



INVESTMENT DIGEST

Longevity Industry Q1 2022

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Longevity Investment Digest at a Glance

This Investment Digest summarises key observations in the private equity and venture capital ecosystem, as well as public companies of the rapidly evolving and exponentially growing Longevity Industry. This edition assembled information about key industry trends, more than 50,000 Longevity companies, 50 leading investors, and 500 Longevity-focused publicly traded corporations. There have also been outlined major investment rounds and relevant R&D trends, illustrating the industry's traction and readiness of institutional investors to potentially acquire the most successful startups, such as AgeTech, Longevity Fintech, and Longevity Biomedicine.

The COVID-19 pandemic has offered a lot of challenges to the industry, affecting global supply chains and the relevance of certain ventures. However, this pandemic presented many possibilities, such as developing of the Longevity biomedicine sector. 13 Longevity-focused companies launched their IPOs in Q1 2022, 4 of them through the combination with Special Purpose Acquisition Companies (SPACs), whereas more than a thousand of them received private equity investments.

The Investment Digest provides up-to-date information about the Industry that is poised to witness a quantum leap in the near future.

LONGEVITY INDUSTRY

Overview



LONGEVITY INDUSTRY: MULTI-TRILLION DOLLAR OPPORTUNITY



FINANCIAL
TIMES

“The one billion retired people globally are a multi-trillion dollar opportunity for business “

~ Dmitry Kaminskiy, [interview in the Financial Times](#)

“We expect to add 1 billion older individuals in the next three to four decades, atop the more than 700 million older people we have today “

~ *International Monetary Fund*



LONGEVITY INDUSTRY: MULTI-TRILLION DOLLAR OPPORTUNITY

**The Global Longevity Market is Estimated at
\$25 trillion in 2021**

50,000+ companies
(incl. 500 listed companies)

1,000+ R&D hubs

9,000+ investors

**1,000+ financial
institutions**

100+ governments

160 subsectors

The Longevity market is not only limited to anti-ageing applications of life sciences. It also includes some new sectors of the financial industry, as well as government projects (national Longevity development plans); hence, its overall size potentially exceeds \$25 trillion. As the majority of full-blown Longevity startups are quickly becoming mature companies, large institutional investors are making increasingly more investments in the industry and a full-fledged Longevity infrastructure is emerging.

There are at least 500 publicly traded corporations that can be considered part of the Longevity industry.

Longevity Biomedicine, FinTech, and AgeTech industries include 50,000+ companies, 9,000+ investors, 20 sectors, and 160 subsectors.

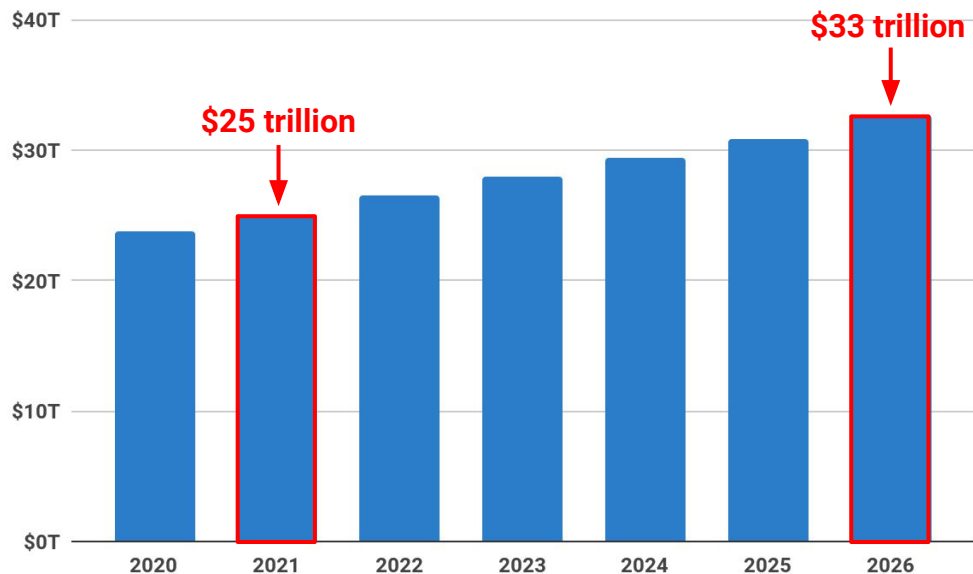
The Longevity Financial Industry includes 1,000+ corporations, 15 sectors, and 50 subsectors.

The Longevity Governance Landscape includes national healthcare budgets and development plans of at least 100 governments.

Note: Since there is no generally accepted methodology for their estimation, the numbers presented in the scheme are approximate.

THE LONGEVITY ECONOMY ON A GLOBAL SCALE

The Longevity Economy: Scale Projections, Trillion USD



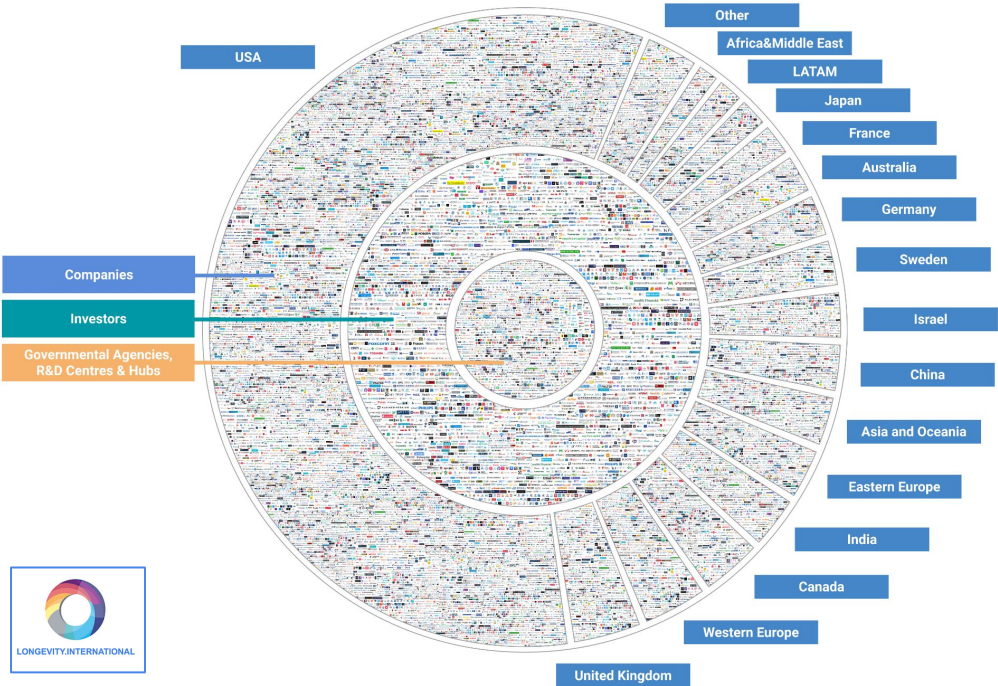
The Longevity Economy's Scale Projections contains global healthcare spending affecting Longevity, the combined capitalisation of publicly listed Longevity companies, the capitalisation of Longevity-related insurance and reinsurance companies, banks and pension funds and privately held Longevity companies.

Not only does ageing pose one of the most acute problems of our time - it also presents one of the most promising opportunities. Financial institutions, such as investment banks, pension funds, and insurance companies can either sink or swim when hit by the oncoming Silver Tsunami. Whether they will succeed in riding the wave or end up drowning under it will depend not only on their willingness to deploy new business models adapted to population ageing and emerging industries of AgeTech, WealthTech, and Longevity Finance, but also on the quality of Longevity analytics that they use to develop such business models.

We define the Longevity Industry as a combination of ageing, advanced preventive precision biomedicine, AgeTech, relevant parts of national healthcare budgets, and the global financial industry related to such sub-industries.

GLOBAL LONGEVITY ECOSYSTEM 2022

50,000 Companies 9,000 Investors 1,000 Hubs 20 Sectors



USA	UK
Canada	India
Japan	China
Sweden	Germany
Switzerland	Spain
CEE*	Singapore
Portugal	France
Brazil	Australia
MENA Region	EU

* – Central and Eastern Europe

GLOBAL LONGEVITY ECOSYSTEM - 50,000 COMPANIES BY 20 SECTORS



Geroscience



Longevity WealthTech



Space Medicine



Deep Diagnostics



Longevity Biomarkers



Longevity FinTech



Longevity FemTech



Regenerative Medicine



AI for Longevity



InsurTech



Advanced Cosmetics



P4 Medicine



NeuroTech



AgeTech



Clinical Data Management



Longevity Gene Therapy



PharmTech



Wellness & Fitness



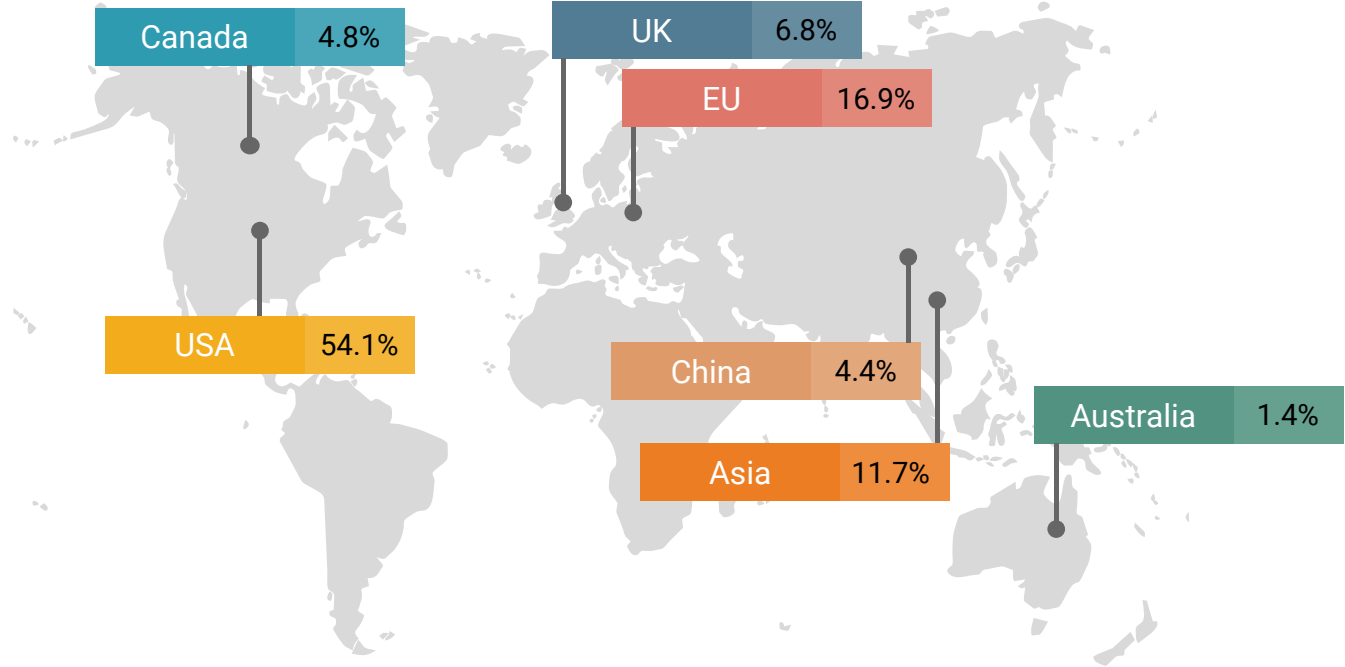
Telemedicine



Mental Health



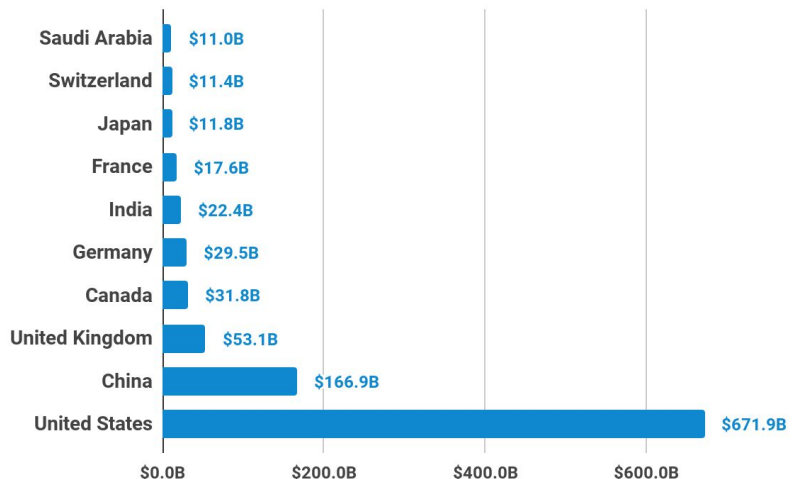
50,000 COMPANIES: REGIONAL PROPORTION



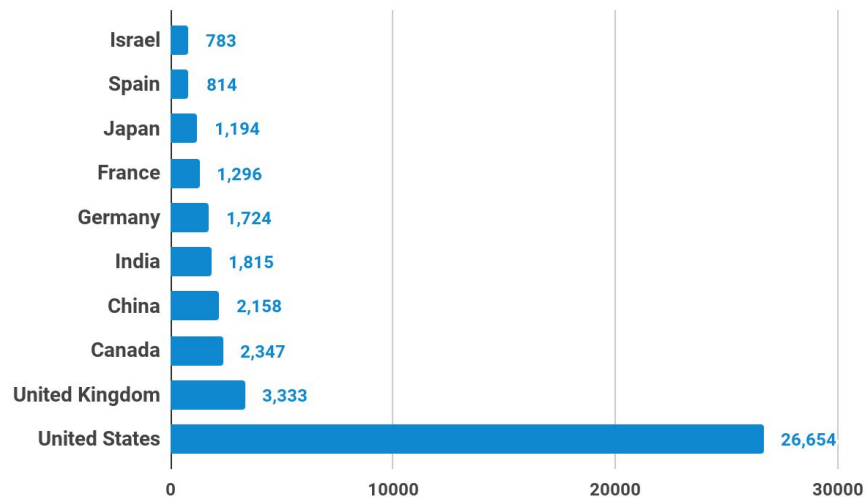
The US is still firmly in the lead in terms of the number of Longevity-focused companies, and the EU is the second biggest market in the world. However, Asia increased the market share to 11.7% (represented by 5,746 companies of different sizes and funding structures) and keeps growing today. We expect steady growth of the Asian companies with an increase in the number of public offerings among them.

TOP 10 COUNTRIES IN THE LONGEVITY SECTOR AS OF Q1 2022

Total Investment by Countries



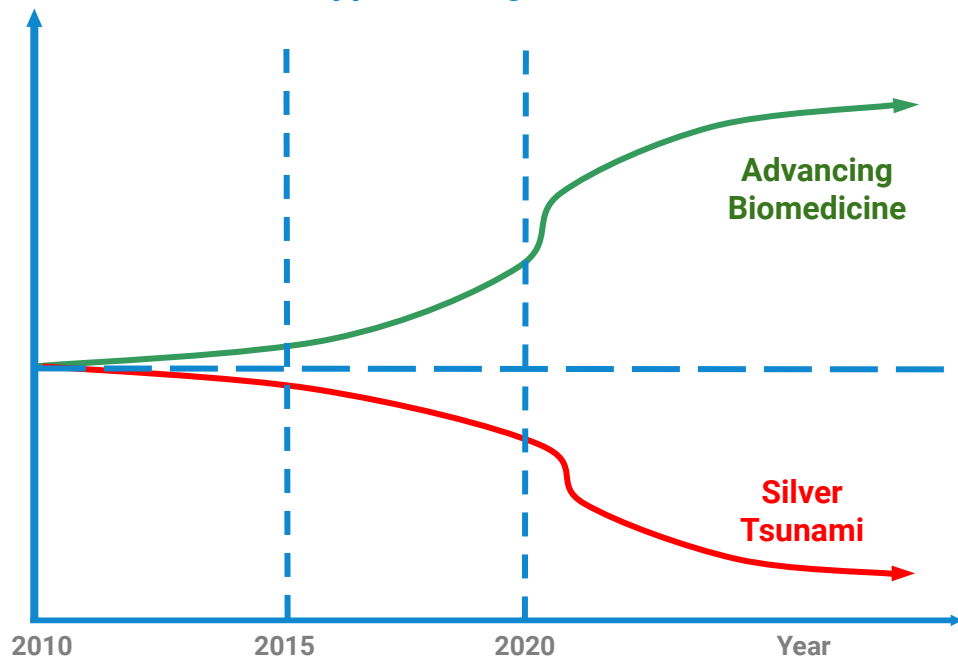
Number of Companies



The chart on the left represents the top 10 countries with the largest total investment in the Longevity Industry (as of April 2022). The chart on the right shows the top 10 countries for the number of Longevity-focused companies. The undisputed leader here is the US which has a total of \$671.9 billion invested in 26,654 companies. It is followed by China, the second largest country for Longevity investment, which has a total of \$164 billion invested in 2,158 companies. China's closest competitor is the UK where funds are mostly raised from public sources and IPOs, not from private investors.

LONGEVITY AND SILVER TSUNAMI - COLLISION OF TWO OPPOSING MEGATRENDS

Two Opposed MegaTrends



Rapid progress in biomedicine has been mainly due to the advances in collection and analysis of data. The industry is poised to witness a quantum leap in the near future, particularly because of the impact made by Artificial Intelligence on biomedicine R&D and in light of the upcoming paradigm shift from treatment to prevention.

At the same time, the inevitable Silver Tsunami (demographic ageing) places a major economic burden not only on the healthcare systems of developing nations, but also on major financial institutions, including pension funds, insurance companies, asset management firms and retail/private wealth banks. It is also expected to increase costs associated with old age.

THE “7TH CONTINENT” OF 1 BILLION PEOPLE IN RETIREMENT



There are more than 1 billion people aged 60 years and older in the world nowadays. In fact, there are so many of them that they can populate an entire '7th Continent'.

Not only do they wield immense purchasing power, but they also hold the largest amount of financial assets compared to other age groups.

TOP 20 LONGEVITY COMPANIES



Jiangsu



BeiGene

Changping, Beijing, China



Ontario



BlueRock Therapeutics

Toronto, Ontario, Canada



Maharashtra



PharmEasy

Mumbai, Maharashtra, India



United Kingdom



Abcam

Cambridge, Cambridgeshire, UK



Juvenescence

Douglas, NA - Isle of Man,
Isle of Man



Tel Aviv



EarlySense

Ramat Gan, Tel Aviv, Israel



California



BioSplice

San Diego, California, USA



One Medical

San Francisco, California, USA



Freenome

South San Francisco,
California, USA



Human Longevity

San Diego, California, USA



UNITY Biotechnology

Brisbane, California, USA



Geron

Foster City, California, USA



Epirium Bio

San Diego, California, USA

Massachusetts



Amwell

Boston, Massachusetts, USA



Decibel Therapeutics

Cambridge, Massachusetts, USA



Navitor Pharmaceuticals

Cambridge, Massachusetts, USA

Washington



Sana Biotechnology

Seattle, Washington, USA

Colorado



SomaLogic

Boulder, Colorado, USA

Maryland



Osiris Therapeutics

Columbia, Maryland, USA

New Jersey



Celularity

Florham Park, NJ, USA

TOP 20 LONGEVITY COMPANIES SHORT PROFILES

BeiGene

Description: BeiGene is a clinical-stage Biopharma company focused on discovering and developing innovative, best-in-class, targeted and immuno-oncology drugs that address severe unmet medical needs in a variety of cancer indications.

Number of Investors	7	IPO Date	December 15, 2021
Main Investors	Amgen, Hillhouse Capital, CITIC Capital	Raise since IPO	-34.70%
Total Funding	\$6.8 Billion	Market Cap	\$135.835 Billion

BlueRock Therapeutics

Description: BlueRock Therapeutics is a biotech company that plans to develop induced pluripotent stem cell (iPSC) therapies to cure a range of diseases using an industry-leading platform. The company was acquired by Bayer.

Number of Investors	2
Main Investors	Bayer, Versant Ventures
Total Funding	\$225 Million



BeiGene



BlueRock
Therapeutics

TOP 20 LONGEVITY COMPANIES SHORT PROFILES

PharmEasy

Description: PharmEasy is a health tech startup offering services such as teleconsultation, medicine deliveries, and diagnostic test sample collections. It also operates an online pharmacy that helps patients connect with local pharmacy stores and diagnostic centers in order to fulfill their extensive medical needs.



Number of Investors	43
Main Investors	Bessemer Venture Partners, Temasek Holdings, B Capital Group
Total Funding	\$1.6 Billion

Abcam

Description: Abcam identifies, develops, and provides high-quality biological reagents and tools which are essential in a wide range of fields and applications including drug discovery, diagnostics and basic research.



Number of Investors	1	IPO Date	October 22, 2020
Main Investors	HSBC	Raise since IPO	-5.16%
Total Funding	\$335.7 Million	Market Cap	\$4.208 Billion

TOP 20 LONGEVITY COMPANIES SHORT PROFILES

Juvenescence

Description: Juvenescence Limited is a British Virgin Islands-based holding company that invests in human ageing and Longevity. The company has built an ecosystem and pipeline of assets targeting ageing, age-related disease, and regeneration.

Number of Investors	13
Main Investors	Grok Ventures, IPGL, Foresite Capital
Total Funding	\$219.2 Million



EarlySense

Description: EarlySense develops signal-processing technology. The company's lead product, EverOn, a contact-free early detection patient supervision system that measures, records, displays, and alerts heart and respiration rates, as well as bed entries and exits, patient motion, and quality of sleep from under the mattress.

Number of Investors	17
Main Investors	Wells Fargo Strategic Capital, Hill-Rom, Bank Hapoalim
Total Funding	\$145 Million

EarlySense

TOP 20 LONGEVITY COMPANIES SHORT PROFILES

BioSplice

Description: Biosplice Therapeutics is in the medical research and development for tissue-level regeneration. With their platform's origins in small molecule-based Wnt pathway modulation, they develop therapeutics to address a range of degenerative diseases, regenerative medicine, and oncology.

biosplice

Number of Investors	12
Main Investors	Eventide Asset Management, aMoon Fund, Starling Group
Total Funding	\$799 Million

One Medical

Description: One Medical is a members-only technology platform offering an array of concierge medical services. The integration of these elements allows them to offer a seamless experience that not only saves their patients time and money but also leads to better health outcomes and happier lives.

one medical

Number of Investors	13	IPO Date	January 30, 2020
Main Investors	The Carlyle Group, J.P. Morgan Asset Management, Redmile Group	Raise since IPO	-49.03%
Total Funding	\$532.1 Million	Market Cap	\$2.161 Billion

TOP 20 LONGEVITY COMPANIES SHORT PROFILES

Freenome

Description: Freenome is a biotechnology company with a comprehensive multiomics platform for cancer detection using a routine blood draw.



Number of Investors	50
Main Investors	Roche, RA Capital Management, Perceptive Advisors
Total Funding	\$1.1 Billion

Human Longevity

Description: Human Longevity is a genomic-based, health intelligence company empowering proactive healthcare and enabling a life better lived.



Number of Investors	13
Main Investors	Emerging Technology Partners, Illumina Ventures
Total Funding	\$330 Million

TOP 20 LONGEVITY COMPANIES SHORT PROFILES

UNITY Biotechnology

Description: Unity Biotechnology, Inc., a biotechnology company, engages in the research and development of therapeutics to slow, halt, or reverse diseases of ageing. The company's lead drug candidate include UBX1325, which is Phase I clinical trial for the treatment of age-related diseases.



Number of Investors	24	IPO Date	May 2, 2018
Main Investors	EcoR1 Capital, Altitude Life Science Ventures, Baillie Gifford	Raise since IPO	-89.40%
Total Funding	\$290.6 Million	Market Cap	\$82.71 Million

Geron

Description: Geron Corp., a late-stage clinical biopharmaceutical company, focuses on the development and commercialisation of therapeutics for hematologic myeloid malignancies. It develops imetelstat, a telomerase inhibitor.



Number of Investors	2	IPO Date	October 22, 2020
Main Investors	Diverse	Raise since IPO	-0.78%
Total Funding	\$236.7 Million	Market Cap	\$414 Million

TOP 20 LONGEVITY COMPANIES SHORT PROFILES

Epirium Bio

Description: Epirium Bio is a clinical-stage biopharmaceutical company developing therapeutics that promote mitochondrial biogenesis and function through a novel mechanism of action discovered by the company.



Number of Investors	8
Main Investors	Diverse
Total Funding	\$86.4 Million

Amwell

Description: American Well Corporation operates as a telehealth company that enables digital delivery of care for healthcare. Its application offers urgent care; pediatrics; therapy; menopause nutrition; menopause counseling; telestroke; population health management; telepsychiatry; pregnancy and postpartum care; pregnancy and postpartum therapy; breastfeed support; and menopause care.



Number of Investors	15	IPO Date	September 17, 2020
Main Investors	Regal.tech, Allianz X, Inventure Partners	Raise since IPO	-81.84%
Total Funding	\$866 Million	Market Cap	\$1.103 Billion

TOP 20 LONGEVITY COMPANIES SHORT PROFILES

Decibel Therapeutics

Description: Decibel Therapeutics is a clinical-stage biotechnology company dedicated to discovering and developing transformative treatments to restore and improve hearing and balance, one of the largest areas of unmet need in medicine.



Number of Investors	16	IPO Date	February 11, 2021
Main Investors	Third Rock Ventures, SR One, OrbiMed	Raise since IPO	-83.69%
Total Funding	\$189 Million	Market Cap	\$73.34 Million

Navitor Pharmaceuticals

Description: Navitor, the leading mTORC1 platform company, is developing targeted therapeutics designed to help patients increase their healthy years for uninterrupted quality of life.



Number of Investors	9
Main Investors	Brace Pharma
Total Funding	\$98.2 Million

TOP 20 LONGEVITY COMPANIES SHORT PROFILES

Sana Biotechnology

Description: Sana Biotechnology focuses on creating and delivering engineered cells as medicine for patients. Recent scientific advances make it possible to reprogram cells in the body or replace damaged cells and tissues, creating a new class of medicines to treat a broad array of diseases.



Number of Investors	13	IPO Date	February 4, 2021
Main Investors	Diverse	Raise since IPO	-76.75%
Total Funding	\$700 Million	Market Cap	\$1.511 Billion

SomaLogic

Description: SomaLogic operates as a protein biomarker discovery and clinical diagnostics company. It offers SOMAmers (Slow-Offrate Modified Aptamers), which are modified nucleic acid-based protein-binding reagents that are specific for their cognate protein; and SOMAscan that provides protein detection and equipment.



Number of Investors	37	IPO Date	April 23, 2021
Main Investors	Casdin Capital, dRx Capital, iCarbonX	Raise since IPO	-39.71%
Total Funding	\$956.5 Million	Market Cap	\$1.510 Billion

TOP 20 LONGEVITY COMPANIES SHORT PROFILES

Osiris Therapeutics

Description: Osiris Therapeutics, Inc. is a stem cell company, which focuses on developing and marketing products to treat medical conditions in the inflammatory, cardiovascular, orthopedic and wound healing markets. The company has been acquired by Smith & Nephew.



Number of Investors	4
Main Investors	Arvind Gupta (Mayfield Fund), Mesoblast, Friedli Corporate Finance
Total Funding	\$95 Million

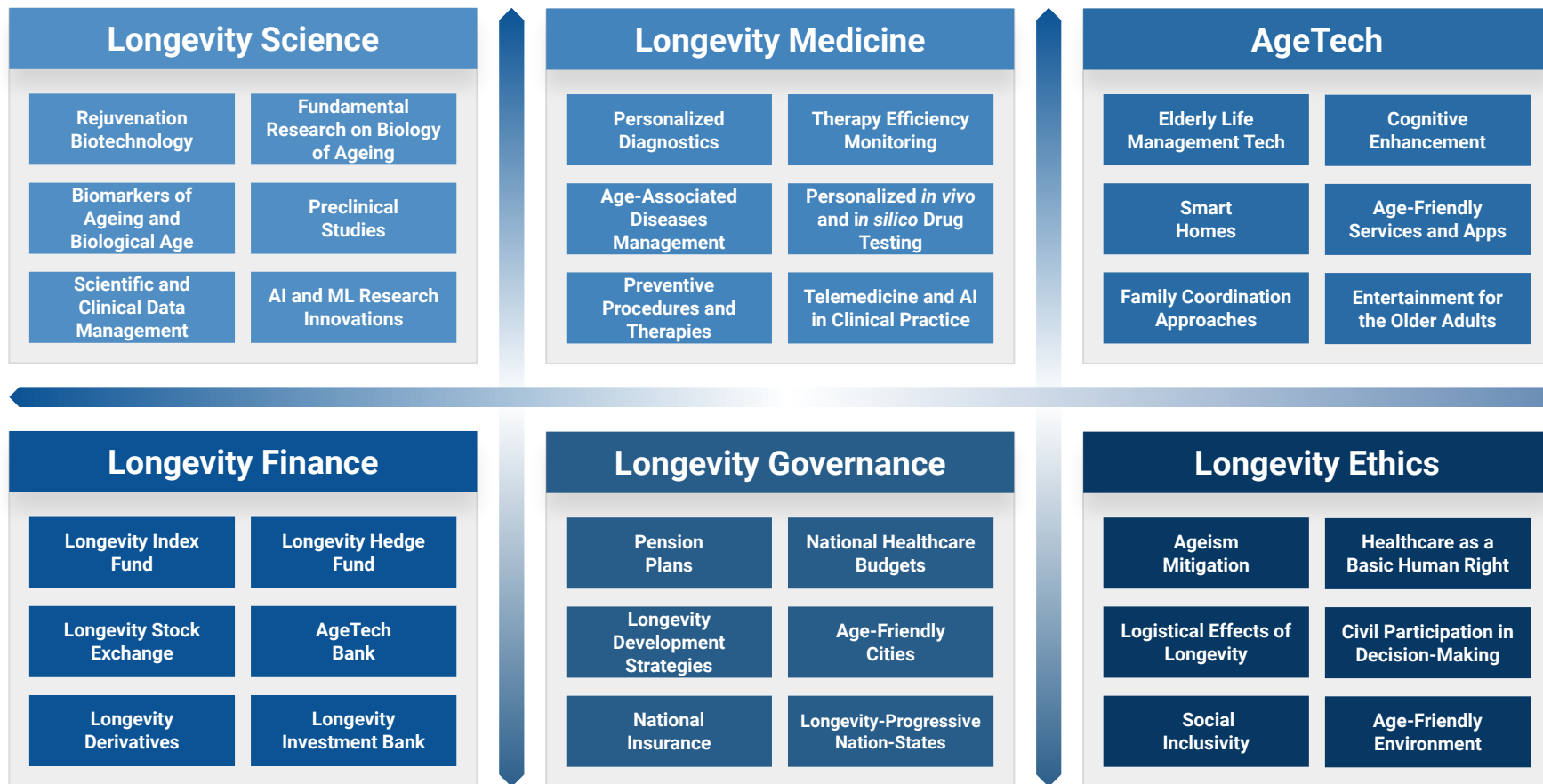
Celularity

Description: Celularity is a clinical stage biotechnology company leading the next evolution in cellular medicine by developing off-the-shelf placental-derived allogeneic cell therapies, including unmodified NK cells, genetically-modified NK cells, T cells engineered with a CAR (CAR T-cells), and mesenchymal-like adherent stromal cells (ASCs) targeting indications across cancer, infectious and degenerative diseases.



Number of Investors	11	IPO Date	July 19, 2019
Main Investors	Celgene, Castor Ventures	Raise since IPO	-1.32%
Total Funding	\$370 Million	Market Cap	\$1.113 Billion

LONGEVITY INDUSTRY FRAMEWORK



LONGEVITY INDUSTRY SUBSECTORS

AgeTech

Digital, IT and mechanical technologies aiming at prolonging physical functionality and wellbeing in elderly demographics.

AI for Longevity

Application of Artificial Intelligence for Longevity research and development, including AI for drug discovery and biomarker development.

Longevity FemTech

FemTech products and services targeting core female-specific hallmarks of ageing and/or aspects of ageing. Prominent sectors include fertility, ovarian rejuvenation.

PharmTech

PharmTech include application of scientific knowledge or technology to pharmacy, pharmacology, and the pharmaceutical industry.

P4 Medicine

P4 (Precision Preventive Personalised Participatory) diagnostic, prognostic and therapeutic technologies to maintain an optimal state of health for as long as possible. Considered as the leading edge of practical applications of Longevity technologies.

Regenerative Medicine

Cell therapies, bioengineered organs, tissue engineering and xenotransplantation targeting core hallmarks of ageing.

Biomarkers for Longevity

Discovery and development of panels of biomarkers of ageing, the core infrastructure required for testing the safety and efficacy of Longevity therapies and the effectiveness of interventions.

LONGEVITY INDUSTRY SUBSECTORS

Longevity NeuroTech

NeuroTechnologies to improve and maintain cognitive abilities, neurological plasticity, sleep quality (SleepTech) and psychological well-being into later stages of life.

Deep Diagnostics

Treating or diagnosing a problem you're having by monitoring existing problems, checking out new symptoms or following up on abnormal test results.

Longevity FinTech

The integration of technology into offerings by financial services companies in order to improve their use and delivery to consumers.

Space Medicine

The practice of medicine on astronauts in outer space whereas astronautical hygiene is the application of science and technology to the prevention or control of exposure to the hazards that may cause astronaut ill health.

Longevity WealthTech

WealthTech industry comprises any product or service (again, almost invariably IT-based) that either simplifies or enhances the creation and maintenance of Wealth - from savings to investment - for all ages of society.

Advanced Cosmetics

Advanced cosmetic describes the industry that manufactures and distributes advanced cosmetic products. It includes Natural cosmetics, Cosmeceuticals, Beauty devices, Ingredients-as-a-Service and Anti-ageing cosmetics markets.

Longevity Gene Therapy

Gene therapy is an experimental technique that uses genes to treat or prevent disease. In the future, this technique may allow doctors to treat a disorder by inserting a gene into a patient's cells instead of using drugs or surgery.

LONGEVITY INDUSTRY SUBSECTORS

Mental Health

Mental Health includes a wide range of psychological or psychiatric disorders and often requires psychiatric intervention. Conditions can be caused by either a biological origin such as genetic, chemical, and anatomical.

Clinical Data Management

Clinical data management is the process of collecting and managing research data in accordance with regulatory standards to obtain quality information that is complete and error-free.

Telemedicine

Telemedicine, or virtual health, refers to one-on-one consultations between patients and health professionals via video chat, phone call, or text message.

InsurTech

Insurtech refers to the use of technology innovations designed to squeeze out savings and efficiency from the current insurance industry model. Insurtech is a combination of the words “insurance” and “technology,” inspired by the term fintech.

Geroscience

Biomedical therapies targeting the root causes of ageing, including Cellular Senescence, Stem Cell Exhaustion, Epigenetic Alterations, Altered InterCellular Communication, Loss of Proteostasis, Deregulated Nutrient Sensing, Mitochondrial Dysfunction, Telomere Attrition and Genomic Instability.

Wellness & Fitness

Wellness & Fitness encompasses all activities which promote physical and mental wellbeing: from yoga to healthy eating, personal care and beauty, nutrition and weight-loss, meditation, spa retreats, workplace wellness and wellness tourism.

