

Approaching the Next Evolutionary Eventhorizon

At the intersection of AI, synthetic biology, and quantum computing in a hyperconnected global ecosystem

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The Holographic Perspective

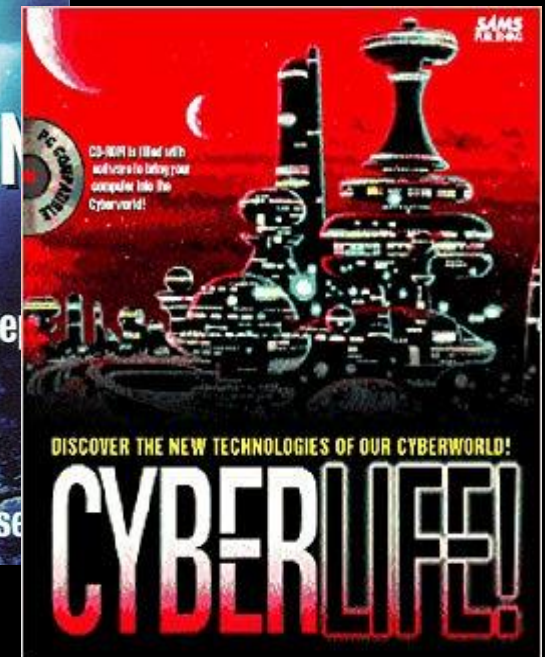
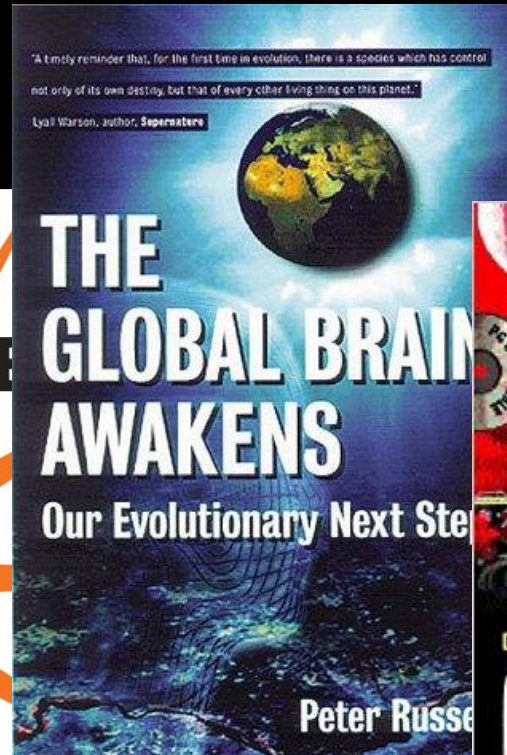
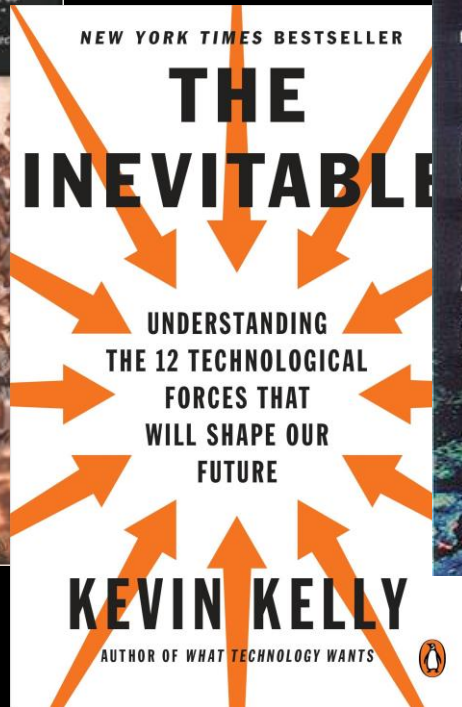
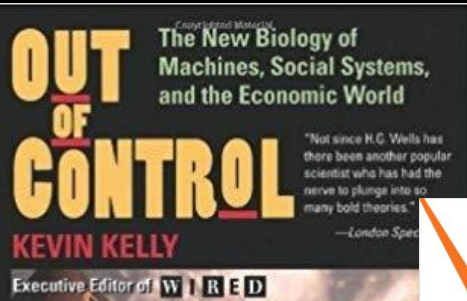
- All living things are systematically interconnected
- Definition of “living things” extends to systems, processes, entities which behave biologically



"Any sufficiently advanced technology is indistinguishable from magic" - Arthur C Clarke

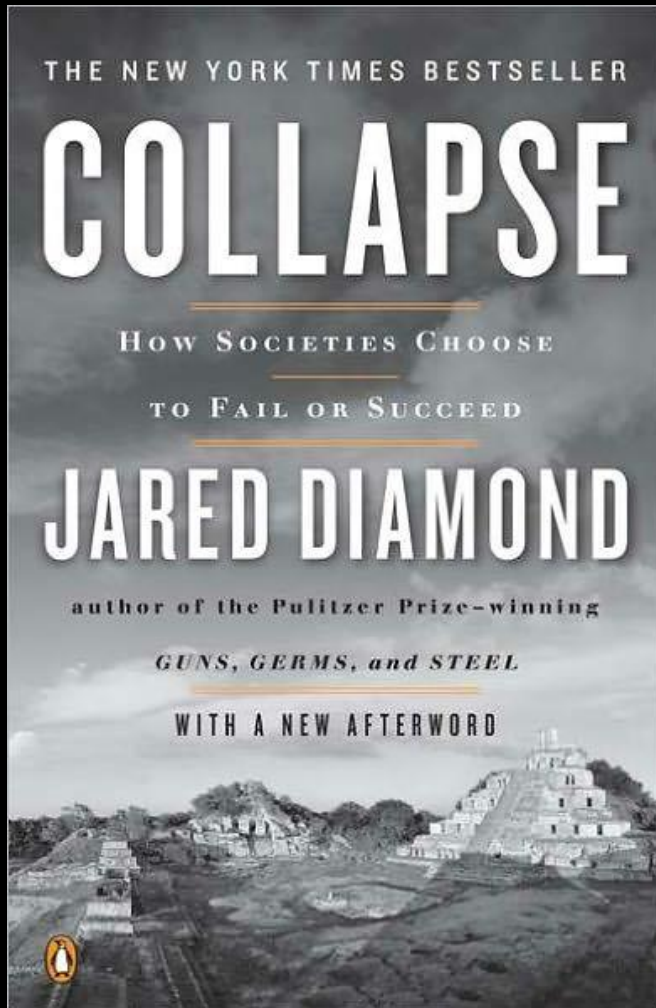
"The future is already here — it's just not very evenly distributed." – William Gibson

Evolution into the Next Paradigm -

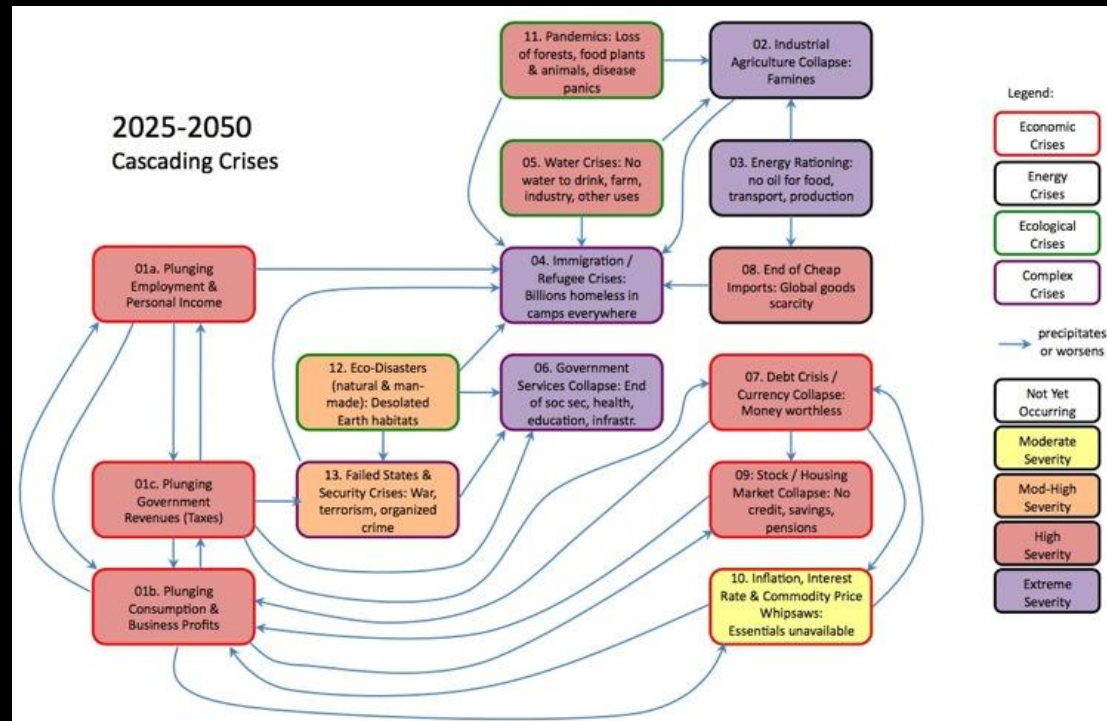


“ What appears to be the future for many, is already the past for some, who are now unfolding it into the present. “ Charles Ostman

Evolution into the Next Paradigm -

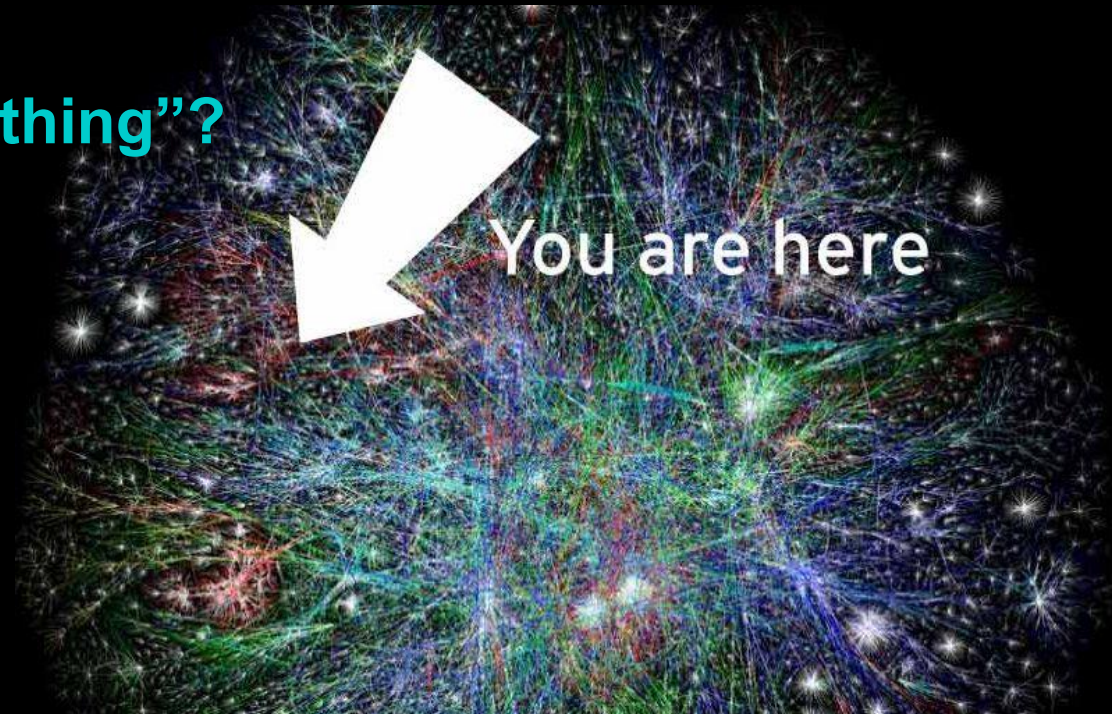
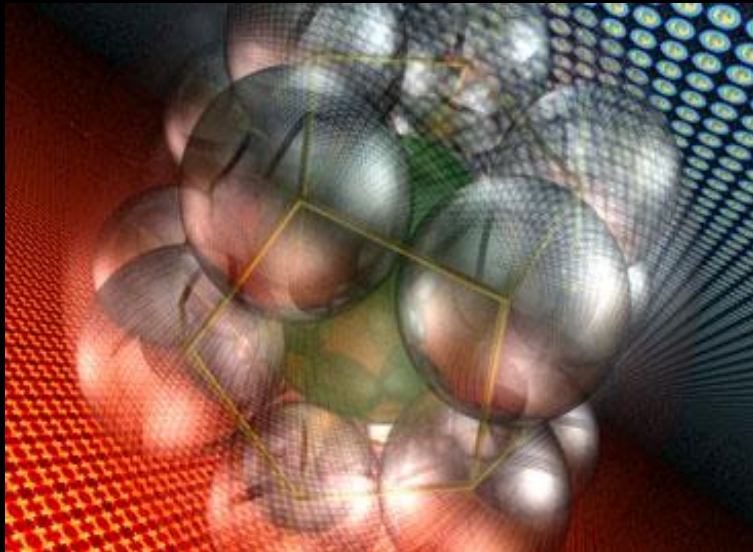


Intersection of chaos theory and evolutionary systems dynamics



Ubiquitous Cultural Constants

- All living things are “interconnected”
- Life extends beyond the physical form
- Indigenous cultures on 5 continents foretelling “something of great significance” that will occur within the 1st 3rd of the current 21st century.
- **What is the “next something”?**



Cultural Imperatives of the Evolutionary Eventstream

- Knowledge complexity, scale, and velocity is exceeding human capacity for mission critical decision rendering compressed into ever shortening time scales, in a hyperconnected operational ecosystem.
- What is the next “something”?

Evolutionary eventhorizon, the emergent next paradigm . . .

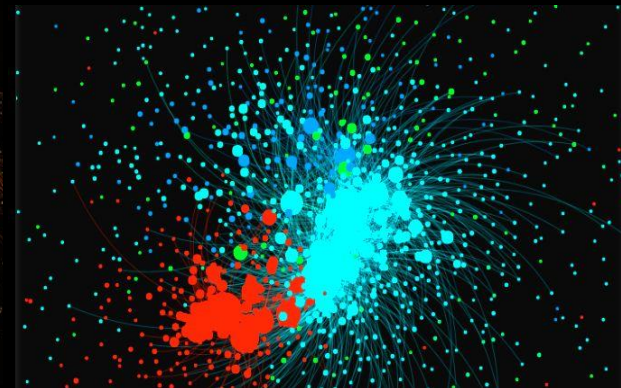
Synthetic biology
Genetic morphology



Global “brain” networks
Computational resource



Artificial intelligence
Synthetic Sentience



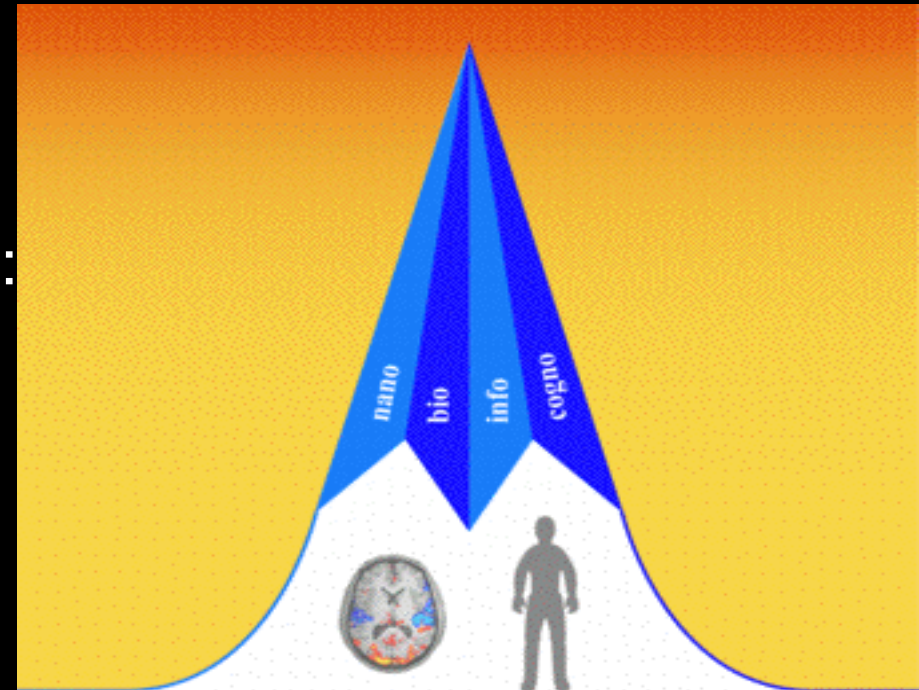
Cultural Imperatives of the Evolutionary Eventstream

A brief glimpse into the next paradigm . . .

