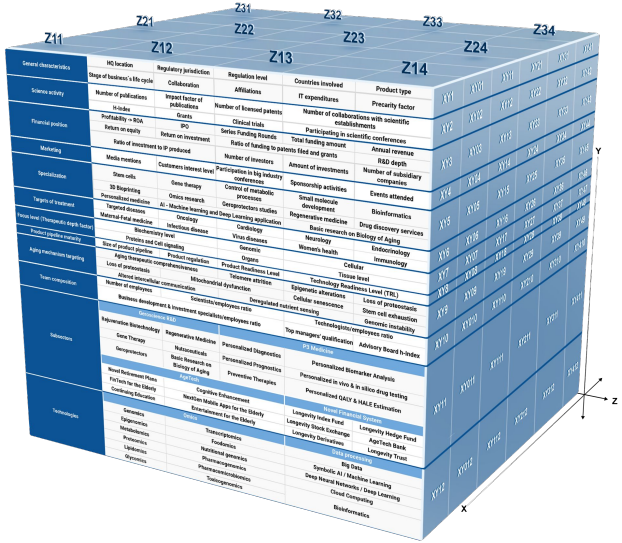
LONGEVITY INDUSTRY 1.0

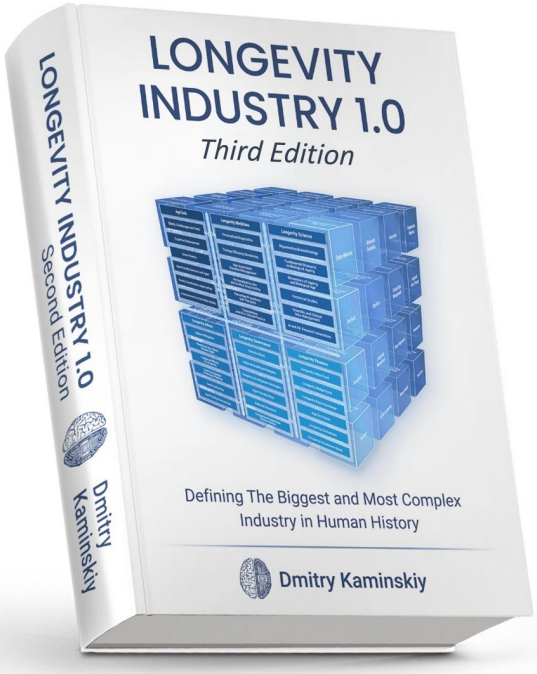


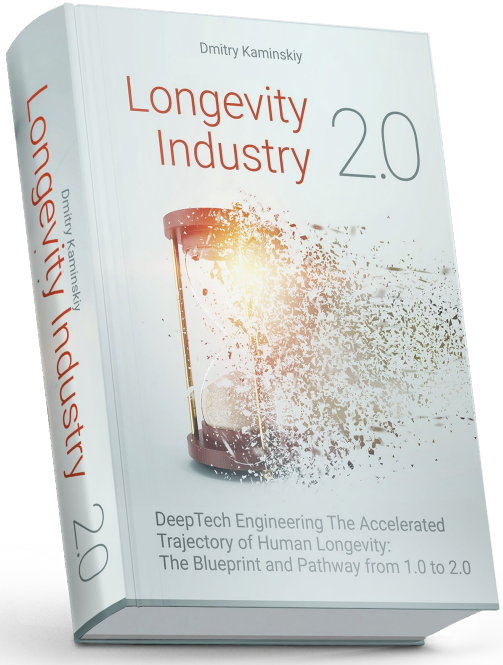
BOOK TEASER

Defining the Biggest and Most Complex Industry in Human History

DMITRY KAMINSKIY

Deep Knowledge Group





2010-2023: Evolution of the Longevity Industry from Zero to 1.0

- *The Industrialization of Longevity*
- *The Current State of Longevity Science, Business, Finance, and Practical Applications*
- *Longevity Becomes National Priority Item for the Strategic Agenda of Progressive Governments*
- *Transforming the Challenge and Deficit of Aging into the Opportunity and Asset of Longevity*
- *Defining and De-Risking: Hype vs. Reality*

2024-2025: DeepTech Engineering The Accelerated Trajectory of Human Longevity — The Blueprint and Pathway from 1.0 to 2.0

- *Global Industrialization of Longevity to Scale*
- *The Evolution from Longevity Start-ups to Multitrillion Dollar Longevity Corporations*
- *How AI-Driven Preventive Medicine will Disrupt the BioTech and Healthcare Industries*
- *Novel Financial Instruments and InvestTech Solutions*
- *The Rise of Progressive Longevity MegaHubs*

About the Book: Introducing Longevity Industry 1.0

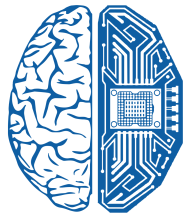
Deep Knowledge Group General Partner Dmitry Kaminskiy's 2020 book, ***Longevity Industry 1.0: Defining the Biggest and Most Complex Industry in Human History***, distilled the complex assembly of deep market intelligence and industry knowledge that Deep Knowledge Group and its Longevity-focused subsidiaries (including Longevity.Capital and Aging Analytics Agency) have developed over the past 8 years into a full-scope understanding of the Global Longevity Industry, sufficient to define the industry for the first time and to reliably forecast its future development.

So much activity has happened since that book's 2020 publication, both in the Global Longevity Industry and in Deep Knowledge Group itself, that the time has come not only to release an updated second edition of *Longevity Industry 1.0*, but to launch a series of follow-on books, including *Biomarkers of Human Longevity* (2021), *Longevity Financial Industry*, and *Longevity Politics*, and culminating in the release of its formal sequel, *Longevity Industry 2.0 - DeepTech Engineering the Accelerated Trajectory of Human Longevity: The Blueprint and Pathway from Longevity Industry 1.0 to 2.0*.

This series of books is based on Deep Knowledge Group's characteristically data-driven and quantitative approach, and all of the specific domains they focus on will need tangible metrics for forecasting, analysis, progress-tracking, and measurement of outcomes for real-world execution. Their major aim is to help major industry decision makers on-board the practices and frameworks required maintain stable industry growth, bridge the Longevity Industry Liquidity Gap, enable actual Practical Human Longevity, neutralize the vast gap from model organisms to humans, and accelerate the socially-inclusive delivery of Longevity's real-world humanitarian impacts for citizens and national economies.

Longevity Industry Analysis, Systematization, Categorization and Frameworking

Pragmatic Assessment and De-Risking of the Longevity Technologies: Hype vs. Reality



First-of-Its-Kind Coverage of Longevity Financial Industry and Policy/Governance

Actionable Forecasts on the Future Trajectory of the Longevity Industry 2023-2025

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Preface by Dmitry Kaminskiy

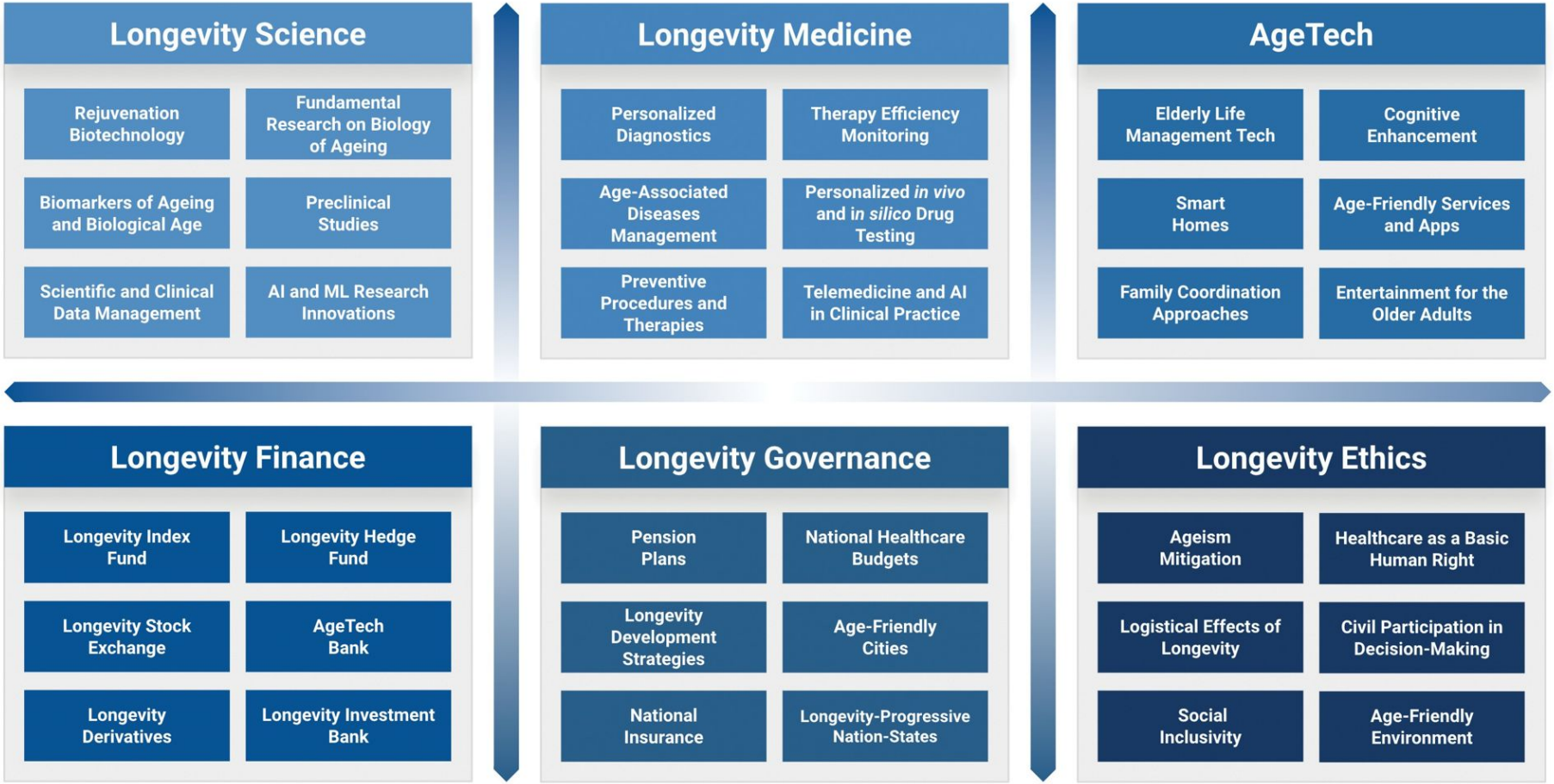
In my 2020 book, *Longevity Industry 1.0: Defining the Biggest and Most Complex Industry in Human History*, we distilled the complex assembly of deep market intelligence and industry knowledge that Deep Knowledge Group and its Longevity-focused subsidiaries (including Longevity.Capital and Aging Analytics Agency) have developed from 2013 to 2020 into a full-scope understanding of the Global Longevity Industry. In doing so, we provided its first truly comprehensive definition and framework.

