

So far, humanity has surrendered to the horrors of aging and death as unavoidable certainties.

But in the age of biological science, unlimited health and lifespan are bound to happen.

The only question is whether we will act to make them happen in our lifetime.

The Vitalist Declaration

Life and health are good; Death and aging are bad, therefore:

1. I believe all humans should be free of aging and have death be a choice.
2. I will work on or support others to work on ending aging.
3. I will do acts of charity for those most affected by aging and death.
4. I will strive for optimal health and support my community to do the same.
5. I will speak out and encourage others to speak out about aging and death.

Summary

Vitalism is the revolutionary movement against death and biological decline. Our mission is to allow every human to live in optimal health indefinitely.

To achieve this we will transform existing jurisdictions into Longevity States - States that focus on extending lifespans in optimal health. Such states will set new regulations and devote at least 1% of GDP/year to longevity research and development.

We will realize this transformation by creating a unique for-profit economic engine and talent magnet. This engine will include ventures such as a real estate ecosystem focused on health and longevity; a venture builder and accelerator, a venture fund for health and longevity as well as a cutting edge concierge medicine service. Amplifying this, we are designing an operating system for cities and states to offer their residents optimal longevity and health.

As more people engage and enjoy positive impact from our efforts, State transformation will accelerate. And once one Longevity State is established, others will follow.

Longevity States will serve as a lighthouse for all who aspire to live healthfully, flipping the system from sick-care to healthcare and providing huge economic benefits. Through legislation, reform and innovation these states will be the easiest place in the world to live at optimum health, and attract money, talent and innovation. Such States will also be part of a greater global Longevity Network, aligning all who share our mission.

As an example, one candidate State is **Rhode Island, USA**. With 1.1M people, Rhode Island is only 40 minutes by train from Boston, the world's #1 biotech hub. It is home to top universities such as Brown University and RISD, as well as CVS headquarters and a thriving healthcare sector. If chosen, it can become the Silicon Valley of longevity in short order. And imagine 2 senators who firmly insist on changing NIH and FDA mandates.

Other candidate jurisdictions include the Swiss canton of Zug, Montenegro, and charter cities like Prospera, Honduras, who offer progressive regulatory environments.

We will attract existing residents and those from out of state, especially given the new realities of remote work. For reference, the Free State Project has only ever had around 30K sign ups and today Free Staters have 29/400 seats in the New Hampshire State assembly. Given health is a universal want, we expect many more members in a short period.

No matter where the first Longevity State forms, it's likely to accelerate once it hits even a small critical mass. For example, even 5,000 longevity maximalists in Providence, Rhode Island (191K residents) would instantly make it a global longevity Mecca.

Some examples of what a Longevity State could do:

1. Offer every resident stem-cell banking, consolidated EMR, cryopreservation
2. Pass right-to-try laws to increase access to health innovation
3. Support community efforts and sponsor volunteerism to support the elderly
4. Offer subsidies and/or tax breaks for longevity medicines and services
5. Pass laws to tax food items that harm health while offering subsidies for healthful foods whose companies make an effort to deliver price accessibility.
6. Give tax breaks and grants for firms in longevity-biotech, health and wellness sectors.
7. Offer scholarships for state schools to promote relevant studies and/or loans with full forgiveness if the graduate stays in state and joins a qualifying company.
8. Give incentives to healthcare providers to offer health care and not sick care
9. Implement intentional blue zone policies for new neighborhood construction
10. Offer support for midwifery and pre and post natal care based on best practices
11. Deploy a health-related syllabus for K – 12, including nutrition and longevity concepts

We will expand to additional jurisdictions, until all states are longevity states.

Addendum

While it's always been the right thing to confront aging and death, now is the best time in history to do so. Public sentiment is ripening to the idea of treating aging as the root cause of disease while demand for longevity-oriented lifestyles and remote work make it easier than ever for communities to intentionally relocate. Finally, the science is in sight.

Vitalism is intended to serve as a unifying ideology for all who love life. It is also a call for every member of the longevity community to relocate and focus their efforts in specific locations. By creating high density networks we can merge our voices and reach vastly more people while accelerating innovation and amplifying our influence.

We will work pragmatically and dynamically, embracing any approach that supports success.

And though our foe is ancient and terrifying, history proves that imagination is the only limit to what humanity can achieve.

Vitalism Whitepaper v1.0

May, 2023

Author: Adam Gries

Contributors: Nathan Cheng, Eran Glicksman, Laurence Ion, Mark Hamelaeinen, Oren Milman, Sebastian Brunemeier, Sam Sharifi, Michael Florea, Kai Micah Mills, Yuri Deigin, Shimon Meshi, Daniel Ives, Matt O’conor, Christine Peterson, Eric Morgen, Ivan Morgunov, Jonathan Swanson, Raiany Romanni, Katherine Krug, Ryan Rzepecki, Victor Forissier, Guy Bahat.

Table of Contents

1. Aging and State-Level Influence
2. Our Health and Lifespan Story
3. Now is the time
4. Strategy
5. The Vitalism Organization

Aging and State-Level Influence

Aging is by far the main cause of decline and death in humans. It is the chief risk factor for the most prevalent terminal diseases and has no remedy. As the only universal existential threat and source of suffering for people, ending aging is the highest priority in making death a choice.

Today, humanity allocates comparably tiny resources to understand or treat aging. Instead, our sick-care system spends trillions on the late stage consequences of aging ("age-related" diseases such as cancer, heart disease, and dementia) once they are highly pathological, offering no path to fix aging itself.

Examples of ineffective spending abound:

- \$42.5B spent on Alzheimer's research since 1995 with almost no results.
- Thousands of scientists focus on aging itself vs hundreds of thousands working on cancer alone
- The NIH is by far the biggest funder of biomedical research in the world. Of its \$50 B budget, only \$300M (less than 1%) are dedicated to basic aging research.

Fighting the diseases of aging but not aging itself is futile since curing one such disease, or even all of them, will only extend lifespan by a handful of LOW-QUALITY years. This is the wrong way to spend trillions, especially given clear evidence that we can impact aging itself.

Additionally, our regulatory system is not suited to tackle aging; it prioritizes avoiding harmful actions - but ignores that the largest source of harm is now inaction. Preference for no-risk intervention, low right-to-try, and a cumbersome trials system are merely symptoms.

And even noble motives lead to sick-care capture. Legislators respond to disease lobbies who want cures for their loved ones and mandate investments in research on disease, which flows to a regulatory + pharma system built to seek profitable drugs for disease indications. The systems that eradicated infectious disease and grew life expectancy in the 20th century can't handle our primary problem but still receive the most resources.

Another challenge is perception. Until recently, solving aging was a nearly impossible, hopeless idea. Combined with the natural aversion to confronting something as scary as frailty and death, it's no wonder most people don't want to even consider addressing aging head on.

Still, scientific progress gives cause for optimism. Since Cynthia Kenyon's lab doubled *C. elegans* lifespans via gene mutation in 1993, we mapped the full human genome, and discovered how to revert adult cells to a rejuvenated stem cell state. Further, we've shown that an old animal's cell can make a youthful clone with normal lifespan, meaning the data that can produce youth is not lost over time. But so far only a small longevity industry has emerged, with much of its focus misplaced and with messaging that is often muddled.

