

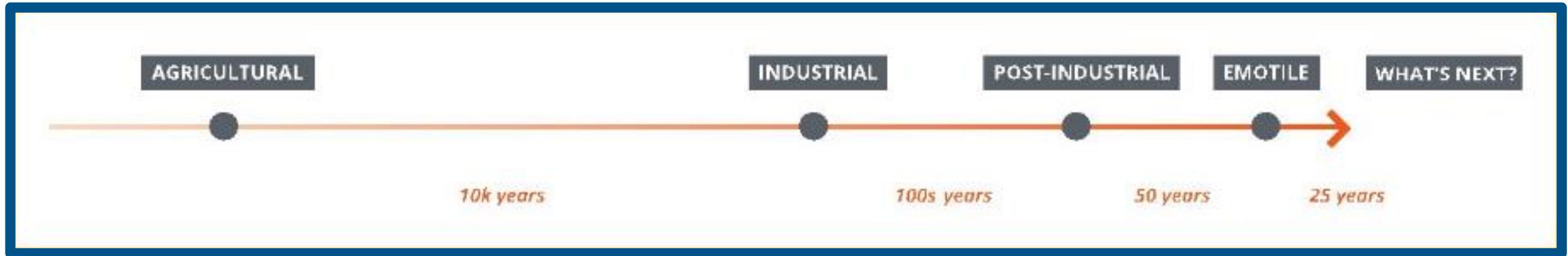
To Infinity & Health: The Future of Health Begins Now

FEBRUARY 14, 2020





The Evolution of Economies

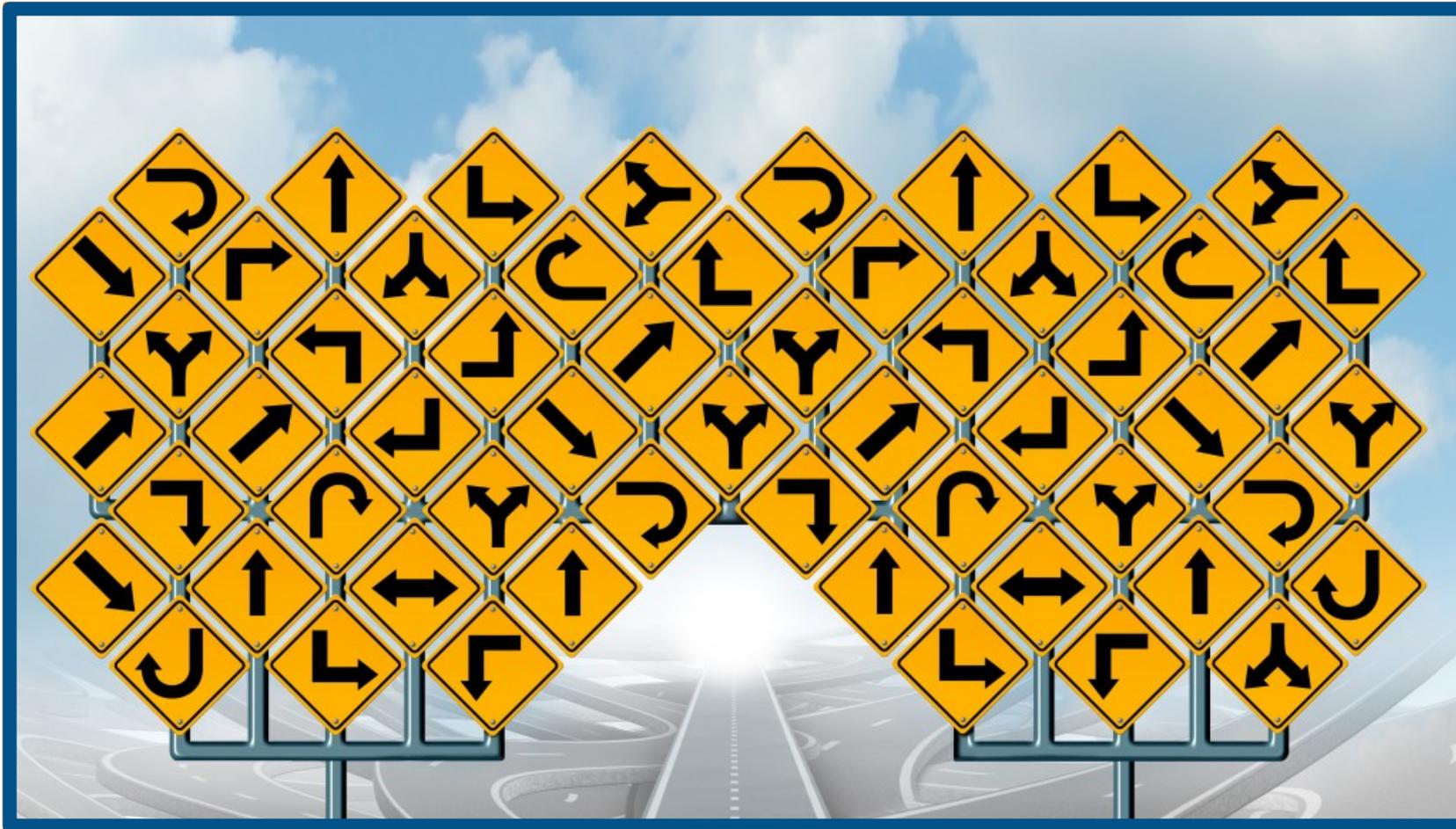


Three Major Observations

- 1) Confluence of disruptive technologies at each transition
- 2) Economies do not replace each other...they layer
- 3) The time between transitions is collapsing toward absolute zero:

We are entering a fundamentally new era of global civilization







When you're finished changing, you're finished.
BENJAMIN FRANKLIN



The New “O.S.”

Templosion:

The exponential implosion of “big” time into smaller and smaller chunks



Thinking Technology: The Recognition of Educated Incapacity

We all know so much about what we know, that we are the last to see the futures of our respective fields differently.



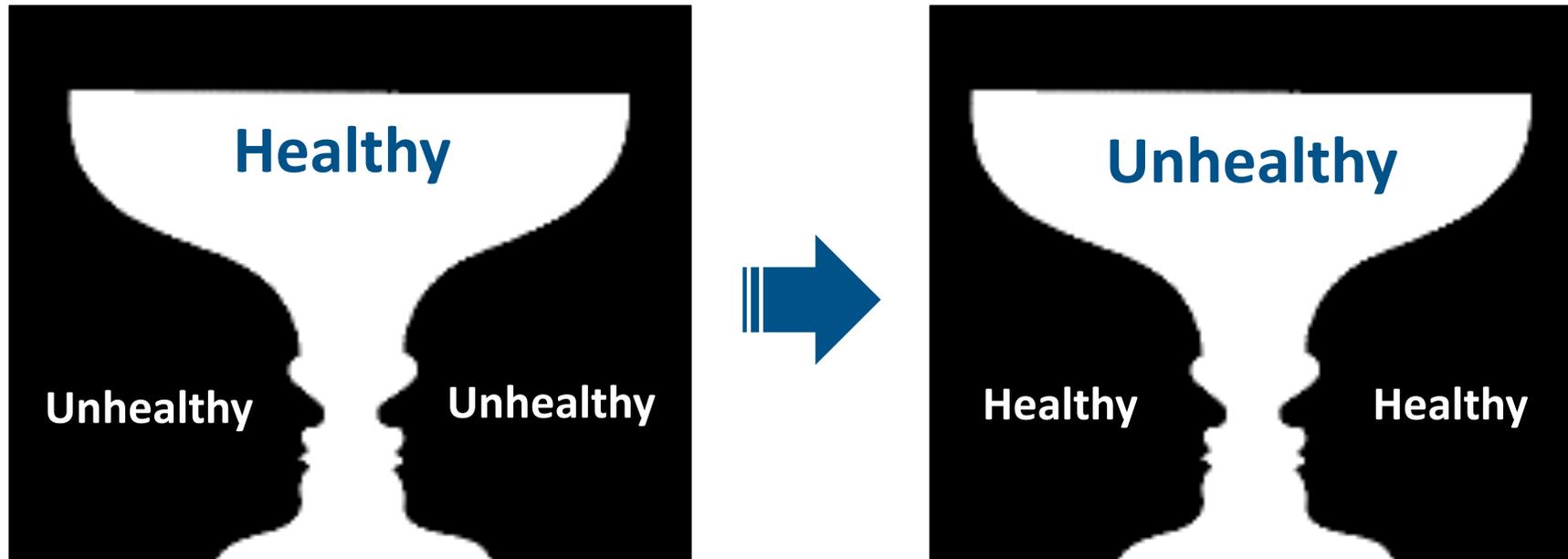
- Nearly everyone suffers from this...even futurists!
- Expensive baggage vs. Agile backpack
- Only two types of living creatures don't suffer from this...



