

INVESTMENT DIGEST TEASER

LONGEVITY INDUSTRY IN ASIA 2021

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Longevity Investment Digest at a Glance

This Investment Digest is summarizing key players and observations in the private equity and venture capital ecosystem, focusing on the longevity industry. Here we have summarized information about key industry trends, more than 1700 promising longevity companies, 50 leading investors in this sector, and more than 50 longevity-focused publicly traded corporations, outlining major investment rounds and relevant R&D trends illustrating the industry traction and readiness of institutional investors (big pharma/biotech) to potentially acquire most successful AgeTech and Longevity Biomedicine startups.

Covid pandemic has facilitated not only biotech capital market development in general, but longevity sector in particular, resulting in more than 30% of growth compared to the previous year.

Longevity market growth outperforms general trend of biotech market, yet remains more volatile. Only one company in Asia made an IPO.

Longevity is now regularly embraced as a major topic of interest for panel discussions and entire conference series by top-tier finance and business media brands including The Economist, Financial Times and Bloomberg.

The industry is poised to witness a quantum leap in the near future, particularly because of the impact of Artificial Intelligence in biomedicine R&D and in light of the upcoming paradigm shift from treatment to prevention.

Longevity Industry: Multi Trillion Dollar Opportunity



The longevity market is not limited only to the anti-aging applications of life sciences, but also includes advancing sectors of the financial industry, as well as government projects (national longevity development plans). Overall market size thus can exceed 25 trillion USD. Most developed longevity startups are quickly becoming matured companies, large institutional investors are being attracted into the industry, full-fledged longevity infrastructure is emerging.

There are at least 350 publicly traded corporations that can be considered as related to the Longevity industry.

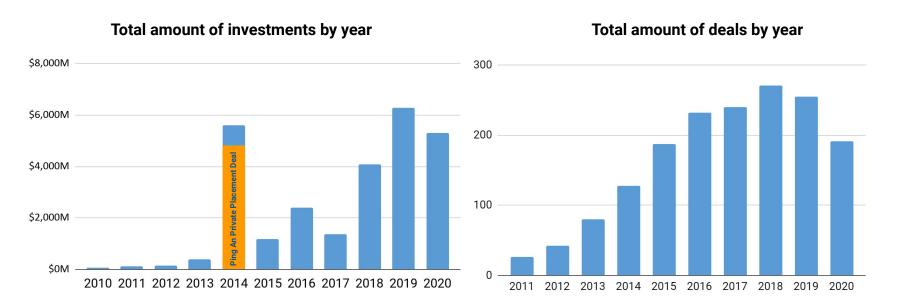
Longevity Biomedicine, FinTech, and AgeTech industries include 16000+ companies, 8000+ investors, 14 sectors, and 114 subsectors.

The longevity Financial Industry includes 1000+ corporations, 15 sectors, and 50 subsectors.

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

The numbers presented in the graph are approximate since there is no generally accepted methodology for their estimation.

Investments in Asia Longevity Industry

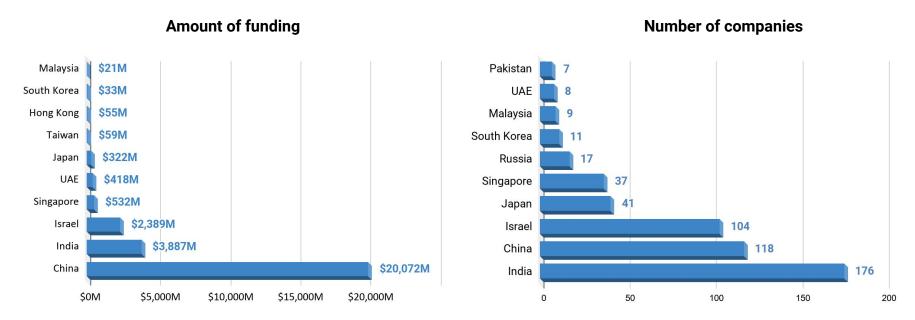


Total early stage investments into longevity by 2021: \$26.8B

P4 Medicine (Precision, Preventive, Personalized, Participatory) is the largest sector within the Longevity Industry in terms of both total funding raised and the number of companies. The most active capital-raising P4 Medicine subsectors are Diagnostics and Mobile Health.