Some in the industry hardly care for lifespan and focus only on healthspan, an ethical and scientific

contradiction. Others cynically sell unrealistic anti-aging promises to make a quick profit. And even lifespan maximalists are often forced to compromise and build incremental projects that fit a disease indication to attract the funding their projects need to survive.

Only a tiny few work directly on longevity, a sector of ~5 K people in all. Lack of awareness, capital and opportunities drive this systemic failure. As a result, we and our loved ones continue to decline and die while great minds optimize click-through rates at FAANG¹ or invent addictive entertainment experiences.

Meanwhile, those who want resolute action to fight aging are divided and disempowered, and even the idea to devote huge resources to fight aging can draw fierce criticism and deter work.

Despite all of the above, by 2023 a few approaches are being pursued.

1. Develop incremental interventions targeting aging, hoping something quickly works well enough to trigger a public opinion shift and an explosion of interest and funding.
2. Attempt to change regulations and funding through traditional lobbying.
3. Petition billionaires to save us with capital (Calico, Altos Labs).
4. Work on moonshots despite the meager available resources, with corresponding excruciatingly slow progress.
5. Focus on AI.

Except for AI, which is unpredictable but can be part of any strategy, no current approach is likely to save those alive today. For example, the incremental drugs most efforts focus on today may take a decade to get to patients, may be expensive, and only add a few years to lifespan at best. We can't wait that long for so little impact, and need efforts at an entirely different scale.

To succeed, Vitalism strategically focuses on paths to influence at the State-level

Only states can carry out the required scope of resource reallocation for monumental projects such as The Apollo Program. Only states can educate a generation and normalize our fight against biological decline and death. Only states can change the paradigm from sick care to health care and make it easy to be healthy. And only states can set regulations, mobilize millions of people, and deploy trillions of dollars.

Where to start

Since 99% of people still don't see the problems of aging and death as tractable, we will first focus on jurisdictions where our community and values can gain disproportionate impact.

These ideal beachheads will combine key factors:

1. Demographics that allow transformative Vitalist political impact in less than 5 years
2. Local control of taxation and K – 12 education
3. Be accessible to Vitalists
4. Some jurisdictional autonomy when it comes to health and biomedical innovation
5. Close to major capital, population and academic centers, and an open minded culture

¹ For maximum access and leverage, Vitalism will evaluate a jurisdiction in the United States (e.g. Rhode Island, US), in the Schengen Zone (e.g. the Canton of Zug, Switzerland) and at least one additional jurisdiction with lower barriers to immigration and high regulatory flexibility.

To help fund these plans, Vitalism will create for-profit initiatives in longevity, health and more. Such initiatives can serve and cement our growing community, and allow any person to financially participate in Longevity State development.

To retain mission alignment, Vitalism will be an organization anyone can join by embracing the Vitalist declaration. And regardless of any involvement in for-profit endeavors, our mission will guide key decisions for the movement.

Alongside its state-building efforts, Vitalism will work to dismantle any barrier to lifespan extension. One key concern is humanity's deep psychological aversion to confronting aging and death. While in daily behavior we go to great lengths to avoid injury and death, we don't seem to mind them happening in an abstract future time. It's a bug in our system for long vs. short term thinking, evidenced by the fact that few healthy people of any age ever elect to die.

Despite this stark contrast, very little related psychological research has been done. To address this, Vitalism will fund psychological and behavioral research as well as development of media and communication strategies to shift perceptions and opinions.

¹Facebook, Apple, Amazon, Netflix, Google

Our Health and Lifespan Story

People don't generally want to get sick or die.

But until recently we had limited knowledge or interventions to impact health outcomes.

Before farming and cities, hunter gatherers evolved to thrive in their locations, but diseases or wounds that are minor today could prove fatal, and serious illnesses were a death sentence. Illiteracy reigned, subsistence was a struggle, and medical care varied based on quality and availability of local healers.

This may suggest civilization led to continuous lifespan extension, but that would be false.

Excluding infant mortality, extant hunter-gatherer societies have lifespans similar to those of England in 1891. In some cases, urbanization caused life-expectancy declines, a result of diseases of density, poor sanitation and more. In parallel, farming led to malnutrition and micronutrient-deficiency diseases while pastoralism led to the emergence of tuberculosis, and influenza was transmitted from domestic animals.

Civilization did bring benefits too - it enabled specialization and allowed science to emerge. Pharmacology, acupuncture, and surgery evolved, and delicate procedures like cataract surgery were done by 1750BC. Rome, in 300BC, had medical schools, hospitals, and pharmacies.

But innovation was slow; for example De Materia Medica, describing 600 cures, was the #1 pharmacology book for 1500 years (60 AD - 1560 AD).

Things changed around 2150 when scientific innovation and a changing culture led to rapid discoveries. Cadaver dissection unlocked human anatomy, and the invention of microscopes in 1600 led to the discovery of cells (1665), bacteria and protists (1677) although people largely didn't know what they did.

To keep up, the term biology was coined in 1800 to describe the scientific study of living organisms. It replaced the term "natural philosophy", which focused on describing and classifying life rather than understanding its mechanisms.

Still, uptake of new concepts was slow ². It was only in 1839 that cells were acknowledged to be the basic particles of life and in 1900 that germ theory (tracing disease to microorganisms) was widely accepted. Similarly, while vaccines were used since Jenner's smallpox vaccine of 1796, viruses were only proven to exist in ³. And vitamins, essential to life, were only discovered in the 1910 – 1930 s.

²For example, in 1847 Ignaz Semmelweis dramatically reduced maternal death rates by requiring doctors to clean their hands before attending childbirth; but he was attacked by the establishment, which had no idea why his approach worked.

³Martinus Beijerinck used filtering experiments to show that tobacco mosaic disease is caused by something smaller than a bacterium, which he named a "virus".

In the early 20th century progress accelerated dramatically:

A) We developed an understanding of what life is made of, how it works and how to modify it.

Things we take for granted today are insane breakthroughs.

For the first time, we could understand and modify our own building blocks based on first principles rather than trial and error.