Deep Knowledge Group's work toward creating a truly comprehensive, actionable and relevant Longevity Industry Framework began in earnest through the release of its first formal industry framework in 2017/2018 through the publication Aging Analytics Agency's 1000+page Longevity Industry Landscape Overview 2018 (Volume I: The Science of Longevity and Volume II: The Business of Longevity).

Aging Analytics Agency was the First to Formulate in 2018 the Term 'Longevity Industry'

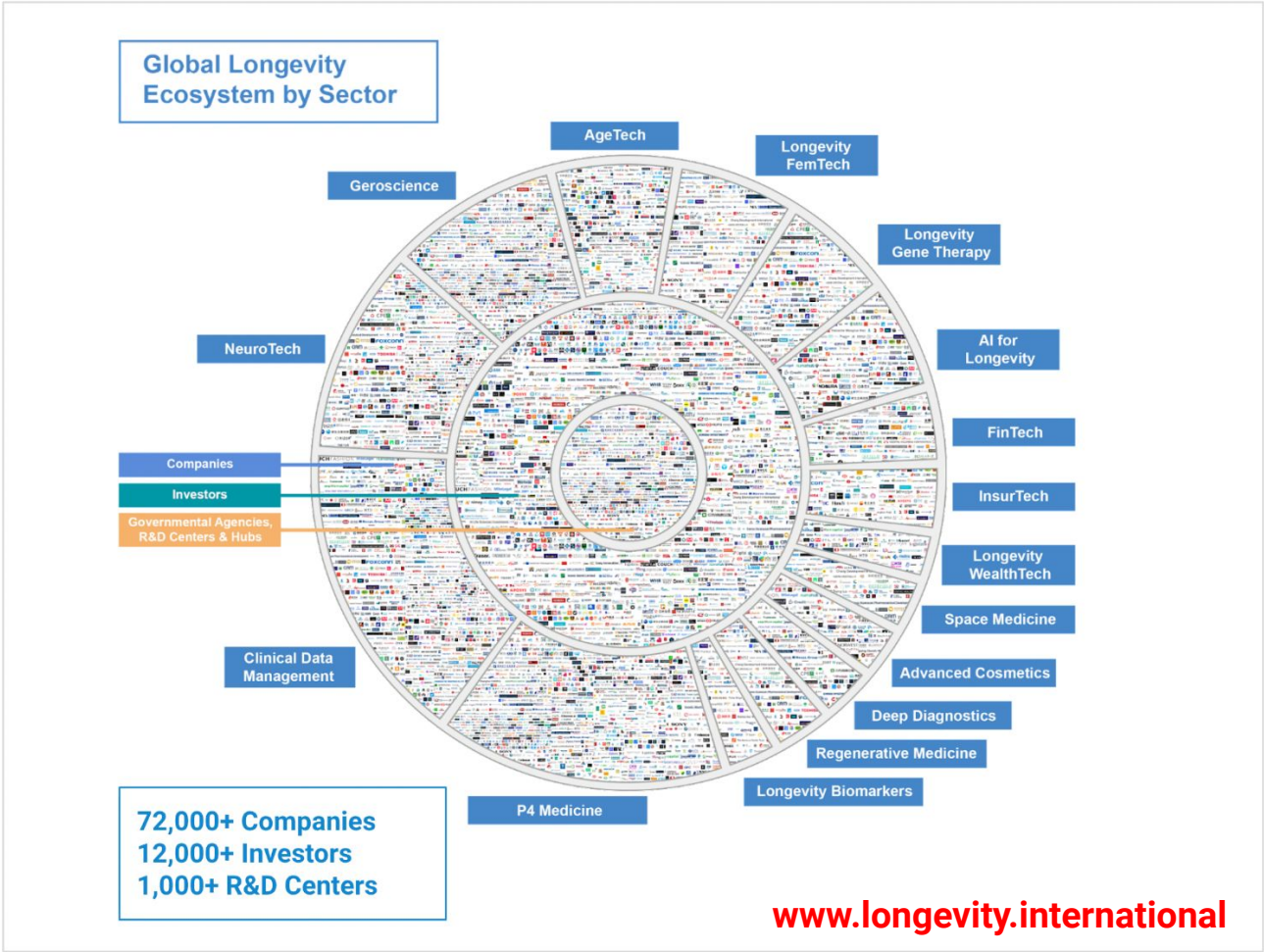
These two special analytical case studies marked the start of the company's long-standing mission to comprehensively structure the industry's breadth and complexity by identifying, classifying, and profiling all participants in the Global Longevity Industry ecosystem, applying AI, modern data science, and Big Data analysis for industry analytics to make this information available through a variety of open-access reports and analytics. These reports, quickly followed by several dozen region and industry-specific special analytical case studies and interactive IT-Platforms, could not have come at a more opportune time, as the period of 2017-2019 marked a serious turning point for the industry, and signified its transition into the mainstream and its recognition as a topic quickly being on-boarded by top-tier financial and investment media , and integrated into the strategic agendas of major investment and financial corporations.

Longevity Industry Framework



It was during this period that Aging Analytics Agency quickly established itself as the world-leading provider of Longevity Industry analytics, forecasting and benchmarking, producing two landmark reports in 2017 and 2018 which defined the industry for the first time and coined the term Longevity Industry (which at that time was still benign referred to as life extension and anti-aging). Since then the company has produced dozens of open-access and proprietary analytical reports, case studies, IT Platforms and Big Data Analytical Dashboards.

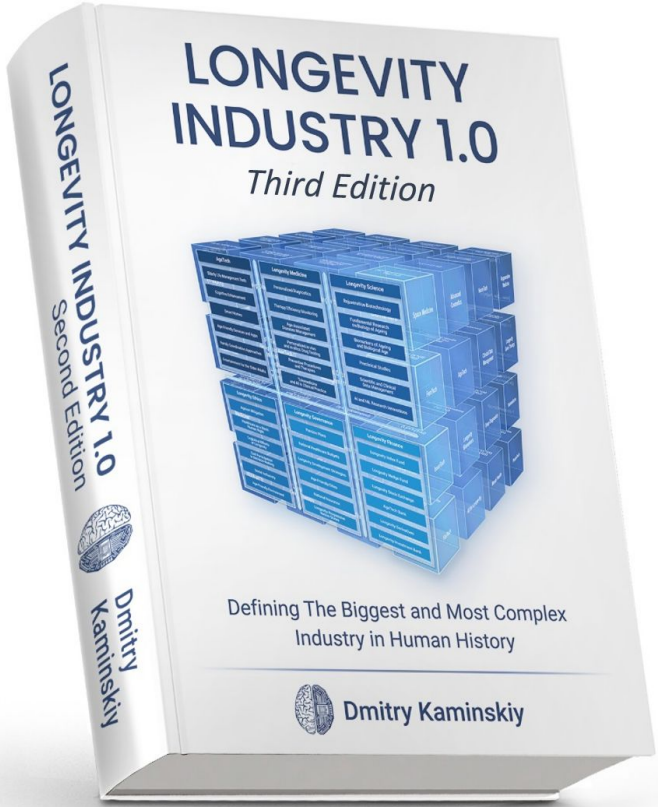
As a result, Deep Knowledge Group now owns the world's largest Longevity Industry database, encompassing 50,000+ companies, 12,000+ investors, and 1,200+ R&D hubs across 20 sectors and 160 subsectors, covering over 9.5 million data points in total. Backed by the Big Data analytics and sophisticated data visualization capabilities of Deep Knowledge Group, this project took the form of a single coherent Global Longevity Big Data Analytics IT System.



While my 2020 book, *Longevity Industry 1.0: Defining the Biggest and Most Complex Industry in Human History*, summarized these developments and provided for the first time a relevant and robust introductory text for decision-makers of all types across many industries, from science to medicine, finance, investment, technology, and more, on the current state, promise, and potential of Longevity Industrialization. However, so much activity has occurred, both within the broader industry and within Deep Knowledge Group itself, since that book's publication that the time has come to release a substantially updated and revised second edition to provide a tangible, precise, and relevant snapshot of the industry as of Q3 2023.

Indeed, Deep Knowledge Group's work toward defining the Longevity Industry and creating and publicly disclosing our internally developed frameworks for tangible analysis, systematization, and forecasting of the industry to optimize our own strategic decision-making in this domain remains as important today as it was when we first published the 2020 edition of the book.

Even though the Longevity Industry has witnessed unprecedented levels of growth and maturation over the past decade, the term Longevity per se, and its definition, remains unclear to many major industry participants (and to investors in particular), who continue to associate Longevity with topics such as typical anti-aging skin creams or the fitness and wellness industries. This simplistic conception could not be further from the truth. Longevity is the deepest of all DeepTech sectors and occupies the very forefront of advanced biomedicine. It sits right at the intersection of many domains of Frontier Science and Technology and encompasses all biomedical, non-biomedical (tech and IT-based), governmental, and financial sectors that have an impact on population Healthspan (the period of life free from age-related disease and dysfunction), Wealthspan (the duration of financial stability across the lifecycle), and quality of life. It has massive implications for the integrity and stability of those national economies that lie at the intersection of the two opposed megatrends of Longevity Industrialization (increases in population Healthspan) and population aging (an increase in the percentage of people aged 60 and above in the population). The need, therefore, for a tangible, yet digestible, industry summary of the industry, such as this book, is greater now than ever before.



www.longevity-book.com

To preserve the book's role as a digestible, yet precise, tangible, and actionable introductory text to the Longevity Industry, and to keep its length manageable for the types of industry decision-makers it is targeted toward, several Deep Knowledge Group subsidiaries and affiliates have also produced a first-of-its- kind 500-page industry digest, Longevity Industry Journal 2023, designed to be read in conjunction with this book, serving as an objective and an unbiased, factual snapshot of the Global Longevity Industry in its full breadth as of Q3 2023.

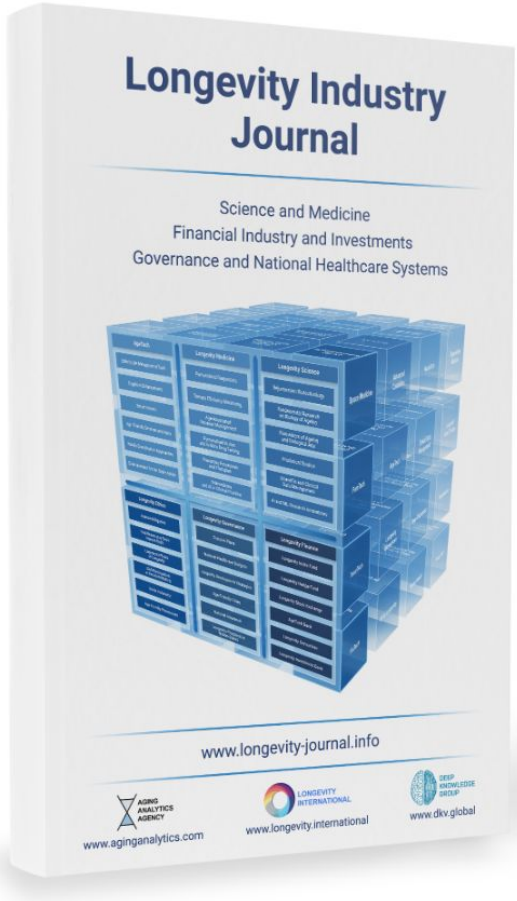
The Journal presents up-to-date summaries, investment and sector-specific digests, key market trends, and near-future forecasts of the full scope of Longevity Industry developments as of Q3 2023.