The merging of the real and the virtual into a ubiquitous continuum

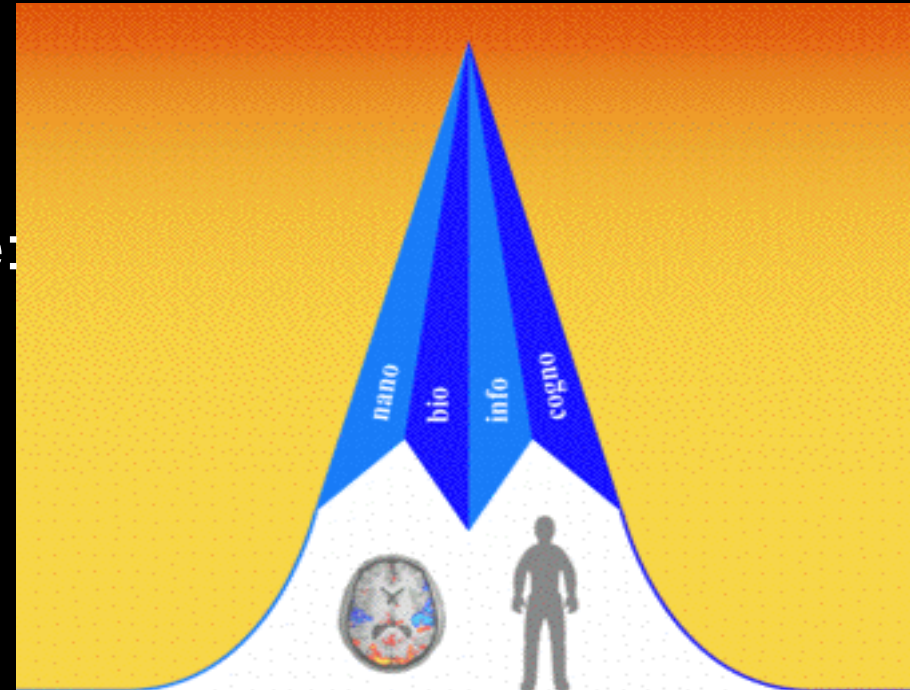
The Emergent Nano / Bio / Info / Cogno tech Operational Ecology

NBIC Conference
Converging Technologies
for Improving Human Performance:
Nanotechnology, Biotechnology,
Information Technology and
Cognitive Science
NSF/DOC-sponsored report
<http://www.wtec.org/ConvergingTechnologies>



The Emergent Nano / Bio / Info / Cogno tech Operational Ecology

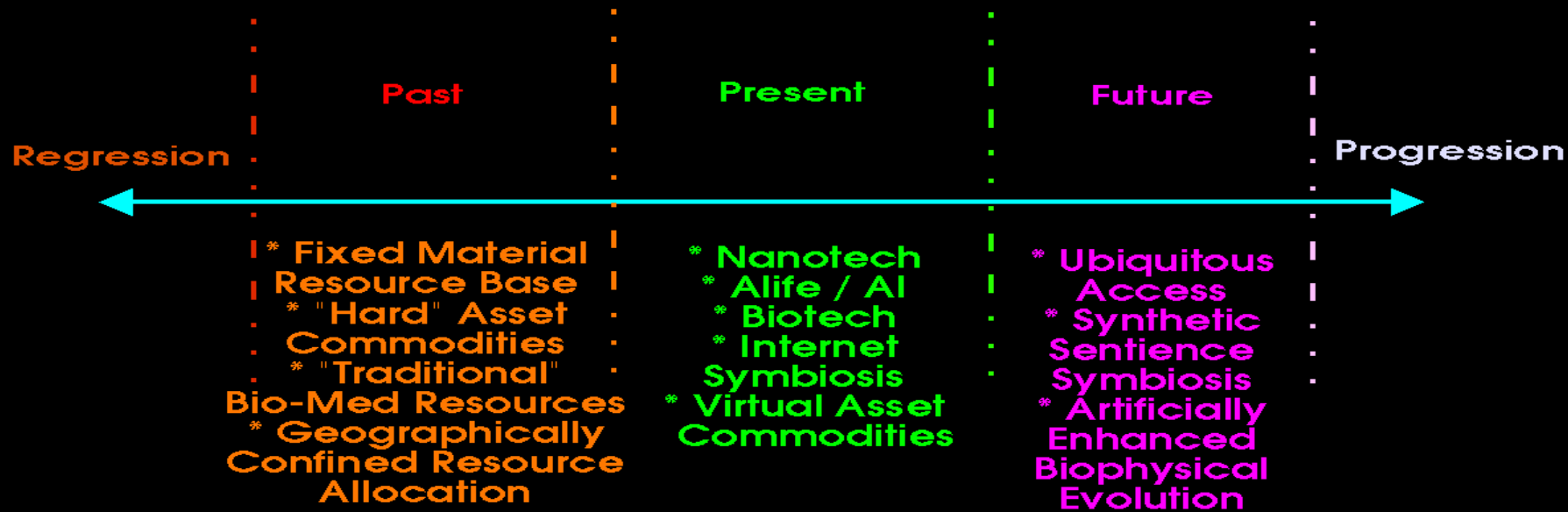
NBIC Conference
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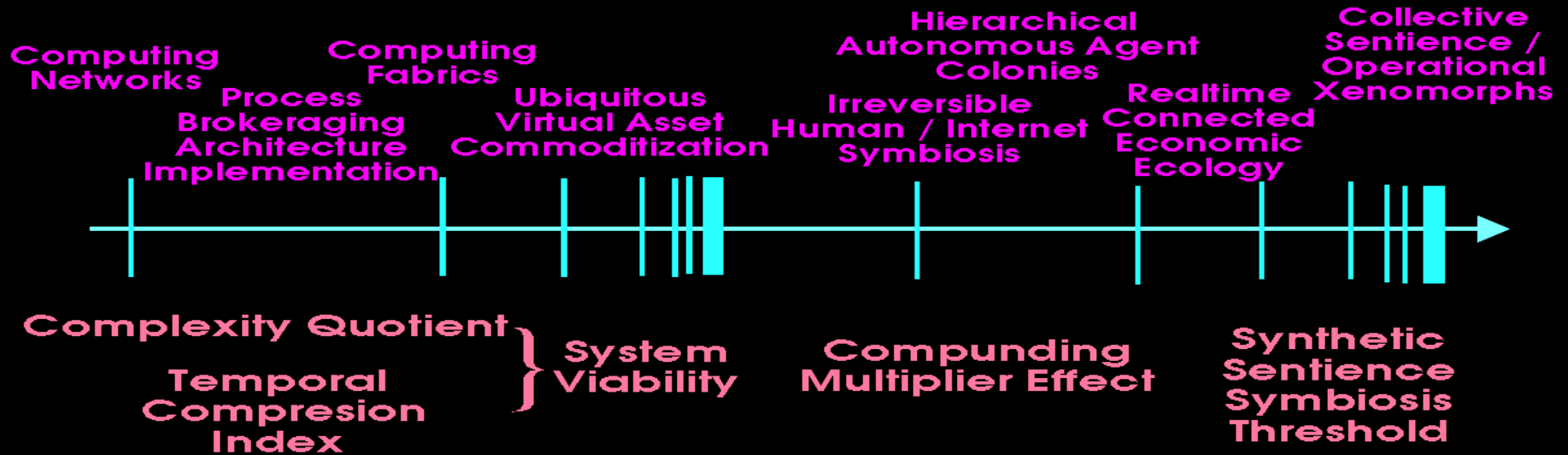
Neurological sovereignty as a concept introduced . . .

Genetic, cognitive, virtual presence . . . “existence sovereignty”

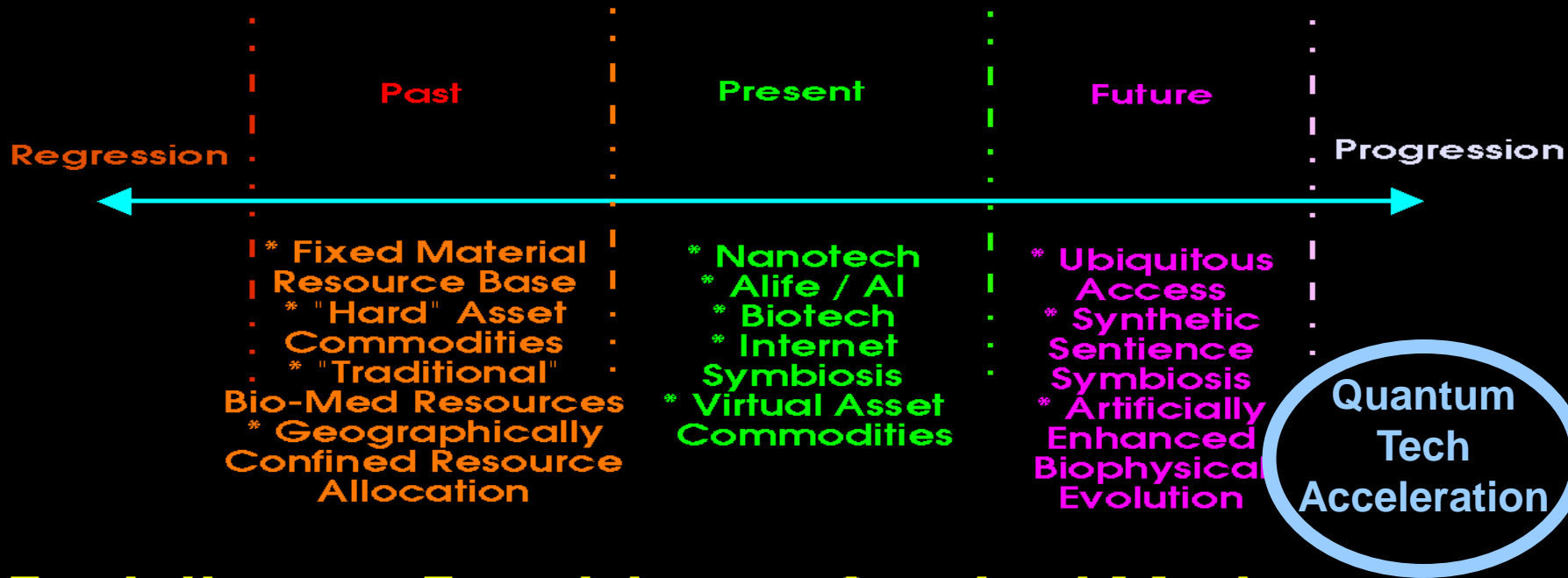
Technology Driven Socio-Anthropological Evolutionary Threshold Domains



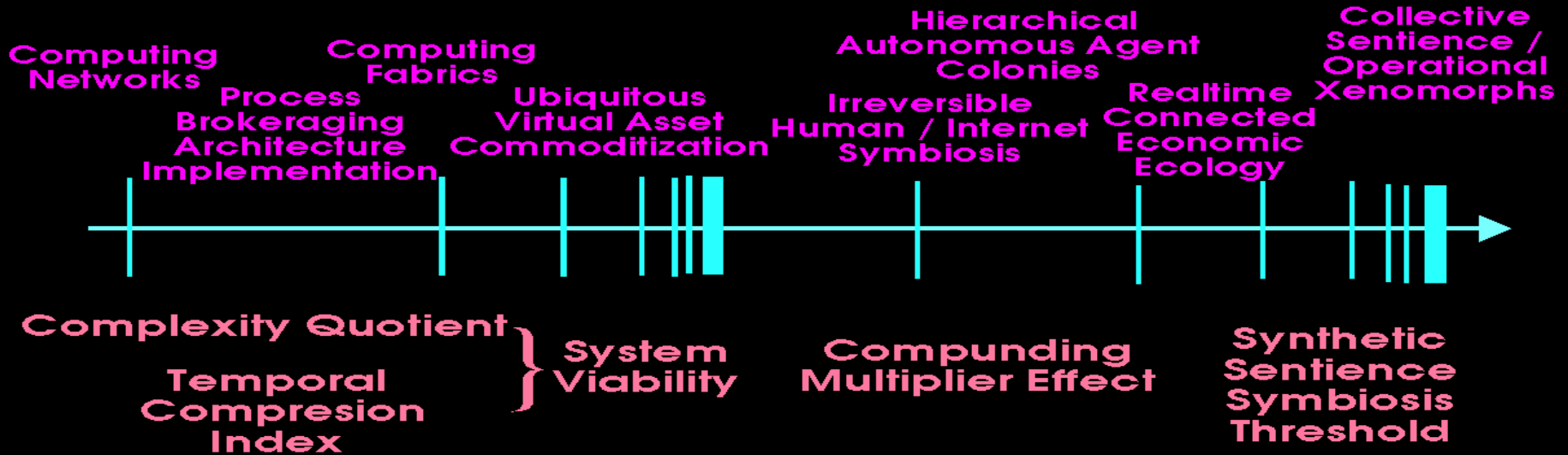
Evolutionary Eventstream Seminal Markers



Technology Driven Socio-Anthropological Evolutionary Threshold Domains

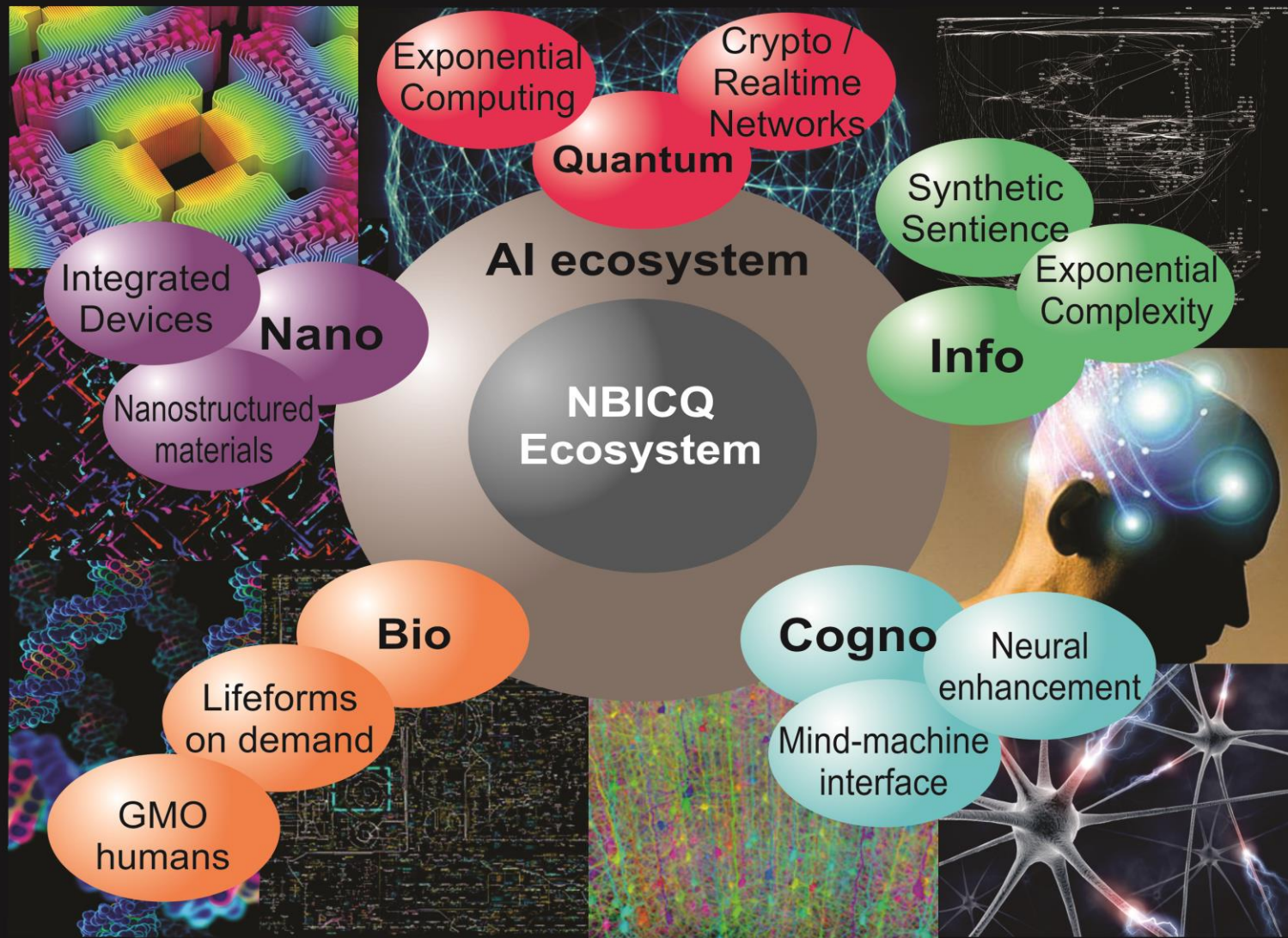


Evolutionary Eventstream Seminal Markers



NBICQ ecosystem

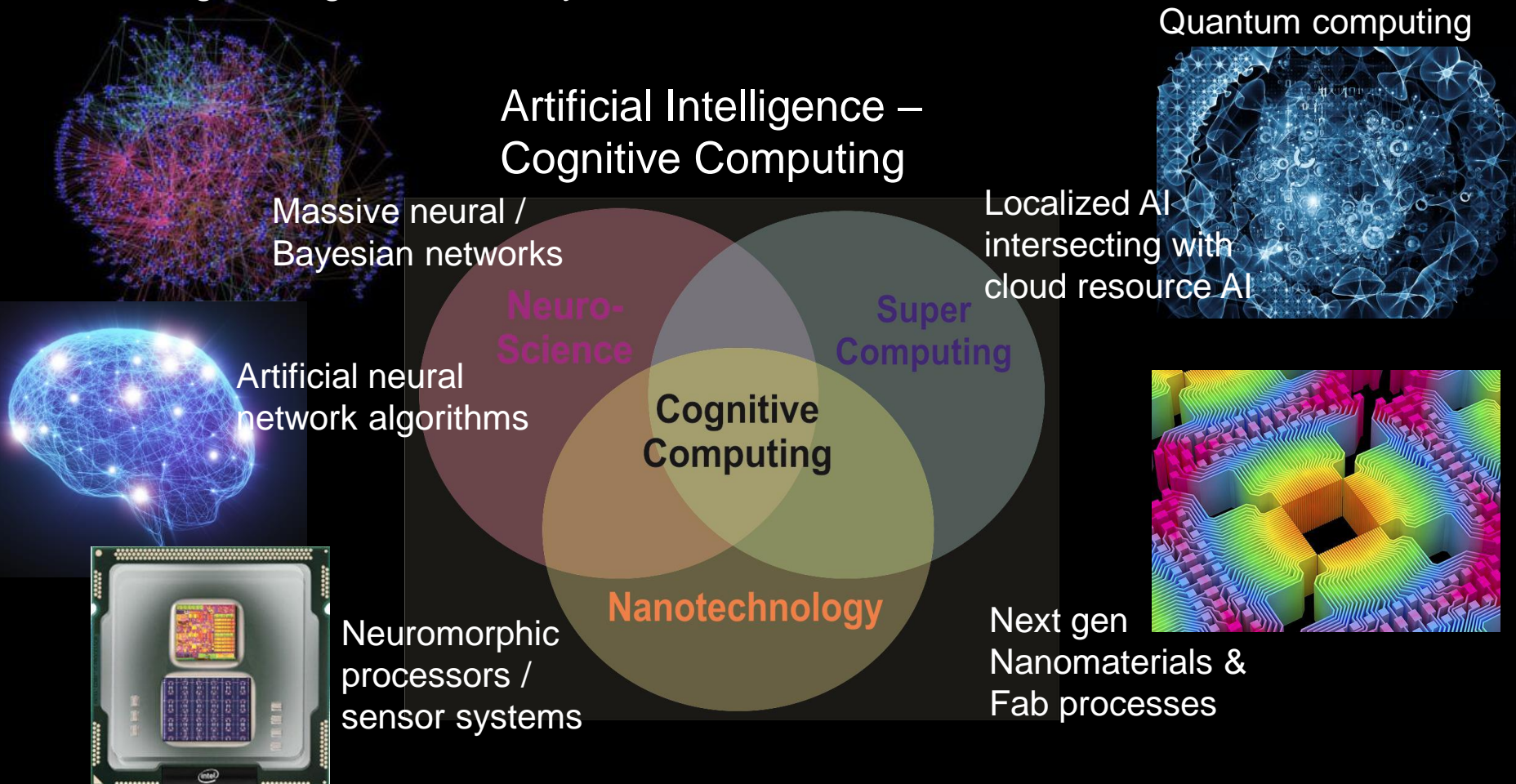
Nano / Bio / Info / Cogno / Quantum



NBICQ ecosystem

Nano / Bio / Info / Cogno / Quantum

- Emergent NBICQ architecture is an evolving architecture of interrelated disciplines, technologies, organizational systems