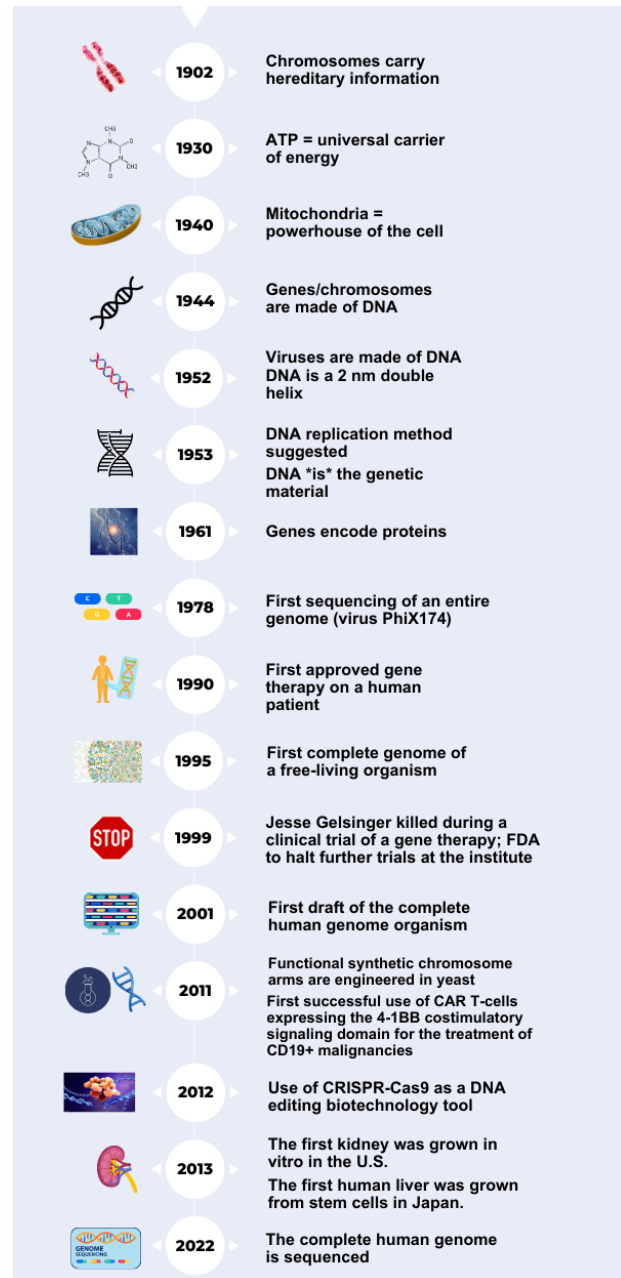
Within living memory, we had no idea what DNA did, we couldn't imagine successfully cloning a mammal and it having a normal lifespan despite not coming from a sperm+egg (just an empty egg and the nucleus of an adult cell).

Today, we can grow healthy organ tissue in vats from one's own cells, we design new life, and accurately predict protein folding with computers. We sequenced the entire human genome, meaning we have a list of all the proteins that our cells know how to make.

Still, the scale of unknown cellular interaction and complexity is vast.

Each human has around 30 trillion cells belonging to ~ 400 types and interacting in diverse, dynamic ways. Also, excluding our 90 B neurons, most of our cells naturally die and get replaced in a lifetime.

Much work is yet to be done.



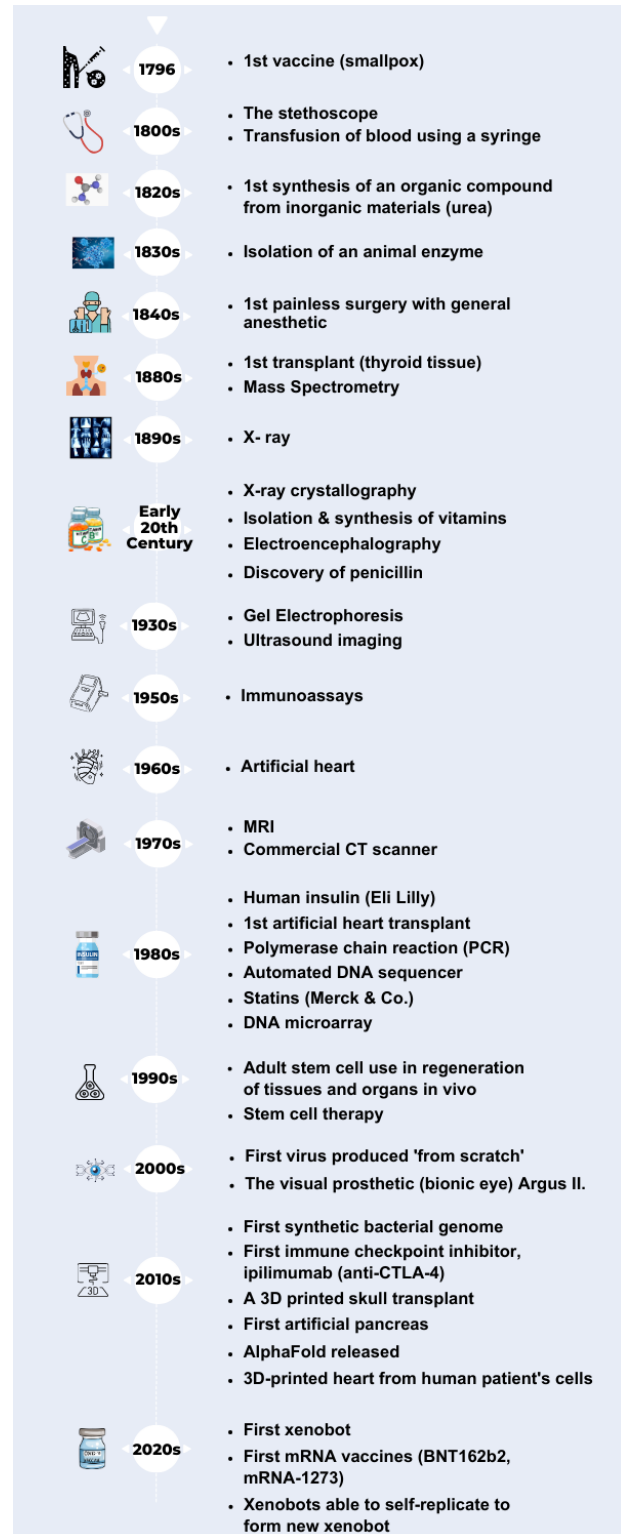
B) We developed tools to examine what we are made of, monitor our state, and devised methods to intervene.

Tools and interventions overflowed since 1900, creating a huge healthcare sector (\$4.5T/year in the USA) and a global pharma industry generating over \$1 trillion per year.

With tools and interventions such as vaccines, antibiotics, and blockbuster drugs, we have achieved major health milestones.

Smallpox and Polio are all but eradicated, and many types of trauma are no longer deadly. Early detection has improved cancer survival rates, and transplantation medicine is a real solution for those with organ failure.

As a result, in the past century we substantially extended life expectancy and even expanded the average lifespan by 10 – 15 years.



In aging research, we have been directly manipulating lifespan since caloric restriction experiments in the 1930s which extended mouse lifespans by 30% – 40%, and we showed even greater lifespan extension in *Drosophila* in the 1980s via selective reproduction.

However, there was no evidence that life-science-based intervention could extend lifespan. This changed dramatically in 1993, when Cynthia Kenyon's lab successfully doubled the lifespan of *C. elegans* (a roundworm) through genetic manipulation. Since then, genetic interventions have increased the lifespan of *C. elegans* by as much as 10x.

These and other early discoveries in aging biology (telomerase, sirtuins, embryonic stem cells) spawned a small but energetic longevity biotech field. In 1998 we learned that hydra jellyfish are effectively immortal, and in 2009, that naked mole rats do not show higher mortality with age.

In 2006 Shinya Yamanaka of Kyoto University found a way to induce pluripotency⁴ by exposing cells to certain proteins and driving epigenetic reprogramming, later winning him the Nobel prize. Follow-on research revealed a comprehensive reversal of biological age with these 'Yamanaka factors', spawning a host of companies, which together have attracted over \$4B in capital in the last 5 years. This includes Altos Labs, which raised \$3B, the largest seed round in history, allegedly from billionaires such as Yuri Milner and Jeff Bezos, as well as the Saudi sovereign wealth fund. Billionaire Brian Armstrong made an "initial" \$105M investment in New Limit, a company in the epigenetic reprogramming space which he is a co-founder of, and Sam Altman made a comparable \$180M investment in Retro Biosciences. While epigenetic reprogramming produces amazing results in vitro, it has not yet shown substantial effect sizes in vivo and there are concerns about the method's tumorigenicity.