This information is compressed into digestible and easily understandable summaries and chapters, to distill only the most important takeaways required for investors, entrepreneurs, medical professionals and practitioners, policymakers, financial executives, and other Longevity Industry professionals.

This will help them to optimize their decision-making, effectively plan their near-future strategic agendas for 2023 and beyond, and to obtain tangible and reliable state-of-the-market intelligence and digests on the continued, multifaceted evolution of the global megatrend of Longevity Industrialization.

Taken together, Longevity Industry 1.0: Defining the Biggest and Most Complex Industry in Human History (3rd Edition) and Longevity Industry Journal 2023 represent the latest practical outputs from this nearly decade-long journey to define, analyze, benchmark, forecast, and tangibly understand the full breadth and depth of the Global Longevity Industry.

We believe the information in this book will help readers to formulate, optimize, and efficiently execute their own strategic decision-making as much as it has our own.



www.longevity-journal.info

Chapter 1. Top Facts and Myths About Longevity

Top 10 Longevity Myths:

- *Aging doesn't matter until you get old.*
- *"Life extension" means being older for longer, prolonging your final years of frailty.*
- *Longevity Industrialization will increase overpopulation.*
- *Longevity Industrialization will lead to ecological collapse.*
- *Healthy life extension will only be available to the wealthy.*
- *Healthspan extension is still futuristic and experimental.*
- *I can't do anything about my own Longevity today.*
- *I'll need to wait for the experimental medicines of the future to radically extend my own Healthy Longevity.*
- *Doctors already know how to prolong Longevity. If there was more I could be doing, my doctor would have already told me about it.*
- *Focusing on Longevity is selfish when we have so many other more pressing problems we should be working on.*

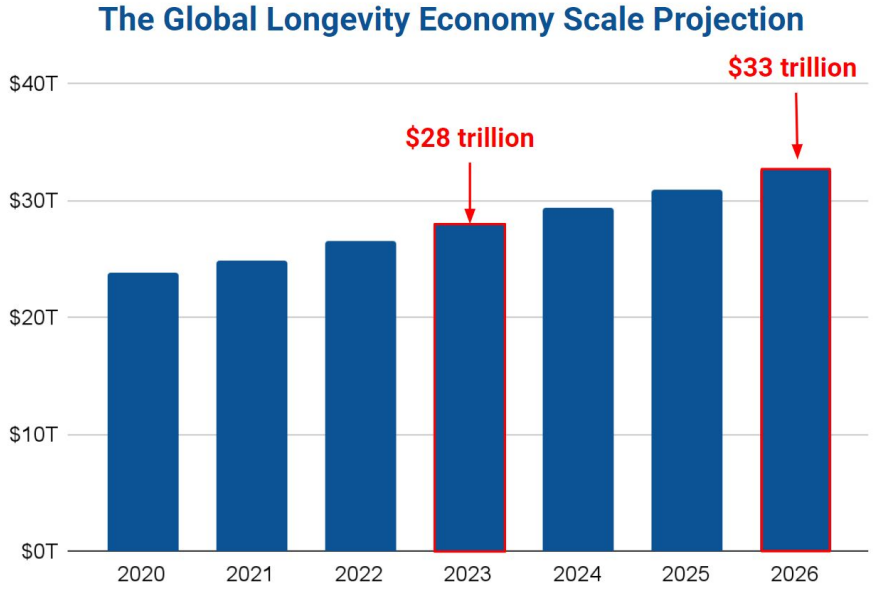
Top 10 Counterintuitive Facts About Longevity

- *Longevity Industrialization is not a choice but a fundamental requirement for the future socioeconomic stability of humanity.*
- *Practically functional Longevity technologies are available to consumers today.*
- *The majority of Longevity companies operating today will not contribute to the real-world delivery of Practical Human Longevity.*
- *Most Longevity investors actually know less about Longevity than you will after reading this book.*
- *The increasing number of Longevity IPOs we are witnessing may have negative, rather than positive, long-term effects on Longevity Industry growth and stability.*
- *Clinical trials are not the only way to validate Longevity technologies in humans.*
- *Clinical trials are not even sufficient, by themselves, for the validation of Longevity technologies. Other frameworks (or significant clinical trial reforms) are required.*
- *The Longevity Financial Industry is not just another sector of the Longevity Industry. It is the key to the industry's further growth, maturation and stabilization.*
- *Longevity Industrialization may solve the issues of overpopulation and ecological collapse rather than intensify them*
- *Longevity will dominate politics and decide the fate of national elections by 2030. Government provision of HALE and QALY will become a fundamental citizen right.*

Chapter 2. The Global Megatrend of Longevity Industrialization *(The Rise of the Biggest and Most Complex Industry in Human History)*

Key Points:

- *Previously, in the tech industry, the term "Longevity" referred primarily to research into the biology of aging (geroscience) and rejuvenation biotechnologies, things which we here call Longevity Science. It has since evolved to refer more broadly to the synergy between six intersecting sectors: Longevity Science, Longevity Medicine, AgeTech, Longevity Finance, Longevity Governance, and Longevity Ethics.*
- *The term "Longevity" is now widely used in political and financial circles to refer to the global industry emerging in response to the challenge of global demographic aging, a challenge increasingly recognized in the mainstream media and referred to as the "Silver Tsunami."*
- *As more and more market-ready outputs of this industry accumulate, people alive today will benefit from a nexus of emerging technologies (biomedical, digital, and financial) for facilitating longer, healthier lives, which will subsequently enable them to live long enough to benefit from the emergence of even more advanced technologies enabling more substantial healthspan extension. This concept is known as Longevity Escape Velocity.*

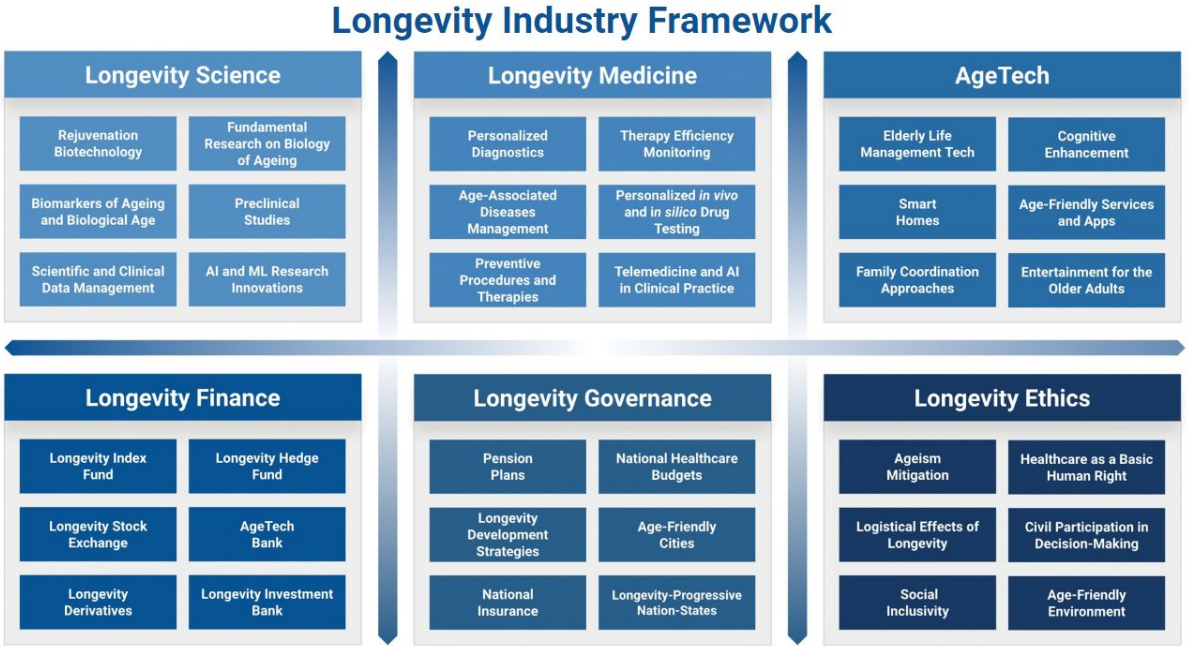


- *The industrialization of Longevity is driving the increasing recognition of Healthy Longevity, defined by metrics such as Health-Adjusted Life Expectancy (HALE), an asset class in itself and the most valuable form of wealth imaginable (this concept is referred to in this book as 'Health as the New Wealth').*

Chapter 3. Formulating the Longevity Industry Framework *(Data-Driven Frameworks To Define and Forecast the Megacomplex Longevity Industry)*

Key Points:

- *Deep Knowledge Group was the first entity able to precisely and tangibly define the Longevity Industry. It was also the first to formulate actionable frameworks for industry analytics, forecasting, and benchmarking capable of managing the industry's unprecedented complexity, multidimensionality, and technological intersectionality.*
- *Deep Knowledge Group has been working over the past 8 years, through the activities of its 10+ Longevity- and life science-focused analytical subsidiaries, on the development of sophisticated and robust analytical benchmarking and forecasting frameworks.*

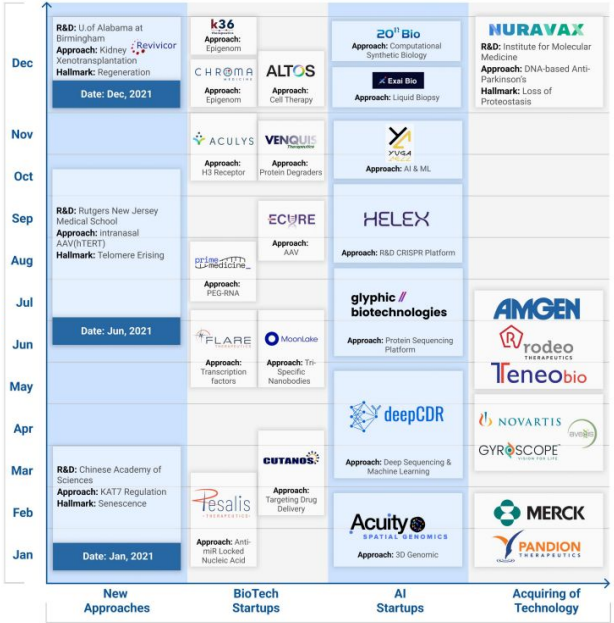


- *As a result of this work, Deep Knowledge Group now owns the world's largest global Longevity Industry database, encompassing 72,000+ companies, 12,000+ investors, and 1000+ R&D hubs and over 18 million data points. This database is updated in real-time and is at the core of our AI-powered analytical systems.*

Chapter 4. Global Longevity Industry 2023: State of the Market and Major Trends, Science, Technologies, Medicine, Investment, and Financial Landscape of the Longevity Industry in Q3 2023