The distribution of investments across different Longevity sectors demonstrates that drugs and gene therapies are more attractive for investors than devices (AgeTech). However, as society's focus is now shifting towards keeping older people healthy and active for longer, such key areas of age-tech as tech-enabled care and mobility aids are very likely to attract more investments in the nearest future.

Top-10 Countries in Longevity Sector in 2020



The chart of the right represents the distribution of funding received by companies located in 10 countries in Asia and the Middle East with the largest total investments into the Longevity Industry by 2020 in the region. China is an unconditional leader with a total amount of \$20 billion overall investments in 118 companies. This is more than 5 times bigger amount received by the companies from India, which is the second most invested country in the Asia & Middle East region with total investments of \$3,887M in 176 companies. The closest competitor of India is Israel.

Top-20 Longevity Companies in Asia



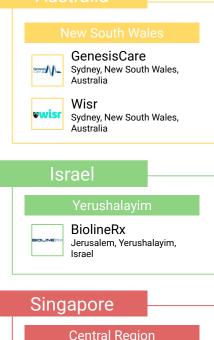




Deep Longevity

Hong Kong

Hong Kong, Hong Kong Island,

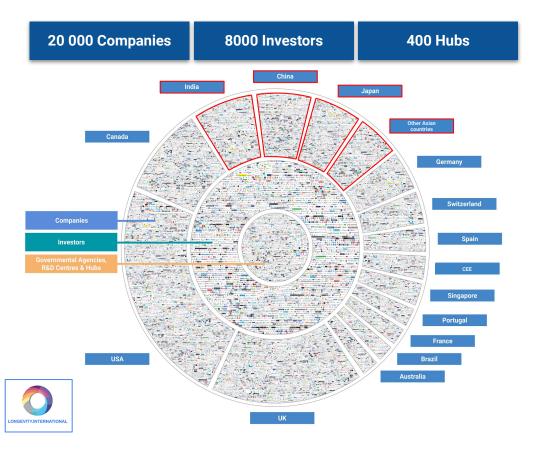


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LONGSVITY

Global Longevity Ecosystem 2021

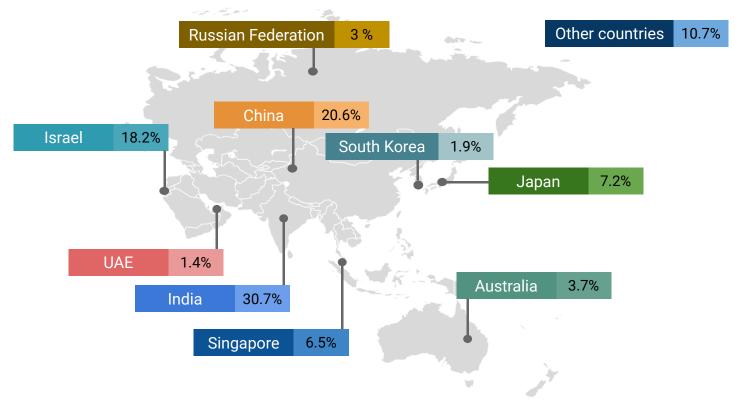




USA	UK
Canada	India
Japan	China
Sweden	Germany
Switzerland	Spain
CEE*	Singapore
Portugal	France
Brazil	Australia
Gulf Region	EU

^{* –} Central and Eastern Europe

1727 Longevity Companies: Country Breakdown



Companies based in India, China, and Israel make up the largest proportion of Asian longevity market. The main players in the market are national healthcare companies and longevity financial companies. Longevity biomedicine companies, which take the smaller market share, have been the main focus of longevity venture investments.