In parallel, in 2013, Art Levinson (founder, Genentech) teamed up with Cynthia Kenyon to found the California Life Company (Calico) with \$500M of funding from Google to work on aging.

Since then, Calico received another \$1.5 B from Pharma giant Abbvie, but has so far brought no products to market and published relatively little.

With that said, the DrugAge database notes that 6/236 pharmacological interventions tested in mice extend maximum lifespans by at least 25% and some (Aspirin and N-acetyl-L-cysteine), up to 40%. While it's true that only 5% of things that work in mice end up working in humans, these milestones were unthinkable only a few decades back.

How biomedical innovation has happened so far

Until 1500, scientific innovation mostly came from practitioners and citizen scientists while universities focused on theology and philosophy. Since then, 50% – 90% of scientific innovation has somehow been tied to universities, and more recently, to public bodies.

For health research, a major shift occurred in the late 19th century, when major nations created institutes for biomedical and public health research. In the US, the main organization is the

⁴Reverting cells to a youthful undifferentiated state

National Institutes of Health (NIH), which today spends more than $2x$ the rest of the world combined, making it the main funder of global biomedical research.

The NIH was founded in 1887 to focus on infectious diseases ⁵, expanded to include public health in 1930, and added basic biomedical research in 1948. Until 1950, all research was done in-house, but by 2022, $\sim 80\%$ of NIH funds went to external institutions.

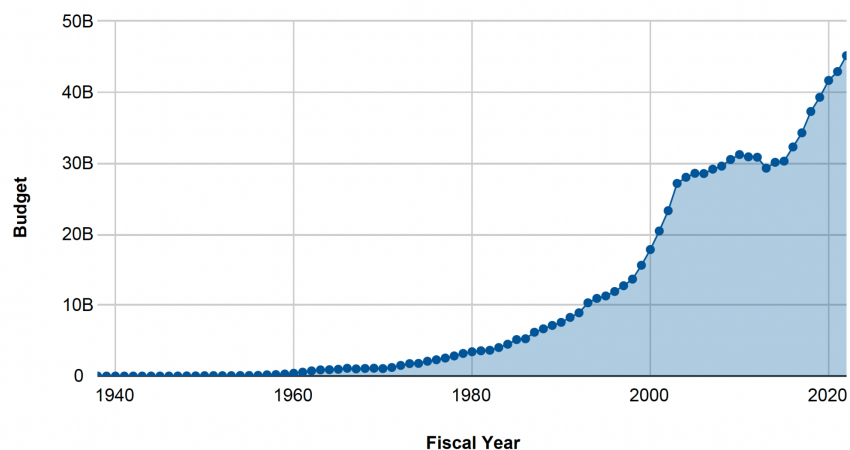
The NIH has made huge contributions to biology and health science, funding groundbreaking discoveries and technologies as well as better treatments and methods for disease prevention.

It has also created moonshots, with varying results: The War on Cancer (est. 1971) has been led by the National Cancer Institute, receiving \$7.5B (0.03% of US GDP) in 2022 alone and close to \$200⁶ overall, with limited success. On the other hand, the Human Genome Project, considered potentially impossible when started in 1990, successfully mapped most of the human genome by 2003 for a total cost of \$2.7 B.

especially in that it prioritizes funding based on congressional mandates, and has certain allocation biases given its committee composition. For example, the National Institute of Aging, which received \$3.8 B in 2022, has a mandate to use the majority of its budget for Alzheimer's research such that many call it the "National Institute of Alzheimer's".

Also, since most life science research grants in the United States come from the NIH, it's almost as if the researchers are working for one boss. This can be a suboptimal way to promote diverse ways of thinking and innovation⁷.

NIH Budget Since 1938



⁵Mainly in the context of immigration and trade.

⁶In 2022 dollars.

⁷While the agency has made significant contributions to public health and biomedical research, it faces critiques related to budget allocation, bureaucracy, transparency, and political influence.

Understanding regulations and regulatory bodies

When biomedical innovation started regulation was scarce, allowing for profit and abuse. In fact, many of today's top pharmas started out as chemical companies, which pivoted to the lucrative sick-care category (Pfizer: citric acid+borax, Merck: lab reagents, Roch: dyes, Novartis: dyes).

With time, concerns grew about negative outcomes caused by unethical players or insufficient standards; for example, the Elixir Sulfanilamide tragedy, where 100 died from a toxic ingredient.

By ~ 1900, these issues drove governments to form regulatory bodies for food, drugs, medical devices and cosmetics. In the US, this is the Food and Drug Administration (FDA, est. 1901⁸).

The FDA set guidelines for ingredient labeling (1938), safe manufacturing practices (1953), and informed consent for clinical trials and drug advertising (1962). Also, it developed a framework for running clinical trials and standards for how to deliver health interventions to consumers. These efforts increased public health and protected consumers.

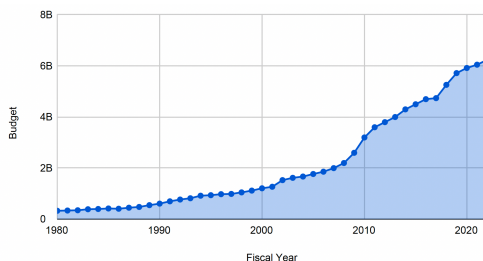
With some exceptions, like statins, the FDA struggles to approve pre-emptive interventions, and safety concerns make it unlikely that interventions that harm 1/100 but help 99 will be approved.

Also, many criticize the FDA of being influenced by financial ties⁹ to industries it regulates and for an overly expensive and onerous trial process which makes it hard and slow to bring innovations to consumers.

In scope, the only comparable regulatory organization to the FDA is the EU's European Medicines Agency (EMA) whose budget is half the size of the FDA. While every country has their own regulatory process, most industrialized economies look to the FDA and EMA for inspiration, creating a risk of global groupthink about standards and practices.

In recent years, to build lifespan extension companies without lengthy and expensive FDA trials, companies like Loyal, Rejuvenate Bio and others are trying to increase the lifespans of large dogs. In 2023, Loyal was approved to run a trial for its drug with lifespan as an endpoint.

FDA Budget Since 1980



⁸Initially named "The Bureau of Chemistry".

⁹In 1992, to speed drug approval, the FDA started collecting fees from drugmakers to hire extra staff.

Conclusion

So far, humanity's attitude to health has been highly reactive and short-termist. We do well with acute trauma and infectious disease but poorly vs. chronic conditions and lifespan extension.

And while pharma and biotech have produced valuable breakthroughs, they are unlikely to make major lifespan breakthroughs because their principal concerns are feasibility and profitability. Also, diseases of affluence created new problems like obesity which pharma is happy to focus on given the profit opportunity.