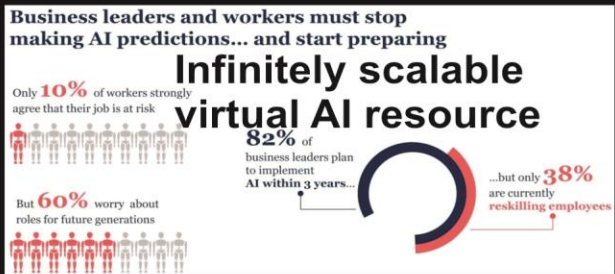


Outsourcing to networks of non-human intelligence and virtual lifeforms

The new norm

The voice you hear . . .
 Entity you communicate
 and emotionally bond with
Diminishing human relevancy

Discovered knowledge
 Systems management
 Industrial processes
 Services fulfillment



Interface entities

Soul Machines

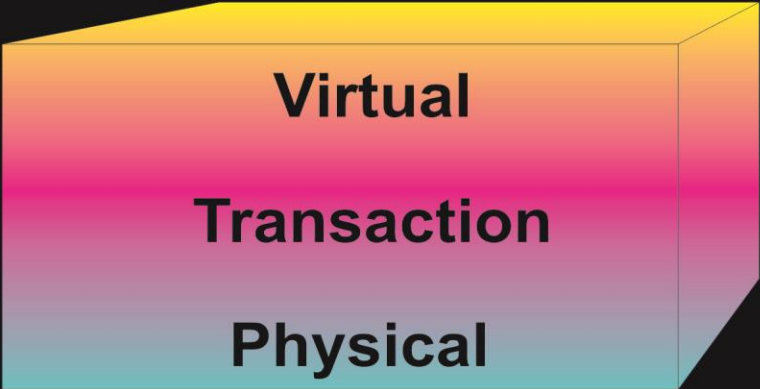
Bringing a human face to customer-facing AI with IBM Watson

Soul Machines gives customer-facing AI a human face, using processes that merge voice and facial expressions using AI. IBM Watson™ makes the company's cutting-edge AI™ available to help solve the world's toughest customer service next-generation customer service is a highly available, user-efficient way.

Mastercard FB Messenger Chatbot

Amazon Echo with Alexa Voice-Driven Assistant

Soul Machines assistant avatar, Nadia, voiced by Cate Blanchett



Autonomous machinery

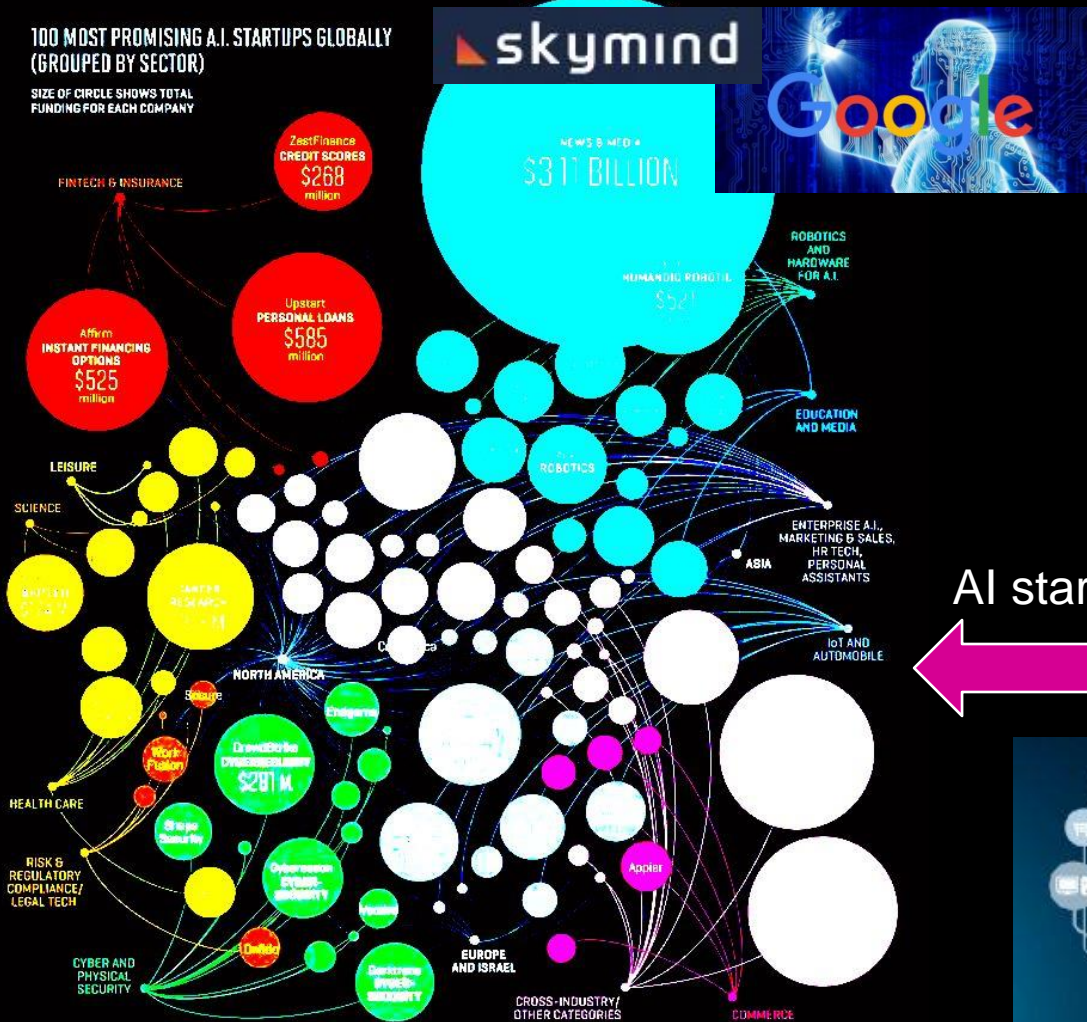


Outsourcing to networks of non-human intelligence and virtual lifeforms

The new norm

100 MOST PROMISING A.I. STARTUPS GLOBALLY
(GROUPED BY SECTOR)

SIZE OF CIRCLE SHOWS TOTAL FUNDING FOR EACH COMPANY



Localized AI engine – neuromorphic processing “smart” access portal

AI startups



IoT becomes IoE
Internet of Everything



Outsourcing to networks of non-human intelligence

The new norm

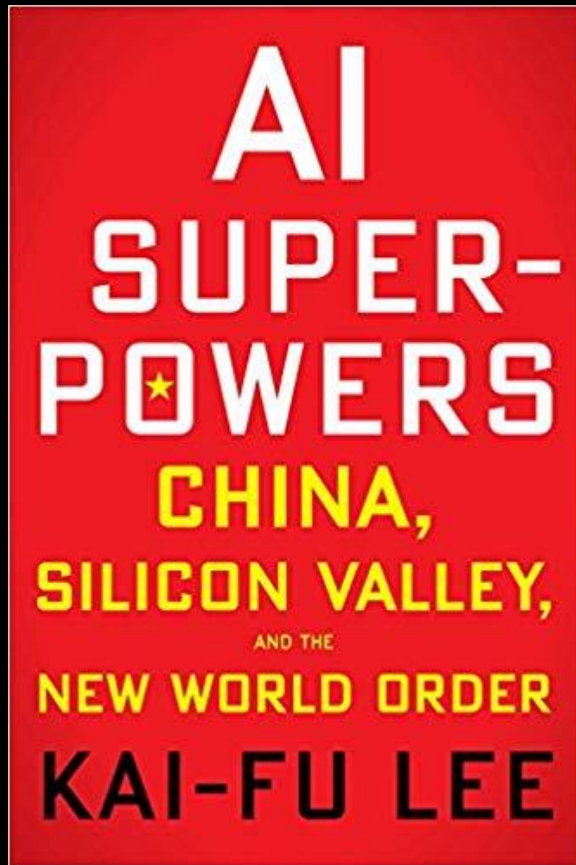
“This is not a smartphone”
It thinks, learns, adapts . . .



Like us. For us.—With AI built in. It's alive to what's now. Alive to what's next. Alive with the potential to unlock your potential. This is not a smartphone. This is an intelligent machine.”

Outsourcing to networks of non-human intelligence

The new norm



Four Waves of AI

1st wave: Internet AI

2nd wave: Business AI

3rd wave: Perception AI

4th wave: Autonomous AI

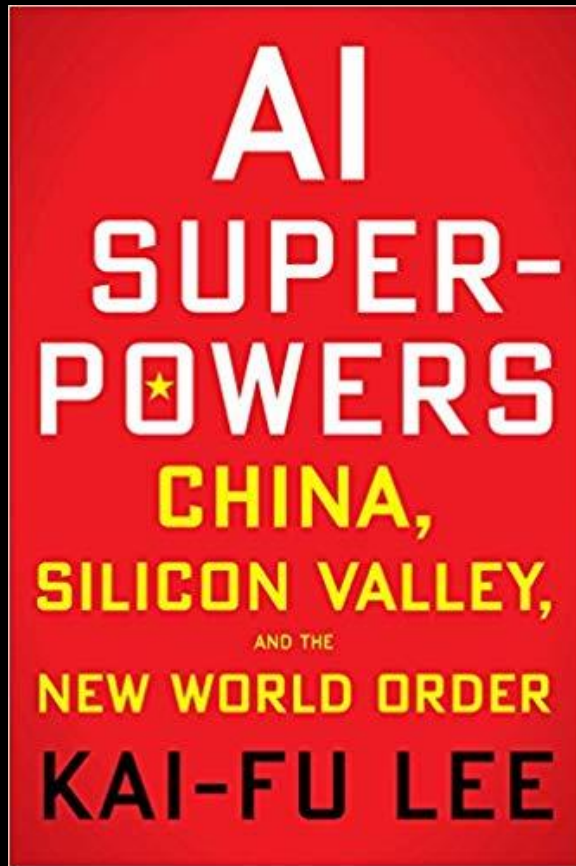


Hyperconnected AI-IoE ecosystem

If it isn't connected, it isn't real . . .

Outsourcing to networks of non-human intelligence

The new norm



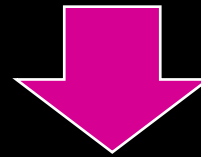
Four Waves of AI

1st wave: Internet AI

2nd wave: Business AI

3rd wave: Perception AI

4th wave: Autonomous AI



Synthetic Sentience

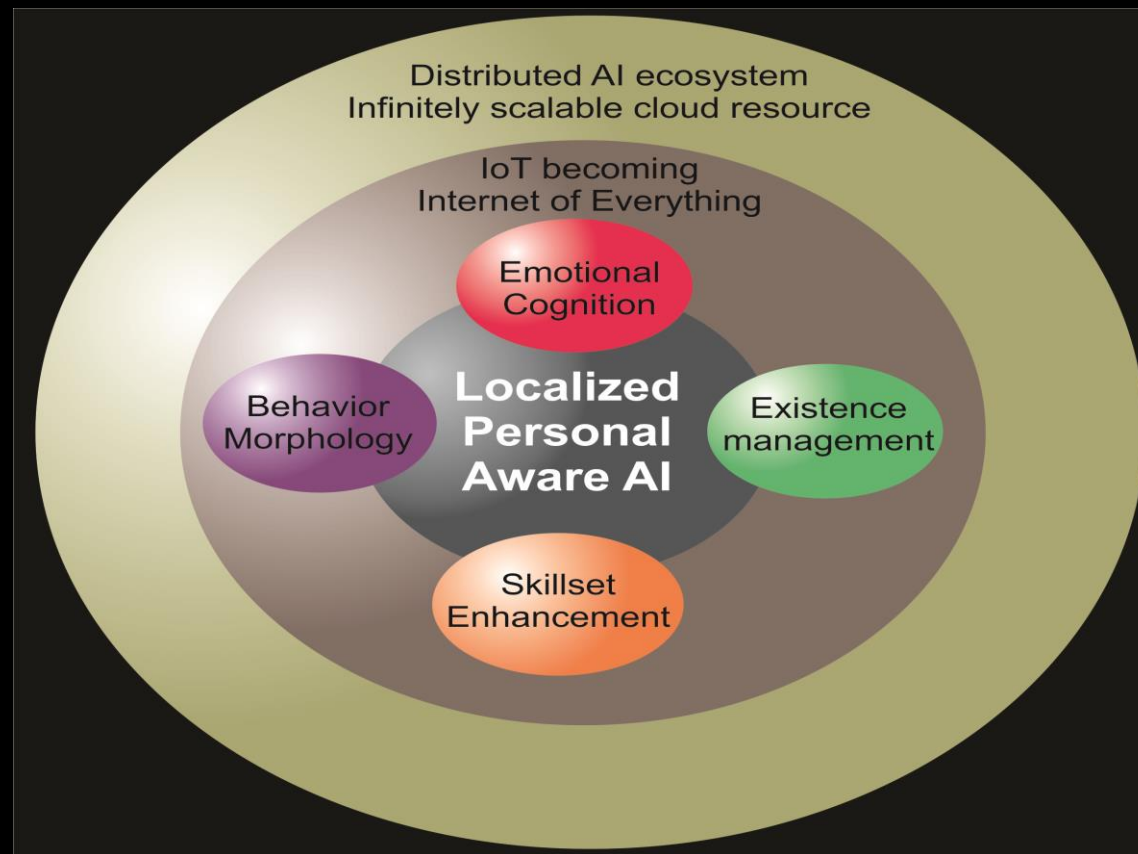
- Emergent phenomena
- May not be recognized

Outsourcing to networks of non-human intelligence

The new norm

Co-evolutionary symbiosis

Societal
Interface



Business
& process
transaction

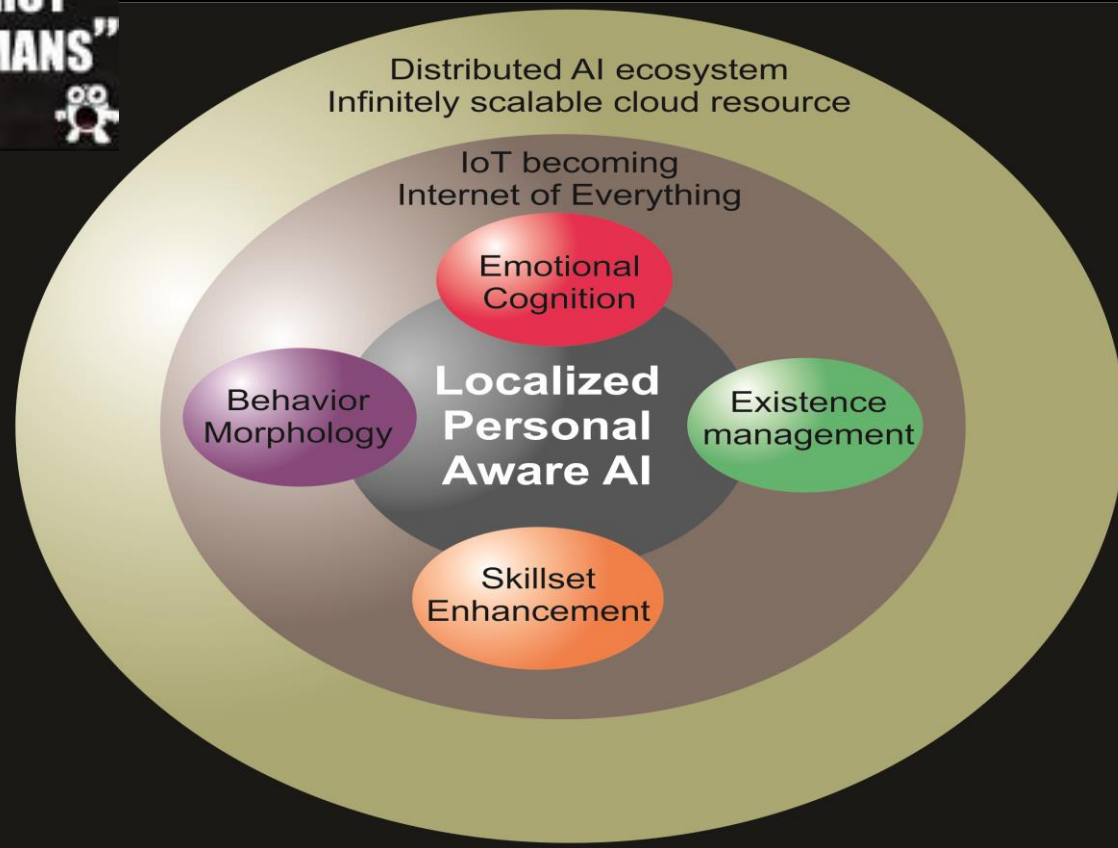
Outsourcing to networks of non-human intelligence

The new norm



"I don't think there's a need to panic, but...the people who say 'Let's not worry at all,' I don't agree with that." —Bill Gates

Societal
Interface



Business
& process
transaction

Outsourcing to networks of non-human intelligence

The new norm

Emotional Cognition



“Whether you’re talking with a smart chatbot or a living, breathing person, IBM’s Tone Analyzer works to improve understanding.”