Longevity Industry: Multi Trillion Dollar Opportunity

Longevity, AgeTech & WealthTech Market

Globally 1 Billion in Retirement

In the UK

10 Million in Retirement

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

~ Dmitry Kaminskiy, <u>inverview in the Financial Times</u>

"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 "

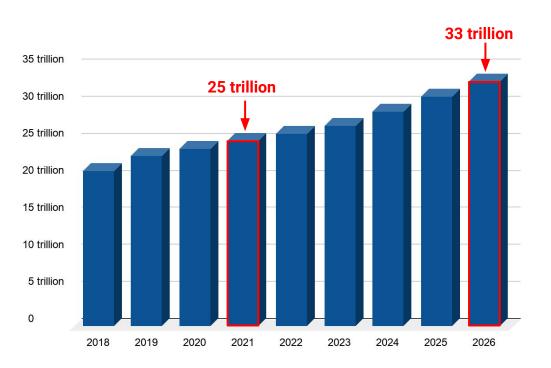
~ International Monetary Fund





World Longevity Economy Size

World Longevity Economy Size Projections, US\$



Longevity Biomedicine is the main focus of longevity venture investments currently, yet it is only a tiny fraction of the longevity market.

Aging should be considered not only as one of the most acute problems of our time but also as 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 succeed at riding the wave or drowning under it will depend not only on their willingness to deploy new business models adapted to the aging population and the emerging industries of AgeTech, WealthTech, and Longevity Finance but also on the quality of longevity analytics that they use to formulate such business models.

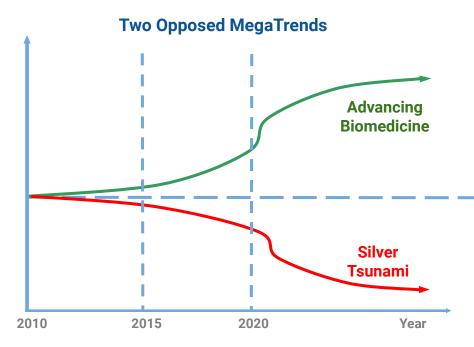
We define the Longevity Industry as a combination of aging, advanced preventing precision biomedicine, AgeTech, relevant parts of national healthcare budgets, and global financial industry that is related to such sub-industries.

The "7th Continent" of 1 Billion People in Retirement

There are more than 1 billion people over 60 years old in the world and thus could be considered the citizens of the '7th Continent'. They represent not only a significant share of the global purchasing power, but also hold the largest amount of financial assets compared to other age groups.



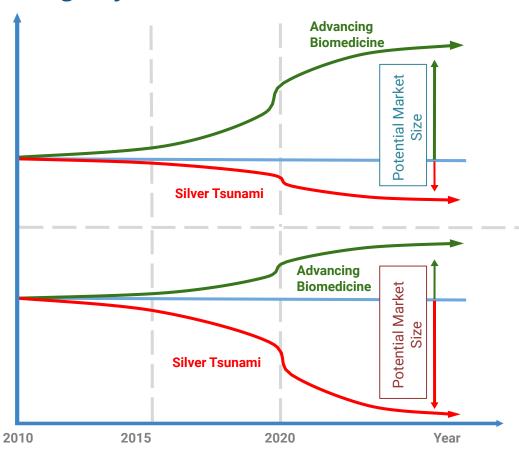
Longevity and Silver Tsunami - Collision of Two Opposed MegaTrends



The acceleration of biomedicine has been mainly spurred by advances in the collection, gathering, and analysis of data. The industry is poised to witness a quantum leap in the near future, particularly because of impact of Artificial Intelligence in 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) poses major economic burdens not just for the healthcare systems of developing nations, but also for the major financial institutions including pension funds, insurance companies, asset management firms and retail / private wealth banks. It is expected to increase the costs associated with old age.

Longevity and Silver Tsunami — Collision of Two Opposed MegaTrends



Positive Scenario

Most progressive and technocracy-driven countries will work proactively to address these issues and implement a positive scenario. Financial institutions operating in those regions should have sophisticated long-term forecasting to reformulate their business models in order to minimize the challenges and to maximize the utilization of opportunities associated with these two opposed megatrends.