TOP LONGEVITY COMPANIES BY SUBSECTORS

Regenerative Medicine



BlueRock Therapeutics
(Canada)



Vericel Corp
(United States)



ReNeuron Group (United Kingdom)



TreeFrog Therapeutics
(France)



VisionCare Ophthalmic
(United States)



EGenesis
(United States)

P4 Medicine



Bayer
(Germany)



Biogroup-LCD
(France)



Boston Scientific
(United States)



Siemens Healthineers
(United States)



Aurora
(United States)



AmersourceBergen
(United States)

Biomarkers for Longevity



SomaLogic
(United States)



Quanterix
(United States)



Abcam
(United Kingdom)



Edifice Health
(United States)



TAmiRNA
(Austria)



Astute Medical
(United States)

Geroscience



Mesoblast
(Australia)



Unity Biotechnology
(United States)



Stealth BioTherapeutics
(United States)



Epirium
(United States)



Imagen Biotech
(United States)



CohBar
(United States)

TOP LONGEVITY COMPANIES BY SUBSECTORS

AgeTech



Devoted Health
(United States)



Affirm
(United States)



AdaptHealth
(United States)



Honor
(United States)



ClassPass
(United States)



ConforMIS
(United States)

AI for Longevity



Meta
(United States)



NVIDIA
(United States)



Nuro
(United States)



Babylon
(United Kingdom)



Tempus
(United States)



OpenAI
(United States)

Longevity FemTech



Progyny
(United States)



Endoceutics
(Canada)



Endomag
(United Kingdom)



Natural Cycles

Natural Cycles
(Sweden)



Cadence Health
(United States)



Cradle Genomics
(United States)

PharmTech



Galapagos

Galapagos
(Belgium)



Quintiles
(United States)



Moderna Therapeutics
(United States)



HORIZON

Horizon Therapeutics
(Ireland)



Alynlam Pharmaceuticals
(United States)



CLINEVO
Technologies

Clinevo Technologies
(United States)

TOP LONGEVITY COMPANIES BY SUBSECTORS

Longevity Neurotech



Zogenix
(United States)



Alphatec Spine
(United States)



MindMaze (Switzerland)



Neuronetics
(United States)



Alector
(United States)



Cala Health
(United States)

Deep Diagnostics



Roche
(Switzerland)



Thermo Fisher Scientific
(United States)



MorphoSys
(Germany)



Radiology Partners
(United States)



Agilent Technologies
(United States)



Bluebird Bio
(United States)

Longevity FinTech



Next Insurance
(United States)



Plaid
(United States)



Marqeta
(United States)



Lemonade
(United States)



MoneyLion
(United States)



MediTrust Health
(China)

Space Medicine



RevBio
(United States)



SpacePharma
(Israel)



AbilTo
(United States)



MicroQuin
(United States)



Amgen
(United States)



Medes
(France)

TOP LONGEVITY COMPANIES BY SUBSECTORS

WealthTech



Australian Unity
(Australia)



Quartet Health
(United States)



Eliza
(United States)



HealthCentral
(United States)



Just Retirement
(United Kingdom)



BioIQ
(United States)

Advanced Cosmetics



Canopy Growth
(Canada)



Ginkgo Bioworks
(United States)



Revance Therapeutics
(United States)



Biomat USA
(United States)



Humacyte
(United States)



Essity
(Sweden)

Gene Therapy



Sarepta Therapeutics
(United States)



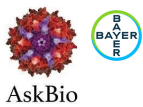
Audentes Therapeutics
(United States)



Abeona Therapeutics
(United States)



4D Molecular Therapeutics
(United States)



AskBio [acquired by Bayer]
(United States)



Affinia Therapeutics
(United States)

Mental Health



Lyra Health
(United States)



ATAI Life Sciences
(Germany)



Mindstrong
(United States)



COMPASS Pathways
(United Kingdom)



Linus Health
(United States)



HMNC Brain Health
(Germany)

TOP LONGEVITY COMPANIES BY SUBSECTORS

Clinical Data Management



Piramal Enterprises
(India)



Syneos Health
(United States)



Medable
(United States)



Color
(United States)



Phoenix Insurance Company
(Israel)



Helix
(United States)

Telemedicine



Independent Vetcare
(United Kingdom)



PharmEasy
(India)



Welltower Inc
(United States)



23andMe
(United States)



Wellcome Trust
(United Kingdom)



Hinge Health
(United States)

InsurTech



Bright Health Group
(United States)



Oscar Health
(United States)



Hippo Insurance
(United States)



Ping An Healthcare Management
(China)



WeDoctor
(China)



The Exchange
(United States)

Wellness & Fitness



COFCO
(China)



JD Health
(China)



ChargePoint
(United States)



Perfect Day
(United States)



YgEia3
(United Kingdom)



Apeel Sciences
(United States)

TOP LONGEVITY COMPANIES BY SUBSECTORS

Deep Dentistry



Dental Corp
(Canada)



Zimmer Biomet
(United States)



MRC
(United States)



SmileDirectClub
(United States)



Arrail Dental Clinic
(China)



Planet
(United States)

Others



Ant Group
(China)



Meituan
(China)



Tencent
(China)



Siemens
(Germany)



Saudi Arabia's Public
Investment Fund
(Saudi Arabia)



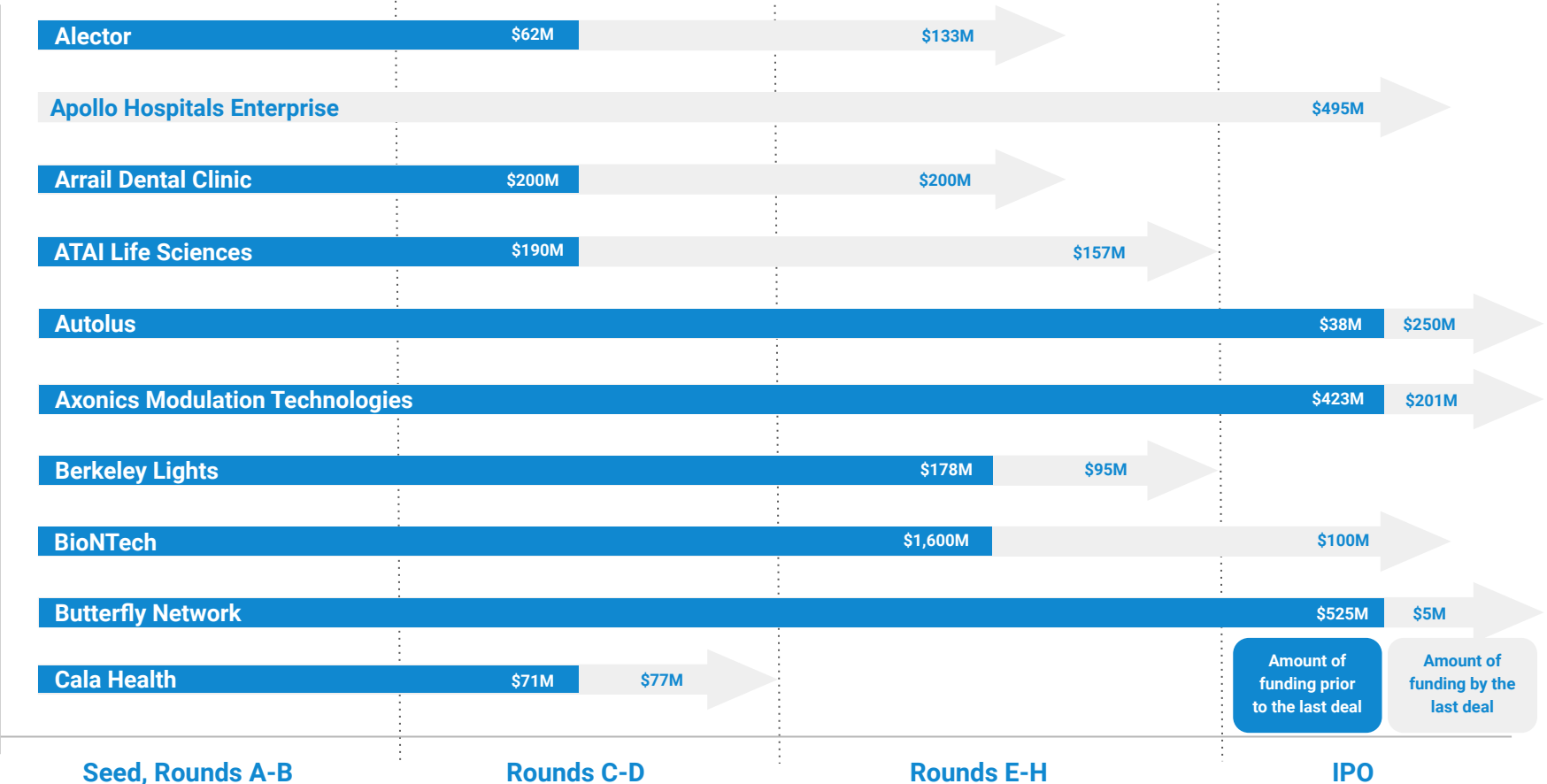
SenseTime
(Hong Kong)

INVESTMENT LANDSCAPE

Overview



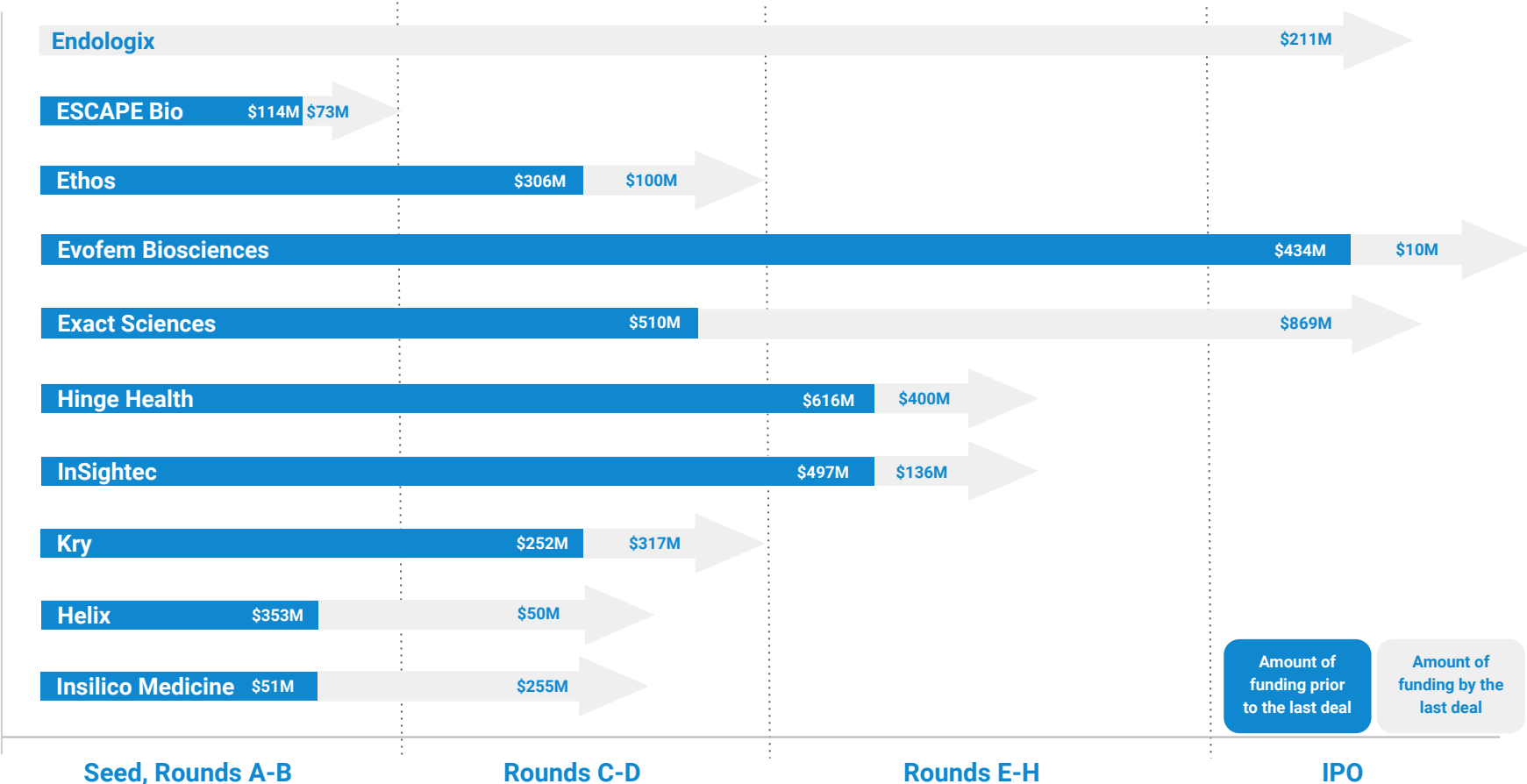
LEADING COMPANIES. AMOUNT AND STAGE OF FUNDING



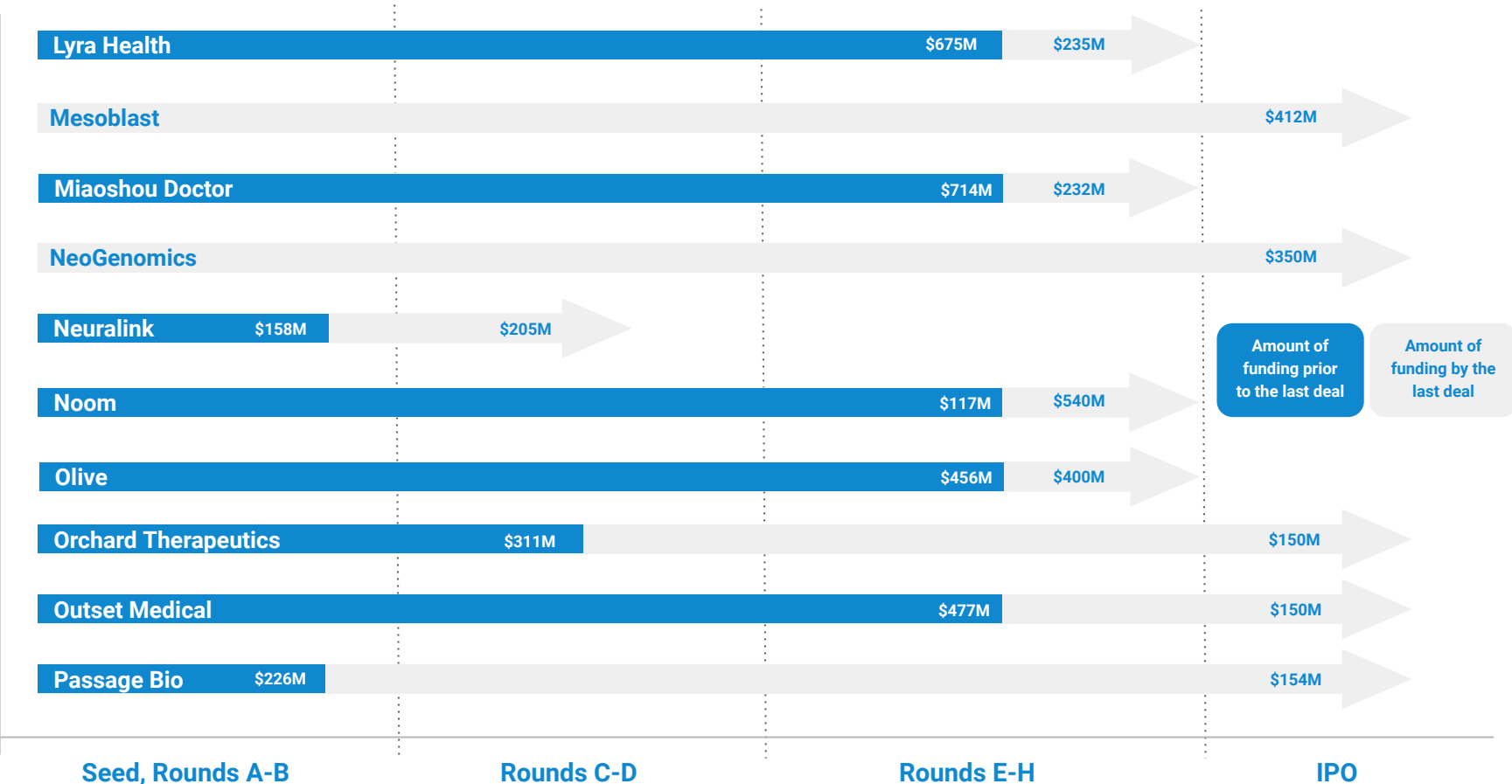
LEADING COMPANIES. AMOUNT AND STAGE OF FUNDING



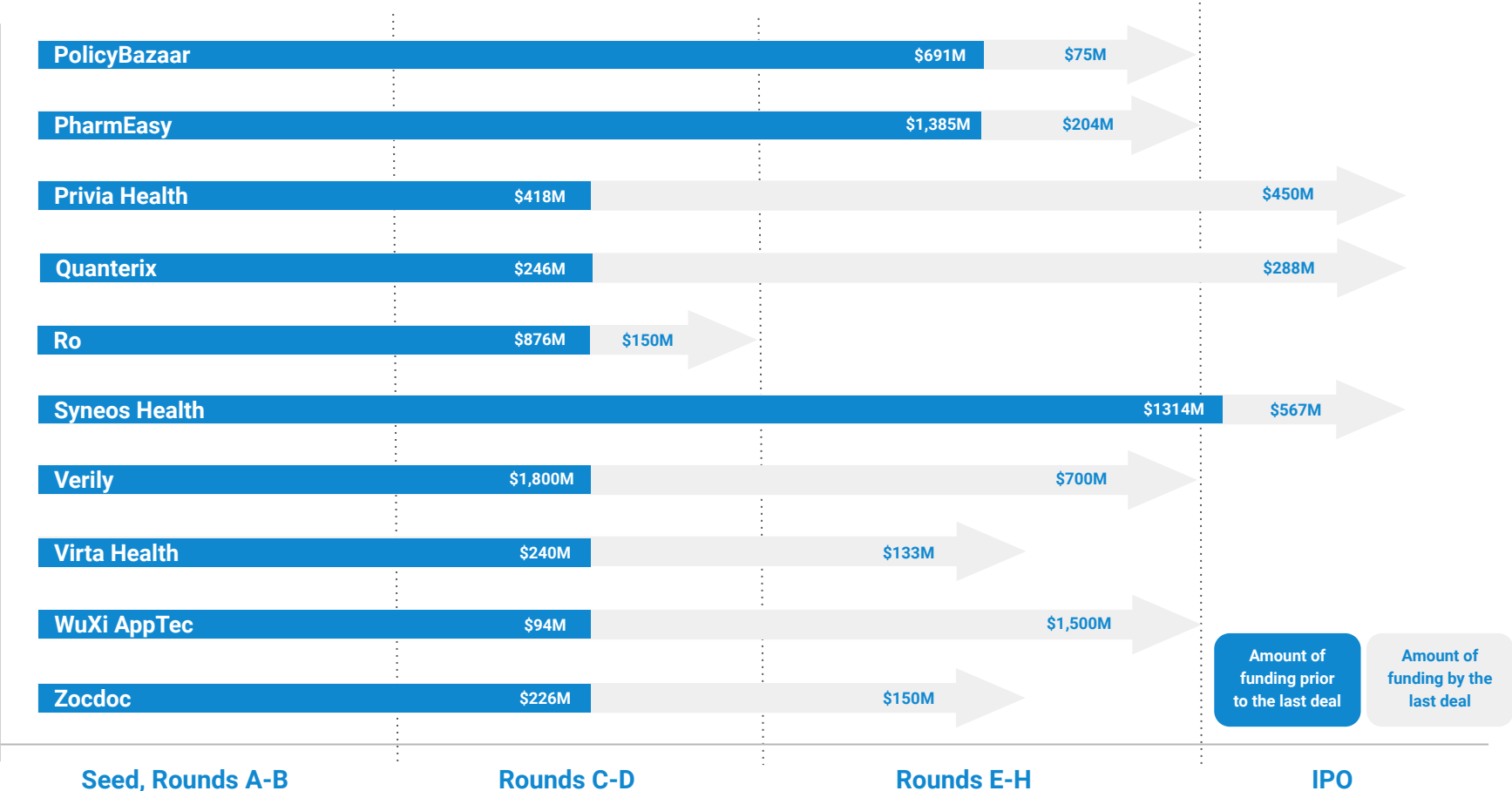
LEADING COMPANIES. AMOUNT AND STAGE OF FUNDING



LEADING COMPANIES. AMOUNT AND STAGE OF FUNDING



LEADING COMPANIES. AMOUNT AND STAGE OF FUNDING

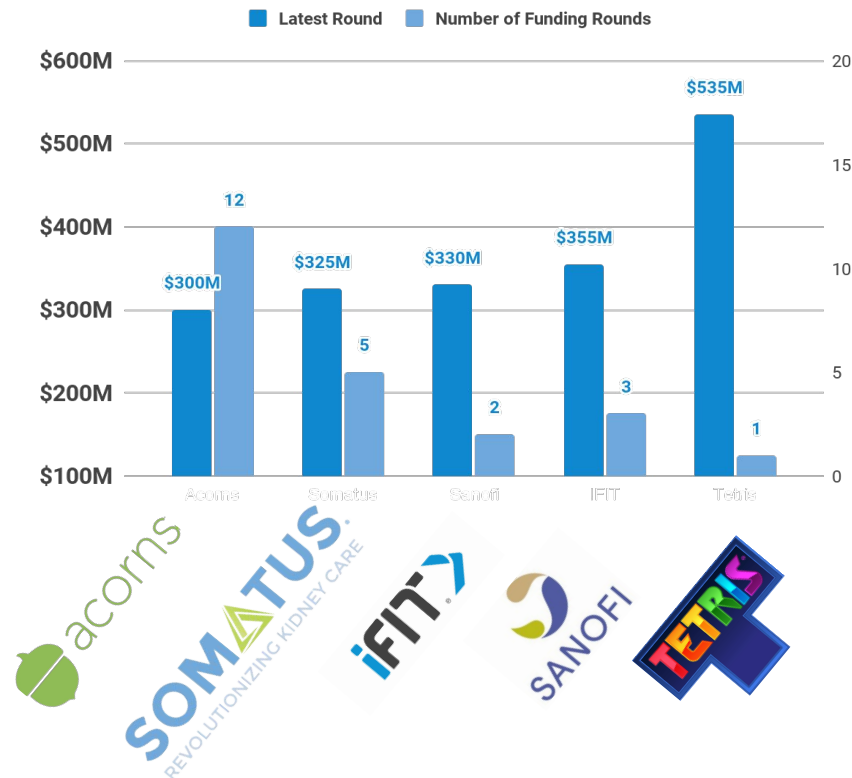


BIGGEST FUNDING ROUNDS IN PRIVATE LONGEVITY COMPANIES

Biggest funding rounds of prominent companies in Q1 2022:

- **Tetris**, an intellectual game services provider with continuous fun and mental stimulation, raised a total of \$536 million in funding over the round in February 2022.
- **Sanofi**, engaged in the research, development, manufacturing, and marketing of innovative therapeutic solutions, raised \$355 million Post IPO Equity in March 2022.
- **iFIT**, is a global subscription technology company that provides interactive personal training, raised \$355 million Private Equity on February 28, 2022 from L Catterton and Scott Watterson as leading investors. The capital raise will enable more focus and investment in growing iFIT's leading brands, content library, and product offerings, with the sole purpose of enhancing the member experience. iFIT today has an engaged community of over 7.3 million total members across more than 120 countries.
- **Somatus** focuses on integrated care for patients with or at risk of developing kidney disease. Somatus' vertically integrated clinical services and technology delay or prevent disease progression, improve quality and care coordination, and increase the use of home dialysis modalities and rates of kidney transplantation. The Virginia-based company raised a \$325 million-plus Series E led by Wellington Management that values the company at \$2.5 billion.
- **Acorns** is a Fintech company that allows individuals to round up purchases and automatically invest the change. The company raised \$300 million, which rose the valuation up to \$1.9 billion. Acorns' platform allows users to invest and save. The funding will allow Acorns to expand its portfolio and crypto options as well as expand its team.

Top 5 Investment Deals

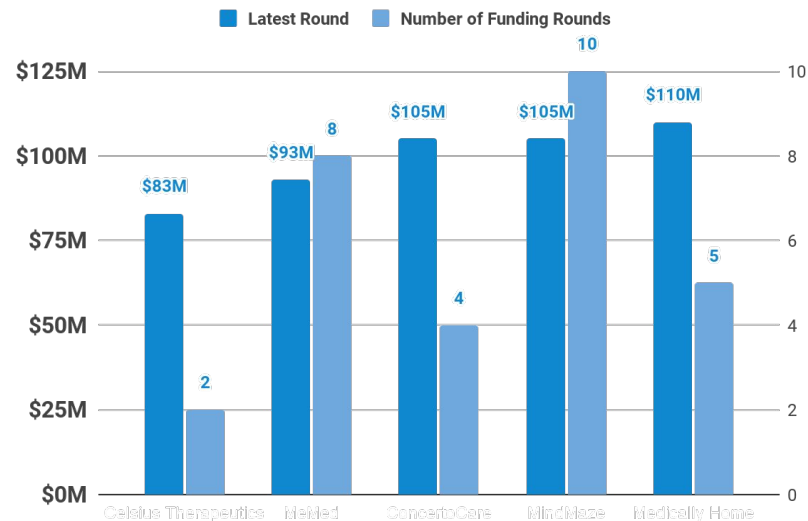


MEDIUM FUNDING ROUNDS IN PRIVATE LONGEVITY COMPANIES

Medium funding rounds of prominent companies:

- **Medically Home** is a tech-enabled clinical enterprise that provides all the necessary capabilities to safely-shift medical care from hospitals to patients' homes, picked \$110 million in a funding from strategic investors including Baxter International, Global Medical Response (GMR), and Cardinal Health.
- **MindMaze**, a digital neurotherapeutic platform, provides digital assessments and therapeutics to treat and rehab patients. It offers patients to engage with motivational virtual reality rehabilitation programs that support their recovery goals enabling them to follow a personalised exercise regimen prescribed by the rehabilitation expert. In February the company MindMaze secured \$105 million financing, led by Concord Health Partners.
- **ConcertoCare** serves patients with Medicare+Medicaid, Medicare Advantage or Medicare, who have complex care needs and an existing primary care provider. The company scored a \$105 million series B funding to scale its care model to provide comprehensive health services to more seniors with unmet health and social needs in their homes in February 2022.
- **MeMed Diagnostics**, a personalised diagnostics company with main focus on preventing antibiotics misuse (improve patient care, empower physicians, and lower health-care costs through rapid and actionable diagnostics for infectious diseases).
- **Celsius Therapeutics**, a biotechnology company that develops precision medicines for cancer and autoimmune disease patients, raised a total of \$83M from Third Rock Ventures, Section 32, GV and others.

Top 5 Investment Deals



Celsius

MeMed

ConcertoCare

mindmaze

Medically Home

SMALL FUNDING ROUNDS IN PRIVATE LONGEVITY COMPANIES

Small funding rounds of prominent companies:

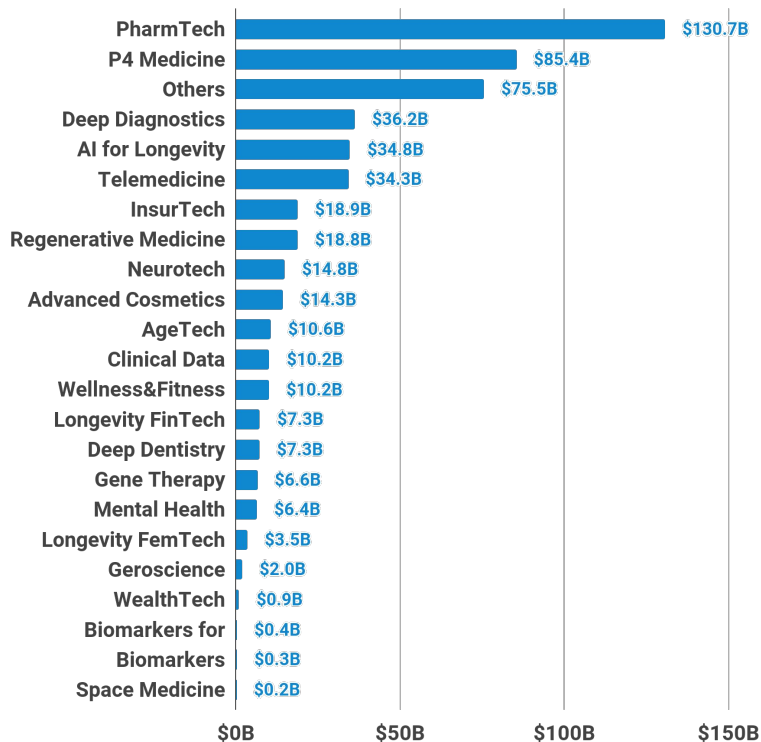
- **Health Gorilla**, a provider of permitted access to aggregated clinical, diagnostics, SDOH patient-centric data to digital health companies, labs, and government to improve clinical outcomes. Health Gorilla also has an offering for life insurers, enabling companies to collect medical records electronically for underwriting. The company raised \$50 million in series C funding, led by SignalFire with participation from Epsilon Health Investors, IA Capital, and Nationwide Ventures.
- **Brightside Health**, a telemedicine platform that offers evidence-based mental health treatments, banked a \$105 million series C funding round. The Silicon Valley company lined up funding from KKR, GV, Optum Ventures.
- **VEDA Data Solutions** creates fully-automated data science and machine learning solutions to healthcare and administrative costs. The company allows businesses access to innovative data science they need in their current dashboards. The Series B round for \$46 million was led by Oak HC/FT to expand its AI-based health data platform.
- **Wandercraft**, developer and seller exoskeletons to walk self-balanced, for inpatient rehab and outpatient daily life. In January 2022, the Paris-based startup announced a \$45 million equity financing. The series C round was led by the US fund Quadrant Management, joined by Bpifrance MACSF, AG2R La Mondiale, Mutuelles Impact and others.
- **Vynca** incorporates virtual palliative care services, advance care planning, care coordination, symptom management, and provider engagement to ensure that personalised end-of-life care. Vynca has raised \$43 million from Questa Capital Generator Ventures and other strategic investors.

Top 5 Investment Deals

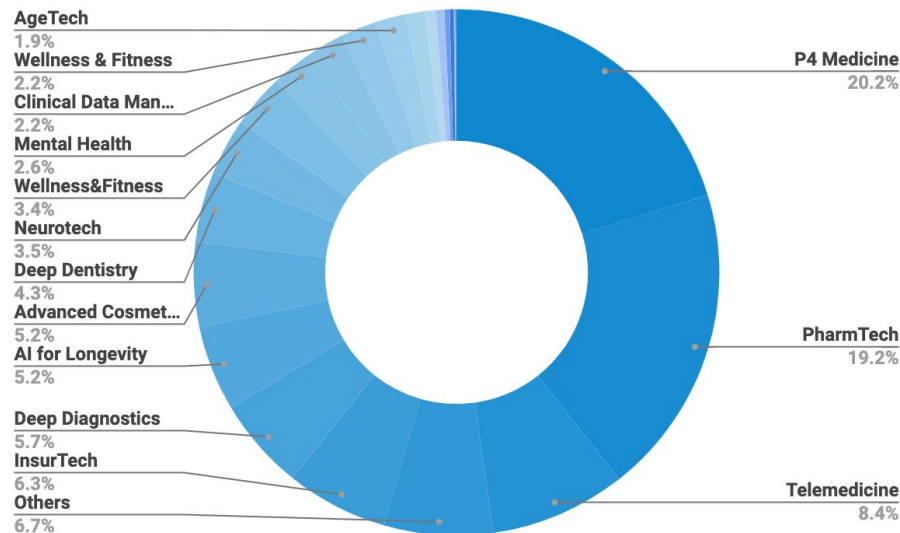


PRIVATE INVESTMENTS IN LONGEVITY BY SECTOR

Total Investments Raised by Private Longevity Companies



Companies Distribution by Longevity Subsectors

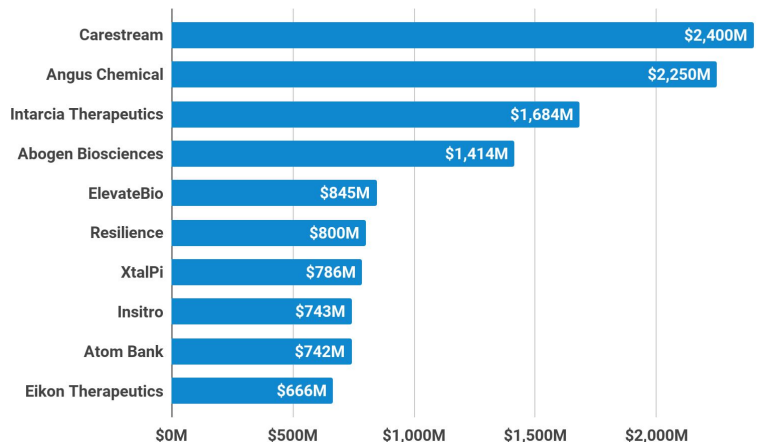


PharmTech and **P4 Medicine** are Longevity subsectors involving the largest number of companies and receiving the highest volume of investments. The subsequent pages outline the key trends of private investing into top 5 Longevity subsectors.

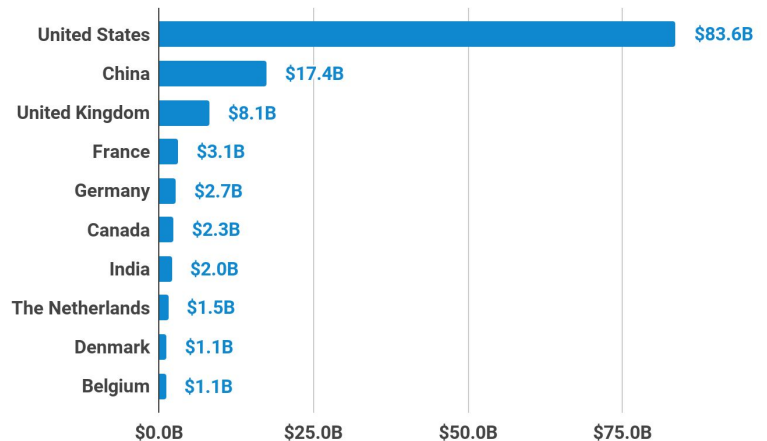
Key market drivers

- **PharmTech is becoming a lucrative area for specialised biotech investors and investment funds (VCs)** just entering the pharma space to include high-risk/high-return companies in their investment portfolios.
- The rise of PharmTech catalyses **technological expansion of other vendors and service providers** e.g. big data providers, quantum computing providers, cloud and data storage providers, etc.
- **Tech companies are expanding into pharma space** via offering specialised services and tools to pharma counterparties and directly investing into disruptive startups.
- Nowadays, **advanced technologies (AI, ML, Big Data)** offer services for drug development with greater success rate, in most of areas such solutions create a unique chance to find novel treatments faster and at lower costs.