Key Points:

- *State of the Market and Major Trends, Challenges, and Opportunities in the Global Longevity Industry in Q3 2023*
- *Longevity Science*
- *Longevity Medicine*
- *AgeTech*
- *Longevity Investment and Financial Industry*
- *Longevity Investment Digest Q3 2023*
  - *Major Trends by Region and Subsector*
  - *Top Funding Rounds*
  - *Longevity IPOs*
  - *Main Longevity Industry M&A Deals Longevity Publicly Traded Corporations Key Investment Takeaways for 2023*

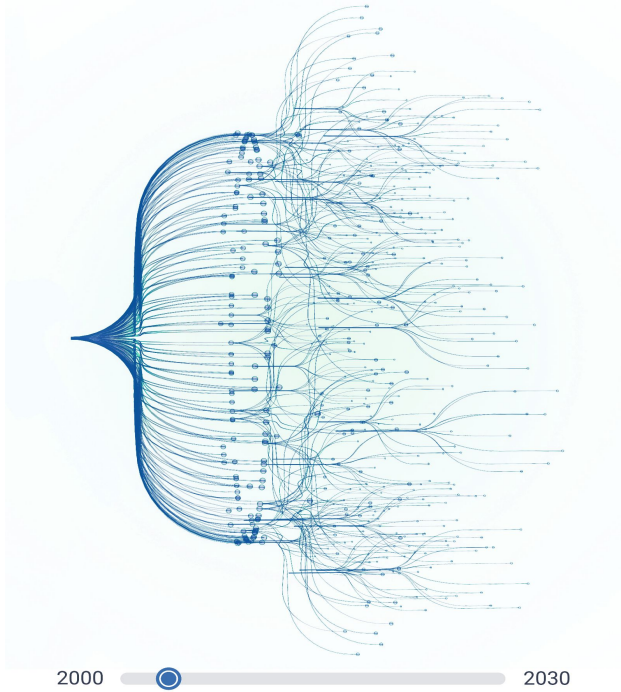


Chapter 5. Longevity Industry Megacomplexity *(Modern Data Science, AI Analytics, and Advanced IT Solutions To Manage Unprecedented Over-Complexity)*

Key Points:

- *The Longevity Industry is characterized by extreme and unprecedented levels of complexity. This is a result of its high degrees of cross-domain technological intersectionality and its extremely fast pace of innovation. Any individual subsector of the industry typically operates at the very forefront of its own respective field, employing the most advanced and sophisticated approaches within its own domain.*
- *This extreme level of complexity makes it highly challenging to conduct realistic assessments and forecasting. For this reason, traditional methods used for the assessment of the BioTech and biomedical industries have proven inadequate, and the number and size of such failures will only continue to grow as more companies seek to replicate their positive results in model organisms in human patients.*
- *A revolution is needed in the analytics underlying Longevity Industry decision making, due diligence, valuation, and validation to create relevant and realistic methods of benchmarking and forecasting capable of withstanding the sector's unprecedented levels of complexity. Similarly, a corresponding paradigm shift is needed in the widespread adoption and application of these analytics by industry decision-makers across investment, finance, entrepreneurship, science, medicine, policy, and governance.*
- *Since 2013, Deep Knowledge Group has heavily prioritized the development of sophisticated and robust analytical, benchmarking, and forecasting frameworks (including specialized Big Data analytical dashboards for each sector employing advanced AI, Machine Learning, and natural language processing capabilities) to enable realistic, dependable, and tangible strategic decision-making.*

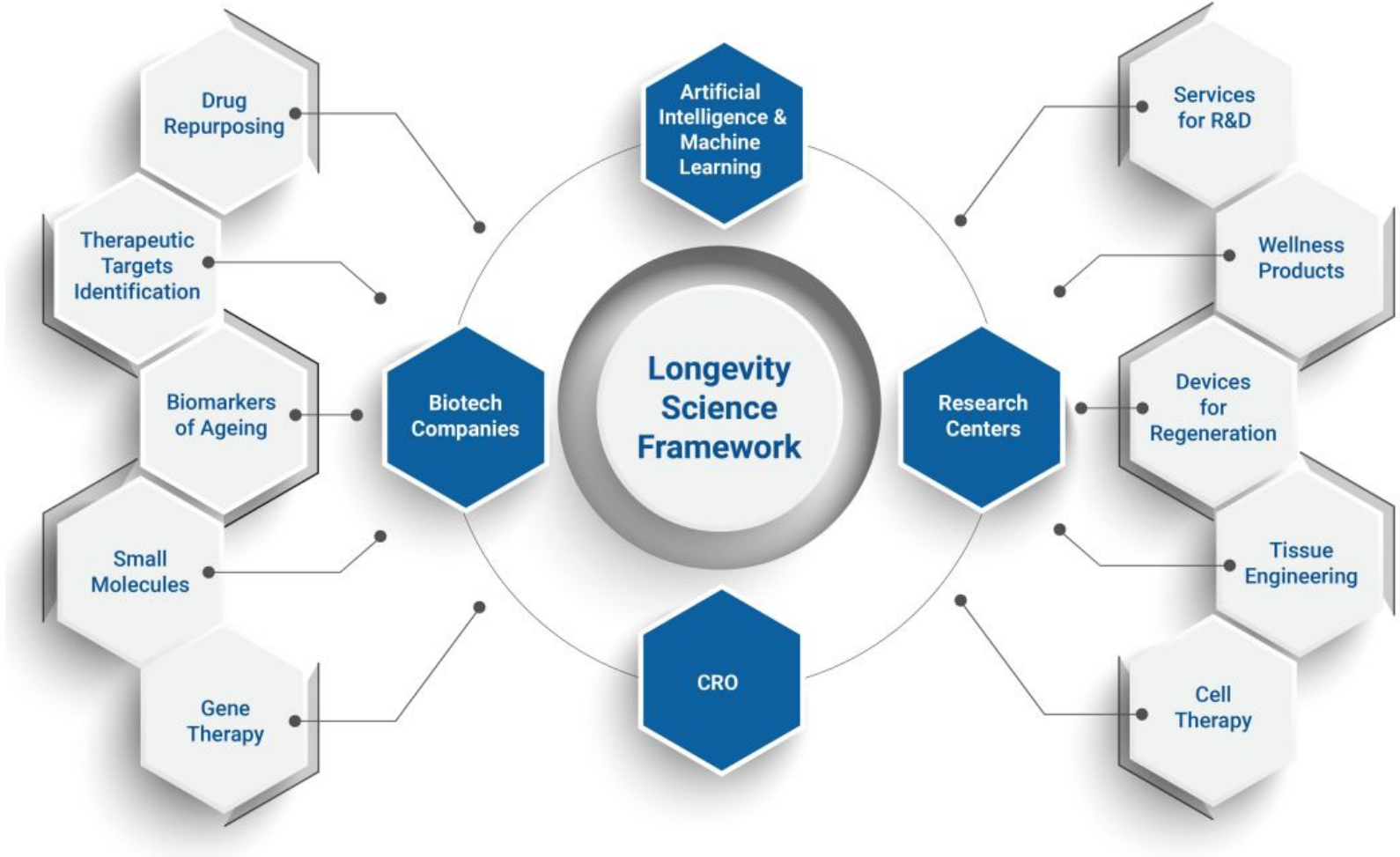
Technologies Development Timeline



Chapter 6. Longevity Science *(Biomarkers of Human Longevity, AI and Data Science for Accelerating Aging Research and R&D, the Current State of Longevity Clinical Trials, and Defining Hype vs. Reality)*

Key Points:

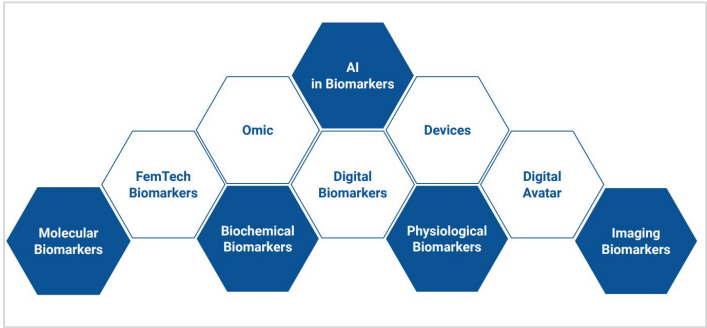
- *Longevity Science encompasses all R&D-stage efforts to better understand the fundamental biology of aging and to develop interventions to enable human Healthspan extension. Longevity Science has progressed enormously in the past decade, growing from an unaccepted, fringe domain in the early and mid-2000s into the very leading edge of sophistication in medical science and healthcare R&D, fully embraced by the mainstream scientific community.*
- *However, Longevity Science is still hindered by several critical bottlenecks slowing progress and leading to highly inefficient use of funds. Foremost among these is the scientific community's overwhelming faith that positive results in model organisms such as mice are as likely as traditional BioTech and biomedicine approaches to translate into positive results in humans, which we discuss in more detail in Chapter 7.*
- *As Longevity technologies continue to advance, this trend of using animal models for validation risks creating false hype that could lead to general pessimism about the Longevity Industry among investors and harm the prospects of the entire field by association, weakening investor confidence.*
- *Surprisingly, in BioTech, initial positive intermediate results in model organisms are still considered good enough by investors despite high clinical trial failure rates. Due to the overwhelming complexity of the biology of aging and the targeting of fundamental root causes of many diseases rather than simple, singular disease targets, we can expect Longevity clinical failure rates to be even higher.*
- *In relation to our discussions in Chapter 7, as the Longevity Industry's biggest systemic risk, which is the overwhelming reliance on animal validation, this fundamental flaw can only be neutralized through a paradigm shift that recognizes the translational gap between model organisms and humans and encourages the widespread adoption of human-focused approaches to therapeutic validation among leading scientists, companies, and investors.*
- *As the complexities of Longevity Science increase and the volume of data continues to grow, the role of AI in both analyzing and understanding Longevity Science R&D is becoming critical for continued industry progress and development.*


Drug Repurposing
Therapeutic Targets Identification
Biomarkers of Ageing
Small Molecules
Gene Therapy
Artificial Intelligence & Machine Learning
Biotech Companies
Longevity Science Framework
CRO
Research Centers
Services for R&D
Wellness Products
Devices for Regeneration
Tissue Engineering
Cell Therapy

Chapter 7. Longevity Biomarkers *(The Critical Catalyst for Practical Human Longevity, Tangible Investment Decision-Making and De-Risking, and Longevity Industry Stabilization and Maturation)*

Key Points:

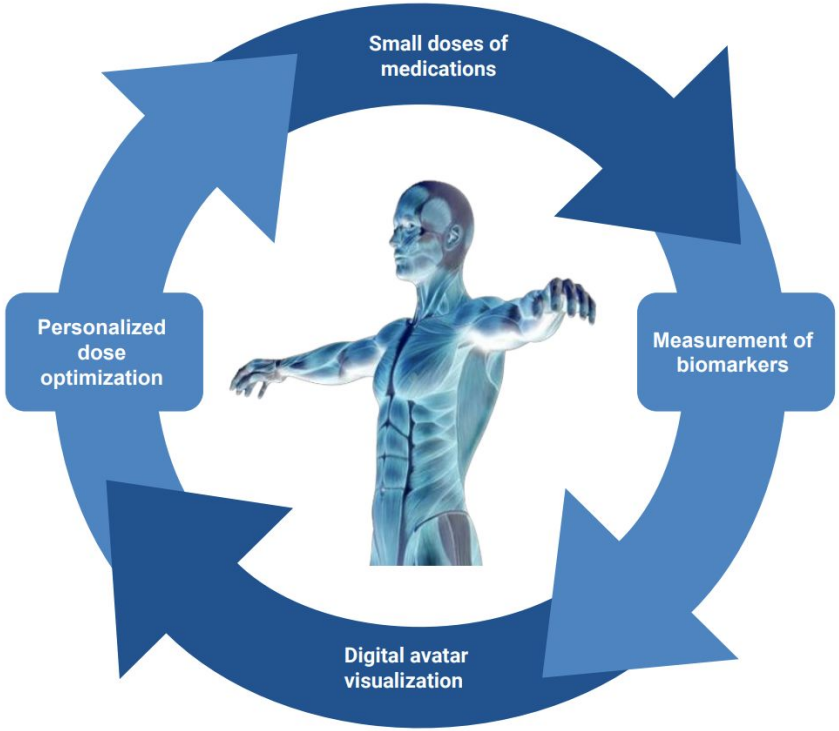
- *The use of biomarkers of aging and Longevity constitutes the most market-ready and validated means of demonstrating human-validated results by Longevity companies and start-ups. A wide array of single biomarkers and panels of Biomarkers of Longevity exist in market-ready form and should be adopted into due-diligence practice by Longevity investors to create a more modern, sophisticated, and robust method of preliminary validation of therapeutic safety and efficacy.*
- *The past few years have seen a lot of progress in the development of biomarkers of aging. These biomarkers may not be as precise as the current leading methods, but they are precise enough. Most importantly, they are extremely easy to implement in practice, especially those that are based on Deep Learning and AI-driven analysis of routine blood tests and photographs.*
- *At present, the development and implementation of biomarkers are playing a crucial role in the Longevity Science R&D sector, and thus this field of study is strongly represented in the market.*
- *But the Longevity Industry faces a deep and widespread problem: Most Longevity companies and investors are still operating under the paradigm of therapeutic validation in model organisms such as mice even though the results of these trials cannot be reliably translated to humans. This fundamental, systemic industry flaw and risk factor has led to unjustified company valuations following successful results in model organisms.*



Chapter 7. Longevity Biomarkers *(The Critical Catalyst for Practical Human Longevity, Tangible Investment Decision-Making and De-Risking, and Longevity Industry Stabilization and Maturation)*

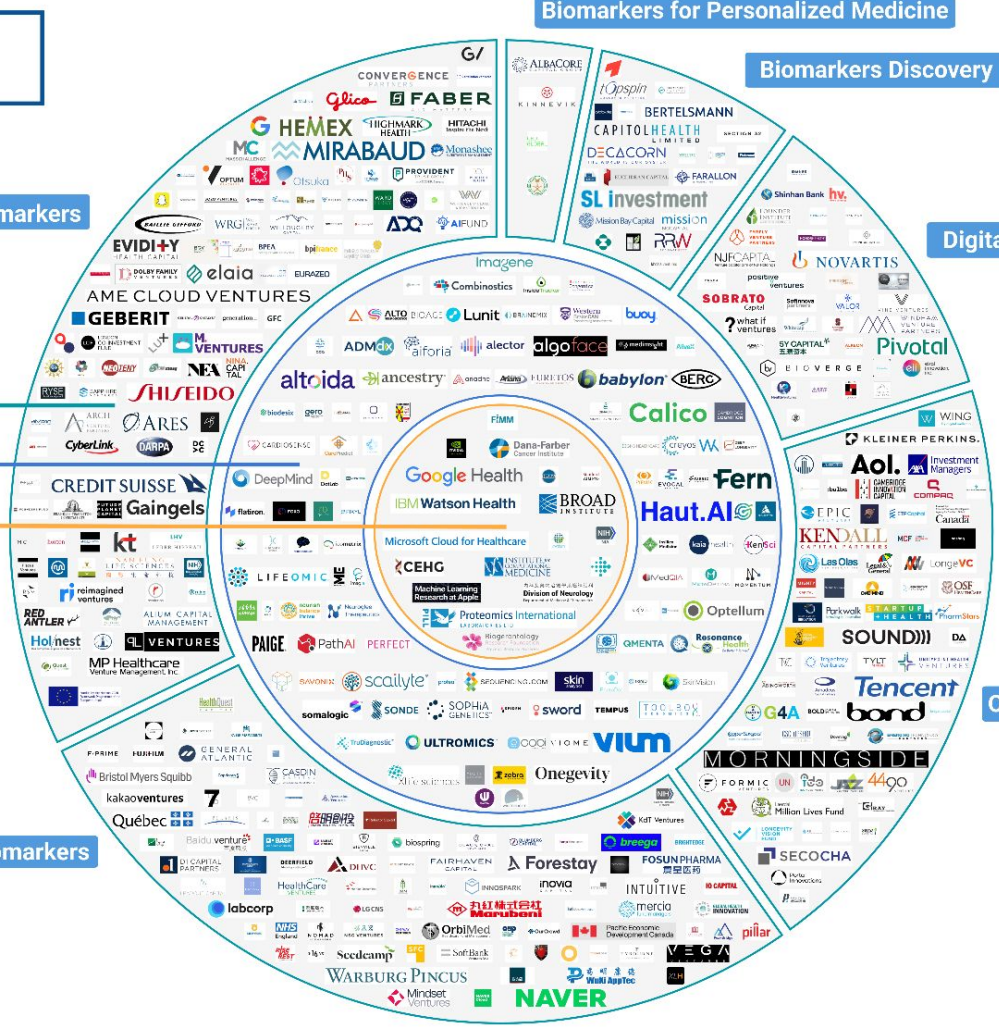
Key Points:

- *Considering the reliance on animal validation in relation to Longevity Science described in Chapter 6, a paradigm shift from this kind of BioTech mindset is needed to acknowledge the translational gap between model organisms and humans and to rely instead on direct human validation.*
- *Biomarkers of Human Longevity make this paradigm shift possible. They are the critical catalyst not only for maintaining the Global Longevity Industry's continued positive development and growth but also for accelerating it. They are crucial for neutralizing existing investment risks and disproportions and for translating the potential of existing theoretical R&D into real-world, tangible impacts on Healthy Human Longevity.*
- *The systematic evolution of the power, sophistication, and comprehensiveness of Digital Human Avatars, from 1.0 (minimal viable stage) to 4.0 (maximally comprehensive and robust), is inevitable. However, the speed of this process will be determined by the extent to which individuals, corporations, and governments recognize the domain of Biomarkers of Human Longevity and the wider trend that it represents: the use of AI and high volumes of biological and nonbiological data points as tools for the optimization of HALE and Quality-Adjusted Life Years (QALY).*



Artificial Intelligence in Biomarkers 2023

AI Companies – 110
Investors – 340
Hubs – 20



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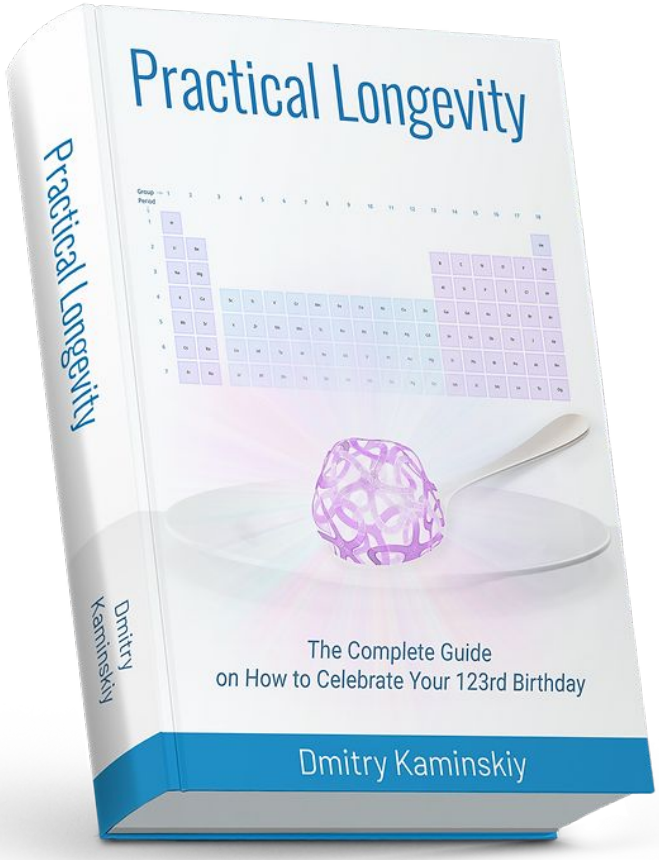
View more:
www.aginganalytics.com

www.aginganalytics.com/ai-biomarkers

Chapter 8. Longevity Medicine *(Practical Human Longevity)*

Key Points:

- *Longevity Medicine is a rapidly evolving field of advanced Preventive, Personalized, Participatory, Precision (P4) Medicine directed at the early prediction and prevention of age-related disorders to ensure a long healthy lifespan. Longevity Medicine's rapid emergence and development is driven by notable advances in the relevant biomedical sciences, in AI and data science, and by changes in the healthcare system.*
- *To bridge a gap between the state of anti-aging technologies and the level of qualification of healthcare providers, the "Longevity Medicine for Physicians" course, the first of its kind, was developed by the leading AI researchers, geroscientists, and practicing physicians. It provides the first credible source of Longevity Medicine education for equipping healthcare professionals with knowledge of recent Longevity interventions and advances in aging, taking anti-aging out of the lab and into the clinic.*
- *One key practical solution to address the extension of healthy lifespan is the concept of Longevity clinics. The main goal of Longevity clinics is to improve health and promote Longevity using advanced anti-aging treatments.*
- *Aging Analytics Agency has analyzed over 1,000 Longevity clinics world- wide to create a unique framework and solution in the form of Longevity Virtual Clinic, a virtual platform that provides access to unique concierge services, lists of specialists and treatments, and a range of educational material and practical advice on Healthy Longevity.*
- *The global Longevity Medicine market includes over 1,000 companies providing anti-aging medical services in more than 30 countries. The USA dominates the market, hosting 75% of companies in the industry. An additional 16% are located in Europe and 5% in Asia, the fastest-growing region in the market. The majority of Longevity Medicine companies (around 66%) produce medical devices and provide AI platforms. The remaining 34% are split between companies offering services in P4 Medicine, regenerative medicine, and the treatment of cardiovascular disorders.*



Chapter 9. AgeTech and Silver Economy
(The Multitrillion Opportunity of 1 Billion People in Retirement)

