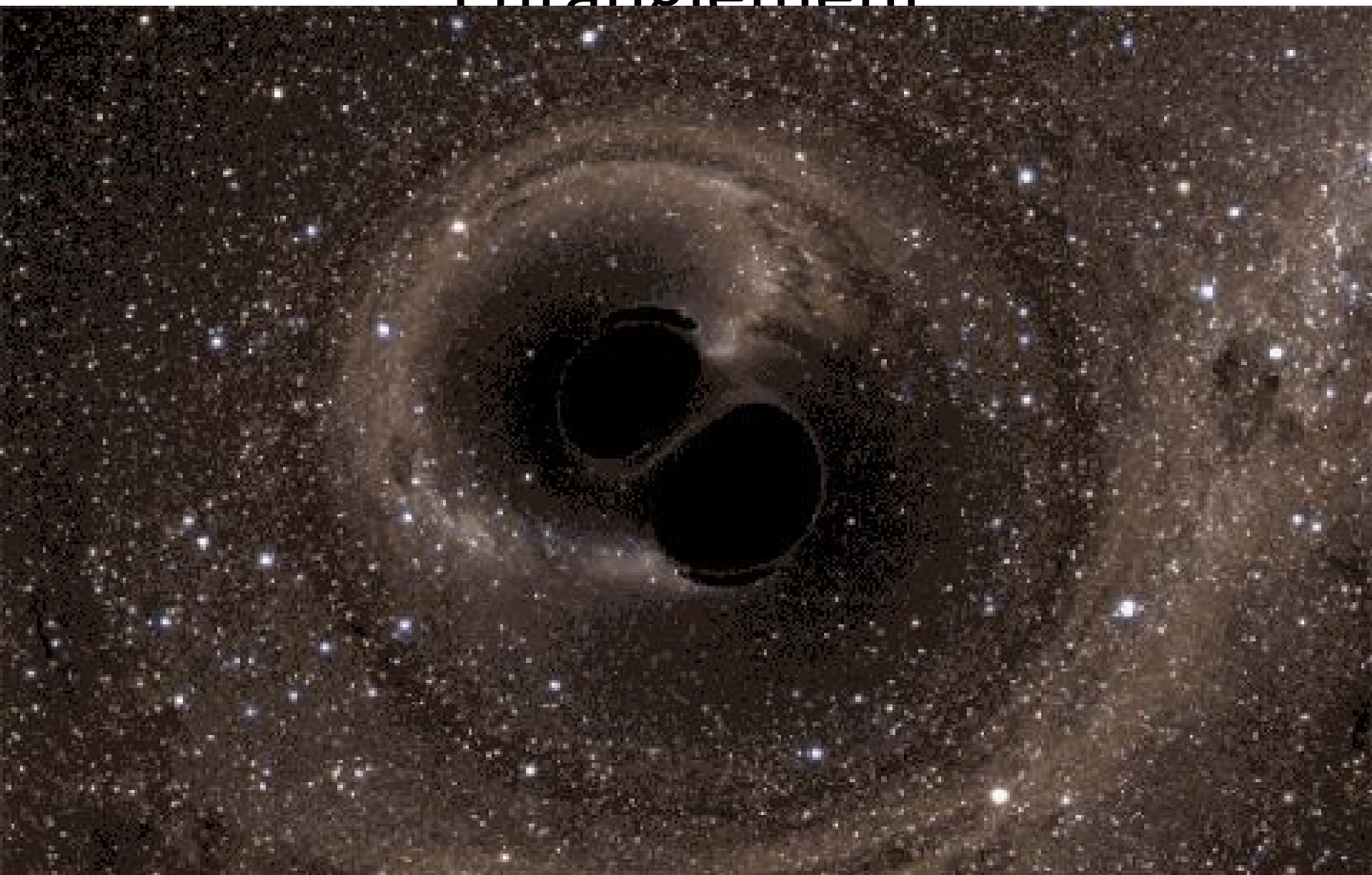
Social Immune System

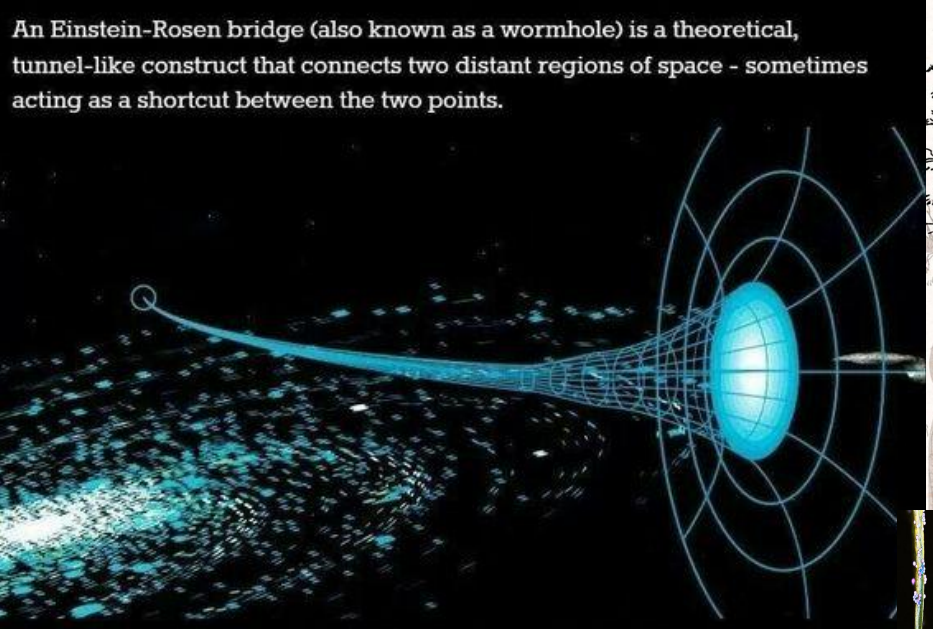
"World War III is a guerrilla information war with no division between military and civilian participation." - Marshall McLuhan, 1970