Top 10 Private Companies by Total Raised Investments



Top 10 Countries by Investments

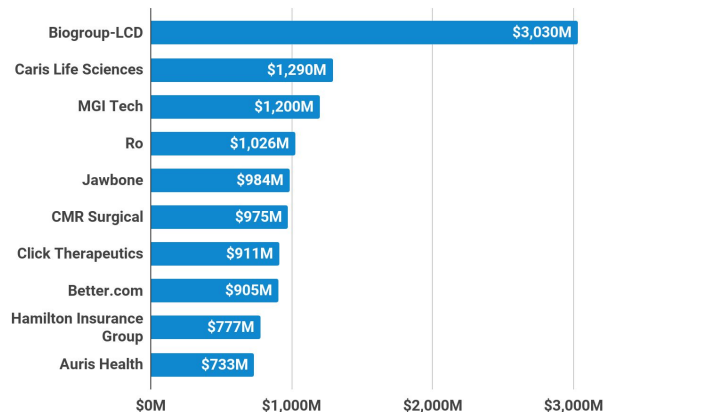


P4 MEDICINE

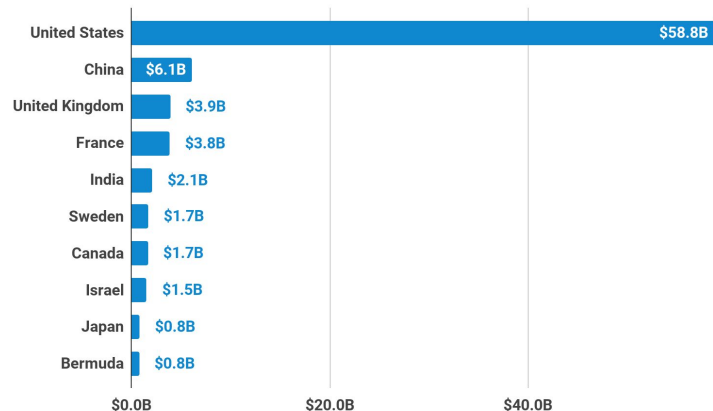
Key market drivers

- We are already seeing **a great shift in diagnostics from symptoms analysis towards a precision analysis** of molecular predictors, and markers of diseases will result in far greater cost/effectiveness.
- Biomedical innovations discovery and supply are being accelerated both by **rising implementation in practical medicine and demand from informed consumers**.
- **Consumers prefer the P4 form of healthcare**, which is science-based and provides active prevention of diseases and ageing, and enhancement of wellness without the regular need to visit clinics. The at-home mode of testing, monitoring, prevention or treatment is in compliance with lifestyle trends of modern humanity.
- **A new wellness and the Longevity Industry has emerged and is expected to supersede the current healthcare industry** by a number of products and become a major source of economic growth in the near future.

Top 10 Private Companies by Total Raised Investments



Top 10 Countries by Investments

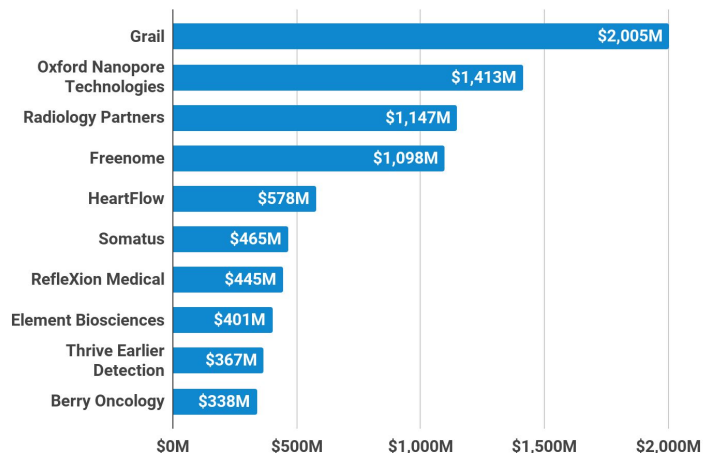


DEEP DIAGNOSTICS

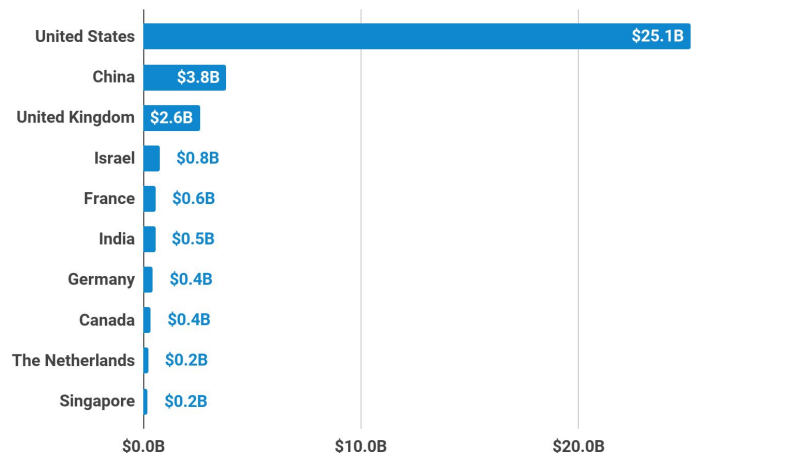
Key market drivers

- **The request of seniors to preventive diagnostics services is becoming more clear:** this population group intends to be independent, vital, and healthy for a longer period of lifespan.
- **The demand for more accessible and on-hand diagnostics tools will arise.** The possible prospective areas of Longevity Deep Diagnostics may involve blood pressure, cancer screening, eyes protecting solutions, hearing tests, cholesterol screening etc.
- As older adults begin experiencing age-related decline and requiring more assistance with daily tasks, they and their family members want **to receive precise and necessary tests and doctor's appointments.** Thus, new companies emerge to fit such needs with new solutions.

Top 10 Private Companies by Total Raised Investments



Top 10 Countries by Investments

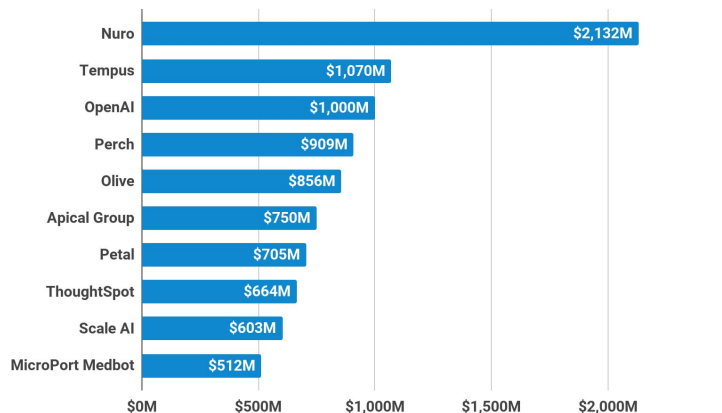


AI FOR LONGEVITY

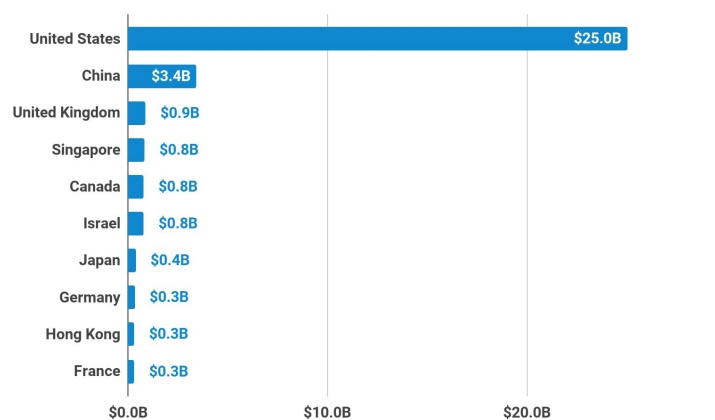
Key market drivers

- **The primary goal of AI application in Longevity Industry for the next 5-10 years** will lie in the aggregation, development and deployment of biomarkers of ageing, health and Longevity; Preventive Medicine diagnostics and prognostics; Precision Health technologies and therapeutics; and integrated wealthspan-extending AgeTech and WealthTech solutions for financial wellness across extended periods of Healthy Longevity.
- As **the complexities of Longevity science and technology increase**, and as the volume of data continues to amass, the role of AI in both analysis and comprehension becomes completely necessary for continued progress and industry development.
- **Companies advancing AI in Longevity are widely becoming the object of interest of investment funds across the global market.** Next 5 years can bring new Longevity-focused funds having more precise expertise necessary to make intelligent investments in such a complex and multidisciplinary industry.

Top 10 Private Companies by Total Raised Investments



Top 10 Countries by Investments

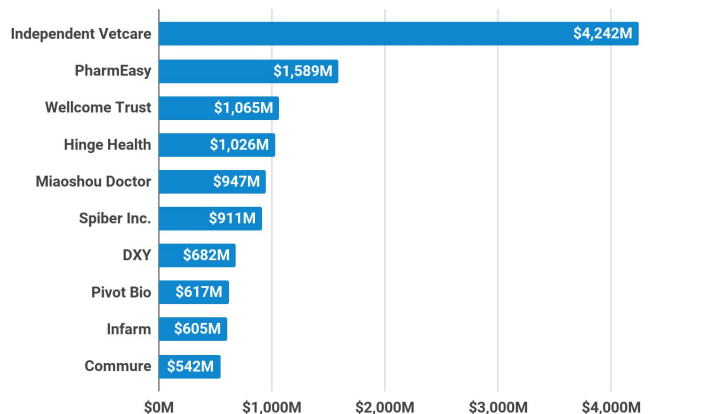


TELEMEDICINE

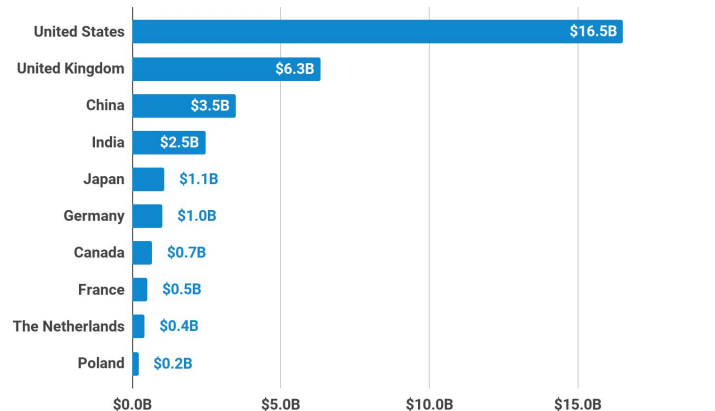
Key market drivers

- **The COVID-19 pandemic has shone a new spotlight on the potential for telehealth to complement in-person care** – especially for people who may face mobility challenges in going to a brick-and-mortar office.
- **Telemedicine proves to be effective in cases of urgent and one-time visits:** e.g. seniors with respiratory infections may use telemedicine solutions saving their time and money while enjoying the solid level of healthcare services.
- **Physicians can spot early warning signs associated with worsening chronic conditions** and the onset of new ones, allowing for early intervention and reducing the chance of hospital admission and readmission.
- **Ever increasing number of new companies emerge which are aimed at reducing the cost of healthcare services for services.** For example, the expense of implementing telemedicine programs in nursing homes could be offset by a reduction in costs related to transferring residents to and from emergency rooms and physicians' offices.

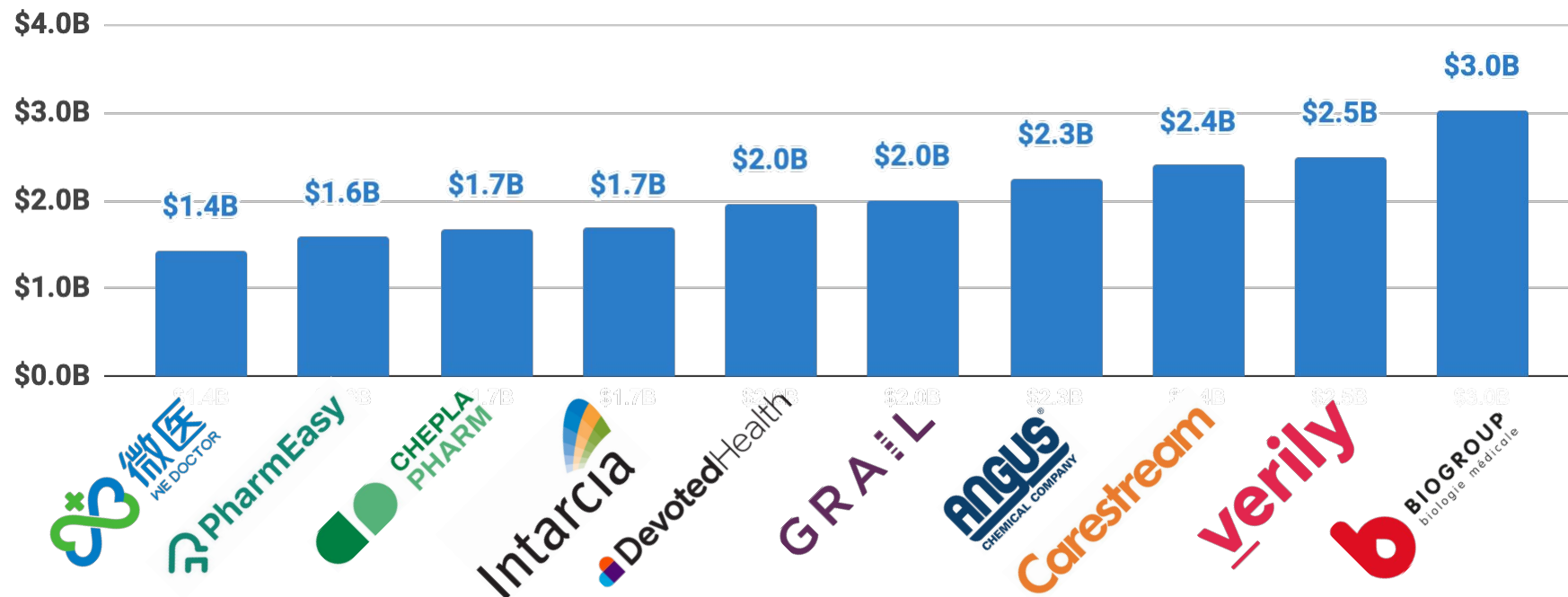
Top 10 Private Companies by Total Raised Investments



Top 10 Countries by Investments

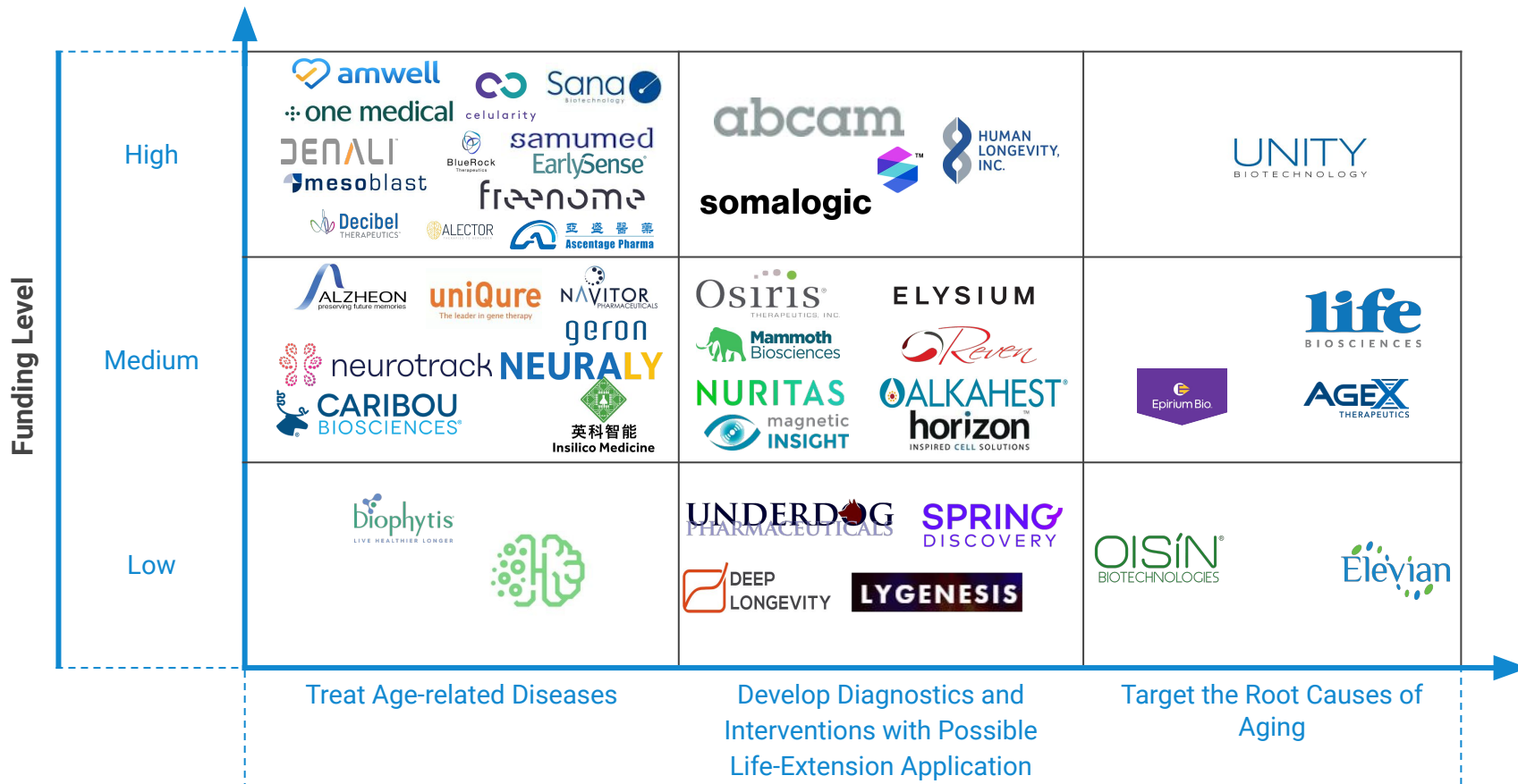


TOP 10 PRIVATE LONGEVITY-FOCUSED COMPANIES BY TOTAL INVESTMENTS AS OF Q1 2022

































As of the beginning of 2022, the top 10 Longevity-focused private companies account to \$20.5B of total funding (compared to \$20.3B as of the end of 2021). It demonstrates the lasting trend of boosted growth of the PharmTech and Healthcare market and the development of the Longevity sector. Pandemic has stimulated an increase in investments in the Longevity industry, BioGroup, the leader of rating, has raised a total of \$3B in funding over 3 rounds.

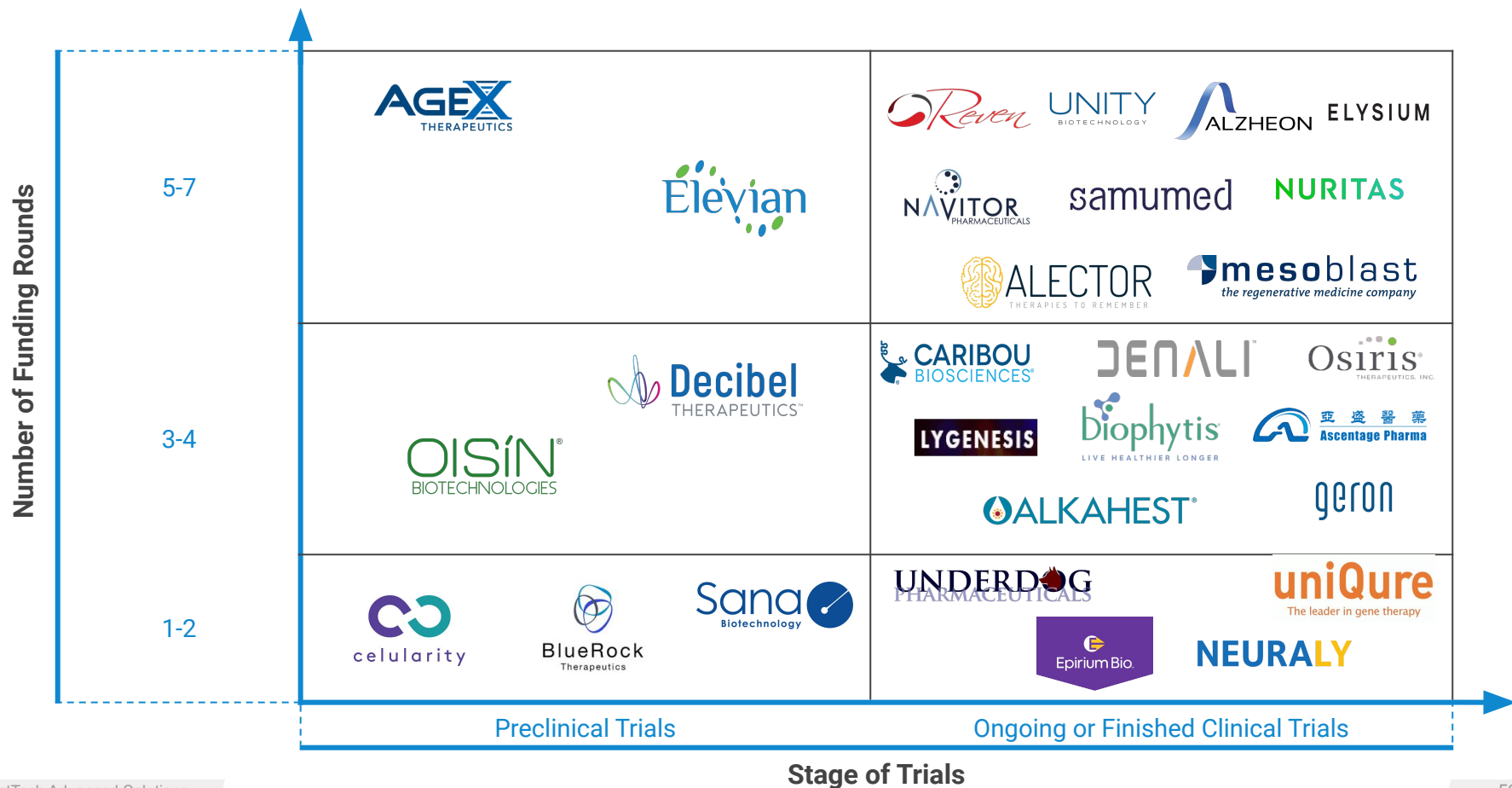
TOP LONGEVITY COMPANIES BY FUNDING LEVEL AND SPECIALISATION



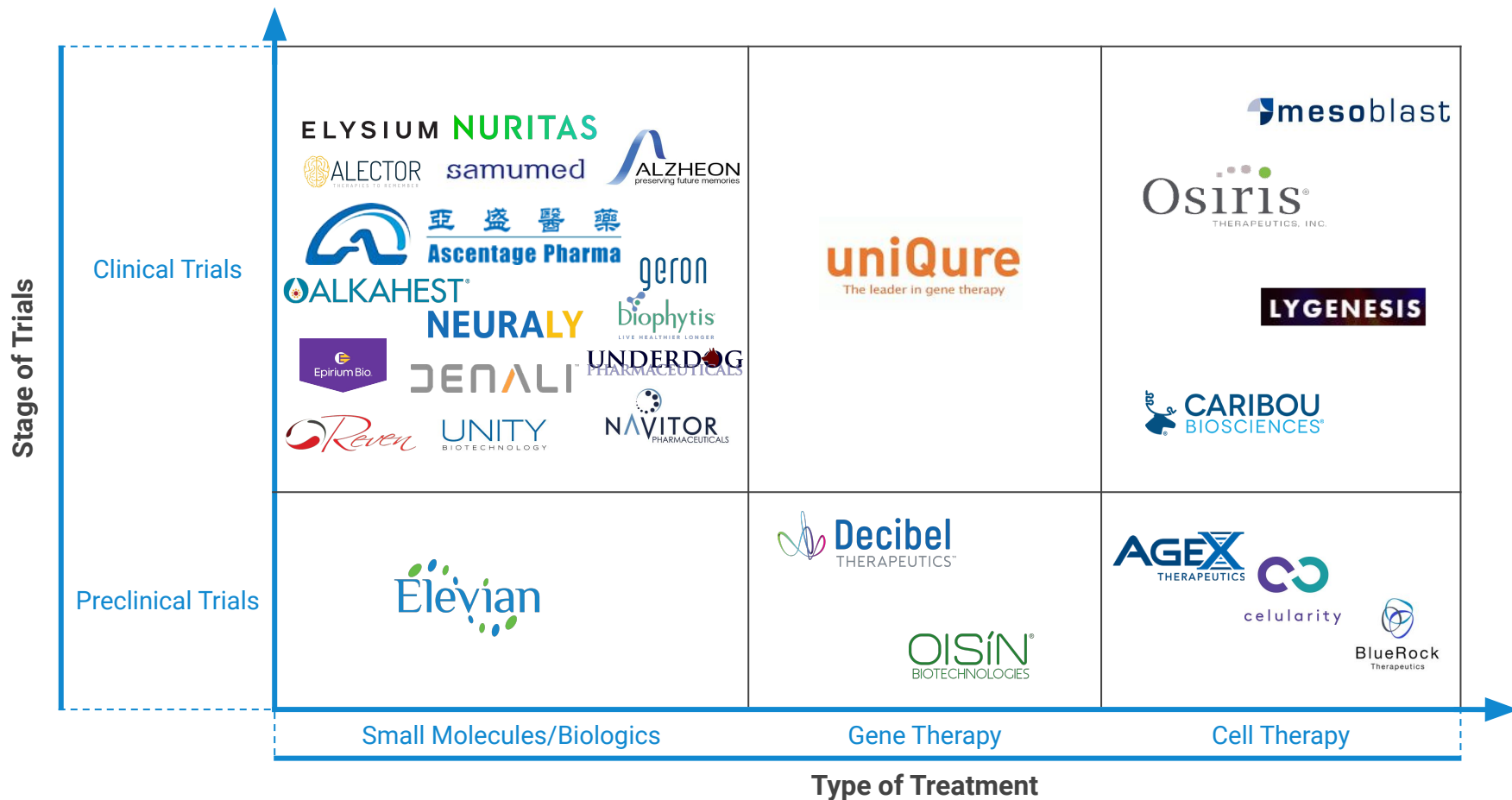
TOP LONGEVITY COMPANIES BY FUNDING ROUND AND TREATMENT TYPE

Funding Round	IPO	    		 
	Rounds C-F	   		
	Round B	 英科智能 Insilico Medicine		 
	Round A	       		  
	Seed			
		Small Molecules / Biologics	Gene Therapy	Cell Therapy

TOP LONGEVITY COMPANIES BY ROUNDS NUMBER AND STAGE OF TRIALS



TOP LONGEVITY COMPANIES BY STAGE OF TRIALS AND TREATMENT TYPE













LEADING INVESTORS IN THE INDUSTRY

Overview













TOP 50 INVESTORS IN LONGEVITY COMPANIES

INVESTORS	NUMBER OF INVESTMENT ROUNDS	NUMBER OF COMPANIES INVESTED	COMPANIES WITH THE BIGGEST FUNDING
National Science Foundation 	35	35	Spero Therapeutics, Semiotic AI, Vaxess Technologies, Ansa Biotechnologies, BioAesthetics
National Institutes of Health 	26	26	Versiti, Helixbind, BiVACOR, Drexel University, HDT Bio
RA Capital Management 	21	20	Freenome, Adagio Therapeutics, Graphite Bio, Janux Therapeutics, Day One Biopharmaceuticals
Northpond Ventures 	18	18	Emulate, Scipher Medicine, Vestaron, Ultivue, Aro Biotherapeutics
Y Combinator 	18	18	Zepto, Zeit Medical, Yemaachi Biotechnology, Intellect, Atlas
General Catalyst 	16	16	Ro, Color, Ethos, SWORD Health, BrightInsight
OrbiMed 	16	16	XalPi, Binx Health, Yisheng Biopharma, Zentera Therapeutics
Temasek Holdings 	16	16	Abogen Biosciences, Lenskart, Perfect Day, Apeel Sciences, Pivot Bio
Tiger Global Management 	17	16	Hinge Health, Scale AI, Medable, DispatchHealth, Innovaccer,
Creative Destruction Lab 	14	14	ECONcrete, Navega Therapeutics, Nia Therapeutics, Ariel Precision, NANOCHON









TOP 50 INVESTORS IN LONGEVITY COMPANIES

INVESTORS		NUMBER OF INVESTMENT ROUNDS	NUMBER OF COMPANIES INVESTED	COMPANIES WITH THE BIGGEST FUNDING
One North Carolina Small Business Program		14	14	Baebies, Altis Biosystems, Atom Bioworks, Redbud Labs, EpiCypher
SoftBank Vision Fund		14	14	Devoted Health, Abogen Biosciences, Digital Currency Group, CMR Surgical, Better.com
European Innovation Council		15	12	VarmX, VBL Therapeutics, Vivasure Medical, OneProjects, Xenothera
Insight Partners		12	11	RapidSOS, TytoCare, Viz, Workit Health, TetraScience
Silicon Valley Bank		11	11	Humacyte, Organogenesis, Akili Interactive Labs, Viracta Therapeutics, Impel NeuroPharma
SOSV		17	11	Criam, BioSapien, CyGenica, Nyoka Design Labs, Beemunity
Economic Development Administration		10	10	University of North Carolina at Chapel Hill, Washington State University, Launch NY, Massachusetts Biomedical Initiatives, Science Center
Khosla Ventures		10	10	HealthifyMe, Earli, Synchron, IgGenix, Bionaut Labs
National Cancer Institute		10	10	Shasqi, Strand Therapeutics, Anixa Biosciences, Viewpoint Molecular Targeting, Collectar Biosciences
Sequoia Capital China		11	10	Analytical Biosciences, Harvest Capital Management, ABclonal, Cellular Biomedicine Group, Stemirna











TOP 50 INVESTORS IN LONGEVITY COMPANIES

INVESTORS		NUMBER OF INVESTMENT ROUNDS	NUMBER OF COMPANIES INVESTED	COMPANIES WITH THE BIGGEST FUNDING
US Department of Commerce		10	10	University of North Carolina at Chapel Hill, Washington State University, Launch NY, Massachusetts Biomedical Initiatives, Science Center
CARB-X		9	9	Affinivax, Vaxcyte, Summit Therapeutics, Accelerate Diagnostics, Baebies
MassChallenge Switzerland		9	9	Criam, Michroma, Reazent, BrightCure, BestHealth4u
Bill & Melinda Gates Foundation		8	8	Schrödinger, Evotec, Exscientia, Provivi, Inventprise
Bpifrance		9	8	Inotrem, TreeFrog Therapeutics, METabolic EXplorer, Depixus, Biophytis
Casdin Capital		8	8	Century Therapeutics, LetsGetChecked, Absci, Paige, Verve Therapeutics
Cormorant Asset Management		8	8	Umoja Biopharma, NiKang Therapeutics, Expansion Therapeutics, Interius BioTherapeutics, Chemomab
Deerfield Management		9	8	Crossover Health, Xeris Pharmaceuticals, Terns Pharmaceuticals, Synthekine, Nuvalent
Fidelity Management & Research Company		8	8	Kry, Quell Therapeutics, Tenstorrent, Skyhawk Therapeutics, Inscripta
General Atlantic		8	8	Centassa Pharmaceuticals, Acko, Incode Technologies, Cincor Pharma, Vida Health

TOP 50 INVESTORS IN LONGEVITY COMPANIES

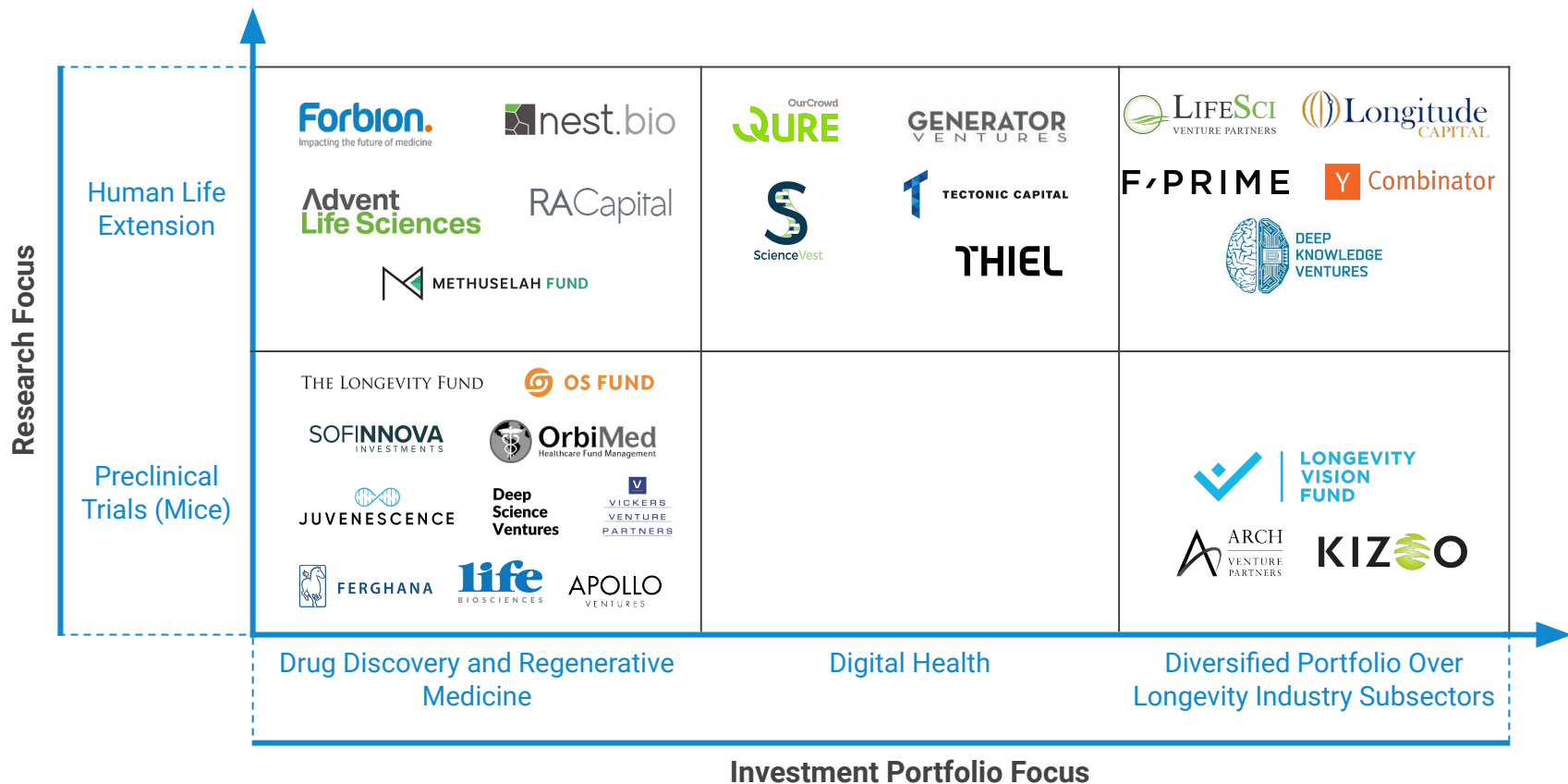
INVESTORS		NUMBER OF INVESTMENT ROUNDS	NUMBER OF COMPANIES INVESTED	COMPANIES WITH THE BIGGEST FUNDING
GL Ventures		8	8	Abogen Biosciences, Clover Biopharmaceuticals, Hangzhou DAC Biotech Co., Ltd, Thousand Oaks Biopharmaceuticals, Bioheng
Illumina Accelerator		8	8	NewStem, Flightpath Biosciences, Mitra bio, Oshun Medical, Parallel Health
Novo Holdings		8	8	Quanta, Hummingbird Bioscience, StrideBio, Muna Therapeutics, ADCendo
Qiming Venture Partners		8	8	Zhenge Biotech, Newsoara, IntoCare, SinoUnited Health Clinic, MediLink-Global
Vivo Capital		8	8	Innocare, Neurogastrx, BlossomHill Therapeutics, Ossium Health, Scientia Vascular
Ally Bridge Group		7	7	CMR Surgical, RefleXion Medical, Mainstay Medical, Sonoma BioTherapeutics, Arbor Biotechnologies
European Investment Bank		7	7	Stilla Technologies, Robocath, BioVersys, OSE Immunotherapeutics, LYSOGENE
Foresite Capital		8	7	Affinivax, Gemini Therapeutics, Pardes Biosciences, Theseus Pharmaceuticals, Interline Therapeutics
Innovate UK		8	7	Rinri Therapeutics, CN Bio Innovations, SleepCogni, Vamstar, Bea Fertility
Leaps by Bayer		7	7	Senti Biosciences, Sound Agriculture, GRO Biosciences, Andes, Deka Biosciences