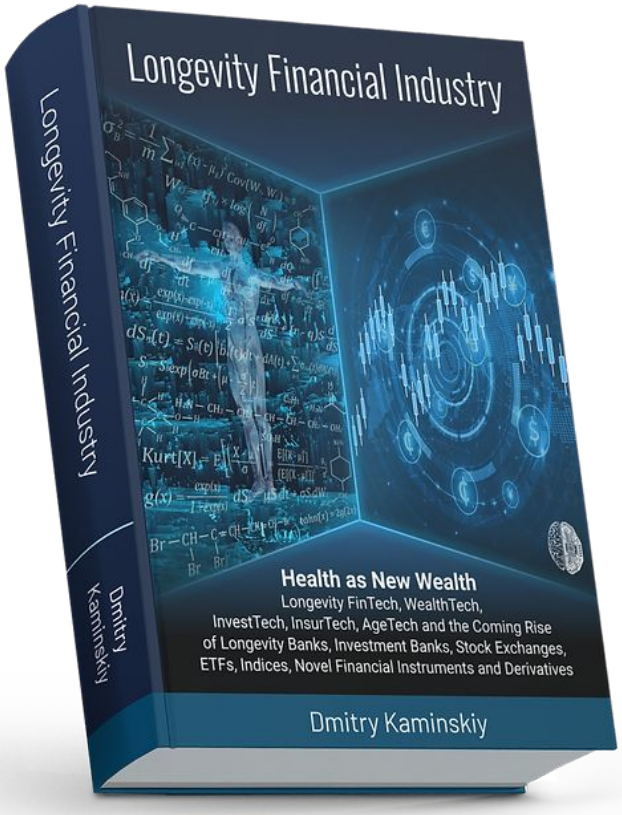
Key Points:

- *The term AgeTech refers to technology that allows the elderly to live comfortably, functionally, and productively for a longer period. Digital innovations that provide services bought by older people, purchased on their behalf, exchanged between younger and older people, and supplied to future older people make up the majority of the AgeTech Industry.*
- *Increases in life expectancy and the encroachment of the Silver Tsunami are driving the intersections and convergences between AgeTech, Wealth-Tech, and HealthTech solutions targeting people who expect to live 100 years or more. These three industries are expanding synergistically. Increased life expectancy creates demand for and investment in AgeTech. AgeTech creates healthy functioning centenarians. Healthy functioning centenarians enable WealthTech, which supports greater Healthy Longevity. This makes their ongoing emergence and growth almost inevitable.*
- *In contrast with the biomedical sectors of the Longevity Industry, nearly all AgeTech products and services are characterized by an extreme degree of market readiness. This inevitably positions AgeTech as one of the sectors most likely to have some of the biggest near-future impacts on population QALY and a major factor underlying its extremely fast rate of growth, diversification, and practical implementation.*
- *Recent activities in the AgeTech space from some of the largest, well-funded tech corporations in the world (Amazon, Apple, Microsoft, etc.) signify the huge normalization and validation of the sector and will have extremely positive effects on overall investor sentiment and industry growth.*

Chapter 10. Longevity Investment and Financial Industry *(Health as the New Wealth and the Rise of Longevity FinTech, WealthTech, InsurTech, and Novel Longevity Finance)*

Key Points:

- *The Increasing numbers of financial corporations are retuning their business models to neutralize the challenge of Aging Population and leverage the growth potential and opportunity of Longevity.*
- *The role of finance within Longevity Industrialization is not just as an integral sector enabling Wealthspan extension to allow for financial wellness over longer healthy lifespans. The Longevity Financial Industry also serves as a fundamental catalyst for the next stage of the Global Longevity Industry's evolution, growth, maturation, and stabilization.*
- *Like most other sectors of the Global Longevity Industry, Longevity Finance is characterized by high degrees of complexity and multidimensionality. This presents challenges to traditional investment approaches and to the structuring of financial industry infrastructure (markets, exchanges, indices, instruments, derivatives, etc.) capable of enabling effective industry activity and decision-making in the face of Longevity complexity.*
- *There is an unmet need for sophisticated and robust Longevity Financial Industry analytics and InvestTech capable of structuring industry participants' actions and decisions in a more relevant way. Resolving this gap was the central motivating factor behind InvestTech Advanced Solutions' development of the Longevity Finance Big Data Analytics Dashboard.*
- *The rise of the novel, modern, and sophisticated financial markets, instruments, derivatives, and exchanges tied to the Longevity Industry – in combination with data-driven, human-centered investment technologies and approaches to optimize and de-risk Longevity investment – will form the necessary bridge to attract the interest and participation of large, conservative, and institutional investors and financial corporations.*



Chapter 10. Longevity Investment and Financial Industry *(Health as the New Wealth and the Rise of Longevity FinTech, WealthTech, InsurTech, and Novel Longevity Finance)*

Key Points:

- *The increased liquidity provided by new Longevity financial markets will set in motion a self-perpetuating cycle of Longevity Finance: with greater progress in achieving Healthy Longevity, the owners of wealth will want increasingly to invest in the repeatedly reinvigorated labor force endowed with a greater Healthspan, leading to further growth and greater Healthy Longevity.*
- *This will unleash an investment renaissance and previously unthought-of levels of capital to fuel the next stage of the Longevity Financial Industry's evolution – right at the point when it is at the greatest risk of losing momentum or suffering a bubble from too many companies failing to replicate proven animal results in humans.*
- *These topics, as well as the present state and near future of the Longevity Financial Industry, are explored in much greater depth in my forthcoming book, Longevity Financial Industry: Health as the New Wealth, Longevity FinTech, WealthTech, InvestTech, InsurTech, AgeTech, and the Coming Rise of Longevity Banks, Investment Banks, Stock Exchanges, ETFs, Indices, and Novel Financial Instruments and Derivatives.*
- *Deep Knowledge Group continues to heavily prioritize its internal work on creating, validating, and deploying the exact modern finance-focused DeepTech tools and engineered solutions needed to unleash the future of Longevity Finance years ahead of schedule. The Group has a vested interest in making as many of its resources and approaches on this matter available for use by other industry participants and financial industry executives as possible, in order to accelerate the rise and maturation of Longevity Finance as well as the positive impacts that it will inevitably have on the growth and stabilization of the Global Longevity Industry.*

Chapter 11. Longevity Policy and Governance
(Longevity Technocracy as the New Political Reality of the 21st Century)

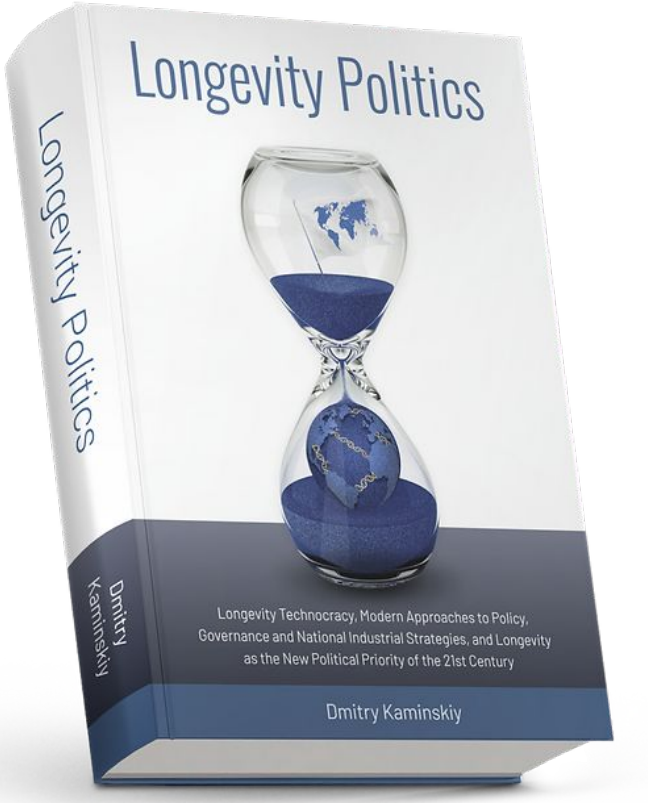
Key Points:

- *The upward trajectory of Longevity Industrialization has now reached the point at which politicians and governments are major drivers of further industry growth. Progressive governments around the world are increasingly embracing Longevity as a major strategic component of their national agendas.*
- *We have seen major national governments declare their Aging Populations to be one of their largest strategic challenges and publicly commit to the optimization of National Healthy Longevity. We have seen the rise of municipal Longevity industrial strategies and the formation of dedicated parliamentary groups for Longevity.*
- *Governments are the most involved stakeholders, and they have everything to gain or lose by how they act at the intersection of Longevity Industrialization and population aging within their windows of opportunity.*
- *In the eyes of governments, Longevity is no longer a mere abstraction, but a new type of political asset class representing a fusion of National Economy 2.0 and the 5th Industrial Revolution (5IR). If, as is expected, the 4th Industrial Revolution (4IR) delivers significant breakthroughs in biotechnology, then 5IR will deliver tangible results in the form of significant population-level Healthspan extension and unprecedented growth and stabilization of national economies.*
- *In the next few years, several smart, technologically advanced states will emerge as global competitors in the development of unified Longevity Industry ecosystems (i.e., Longevity Valleys). Some will focus on specific sectors while others will seek to become Longevity States: fully integrated hubs encompassing the entire scope of the industry.*
- *Longevity is what will decide the fate of entire nations in the future. Governments must be proactive and progressive, not just reactive. Their primary tool should be analytics, which will help them eliminate problems with healthcare budgets and societal outcomes in advance.*

Chapter 11. Longevity Policy and Governance
(Longevity Technocracy as the New Political Reality of the 21st Century)

Key Points:

- *Governments now have all the required technologies available to improve the health of their citizens. Any failure to do so is entirely the result of a lack of will and responsibility, not a lack of technology or resources. For this reason, only those governments willing to embrace the integral use of modern technologies and deep AI-driven comparative analytics to optimize their political and industrial Longevity strategies will succeed.*
- *As developments in this arena continue, we can expect that the maintenance, optimization, and extension of citizens' healthy lifespan will soon be seen as a fundamental right of citizens and the duty of governments to guarantee it. By 2030, the electorates of most developed nations will demand that their governments fulfill this duty.*
- *The political, economic, and industrial capital that municipal and national governments control and dispense is more significant than any other industry stakeholder. Not only that, but the stakes are proportionately higher since governments are tasked with maintaining and optimizing the well-being and quality of life of their entire population and the size, integrity, and stability of their national economies.*
- *The extent to which governments work to proactively support and develop the emerging national asset class of Healthy Longevity will determine which nations thrive in the face of the Silver Tsunami. It will also determine which countries succeed in avoiding massive economic shortfalls as a result of population aging and in leveraging the global megatrend of Longevity Industrialization to create new sources of economic growth and stability for the benefit of their citizens and economies.*
- *Deep Knowledge Group remains committed to forging partnerships with governments, policymakers, and other relevant authorities to address the growing gap between theory and practice in local and national Longevity policy, governance, and industrial strategy.*