Pessimistic Scenario

In reality, most countries will fail to address these challenges in advance due to a lack of will and technological capability, missing their window of opportunity to benefit from the progress in biomedicine, and to neutralize the worst effects of population ageing. Financial institutions operating in those regions should utilize pragmatic forecasting, and to adjust and optimize their business models accordingly.

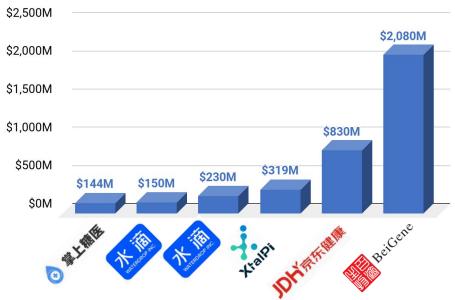
Investment Landscape at a Glance (Q4 2019 — 2020)

In 2020, total investments into Longevity companies had crossed the \$27 billion mark, of which \$5B were raised during the last year.

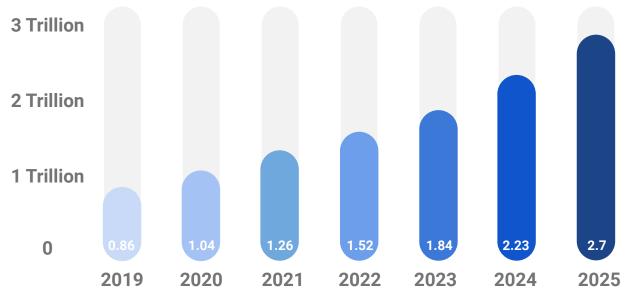
Some of the major deals included:

- BeiGene \$2,080M in post-IPOI financing working capital of the company and other general corporate purposes (Post-IPO equity, lead investor - Hillhouse Capital Group);
- JD Health \$830M for further strengthen its pharmacy supply chain capabilities and explore additional healthcare service (Series B Round led by Hillhouse Capital Group);
- XtalPi— \$318.8M for developing is AI and cloud powered platform (Series C Round, lead investors - 5Y Capital, PICC Capital Investment Management, SoftBank Vision Fund);
- Waterdrop \$230M and \$150 from Swiss Re and Tencent for expanding (Series D Round and E);
- Zhangshang Tangyi \$144M (Series D Round).





AgeTech Industry Market Capitalisation



AgeTech Sector:

- Elderly Care
- FinTech
- m-Health
- Senior Living Communities
- Social and Communication Caregiving
- Independence
- Social Protection
- Cognitive Care

World AgeTech Industry Size Projections, current US \$

The global longevity economy reached \$17 trillion in 2019 and is showing stable growth to achieve \$27 trillion in 2026. According to the most conservative estimates, it takes 20% of the global GDP. While the global Longevity Economy is projected to reach \$27 trillion in 2026, the Age-Tech segment alone will reach \$2.7 trillion by 2025.

This would imply 21% annual growth in the global Age-Tech market. This growth is driven by the general development of the elderly care sector enhanced by advancing IT, FinTech, and other digital technologies.