TOP 50 INVESTORS IN LONGEVITY COMPANIES

INVESTORS		NUMBER OF INVESTMENT ROUNDS	NUMBER OF COMPANIES INVESTED	COMPANIES WITH THE BIGGEST FUNDING
Morningside Ventures		7	7	New Amsterdam Pharma, Alebund Pharmaceuticals, Apnimed, Linus Health, Wellinks
Perceptive Advisors		8	7	Freenome, Honor, IsoPlexis, Nautilus Biotechnology, Sermonix Pharmaceuticals
Redmile Group		7	7	Mammoth Biosciences, Absci, Evox Therapeutics, AgomAb Therapeutics, Ayala Pharmaceuticals
Sofinnova Partners		7	7	Mainstay Medical, Synthace, Muna Therapeutics, Sphere Fluidics, Meigenix
Vida Ventures		7	7	Centessa Pharmaceuticals, Scorpion Therapeutics, Vigil Neuroscience, Tectonic Therapeutic, IconOVir Bio
Blackrock		6	6	Immunocore, Planet, MoneyLion, Motif, Astra
Business Growth Fund		6	6	Elvie, Phico Therapeutics, Closed Loop Medicine, Entia, Locate Bio
Coatue		7	6	Hinge Health, Lyra Health, Alchemy, Alan, DNA Script
EcorR1 Capital		6	6	Nuvation Bio, Scorpion Therapeutics, Corvus Pharmaceuticals, Affinia Therapeutics, Aktis Oncology
Eli Lilly		6	6	Terns Pharmaceuticals, Jaguar Gene Therapy, MiNA Therapeutics, Seraxis, GenEdit

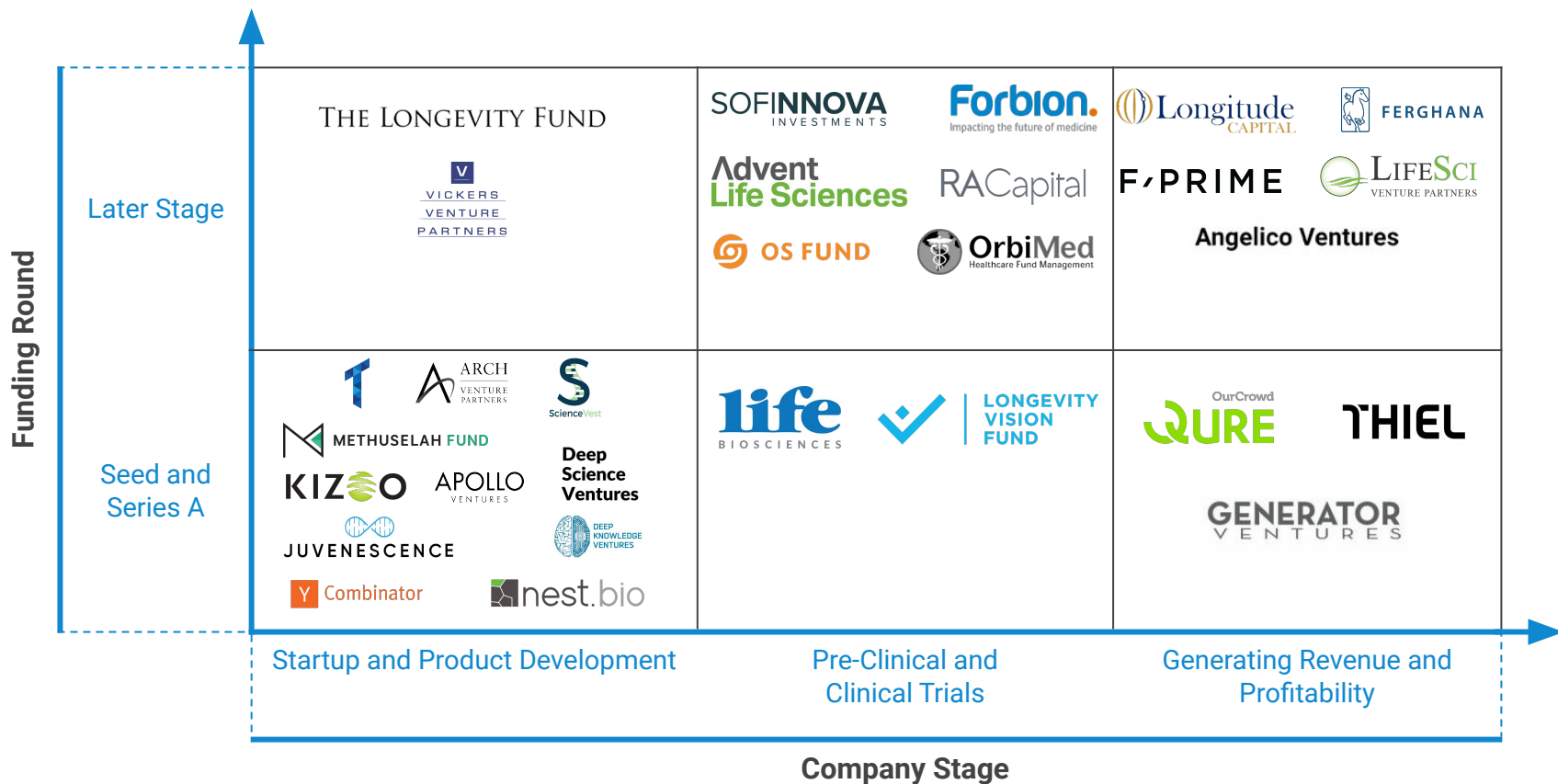
COMPARISON OF LONGEVITY INVESTMENT FUNDS

RESEARCH FOCUS / INVESTMENT PORTFOLIO FOCUS



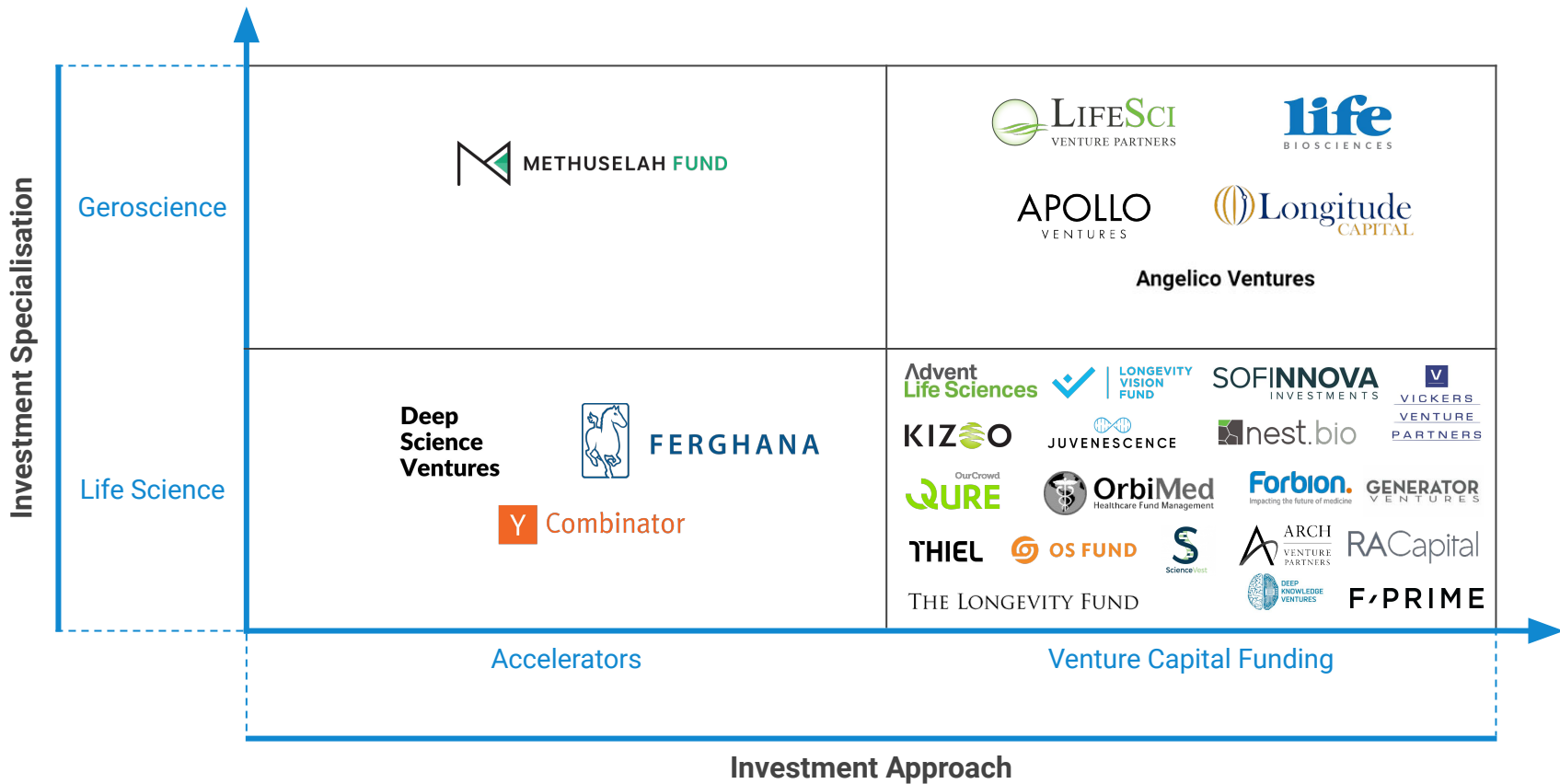
COMPARISON OF LONGEVITY INVESTMENT FUNDS

FUNDING ROUND / COMPANY STAGE



COMPARISON OF LONGEVITY INVESTMENT FUNDS

INVESTMENT SPECIALISATION / INVESTMENT APPROACH



COMPARISON OF LONGEVITY INVESTMENT FUNDS

NUMBER OF INVESTMENTS / GEOGRAPHICAL DISTRIBUTION OF ASSETS



Geographical Distribution of Assets

LONGEVITY-FOCUSED MARKET TIMELINE

The first approaches

- The first scalable approaches for Longevity biomedicine and biomarkers of ageing were developed and several industry players with forward-thinking executives started launching pilot collaborations and making small investments.

Criticism

- However, only few market players believed in anti-ageing technologies.
- Many pilot projects failed due to the lack of scientific validation and immaturity of the technologies, creating a lot of criticism towards the whole industry.
- Since then, the race for the acquisition of the Longevity startups began.
- Testing of the technology began.

Industry development

- Capitalisation of the industry was continuously growing.
- Many bets of early investors appeared to be justified.
- Large financial institutions, as well as government agencies, started to express interest in the Longevity industry.

Transition from quantity to quality

- An important milestone in transitioning from the quantity of Longevity startups to qualitative gains – significant number of practical validations of previously conducted research appeared during this year.
- Competition for the most successful AI in Pharma companies increased dramatically.

Intensive competition

- Most developed Longevity startups are becoming mature companies, large institutional investors are being attracted to the industry, full-fledged Longevity infrastructure is being developed.
- Intensive cooperation of Longevity companies with corporations, banks, and governments begins.
- Competition among advanced Longevity companies booms.

2013-2015

2016-2017

2018

2019

2020-2023

CONCLUSIONS



Most of the Longevity-focused investment funds invest in drug discovery and depend on the success of clinical trials. They follow a strategy whereby they invest in one another, drug discovery and AI-driven pharma companies. Investors are highly exposed to risks associated with drug failure because most of portfolio drug discovery companies specialise in animal clinical trials. Animal models have limited concordance with human pathology. A molecule that extends a healthy lifespan in one species often extends a lifespan in other species. To minimise the risk of failed clinical trials and increase the probability of successful commercialisation of treatment, researchers should determine the effects of the drug on the human body, assess its dosage and safety, and obtain a safe and optimal dosage that is likely to be effective for the proposed indication.



Lack of portfolio diversification over Longevity industry subsectors. Although venture funds, by definition, are supposed to prioritise investments into the most disruptive technologies and startups, most of them actually prefer to specifically avoid DeepTech sectors or enter investment rounds at later stages. **Longitude Capital, F-Prime Capital** and **LifeSci Venture Partners** have a sufficiently diversified investment portfolio both by Longevity subsectors and by the level of companies' maturity. They prefer to invest in AgeTech, Drug Discovery, and P4 Medicine projects at different funding stages.

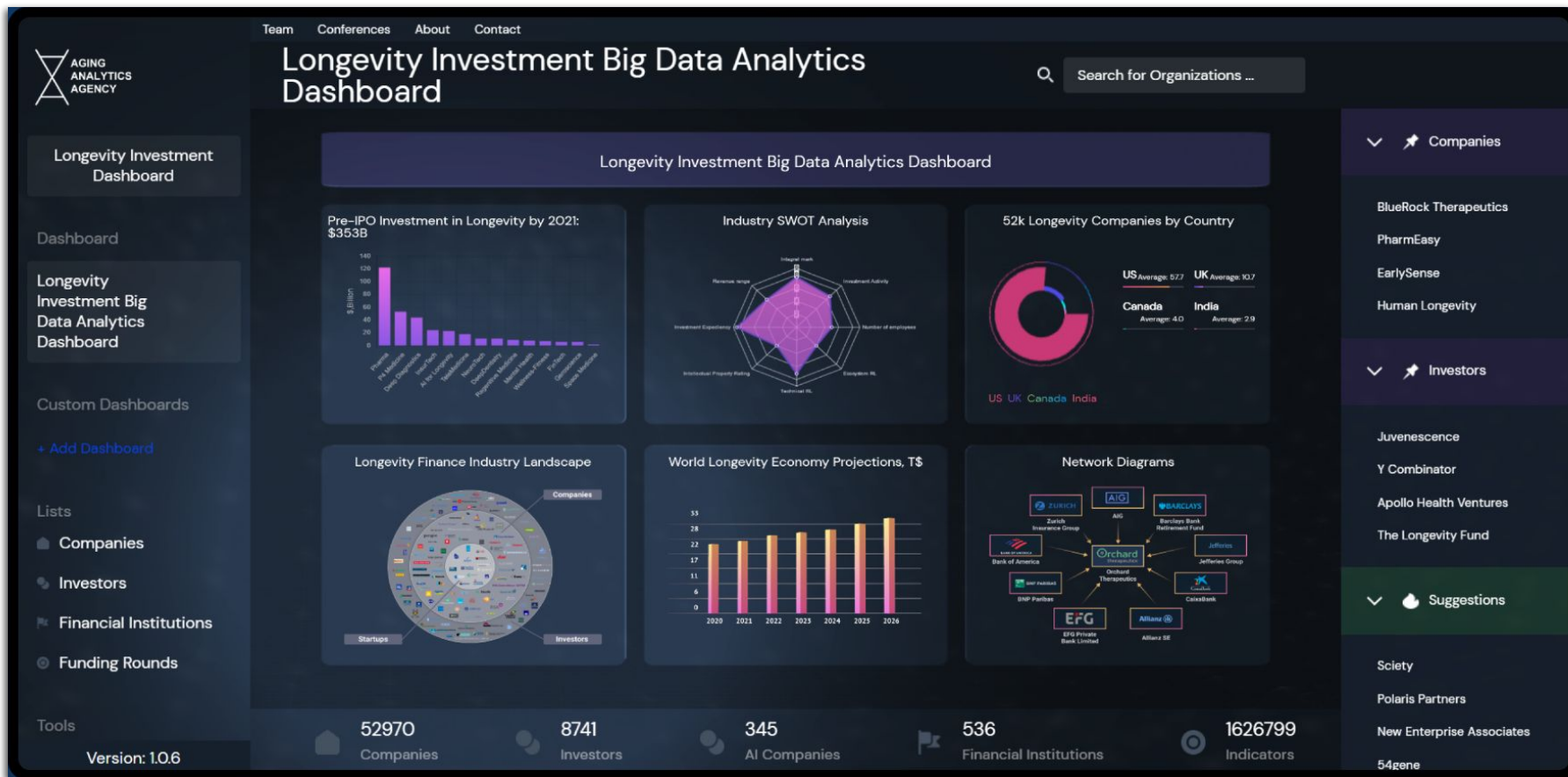


Lack of effective de-risking investment strategies in terms of “time diversification” and company stage. The majority of Longevity-focused funds (e.g. KIZOO, Apollo Ventures, and Juvenescence) are early-stage investors, which are exposed to critical investment risks. They understand that building a new business takes time and ongoing support, so they typically expect to make multiple investments in a single company as it develops. The challenge is to design de-risking strategy that can cost-effectively catalyse private investment and deliver a successful outcome for every portfolio project.



The Longevity industry will inevitably exhibit growth. It is beneficial for investors, as it accelerates their access to biomedical technology and life extension. It is of great benefit to humanity, creating the products and services that will help us enter a new era of long, comfortable and productive lives. Being the most ethical way of conducting business, it also helps generate enormous profits, contributes to developing the most advanced Longevity technologies, and makes humanity healthier.

LONGEVITY INVESTMENT BIG DATA ANALYTICS DASHBOARD

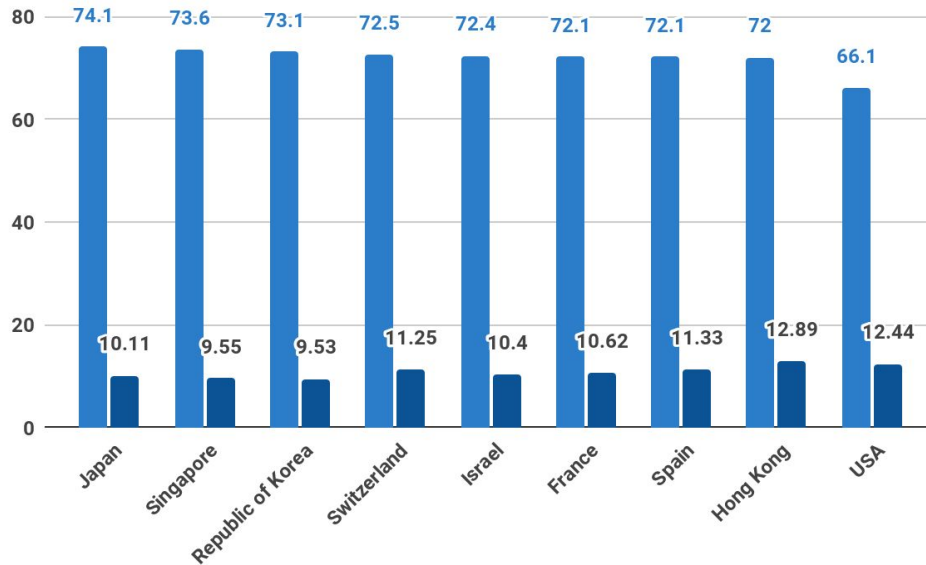


LONGEVITY GOVERNANCE AND NATIONAL HEALTHCARE BUDGETS

Overview



LONGEVITY GOVERNANCE INDUSTRY: OVERVIEW



■ HALE, 2019

■ Life expectancy and HALE difference, 2019

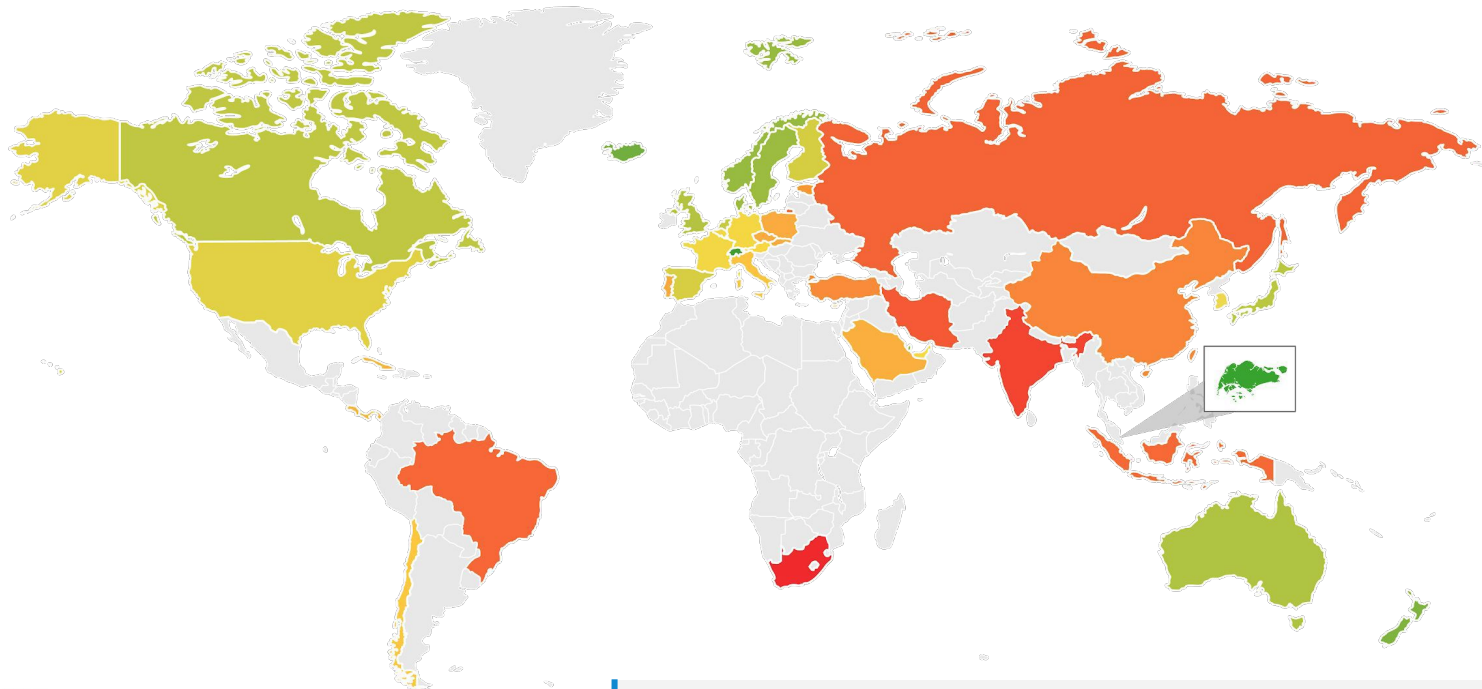
The main goal of the Longevity Governance Industry is to **reduce the gap between life expectancy and HALE** (Health-Adjusted Life Expectancy). Global Longevity Governance is a special analytical study that uses data across 50 countries to measure Healthy Longevity according to HALE. In so doing, it is able to identify the existing gaps between HALE and unadjusted life expectancy. All the parameters used in the report depend on the social policy, healthcare, medical, financial and socio-economic factors in a particular country. We provide an overview of countries with the lowest to highest HALE indicators.

The lowest gap between HALE and Life Expectancy is observed in **Singapore** where people tend to be wealthier and are, therefore, able to eat healthy food and have access to the best health care. However, this rule is not applicable to **the US**, which spends a significant amount of money on healthcare but still has a relatively low HALE. Countries in which people live in poor environmental conditions, do not have access to modern healthcare and appropriate nutrition also have a low HALE.

50 COUNTRIES: ANALYSIS OF LONGEVITY PROGRESS

1	Argentina	13	Estonia	26	Japan	39	Saudi Arabia
2	Australia	14	Finland	27	Luxembourg	40	Singapore
3	Austria	15	France	28	Malta	41	Slovakia
4	Belgium	16	Germany	29	Mexico	42	Slovenia
5	Brazil	17	Greece	30	Netherlands	43	South Africa
6	Canada	18	Hong-Kong, SAR	31	New Zealand	44	Spain
7	Chile	19	Iceland	32	Norway	45	Sweden
8	China	20	India	33	Panama	46	Switzerland
9	Costa Rica	21	Indonesia	34	Poland	47	Turkey
10	Cuba	22	Iran	35	Portugal	48	United Arab Emirates
11	Czech Republic	23	Ireland	36	Qatar	49	United Kingdom
12	Denmark	24	Israel	37	Republic of Korea	50	United States of America
		25	Italy	38	Russian Federation		

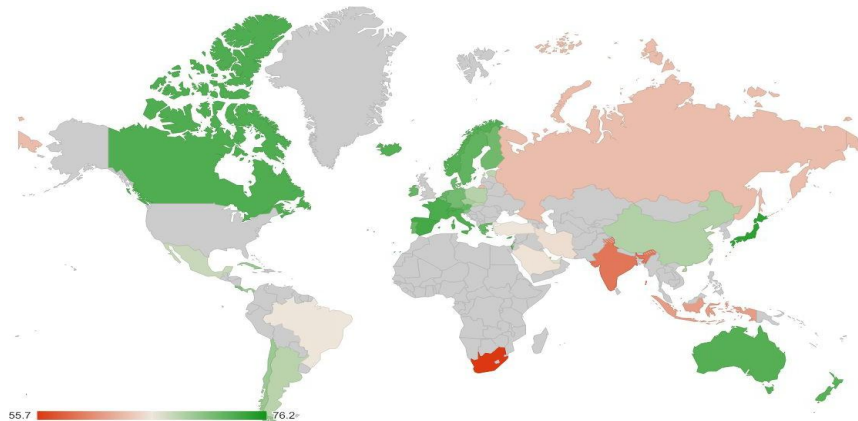
HALE RANKING AND GAP ESTIMATION



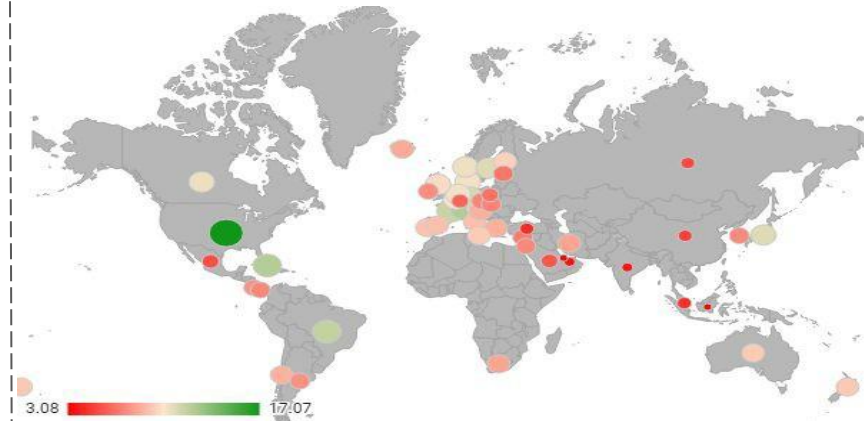
Health-Adjusted Life Expectancy (HALE), used here as a measure of Healthy Longevity, is the average number of years an individual can expect to live free of chronic age-related disease.

HALE AND LIFE EXPECTANCY: FACTORS AFFECTING HALE

Both sexes HALE



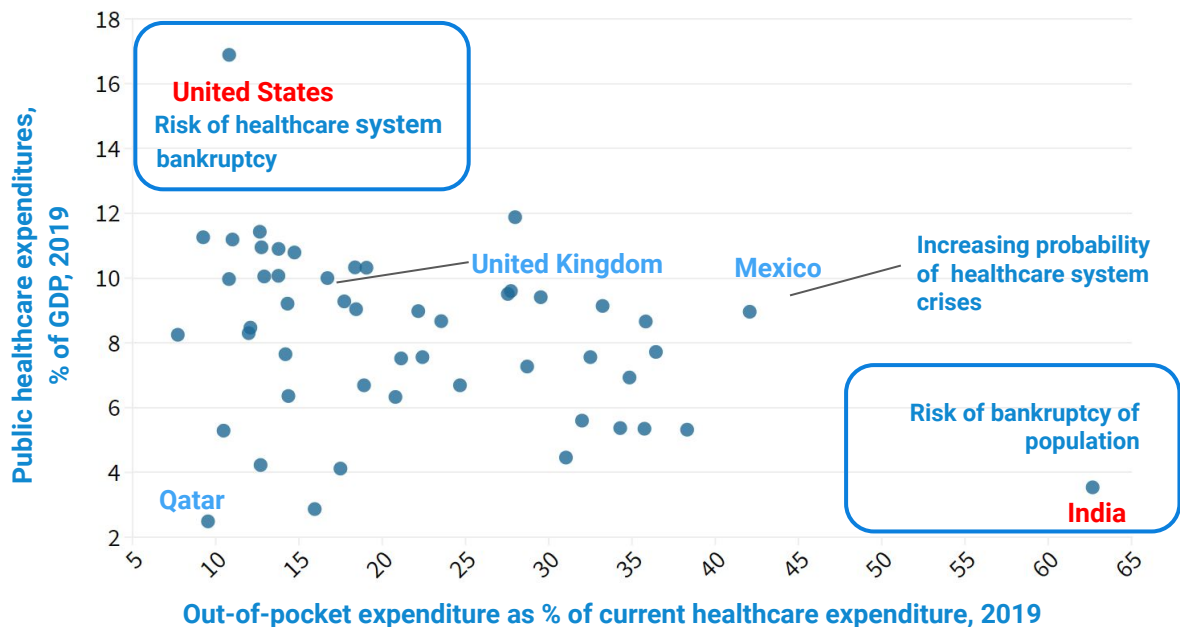
Public health expenditures (as % of GDP)



Being a major characteristic of a country's healthcare policy, public health expenditure is, therefore, a key variable as far as the research purpose is concerned. There is a wide variation in the percentage of public healthcare expenditure across different countries, which reflects profound differences in their healthcare systems. Hence, public spending on healthcare affects the latter's efficiency than being an input in the health production function.

Efficiency of a healthcare system cannot be measured only by health expenditure as percentage of GDP where health expenditure involves consumption of healthcare goods and services, including personal healthcare and collective services. It is a complex indicator that varies across different countries. Healthcare spending in developed countries is impacted by higher prices, as well as higher administrative and transaction costs. That is precisely why increased healthcare spending does not always result in a more efficient healthcare system and better health of a country's citizens.

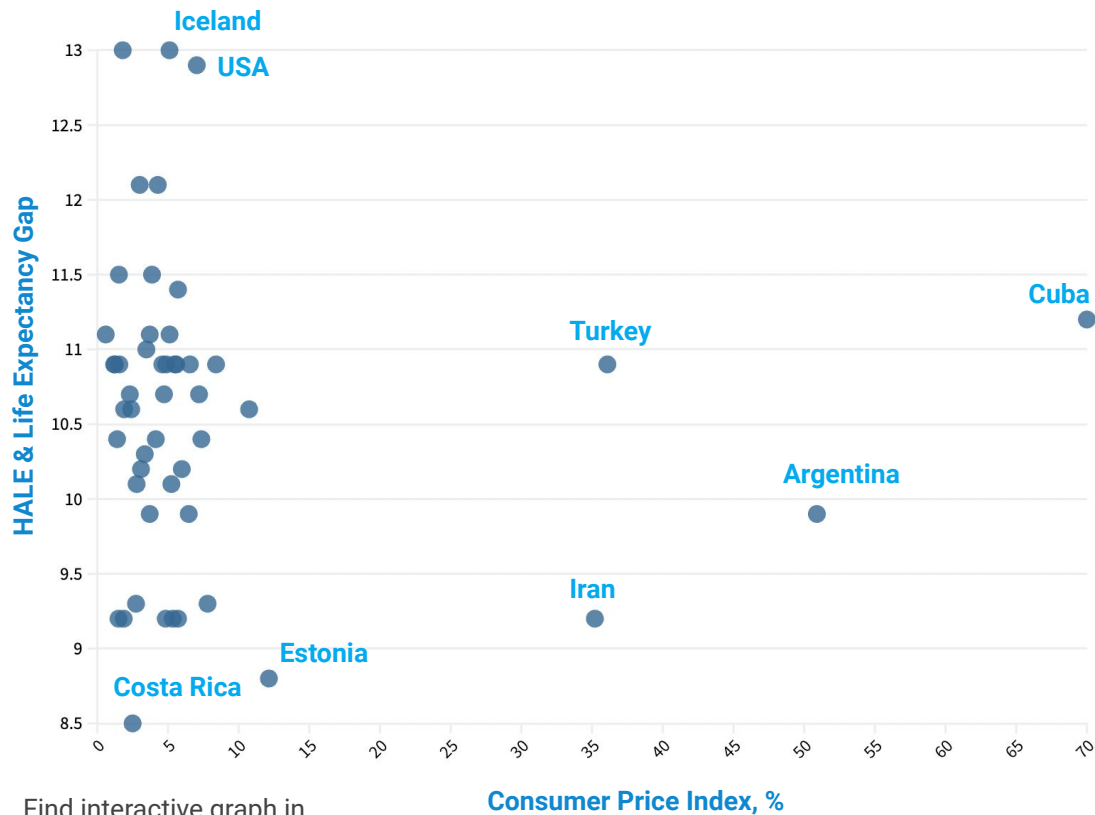
PUBLIC HEALTHCARE AND OUT-OF-POCKET EXPENDITURE



Find interactive graph in Flourish by following the [link](#)

Unregulated direct charges often pose a significant hurdle to individuals that require health care. They also tend to contribute to high out-of-pocket payments and cause problems with financial protection. Out-of-pocket expenses place a heavy burden on households' financial resources and make healthcare unaffordable to low-income groups. As a result, there appear significant disparities in healthcare status between groups with different income levels. In contrast, public spending on health care is central to universal health coverage and social protection. However, no clear trend signifying that is observable at the moment. In the US, healthcare expenditure is a result of high administrative costs and significant corruption in healthcare.