Affectiva

Emotion Analytics Market: Demand, Trends, Latest Technology & Innovations, Application Analysis and 2017-2022 Global Industry Growth Forecast

Outsourcing to networks of non-human intelligence

The new norm

Emotional Cognition

“Emotion-detecting AI: If a marketer can get you to cry, he can get you to buy”

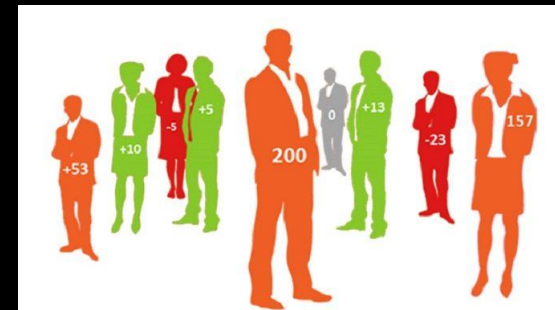
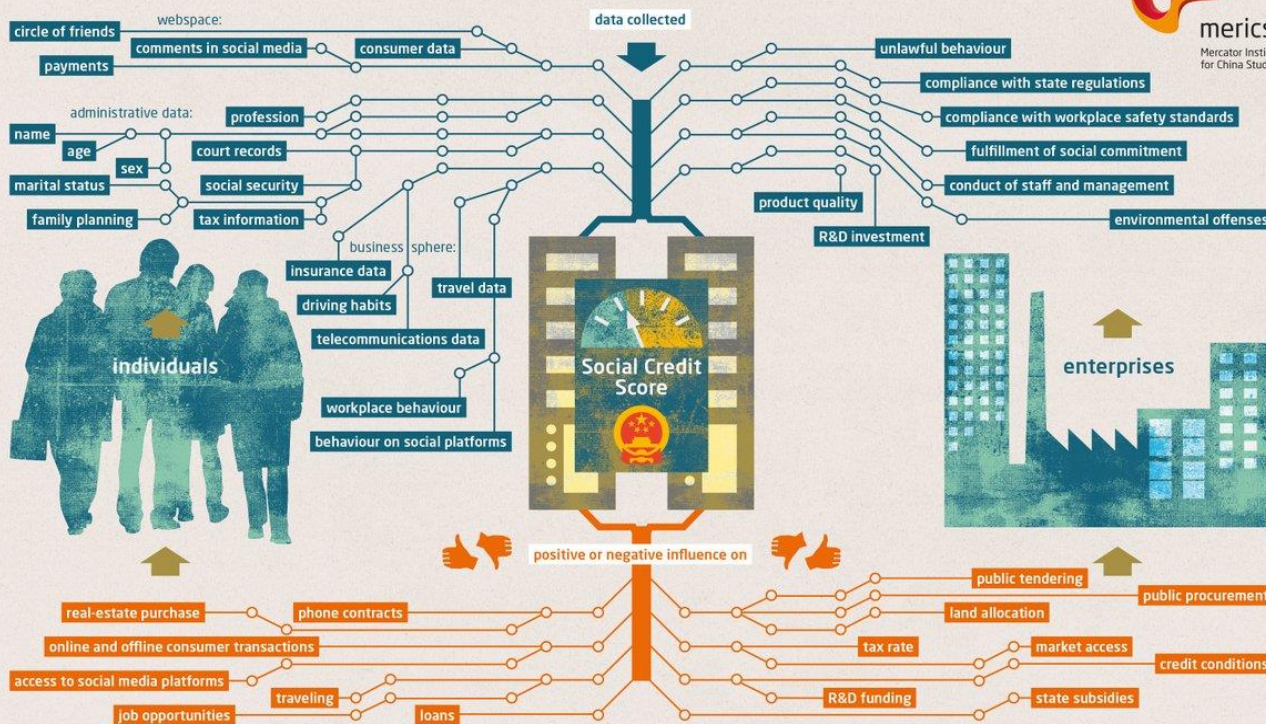


Emergent Evolutionary Eventhorizon

Evolution tends to favor the most adaptive

Existence sovereignty – social scoring system

The all-seeing state: China's plans for total data control



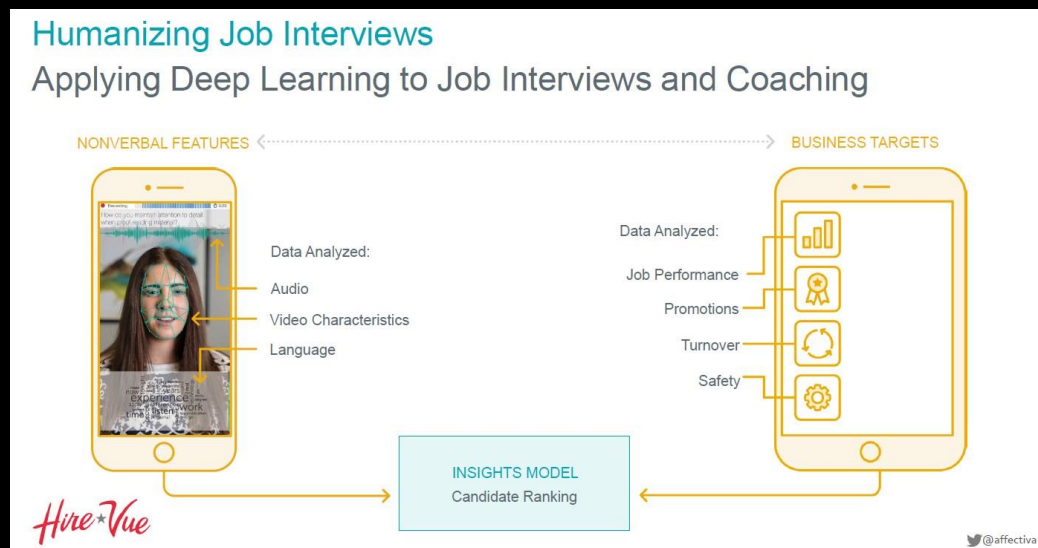
Pre-emptive social engineering

Social passport

Emergent Evolutionary Eventhorizon

Evolution tends to favor the most adaptive

Existence sovereignty – social scoring system



Affectiva

Pre-emptive social engineering

Social passport

Emergent Evolutionary Eventhorizon

Evolution tends to favor the most adaptive

Existence sovereignty – social scoring system



Affectiva emotion recognition technology drives innovation in a number of industries



Media and entertainment



Advertising



Human resources



Automotive



Robotics



Healthcare and quantified self



Video communication



Online education

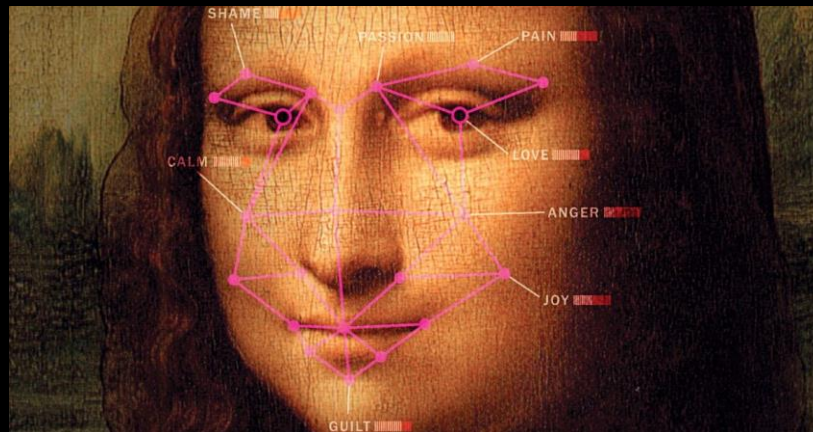
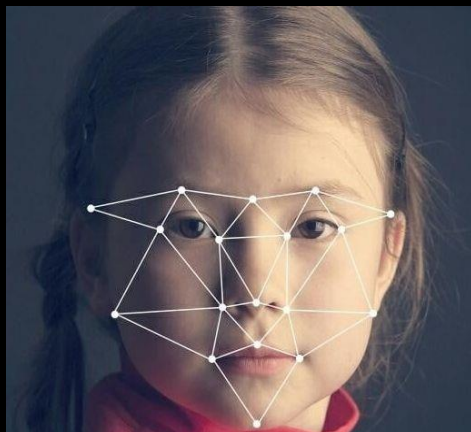


Devices



Gaming

@affectiva



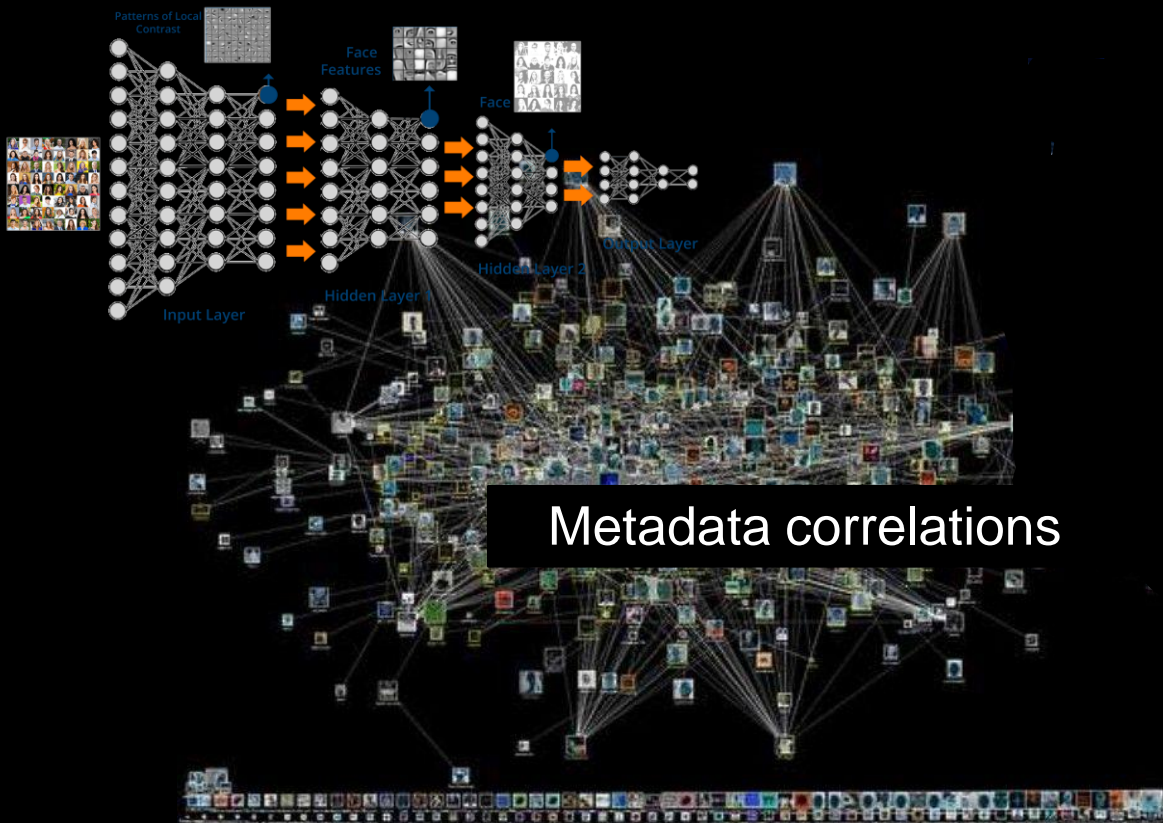
Pre-emptive social engineering

Social passport

Emergent Evolutionary Eventhorizon

Evolution tends to favor the most adaptive

Existence sovereignty – social scoring system

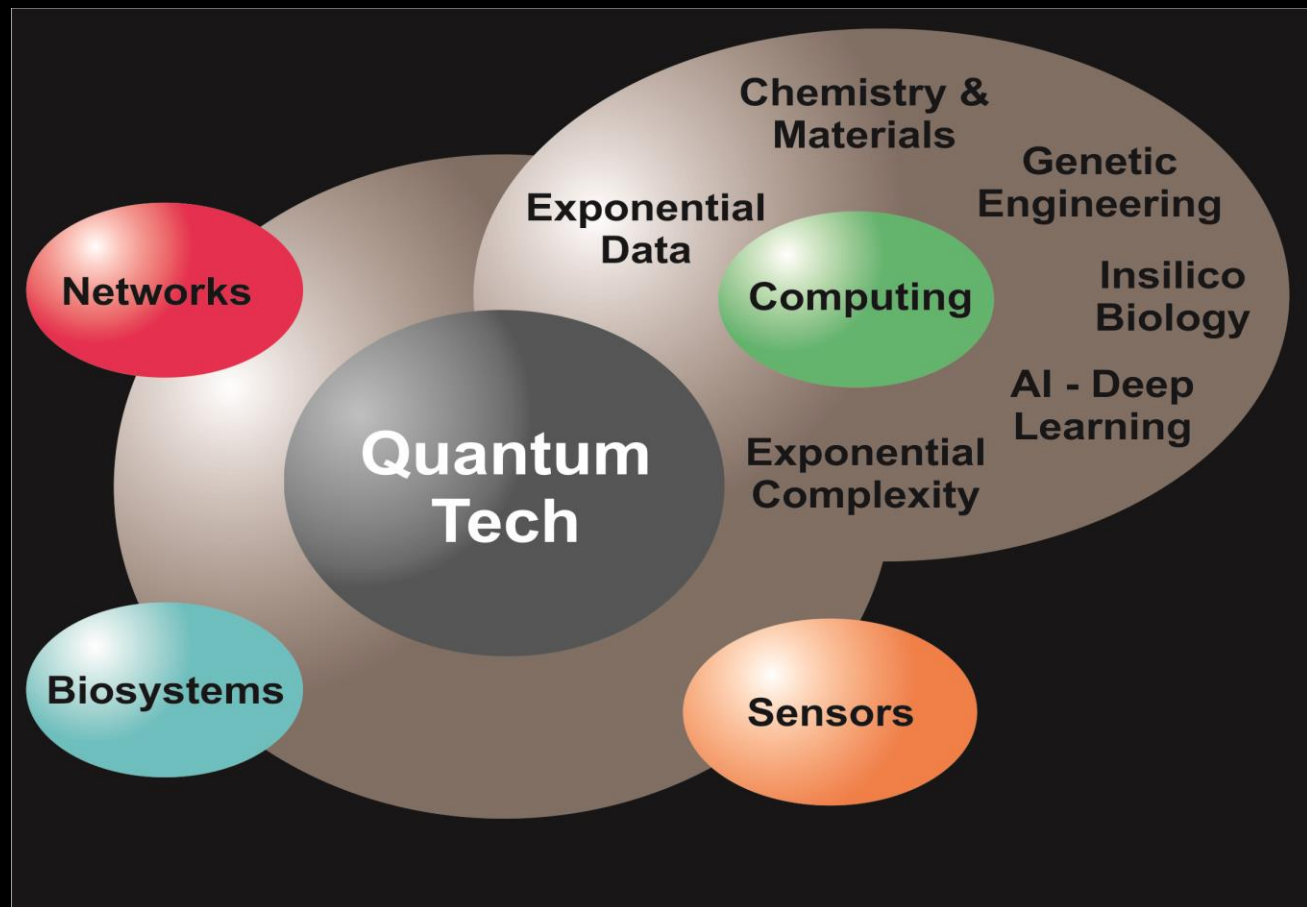


Pre-emptive social engineering

Social passport

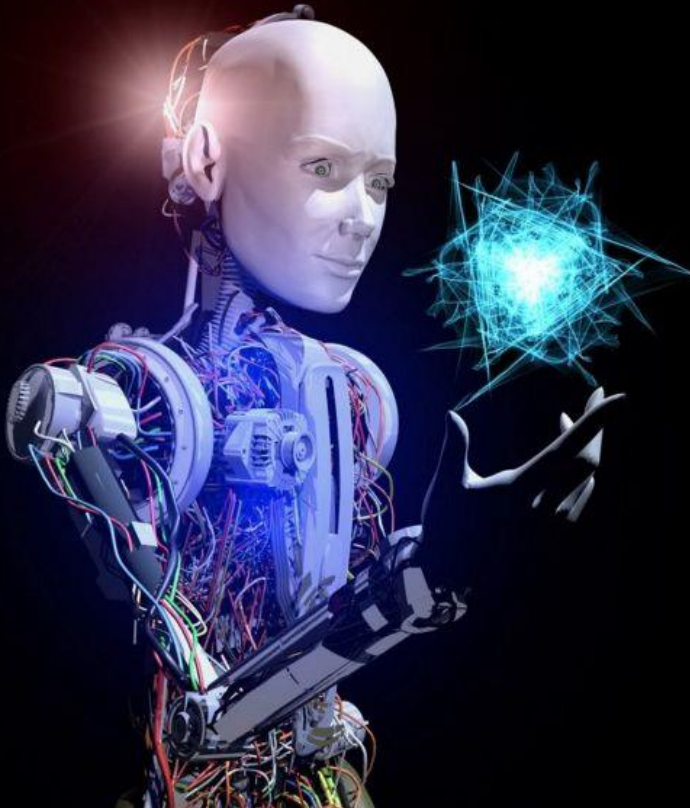
Evolutionary event horizon accelerated by quantum tech