Thinking Technology: Figure/Ground



Figure/Ground: Health

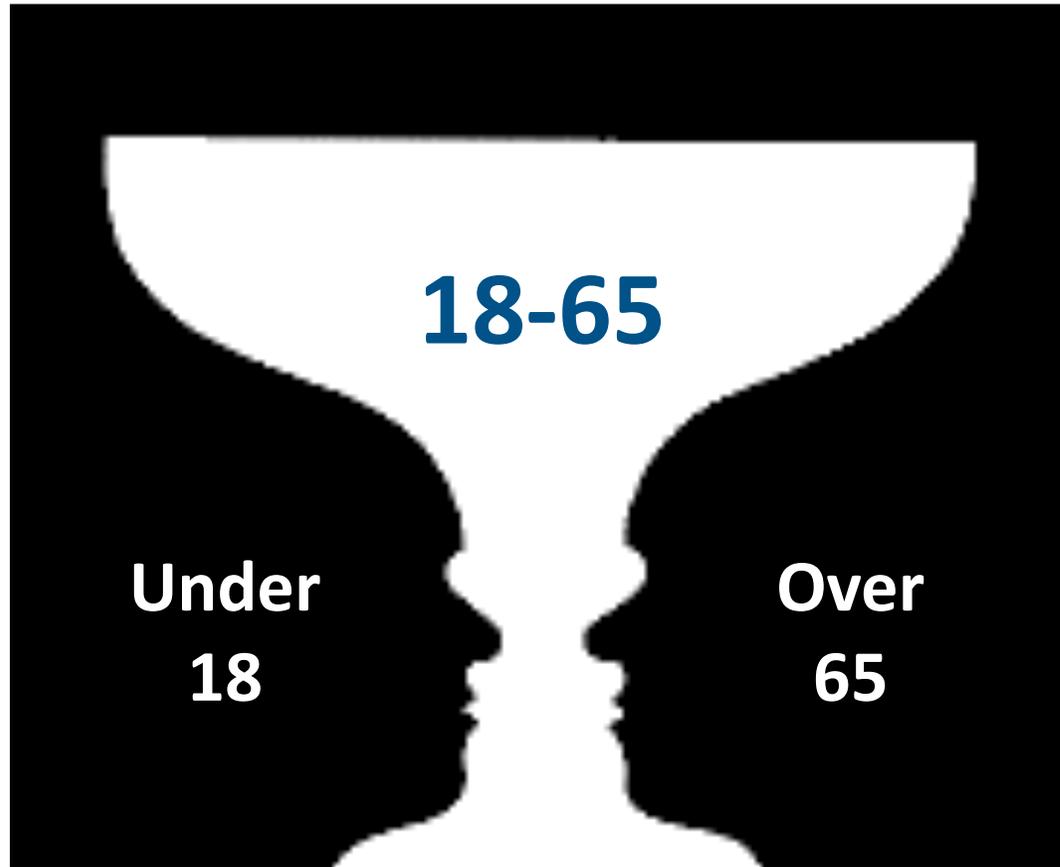




**GENERATIONAL
SHIFTS**

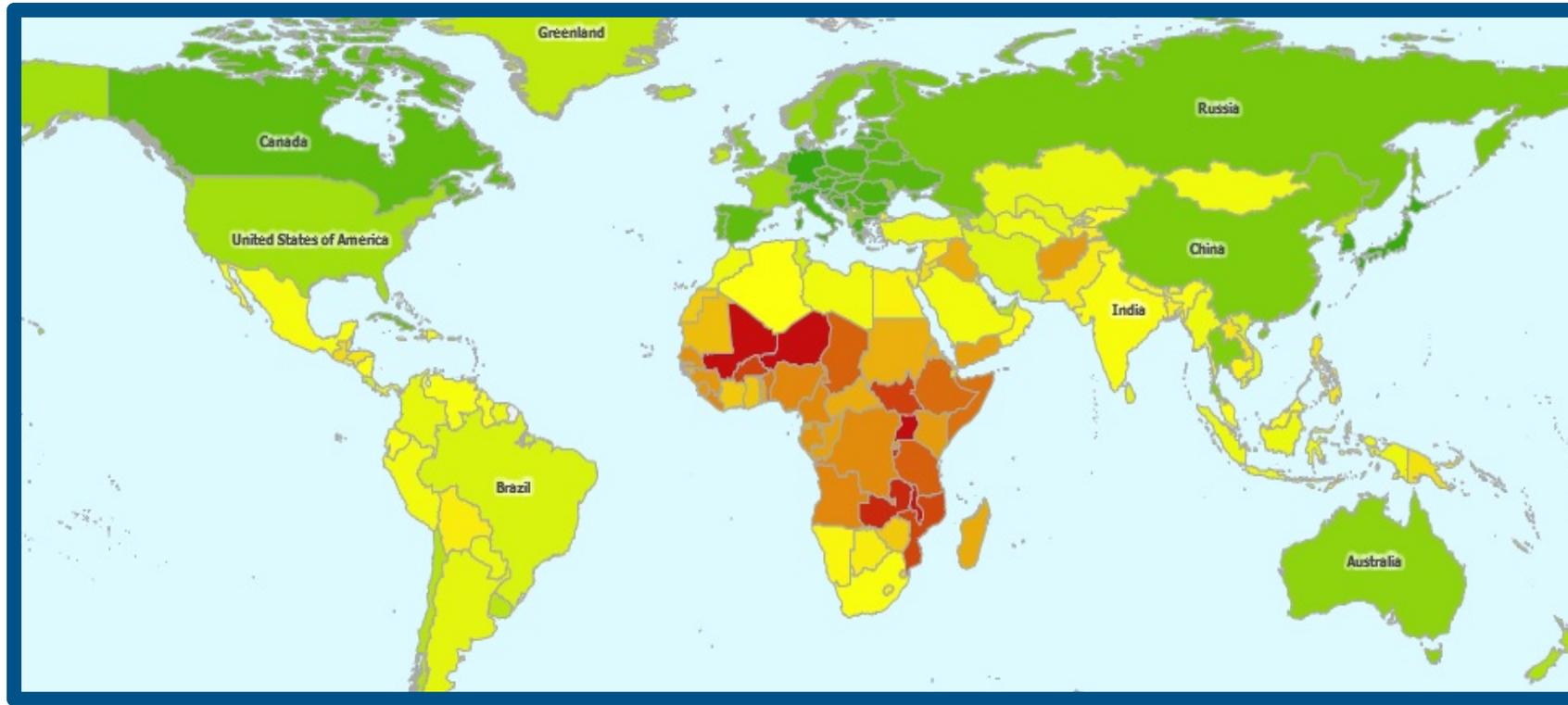


Figure/Ground: Age

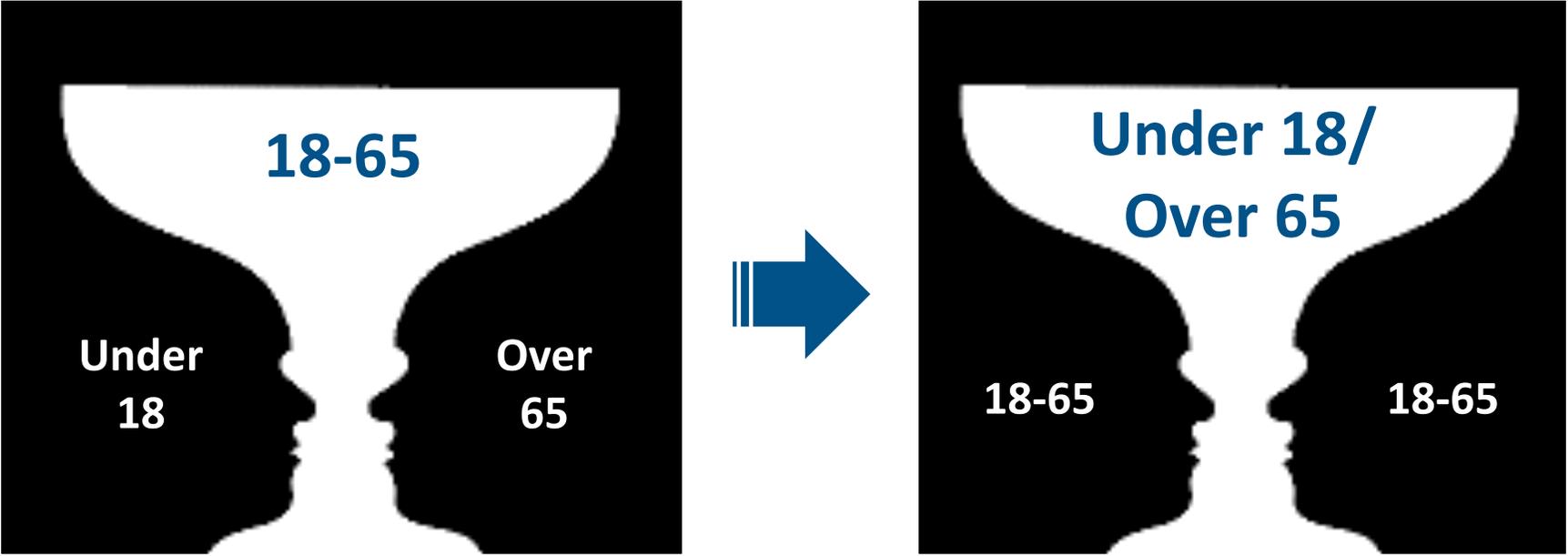


Figure/Ground: Age

A Heat Map of the World's Under-15 Population:



Figure/Ground: Age



Intergenerational Cauldron

- Lifespan increasing around much of the world
- A particular issue in developed economies
- Increasing stress on social safety nets for the aging =
Increasing economic pressure on youth populations
- Leaders in some countries (e.g., the US) actually getting *older*
- Angst among aging populations about characteristics of youth;
- Youth populations blame many macro issues (enviro, economic, etc.) on preceding generations



Millennial Health Concerns

- Millennials = Largest, most educated, and most connected generation ever
- Millennials' mortality rates could climb by more than 40% compared to Gen-Xers at the same age
- Millennial treatment costs projected to be up to 33% higher than for Gen-Xers
- Lower levels of health alone could cost millennials more than \$4,500 per year in real per-capita income compared to similarly aged Gen-Xers
- According to the 2016-17 Healthy Minds Study, 39% of college students reported experiencing symptoms of depression or anxiety
- One factor: Pressures of social media



Moving From Millennials to *Cybrids*

Far Beyond “digital natives”...they have a fully symbiotic relationship w/ tech



Cybrids: Characteristics

- Born after 1996
- Collaborative, *inclusive* & entrepreneurial
- Financially prudent
- Eager to build a better planet
- Expect brands they engage with to use advanced tech, but...
- They want control over their own data
- Implications for firms (e.g., Google) consolidating health data?
- Can people profit from their own health data in the future?