ECONOMIC INSTABILITY AND A GAP BETWEEN HALE AND LIFE EXPECTANCY



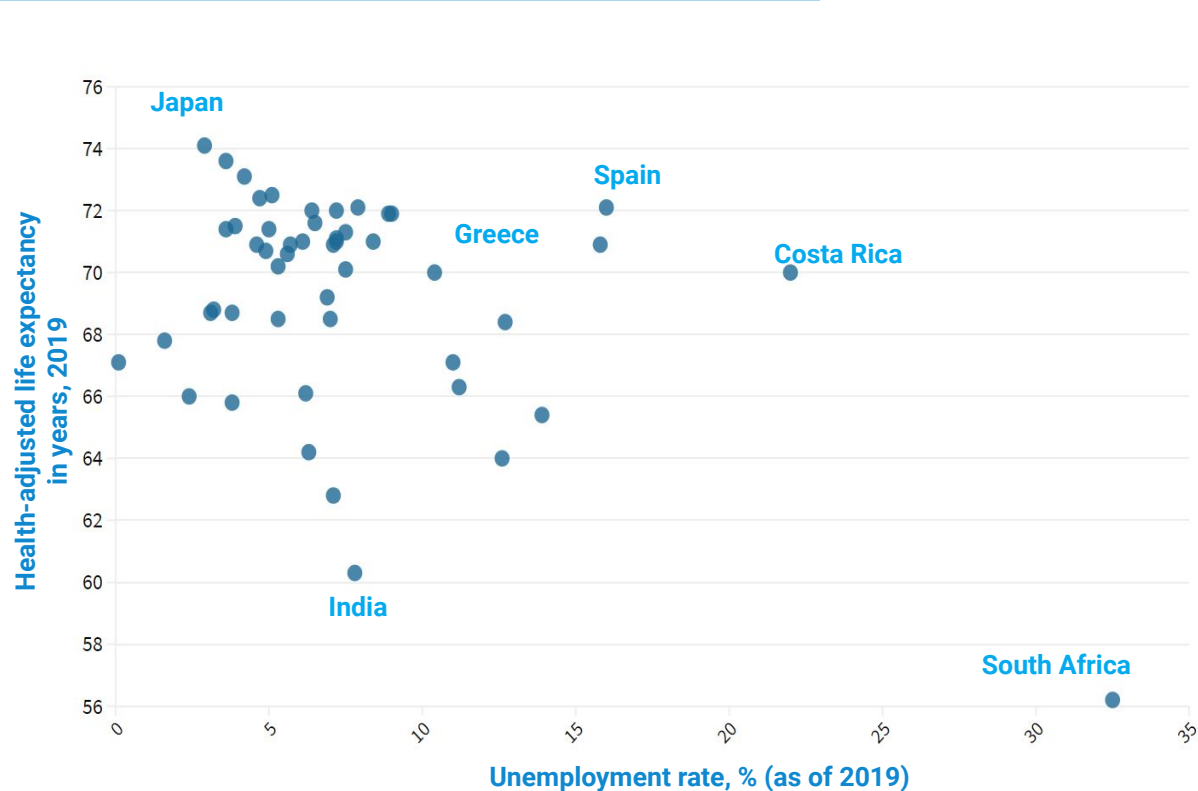
Find interactive graph in
Flourish by following the [link](#)

The Consumer Price Index (CPI) is used to measure the average change in prices paid by consumers for goods and services over time. CPI characterises prices' instability and economic instability, whereas inflation indicates recession or systemic crises.

According to the 2019 **Medical Trends Around the World survey**, health conditions, supplier factors and consumer habits are the primary factors contributing to increased costs. A surge in prices for basic medical services and goods makes healthcare less affordable and leads to higher inequality in a healthcare status.

The graph shows the intersection between **increase of CPI and a gap between life expectancy at birth and HALE**. The lowest level of CPI in 2021 was observed in **Japan**, while the highest one was in **Cuba**.

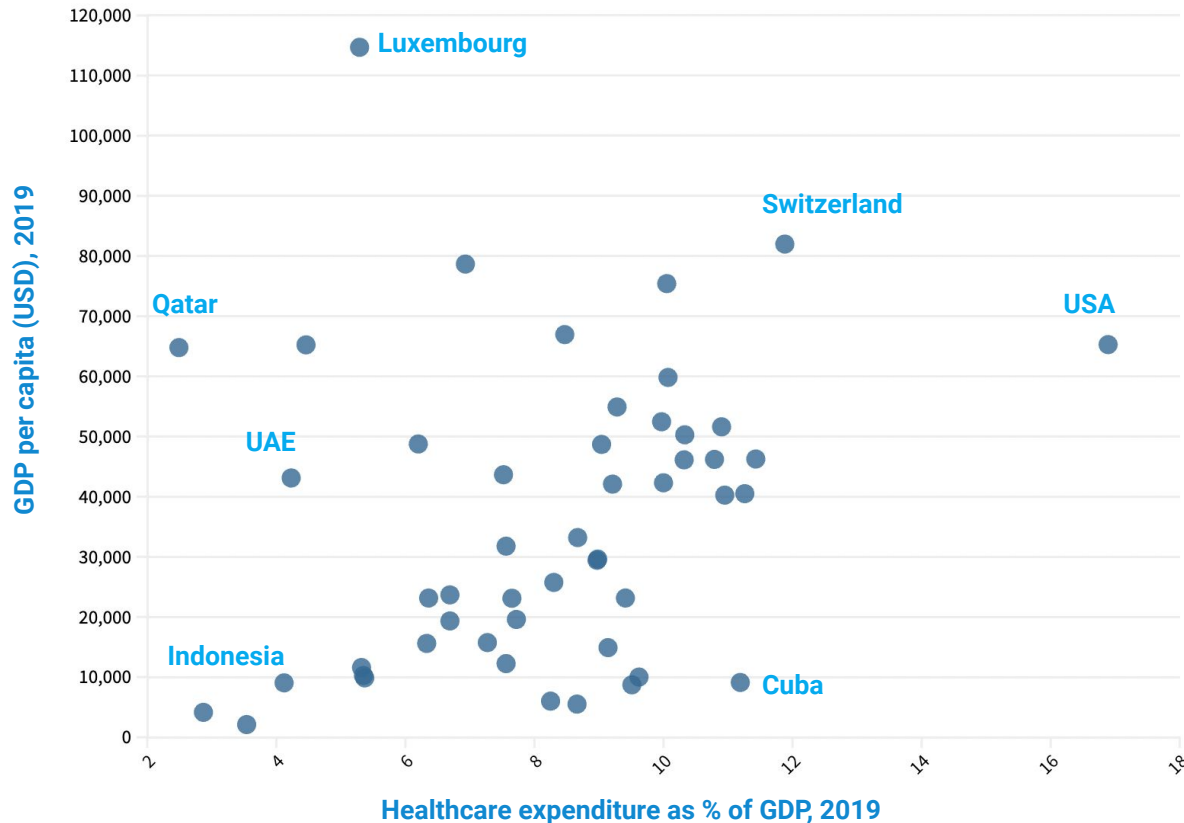
UNEMPLOYMENT AND HEALTHY LONGEVITY



There is no direct correlation that high unemployment rate leads to the reduction in health-adjusted life expectancy. However, most of the countries with a low unemployment rate (i.e. those of them that are close to natural level of unemployment) have higher HALE. A high unemployment rate leads to social inequality and inability of people to afford basic goods and services, which affects HALE in the long term.

Find interactive graph in Flourish by following the [link](#)

HEALTHCARE SPENDING AND GDP



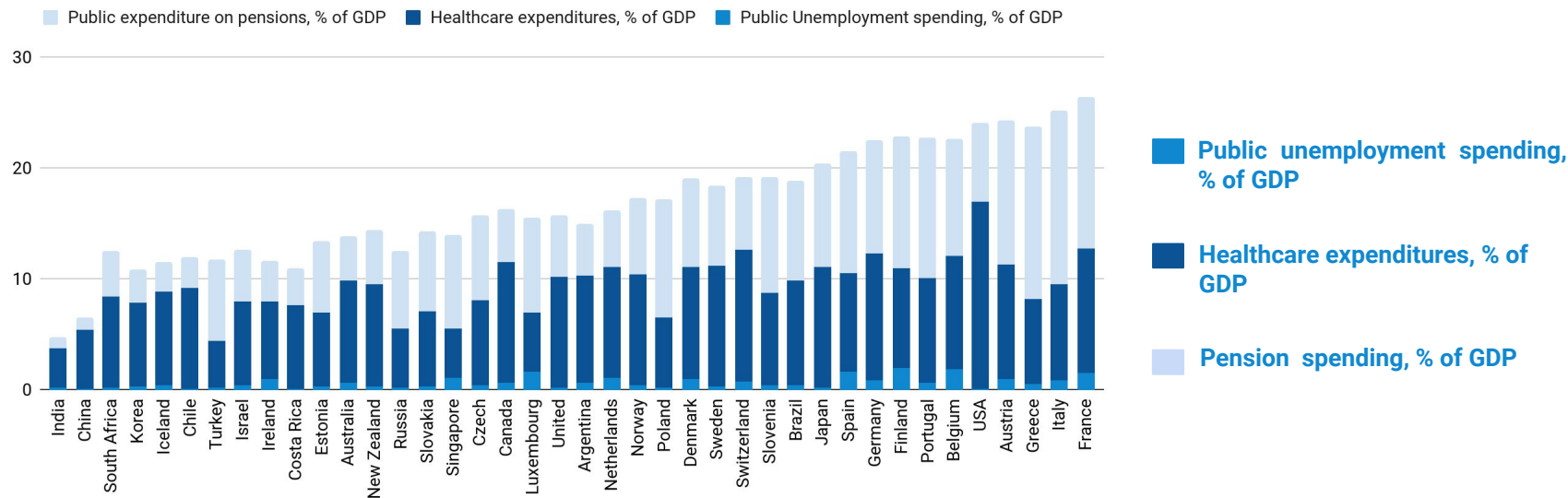
This chart represents a relation between healthcare spending as a percentage of GDP and GDP per capita. Data provided by the World Bank and Organisation of Economic Cooperation and Development (OECD) in 2019 suggests that wealthy countries, such as Hong Kong, United States, Switzerland, and Norway, tend to increase Healthcare budgeting, in comparison with middle-income countries, such as India, Brazil, South Africa, and Indonesia.

As for now, top developed countries by % of GDP they spend on Healthcare are:

- USA
- Switzerland
- Germany
- Norway
- Sweden

Find interactive graph in Flourish by following the [link](#)

SOCIAL PROTECTION AND HEALTHCARE



Different countries have different political, economic, and social systems. Hence, they tend to allocate various sums of money to social protection programs. In 2019, the US spent some 17.1 percent of its GDP on healthcare – more than twice the average among developed countries.

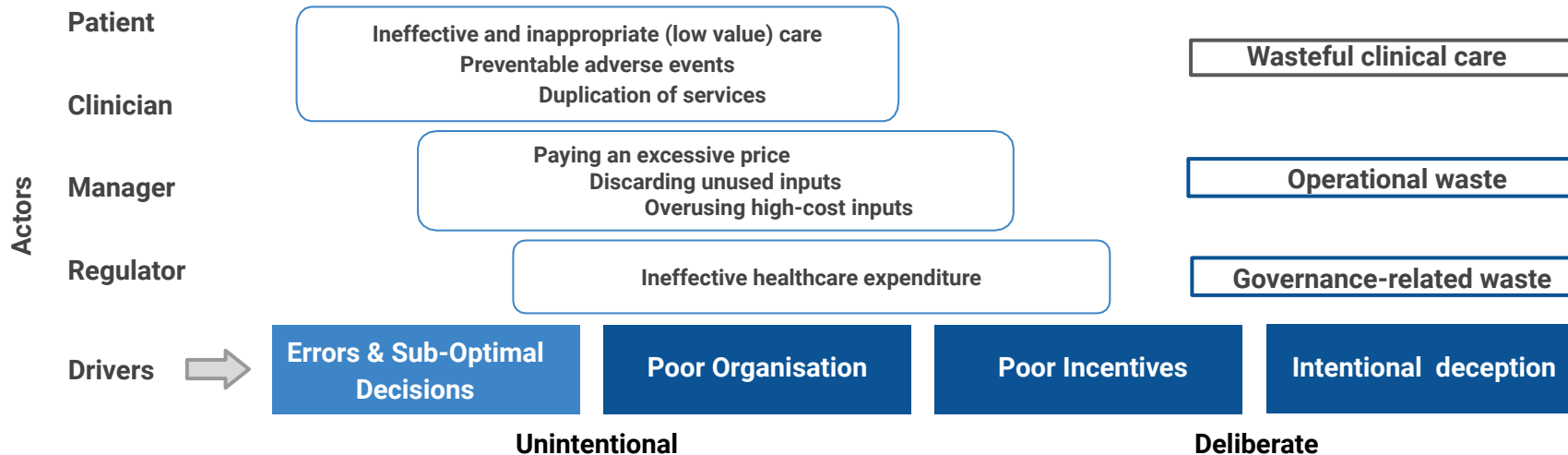
Greece has the most significant pension expenditure (16.9%), which, at the same time, does not allow it to pay high pensions. This fact is caused by the solidarity pension system, which continues to operate in Greece and is expected to stay in force in the nearest future. Therefore, due to a disproportionately high number of pensioners and the low number of workers, the current state is not changing and worsens.

DISPROPORTIONATELY HIGH HEALTH EXPENDITURE

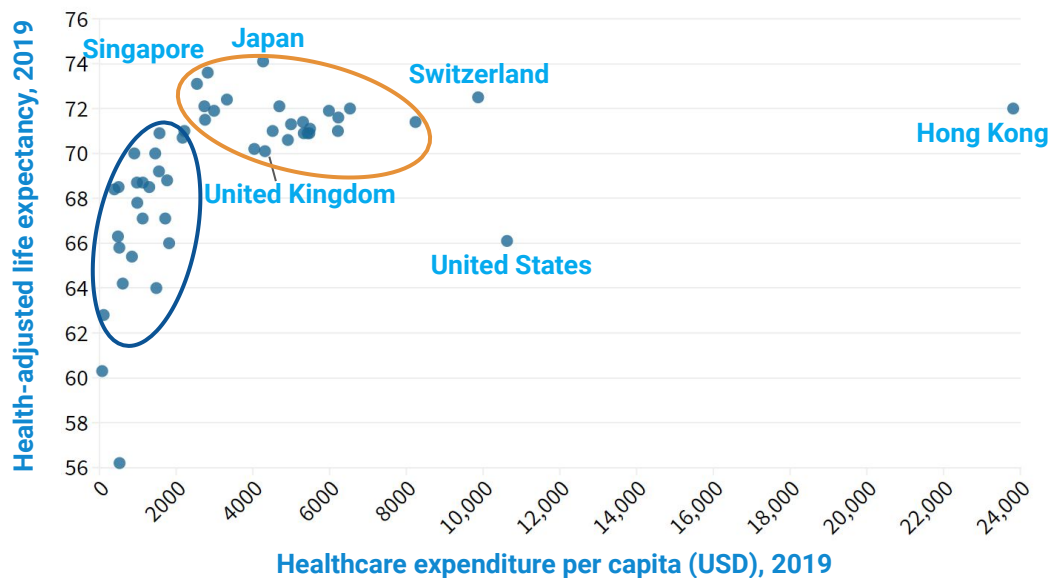
Health expenditure is rising in the United States and in the majority of OECD countries. However, an increase in health expenditure often has little or no effect on the improvement of people's health. In some cases, it even results in worse health outcomes. The US could potentially spend significantly less on healthcare without a detriment to its healthcare system or adverse health outcomes.

Behavioral root causes of disproportionate health expenditure include:

- imperfect knowledge and cognitive biases;
- poor management, organisation and coordination;
- incentives misaligned with system goals.



HEALTHCARE SPENDING AND HEALTH-ADJUSTED LIFE EXPECTANCY



Find interactive graph in Flourish by following the [link](#)

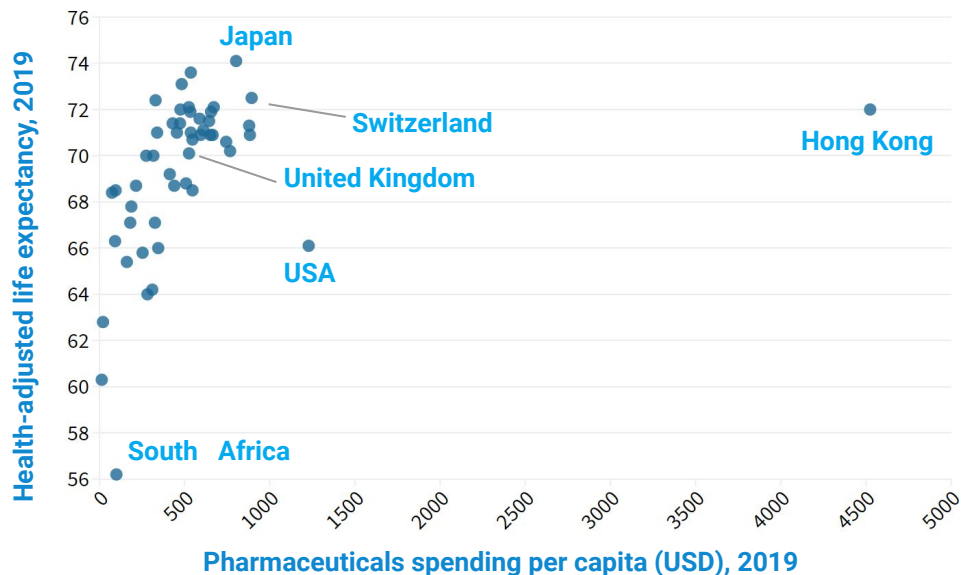
Based on 2019 data from the OECD and World Health Organisation, this chart represents a relationship between health expenditure and Health-Adjusted Life Expectancy (HALE) which is impacted by a number of social and economic factors, as well as the structure of a country's healthcare system.

Although, there is no very strong and tight linear or exponential relationship between life expectancy and health expenditure, developed Longevity economies need much more financial resources to increase HALE, and this tendency will be even more obvious in the near future.

The graph is divided into two main groups. The first one (blue ellipse) represents developing countries, such as India, Brazil, Russia, Argentina, where increased public spending contributes to an increase in healthy life. The second group (orange ellipse) represents developed countries whose per capita health expenditure, including healthcare-related expenses, is much higher than that of lower-income countries; however, that does not lead to an increase in the life expectancy of their citizens.

If we compare the United States and Singapore, we can see that lower per capita health expenditure in Singapore contributes to higher Health Adjusted Life Expectancy (HALE). Despite spending a disproportionately high amount of money on healthcare (for instance, twice as much as Japan), the United States has the lowest HALE among high-income developed countries (primarily due to chronic diseases).

PHARMACEUTICALS SPENDING PER CAPITA AND HALE



Find interactive graph in Flourish by following the [link](#)

This chart collection takes a look at how pharmaceuticals spending are correlated with Health – Adjusted Life Expectancy. The analysis looks at 2016 health data from OECD and World Health Organisation.

There is no strong relationship between HALE and pharmaceuticals spendings as only 23% of variation in HALE is explained by variation in pharmaceuticals expenditures per capita.

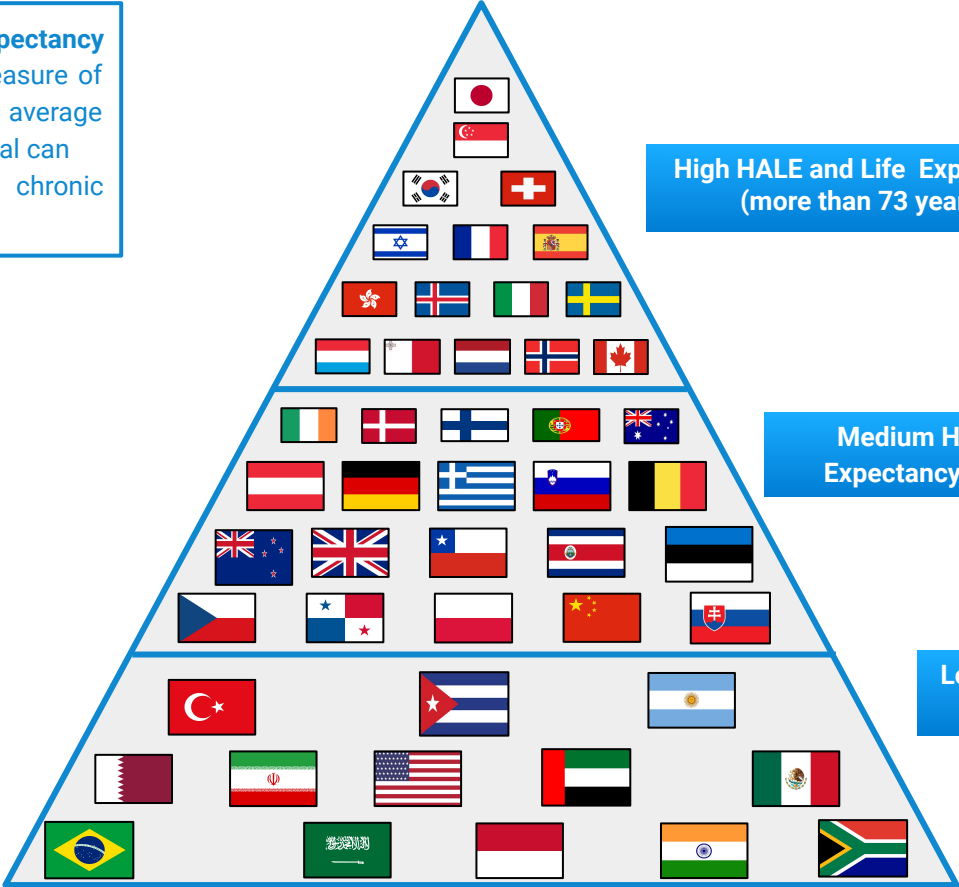
Pharmaceuticals spending is an adjusted indicator as it covers expenditure on prescription medicines and self-medication, often referred to as over-the-counter products.

It is aggregated and its components vary across countries. In some countries, different medical non-durable goods are included. Total pharmaceutical spending refers in most countries to “net” spending, i.e. adjusted for possible rebates payable by manufacturers, wholesalers or pharmacies.

The high value of pharmaceuticals spendings in the Hong Kong is caused by high medical prices. United States is the second by this indicator and Switzerland is third. The growth of pharmaceuticals spendings in Switzerland is due to the launch of new and innovative medicines – especially for cancer. In Japan the government pursues cost-effective approach for drugs development and other medical treatment, that is why relatively small amount of spendings corresponds to the highest HALE across observed countries.

GLOBAL HEALTHY LONGEVITY LANDSCAPE OVERVIEW

Health-Adjusted Life Expectancy (HALE), used here as a measure of Healthy Longevity, is the average number of years an individual can expect to live free of chronic age-related disease.



High HALE and Life Expectancy (more than 73 years)

50 Countries:
 High HALE and Life Expectancy – 16
 Medium HALE and Life Expectancy – 20
 Low HALE and Life Expectancy – 14

Medium HALE and Life Expectancy (67-73 years)

Low HALE and Life Expectancy (less than 67 years)

HIGH HALE COUNTRIES POLICY AND CASE STUDY

Singapore

Singapore has an average of 85 years life expectancy, one of highest across the world. Instead of building new nursing and care homes the country is investing \$3 billion to support lifelong learning and employability, healthcare and wellness, financial literacy and multi-generational housing, among other initiatives. Singapore invests in its human capital and seeks to survive the inevitable “Silver Tide” by sustaining economic growth, over the next decade. Singapore is raising its retirement age from 62 to 65 and requiring employers to reemploy men and women aiming to work until at least 70. The government of Singapore also provides 3% credits to offset wages of employees over 50 and grants to companies so they can modify jobs for older workers.

Country is also offering wellness support for its more advanced citizens. Program includes regular screening from chronic diseases and mental wellness activity such as Tai-chi. Silver Academy, a network of colleges and community based organisations, offers post secondary education to older people, who can take courses in technology, business, literature and other subjects as per as their liking and who often share classrooms with youth. A SkillsFuture program teaches singaporeans of all ages necessary skills for future jobs, an moneySense program teaches young and old alike how to manage money and invest.

Japan

Apart from Singapore, Japan is another rapidly ageing Asian country. Currently, about 25% of Japan’s population is above 65 and this will increase to 40% by 2060. Such a demographic shift would severely strain Japan’s established pension system and Japan’s ageing workforce has already started to slow down the Japanese economy.

The Japanese government has taken a multi-pronged approach to meet the needs of the population and boost economic growth. In 2000, Japan implemented a comprehensive Long-Term Care Insurance. The insurance pays for professionally designed and government-approved care plans that offer the elderly a choice of different care models. The Japanese government has continued to improve care plans in 2011 by introducing more care models that integrate healthcare, preventive care and long-term care.

On the economic front, the Japanese government has also spurred the creation of the MedTech and aged-care industries by tapping into Japan’s historical advantage in industrial manufacturing, design and customer service. Helped by state funding, Japanese firms are now investing in the design of care robots such as Paro the robotic seal, mechanical care aids for caregivers and innovative regenerative and cell therapies.

MEDIUM & LOW HALE COUNTRIES POLICY AND CASE STUDY

The United Kingdom

More recently in the UK, the Pension Advisory Service (TPAS) and insurer Aviva are experimenting with programs to help middle-aged people evaluate their jobs, finances and health, as well as their plans for later in life. In 2018, TPAS targeted a small group of self-employed workers, aged 35 to 50, with one-to-one phone conversations. There are now plans to make this midlife checkup an online program.

Ireland

In Ireland, where just 17% of those aged 65 to 74 have at least basic digital literacy skills, according to a 2017 Eurostat survey, the government has funded several nonprofits to provide 10 hours of free computer instruction to anyone who has never used the Internet. It's targeted for people over 45 and those who live in rural areas, are disabled or unemployed.

Bangladesh

In Bangladesh, where the average life expectancy has risen to about 73 from 48 since 1960. A strong network of non-governmental organisations (NGOs) are taking the lead in addressing ageing and Longevity.

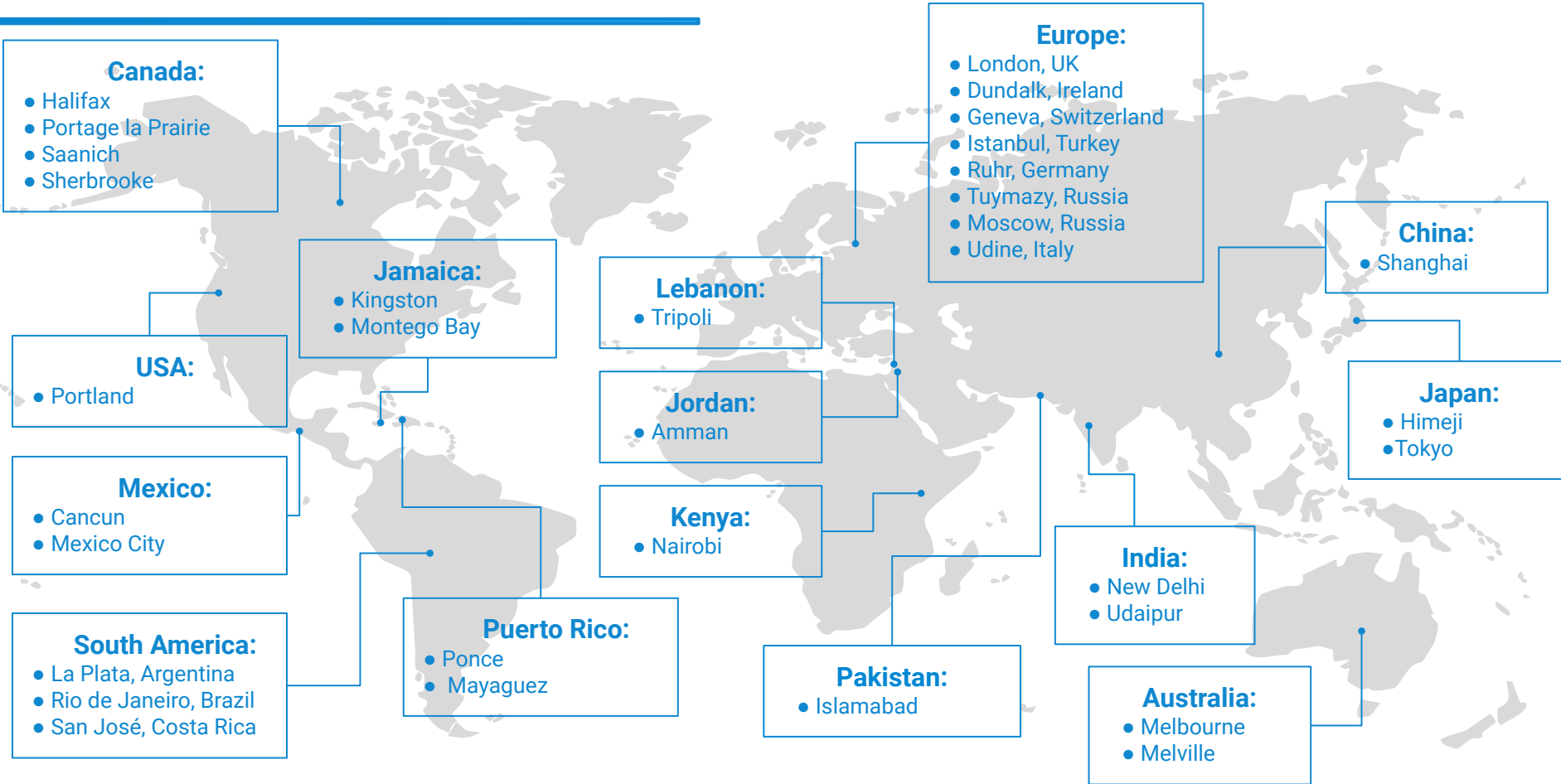
A Dhaka-based BRAC (formerly called the Bangladesh Rehabilitation Assistance Committee), the world's largest NGO, is funding research and treatment of hypertension, diabetes and other noncommunicable diseases. BRAC also offers microloans to adults seeking to start small businesses. Such efforts are enabling Bangladeshis to live longer and more prosperous lives.

AGE-FRIENDLY CITIES MODEL PROPOSED BY WHO (2007)

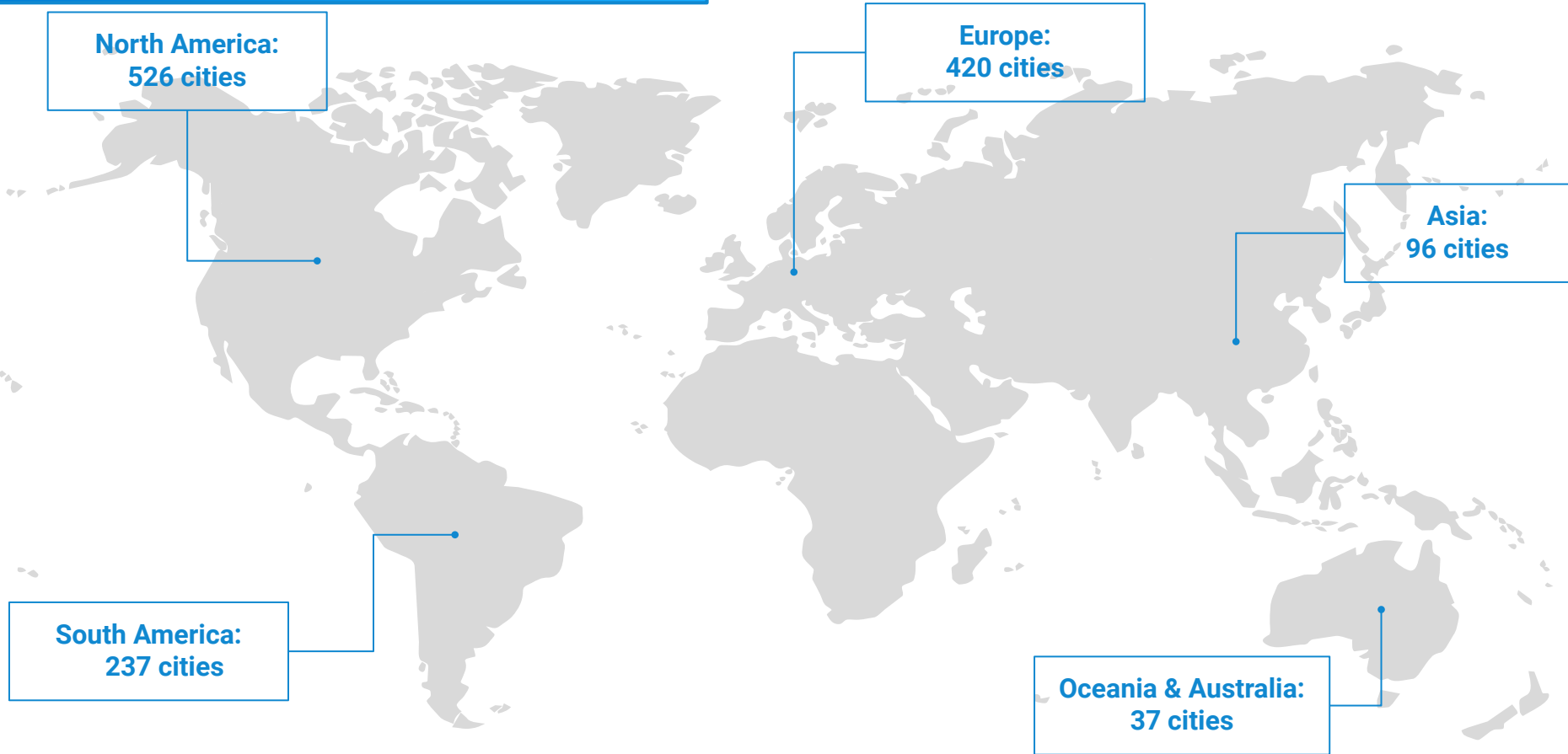
- In 2007 WHO proposed age-friendly city parameters to test out how making a city age-friendly can improve it overall. By consisting parameters of keeping elder population in mind.
- 33 Cities from around the world were selected for this pilot protocol.
- The WHO Global Network for Age-friendly Cities and Communities currently includes 1316 cities and communities in 44 countries, covering over 262 million people worldwide.



PILOT 33 AGE-FRIENDLY CITIES PROPOSED BY WHO IN 2007

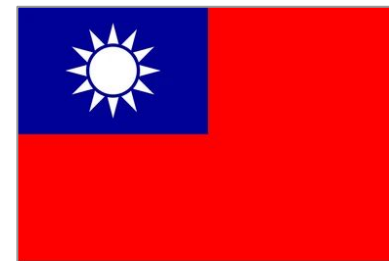


1316 AGE-FRIENDLY CITIES DISTRIBUTION IN PRESENT



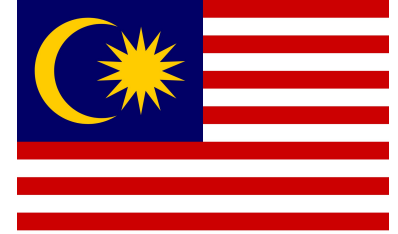
CITIES WITH AGE-FRIENDLY APPROACH

- **Taipei:** Taipei's Department of Social Welfare (DOSW) is key to the city's Longevity initiatives. It facilitates community services, welfare resources, care visitations, referral services, catering services and health promotion. It even provides a system of telephone calls to keep in touch with older people and make sure they are okay. The city's housing policy also ensures older people are not isolated by bringing different generations together as part of a co-living scheme. The young and old can rent rooms and share a large common area 20% cheaper than the market. Taipei also has generous lifelong learning program. It allows them to regain education which they had missed out in early life.
- **Sharjah:** Sharjah meets standards of age-friendly cities criteria. The city managed to meet the criteria 165 standards out of possible 189, within the 8 topics of age-friendly cities. The eight topics are, outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation, employment communication and information, community support and health services.
- **Shanghai:** Shanghai is among the first ageing cities of China, and the proportion of aged resident is estimated to rise between 2021 and 2025. The city's residents over the age of 60 comprised more than 36% of the population. Shanghai is creating a comprehensive senior-oriented service network amid the growing ageing trend and increasing need for efficient, convenient and equitable senior-care services. The improvement cater to both the general and personal needs of the elderly citizens. The ageing trend is not limited just to tier 1 cities such as Shanghai In China.