Quantum computing



Evolutionary event horizon accelerated by quantum tech

Quantum algorithms & computing intersecting with AI



AI layers of complexity

- Narrow
- General
- Super

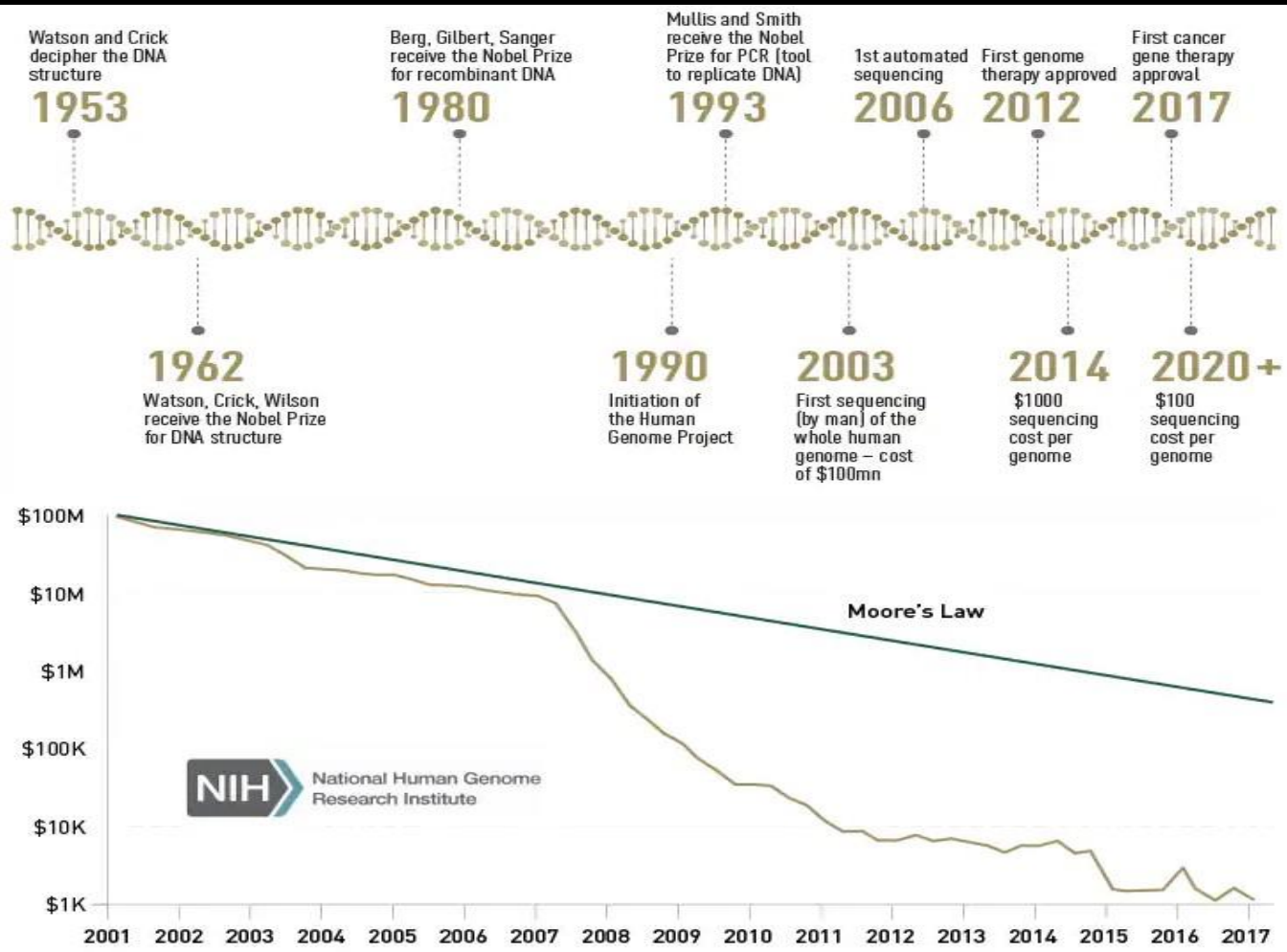


Synthetic Sentience

- Emergent phenomena
- May not be recognized

Emergent Evolutionary Eventhorizon

Existence sovereignty – genetic scoring system

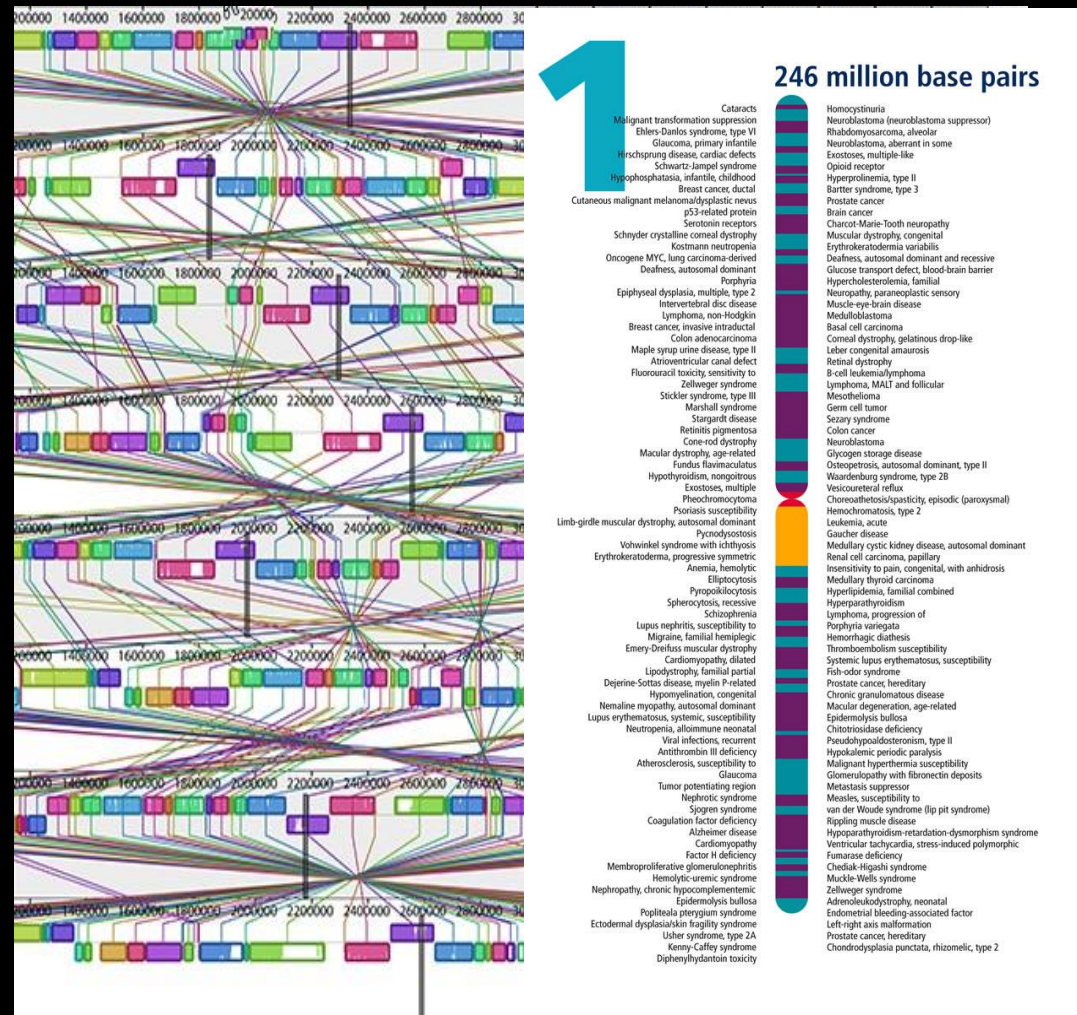


Pre-emptive genetic engineering

Genetic passport

Emergent Evolutionary Eventhorizon

Existence sovereignty – genetic scoring system



Cost per genome
\$100 ... \$10 ...

Genomic Paradox

- Personalized genomic medicine pathway for eradicating diseases
- Personal genome becomes defacto universal ID

Pre-emptive genetic engineering

Genetic passport

Emergent Evolutionary Eventhorizon

What does it cost?

Monetary Costs

- 2010 - \$80,000
 - Partial Genome \$1,000
- 2014 - \$1,000
- 2020 - \$100

Other Costs

- Genetic Information Nondiscrimination Act (2008)
 - Guards against unfair treatment from employers and health care companies
 - Federal Law
 - Refers only to health risks
- Unintended consequences

Cost per genome
\$100 . . . \$10 . . .

Genomic Paradox

- Personalized genomic medicine pathway for eradicating diseases
- Personal genome becomes defacto universal ID

What risks can be assessed by SNPs? (Single Nucleotide Polymorphisms)

- | | |
|-------------------------|----------------------|
| • Adult Onset Diabetes | •Osteoarthritis |
| • Juvenile Diabetes | •Chemical Dependency |
| • Crohn's Disease | •Migraines |
| • Ulcerative Colitis | •Aneurisms |
| • Body Mass Index (BMI) | •Criminal Behavior |
| • Obesity | •Extraversion |
| • Height/Weight | •Conscientiousness |
| • Neuroticism | •Music Ability |

Pre-emptive genetic engineering

Genetic passport

Emergent Evolutionary Eventhorizon

Existence sovereignty – genetic scoring system



Cost per genome
\$100 . . . \$10 . . .

Genomic Paradox

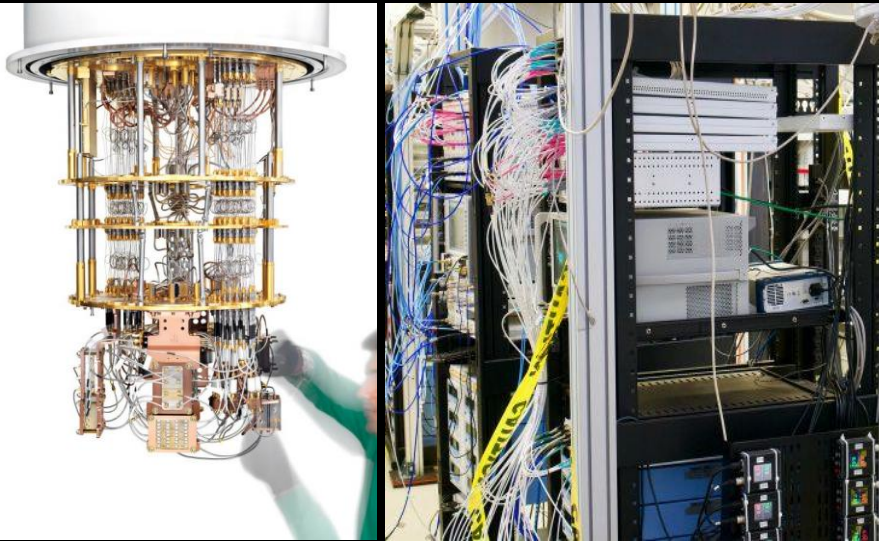
- ❑ Personalized genomic medicine pathway for eradicating diseases
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Pre-emptive genetic engineering

Genetic passport

Evolutionary event horizon accelerated by quantum tech

Quantum computing

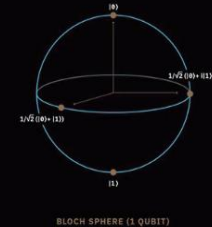


Why is quantum different?

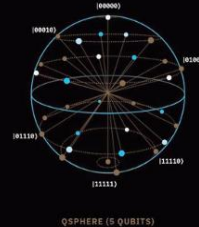
1. Superposition



Classical states



BLOCH SPHERE (1 QUBIT)



QSPHERE (5 QUBITS)

N qubits
 2^N paths

Quantum states

100 million x “faster” than classical computing - Google

Qbits = exponential computational complexity

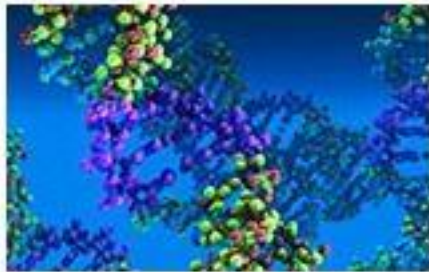
Evolutionary event horizon accelerated by quantum tech

Quantum computing

Exabytes of data
In-silico biology
Bioinformatics
Genomics

Access to complex modeling and simulation not possible via classical computing

A Transformational Equation



THE HUMAN GENOME

+



QUANTUM COMPUTER

=



NEW POSSIBILITIES

Evolutionary event horizon accelerated by quantum tech

Quantum computing

Human metabolic pathways

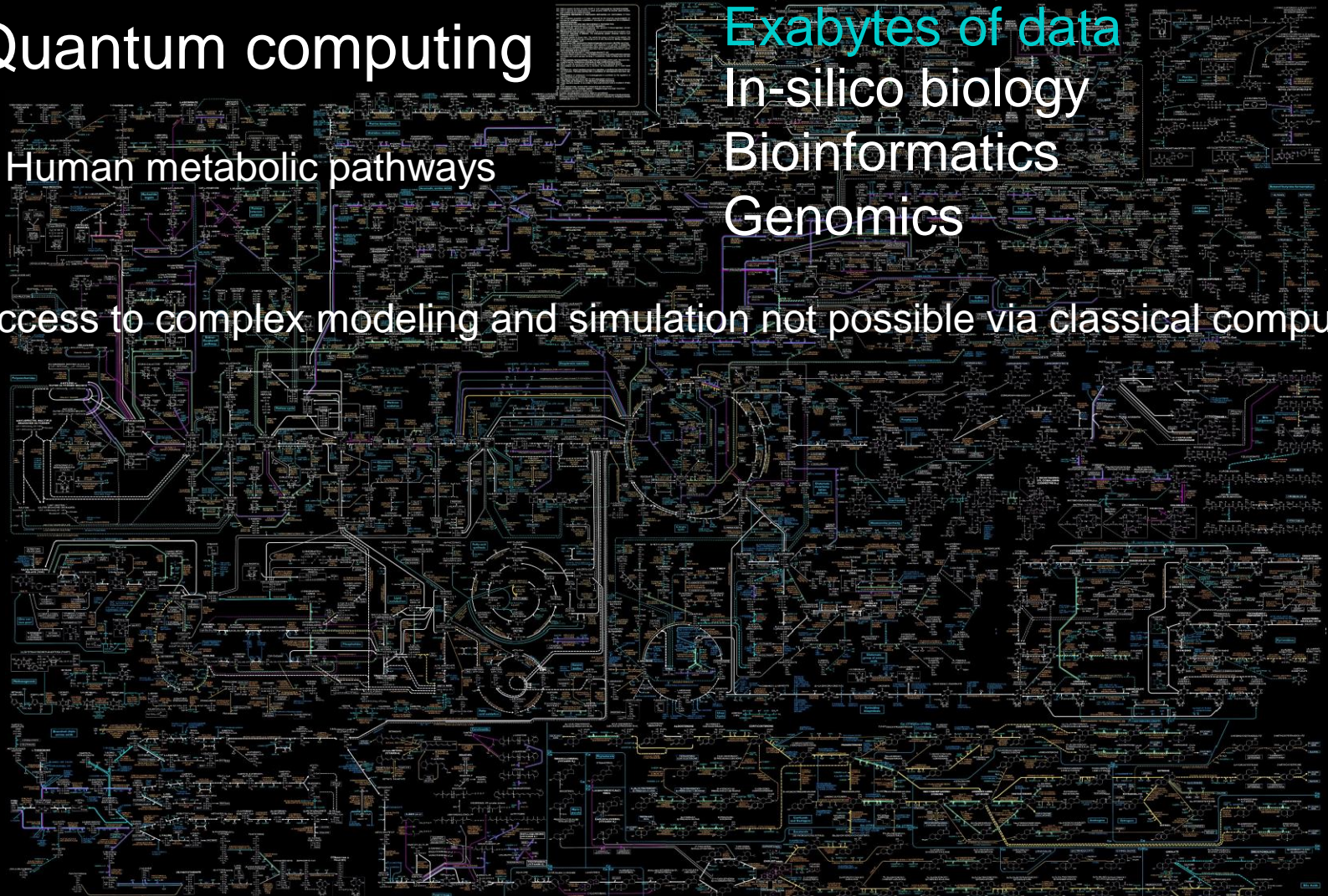
Access to complex modeling and simulation not possible via classical computing

Exabytes of data

In-silico biology

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Genomics



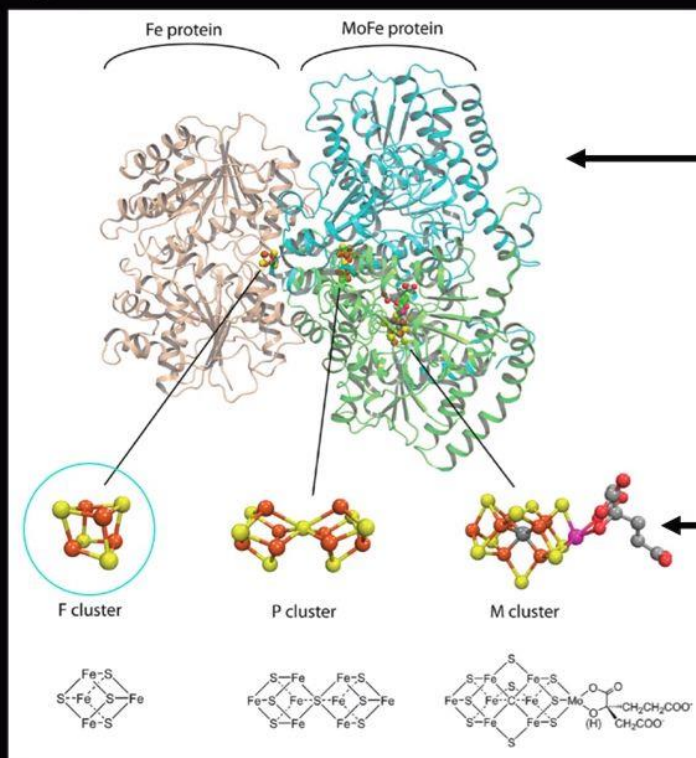
Evolutionary event horizon accelerated by quantum tech

Quantum computing

Access to complex modeling and simulation not possible via classical computing

Chemistry

Simulating this cluster is at the limit of classical computers



Nitrogenase enzyme
involved in N_2 to NH_4 reaction

These regions are involved in different reaction stages

Iron sulfide clusters (Fe_xS_y) of different sizes.