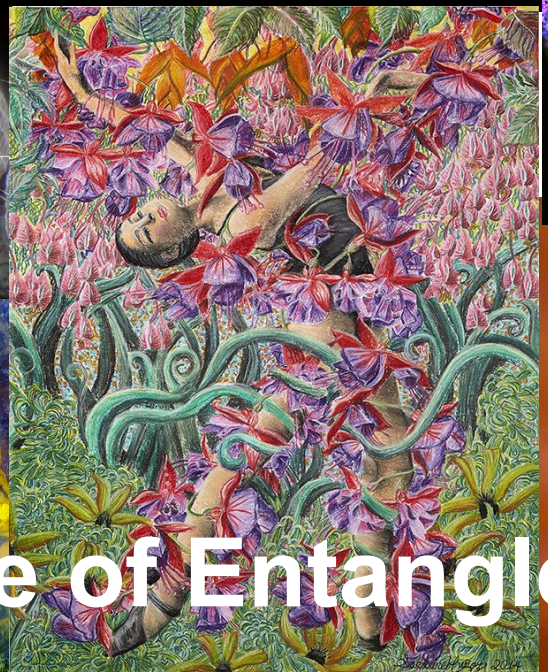
Evolutionary WayFinding

Not a clockwork world
Not a world of isolated, atomistic parts
Not navigating a world that has been mapped
But Creating the Conditions of our Own Becoming
Wayfinding toward our Co-Creation