COUNTRIES WITH AGE-FRIENDLY APPROACH

- **Malaysia:** Malaysia has launched My Second Home (MM2H) program which is a great way to enjoy the benefits of retiring abroad without actually having to retire. Successful applicants receive a 10-year, multiple-entry visa that is renewable, plus a tax-exemption on all personal money. Senior expats can also purchase property in Malaysia, as long as local and state authority approve the purchase. A minimum of \$242,395 is typically required, though often times it is lower for people with MM2H visa holders in select states, like Penang. With no inheritance tax in Malaysia, it makes passing the estate easier to the retiree's descendants.
- **Portugal:** Portugal is a prime destination for foreign retirees. Tax resident enrolled in the country's Non-Habitual Residency (NHR) program can benefit from tax rate of 10% on foreign pension income and exemption from almost all foreign originated income source. Moreover, foreign senior residents in Portugal receive full rights to access healthcare through NHR program. Those with NHR status have a tax exemption for a period of 10 years. There will be no tax levied on wealth during the period. In addition to this, any income generated in Portugal will be taxed at a flat rate of 20% instead of progressive rates, which can be 48%.
- **Colombia:** Expats who lives in Colombia for less than 6 months (184 days) will only be taxed on any income they earn directly from this country. However, a flat tax rate of 35% is incurred on all income level. For those who reside in the country full time will be taxed according as per their income level, which can be from 0% to 39%. Senior expatriates can use the pensionado visa (TP-7). The visa cost \$263 and has a very few requirements that retirees must meet in order to qualify for visa. To qualify, retirees must prove that they have an income of at least three times the minimum salary in Colombia which is \$750 per month.



BIG DATA ANALYSIS: GROWTH RATES, EFFECTIVENESS RATIOS

Ratios			Growth Rates of Ratios, CAGR (6 years)		
Demography			Economy		
Population Growth Rate, %	Total Fertility Rate (per Woman)	Crude Birth Rate (per 1 000 People)	GDP (per Capita)	Adjusted Savings Investment Ratio (Yr 2000)	Research & Dev. Ratio
Crude Death Rate (per 1 000 People)	Population Density, Number of People/km2	Age Dependency Ratio	Healthcare Expenditure		
Total Age Dependency Ratio (per 1000 of Working-Age Population)	Population over 65 (%)	Age Dependency Ratio, Old	Current Health Expenditure (per Capita) (Current US\$)	Health Expenditure (per 1 000 US\$)	
Urban Population (% of Total)		Senior Poverty Ratio	General Health Status		
Life Expectancy and HALE, CAGR (6 years)			General Health Status		
Both Sexes Life Expectancy		Male Life Expectancy	Prevalence of Malaria (per 100 000)	Prevalence of Tuberculosis (per 100 000)	
Female Life Expectancy		Both Sexes HALE	Diversity		
Male HALE		Female HALE	Prevalence of Dengue (per 100 000) (Reported Incidence)		
Both Sexes HALE and Life Expectancy Difference		Male HALE and Life Expectancy Difference	Human Development Index Score		
Female HALE and Life Expectancy Difference					

Absolute values are enhanced by relative ones, and using both of them enables one to have a better understanding of the interaction between the two. It also provides one with an opportunity to investigate factors that have the biggest impact on HALE and life expectancy in a particular country.

Multicollinearity between some metrics is caused by the use of dummy variables and inclusion of a variable which is computed from other variables in a data set.

Each level of metrics is based upon extension, further subdivision or comparative combination of metrics in a preceding level, or is derived from insights provided by them.

Our analysis is based on open source data and information provided by the WHO, OECD, World Bank, and various institutions operating in a particular country.

50 COUNTRIES AND 200 PARAMETERS

Based on the comparison of 200 parameters across 50 countries, patterns are recognised according to their distribution and variation. In so doing we aim to identify an interconnection between various metrics and classify countries into groups. Detailed overview of the methodology and parameters is available by the [link](#).



BIG DATA COMPARATIVE ANALYSIS FRAMEWORK

Big Data comparative analysis is based on the specific nature of parameters and their relationship. They help determine the development of healthy Longevity progress across countries with different levels of economic development.

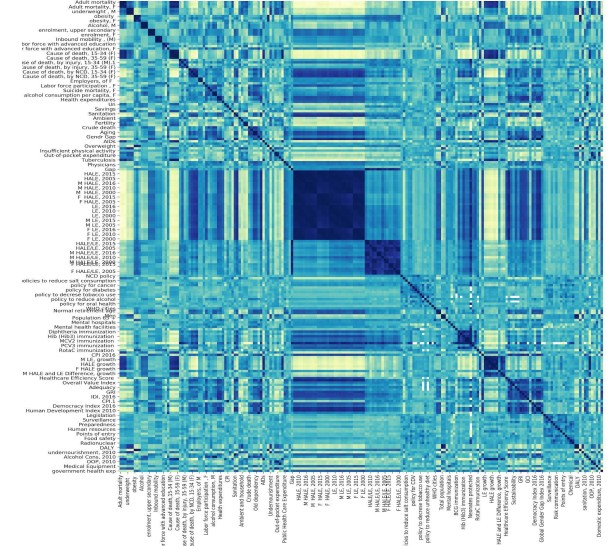
50 Countries



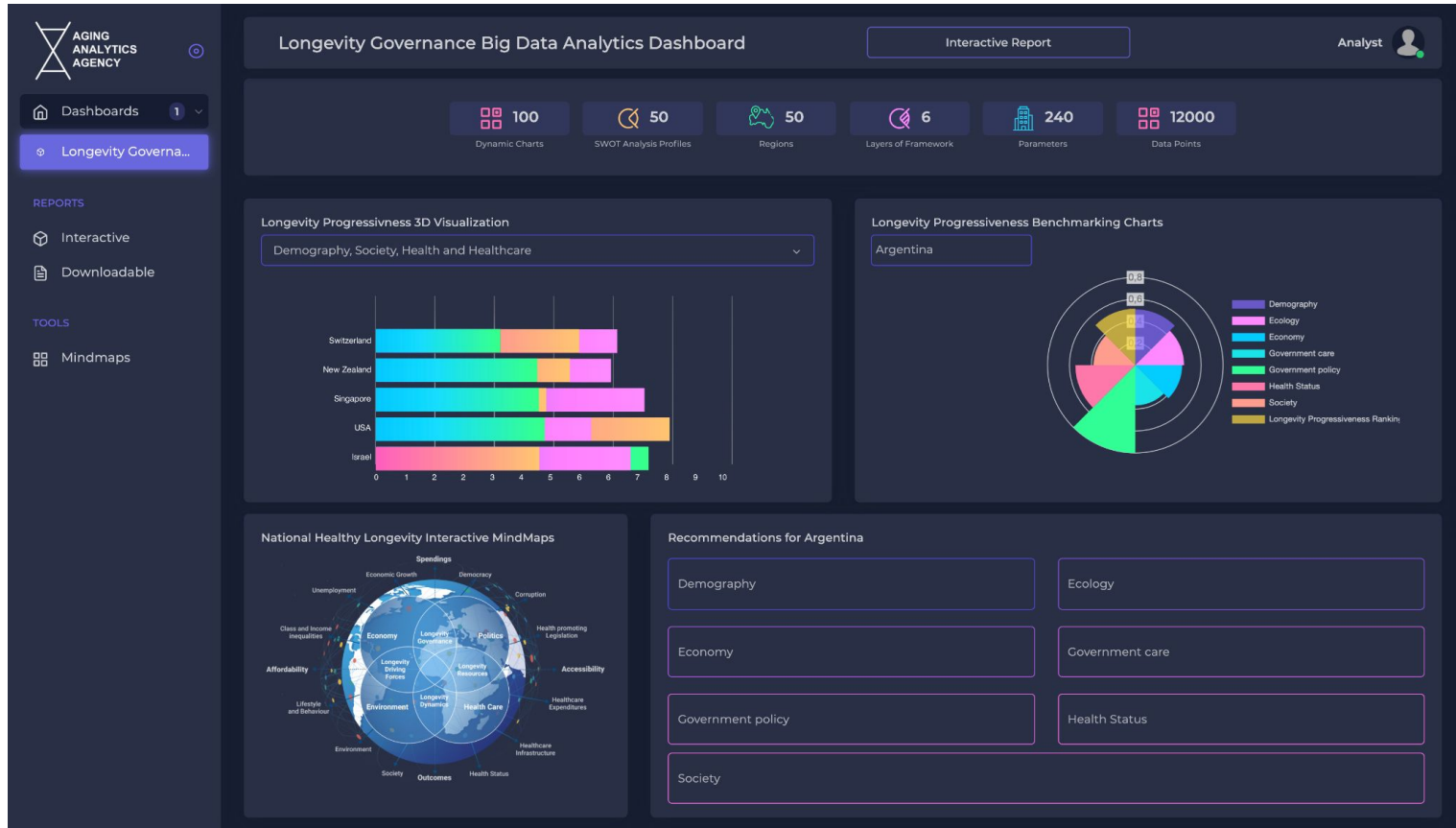
6 Layers and 200 Parameters

Cause of death, 15-34 (M)	Improved Water	government health exp	Female HALE growth	Human Development Index 2010	Domestic health expenditure	undernourish... 2010	DK, 2016	Adequacy	Female LE, 2016	Male HALE growth	Female LE, 2015	
Health Status	Environment and Infrastructure	Healthcare	Healthcare	Human Capital	Healthcare	Life Style	Human Capital	Healthcare	Demography	Healthcare	Demography	
Tuberculosis	HIV (HAI) immunization	Female LE, growth	Male LE, 2005	density	Male LE, growth	Public Health Care Expenditure	Health expenditures	Health retirement age - Women	Male LE, 2006	Cause of death by injury, 15-34 (M)	Cause of death by injury, 15-34 (M)	
Health Status	Healthcare	Healthcare	Demography	PCV3 immunization	Crude birth rate	Overall Value Index	CPI 2016	Points of entry	DOF, 2010	Mental health facilities	Number rate	Female HALE and LE Difference, growth Healthcare
Cause of death, 15-34 (F)	Cause of death, by NCD, 15-34 (F)	Healthcare	Health Status	Education index	EPI	Male HALE, 2005	Survival	Female HALE, 2010	Out-of-pocket expenditure	Male HALE 2016	Male HALE 2015	Healthcare
Health Status	HALE growth	Demography	Health Status	Diphtheria immunization	Economy	Health Status	Healthcare	Healthcare	Healthcare	Demography	Health Status	Health Status
Cause of death, 35-59 (M)	Healthcare	Demography	Healthcare	Normal retirement age Men	Health Status	Health Status	Demography	Health Status	Health Status	Health Status	Health Status	Health Status
Health Status	Adult mortality, 34	Adult mortality, 34	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure
Cause of death, 35-59 (F)	Health Status	Adult mortality, 34	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure	Environment and Infrastructure
Health Status	Male LE, 2010	Human Development Index 2016	HAQ (The Healthcare Access and Quality Index)	HAQ (The Healthcare Access and Quality Index)	Human Capital	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare
Health Status	Obesity, 64	Demography	Human Capital	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare
Life Style	Adult mortality, F	Health Status	Human Capital	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare
GAII	Healthcare	Health Status	Life Style	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare
Human Capital	Healthcare	Life Style	Demography	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare	Healthcare

Correlations Between Parameters



LONGEVITY GOVERNANCE: BIG DATA ANALYTICS DASHBOARD



AGE-FRIENDLY BANKS

Overview



AGE-FRIENDLY BANKS

The worldwide population of older people growing pushes even the most conservative financial institutions to examine how to make their products more "age-friendly." Banks that are age-friendly provide effective and specialised financial products, services, and safeguards for people over the age of 65.

The proportion of older people in the population is growing, which means there are fewer and fewer working-age people. Banks and financial services will need to meet the changing demands and expectations of customers in this new era.

Banks and financial institutions should think about creating new products for the growing number of older people, who are also living longer now and thus able to absorb higher financial risks than elderly people of past generations. So, there should be new thinking about investment plans and other products designed for this new generation of elderly citizens in this new era.

Innovation can be the answer to decumulation of wealth as well. Banks should pay attention to single elderly people who tend to live alone without descendants. These types of people need different kinds of loans that are specifically designed for retired people, such as reverse mortgages. These products can provide people the support they need for long-term, secure living.

Main Components of Age-Friendly Banking

1

Protecting older adults from financial abuse and fraud

2

Customising financial products and services to older adults needs

3

Expanding affordable financial management

4

Guaranteeing access to critical income supports

5

Facilitating ageing in the community

6

Improving the accessibility of banking for those with restricted mobility or living alone in remote areas

NEW OPPORTUNITIES FOR BANKS

Reasons to Become Age-Friendly Bank

- | | | | |
|---|--|---|--|
| 1 | To build a reputation for age-friendly service that may give competitive advantage | 5 | To meet obligations under equality and human rights legislation |
| 2 | To protect older adults from financial abuse | 6 | To reduce fraud and financial exploitation |
| 3 | To develop systems and products that better suit all customers, regardless of age | 7 | To adapt to the needs of an ageing society |
| 4 | To facilitate ageing in the community | 8 | To improve accessibility to bank locations and services for older people |

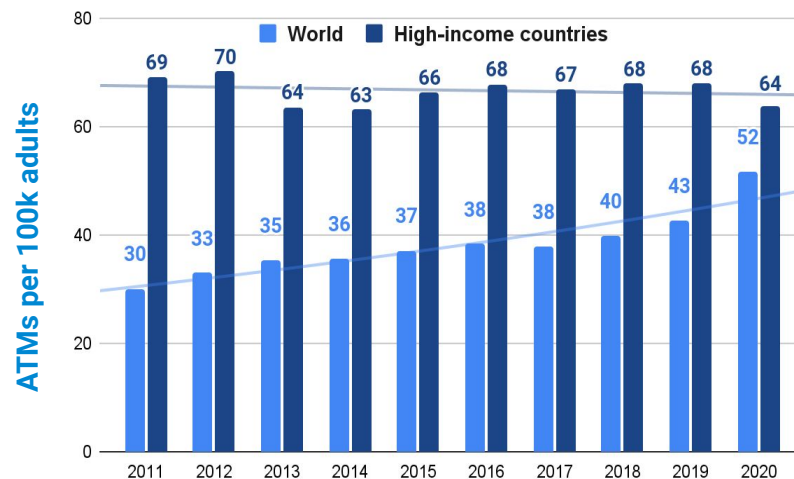
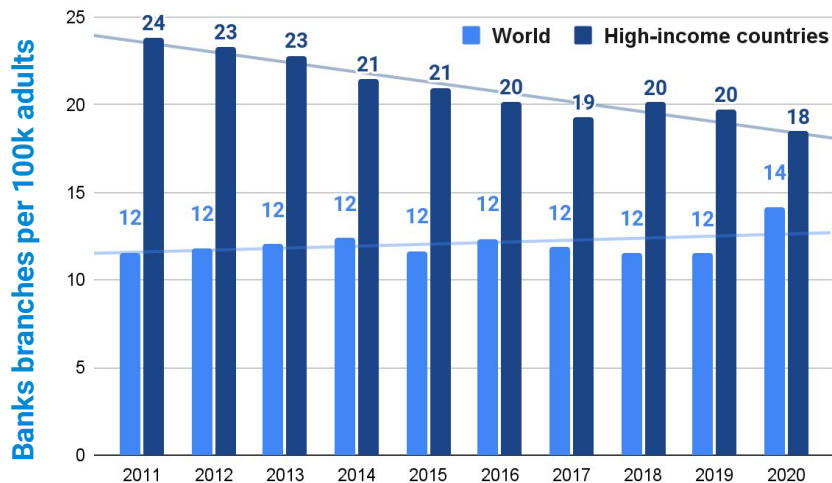
If a bank can give outstanding service to its oldest customers, it can provide wonderful service to all customers

As AgeTech and WealthTech converge, the financial sector is expected to witness **the rise of Age-Friendly banks**, a new form of organisation aimed at making banking easier for those over 60. In most ways, it would resemble a typical fintech bank that had been reprogrammed for older clientele. The creation of cellphones specialised for the elderly, which may be completed within a year, is one of the few remaining stages on the road to an Age-Friendly Bank. **The majority of Age-Friendly banks are currently conventional banks with expanded functionality, although specialist firms are currently developing.**

Age-Friendly Banking is centered on providing effective and tailored financial products, services, and protections specifically for low- and moderate-income older adults. Financial institutions have a responsibility as well as a distinct opportunity to better serve the nation's growing older adult population, which is their largest customer base. Keeping older adults independent and healthy in their communities benefits everyone and saves federal, state, and local governments money.

PARADIGM CHANGES IN BANKING SERVICES

Over the last decade (except in 2020), the number of **bank branches** has remained unchanged in the world but decreased by **22%** in **high-income countries**. While emerging economies such as **India** and **China** have expanded their bank branches by **40%** and **13%** respectively, banks in developed markets such as **Australia**, **Canada**, and **the US** have reduced their branches by about **16%**. Moreover, in the case of **the euro area**, the number of bank branches per 100,000 adults has decreased by **44%** over the last decade. However, the number of ATMs per capita in the **world** increased by **71%**, and even much higher in developing economies, particularly in **India** by **143%** and in **China** by **188%**. At the same time, the number of ATMs in high-income countries has fallen by **7%**, and in some countries, such as **Australia** and **the Eurozone**, declined sharply by almost 25%.



The decline in traditional banking services, which has occurred for a variety of reasons, such as cost-effectiveness, promotion of a cashless economy, and the impact of the Internet and mobile banking, can cause some difficulties for older customers accustomed to traditional services.

AGE-FRIENDLY NEOBANKS VS. TRADITIONAL BANKS

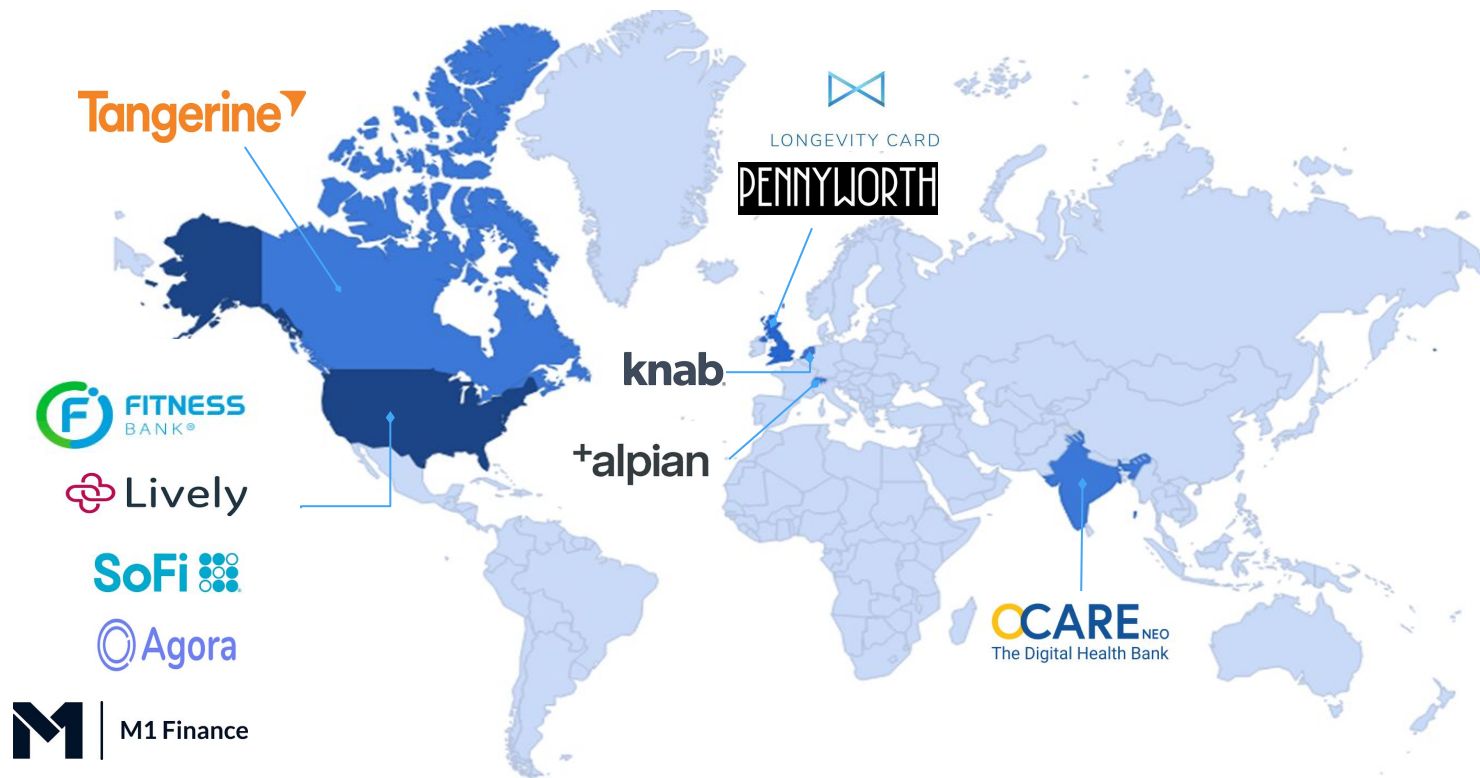
Neobanks

Traditional Banks

Neobanks are digital banks without any physical branches, developed for the growing masses of tech-savvy customers that prefer to manage their money using mobile apps or other digital media	Traditional banks have physical branches and actual people at the counters
Absence of expenses related to the maintenance of the bank's branch network	Additional costs for customer service in offices and branches
High speed and simplicity & comfort	Length of making changes and taking decisions, and administration (bureaucracy)
Neobanks offer higher rate for savings and checking accounts	Traditional banks offer lower rate for savings and checking accounts compared to neobanks
Neobanks work without reference to the office business hours. So, they are available 24/7 all year round. For a neobank, your location does not matter	Traditional banks also keep up to date. Many of them provide mobile solutions with a variety of options. However, they may not be available everywhere

Neobanks are disrupting the traditional banking system by **leveraging technology** and **artificial intelligence (AI)** to offer a range of personalised services to customers. On the other hand, **traditional banks** follow an omnichannel approach i.e. having both physical (through branches and ATMs) and digital banking presence to offer a multitude of products and services. The upcoming **Age-Friendly Banking Report** by **InvestTech Advanced Solutions** assembled information about key industry trends of 150 age-friendly banks including 15 neobanks.

AGE-FRIENDLY NEOBANKS: REGIONAL PROPORTION



USA having 5 Age-Friendly neobanks (**FitnessBank**, **Lively**, **SoFi**, **Agora** and **M1 Finance**) among 11 banks, is the most active country in this field, the second place belongs to **the UK** with two banks (**Longevity Card** and **Pennyworth**) and each of other countries (**Canada**, **India**, **Switzerland** and **Netherlands**) has an Age-Friendly neobank (respectively **Tangerine**, **Ocare**, **Alpien** and **Knab**).

AGE-FRIENDLY NEOBANKING: HEALTHY SAVINGS EXAMPLES

Lively

Description: a Health Savings Account (HSA) provider, built on a modern platform for employers and individuals. It was designed to be user- and age-friendly. With such an intuitive experience, Lively HSA allows users to get the most out of their HSA. Lively has a simple account setup, paperless account management, and transparent pricing. The Health Savings Accounts platform built for and by those seeking stability in the ever-shifting healthcare landscape. The company's platform offers a free HSA account for individuals and helps employers to administer an HSA for their employees, enabling consumers and businesses to optimise their healthcare spending, maximise their savings and better their livelihood.

Market Cap	California, United States	Revenue (2021E)	\$18M
Main Investors	B Capital Group, Costanoa Ventures	AuM	\$500M



Purple

Description: Allia Purple is a focused mobile banking application specially designed and field-tested for people with disabilities. One of the biggest challenges individuals with disabilities or their caregivers face is how to stay within the boundaries of the governmental preset for their monthly Supplemental Security Income benefits. Purple's main goal is to help this group of individuals out – gifting them with an easy-to-use tool that can eventually empower them to achieve financial independence.

Location	Florida, United States	Revenue (2021E)	\$125k
Main Investors	youBelong	Banking Licence	The Bancorp Bank



PUBLICLY TRADED LONGEVITY-FOCUSED COMPANIES

Overview



TOP 20 PUBLICLY TRADED LONGEVITY-FOCUSED COMPANIES



US-Based



Turning Point Therapeutics (TPTX)
Market Cap: \$1,468M



Fate Therapeutics (FATE)
Market Cap: \$3,731M



Adaptive Biotechnologies (ADPT)
Market Cap: \$1,870M



Gossamer Bio (GOSS)
Market Cap: \$662M



Arcellx (ACLX)
Market Cap: \$564M



Tandem Diabetes Care (TNDM)
Market Cap: \$7,180M



Vertex Pharmaceuticals (VRTX)
Market Cap: \$64,077M



SAGE Therapeutics (SAGE)
Market Cap: \$1,987M

NASDAQ



Outset Medical (OM)
Market Cap: \$1,980M



Kronos Bio (KRON)
Market Cap: \$422M



China-Based



BeiGene (BGNE)
Market Cap: \$20,829M



UK-Based



Abcam (ABCM)
Market Cap: \$4,094M



Freeline Therapeutics (FRLN)
Market Cap: \$79M



Orchard Therapeutics (ORTX)
Market Cap: \$98M



Autolus (AULT)
Market Cap: \$399M

Euronext Brussel (BR)



Switzerland-Based



Biocartis (BCART)
Market Cap: \$135M

Copenhagen (CPH)



Sweden-Based



Getinge (GETI-B)
Market Cap: \$9,917M

Hong Kong (HKD)



Hong Kong-Based



Endurance RP (ex-Regent Pacific Group) (0575.HK)
Market Cap: \$283M

Acquired



Deep Longevity
Acquired by \$4M

NYSE



US-Based



Amwell (AMWL)
Market Cap: \$972M



Asensus Surgical (ex-TransEnterix) (ASXC)
Market Cap: \$155M

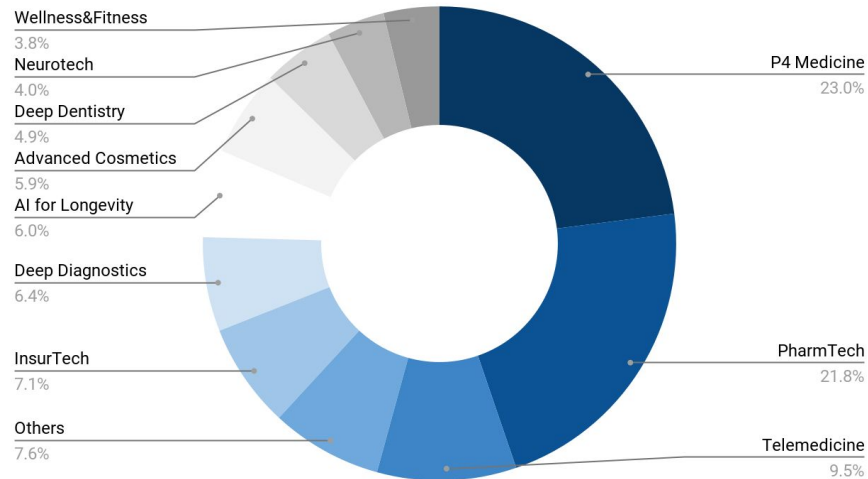
LONGEVITY PUBLICLY TRADED COMPANIES

Cumulative Capitalisation Dynamics, Trillion



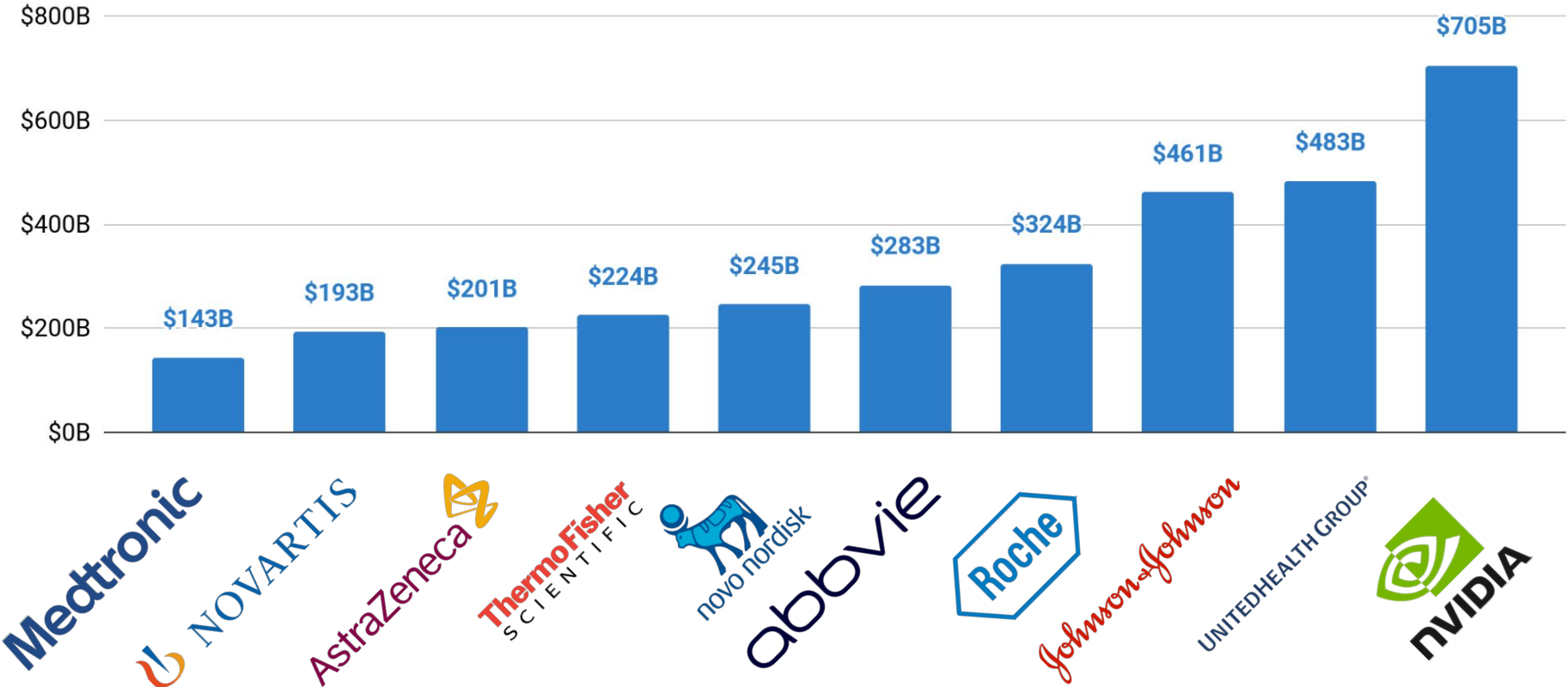
The Longevity Industry has been actively growing over most of 2021 and it is projected to evolve in the same trend. At the beginning of 2022, the market capitalisation of **500 publicly traded companies** was **almost 5.5 trillion USD, making a 18% growth since the beginning of 2021**. Technologically, publicly-traded Longevity-focused companies are similar to other companies in the sector, which means that their market capitalisation growth can approximate the dynamics of the whole industry.

Distribution of Public Companies by Longevity Sectors



Among 500 Longevity-focused public companies, **P4 Medicine**, **PharmTech** and **Telemedicine** are the most represented sectors by a number of companies. As society's focus is shifting towards keeping older people healthy and active for longer, life sciences and tech-enabled solutions are key areas that are likely to attract even more investments in the near future.

TOP 10 PUBLIC LONGEVITY-FOCUSED CORPORATIONS BY MARKET Capitalisation AS OF MARCH, 2022



TOP 5 “BULL” COMPANIES. Cronos Australia

Cronos Australia Limited operates as a medicinal cannabis company in Australia and Asia through three segments: Medical, Clinics, and Consumer. The company distributes PEACE NATURALS brand medicinal cannabis products; develops and sells medicinal cannabis products under the Adaya brand; and operates medicinal cannabis clinics. The company was incorporated in 2018 and is based in South Yarra, Australia.

Key Points 2022:

- In February 2022, Cronos Australia announced a 1100% increase in revenue to ~\$27.37 million in H1 FY22 and delivered a ~\$3.37m net profit
- Share price has been stable over the past 3 months

Price Performance, AUD



Ticker	EV/EBITDA	Market Cap	Beta	Price in Q1 2022	Change in Q1 2022
CAU.AX	45.89	\$115.84M	1.29	\$0.31	+40%

Investment Thesis (2021)

Having settled at \$0.28 a piece in the end of March, the medical cannabis company’s shares are delivering shareholders strong 100% return over 1 year. The Cronos stock price has been rising since announcing a merger with unlisted CDA Health in December 2021, particularly it surged nearly 40% in early January 2022. The merger brings together the two companies, including BHC’s online CanView platform, CDA Clinics, Adaya product range and Cannadoc Clinics. The Executive Team, which is now focussed on leveraging synergies from both businesses and driving growth is made up of executives from the two companies.

TOP 5 “BULL” COMPANIES. Hybio Pharmaceutical

Hybio Pharmaceutical Co., Ltd. engages in the research and development, manufacture, and sale of therapeutic peptides API and polypeptide drugs in China and internationally. The company provides liraglutide, semaglutide and exenatide for diabetes; terlipressin, desmopressin and linaclotide for digestive tract and metabolic system; etc. Hybio Pharmaceutical Co., Ltd. was founded in 1998 and is headquartered in Shenzhen, China.

Key Points 2022:

- Earnings have declined by 56.9% per year over past 5 years
- Highly volatile share price over the past 3 months
- Hybio Pharmaceutical has sufficient cash runway for more than a year based on its current free cash flow

Price Performance, CNY



Ticker	EV/EBITDA	Market Cap	Beta	Price in Q1 2022	Change in Q1 2022
300199.SZ	-25.65	\$2.64B	-0.09	\$16.17	+51%

Investment Thesis (2021)

At the end of March, Hybio Pharmaceutical stock was trading at \$19.06 a share, which is a massive 258% gain in 1 year. In the middle of March 2022, the company signed letter of intent for rapid antigen test kits for Covid. Unfortunately, this company is not featured in the news widely.

TOP 5 “BULL” COMPANIES. Staidson Biopharma

Staidson (Beijing) BioPharmaceuticals Co., Ltd. primarily engages in the research and development, production, and marketing of therapeutic drugs in China. The company offers protein drugs, including therapeutic monoclonal antibody drugs; gene therapy/cell therapy drugs; and chemical drugs. The company was founded in 2002 and is based in Beijing, China.

Key Points 2022:

- Highly volatile share price over the past 3 months
- Staidson Biopharma is unprofitable, and losses have increased over the past 5 years at a rate of 63% per year
- Staidson BioPharma shareholders plan to unload up to 2% stake in the company between February and August 2022

Price Performance, CNY



Ticker	EV/EBITDA	Market Cap	Beta	Price for Q1 2022	Change in Q1 2022
300204.SZ	-51.07	\$2.01B	-0.00	\$19.70	+55%

Investment Thesis (2021)

Hybio Staidson Biopharma stock was trading at \$27.2 a share at the end of March, a whopping 249 percent rise in a year. The company reported a solid Q2 2021 result with reduced losses, improved revenues and improved control over expenses. Revenue was CN¥157.2m (up 42% from 2Q 2020) and net loss was CN¥39.9m (loss narrowed 21% from 2Q 2020).

TOP 5 “BULL” COMPANIES. Liquidia Corporation

Liquidia Corporation, a biopharmaceutical company, develops, manufactures, and commercialises various products for unmet patient needs in the United States. Its product candidates include YUTREPIA, an inhaled dry powder formulation of treprostinil for the treatment of pulmonary arterial hypertension. Liquidia Corporation was founded in 2004 and is headquartered in Morrisville, North Carolina.