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Explore
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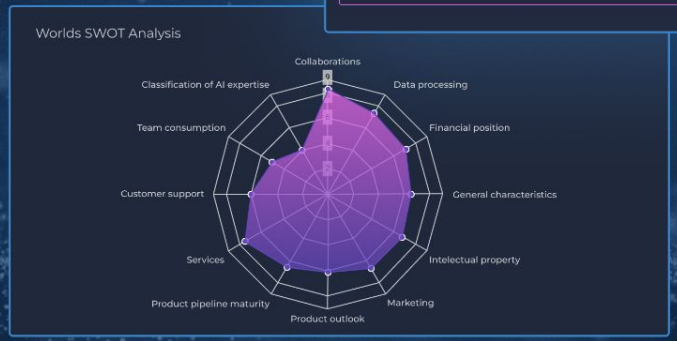
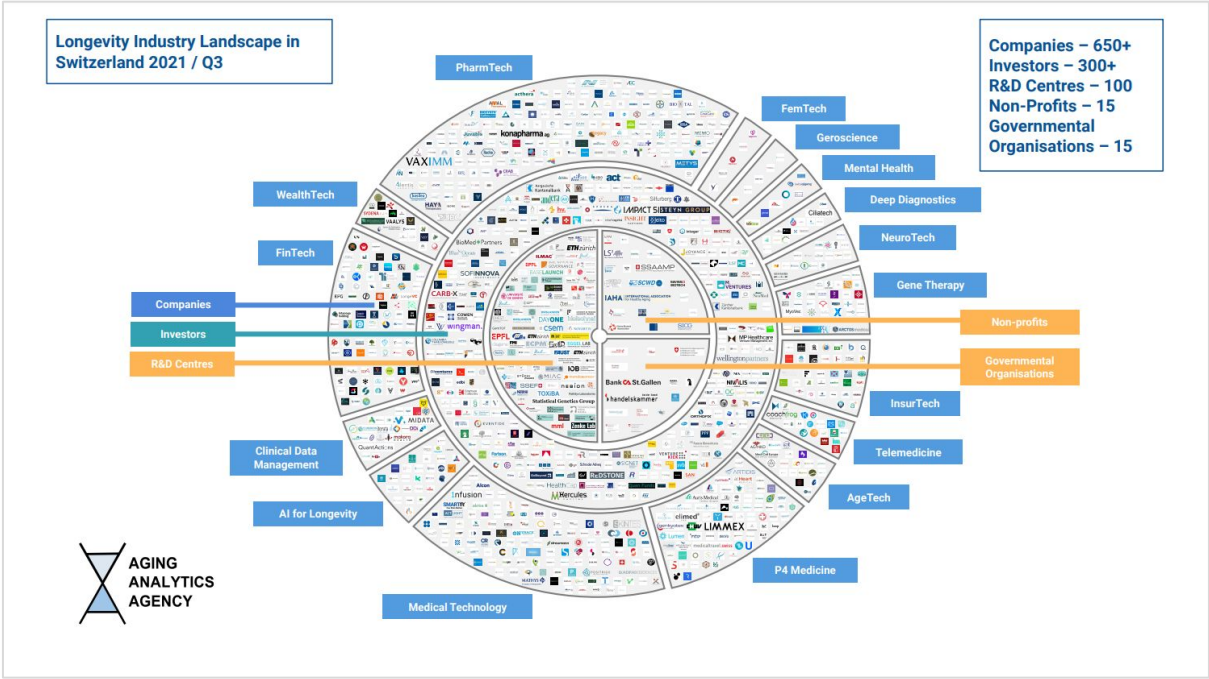
Dashboard



Chapter 12. The Concept of Longevity Valley *(Case Study of Switzerland as the Potential World's First Full-Scope Longevity Industry MegaHub)*

Key Points:

- *Switzerland's existing strengths in BioTech and BioPharma, industry-academic collaboration, international policy, FinTech, and the financial industry make it the perfect hotspot for the rapid development of the full scope of the Longevity Industry ecosystem, encompassing biomedicine, tech, and finance.*
- *This unique intersection of frontier technologies and domains can be leveraged to transform the country into a world-leading Longevity Valley in the coming years.*
- *Switzerland's specific strengths in FinTech and progressive financial products, services, and solutions give it stronger prospects than any other country to become the global leader in the Longevity Financial Industry.*

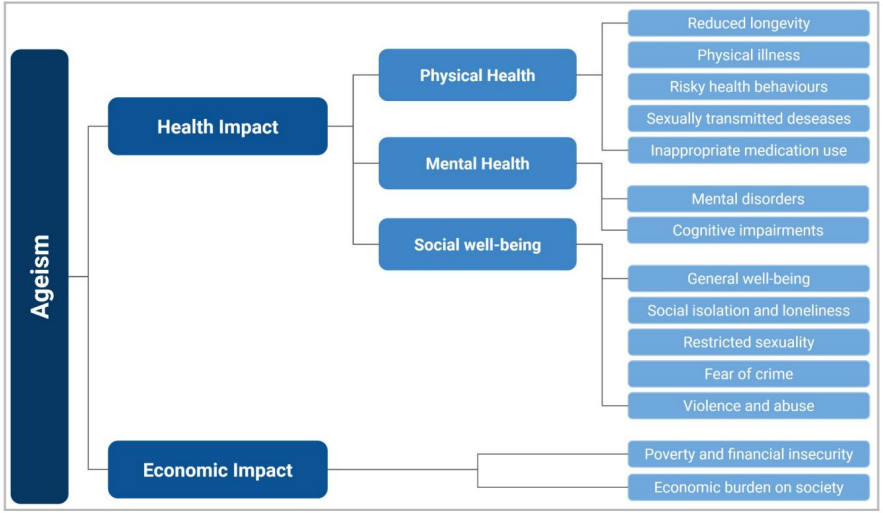


- *Deep Knowledge Group uses its many resources to advance this agenda and help secure Switzerland's place as a Longevity Valley by supporting all Longevity Industry developments in the nation, including the Longevity Biomedicine and financial industries, through the activities of its Switzerland-based financial and investment subsidiary, Deep Knowledge Ventures Swiss Sàrl, and by supporting the domain of international Longevity policy and governance via the activities of the Swiss Longevity Valley and the registered Swiss non-profit Longevity International Association.*

Chapter 13. Longevity Ethics *(Optimizing the Socioeconomic Consequences and Humanitarian Dividends of Longevity Industrialization)*

Key Points:

- *Although achieving Healthy Longevity is a necessity and a great opportunity for governments and society in general, Longevity is also the subject of several supposed possible negative socioeconomic side effects. These often-discussed and frequently-misunderstood topics continue to challenge full public support of Longevity Industrialization to this day.*
- *The societal challenges potentially posed by Longevity are imminently solvable if governments take a proactive and technocratic (data-driven and technology-focused) approach to forecasting these challenges and neutralizing them in step with ongoing increases in National Healthy Longevity. All ethical concerns posed by Longevity Industrialization can be safely neutralized by the coming paradigm (the "new norm") of active government involvement in extending the Healthspan and Wealthspan of their populations, and we expect to see Longevity-progressive countries increasingly adopting this approach.*



- *Specific frameworks are needed to mitigate the negative social impact of Longevity while increasing its positive social impact. Each sector of social life provides its own Longevity-related challenges, creating the need for a particular framework of actions to maximize the Longevity-derived dividends within society.*
- *To better equip societies with the tools necessary to realize these opportunities, Longevity (and its socioeconomic challenges and opportunities) should become a subject at schools and universities. Even doctors, in most cases, have a fragmented understanding of what Longevity is, and doctors' education should include Practical Longevity Applications.*

Chapter 14. Technocratic Ethics *(More Sophisticated Ethical Frameworks Required for the Practical Dividends of Longevity Industrialization)*

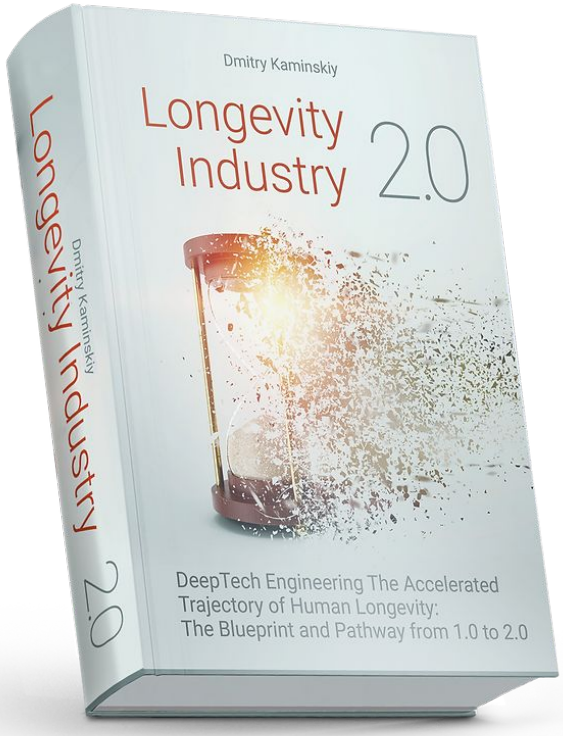
Key Points:

- *Current technological progress, though extreme, is not enough to achieve Longevity Escape Velocity (LEV; a hypothetical future scenario in which life expectancy is increasing at a rate faster than people are aging) by 2030. We need a united front and a concerted ethical commitment to achieve this.*
- *The ethical case for achieving widespread population Healthspan extension via Longevity Industrialization as soon as possible is that anything that can be done to accelerate progress, the delivery of human Healthspan optimization is worthwhile in the long term, and any time wasted in delivering this is a loss greater than any of the ethical downsides it potentially presents.*
- *This means that traditional ethical frameworks for public health resource allocation no longer apply utilitarian, technocratic approaches from governments. To make progress in Longevity, governments need to swing into decisive, centralized action to bootstrap socially-inclusive Longevity Industrialization and create a net-positive social good for humanity.*
- *During the COVID-19 pandemic, citizens demonstrated their support for vast concerted government efforts and investments (and even the restriction of many civil liberties) to shield their national health systems from an age-related pandemic, largely on the basis of the number of deaths caused by COVID-19, and the severity of ill-health and disease it posed.*
- *Considering the 100,000+ deaths caused by aging daily, and the incalculable deficit of HALE and QALY that it poses, why for any reasonable person should aging itself be thought of any differently? The human toll, in terms of death and illness, and in terms of its detrimental effects on national economies, is magnitudes larger for aging than for COVID-19. As such, the moral imperative to allow decisive governmental action to combat aging should be just as clear as (if not much clearer than) the case of COVID-19.*

Chapter 15. Longevity Industry 2.0 *(DeepTech Engineering the Accelerated Trajectory of Human Longevity – the Blueprint and Pathway From Longevity Industry 1.0 to 2.0)*