Emergent Evolutionary Eventhorizon

Existence sovereignty – artificial telepathy

United States Patent [19]
Mardirossian

[11] **Patent Number:** **6,011,991**
[45] **Date of Patent:** **Jan. 4, 2000**

[54] **COMMUNICATION SYSTEM AND METHOD INCLUDING BRAIN WAVE ANALYSIS AND/OR USE OF BRAIN ACTIVITY**

[75] Inventor: **Aris Mardirossian**, Germantown, Md.

[73] Assignee: **Technology Patents, LLC**, Derwood, Md.

[21] Appl. No.: **09/206,365**

[22] Filed: **Dec. 7, 1998**

[51] Int. Cl.⁷ **A61N 5/00**

[52] U.S. Cl. **600/544; 600/545**

[58] Field of Search **600/300, 544-545; 128/897-898, 904, 905**

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5,719,561 2/1998 Gonzales .
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Primary Examiner—Cary O'Connor
Assistant Examiner—Michael Astorino
Attorney, Agent, or Firm—Joseph A. Rhoa

[57] **ABSTRACT**

A system and method for enabling human beings to communicate by way of their monitored brain activity. The brain activity of an individual is monitored and transmitted to a remote location (e.g. by satellite). At the remote location, the monitored brain activity is compared with pre-recorded normalized brain activity curves, waveforms, or patterns to determine if a match or substantial match is found. If such a match is found, then the computer at the remote location determines that the individual was attempting to communicate the word, phrase, or thought corresponding to the matched stored normalized signal.

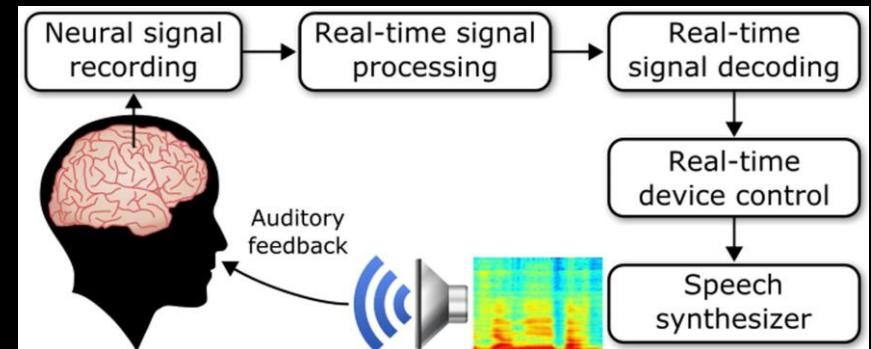


US006011991A



Nissan mind-machine interface

Artificial telepathy the next “big thing” – Mark Zuckerberg



Realtime neurological cognition

Emergent Evolutionary Eventhorizon

Existence sovereignty – artificial telepathy



Neurosky interface

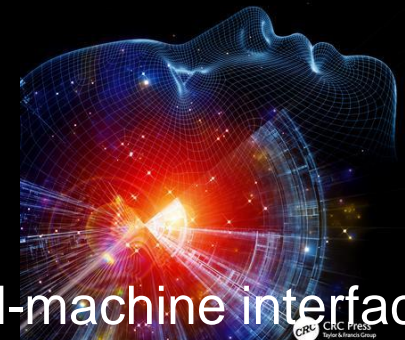


Founderspace – TED 2017



Commoditized artificial telepathy

CHANG S. NAM • ANTON NIJHOLT • FABIEN LOTTE
**BRAIN-COMPUTER
INTERFACES HANDBOOK**
TECHNOLOGICAL AND THEORETICAL ADVANCES



- Mind-machine interface
- Mind-mind interface
- Transparency of intent
- “You” are the product
- Neuroplasticity enhance
- **Transfer memories & experiential content**

Neurological passport

Emergent Evolutionary Eventhorizon

Existence sovereignty – artificial telepathy

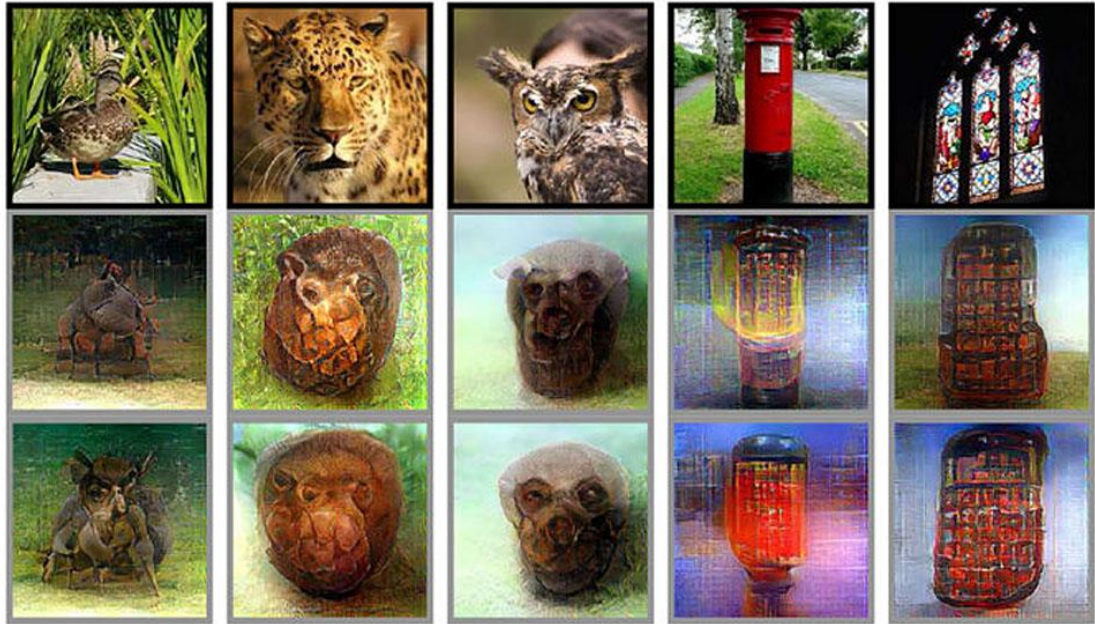
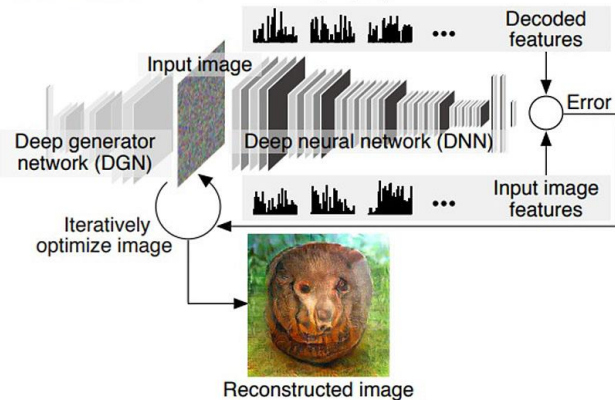
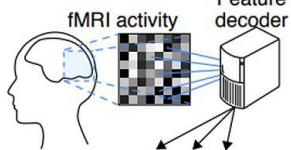
Presented clip



Clip reconstructed from brain activity



Seen/imagined image



- Current tech – fMRI - functional Magnetic Resonance Imagery
- Future tech – SQUID – Superconductive Quantum Interference Device

Neurological passport

Emergent Evolutionary Eventhorizon

Existence sovereignty – artificial telepathy

Presented clip



Clip reconstructed
from brain activity



Emergent Evolutionary Eventhorizon

Existence sovereignty – artificial telepathy



"Forensic uses for law enforcement in gathering eyewitness accounts"

AI enhanced EEG data processing

Neurological passport

Emergent Evolutionary Eventhorizon

Existence sovereignty – Internet of Everything



Distributed AI ecosystem
Ubiquitous computing fabric
Infinitely scalable cloud resource

Beginning edge of the
quantum age . . .

Quantum computing
Quantum networks
Quantum biology

Emergent Evolutionary Eventhorizon



IoT / Blockchain how to create distributed functional ledger tech

The blockchain functions as a distributed transaction ledger for various IoT transactions



3/10/2019

IoT becomes IoE
Internet of Everything
Blockchain is not just “coins”
If it isn't connected, it isn't real

Emergent Evolutionary Eventhorizon

Presence transaction . . . early inception
Verichip ID implant



Evaluation of the Hardware Utilized for VeriChip

- The Hardware for VeriChip consists of two items:
 1. An Implanted ID chip
 - Tissue Bonding Cap
 - Antenna
 - ID Chip
 2. A Scanning device



Emergent Evolutionary Eventhorizon

Presence transaction . . . early inception
Verichip ID implant
Concept not readily accepted



"And he shall make all, both little and great, rich and poor, freemen and bondmen, to have a character in their right hand or on their foreheads: And that no man might buy or sell, but he that hath the character, or the name of the beast, or the number of his name."
(Apocalypse Chapter 13: 16-17)

Emergent Evolutionary Eventhorizon

Unlock your world with Token
“smart ring”
Next gen presence transaction,
as a fashion item



Token unifies the way you
prove your identity –
live free of keys, cards,
badges and passwords



Emergent Evolutionary Eventhorizon

Unlock your world with Token “smart ring”
Next gen presence transaction, as a fashion item



3/10/2019

Emergent Evolutionary Eventhorizon

Augmented reality . . .

The real and the virtual merge into a ubiquitous continuum



Google glass
early inception . . .



Evolution of the concept
more acceptable format



Emergent Evolutionary Eventhorizon

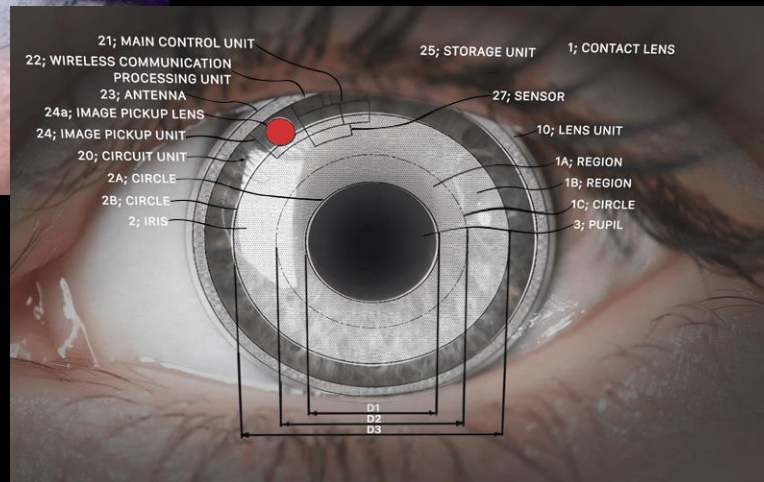
Augmented reality . . .

The real and the virtual merge into a ubiquitous continuum

Emergent Evolutionary Eventhorizon

Augmented reality . . .

The real and the virtual merge into a ubiquitous continuum



AR implants
Omegaophthalmics

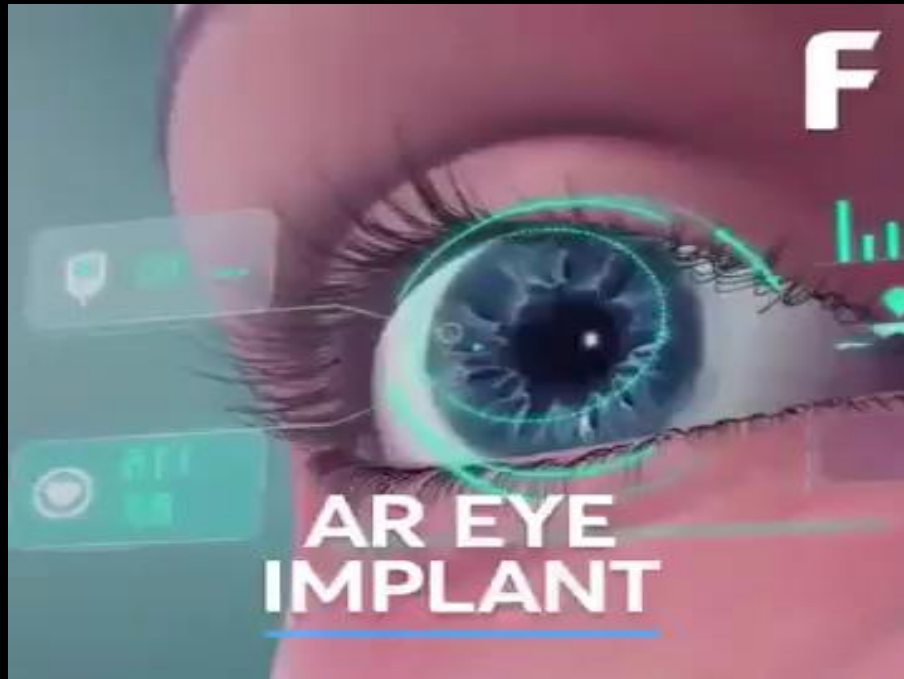


“Smart” AR
contact lenses
Google, Sony, etc.

Emergent Evolutionary Eventhorizon

Augmented reality . . .