Cybrids: As a Market

- These are your customers, employees, donors and volunteers of tomorrow...and, even, today
- 28.6% of the global population (~2B people)
- ~40% of consumers in the U.S., Europe and major emerging markets



Gerontopoly

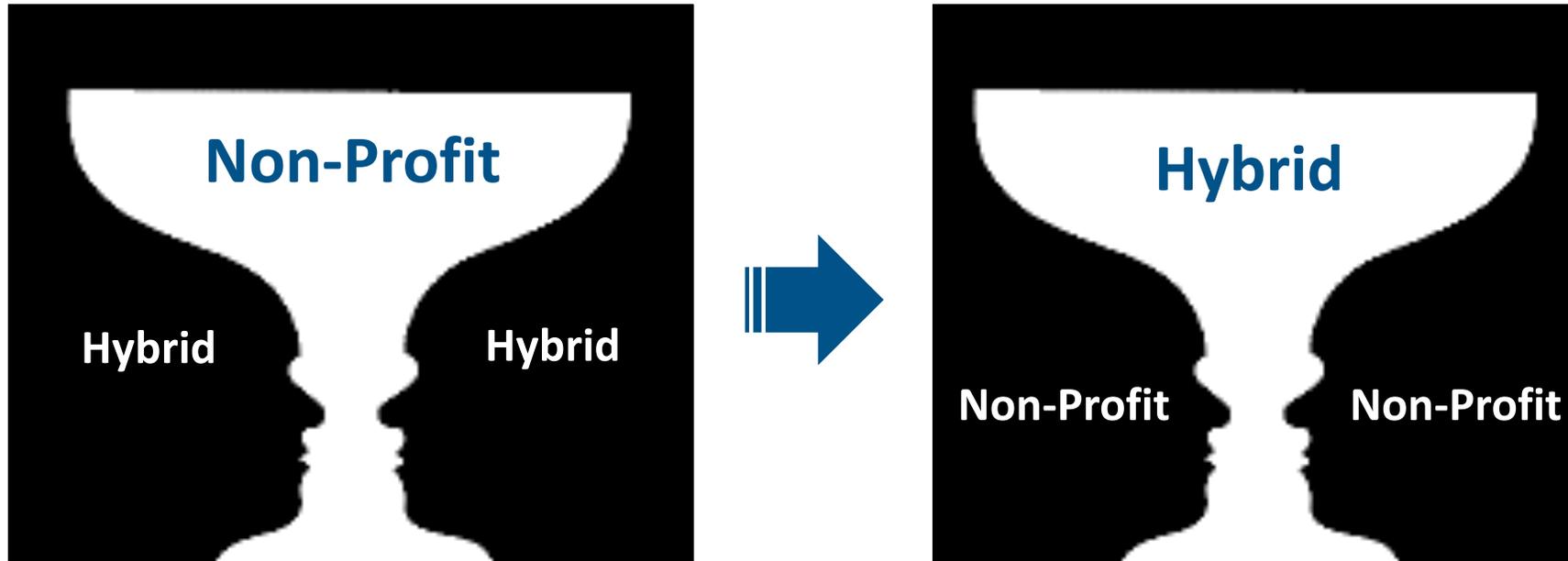


- Developed world aging considerably
- Expanding mortality horizon...
- ...and life is being extended in the middle
- The idea of “retirement” turned on its head
- Active (vs. passive) retirement...with social value





Figure/Ground: Business Model

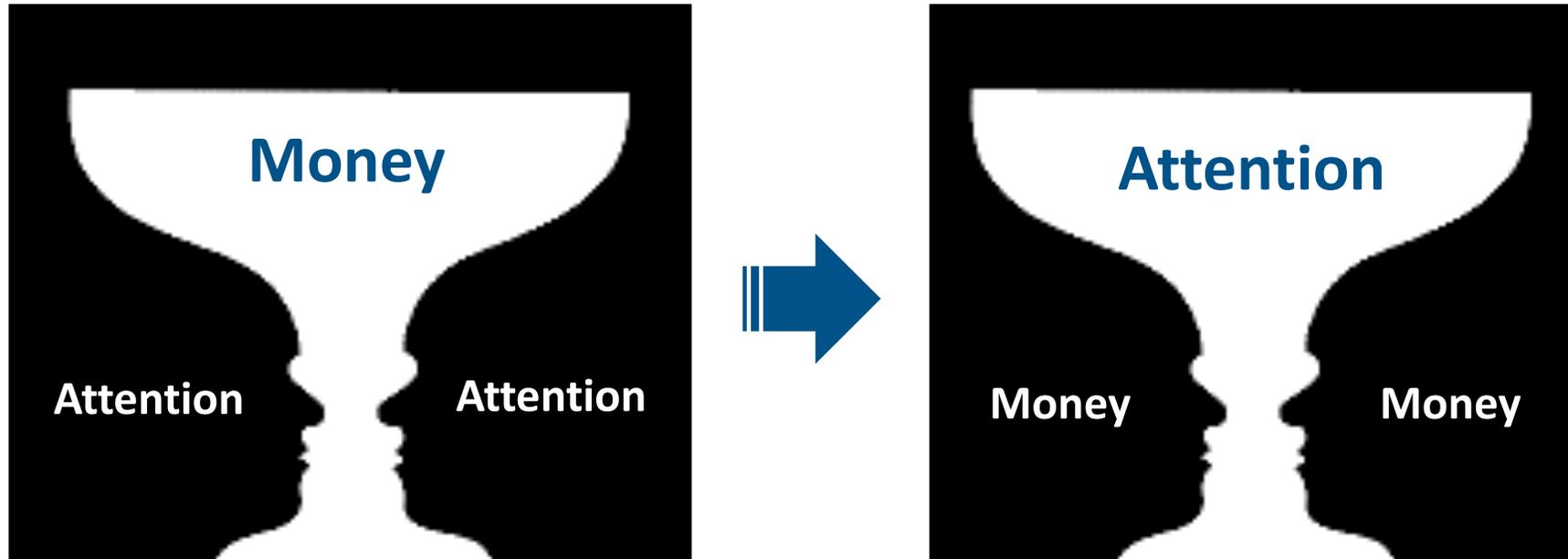


Non-Profits: Think More Like a Business

- Proliferation of social entrepreneurship:
 - Hybrid profit/philanthropic models (e.g., buy 1, give 1) on the rise
- Lots of competition...for \$ and attention
- Create more “experiences” that serve the org’s vision
 - Pop-ups, festivals, virality, influencers
- Partnerships are vital – find the right complementary companies
- G2B and the sustainability imperative – revisit biz/rev models
- Development of more nimble advisory boards (e.g., digital)



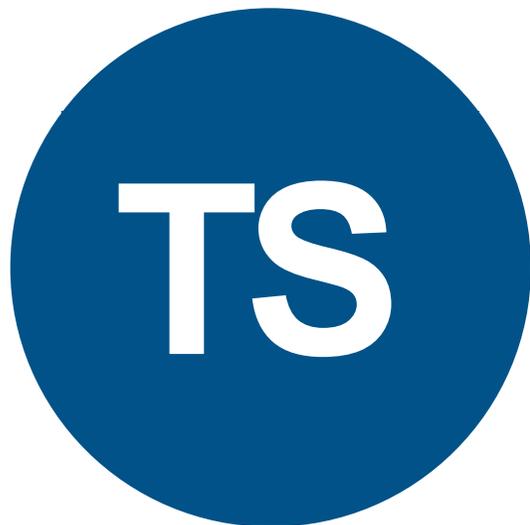
Figure/Ground: Currency



Social Media Innovation

- Attention is the new currency
- How do you break through all the noise/competition?
- Ingredients: Virality, influence, call-to-action...
- But the holy grail = sustainability/annuities (e.g., Movember)