Because medicine so far has been based on the idea that aging and death are inevitable, it focuses on sick-care and spends trillions annually with limited results. Without a revolution, this system can't unlock major gains in maximum lifespan and healthspan.

There is hope though. The last century set the foundation for moonshot R&D efforts and established thoughtful organizations that care about public welfare. If we combine these advances with new approaches we stand to achieve major lifespan gains.

Now is the time

Three factors make the timing ideal for a longevity revolution.

1. The science is clearer than ever
2. Ripening public sentiment
3. The internet and remote work

The science is clearer than ever

Since 2000 , there has been an explosion of biomedical innovation in everything from simulation, robotics and adjacent enabling technologies. In that context, longevity science has made real strides. From virtually zero understanding of aging, we can now characterize key aspects of it at the molecular and cellular level.

We have identified multiple distinct longevity genes in humans, and applied diverse genetic and pharmacological interventions in mice which materially extended maximum lifespans. Thanks to progress in molecular biology, we have some mechanistic understanding as to how and why these interventions work. We also now know of multiple species where individual lifespans vary by as much as 20x despite identical genetics.

An explosion of data and processing capacity allows us to harvest vast amounts of data and extract key insights (metabolomics, proteomics, genomics), while bio-simulations like alphafold promise to dramatically accelerate drug discovery and novel interventions.

Tooling is reaching key inflection points as well, with genetic sequencing costs dropping fast, alongside low cost genetic editing. These innovations have allowed the first gene therapies to hit the clinic, and deliver cures for previously incurable conditions.

Further, omni-present wearables allow functional data collection at massive scales.

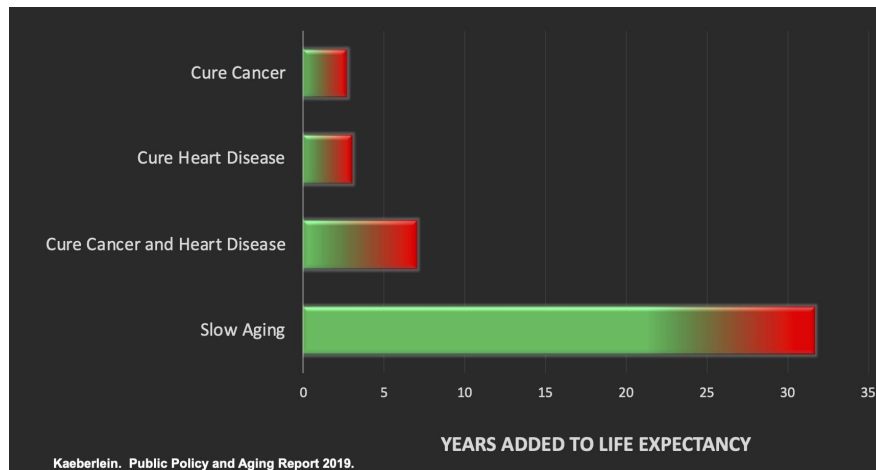
Epigenetic reprogramming has received billions of funding and the largest seed round in history. Using this technology, we can already restore sight in mice, and create rejuvenated autologous iPSCs, re-differentiate them and proliferate them into tissues. This reduces organ replacement with one's own rejuvenated cells to an engineering challenge.

Ripening public sentiment

In tandem, there is growing demand for longevity.

While most politicians are not yet ethically motivated to extend maximum lifespans, they see a failing, expensive sick-care system where a 10 year disparity between lifespan and healthspan can

devastate the economy¹⁰. As a result, some have opened the door to geroscience; the idea that by focusing on aging itself we can impact all diseases of aging and extend healthspan.



Also, it's evident that current sick-care has hit a wall; untold billions spent to solve the diseases of aging with very limited results. Today, most 40 year olds can expect another 45 years of life, ~ 20 of which will be ridden with diseases of aging. In sum, the quality of life and cost of (sick)care don't add up.

Underserved, consumers have taken things into their own hands, driving a boom in preventive and proactive health. This trend has made thought leaders like Peter Attia, Andrew Huberman, and David Sinclair stars while social media and wearables amplify a desire for permanent youth.

The intersection of science and demand is clearer than ever.

The internet and remote work

In the past few years, the combination of internet and COVID-driven remote work has allowed people to seamlessly move, and to effectively coordinating, digitally and physically.

COVID also exposed key realities; government failures undermined public faith and led people to question basic assumptions, while Operation Warp Speed showed we could safely develop and deploy a vaccine using novel technology in 1 year instead of 10 . It also showcased the bankruptcy of a system that failed to save many because it wouldn't run informed consent trials that could have made vaccines available earlier.

At the same time, cryptocurrencies allow large groups of people to quickly coordinate financial power, not to speak of \$1T of wealth transferred to crypto and disproportionately controlled by individuals who are more open to a longevity message. DAOs are another good example of groups coordinating and deploying capital outside traditional structures.

The above factors are fertile ground for large groups of people to move at the same time, making it

¹⁰Social Security in the United States is on track to default by 2037.

much easier to amplify a local constituency of longevity maximalists. It's no longer a pipe dream to win an election in a small US State or Swiss Canton.

Additionally, remote work has turbocharged experiments in charter cities and special economic zones. These initiatives help governments by serving as a magnet for talent, capital, and innovation, and in return receive jurisdictional autonomy in everything from biomedical regulation, clinical trials, and financial regulation.

For example, Prospera, a private city and special economic zone in Honduras, is developing a pro-longevity regulatory system, and already has services like Minicircle offering gene therapies that are not allowed in other jurisdictions.

The internet has also democratized access to the longevity message. Viral media against aging and death has proliferated, and venues have popped up for similar minded people to energize one another. For example, the Longevity subreddit grew from 16.4K to 148 K from 2018-2023.

Bonus: An Ethical and Philosophical Revolution

We are on the cusp of an ethical and philosophical revolution that will enshrine indefinite lifespan as an axiomatic human right. Such ethical revolutions often lead to political revolutions.

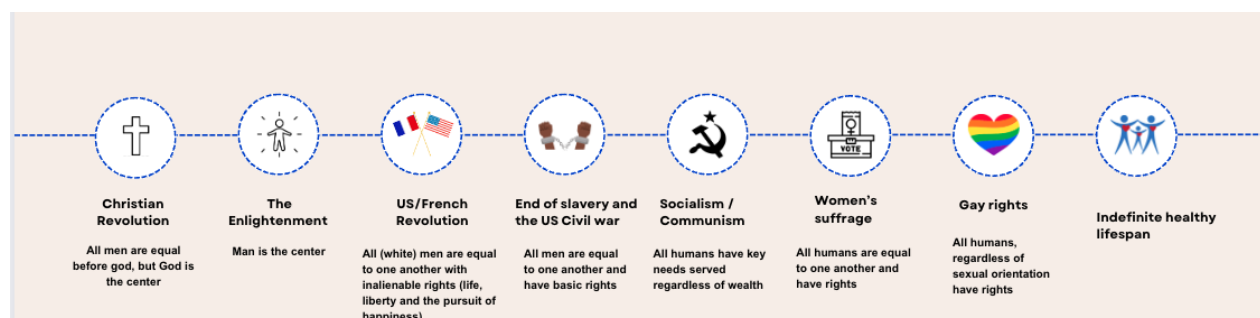
After the enlightenment and fall of communism, the dominant but unspoken world philosophy has been existential hedonism; the idea that the good life is finding what you love, selfactualizing through that, and rinsing and repeating till you die.