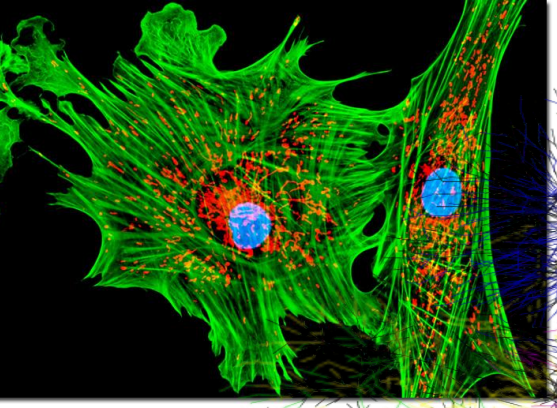
From Individuation To Entanglement

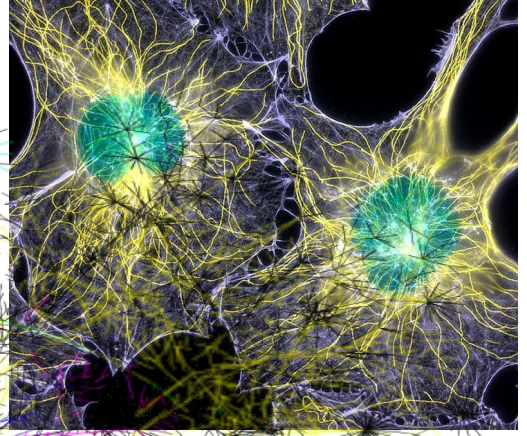


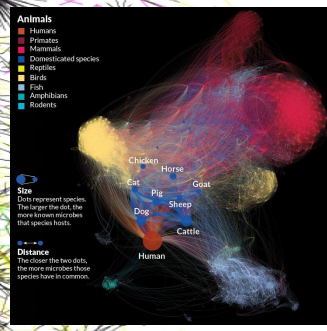


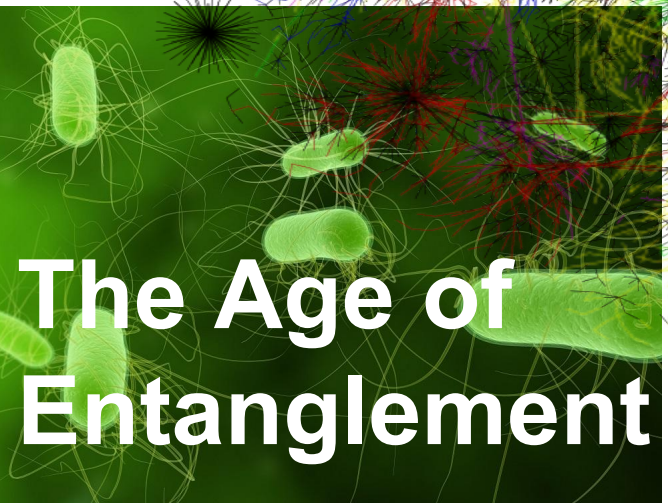


The Age of Entanglement

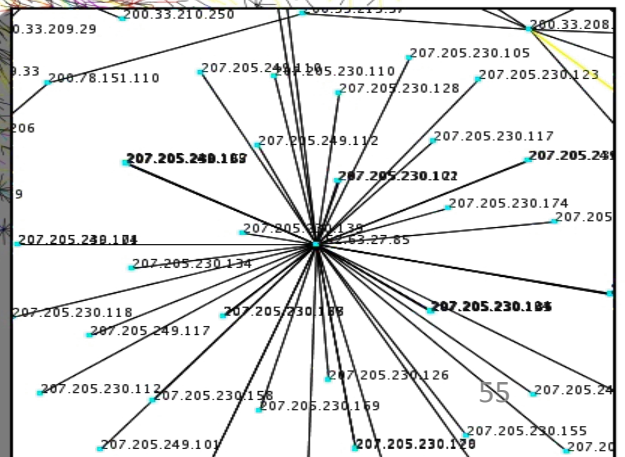








The Age of Entanglement

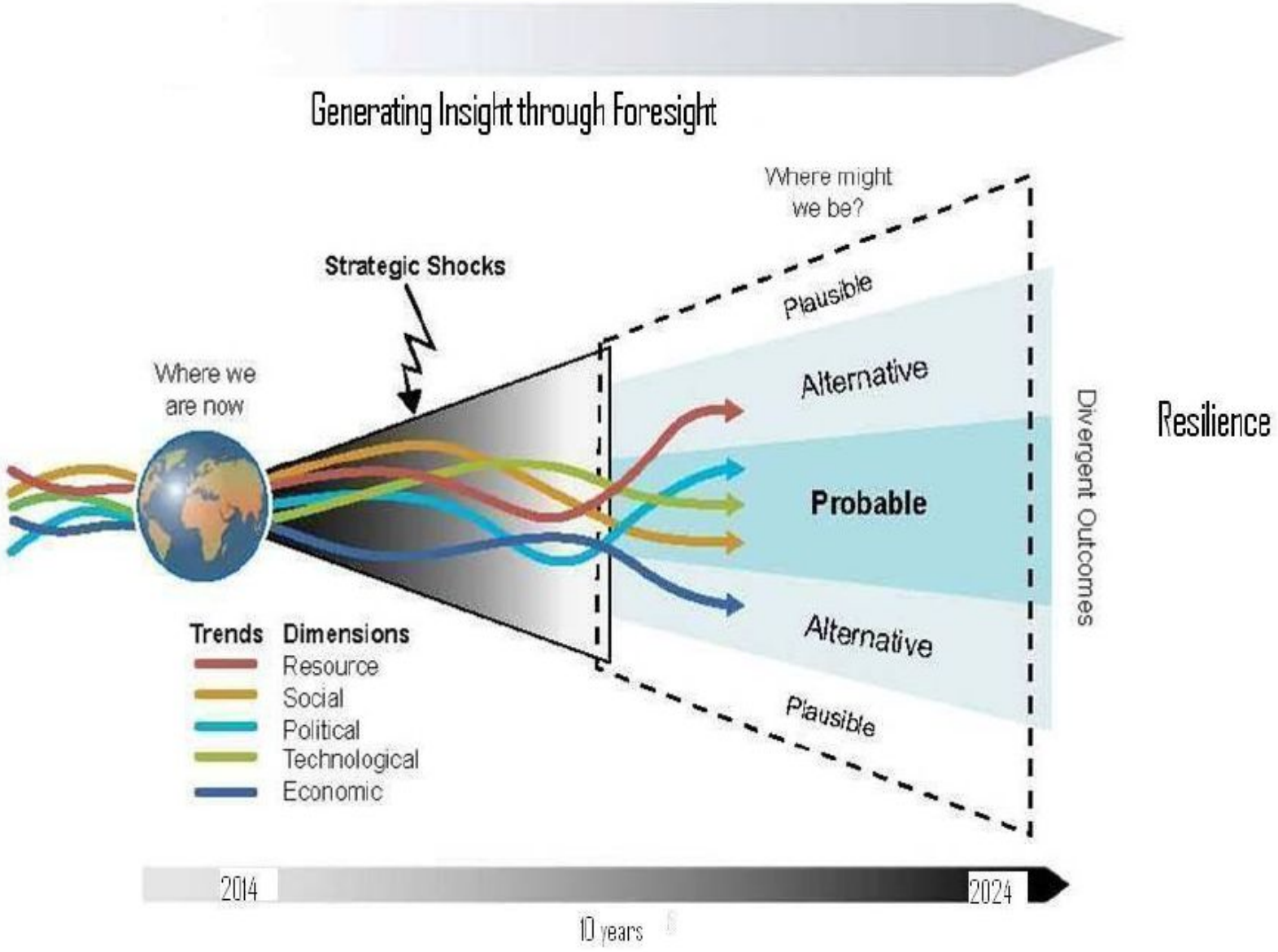


We are at the dawn of the Age of Entanglement. In the Age of Enlightenment, we learned that nature followed laws. … understanding these laws, we could predict and manipulate. ... We granted ourselves god-like powers: to fly, communicate across vast distances, hold frozen moments of sight and sound, transmute elements, create new plants and animals. … we orchestrated fantastic chains of causes and effect in our political, legal, and economic systems as well as in our machines. ***Our philosophies neatly separated man and nature, mind and matter, cause and effect. We learned to control.***

… we constructed digital computers, the very embodiments of cause and effect. ***Computers are the cathedrals of the Enlightenment, the ultimate expression of logical deterministic control****. … we learned to manipulate knowledge, … beyond the capacity of our own minds. …* ***We began to build systems with emergent behaviors that were beyond our own understanding, creating the first crack in the foundation.***