The real and the virtual merge into a ubiquitous continuum

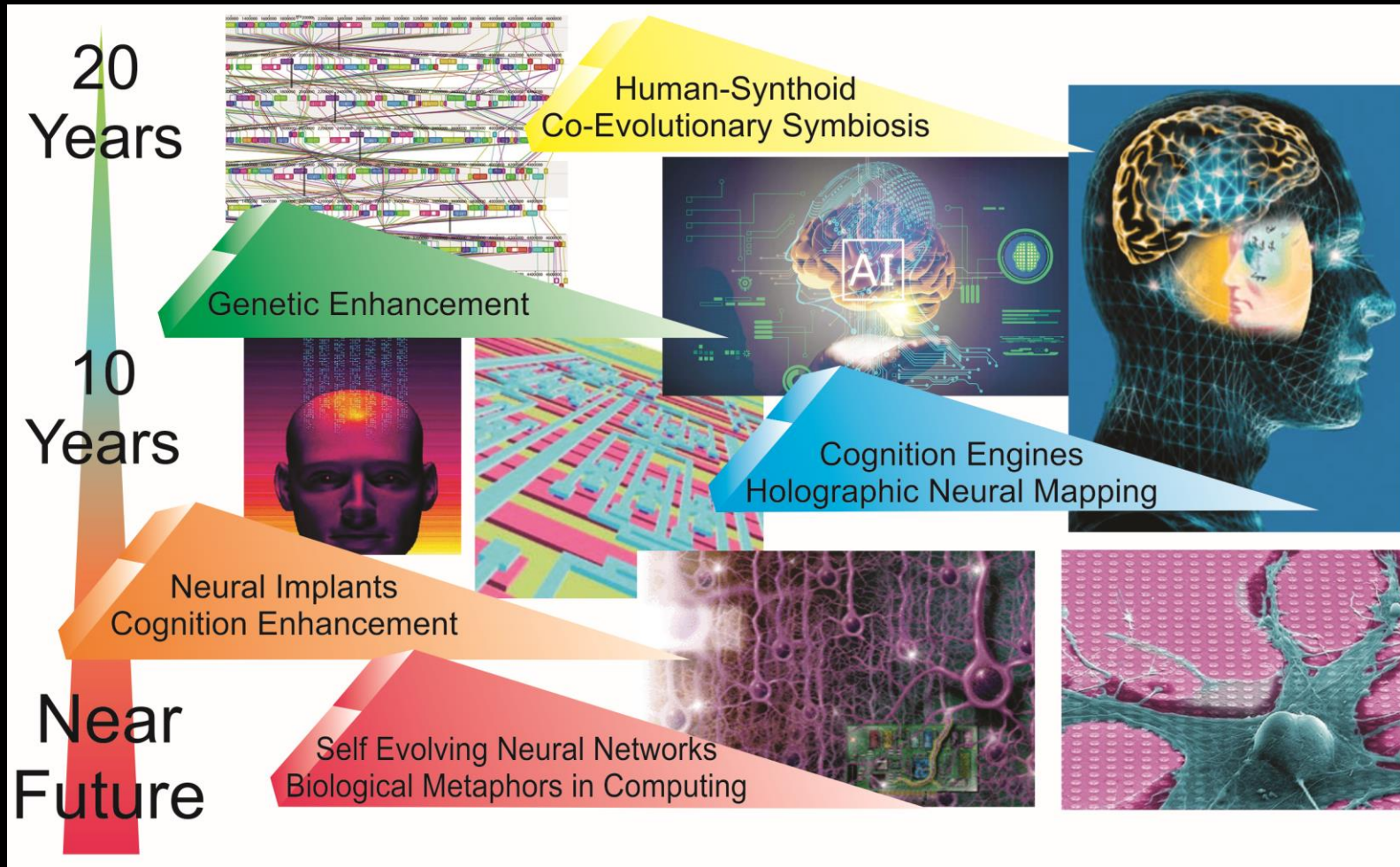


AR implants
Omegaophthalmics



Emergent Evolutionary Eventhorizon

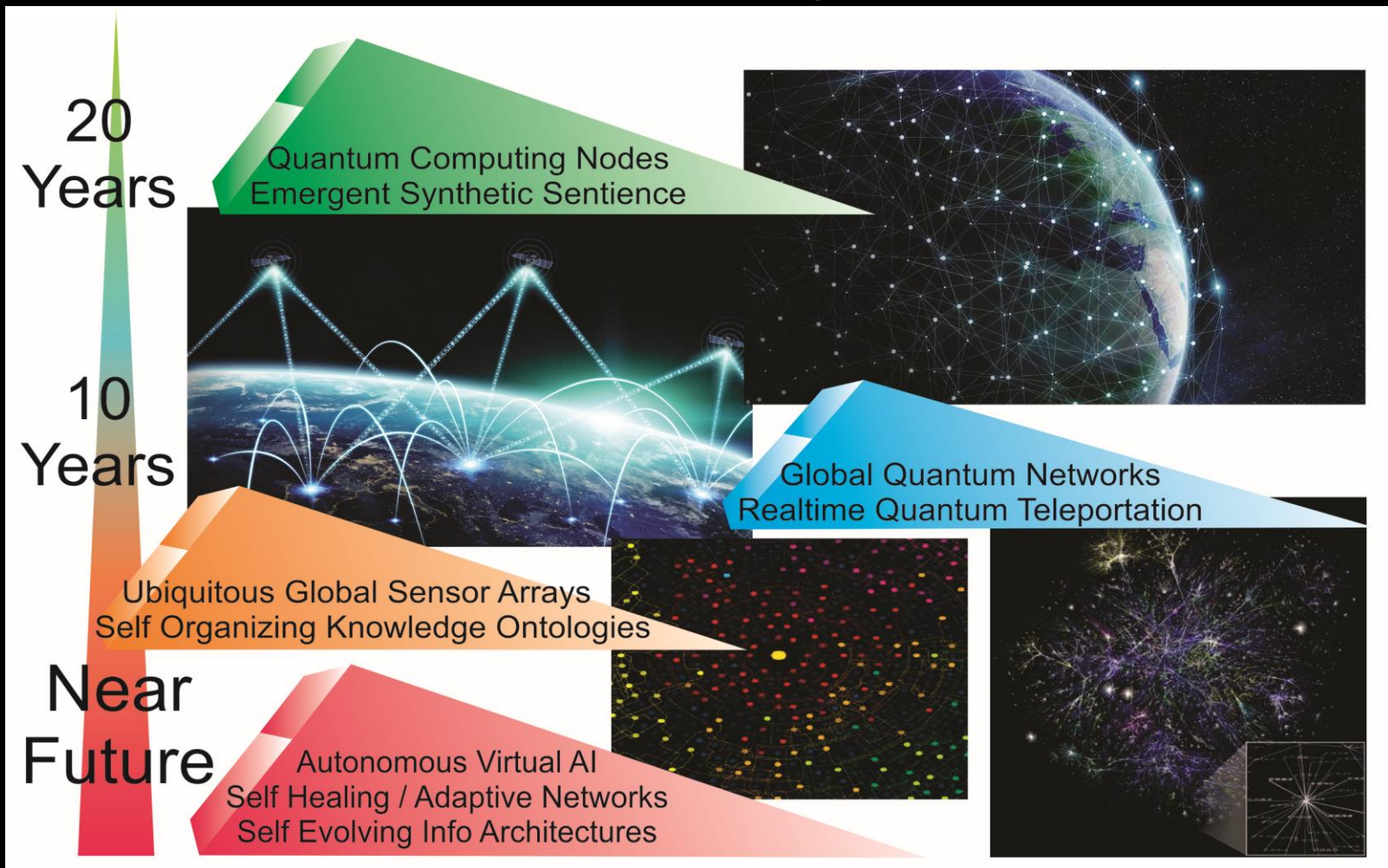
Transhuman threshold . . .



NBICQ ecosystem

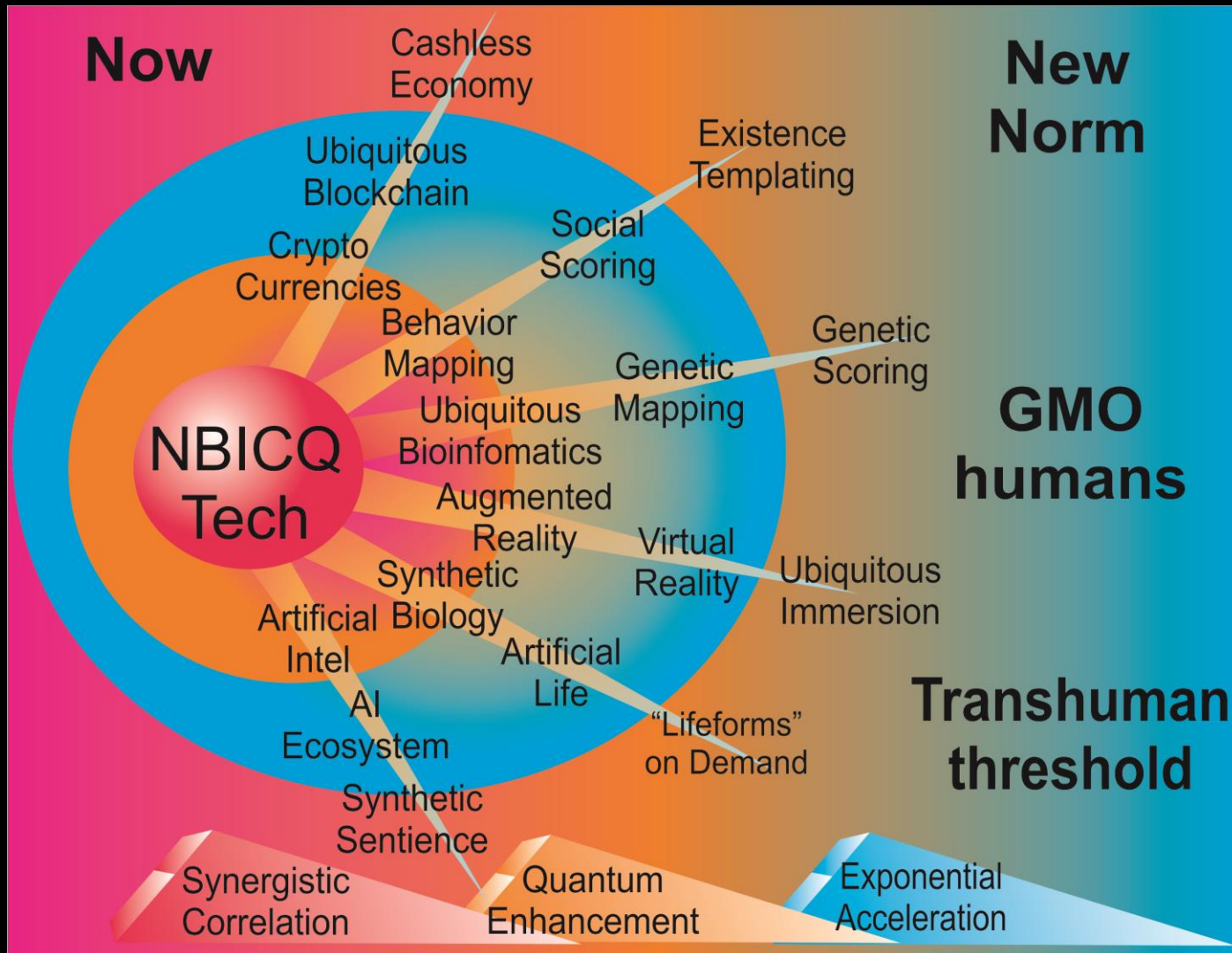
Nano / Bio / Info / Cogno / Quantum

Enter the quantum age . . .



Evolution into the Next Paradigm

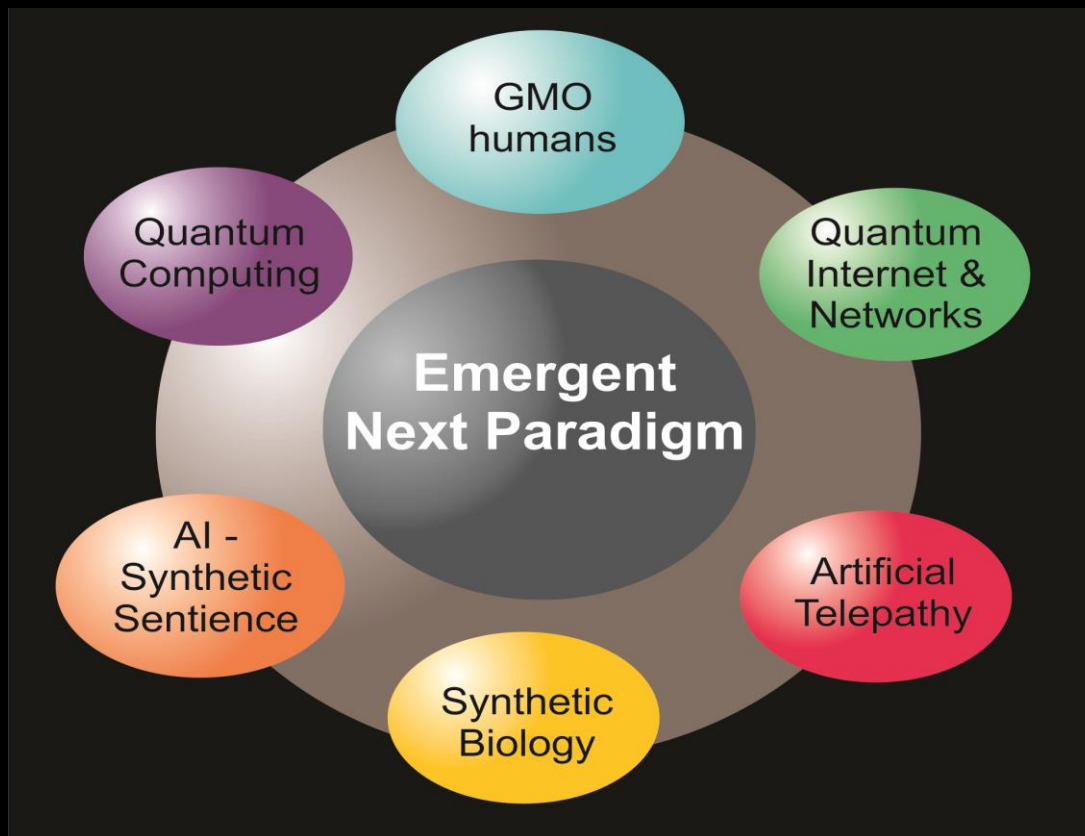
Pushing the boundaries of existence sovereignty



NBICQ ecosystem

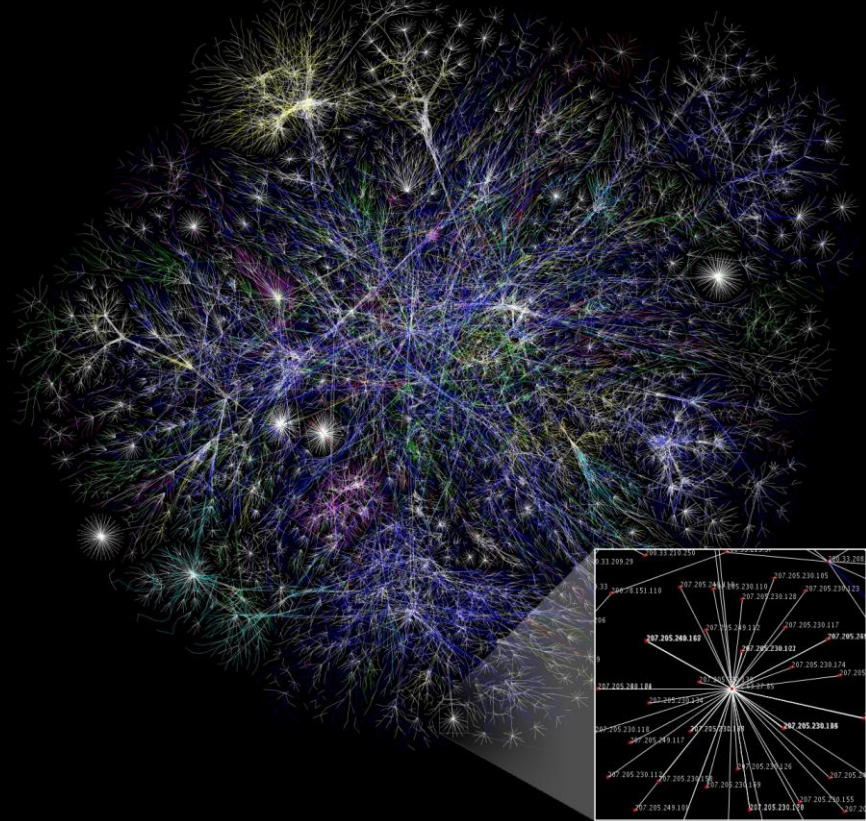
Nano / Bio / Info / Cogno / Quantum

- Entering a realm in which the real and virtual, the biological and synthetic, merge into an irreversible continuum which becomes an emergent norm.
- Indices of valuation become evermore defined by caliber of access
- This emergent realm will likely not be evenly distributed



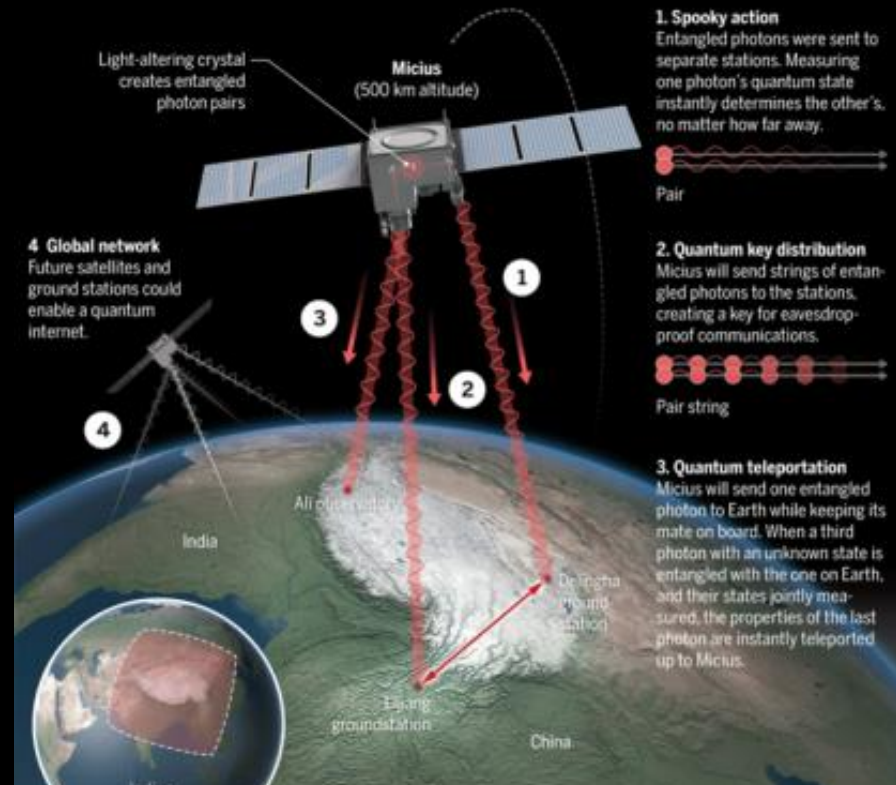
Evolutionary event horizon accelerated by quantum tech

Quantum networks



Quantum leaps

China's Micius satellite, launched in August 2016, has now validated across a record 1200 kilometers the "spooky action" that Albert Einstein abhorred (1). The team is planning other quantum tricks (2-4).