Top Longevity Companies

Regenerative Medicine

























Biomarkers for Longevity









Geroscience





AgeTech















AI for Longevity

Longevity NeuroTech



sight

FemTech













Top Longevity Venture Firms Landscape







Top Longevity Venture Firms Landscape









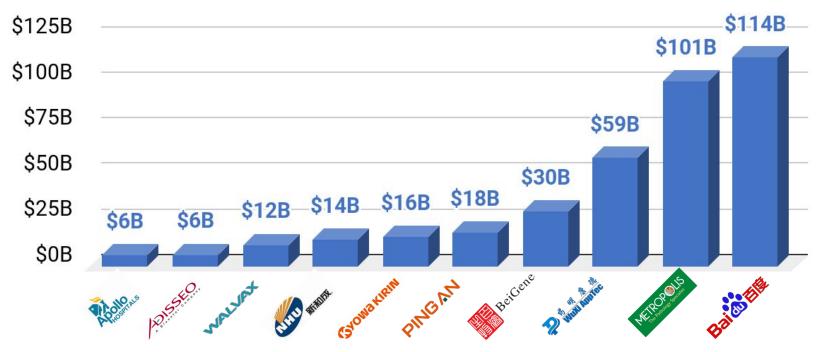


Top-10 Longevity Companies by Total Investments in 2020



This chart represents the leaders in raising investments in Asia. Bei Gene — a China-based company, that is developing molecularly targeted cancer treatment, is an absolute leader of the list. With the last successful funding in 2019 and 2020 with a cumulative amount of \$4.8B, the company expanded its production facilities and moved to second place Ping An — a large life insurance player on the Asia market.

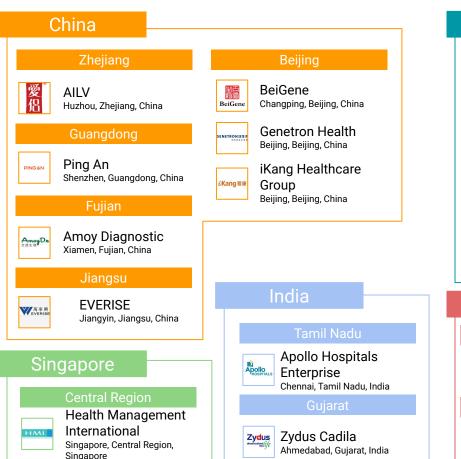
Top-10 Public Asian Companies Involved in the Longevity Industry by Market Capitalization in 2020

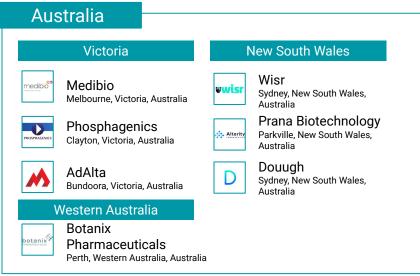


The chart represents the top 10 public companies operating in the Longevity sector in Asia. Most of the companies, such as Baidu, BeiGene, and WuXi AppTec, are focused on pharmaceutical and biotechnology. Otherwise, there are FinTech companies in the top tier such as Ping An. Large gaps in the market capitalizations between Asian companies in the Longevity Industry explained by rapid investment activity in the region.

Top-20 Publicly Traded Asian Longevity Companies











About Aging Analytics Agency



Aging Analytics Agency is primarily interested in strategic collaboration with international corporations, organisations and governments of progressive countries on projects and initiatives related to Longevity.

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

- Conducting customised case studies, research and analytics for internal (organizational) 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.

In certain specific cases, if it fits our interests, Aging Analytics Agency is open to co-sponsoring research and analytics for the production of both internal and openly-access industry reports and special case studies for a variety of governmental, international and corporate clients on the topics of Longevity, the Longevity Financial Industry, Longevity Policy and Governance, and the development and execution of full-integrated National Healthy Longevity Development Plans tuned to the specifics of national governments and economies.