This philosophy is being questioned because it enshrines pleasure and suggests we should live and die as all humans did before us. It's operating inside the box without probing the boundaries of the box itself. Also, with growing irreligiosity, aging and death are increasingly perceived as technical problems and not a godly destiny.

Regardless of whether revolutionary philosophies trigger new socio-economic realities or merely reflect them, philosophy tends to end up matching social and technological realities.

In the context of substantial lifespan extension, a new philosophy is needed.

An arc of ethical revolutions



Strategy

Rather than burn trillions on sick-care, we should stop our greatest killer, aging.

Wouldn't you go to total war if somebody was coming to kill you and everybody you know?

At its peak, WWII took 40% of US GDP and involved 25% of the population. The problem is, the war on aging could take many years, and with a WWII kind of effort, may not be sustainable.

So instead, Vitalism aims for Maximum Viable Resourcing (MVR), which is basically the most we can do without burning out or reinventing how the world works.

The following analysis points to a starting MVR of $\sim 1\%$ of global GDP and ~ 600 K people working on the root causes of aging, a $1800x$ -fold increase in investment from 2022¹¹.

The only plausible way to reach this level of resourcing is through State-level influence; in other words creating a Longevity State or States.

In the following sections we'll discuss:

1. How we came up with 1% of GDP
2. What we could do with 1% of GDP
3. Why State-level influence is the best way to get 1% of GDP
4. Strategies to build Longevity States

How we calculate the MVR

Calculation #1: Learning from past monumental projects

Innovations once thought impossible include human flight, space exploration, deep-sea exploration, eradicating diseases and more.

Until WWII, innovation received comparably small direct investment, and was often driven by universities and self-financed citizen scientists. Since then however, governments successfully completed diverse monumental innovation projects.

The Apollo program is one such project. With its $\sim \$25$ B ($\sim \$800$ B today¹² total budget, ~ 400 K participants, materials, and regulatory needs, only a government could do it. At its peak in 1966,

¹¹In the past decade, we only spent $\sim \$600$ M/year (0.002% of US GDP) to expose the root causes of aging; similar to investment in AgTech or LegalTech; certainly not a matter of life and death.

¹²When comparing % GDP allocation; $\$270$ B, when merely adjusting for inflation.

the annual Apollo budget was $\sim 5.9B$, representing 0.4% of US GDP. Comparably, the Manhattan Project cost around 0.4% of US GDP in its peak year.

Estimated MVR: 0.4% of global GDP/year.

Calculation #2 A top down analysis of resources we can divert to fight aging

To evaluate what we could divert to fight aging, it's useful to look at the US sick care system which in 2021 consumed 17% of GDP, or $\$4.3T$. The US is a huge anomaly, spending 5% more in GDP than the next closest country (Germany, at $\sim 12\%$) and getting worse health outcomes than countries like Israel, which spends only $\sim 7.5\%$ on healthcare.

Of this spend, around $\$1.7 T$ is spent directly by the US government (i.e. tax money). With a government reorg and better regulations, the US should be able to divert 20% of government spend ($\$340B/year$) to fight aging and still improve health outcomes. And this assumes the unlikely outcome of no positive externalities in private markets, and zero value from a health dividend from dedicating $\$340B/year$ to aging research (1.38% of US GDP). What's more likely is that within a decade we will already extend healthspan, and research shows each year of extension would add $\$29.7 T$ of value to the US economy when assessing the additional value created by all people alive today over their remaining years.

Other countries are more efficient but can still do at least 10% better, especially with the geroscience approach, which seeks to proactively delay the impacts of aging and converges with basic scientific innovation in the fight against aging. Taking only the 19 countries who have over 30K GDP per capita ($\$30T$ of global GDP combined, with 9.4% GDP health spend) we should aim for $\sim 0.94\%$ of GDP to go to the war on aging. Important to note that most of these countries have socialized medicine and can therefore impact overall costs more directly than the US. Combined with the US, we should conservatively aim for $\sim 1\%$ of global GDP.

Estimated MVR: 1% of global GDP/year.

What we would do with 1% of Global GDP / Year

Our Target: A Turbocharged Innovation Pipeline

Brains -> Ideas -> Idea refinement -> Translation -> Interventions

Let's start by understanding how innovation happens. To get more ideas, we either need more brains or existing brains working in new ways. There is a huge amount of opportunity to increase both. Today, hardly any kids are educated to think aging is a problem, few students study it and fewer labs focus on it. The labs that exist have tiny funding, limiting research and grad student slots, while the journal-publishing system for the exchange and validation of knowledge has serious weaknesses.

Additionally, much research is disallowed by regulation, and even the most generous assessment puts the entire longevity world as employing 5,000 people across ~ 150 companies and 400 labs (vs.

millions in startups and tens of millions in tech). It would make sense to fund a one to two orders of magnitude increase in all of the above. Plus, if a discovery makes it out of the lab, it costs \$1B on average¹³ to reach FDA approval. In that context, the entire longevity world today has around 30 interventions (almost all incrementalist) at some stage of clinical trials vs. 100 for even one big pharma.

Overall, the US had 7K active phase 1 trials in 2023 of which 13.8%(~ 1,000) will likely be approved. This suggests that at current costs we could spend \$1 T/year to fund 1,000 treatments, allocating the funds via diverse incentives to big and small players.

Additionally, much academic research is poorly incentivized, driving a focus on publishing vs. achieving meaningful breakthroughs. To avoid this we could deploy massive amounts in grants that have different Key Performance Indicators, as well as fund new institutes where interdisciplinary work can be done with greater freedom and speed - many mini DARPA's.

Money can help elsewhere too, like with attracting talent, which today is making millions in software. Merely having enough money for a longevity startup doesn't mean you can attract the best talent. Avoiding longevity biotech is rational from an employee perspective because biotech has lower compensation, lower transferability of skills, lower exit potential, and gatekeepers like the FDA that can kill your company.

X-Prize style prizes sponsored by the government are known to motivate up to 35x the investment as the value of the prize; if we could define 50 sub-goals in longevity, this would be a wonderful way to scale up investment with high leverage.

It's important we deploy funds even if some enabling technologies turn out to be missing. In the worst case, our investments may expose such needs and help guide adjacent research. We should avoid compartmentalization and keep a flexible mindset and capital allocation system.

Why State-level influence is the best way to get 1% of GDP

Going for State-level influence was not a foregone conclusion, but the result of a systematic analysis of ways to dramatically accelerate longevity science, including via existing approaches. Let's start by reviewing existing approaches.

1. Deliver incrementalist interventions through private firms, hoping something works well enough and fast enough to change public opinion and skyrocket interest and funding
 - (a) Many longevity companies belong here. The idea is that if a successful intervention hits the market, resources will rush in. It's hard to believe this storyline given existing lifestyle interventions can add a decade to healthy life and few pursue them or agitate for respective investment.
 - (b) Venture capital isn't motivated by longevity but rather by 10-year profit cycles, biasing any company to end up catering to the sick care system.

¹³Pharma asserts that getting an intervention to market costs \$1B.