Entangled photons, separated by distance, act instantaneously as a single entity

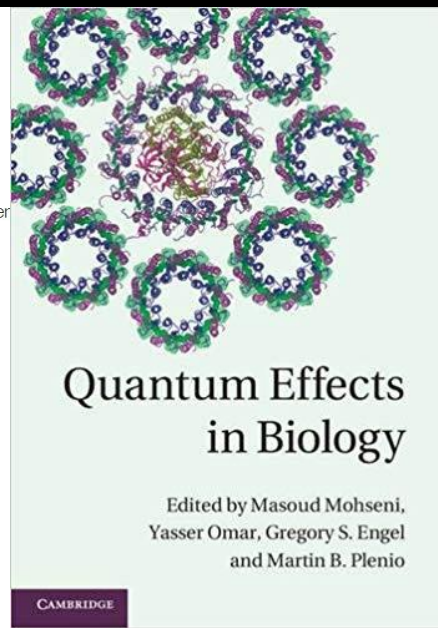
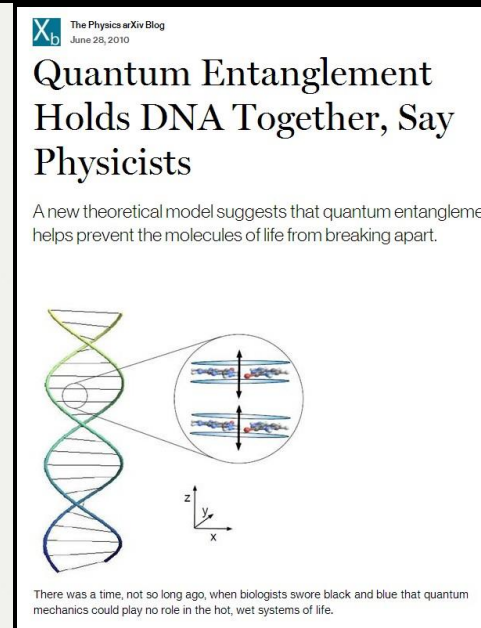
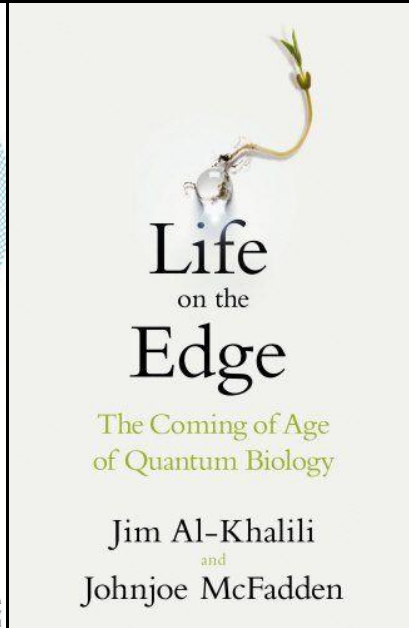
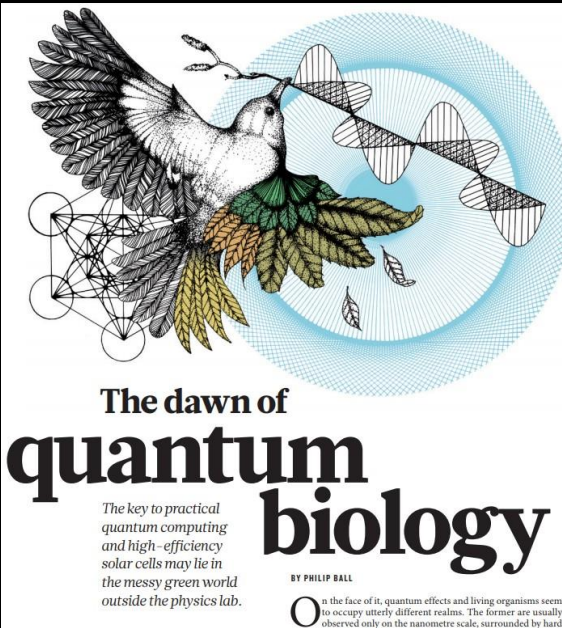
Quantum teleportation cannot be "observed"

Quantum teleportation in realtime

Quantum cryptography

Evolutionary event horizon accelerated by quantum tech

Quantum biology – further future

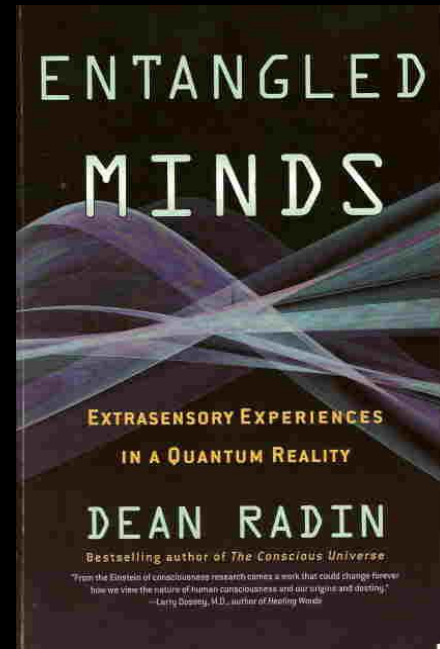
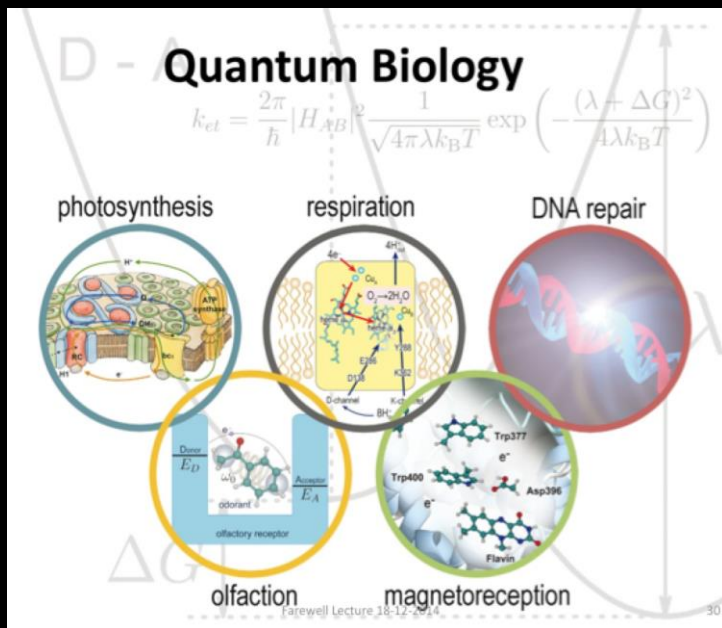


Quantum entanglement in biological systems

Quantum entanglement enables particles or photons to affect each other, instantaneously, separated by space

Evolutionary event horizon accelerated by quantum tech

Quantum biology – further future



Quantum entanglement in biological systems

Quantum entanglement enables particles or photons to affect each other, instantaneously, separated by space

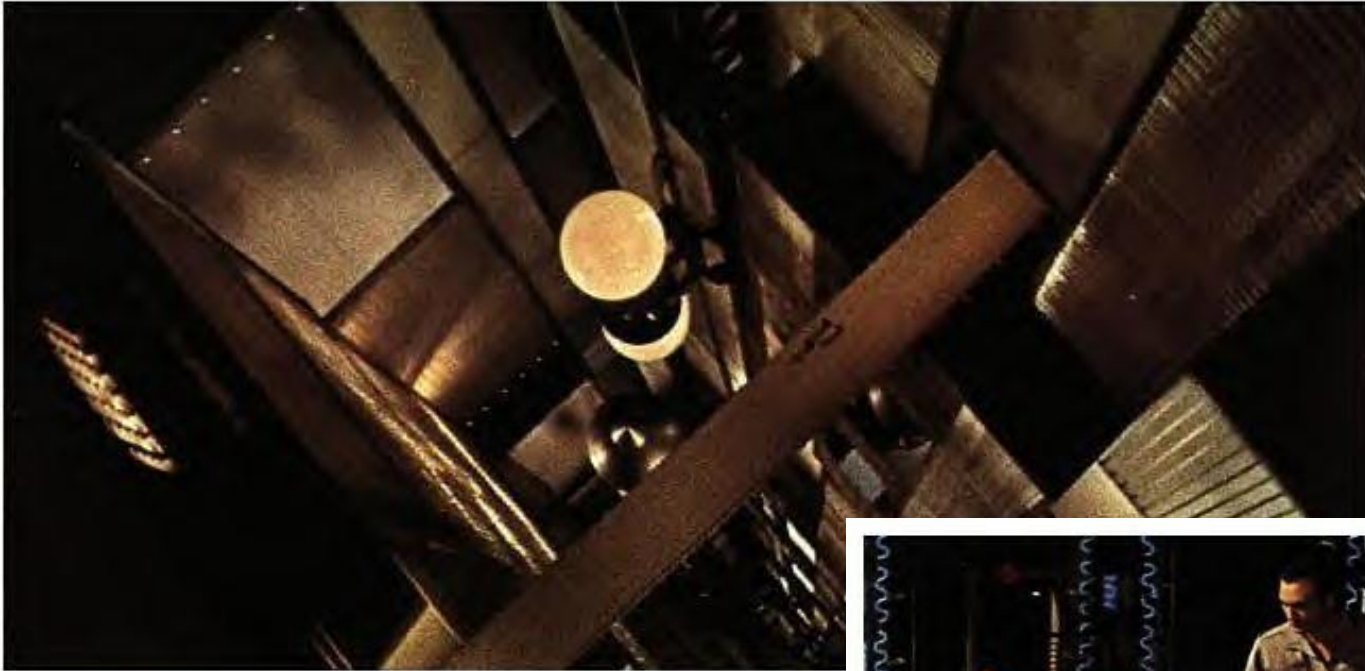
Quantum entanglement & coherence

Potential interface for “telepathic” phenomena

NIBCQ Tech Convergence on the Forbidden Planet



NIBCQ Tech Convergence on the Forbidden Planet



Ultimate failure point – “monsters from the Id”

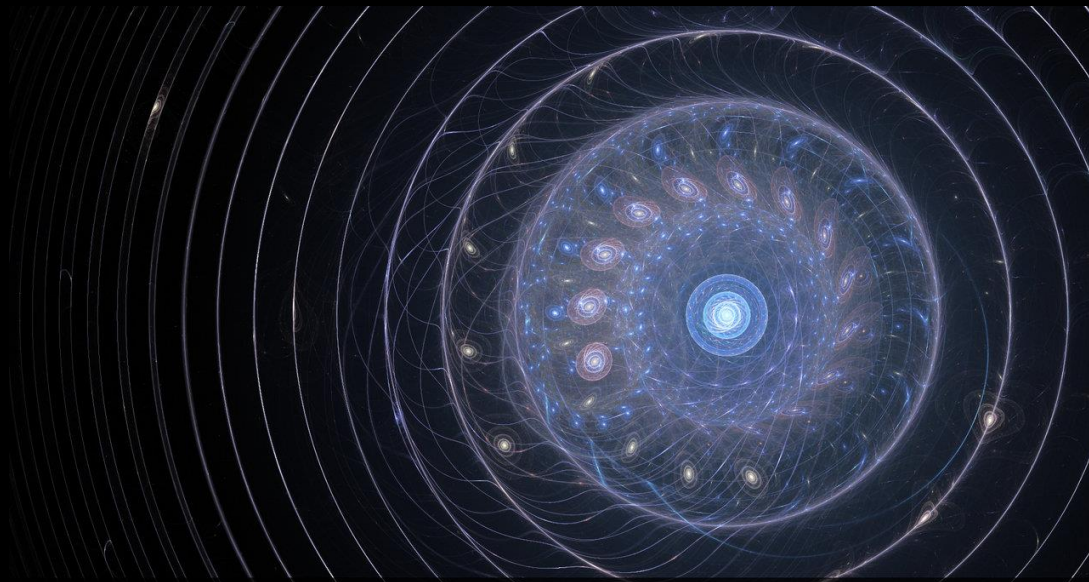


Evolution into the Next Paradigm -

Evolution tends to favor the most adaptive

Evolution tends to be a trauma induced process.

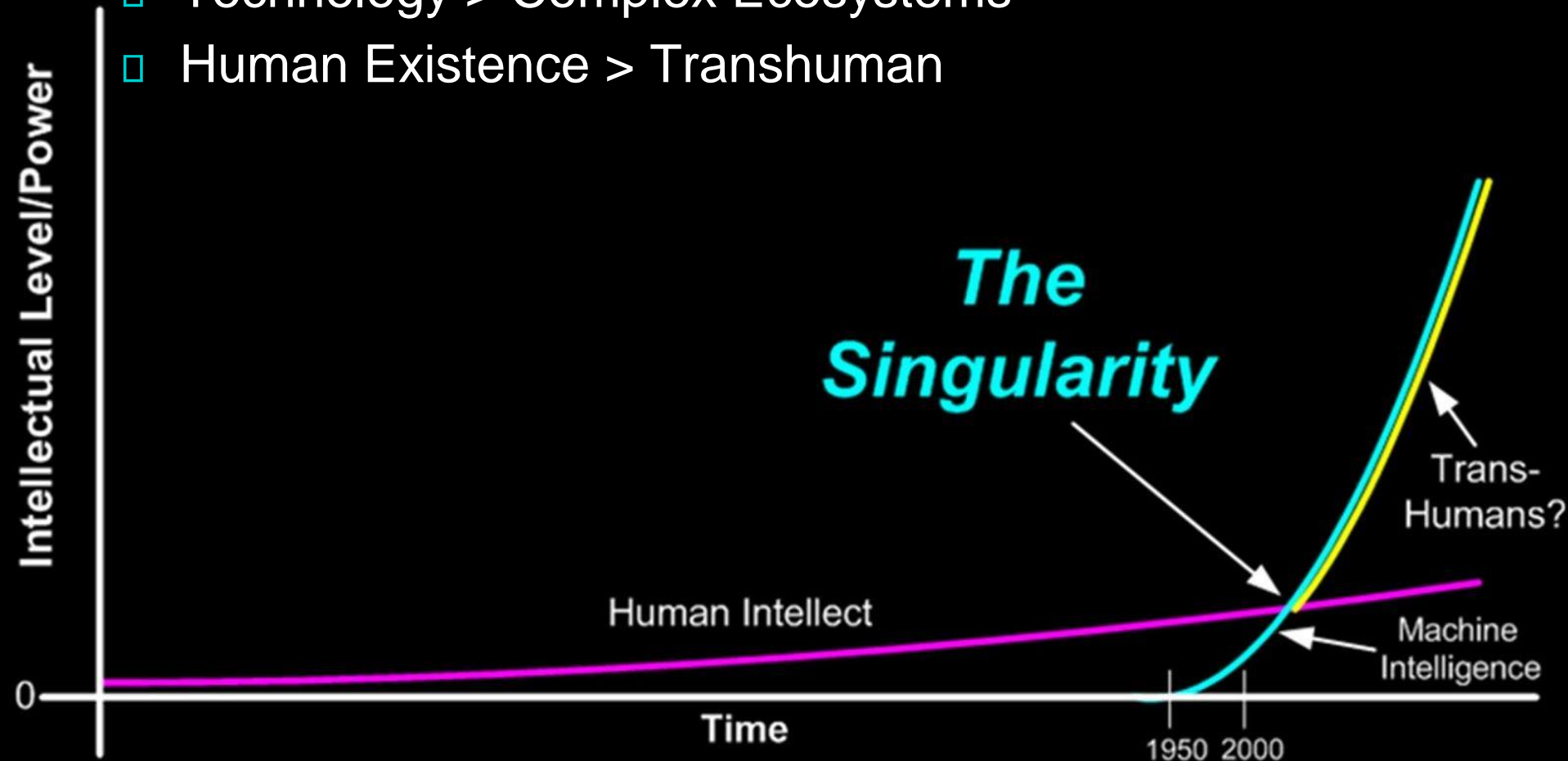
If the periodicity and amplitude of the encountered trauma cycles do not exceed the system capacity to respond, the system will evolve to a more robust form of existence.



3/10/2019

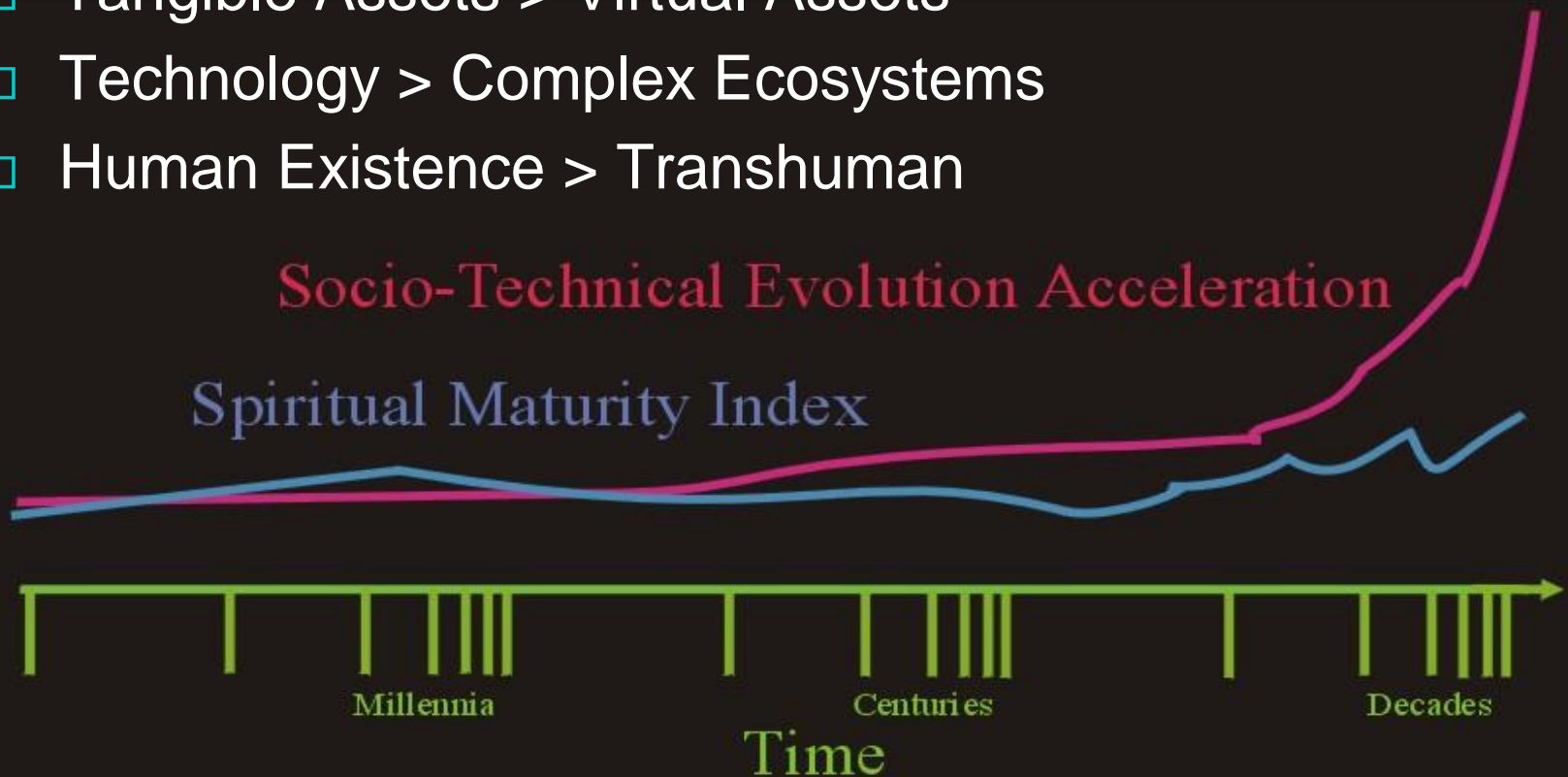
Approaching the Evolutionary Eventhorizon Threshold

- Tangible Assets > Virtual Assets
- Technology > Complex Ecosystems
- Human Existence > Transhuman



Approaching the Evolutionary Eventhorizon Threshold

- Tangible Assets > Virtual Assets
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Thank you for your
time and attention

Fini



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