Key Points 2022:

- Currently unprofitable, with little expectation of being profitable in the next three years
- Share price has been stable over the past 3 months
- In January 2022, Liquidia Corporation closed a debt facility on with Silicon Valley Bank (SVB) which would provide Liquidia with up to \$40 million. Dr. Roger Jeffs was appointed as CEO instead of Damian deGoa in the same month

Price Performance, USD



Ticker	EV/EBITDA	Market Cap	Beta	Price for Q1 2022	Change in Q1 2022
LQDA	-11.83	\$385.40M	0.12	\$6.20	+43%

Investment Thesis (2021)

Having settled at \$7.35 a piece in the end of March, the biopharmaceutical company’s shares are delivering shareholders strong 193% return over 1 year. In October 2021, Liquidia received favorable ruling in inter partes review against United Therapeutics patent. In June 2020, United Therapeutics filed a lawsuit against Liquidia under the Hatch-Waxman Act for infringement of three Tyvaso patents and the the lawsuit triggered a 30-month stay on an FDA regulatory approval of Liquidia’s LIQ861, which expires on the earlier of October 24, 2022, or resolution of the litigation.

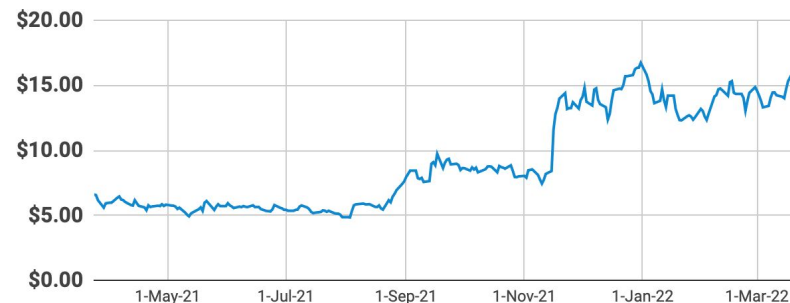
TOP 5 “BULL” COMPANIES. Kezar Life Sciences

Kezar Life Sciences, Inc., a clinical-stage biotechnology company, engages in the discovery and development of novel small molecule therapeutics to treat unmet needs in immune-mediated diseases and cancer in the United States. The company's lead product candidate is KZR-616, a selective immunoproteasome inhibitor that is in clinical trials. The company was incorporated in 2015 and is based in South San Francisco, California.

Key Points 2022:

- For the following three years, earnings are expected to fall by an average of 6.1% every year
- Kezar Life Sciences generates no revenue. Furthermore, the corporation is not expected to turn a profit in the next three years

Price Performance, USD



Ticker	EV/EBITDA	Market Cap	Beta	Price for Q1 2022	Change in Q1 2022
KZR	-14.50	\$1.04B	0.27	\$14.10	+16%

Investment Thesis (2021)

At the end of March, Kezar Life Sciences stock was trading at \$18.33 a share, which is a massive 177% gain in 1 year. Shares of Kezar Life Sciences soared 36.1% in November 2021. The big gain came after the company announced interim results from a Phase 2 study evaluating KZR-616 in treating autoimmune disease lupus nephritis. The company reported that four out of five patients receiving KZR-616 in the phase 2 study achieved either a partial or complete renal response.

TOP 5 “BEAR” COMPANIES. Agra Ventures



Agra Ventures Ltd. operates in the cannabis industry in Canada. It manufactures and distributes premium personal care, cosmetics, and cannabinoid-infused product lines; handmade skin care lines; CBD-infused topical creams; therapeutic relief balms; sport pain CBD tinctures; CBD-infused soaks; CBD-infused roll-ons and healing sticks; and other products. Agra Ventures Ltd. was incorporated in 2004 and is based in Vancouver, Canada.

Key Points 2022:

- The company has recorded over \$318,000 in revenue with an additional \$173,000 under signed contract from the sale of dried cannabis flower on a wholesale basis over January - February 2022
- Company can potentially benefit from Germany's planned legalisation of recreational cannabis and increase its revenue in 2022

Price Performance, CAD



Ticker	EV/EBITDA	Market Cap	Beta	Price for Q1 2022	Change in Q1 2022
AGRA.CN	-0.33	\$4.59M	0.90	\$0.47	-32%

Investment Thesis (2021)

Agra Ventures is unprofitable, and losses have increased over the past 5 years at a rate of 59.5% per year. In August 2021 a lawsuit was filed against individuals connected with Agra Ventures. They partnered with a large-scale East Ladner greenhouse operation to grow cannabis resulting in \$185 million being unlawfully siphoned from the company. Agra was engaged in 17 share issuances between March 29, 2018 and May 1, 2020, whereby over \$7 million in common shares and over 128.5 million options were granted to those named in the petition for allegedly sham consulting agreements, falsified achievement bonuses or to settle sham debts.

TOP 5 “BEAR” COMPANIES. Affymax Inc.



Affymax, Inc. is a biopharmaceutical company previously committed to developing novel drugs to improve the treatment of serious and often life-threatening conditions. The vision was to become a leader in the nephrology and specialty care space by delivering innovative therapeutic offerings to patients. The company was founded in 2001 and is based in New York.

Key Points 2022:

- Inconsistent financial data, the latest financial data available is more than a year old
- Affymax doesn't have a meaningful market cap
- Affymax's shares are highly illiquid

Affymax's shares have been falling since February 2013. At that time Affymax announced a voluntary recall of its only drug Omontys after a small percentage of patients experienced serious initial side effects, leading to a handful of patient deaths.

Price Performance, USD



Ticker	EV/EBITDA	Market Cap	Beta	Price for Q1 2022	Change in Q1 2022
AFFY	-0.17	\$0.23M	7.00	\$0.006	+3%

Investment Thesis (2021)

This drug was developed in collaboration with Japanese pharmaceutical company Takeda, for dialysis patients with anemia, or low red blood cell levels.

TOP 5 “BEAR” COMPANIES. Deepmatter

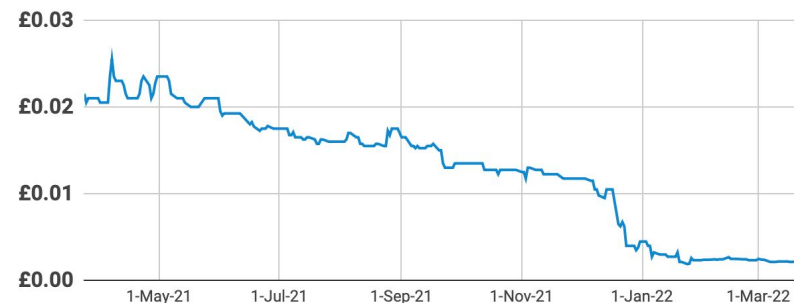


Deepmatter Group Plc is a big data and analysis company which has built a DigitalGlassware platform, focused on enabling reproducibility in chemistry. The company delivers applications resulting in new optimised chemicals, materials and formulations in such commercially significant areas as pharmaceutical research, fine chemicals, scientific publications and teaching. DeepMatter Group Plc was incorporated in 2006 and is based in Bristol, the United Kingdom.

Key Points 2022:

- The company signed the multi-year contract with AI biology-based startup Standigm in March 2022, which is aimed to increase the company’s revenue stream in 2022
- In January 2022, DeepMatter raised £250,000 gross in an open offer of 250 million shares at 0.1 pence each, as planned

Price Performance, GBP



Ticker	EV/EBITDA	Market Cap	Beta	Price for Q1 2022	Change in Q1 2022
DMTR.L	-2.68	\$2.68M	1.08	\$0.003	-51%

Investment Thesis (2021)

Deepmatter Group Plc (DMTR) – is unprofitable and dependent on the fundraising and associated proceeds for it to continue to "meet its forecasts and execute its strategy". In December 2021, DeepMatter carried out a share placing with an 84% discount to raise £2.6 million. Following the announcement of a deeply discounted share offer and a downgrade to its annual revenue guidance, shares of the company lost almost 40% of their value. In early March 2022, DeepMatter inked collaboration deal with Korean workflow AI drug discovery company Standigm, the first stage of which is expected to generate revenues of £0.23m for DeepMatter.

TOP 5 “BEAR” COMPANIES. LogicBio Therapeutics

LogicBio Therapeutics is a clinical-stage genetic medicine company pioneering genome editing and gene delivery platforms to address rare and serious diseases from infancy through adulthood. Its technology platform is modular in nature; company’s initial product candidates are aimed to leverage the existing knowledge to address diseases by targeting the liver. The company was incorporated in 2014 and is headquartered in Lexington, Massachusetts.

Key Points 2022:

- Expected the results of the new GeneRide™ development candidate nominated for the treatment of hereditary tyrosinemia type 1
- Expected the further results of first-ever in vivo, nuclease-free genome editing in little humans

Price Performance, USD



Ticker	EV/EBITDA	Market Cap	Beta	Price for Q1 2022	Change in Q1 2022
LOGC	0.43	\$24.07M	1.35	\$1.14	-71%

Investment Thesis (2021)

The company experienced a decline in stock price because, in January 2022, the fourth patient dosed in the Phase 1/2 SUNRISE trial experienced a drug-related serious adverse event (SAE), which was categorised as a case of thrombotic microangiopathy. As previously disclosed, after reporting the SAE to the U.S. Food and Drug Administration (FDA), the Investigational New Drug Application for LB-001 was placed on clinical hold. In addition, the net loss for the year 2021 was \$40.0 million or \$1.24 per share, compared to a net loss of \$32.6 million, or \$1.29 per share. Also, the company is heavily dependent on the success of LB-001 and if LB-001 which do not receive regulatory approval in the USA or other jurisdictions, or is not successfully commercialised, our business will be harmed.

TOP 5 “BEAR” COMPANIES. Orchard Therapeutics

Orchard Therapeutics plc, a biopharmaceutical company, develops gene therapies for serious and life-threatening rare diseases in the United Kingdom, European Union, and the United States. It provides Strimvelis, a gammaretroviral-based product for the treatment of adenosine deaminase-severe combined immunodeficiency (ADA-SCID). Orchard Therapeutics plc was founded in 2015 and is headquartered in London, the United Kingdom.

Key Points 2022:

- Currently unprofitable, with little expectation of being profitable in the next three years
- Orchard Therapeutics has no significant revenue (\$2 million), but it is expected to increase by 52.72% every year
- The company does not have a significant market capitalisation

Price Performance, USD



Ticker	EV/EBITDA	Market Cap	Beta	Price for Q1 2022	Price for 2022E
ORTX	0.47	\$97.50M	1.19	\$1.00	-49%

Investment Thesis (2021)

Orchard Therapeutics share price slid 43% over twelve months, down to \$0.78 in late March 2022. There had been no major trial failures or other disasters at the company. Internal and external factors may have contributed to the gradual loss of value of shares. First, a patient being treated by strimvelis under a compassionate use program was diagnosed with leukaemia in October 2020. Second, the devastation of gene therapy stocks across the industry as a result of Bluebird Bio's (BLUE) viral vector adverse event issues in February 2021. Finally, the FDA's delaying of the regulatory process is probably a result of all of that.

LONGEVITY IPOS IN Q1 2022

Overview



LONGEVITY IPO CANDIDATES

As of October 2021, over 400 Longevity companies have reached late-stage financing and are expected to tap IPO markets as the next steps. Below are some examples of Longevity companies who have either announced their IPO plans or viewed by market as potential IPO candidates.



Total Funding Amount: \$1.6B

Online pharmacy **PharmEasy** has recently filed for an initial public offering of up to ₹6,250 crore (\$842.43M). The IPO is to open on 2022 for QIB, NII, and Retail Investors. The company has seen almost 378% growth in its revenue in FY 2021 compared to FY 2020.

TEMPUS

Total Funding Amount: \$1.1B

Tempus uses artificial intelligence to provide physicians with clinical data that can be used to create customised treatments for patients. Tempus may go public under the leadership of Eric Lefkofsky as early as Q2 2022.



Total Funding Amount: \$946.7M

Pharmaceutical online retailer **Miaoshou Doctor** is considering an IPO, which could happen during Q1 2022 in Hong Kong that could fetch at least \$500M.



Total Funding Amount: \$905M

Better.com decided to go public earlier in 2021. Better will hit the public markets by merging with Aurora Acquisition Corp in a SPAC deal that values it at \$7.7B.



Total Funding Amount: \$1B

Direct-to-consumer telehealth health startup **Ro** is reportedly in talks to go public through a merger with SPAC. Reuters reported that the deal could value Ro at more than \$5B.



Total Funding Amount: \$845M

ElevateBio is a biotechnology company, established to create and operate a broad portfolio of cell and gene therapy companies.



Total Funding Amount: \$2B

Devoted Health, a health insurance startup that focuses on Medicare Advantage plans, has rose up to \$1.2B in new series D funding round at around an \$11.5B valuation.



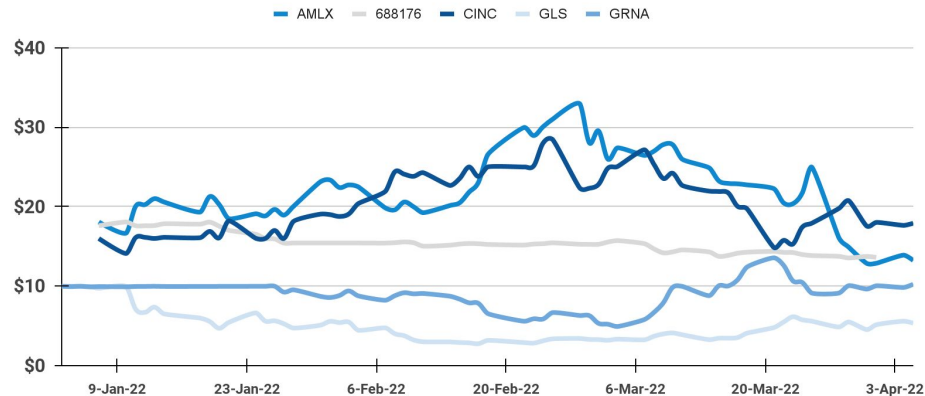
Total Funding Amount: \$1.6B

XtalPi, AI drug discovery company intends to use part of the proceeds from the latest \$400M Series D round. The startup already counts Google, SoftBank, and Tencent among its backers, with XtalPi turning to Goldman Sachs in July to find new investors ahead of an IPO.

LONGEVITY IPOs IN Q1 2022

There are a few signs pointing to continued **acceleration** in the biotechnology market. First, the biotechnology market adoption appears to be stabilising at a 'new normal' following the onset of the COVID-19 pandemic. **More and more** biotechnology companies are **hitting** the **public markets** in 2022. In **Q1 2022, 13 biotechnology** companies successfully completed an **IPO** including **the mergers with Special Purpose Acquisition Companies (SPACs)**.

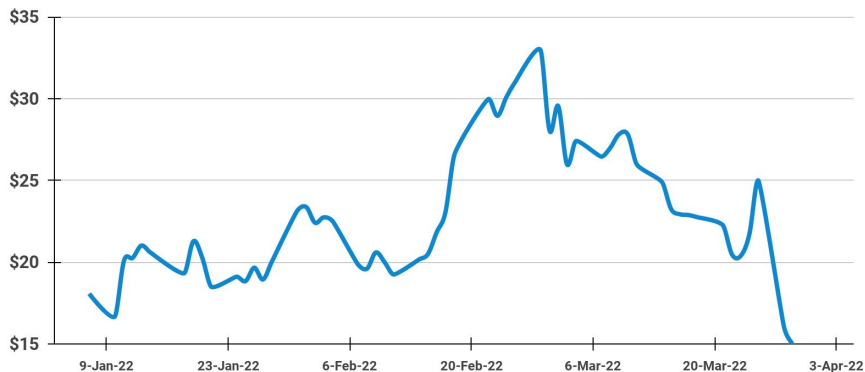
Main IPOs Q1 Price



Name	Ticker	Country	Funding Amount, \$M	IPO Date	Capitalisation, \$M	Valuation at IPO, \$M	IPO Share Price, \$	Current Share Price, \$	EV/EBITDA	Net Income (TTM), \$M
Amylyx Pharmaceuticals	AMLX	USA	202	07.01.22	796	1,100	19	13.76	-7.73	-87.31
Asieris Pharmaceuticals	688176	China	176	07.01.22	N/A	2,060	18.28	10.70	-28.23	-259
CinCor Pharma	CINC	USA	193	07.01.22	728.37	584.3	16	19.32	-13.46	-50.37
TC BioPharm	TCBP	UK	36.4	11.02.22	215	46.86	4.25	1.67	-5.02	-10.99

LONGEVITY IPOs IN Q1 2022

Name	Ticker	Country	Funding Amount, \$M	IPO Date	Capitalisation, \$M	Valuation at IPO, \$M	IPO Share Price, \$	Current Share Price, \$	EV/EBITDA	Net Income (TTM), \$M
Vigil Neuroscience	VIGL	USA	161	07.01.22	186.56	395	14	6.60	-3.07	-43.83
Arcellx	ACLX	USA	210	04.02.22	464	503	15	13	-6.40	-64.97
Blue Water Vaccines	BWV	USA	7	18.02.22	657.87	20	9	59	-203.41	-35
Lepu Bio	2157	China	350	25.02.22	1.38	115	1.12	0.83	-10.36	-13
Genflow Biosciences	GENF	UK	N/A	18.01.22	35.31	N/A	15.04	11.84	N/A	N/A
Gelesis	GLS	USA	312.8	14.01.22	390	1,000	N/A	5.39	-0.35	-93.42
Greenlight Biosciences	GRNA	USA	340	03.02.22	1,180	1,200	N/A	9.61	-92.34	-15.06
Vivakor	VIVK	USA	10.4	14.02.22	27	8	5	1.89	-26.41	-1,792
Revelation Biosciences	REVB	USA	22.3	24.01.22	15.66	128	N/A	1.10	N/A	N/A

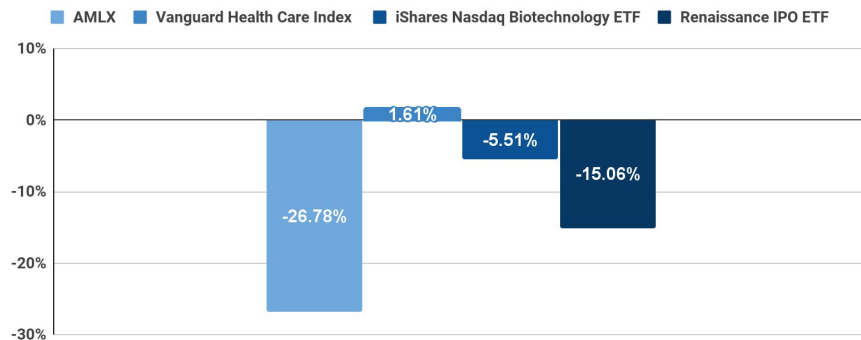


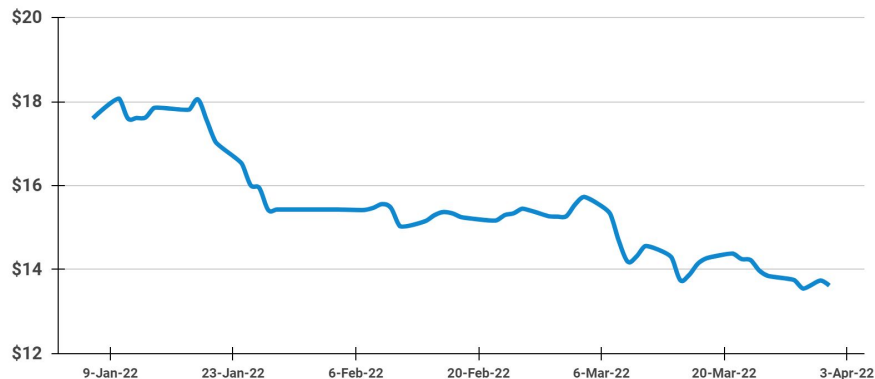
In terms of clinical trials **Amylyx Pharmaceuticals** is currently exploring the potential of AMX0035 (sodium phenylbutyrate / taurursodiol) as a treatment option for ALS, Alzheimer's disease, and Wolfram syndrome. AMLX has raised a total of **\$202.2M** in funding over 7 rounds. Their latest funding prior to IPO was raised on July 20, 2021, from a **\$135M Series C** round, led by **Viking Global Investors**.

Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$M
-0.13%	8.64%	812k	-47.98%	-26.78%	796

Amylyx Pharmaceuticals specialises in providing solutions for Alzheimer's and other diseases of the brain. The company features a drug designed to prevent nerve cell death and degeneration.

The graph below depicts a comparative performance of AMLX and 3 ETFs in Q1 2022 (starting from 07.01.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).



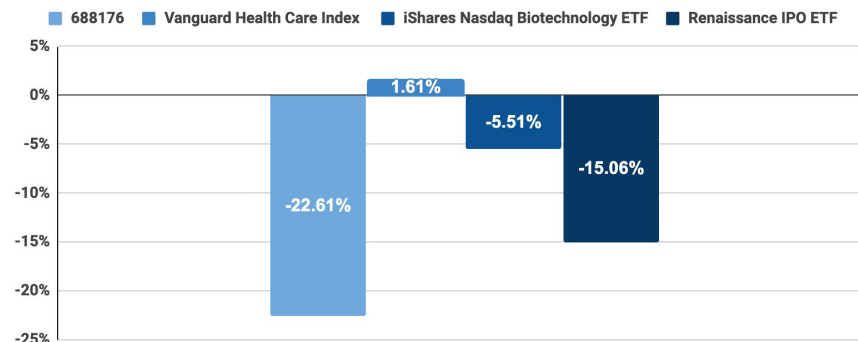


Asieris Pharmaceuticals has 12 ongoing programs, including nine innovative assets, for genitourinary diseases. In February company announced that **Hexvix, a drug for diagnosis of for bladder cancer** has obtained the clinical trial application approval from the regulator. Company has raised a **total of \$176.1M** in funding over 5 rounds. Their latest funding prior to IPO was raised on November 11, 2020 from a **\$106M (¥700M) Series D** round, led by **Qiming Venture Partners**.

Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$B
-0.48%	1.67%	3.52M	-8.38%	-22.61%	7.76B

Founded in 2010, Asieris Pharmaceuticals is a biotech company focusing on therapeutic areas in oncology and multidrug-resistant infections. Asieris Pharma specialises in the development and commercialisation of new drugs for the treatment of genitourinary tumors and related diseases.

The graph below depicts a comparative performance of 688176 and 3 ETFs in Q1 2022 (starting from 07.01.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).



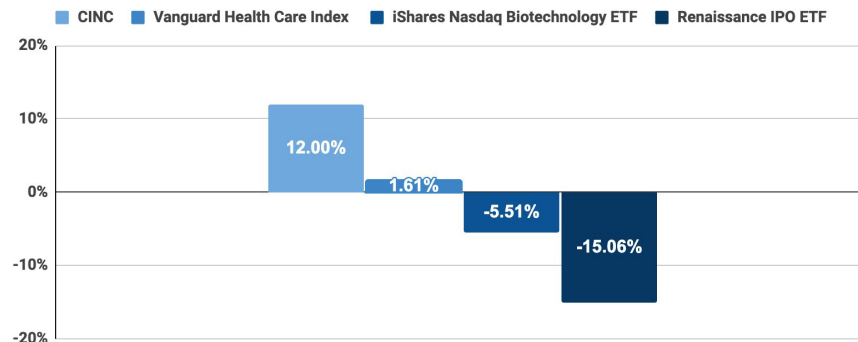


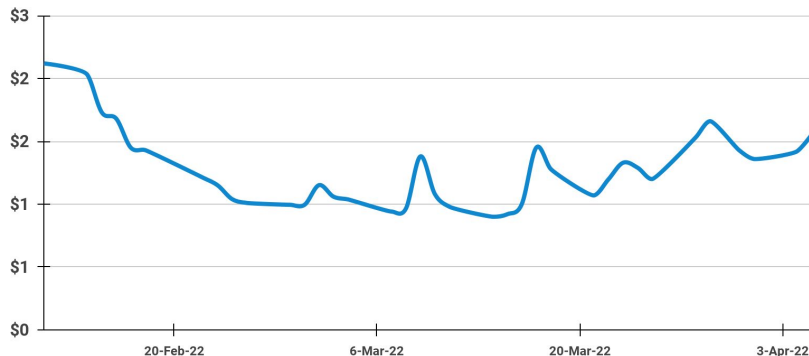
CinCor Pharma developing **CIN-107 for the treatment of multiple diseases** where aldosterone plays a significant role in disease pathophysiology and conducting Phase 2 clinical trials of CIN-107 in hypertension and primary aldosteronism. Company has raised a **total of \$193M** in funding over 2 rounds. Their latest funding was raised on October 12, 2021 from a **\$143M Series B round**, led by **General Atlantic**.

Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$M
0.51%	7.88%	222.35k	-28.86%	12.00%	708

Founded in 2018, CinCor is a clinical-stage biopharmaceutical company with a mission to advance promising clinical candidates toward marketing approval. CinCor's focus is on cardiovascular, metabolic and kidney diseases. CinCor's lead program is CIN-107, a novel aldosterone synthase inhibitor.

The graph below depicts a comparative performance of CINC and 3 ETFs in Q1 2022 (starting from 07.01.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).



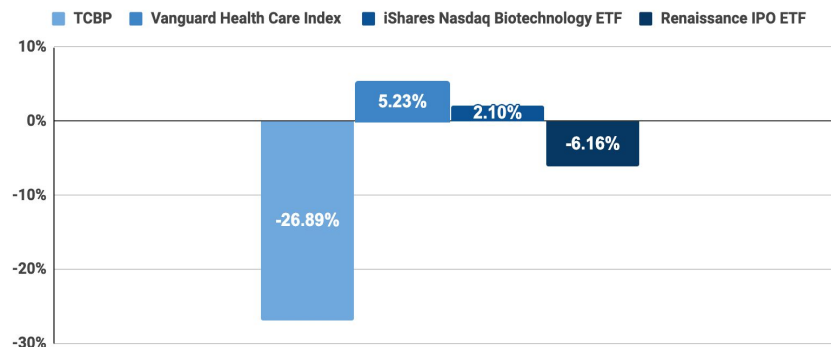


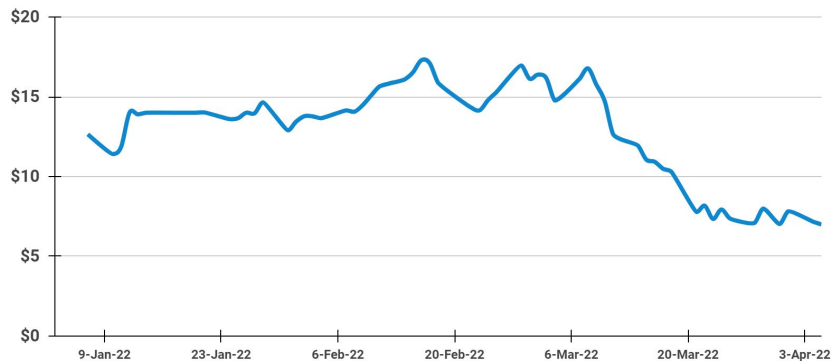
TC BioPharm conducted IPO on Feb 10 for aggregate gross proceeds of approximately **\$17.5 million** which it intends to use to finance the cost of treating patients under proposed clinical trials **OmnImmune®** Phase 3 trial for the **treatment of acute myeloid leukaemia**, and **ImmuniStim®** (for the treatment of **viral infections such as COVID-19**) and to continue the research and development of proposed therapies to treat solid cancers.

Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$M
0.09%	15.01%	2.47M	77.66%	-26.89%	39.84

Founded in 2013, TC BioPharm is a clinical development company with a cell-based product pipeline capable of treating a variety of disorders including cancer and severe viral infections. TC BioPharm’s mission is to develop and commercialise innovative cell-based products to treat disease, improving patient health and Quality of Life.

The graph below depicts a comparative performance of TCBP and 3 ETFs in Q1 2022 (starting from 11.02.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).



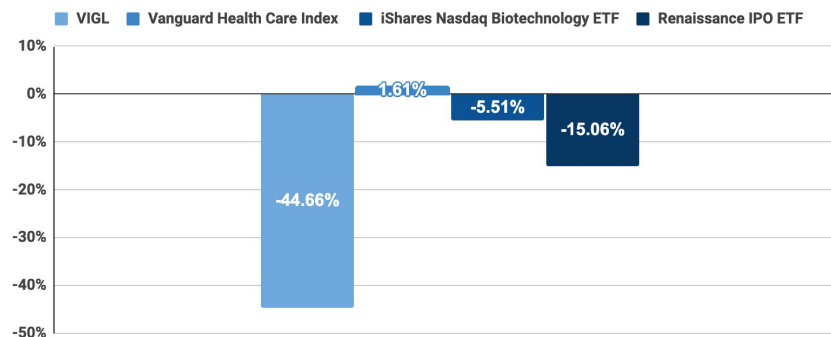


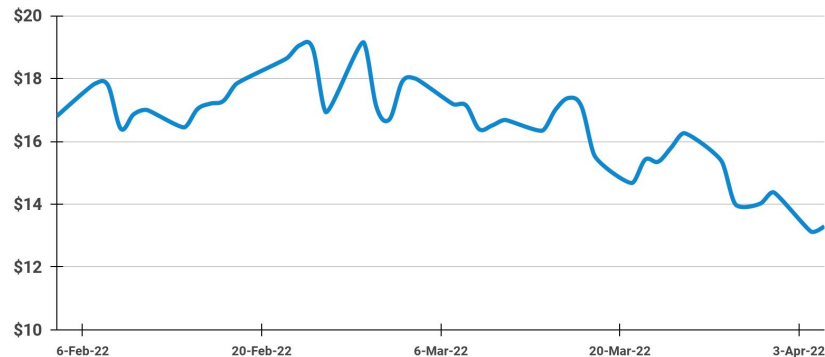
Vigil Neuroscience is a microglia-focused company dedicated to improving the lives of patients, caregivers, and families affected by rare and common neurodegenerative diseases by restoring the vigilance of microglia, the sentinel cells of the brain’s immune system. Vigil Neuroscience, Inc., priced its IPO on January 6, 2022, at **\$14** – \$1 below the bottom of its \$15-to-\$17 price range – on 7 million shares to raise **\$98 million**.

Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$M
-0.74%	7.11%	112k	-4.39%	-59.08%	220.76

Founded in 2020, Vigil Neuroscience Inc is a microglia-focused therapeutics company treating both rare and common neurodegenerative diseases by restoring the vigilance of microglia, the sentinel cells of the brain’s immune system. It is utilising the tools of modern neuroscience drug development across multiple therapeutic modalities to rapidly deliver precision-based therapies to improve the lives of patients and families.

The graph below depicts a comparative performance of VIGL and 3 ETFs in Q1 2022 (starting from 07.01.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).



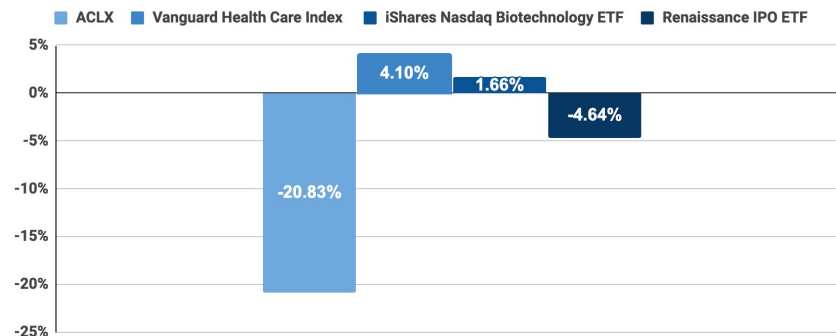


Arcellx, a biotechnology company reimagining cell therapy through the development of innovative immunotherapies for patients with cancer and other incurable diseases, announced the pricing of its initial public offering of 8,250,000 shares of common stock at a public offering price of **\$15 per share**. The gross proceeds from the offering, before deducting underwriting discounts and commissions and other offering expenses payable by Arcellx, are expected to be approximately **\$123.8 million**.

Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$M
-0.45%	5.15%	194.31k	-24.33%	-20.83%	513.89

Founded in 2015, Arcellx is a clinical-stage biotechnology company reimagining cell therapy by engineering innovative immunotherapies for patients with cancer and other incurable diseases. Arcellx believes that cell therapies are one of the forward pillars of medicine and Arcellx’s mission is to advance humanity by developing cell therapies that are safer, more effective, and more broadly accessible.

The graph below depicts a comparative performance of ACLX and 3 ETFs in Q1 2022 (starting from 04.02.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).



Blue Water Vaccines

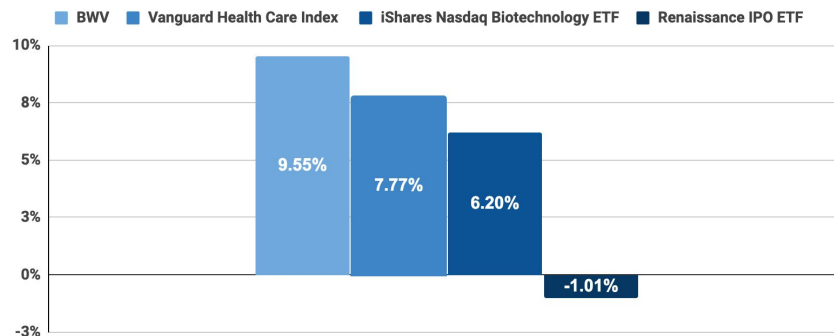


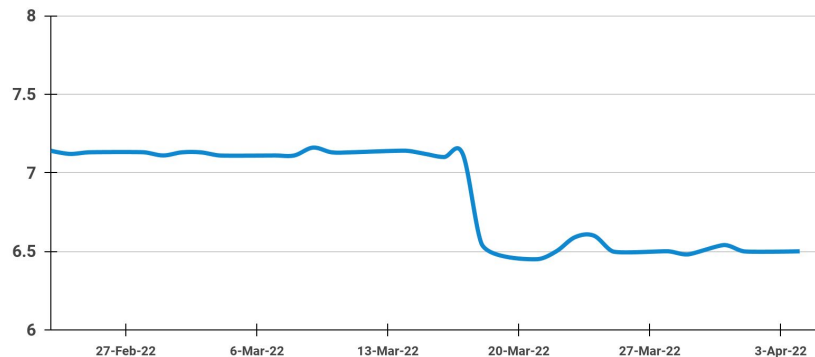
Blue Water Vaccines Inc., a biopharmaceutical company developing vaccines, announced the closing of its initial public offering of 2,222,222 shares of its common stock at a public offering price of \$9 per share. The shares began trading on the Nasdaq Capital Market under the ticker symbol “BWV” on February 18, 2022. The aggregate gross proceeds to BWV from the initial public offering were approximately \$20 million, prior to deducting underwriting discounts, commissions, and other estimated offering expenses.

Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$M
0.87%	9.96%	112k	-4.03%	9.55%	696.06

Founded in 2018, Blue Water Vaccines is a company developing a universal flu vaccine based on technology. Blue Water Vaccines, Inc. is a biopharmaceutical company focused on developing transformational vaccines to address significant health challenges globally.

The graph below depicts a comparative performance of BWV and 3 ETFs in Q1 2022 (starting from 18.02.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).



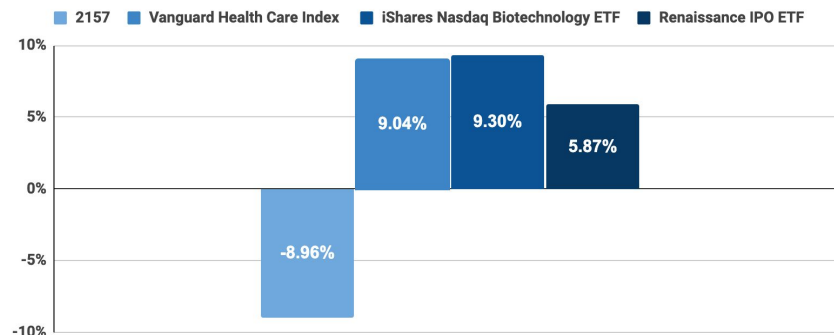


Lepu Biopharma, a biotech spin-off of MedTech firm Lepu Medical, traded below the IPO price on its first trading day in Hong Kong. The biotech firm issued **126.8 million shares at HK\$7.13** apiece with support from CICC and Morgan Stanley, but the stock traded at HK\$6.83 in mid-morning. Lepu Biopharma was set up in January 2018 to develop oncology drugs and quickly built its pipeline mainly through aggressive acquisitions in the same year.