- (c) Hoping incrementalism will lead to inflection is like waiting for evidence that we can stop climate change to start trying.
2. Change regulations and funding through traditional lobbying
 - (a) Traditional longevity lobbying is tiny. For context, longevity lobbying annually spends around \$2M globally while pharma spends at least 300M.
 - (b) There is a vicious cycle where even noble motivations lead to sick-care capture. Legislators are influenced by disease lobbies who want cures for their loved ones, they then mandate investments in research on disease, which leads to translation into an FDA and pharma system that is built to seek blockbuster drugs for disease indications.
 - (c) Even if lobbying works amazingly well and convinces the US government to declare a War on Aging at the scope of the War on Cancer, we can expect no more than \$6B in annual research funding (the National Cancer Institute's budget), a best-case scenario which is very far from what we need.
 3. Petition billionaires to deploy capital (looking at you Calico and Altos)
 - (a) Of 2700 billionaires worth \$13.1 T, total investment in longevity has been ~ 12 B. Most has gone to for-profit ventures that end up aiming for incremental innovation given regulatory and big pharma influence. Capitalist incentives won't work here because we need too much new basic science.
 - (b) The little that has gone to non-profits (SENS, Methuselah) has had limited impact
 - (c) Most UHNWI are not invested in longevity; it's unclear if they can be convinced.
 - (d) Billionaires don't have enough capital to fund the scope of work.
 4. Work on moonshot science despite meager resources
 - (a) Only a handful of (mostly underfunded) companies are working on what may be fundamental breakthroughs but these are way too few shots on goal.
 5. Focus on AI
 - (a) Investment in AI should be a core part of any strategy but it can't be an only bet.
 - (b) AI already attracts massive resources given its immediate for-profit value.
 - (c) Even if AI enables major breakthroughs we may still need biologists and other experts to apply the breakthroughs to longevity.

While each strategy above is laudable, none are likely to:

1. Deploy anywhere close to sufficient amounts of capital
2. Attract vast numbers of people to work on the problem
3. Substantially change the regulatory context

Vitalism intends to support all effective efforts to end aging and make death a choice, including all of the above. With that said, we believe State-level influence is the only plausible way to succeed and therefore must be a major strategic focus.

Given its unique potential, Vitalism will support relevant work in AI. Also, as part of Longevity State-building, a new institute could be located in a candidate longevity State and bring together AI experts, roboticists and biologists to close the gaps between data, AI and lab automation enabling the industrialization of experiments combined with the iteration speed and scope of AI. A key opportunity in any longevity state strategy is creating a high density of skilled talent in relevant fields. It's easy to imagine how a major city in such a candidate State could quickly become a global center of innovation, integrating aging-biology, robotics/automation, and AI.

State leverage is uniquely appropriate to make progress against aging and death

To turbocharge the innovation funnel, we will need people, capital and improved regulations. Only government level intervention can achieve the needed scope of influence.

Capital

One percent of GDP is an amount of capital that only public sources can rally. While the private sector shines in efficiency it doesn't scale. For example, the largest private projects in history cost a few billion USD while government moonshots have been 100x larger. Also, governments control unique resources such as radio spectrum, land, and more. Finally, private capital is driven by profit and has trouble funding basic research and other longevity priorities.

People

To a certain degree, both quality and quantity of people is necessary to accelerate innovation. Since people need to get paid, capital is a major lever to engage talent. But States can do much more than attract talent with capital. They can set a K-12 educational curriculum and sow seeds of interest that will flower into motivation to work in a given field. Also, the State's stamp of approval can normalize a field, bringing a strong halo of validation to encourage new entrants.

Laws and Regulations

States are the main entities that control the process of evaluating and delivering health interventions. Without longevity-friendly regulations, any innovation in the fight against aging will stay stillborn or take a very long time to reach customers, greatly slowing iteration speed.

Also, when considering potential research windfalls such as massive data collection and consolidation, as well as standards-setting, only governments can set the rules.

Finally, only independent jurisdictions control their own healthcare systems and are thus able to carry out major reforms. Such reforms are the key to bring longevity interventions to all, and to flip the paradigm from sick care to healthcare.

How to Build Longevity States

Historically, major resource reallocations follow a pattern. They start with a hardcore group, gain a beachhead & grow at key inflection points. This is Vitalism's playbook for Longevity states.



	Founding to Inflection	Inflection	Members in year 1	Members at Inflection
Climate Change	37 years (1985-2022)	\$632B/year in 2020 alone	N/A	100s of Millions
Zionism	54 years (1896-1948)	Founding of Israel	~10,000	600K
Mormonism	66 years (1830-1896)	Utah is a Mormon State (pop. 276K, 75%+ Mormon)	~680	250K
Communism	69 years (1848-1917)	Est. of Soviet Union	<100	50K-100K
Christianity	313 years (0-313)	Constantine Converts to Christianity	<50	5M

Our hardcore group will be made up of members of the existing longevity community and new participants who are either on the fence or not yet aware of our message.

As of April, 2023 we estimate the global self-identifying longevity community to be a few million strong, of whom ~ 500 K – 1M care about lifespan and ~ 100 K – 200 K are lifespan maximalists.

1. **Longevity SubReddit**: 148k Members; **David Sinclair**: sold millions of copies of "Lifespan", 368K Twitter followers; **Peter Attia**: 200K downloads/week; Andrew Huberman: 958K Twitter followers; **Brad Stanfield**: 162K Youtube subscribers

An ideal beachhead will combine these key factors:

1. Demographics that allow major Vitalist influence in less than 5 years
2. Control of taxation

3. Control of K – 12 education
4. Some autonomy on matters of health and biomedical innovation
5. Ability to serve as a fertile ground for expansion
6. Accessibility to Vitalists

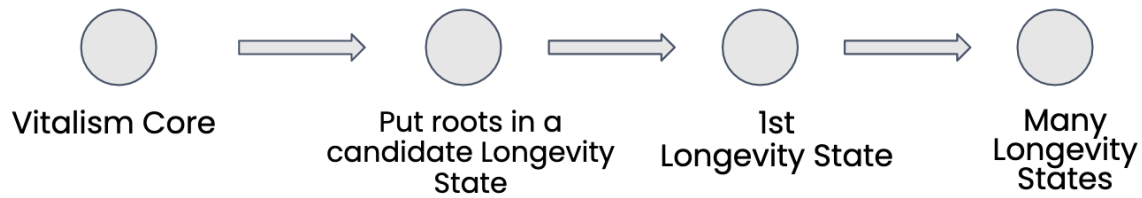
Reviewing potential beachheads

	Small US State	Swiss Canton	Small Sovereign Country	Convince a “Strong” Leader	Charter City or SEZ	Network State
Demographics					N/A	N/A
Taxation						
K-12						
Regulatory Flexibility						
Good Basis for Expansion						
Accessible to any Vitalist						
Stability / Predictability						
Feasibility						

Notes:

1. Small US States have disproportionate leverage at the national stage via 2 senators.
2. Small sovereign states that may be a fit are often hard to get to, making it unlikely people will move there. They also often lack relevant infrastructure and skilled labor.
3. SEZs and charter cities also often lack relevant infrastructure and skilled labor.