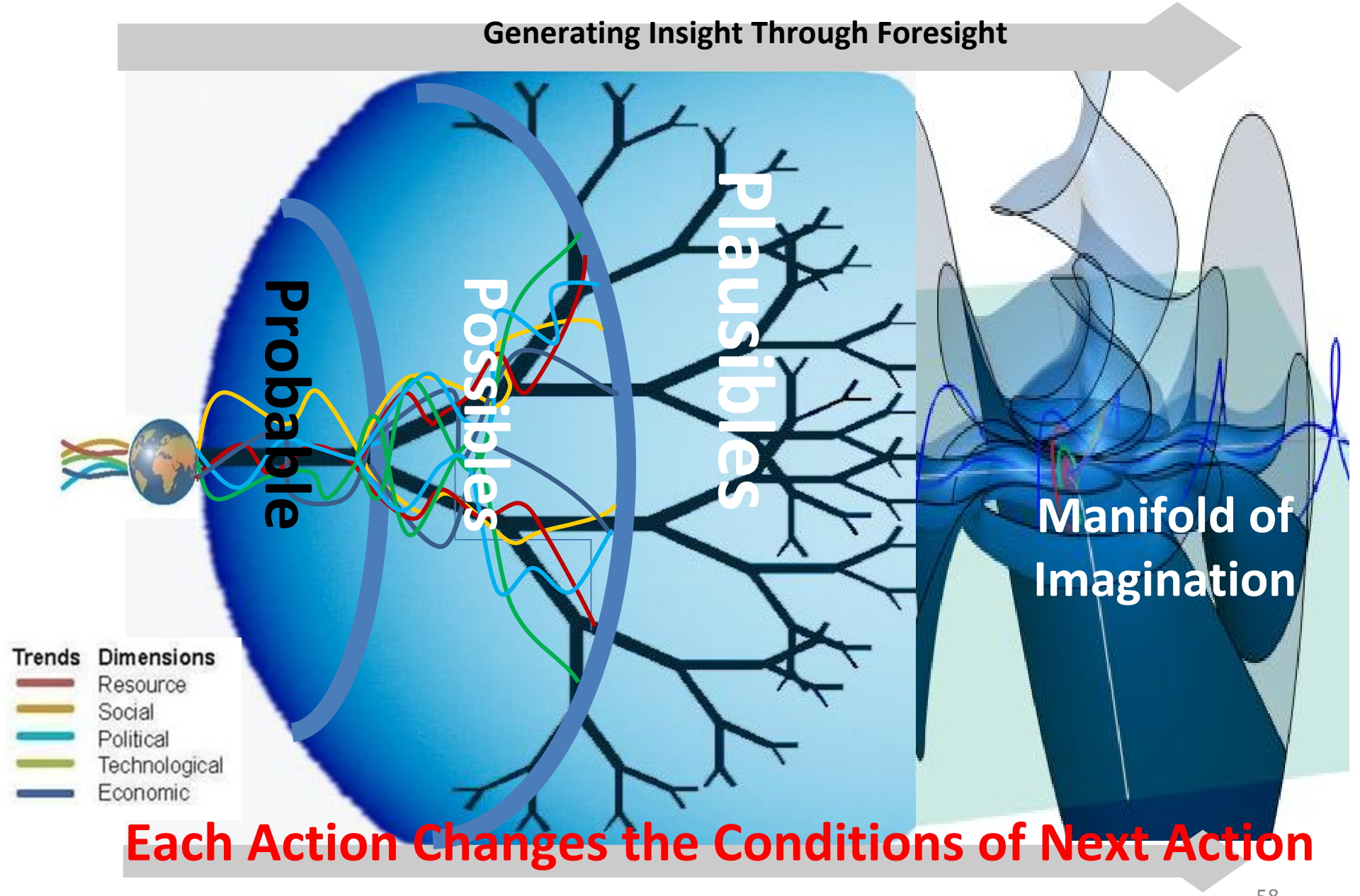
So what is this brave new world that we are creating, governed neither by the mysteries of nature or the logic of science, but by the magic of their entanglement? It is governed by the mathematics of strange attractors. Its geometry is fractal. Its music is improvisational and generative rather than composed… progress in the Age of Entanglement is synthetic and comes from putting things together