**TECHNOLOGICAL
SHIFTS**

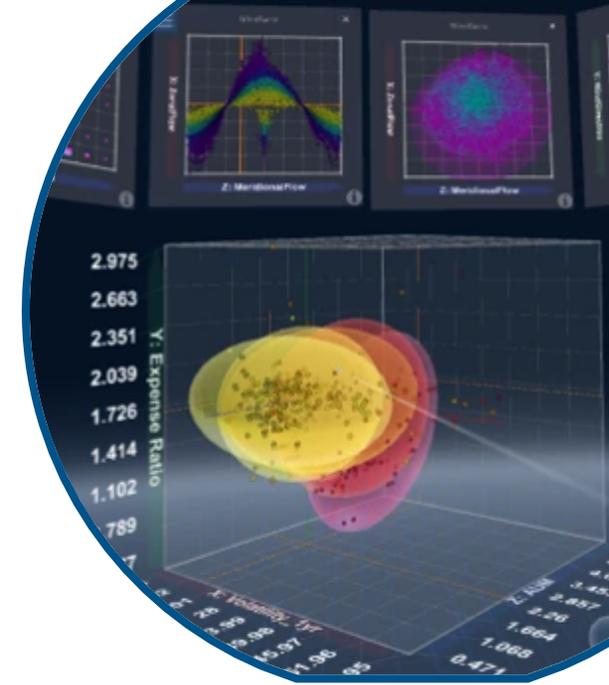




Extended Reality (VR + AR)

Virtual Reality (VR)

- **Future Scenario Visualization:** Behavioral economists studying how VR influences consumer behaviors. Studies show that consumers, when “shown” versions of their future selves, might alter wellness behaviors (e.g., fitness, nutrition).
- **Data Visualization:** More intuitive; collaborative. Multiple people can visualize the data together.
- **Interactive Storytelling:** e.g., A way to educate consumers about your product/service offerings.
- **Fitness/Exercise:** An alternative form of physical activity
- **Treatment Tool:** Evolving the treatment of various disorders (e.g., pain, phobias, social anxiety, autism, Alzheimer's, PTSD)



VR: Transforming the Hospital Experience



Augmented Reality (AR)

- A view of the real-world augmented by technologically-enabled sensory overlays
- Digi-Capital forecasts that AR will generate \$83b in global revenue by 2021

- Global VR+AR market expected to grow to \$209B by 2022. VR revenues expected to be about 1/3 of this.
- Over 50 million VR+AR units may be sold globally by 2022 = market value of \$8.5B



Wearable Technology

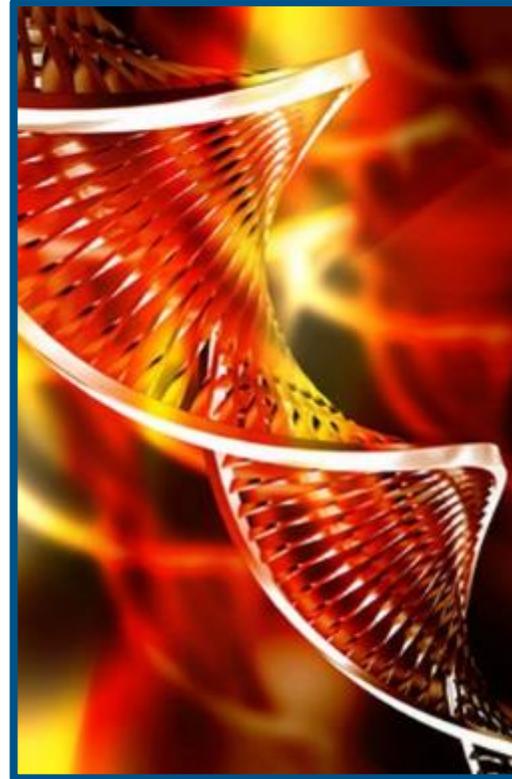
The future will be about: *embeddables*, *implantables* and *ingestibles*

- Abilify MyCite is a pill which can be tracked by an ingestible sensor when the tablet dissolves in the stomach. It is detected by a wearable abdominal patch to track pill intake on patients with schizophrenia, bipolar disorder and depression.
- Wearables used to monitor schoolkids' health in some global markets
- Growth of mental health trackers for mindfulness, CBT, peer support, tracking and more
- Issues of “biomedical” Big Brother?



BAANGFUEL

- Nanotechnology
- New materials technology
- Synthetic Biology
- 3D Printing...and then 4D printing
 - Mass democratization of creation
 - Time/value proposition
 - The end of donor lists?
- Genetic Engineering
 - CRISPR
 - “Editing out” diseases?
 - Haves vs. have nots?





**WELLNESS
INNOVATIONS**



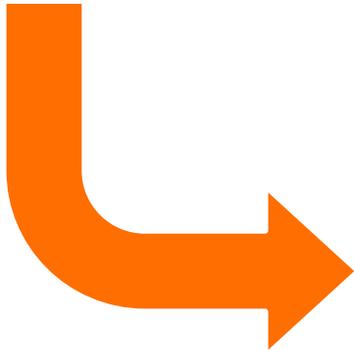


PUTTING PATIENTS FIRST[®]

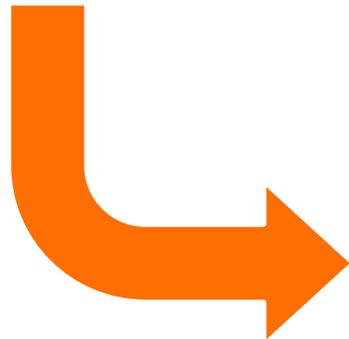
NATIONAL
HEALTH COUNCIL
Celebrating 100 Years

Green-to-Blue Innovations

1) DOING GREEN



2) BEING GREEN



3) BEING BLUE

...New CSR Models & the Triple Bottom Line



Nature-Inspired Design: Hospitals



Other Emerging Innovations

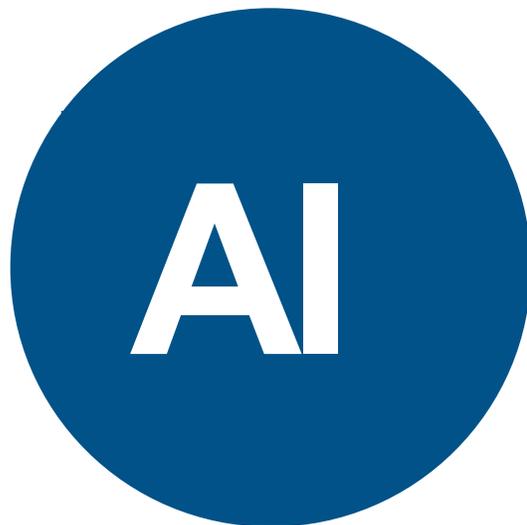
- Bioelectric medicine to treat chronic conditions
- The convergence of DNA & AI for personalized nutrition
- New bioprinting techniques
- Full genome sequencing: A future of predictive and personalized care?
- Drone medicine deliveries to underserved areas
- Suspended animation: EPR (Emergency Preservation & Resuscitation)
- “Cancer avatars”
- Increasing research into therapeutic benefits of psychedelics
- HealthTech startups disrupting healthcare delivery (e.g., Forward)
- Many firms studying blockchain for interoperability of patient data



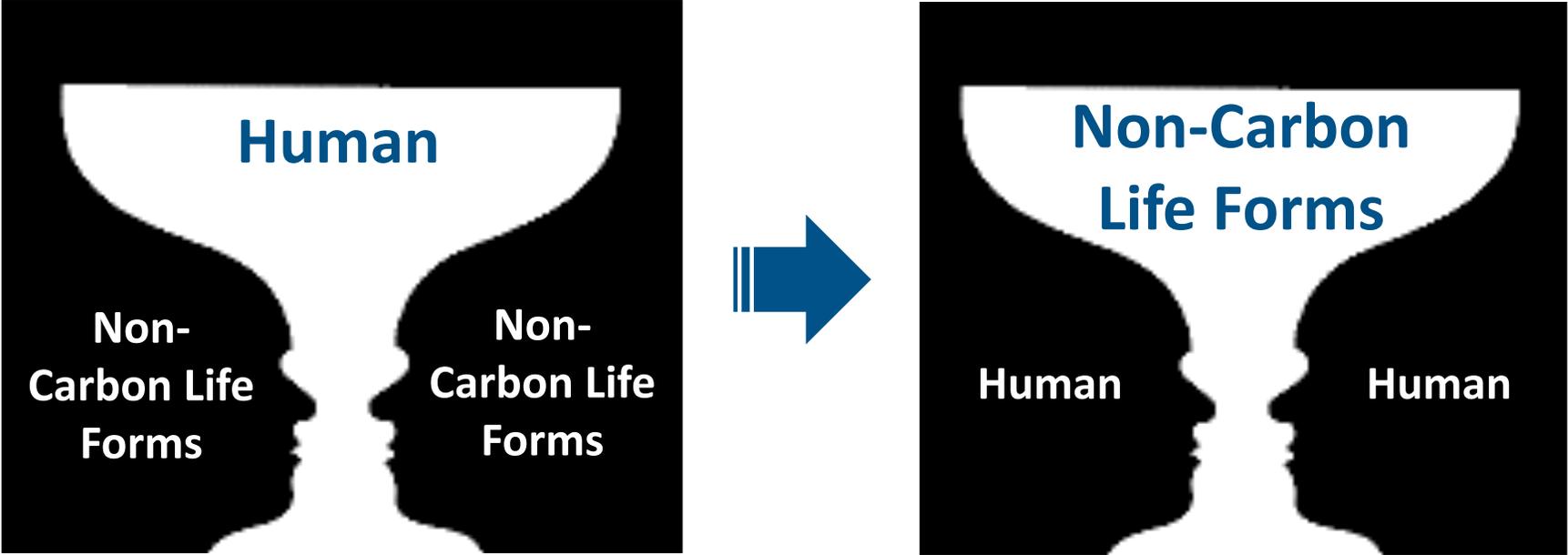
Some Recent Developments

- Social determinants of health (e.g., urbanization, housing) are a growing field of study
- Newly-recognized mental health disorders (e.g., climate anxiety)
- Microbiome “ecosystems”
- New fungal diseases and migrating tropical diseases resulting from climate change
- High levels of plastic byproducts being discovered in children
- Cyber^{*in*}security risks (e.g., health records, urgent care needs)
- Dating apps leading to the wider spread of STDs





