To Infinity & Health: The Future of Health Begins Now

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The Evolution of Economies

AGRICULTURAL

10k years

INDUSTRIAL

100s years

POST-INDUSTRIAL

50 years

EMOTILE

25 years

WHAT'S NEXT?

PUTTING PATIENTS FIRST

NATIONAL HEALTH COUNCIL

Celebrating 100 Years
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

Under 18

18-65

Over 65

Under 18

Over 65
Figure/Ground: Age

A Heat Map of the World’s Under-15 Population:
Figure/Ground: Age

Under 18  
Over 65  

18-65

18-65

Under 18/
Over 65

18-65  
18-65
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?
WELNESS INNOVATIONS
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
- Cybersecurity 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

- 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
As AI disintermediates many lower-level human functions, relationships with trusted human service providers will be as important as ever.
CT → COMPETENCY TREE
Competency Tree: The “Trunk”

BASE: HUMAN INTELLIGENCE

PURPOSE, PASSION

LITERACY

ANALYTICAL & CRITICAL THINKING

NIMBLENES

TRUST
Competency Tree: ‘P’

- PURPOSE, PASSION
- CREATIVITY
- IMAGINATION
- VISION
- DESIGN-THINKING
- STEAM
Competency Tree: ‘L’

- EQ
- EMPATHY
- EMOTIONAL LITERACY
- SOCIAL LITERACY
- MEDIA LITERACY
- DATA LITERACY (STEM)
- STEM
- STEAM
- LITERACY
Competency Tree: ‘A’

- Analytical & Critical Thinking
  - Curiosity
  - Problem-solving
  - Sense-making
  - Collaboration
Competency Tree: ‘N’

NIMBLENES

LIFELONG LEARNING

ADAPTABILITY
Competency Tree: ‘T’

- **TRUST**
  - **H**
  - **NCLF**
- **AUTHENTICITY**
- **TRANSPARENCY**
- **JUDGMENT**
Competency Tree: A Future-Proofing Tool

- Purpose, Passion
  - STEAM
    - Creativity
    - Vision
    - Design-Thinking
  - Base: Human Intelligence
- Literacy
  - Anticipation & Critical Thinking
  - Problem-Solving
  - Sense-Making
- Nimbleness
  - Collaboration
  - Trust
  - Lifelong Learning
  - Adaptability
- Trust
  - H
  - NCLF
  - H
  - Transparency
  - Authenticity
  - Judgment
- Analytical & Critical Thinking
  - Curation
  - Curiosity
  - NCLF
- Empathy
  - Emotional Literacy
  - Social Literacy
  - Media Literacy
  - Data Literacy (STEM)
poverty
WORLD MALARIA DAY
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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NATIONAL HEALTH COUNCIL
Celebrating 100 Years