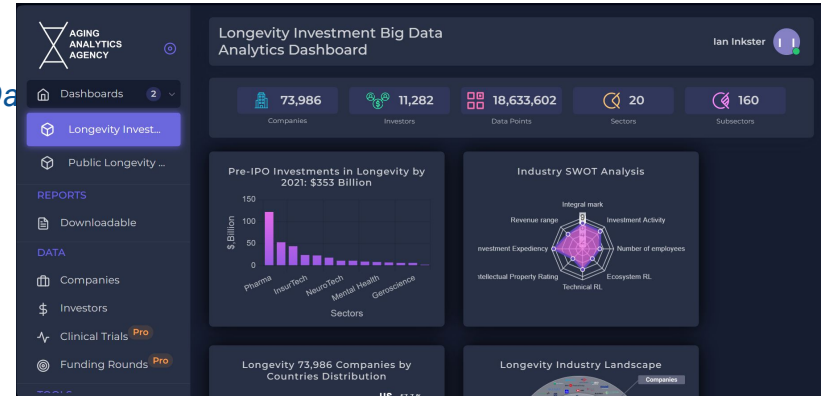
Key Points:

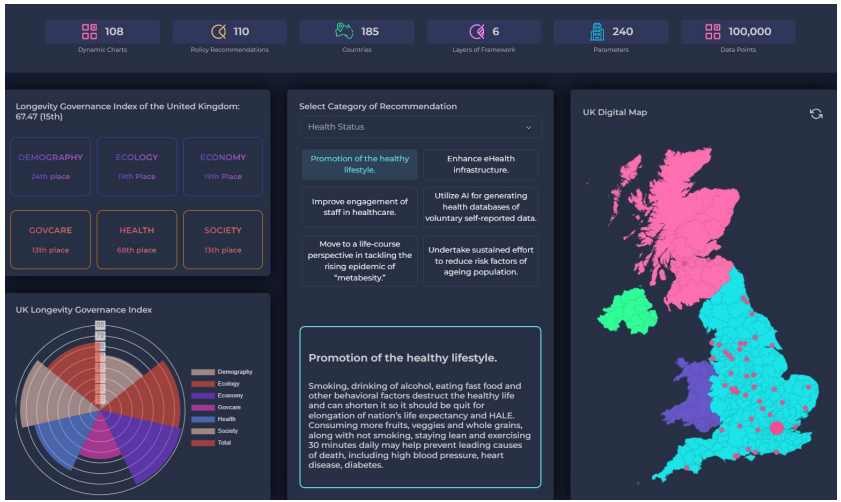
- *Whereas Longevity Industry 1.0 charted the inception and rise of the Longevity Industry up to 2020 and provided the methodology and framework for defining and analyzing the industry, its sequel, Longevity Industry 2.0: DeepTech Engineering the Accelerated Trajectory of Human Longevity – The Blueprint and Pathway from Longevity Industry 1.0 to 2.0, outlines Deep Knowledge Group's recent work toward formulating the pathway to Longevity Industry 2.0. It presents the framework for safeguarding the sector's current upward trajectory, ensuring its optimized, sustainable growth toward its next stage, and ensuring the realization of its practical benefits for humanity by 2030.*
- *The convergence of developments within Longevity Industrialization, Finance, and Politics grants a certain inevitability to the near-future maturation and stabilization of the industry and the realization of Practical Human Longevity and socially-inclusive Longevity Escape Velocity.*
- *Nonetheless, there are many approaches and activities that can be adopted by industry stakeholders, participants, and decision-makers today to optimize the socioeconomic outcomes of the industry and accelerate the realization of its true benefits for citizens, societies, and national economies, saving and improving countless lives, and adding trillions of HALE and QALY for global society, as a result of that acceleration and optimization.*
- *This DeepTech Engineering mindset is foundational to many Deep Knowledge Group activities and projects and represents a major focus of its on- going work. Longevity Industry 2.0 presents many of these frameworks, forecasts, and practical approaches in a publicly accessible manner for the first time, showcasing not only what we ourselves are doing to optimize, harmonize, and stabilize the global megatrend of Longevity Industrialization but also what other industry decision-makers can begin doing toward this same end goal for the benefit of their own strategies as well as for the industry as a whole.*



APPENDIX: Longevity Dashboards

- *Public Longevity Companies Investment Big Data Analytics Da*
- *UK Longevity Governance Big Data Analytics Dashboard*
- *Longevity Finance Big Data Analytics Dashboard*
- *Longevity Investment Big Data Analytics Dashboard*
- *Global Longevity Governance Dashboard*





UK Longevity Governance Big Data Analytics Dashboard

Public Longevity Companies Investment Big Data Analytics Dashboard

The Public Longevity Companies Investment Big Data Analytics Dashboard represents a significant advancement in science and technology by addressing the growing need for comprehensive and actionable market intelligence in the longevity and aging industry. Traditional approaches to investment analysis in this field are often limited by manual research methods and lack real-time insights. This project seeks to overcome these limitations by leveraging big data analytics and cutting-edge technologies to gather, process, analyze, and visualize information from various sources. To ensure the accuracy and reliability of the data, the project team implemented a robust data cleansing process, taking into account factors such as data quality, completeness, and consistency. By employing state-of-the-art natural language processing techniques, the dashboard is capable of extracting and analyzing relevant information from an extensive range of textual sources, including news articles, scientific publications, financial reports, and social media platforms.

About the Author (Dmitry Kaminskiy)

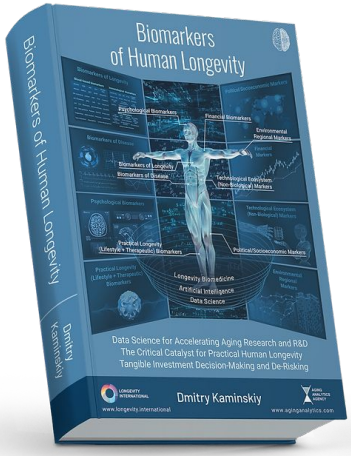
Dmitry Kaminskiy is an innovative entrepreneur, investor, author and philanthropist dedicated to impact investment and ethical business, with a focus on engineering the accelerated trajectory of progressive technological development for the benefit of humanity.

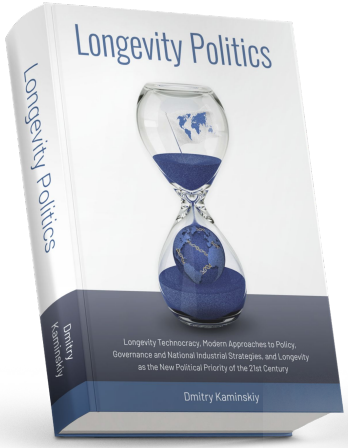
Mr. Kaminskiy is a co-founder and managing partner of **Deep Knowledge Group** - a consortium of commercial and non-profit organizations active on many fronts in the realm of DeepTech and Frontier Technologies (AI, Longevity, Precision Medicine, FinTech, GovTech, InvestTech), ranging from scientific research to investment, entrepreneurship, analytics, policy and philanthropy.

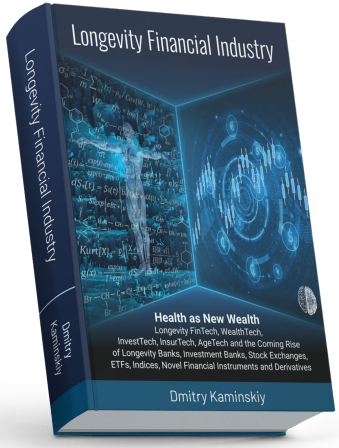
He leads the activities of the consortium's venture arms - **Deep Knowledge Ventures**, an investment fund focused on DeepTech and advanced science projects, and **Longevity.Capital**, which prioritizes the convergence of Longevity and Artificial Intelligence, areas in which it has unparalleled investment and exit strategies.

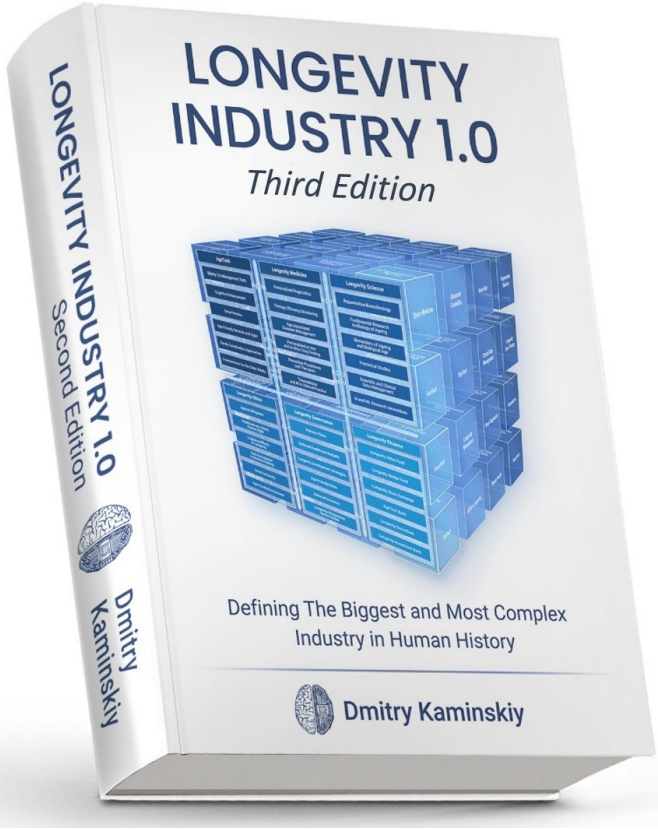
He is a frequent speaker on the topics of AI and Longevity, including conferences organized in London by The Economist "Aging Societies and The Business of Longevity", Financial Times "Smart Machines vs Smart People", at the Future Finance Forum in Seoul "AI in Finance", "Precision Medicine World Conference" in Silicon Valley, as well as several others at Oxford and Cambridge Universities.

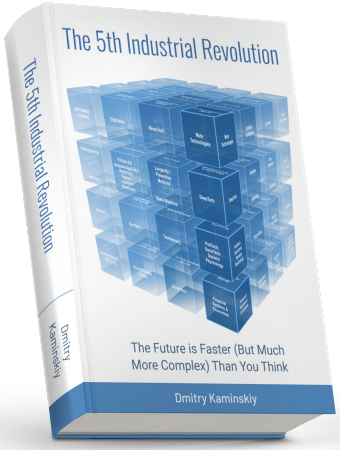
Mr. Kaminskiy serves as managing trustee of **Biogerontology Research Foundation,** the UK's oldest Longevity focused charity. In addition to his business activities, Dmitry is involved in several scientific endeavors. He strongly believes that humans should live longer healthier lives. He has a major interest in Healthy Longevity which is reflected in his business, research and public activities.

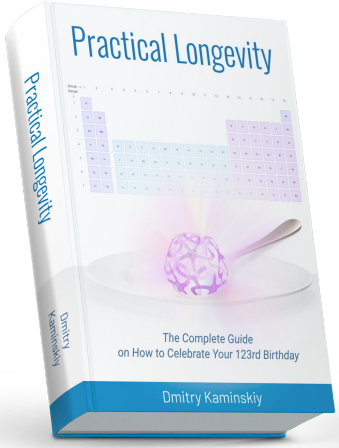












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