Figure/Ground: Labor



AI & Automation: Moving from who to what will do work



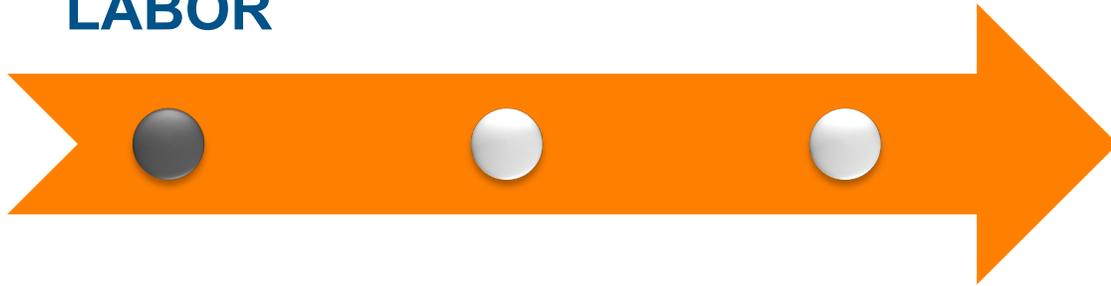
AI Stats

- The global AI market is expected to reach \$169B by 2025
- Due to AI, global GDP is expected to reach \$15.7T in the next decade
- Enterprise use of AI grew 270% over the past 4 years



Disintermediation: Phase 1

MANUAL
LABOR

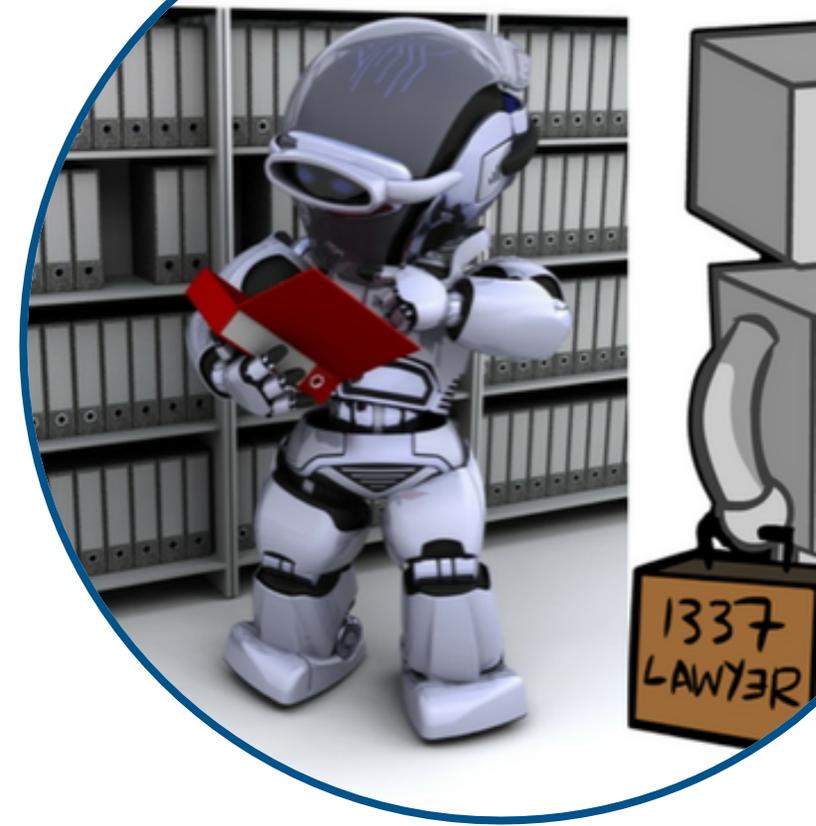


Disintermediation: Phase 2

COGNITIVE
LABOR



- Doctors; Nurses; In-Home Aides
- Walklake: Robots doing health inspections of schoolkids in China



Disintermediation: Phase 3

EMOTIONAL
LABOR



- Companions
- Therapists
- Woebot: An AI chatbot that uses cognitive-behavioral therapy (CBT)

The New Role of the Human

**Humans will still be important...
but the *role* of the human will change.**

- Smart vs. *Intelligent*
- Deeper focus on innately human skills – creativity, critical thinking and EI
- Entirely new jobs will exist that we can't even imagine today
- AI empowers humans by giving them tools necessary to automate redundant tasks, and detect and analyze hidden patterns in data



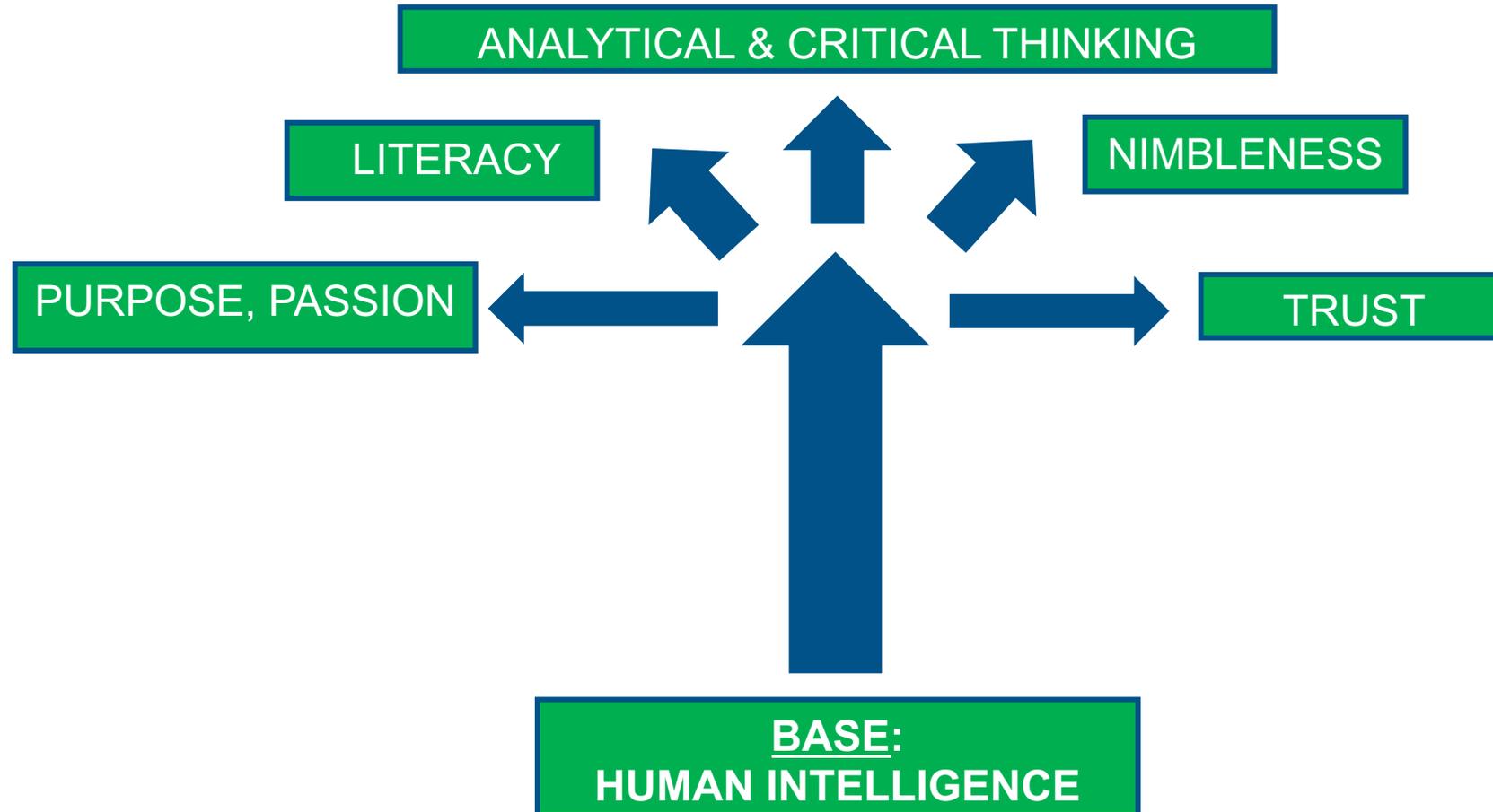
Trust =
The Ultimate
Luxury

As AI disintermediates many lower-level human functions, relationships with trusted human service providers will be as important as ever.