Immediate Next Steps: Forming the 1st Longevity States and Longevity Network State



Today, the best value vs. effort may be to focus on a small US State, a Swiss canton and a third jurisdiction that has regulatory and immigration flexibility, all to be developed in tandem with the online Longevity community, together forming the global Longevity Network State.

Whichever US state becomes the first Longevity State can enjoy a massive longevity dividend and within a few short years become the global longevity biotech hub, attracting billions of dollars and some of the best and brightest people in the world. It would be to longevity what Switzerland was to banking for a generation. If one wants to maximize their healthspan and lifespan, find the best longevity doctors, and more, one will go to the Longevity State.

As far as US States go, Rhode Island is a good candidate, with 340 K voters in the 2022 gubernatorial election, 495K for the US Senate, and 35 K voters in Providence Mayoral elections. Vitalism will present an exciting vision to State residents; one of economic growth, health improvement and innovation.

In the case of Rhode Island, there is the added advantage of proximity to Boston (33-40min by train), already a global biotech and academic powerhouse. Further, the US is the largest global funder of biomedical research via the NIH and NSF. A US State and its two senators would go a long way to influence the allocation of these resources.

Even given the housing stock necessary to allow major population movement alongside local support, it's feasible for Vitalist political representation to have a decisive impact in 5 years.

As our political representation grows, we will impact budgets, education, regulations, and health policies in ways that are fundamentally different from the status quo and align with our mission.

Examples include:

1. Offering every resident stem-cell banking, consolidated EMR, cryopreservation
2. Community efforts and state sponsored volunteerism to support the elderly
3. Offering subsidies and/or tax breaks for longevity medicines and services
4. Passing laws to tax food items that harm health while offering subsidies for healthful foods whose companies make an effort to deliver price accessibility.

5. Tax breaks and state grants for firms in longevity-biotech, health and wellness sectors.
6. Scholarships for state schools to promote relevant studies and/or loans with full forgiveness if the graduate stays in state and joins a qualifying company.
7. Incentives for healthcare providers to offer health care and not sick care
8. Intentional blue zone policies for new neighborhood construction
9. Support for midwifery and pre and post natal care based on best practices

Our goal is to elevate whatever community we are a part of, driving jobs, wellbeing, and general prosperity. Therefore, engaging and including residents and local leadership is critical; by understanding the local political process and creating specific next steps to improve the general community we can offer win-win solutions. This work should provide answers to questions about zoning, construction of new neighborhoods, local elections, and local priorities.

Some members will join us from the local community and others will move independently from elsewhere. For new residents, we expect many to visit first and only move once they establish local ties or connected with a community that intends to move together¹⁴. To help such groups form, Vitalism will promote pop-up cities and events for longevity-oriented people.

Building a Longevity Network State

The network state (coined by Balaji Srinivasan) is a concept that aligns with other state building efforts; it speaks of establishing an online committed community of action among people who share a distinct worldview, and then extending the commitment and interactions among that community, such that ultimately the community is so strong and independent that it can manifest forms of traditional state functions and powers.

Since we plan to establish many Longevity States, we see the Longevity Network State as a digital foundation for a Longevity Nation, starting with a network union of longevity supporters.

1. A good first step can be a site where daily actions are listed for our community. Completing actions can be rewarded with "karma" points or another virtual good, encouraging members to act on tasks that promote our common goals.
2. Additionally, Vitalism will host events for community connection and support.

Financing the Strategy

Vitalism will establish various for-profit initiatives, especially in the longevity, health and wellness sectors, which are undergoing major disruption and growth. We need to attract people by offering

¹⁴This is similar to the Zionist strategy, composed of Gar'ins, which were groups who moved together with the goal of creating a new kibbutz or town.

the here and now - wellness, longevity medicine etc.

Examples of this include: medical tourism for longevity, next-gen concierge medicine, cryopreservation services, longevity lifestyle products and health/life insurance products. In

addition, Vitalism will support a real estate fund¹⁵ to facilitate community development and expansion in our target jurisdictions.

Vitalism aims to allow any person to financially participate in Longevity State development whenever possible. Some ways to participate include:

1. Allocating capital to unique opportunities in Longevity States
 - (a) For example, a group of Vitalists who move to a location will need housing, products and services. The right to bid for these opportunities may be limited to members.
2. Receiving rewards for carrying out actions that promote the Vitalism mission
3. Investing in for-profit subsidiaries such as a fund or venture builder

How Vitalism will grow

Alongside State-building, the Vitalism organization will create content, media, branding and marketing to amplify and accelerate healthy lifespan extension across the entire ecosystem. Some of this work can be done in-house, and some in collaboration with community members and organizations such as VitaDAO, Jellyfish DAO and others.

As longevity states form, members who join will enjoy substantial health and community benefits, leading to word of mouth marketing.

In the meanwhile, for-profit initiatives and partnerships will build up their own communities and operate in a lifespan-positive context. As often as makes sense, these initiatives may serve as an on-ramp into the greater Vitalist community and philosophy.

¹⁵Inspirations include the Jewish National Fund, which helped establish new communities in the Israeli proto-state.

The Vitalism Organization

Our Mission: Allow every human to live in optimal health indefinitely

The Vitalism organization will serve the mission of ending aging and making death optional. It needs to provide a solid foundation for practical execution strategies over a long time horizon. To achieve this, Vitalism will pursue a strategy combining capital, community-building and policy.



Legal Structure

Some centralization is critical to the efficacy and stability of the early organization. While we are open to community governance structures, we intend to experiment with such ideas carefully, especially where they may conflict with moving as fast as possible.

Governance

Vitalism will be governed by a board of directors, one of whom will be the chairperson. Directors will be elected for a tenure of 6 years. The founding board members will serve for a longer duration to maintain stability and continuity as the organization is being built. A CEO will be chosen by the board to manage the organization. Also, the board will be expanded once Vitalism hits key milestones.

An outline of functional roles in the Vitalism organization

1. State building
 - (a) State building operations and planning
 - (b) State building analysis and research
 - (c) Partnerships
2. Science and Technology
 - (a) Longevity science
 - (b) Enabling technologies including AI
3. Psychology Research

- (a) Instead of acting about aging and death, humans avoid facing reality in different ways and even billionaires who lack nothing but time, behave in line. Outside of small attempts like taking Terror Management Theory, few resources have been dedicated to the question of why we don't fight harder against aging and death. Vitalism will invest heavily in understanding current psychology and how it may be impacted, corresponding to content, media and marketing efforts
- 4. Political engagement and traditional lobbying
 - (a) Connecting with key decision makers to align and support the cause
- 5. Content, media, marketing
 - (a) Create convincing, viral content for the ecosystem
 - (b) Engage with the media to deliver our message
 - i. A response and comment army
 - (c) Carry out segmentation and marketing research to better understand and then explain the Vitalism mission and vision to different constituencies
- 6. Economic participation by members
- 7. General logistics and operations
 - (a) Planning and organizing events / conferences
- 8. Establishing and engaging with for-profit subsidiaries a venture fund, real estate fund, venture builder and more.

Let go of your preconceptions and consider how weird reality is.

We are on a ball of rock in a void, spinning around a fusion furnace.

We don't know why, what the limits are, and what we can do if we only dare.