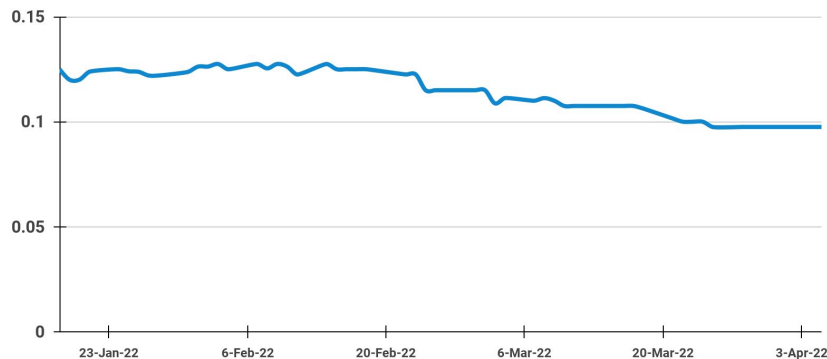
Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$B
-0.33%	1.65%	1.1M	17.88%	-8.96%	10.85

Founded in 2018, Lepu Bio is a biotech company that develops a tumor immunology technology. It has established an industrial platform for target discovery, drug discovery, development, and production.

The graph below depicts a comparative performance of 2157 and 3 ETFs in Q1 2022 (starting from 23.02.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).



Genflow Biosciences

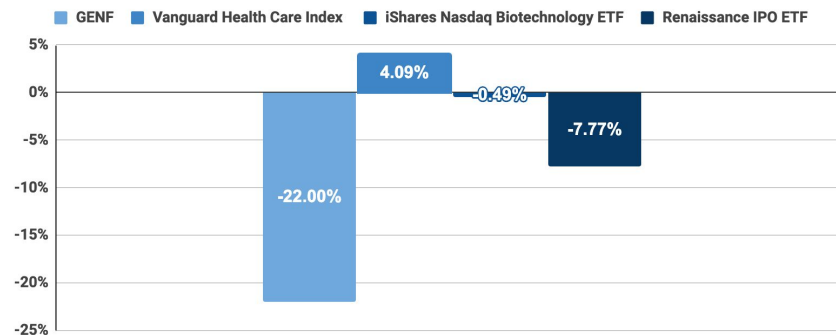


Genflow Biosciences became the first Longevity biotech IPO of 2022 as the company floated on the main market of the London Stock Exchange, trading under the ticker symbol “GENF” at an initial share **price of 8 pence**. A total of 47,036,500 Ordinary Shares (representing approximately 16% of the company’s issued share capital on admission) were placed, valuing Genflow at a market capitalisation of **£23.4 million**.

Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$M
-0.45%	1.88%	479.76k	-13.64%	-22.00%	37.6

Founded in 2020, GENFLOW is dedicated to the development and commercialisation of novel therapeutics targeting ageing in dogs and humans. Ageing is not a natural fatality. There is no rationale for a limited lifespan.

The graph below depicts a comparative performance of GENF and 3 ETFs in Q1 2022 (starting from 18.01.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).



Genflow Biosciences plc is a UK based biotech company with R&D facilities in Belgium and a US office in Cambridge, MA, driven by one mission: to deliver therapeutics that potentially halt or slow the ageing process in humans and dogs. The company's lead compound works through the delivery of a centenarian variant of the SIRT6 gene and has yielded promising preclinical results.

22.6%

Rising older population

According to the United Nations the proportion of the world aged over 65 is set to rise from 9.3% in 2020 to reach 22.6% by 2100

10.2%

**Increased health expenditure
due to ageing**

The OECD estimates that health expenditure will rise from 8.8% of GDP in 2015 to 10.2% by 2030

\$38 Trillion

Slowing ageing opportunity

For the US it has been estimated that the benefits of slowing ageing such that life expectancy increases by between one and two years is worth between \$7 trillion and \$38 trillion

Genflow Biosciences becomes first European publicly traded biotech company

Genflow Biosciences became the first Longevity biotech IPO of 2022 on January 17th, listing under the ticker symbol "GENF" at an initial share price of 8 pence on the main market of the London Stock Exchange. A total of 47,036,500 Ordinary Shares were issued (representing roughly 16% of the company's issued share capital at the time of entrance). Genflow's first trading day finished with a 31% price increase, giving it a market capitalisation of £23.4 million.

Genflow claims "extensive relationships" within the Longevity biotech field and with leading academic centres, including a collaboration agreement with St Anne's University Hospital in the Czech Republic on a pre-clinical programme to assess the effect of SIRT6 delivery on cellular senescence and metabolism in vitro and in vivo.

The company also has a collaboration agreement with Estonian research organisation IVEX Lab OU on the development of adeno-associated virus vectors for SIRT6 therapies and on the large-scale production of AAV vectors for an in vivo study in animal models.

"Genflow Biosciences is starting a new chapter today, as we advance to the next level of our development as a publicly traded business trading on the main market of the London Stock Exchange, we are excited to put our strategy into action. The funds raised will help Genflow develop new gene therapies to combat the impacts of ageing and age-related diseases, as well as carry out our long-term company objectives in a field with significant financial prospects"

Dr. Eric Leire, CEO

Headquarters
London, UK

Raised at IPO
£3.7 million

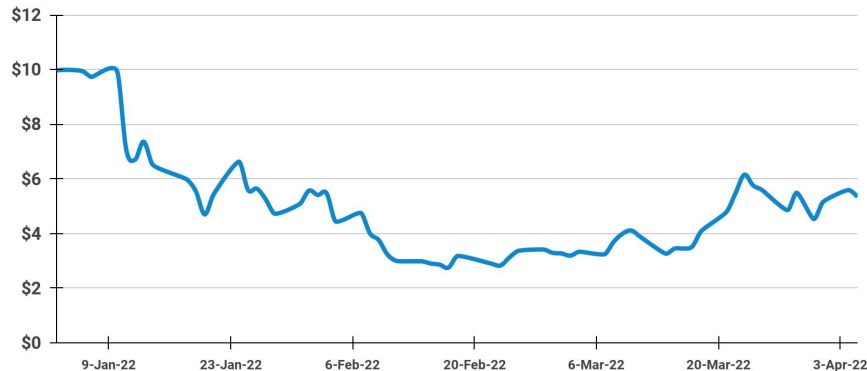
Founded date
2020

R&D center
Charleroi, Belgium

Gelesis (via SPAC)



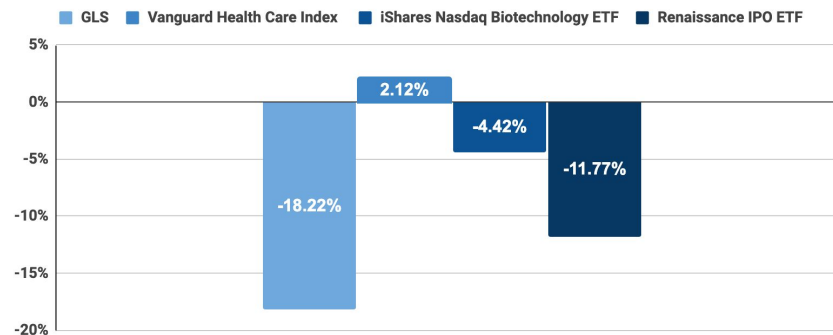
GELESIS



Founded in 2006, Gelesis is a biotechnology company developing first-in-class therapeutics to safely treat obese, overweight, and diabetic patients.

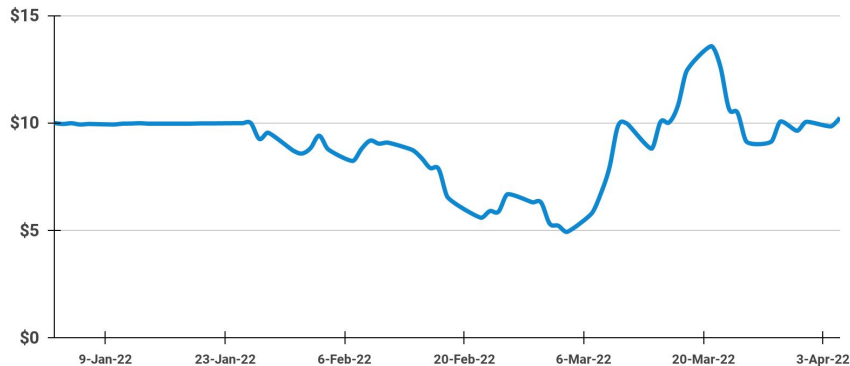
The graph below depicts a comparative performance of GLS and 3 ETFs in Q1 2022 (starting from 03.01.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).

Gelessi has made a business combination with Capstar Special Purpose Acquisition Corp. in February 2022. Gelesis will use the **\$105 million** gross proceeds from the Capstar SPAC business combination to support the broad launch of its Plenity product. Both Gelesis and Capstar shareholders voted to approve the business combination. The company declared \$11.1M of revenue in 2021 against \$2.7M in 2020.



Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$M
0.15%	10.26%	422.86k	65.85%	-27.08%	371.18

Greenlight Biosciences (via SPAC)

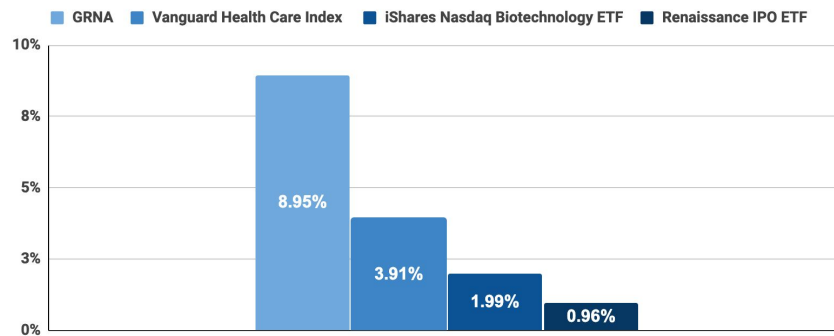


Greenlight Biosciences went public after merging with Nasdaq-listed special purpose acquisition company (SPAC) Environmental Impact Acquisition Corp. The combined company, with an estimated enterprise value of **\$1.2B**, is now trading under the ticker symbol GRNA. As part of the deal, Greenlight closed a private placement in public equity transaction raising a reported **\$124M** in gross proceeds.

Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$B
0.69%	10.01%	346.76k	65.12%	8.95%	1.21

Founded in 2008, GreenLight Biosciences is a biotechnology company focused on RNA research, design and manufacturing for human, animal and plant health. GreenLight develops RNA products and collaborates with industry leaders to advance vaccine development, pandemic preparation, crop management, plant protection and support the health of bees and other pollinators.

The graph below depicts a comparative performance of EXAI and 3 ETFs in Q1 2022 (starting from 03.01.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).



Vivakor (via SPAC)



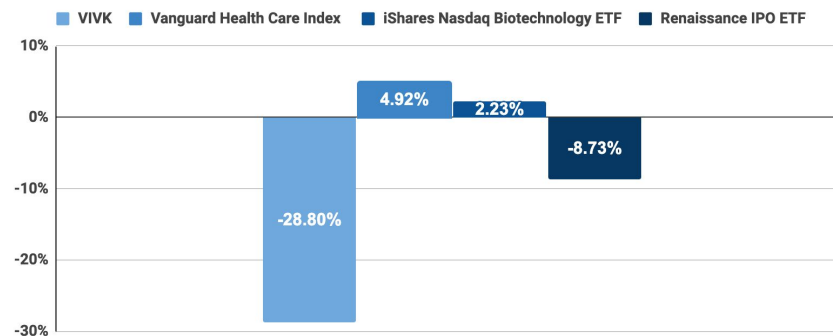
On February 14, 2022, **Vivakor** offered **1.6M** shares as part of its uplisting to Nasdaq, with underwriters granted a 45-day option to purchase up to 240K additional shares to cover any over-allotments. The IPO generated gross proceeds of around **\$8M**. Vivakor's (NASDAQ: VIVK) stock was down 29% in February and 44% below its IPO price of **\$5 per share**. The company's financials have indicated contracting topline revenue and lowering gross profit and gross margin.

Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$M
-0.79%	7.44%	166.34k	-42.73%	-27.08%	32.79

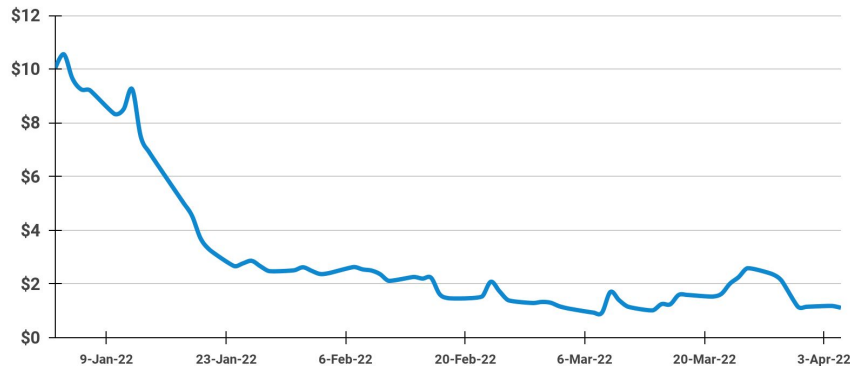
VIVAKOR

Founded in 2006, Vivakor is a biomedical company that focuses on the R&D of a range of medical devices and pharmaceuticals to improve human health. Vivakor is a transdisciplinary biomedical company that engages in the discovery, development, and commercialisation of a range of medical devices and pharmaceuticals to improve human health.

The graph below depicts a comparative performance of VIVK and 3 ETFs in Q1 2022 (starting from 03.01.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).



Revelation Biosciences (via SPAC)

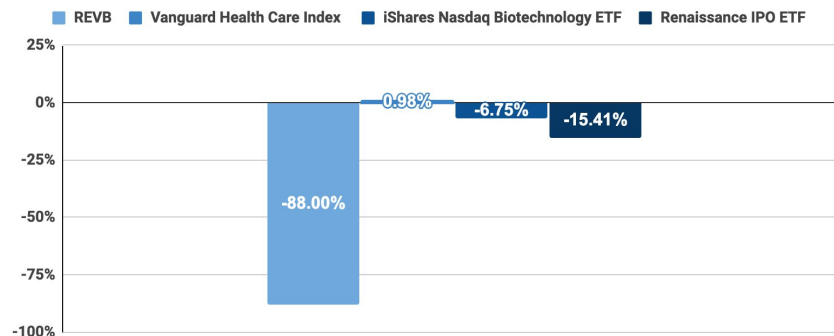


Founded in 2020, Revelation is a clinical-stage company founded by industry veterans focused on the development of immunologic-based therapies and diagnostics for the prevention and treatment of disease.

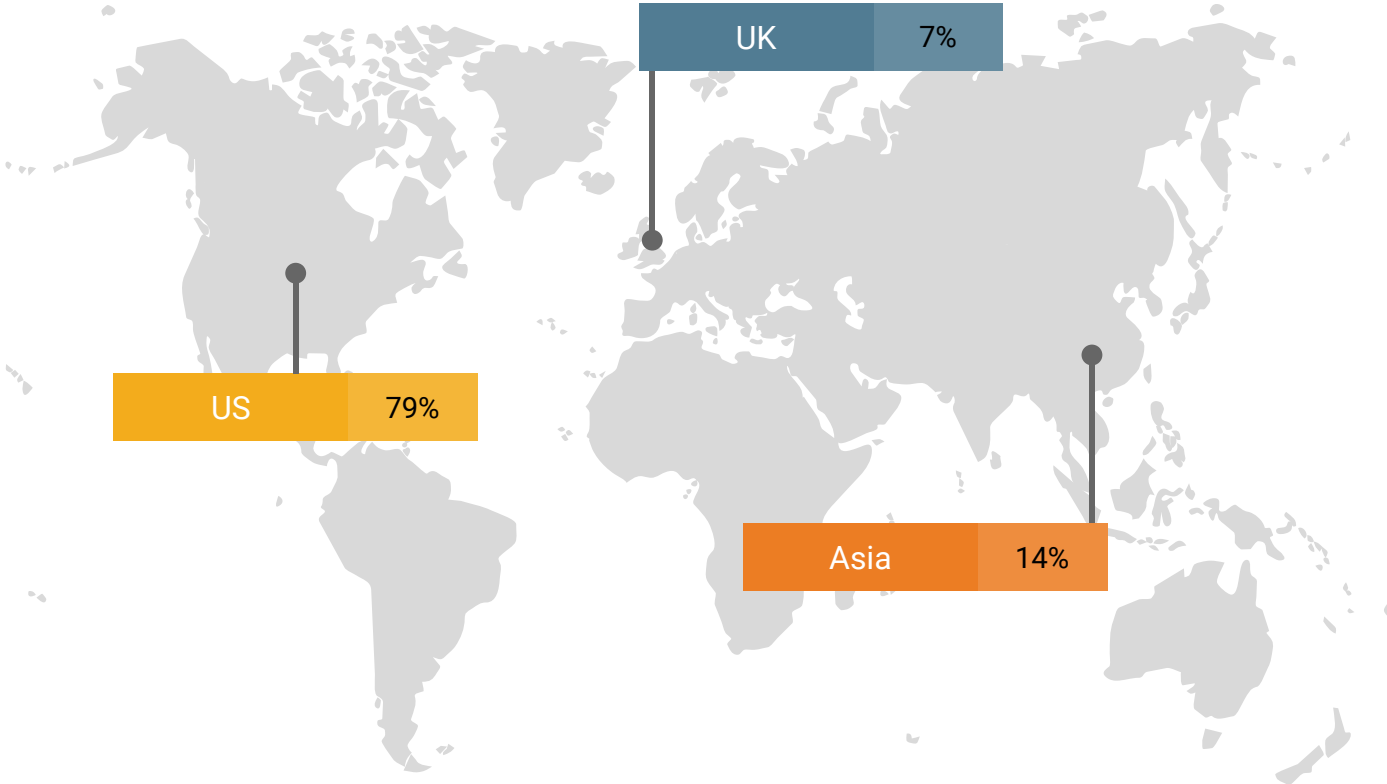
The graph below depicts a comparative performance of REVB and 3 ETFs in Q1 2022 (starting from 03.01.2022): Vanguard Health Care Index Fund ETF (VHT), iShares Nasdaq Biotechnology ETF (IBB), Renaissance IPO ETF (IPO).

Revelation completed a business combination and PIPE financing in January 2022, pursuant to which net proceeds of **\$11.9M** and **\$6.3M**, respectively were received. Revelation has just completed a Phase 2 viral challenge study of the lead therapeutic candidate and data analysis is expected in Q2 2022. The Company plans regulatory submission for its diagnostic candidate in 2H-2022.

Mean Daily Return	Volatility of Daily Returns	Avg. Volume (3 month)	Actual Monthly Return*	Growth after IPO	Capitalisation, \$M
-2.13%	17.66%	112k	18.28%	-88.00%	15.66



LONGEVITY IPOS: REGIONAL PROPORTION



In Q1 2022 most of the IPOs took place in the US. This second place by the number of IPOs is in Asia and the UK closes the list.

KEY TAKEAWAYS

Overview



MAJOR OBSERVATIONS FOR 2022: KEY BUSINESS TAKEAWAYS

1. The **Longevity** market is not only limited to anti-ageing applications of life sciences. It also includes some new sectors of the **financial industry**, as well as **government projects** (national Longevity development plans); hence, its overall size potentially **exceeds \$25 trillion**.
2. The **undisputed** leader in the Longevity sector is the **US** which has a total of **\$671.9 billion** invested in 26,654 companies (54% of all Longevity-related companies worldwide) followed by **China** with **\$166.9 billion** invested in 2,158 companies.
3. **PharmTech** and **P4 Medicine** are Longevity sub-sectors involving the largest number of companies and receiving the highest volume of investments (**\$130.7 billion** and **\$85.4 billion**, respectively) within private companies. Among 500 Longevity-focused public companies, **PharmTech**, **P4 Medicine** and **Deep Diagnostics** are the most represented sectors by a number of companies.
4. The financial sector is expected to witness **the rise of Age-Friendly banks**, a new form of an organisation aimed at making banking easier for those over 60. In most ways, it would resemble a typical fintech bank that had been reprogrammed for older clientele. The creation of cellphones specialised for the elderly, which may be completed within a year, is one of the few remaining stages on the road to an Age-Friendly Bank.
5. The **compound capitalisation of public Longevity companies experienced some turbulence during Q1 2022** with a maxim drop of 12 % compared to the beginning of the year. However, approaching Q2 2022 the capitalisation has almost stabilised to the pre-drop state.
6. The **lowest** gap between **HALE** and **Life Expectancy** is observed in **Singapore** where people tend to be wealthier and are, therefore, able to eat healthy food and have access to the best health care. HALE at birth in countries varies significantly. The **highest** value is in **Japan** (74 years) and the lowest value is in **Lesotho** (44 years). The **United States** is a high-income country where life expectancy is marginally **below** the average level of chosen countries (**70 years**).

OBSERVATIONS IN 2022: KEY FINANCIAL AND INVESTMENT TAKEAWAYS

1. Cheplapharm Arzneimittel, a pharmaceutical company that offers branded drugs, medical products, supplements, and cosmetics, has raised the highest investment in Q1 2022 among all Longevity companies. The company raised €1.5B of debt financing in February 2022. **Tetris (\$535M)**, **IFIT (\$355M)**, **Miro (\$300M)**, **Somatus (\$325M)** and **Acorns (\$300M)** are companies that raised the highest amounts of investments over Q1 2022.
2. **PharmTech** comprising companies engaged in the development of drugs for age-related diseases treatment receives the largest volume of investments: in Q2 2022 alone such companies have secured **\$5.16B** of private investments. **Carestream** which provides imaging and IT systems for medical and life sciences sectors received the biggest investment (**\$2.4B**) among PharmTech companies. Another Longevity sub-sector to receive decent investment is **P4 Medicine (\$138.9B** of total funding as of the end of Q1 2022).
3. More than a thousand **Longevity companies received private equity investments**. Currently, the growth rate of the Longevity market is comparable to that of the IT sector.
4. **In Q1 2022**, we saw **13 Longevity** companies successfully completed their **IPO**, and 4 of them went public through the combination with **SPACs**. Their total **capitalisation** accounted for **\$4.7 billion** as of March 2022. The **biggest valuation at IPO** had **Asieris Pharmaceuticals (\$2.06 billion)**, a biotech company focusing on therapeutic areas in oncology and multidrug-resistant infections. Among IPO which went by SPAC the biggest valuation of \$1.2 billion was received by Greenlight Biosciences which went public after merging with Nasdaq-listed special purpose acquisition company (SPAC) Environmental Impact Acquisition Corp.
5. The **Longevity Industry** has been actively growing over the whole of **2021** and is projected to evolve in the same trend. After facing a little turbulence at the beginning of 2022 the market capitalisation of **500 publicly traded** companies is slightly below **\$5.5 trillion**.

KEY TECHNOLOGY TAKEAWAYS

1. Over the recent years, **significant progress has been achieved in ageing research** (mainly in animal studies). As a result, Longevity has become a complex and multidimensional science. Its diverse technological offshoots, such as geroscience, geriatrics, regenerative medicine, and precision medicine, are all developing simultaneously. This serves as a foundation for the global Longevity Industry, which will probably be humanity's largest industry by the year 2040.
2. **AI-driven biomedical research and development efforts are now more technologically mature and can be successfully used in ageing research.** The key power of AI lies in its ability to accelerate the real-world implementation of Longevity science, such as drug discovery, biomarkers discovery, new Longevity and genes identification, and bring personalised medicine to clinics based on an individual patient's records.
3. Currently, the main focus of global public health efforts is on increasing human healthspan. Achieving this requires successful **treatment and prevention of age-related diseases**, such as cancer, neurodegeneration and cardiovascular diseases.

OBSTACLES THAT STILL REMAIN

1. Application of discoveries in animal ageing to humans requires **better biomarkers** of disease risk and responses to interventions, and **increased use of electronic health records, biobank resources and cohort studies.** The absence of validated biomarkers of risk of age-related diseases poses challenges for the development of anti-ageing drugs. There is still no consensus among scientists regarding biomarkers of biological age.
2. **The ability of AI to make accurate predictions depends on data availability.** A major concern in the application of AI technologies in healthcare is related to the acquisition, generation, and use of health data. Regulatory efforts are needed to ensure the proper flow and use of healthcare records.
3. There is a **shortage of financial resources necessary for the development of public health programs** capable of reducing the risk of age-related diseases. Many health promotion strategies lack scientific and clinical evidence of their efficacy.
4. It is crucial to shift focus from treating individual diseases to developing medical interventions capable of **extending the human lifespan.**

LONGEVITY IN THE GLOBAL CONTEXT



Driven by the declining fertility rates and improvement in health and Longevity, human populations are rapidly ageing. The world is likely to have 1 billion elderly people by 2030. The most rapid increases in the proportion of people aged 65 and over are taking place in developing countries, with the most dramatic changes being observed in East Asia. There, life expectancy at birth has increased from less than 45 years (in 1950) to more than 72 years. In the near future, the elderly population is expected to grow fastest in Northern Africa. In contrast, the projected increase is relatively small in Australia, New Zealand, Europe and Northern America.



Among the developed countries, Hong Kong and Japan have the highest life expectancy rate at birth (84.7 and 84.5 years, respectively). Despite spending less on health and social care (compared to other developed economies), Hong Kong demonstrates superior social indicators – adolescent birth rate, youth involvement in education or employment, homicide rate and incarceration rate. Its superb health indicators, and more specifically, life expectancy and infant mortality rate, may be considered key Longevity-related factors.



In terms of investments and the number of ageing research institutions (almost 50% of the total number worldwide), **the US is an undisputed leader in the Longevity industry.** Suffice it to recall that the majority of major Longevity-focused companies are based in the US. This contrasts sharply with health disparities which are due to socio-economic inequalities.



Among EU countries, Italy (22.8%), Greece (22.0%), Portugal (21.8%) and Finland (21.8%) had the highest percentage of individuals aged 65 and over in 2019. In their turn, Ireland (14.1%) and Luxembourg (14.4%) had the lowest percentage. It is expected that the percentage of individuals aged 65 and over will increase and account for 29% of the entire population by 2060.



The demographic shift is affecting each and every aspect of social life, from health system pressures to the economic impact on public finances. It presents opportunities to individuals and society; however, it also poses challenges that have to be addressed in government policies. That is precisely why redesigning pension systems has become a priority in many countries.



InvestTech Advanced Solutions provides modern investment analytics and data management tools and algorithms.

Our products are **sophisticated data-driven quantifiable investment recommendations** generated to conduct tangible, fast, comprehensive, and inexpensive **analysis and due diligence for deep tech startups, companies, and corporations**, represented in investment reports.

In addition, InvestTech Advanced Solutions provides proprietary **real-time financial analytics and consulting** for publicly traded corporations in deep tech sectors, which includes 3 stages: data parsing, AI-driven data analysis, and user-friendly data visualisation.

InvestTech Advanced Solutions also specialises in **advanced financial engineering**, including **financial derivatives construction and de-risking methods and tools development**.

Our Value Proposition:

● Open Access and Proprietary Analytical Case Studies

Aging Analytics Agency is producing regular open-access reports covering emerging Longevity markets – technologies, innovations, companies, and trends. Our clients and partners can enjoy access to proprietary reports featuring additional in-depth research conducted by our team on a regular basis.

● IT-Platform and Big Data Analytics Dashboard

Our company is building a sophisticated cloud-based engine for advanced market and business intelligence in the Longevity biotech, medicine, finance, and governance industries. It includes a data mining engine, infrastructure for expert data curation, and advanced visualisation dashboards, including mindmaps, knowledge graphs, and 3-dimensional visualisations.

● Strategic Consulting

Aging Analytics Agency offers a comprehensive range of consulting services, conducting customised case studies, research, and analytics for internal (organisational) use, tailored to the precise needs of specific clients.

Aging Analytics Agency is the world's premier provider of industry analytics on the topics of Longevity, Precision Preventive Medicine, Economics of Aging, and the convergence of technologies such as AI, Blockchain, Digital Health, and their impact on the healthcare industry.

Aging Analytics Agency is open to cooperation with strategic clients via a variety of approaches, including:

- Conducting customised case studies, research and analytics for internal (organisational) use, tailored to the precise needs of specific clients;
- Producing open-access analytical reports;
- Offering customised analysis using specialised interactive industry and technology databases and IT platforms.

INVESTTECH ADVANCED SOLUTIONS: ANALYTICAL REPORTS

InvestTech Advanced Solutions in cooperation with analytical subsidiaries of Deep Knowledge Group produces regular open-access reports covering emerging technologies, innovations, companies, and trends across the variety of DeepTech domains.

These reports focus on major areas of high-potential industries, maintaining ratings of market players based on their innovation potential and business activity.

The scope of analytical reports accounts for over 10 investment digests that are subject to periodic updates. The elements comprised in every report are as follows:

Industry Trends	Investors	Investment Rounds	R&D Trends
Venture Capital Ecosystem	Private Companies	Public Companies	M&A Landscape

Explore the entire scope of analytical reports at:

www.invest-solutions.tech/reports

Longevity Investment Digest

This landmark report outlines major investment rounds, and relevant R&D trends, as well as illustrates the traction of the Longevity Industry and delivers a comparison of market players. The information in the digest covers key industry trends, 23,000 Longevity companies, 50 leading investors, and more than 600 Longevity-focused publicly traded corporations.



INVESTTECH ADVANCED SOLUTIONS: PROPRIETARY ANALYTICS

Some of the more in-depth research is only available to our clients and strategic partners as proprietary analytics. As a rule, this analytics covers the topics that are of great interest to parties concerned and delivers an extensive scope of information on particular topics.

Proprietary Analytics delivers practical answers to certain questions in order to optimise the short and long-term strategies of companies related to the industry. Proprietary reports are supported by our rapidly developing data mining engine and analytics dashboards.

Ready-to-use
Proprietary
Reports

Custom
Consulting
Projects

Investment
Prospects

M&A
Prospects

Strategic
Growth Ideas

Trends
Profiling

Niche
Industries
Overviews

Case Studies

Access our website to learn more:

www.invest-solutions.tech

Proprietary Version of Longevity Derivatives and Financial Instruments Report

This report thoughtfully explores Longevity-derived financial instruments. The study includes derivatives explanation and analysis, including the comparison to other financial instruments. The proprietary version delivers an exhaustive overview of the biomarkers-based Longevity assessment solutions.



LONGEVITY FINANCE BIG DATA ANALYTICS DASHBOARD

Developed by InvestTech Advanced Solutions based on the data provided by the Aging Analytics Agency, the Longevity Finance Analytics Dashboard is a licensed white-label solution designed for financial corporations (e.g. banks, pension funds, asset management firms and insurance companies) looking to adjust their business models to Longevity-focused banking and **tap into the multi-trillion-dollar market of 1 billion people** in retirement.

The project aims to provide **tangible, data-driven, fast, comprehensive and inexpensive SWOT analysis, customised practical recommendations, benchmarking, forecasting and guidance** needed to transform financial institutions for Longevity-related challenges in the future.



The analytics provided herein can help deliver value to financial institutions and adjust their business models to Longevity-related challenges in the future

Financial Institutions (e.g. Banks, Pension Funds, Asset Management Firms and Insurance Companies)

- SWOT analysis of the most promising entities and technologies
- Real-time monitoring of the developments in the Longevity financial industry
- Benchmarking the most market-ready Longevity finance technologies
- Due diligence of emerging technologies' strengths
- Opportunities forecasting

LONGEVITY INVESTMENT BIG DATA ANALYTICS DASHBOARD

The Longevity Investment Analytics Dashboard developed by InvestTech Advanced Solutions based on the data provided by the Aging Analytics Agency which is active in the industry since 2013 aims to produce **knowledge-based validated investment insights** covering four major Longevity branches: financial Longevity industry, Longevity R&D, Longevity medicine and Longevity technology.

The project generates **quantifiable and advanced data-driven investment recommendations** to conduct **an effective and inexpensive SWOT analysis and due diligence** for Longevity companies and investors, and **real-time financial analytics and consulting** for private and publicly traded companies across 20 Longevity sectors.



The analytics can deliver funding targets to investors, funding to companies and detailed SWOT analysis

Investors

- Comprehensive market analysis
- Due diligence and SWOT analysis of investment targets
- Analysis of the strategies of leading industry investors

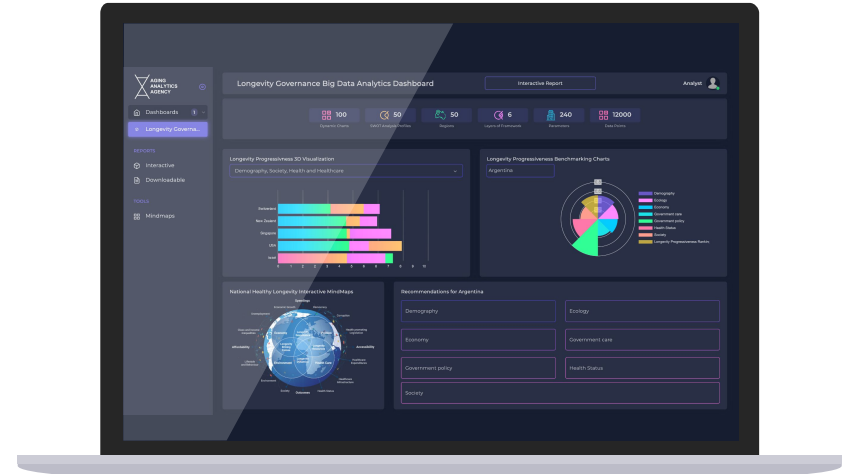
Companies

- SWOT analysis of competitors
- Automated business development recommendations
- AI-based matching with investors

LONGEVITY GOVERNANCE BIG DATA ANALYTICS DASHBOARD

The Longevity Governance Dashboard brings access to continuous monitoring of the specific governmental policy activities directly impacting both National Healthy Longevity and Longevity Industrialisation, and to consistently **tracking and analysis of data points related to government-led Longevity Development initiatives.**

Its aim is to deliver strategic decision-makers across the private sector, global investment community, financial industry, and governance **access to Big Data analytics and visualisation, market intelligence, competitive analysis, technology and company benchmarking, SWOT analysis, practical recommendations** and other strategic toolset capable of handling the unprecedented complexity and multidimensionality of the full-scope Global Longevity public and private sector ecosystem.



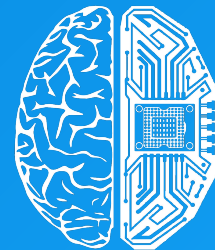
The analytics provided herein identifies factors with the greatest effect on the gap between life expectancy and Health-Adjusted Life Expectancy

Government Agencies, Healthcare, Economy & Industrial Development Ministries and International Policy Organisations

- Features region-specific recommendation packs
- Provides tangible and practical recommendations tuned to the specifics of individual countries
- Precision Health



**AGING
ANALYTICS
AGENCY**



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Aging Analytics Agency (AAA) & InvestTech Advanced Solutions (ITAS) Disclaimer

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