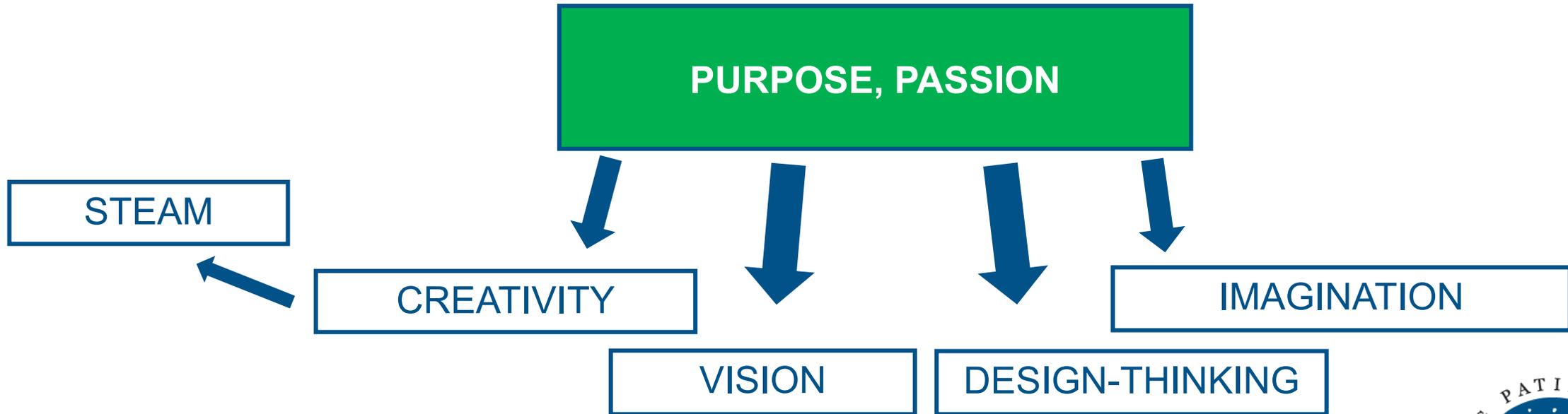




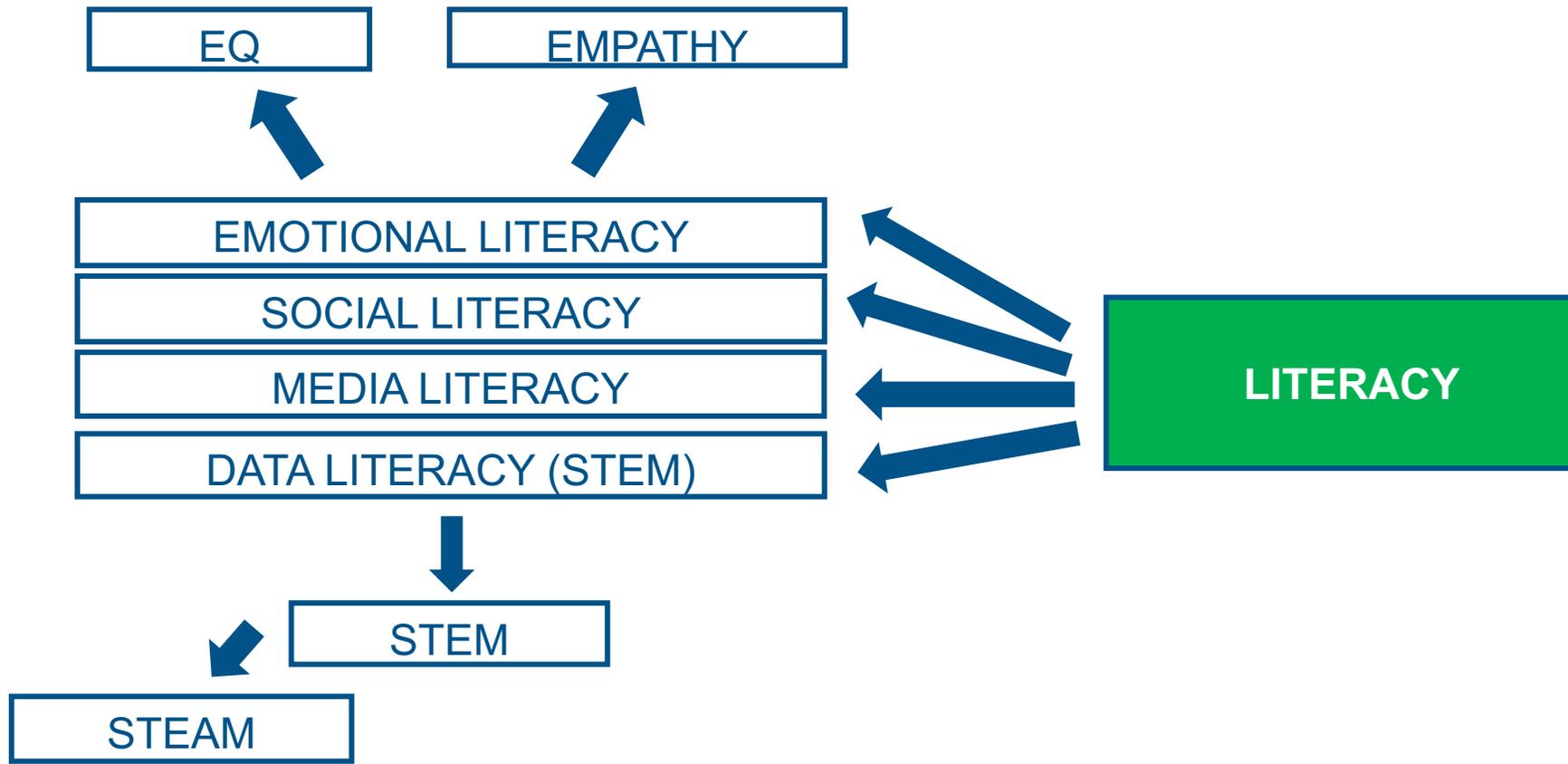
Competency Tree: The “Trunk”



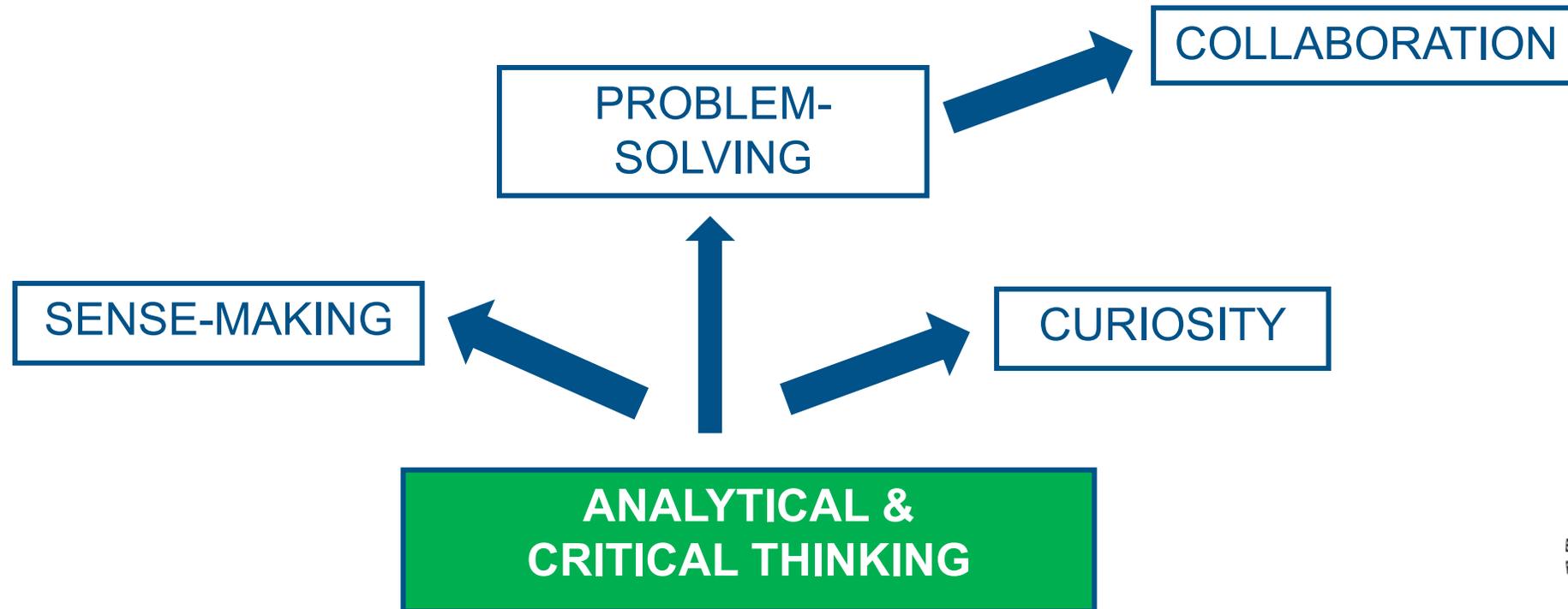
Competency Tree: 'P'