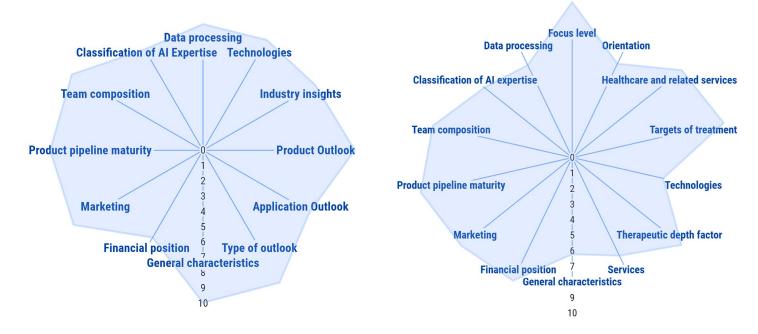
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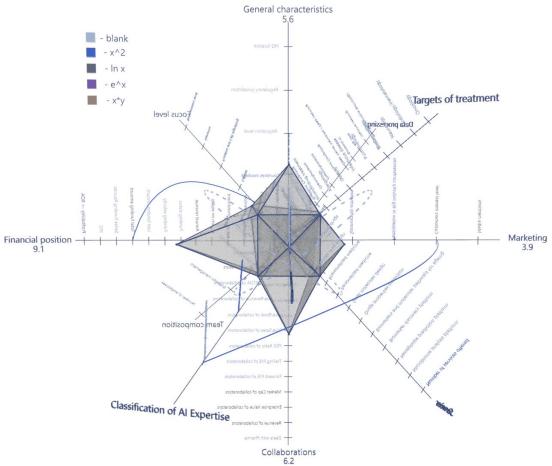
Multiparametric Assessment Analysis (Using Big Data Analytics Platform)

Aging Analytics Agency offers state-of-the-art interactive online Al-based **SWOT analysis system** covering 6000+ companies in the industry divided into 12 categories.

The product allows to conduct initial data-driven due diligence of the companies **instantly**, **automatically**, **and holistically** by comparing multiple parameters for each company combined in the 12 vectors of business development. The results of the analysis are represented in easily perceived form of 2-dimensional and 3-dimensional radar charts.

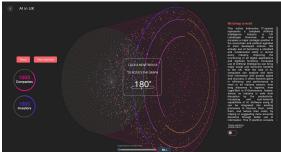


Multiparametric Assessment Analysis (Using Big Data Analytics Platform)



Aging Analytics Agency: Upcoming Projects and Analytical Tools







3D Visualisation Prototypes





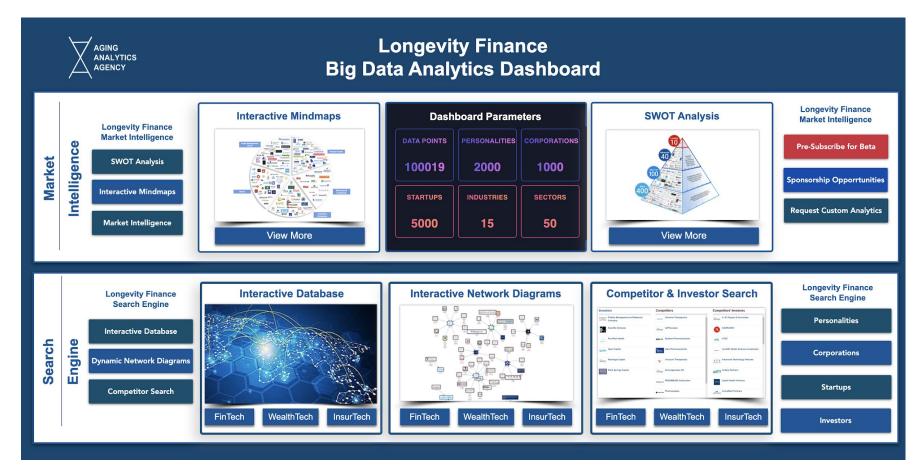


Longevity Investment Big Data Analytics Dashboard

Longevity Investment Big Data Analytics Dashboard



Longevity Finance Big Data Analytics Dashboard



Longevity Governance Big Data Analytics Dashboard



Artificial Intelligence in Pharma Big Data Analytics Dashboard



Tangible Metrics to De-Risk Investments in Longevity Startups

Investment decisions practices in the longevity industry can be essentially enhanced through the application of the biomarkers of aging. Concrete and precise metrics of human aging can assist investors in differentiating between overvalued hype-driven startups without any proofs of success in fighting human aging and promising businesses which are producing tangible anti-aging results applicable for humans.

Given the enormous differences between the biology of humans and the biology of common model organisms like mice, combined with the higher degree of biological complexity as it pertains to ageing vs. single diseases, we can expect the clinical translation failure rate in the Longevity Industry to be much higher than the already-enormous failure rate in traditional BioTech.