3rd Gen Foresight Framework - Cone of Plausibility

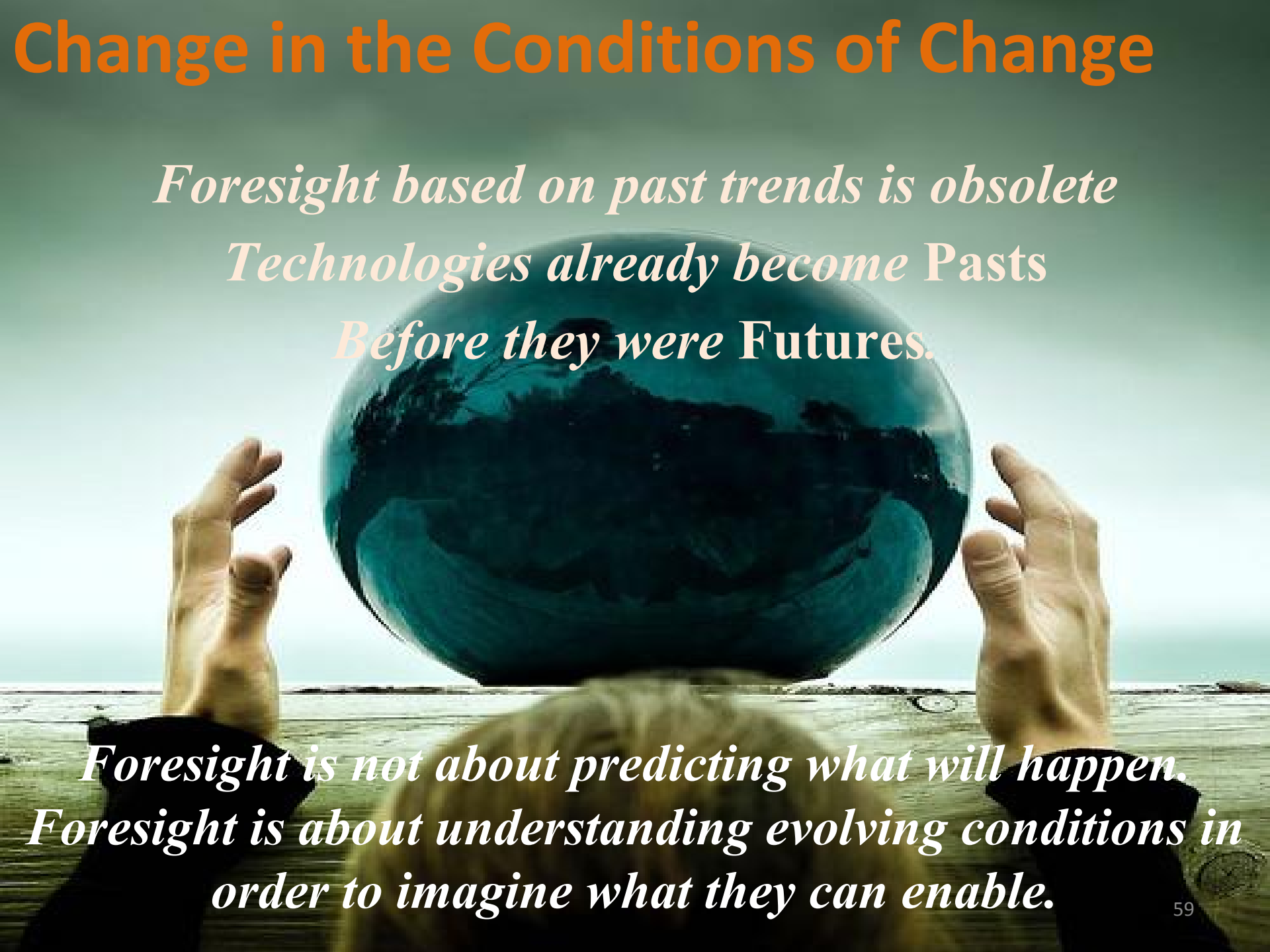


Adapted from Original: Charles Taylor, Army War College, 1990

4th Gen Foresight Framework - Horizon of Plausibility



Change in the Conditions of Change



Foresight based on past trends is obsolete

Technologies already become **Pasts**

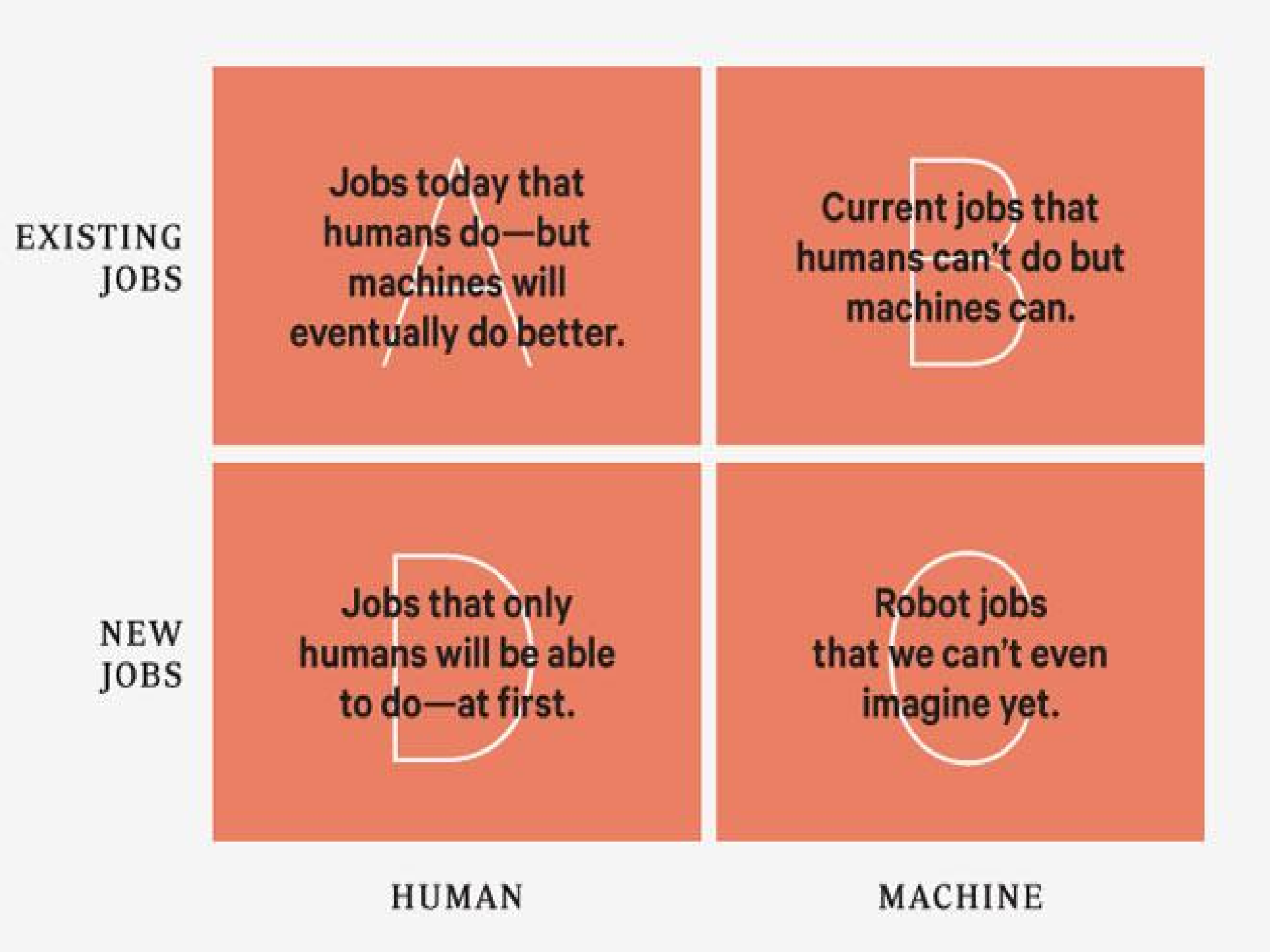
Before they were **Futures.**

Foresight is not about predicting what will happen. Foresight is about understanding evolving conditions in order to imagine what they can enable.

Questions?


The Singularity
GAIA Theory
Conscious AI
THE GLOBAL BRAIN
Diverse minds making sense
Super Organism
Collective Intelligence
Social Networks
Memetics
Noosphere
© TW@IN 2008

First Pumpkin 2017


EXISTING JOBS
NEW JOBS
Jobs today that humans do—but machines will eventually do better.
A
Current jobs that humans can't do but machines can.
B
Jobs that only humans will be able to do—at first.
D
Robot jobs that we can't even imagine yet.
C
HUMAN
MACHINE