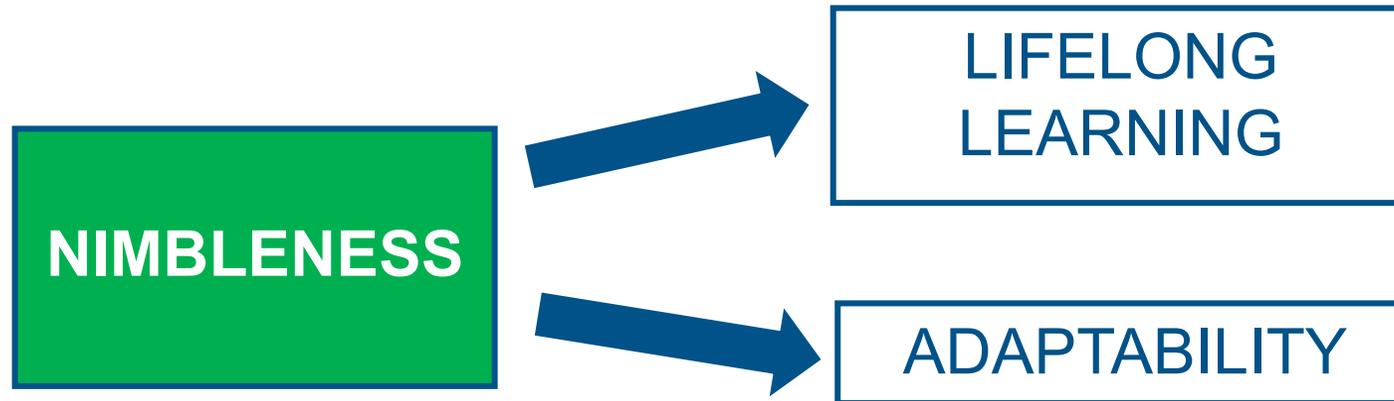
Competency Tree: 'L'



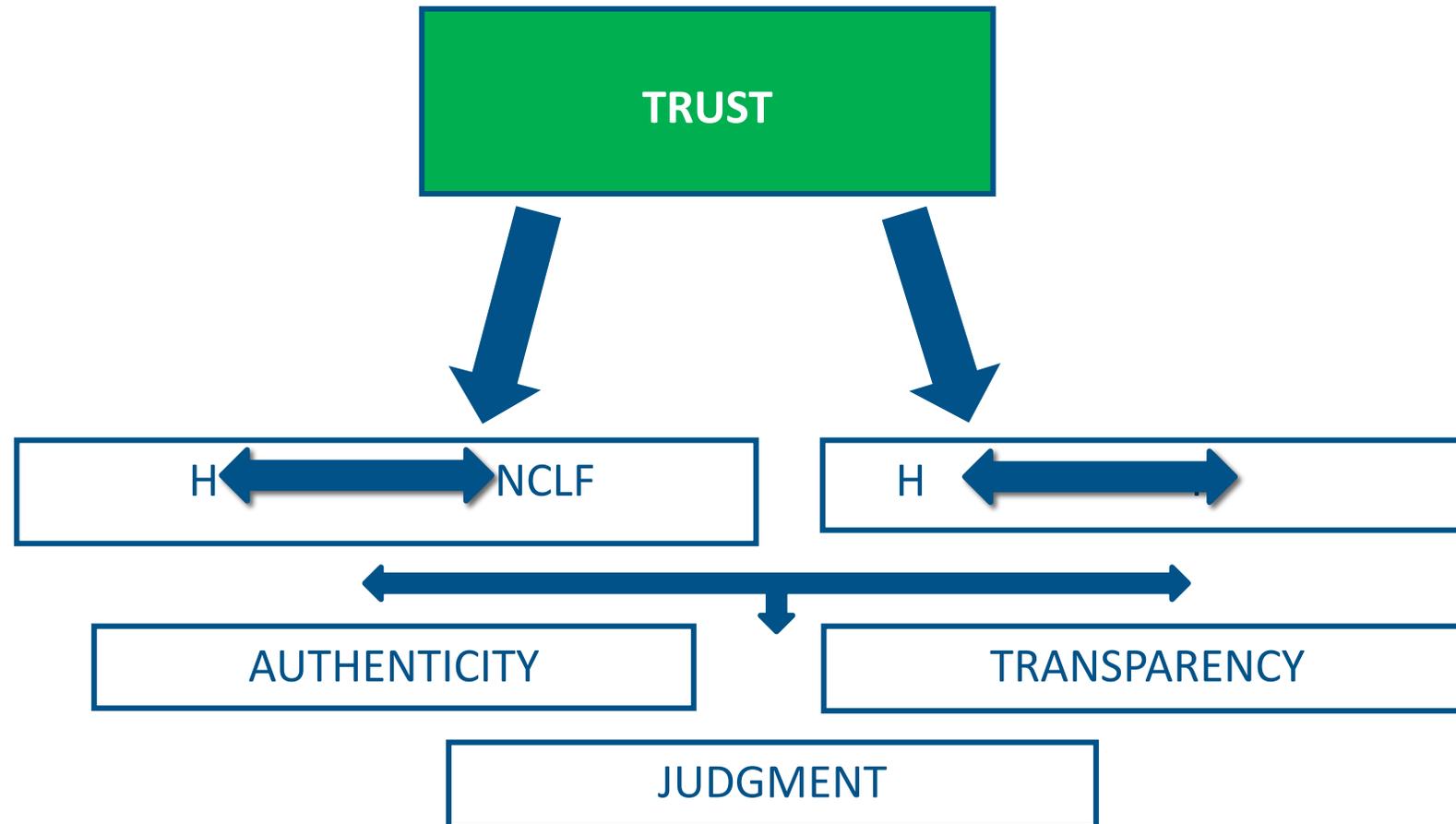
Competency Tree: 'A'



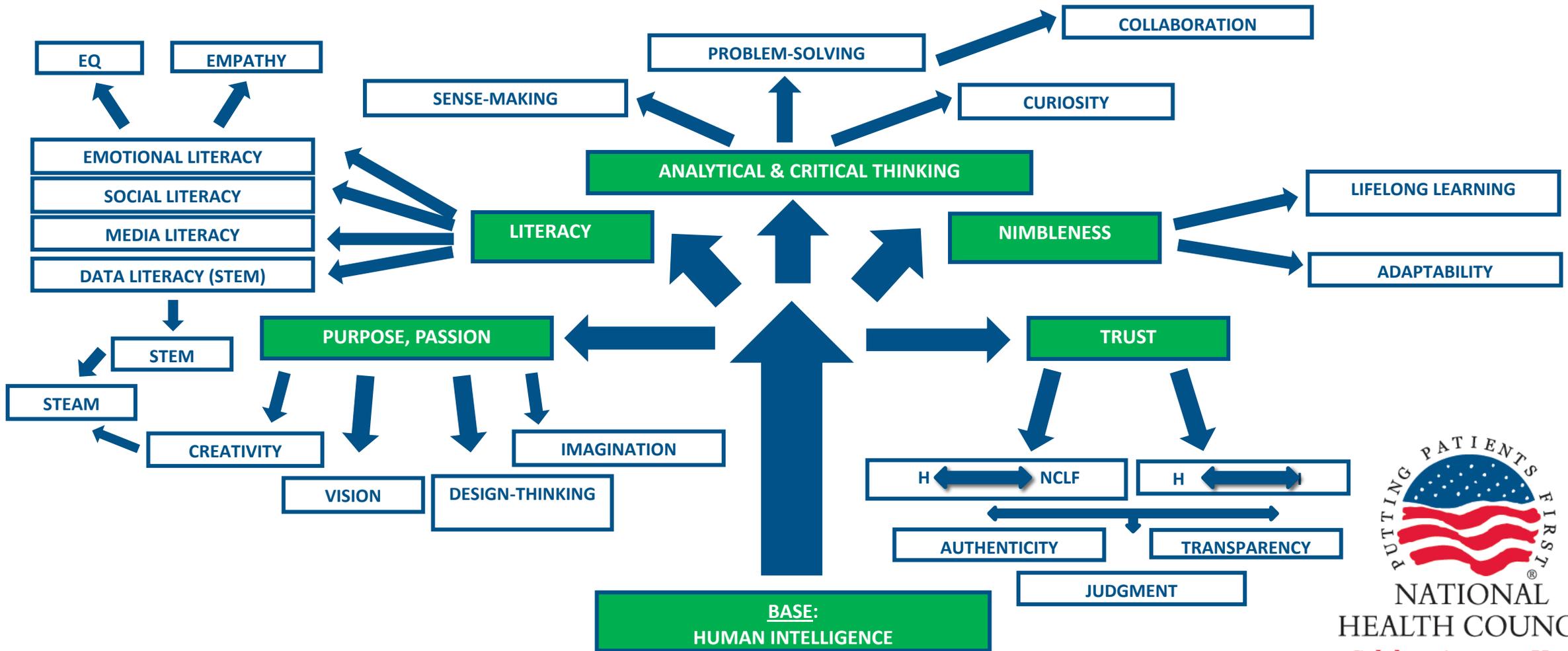
Competency Tree: 'N'