New approaches to scientific due diligence and the validation of results for Longevity companies are needed to protect against company and industry devaluation. However, there are a number of existing approaches that can be used by investors to de-risk Longevity investments.

The use of biomarkers of aging and longevity constitute the most market-ready and validated means of proving efficacy in humans, and can serve as the basis for demonstrating human-validated results by Longevity companies and startups. A wide array of single biomarkers and panels of biomarkers of Longevity exist in market-ready form, and should be adopted into due-diligence practice by Longevity investors in order to create a more modern, sophisticated and robust method of preliminary validation of therapeutic safety and efficacy.

Systems model—based cross-species translation

Translating computational systems models of molecular (X) to phenotypic (Y) associations from animal models to humans provides a powerful framework for translating therapeutic concepts from preclinical to clinical stages.

Animal data (X)

Computational model

Phenotype (Y)

Machine learning

Biological networks

Mechanistic models

dX dY dt

Human data (X)

Translate and humanize model

Predicted human biology

Besides biomarkers, a number of other modern approaches exist, capable of providing preliminary indications of human validation, which can be used to create a coordinated framework to provide investors with greater confidence in the likelihood of clinical translatability. These include:

- In silico human modeling
- In vitro tests using human cells and tissues
- Human-animal chimeras (e.g., human-mouse chimeras) for safety, toxicity and efficacy testing. This approach is already common in immuno-oncology research, and a wide array of validated approaches can be applied for testing of ageing-focused interventions.
- In vivo administration of sub-therapeutic doses using microfluidic chips (i.e., in vitro "skin-on-a-chip" testing).

Biomarkers of Longevity

Approved for Clinical Use - 41 Research Use Only - 45 Healthcare-Ready - 33

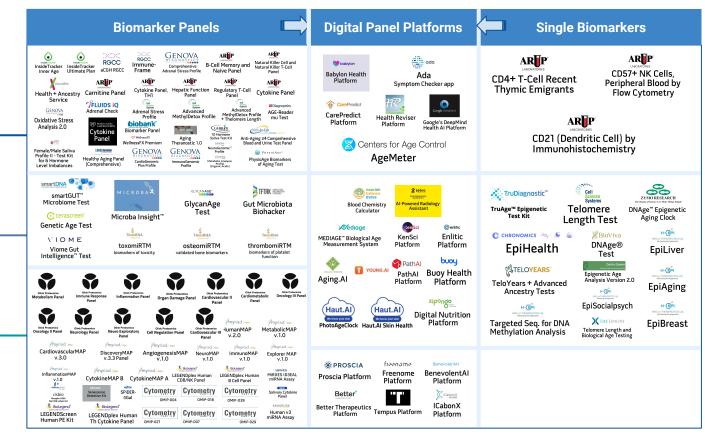
2nd edition. Selection and Current Status, 2021

Approved for Clinical Use

Healthcare-Ready (waiting for clinical approval)

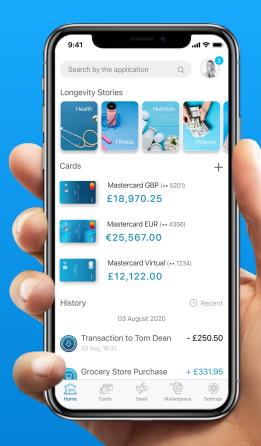
Research Use Only



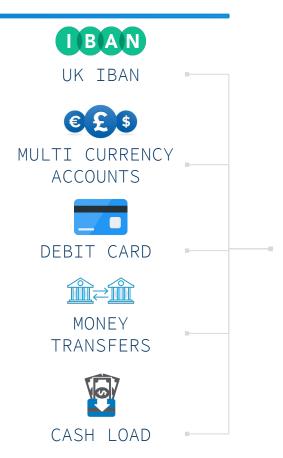


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Defining the Biggest and Most
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DeepTech Engineering The Accelerated
Trajectory of Human Longevity
The Blueprint and Pathway from 1.0 to 2.0



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