Competency Tree: 'T'



Competency Tree: A Future-Proofing Tool



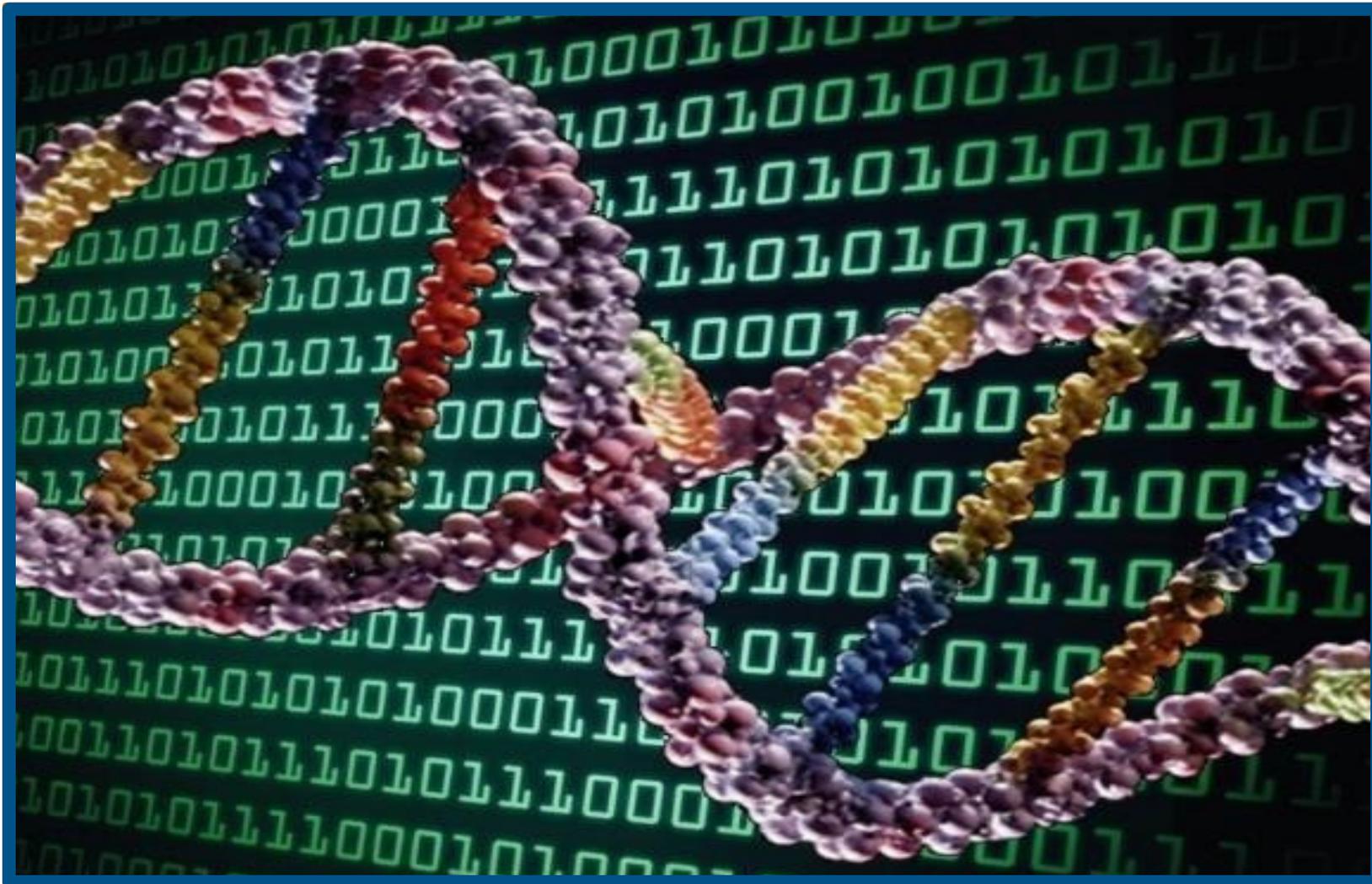


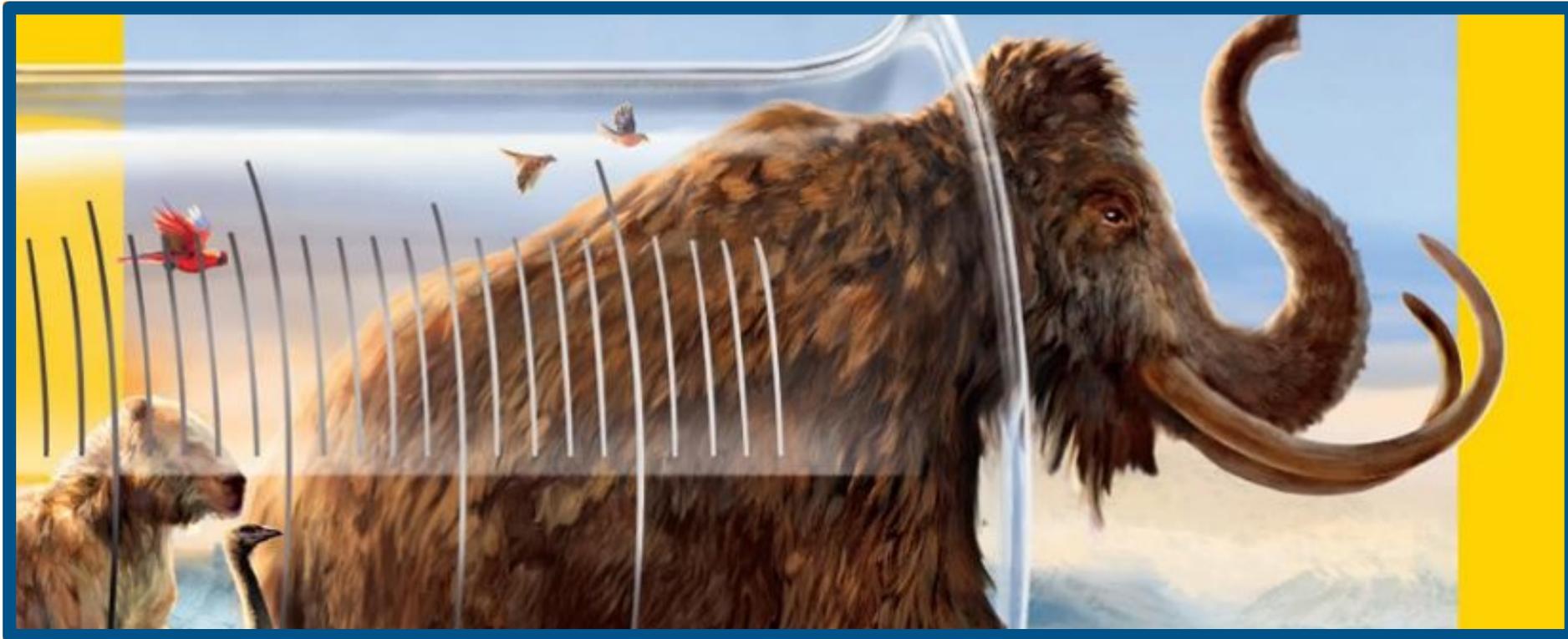




PUTTING PATIENTS FIRST
NATIONAL HEALTH COUNCIL
Celebrating 100 Years







poverty





WORLD
MALARIA
DAY



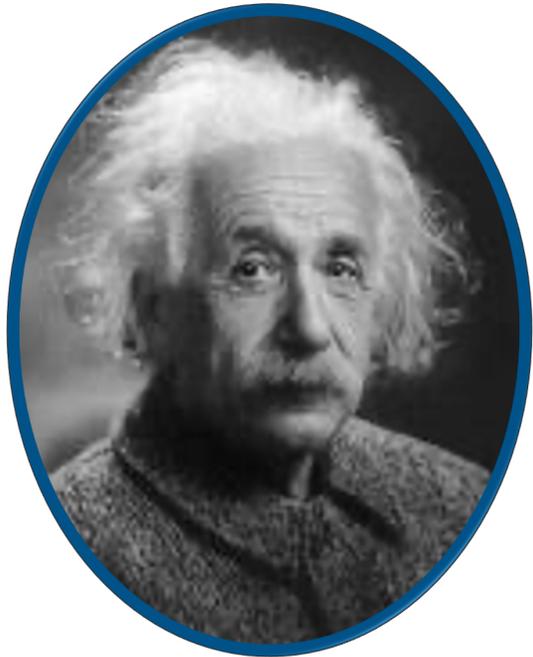
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Looking to the Future...

- Entrepreneurs and big tech are betting on “moonshots” – huge projects very difficult to achieve, but which would have a massive impact
- What moonshots might we imagine that could catapult the healthcare industry forward in one big evolutionary leap?
 - Cure cancer?
 - Proliferation of “spa”-spitals?
 - Organs On-Demand?
 - Truly personalized and/or predictive medicine for all?
 - Universal and immediate transferability of patient medical data?
- **Every industry should dare to dream...**



The Imagination Imperative



Logic will get you from A to B. **Imagination** will get you everywhere.
ALBERT EINSTEIN



Thank you!

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