

Longevity Industry in Singapore

LANDSCAPE OVERVIEW





Longevity Industry in Singapore

Landscape Overview 2019

Mind Map Longevity Industry in Singapore	3
Executive Summary	6
Chapter I: Singapore Longevity Industry Landscape Overview	25
Chapter II: History of Geroscience in Singapore	35
Chapter III: Current State of Longevity in Singapore	41
Chapter IV: Global Longevity Landscape Overview	51
Chapter V: Media and Conferences	80
Chapter VI: Economics of Longevity In Singapore	90
APPENDIX/ PROFILES	
30 Faces of Longevity in Singapore	103
15 Longevity R&D Centers	137
10 Non-Governmental Organizations	154
15 Longevity Conferences: 2017 - 2019	166
100 Longevity Companies	184
80 Longevity Investors	286
Disclaimer	369

Longevity Industry in Singapore Landscape 2019

Personalized Medicine

Companies - 100
Investors - 80
Non-governmental organisations - 10
Research Centres - 15

AgeTech

Progressive clinics

Research Labs

Preventive Medicine

Progressive wellness

Regenerative Medicine

Companies
Investors
Non-Profits

AGING ANALYTICS AGENCY

DEEP KNOWLEDGE ANALYTICS

LONGEVITY INTERNATIONAL



Drug Discovery

AgeTech

Other

100 Companies

Progressive Wellness

Longevity Industry in Singapore 2019

Stem cells/ Regenerative

Progressive Clinics

Neurological

Diagnostics

15 Conferences: 2017-2019



The Longevity Summit



3rd International Conference on Biomedical Signal and Bioinformatics



Single Cells: Technology to Biology



International Conference on Medical, Biological and Pharmaceutical Sciences



First International Conference on Biometrics Science and Engineering



20th International Conference on Genetics and Genomic



Molecular mechanisms of developmental and regenerative biology



4th International Conference on Advances in Biology and Chemistry



International Conference on Food Microbiology and Food Safety



Aging and Resilience in the 21st Century



Aging, Longevity and Health – New Frontiers and Perspectives



5th NUS Academic Psychiatry Conference 2019



Biologics and Biosimilars Congress: Asia



RNA Biology Symposium 2018 in Singapore



International Conference on Medical and Biosciences

30 Longevity Influencers



Finian Tan



Danny Soon



Gary Khoo



Bussarawan (Puk)
Teerawichitchainan



Chong Hock Sia



Janice Chia



Jeffrey Lu



Carl Firth



Kanwaljit Soin



Christiani Jeyakumar
Henry



Colin Stewart



Birgit Lane



Brian Kennedy



Hwee-Pink Tan



Kenneth Noonan



Lim Chwee Teck



Lok Shee-Mei



Melis Tay



Neo Kah Yean



Ng Huck Hui



Paolo
Rampichini



Paul Si



Penny Wan



Judith Swain



Vishal Doshi



Wallace I.
Torres



Wanjin Hong



Wilf Blackburn



Yu Cai

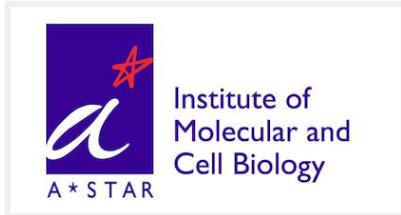


Lim Xinhong

15 Longevity R&D Centers



Institute of Bioengineering and Nanotechnology



Institute of Molecular and Cell Biology



Singapore Institute for Clinical Sciences



Experimental Therapeutics Centre



Singapore Bioimaging Consortium



Genome Institute of Singapore



Institute of Medical Biology



Institute of Structural Biology



Mechanobiology Institute



Cancer Singapore Institute



Waseda Bioscience Research Institute



Clinical Nutrition Research Centre



National Neuroscience Institute



Life Sciences Institute



Biomedical Institute for Global Health Research and Technology

10 Non-Governmental Organizations



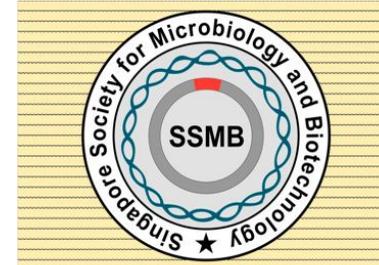
**Singapore Society
for Biochemistry
and Molecular
Biology**



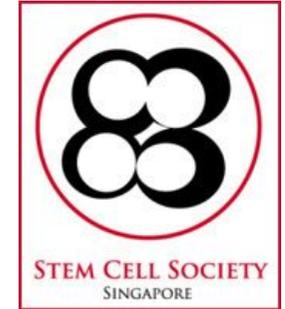
**Singapore
Institute of
Biology**



**Biomedical
Engineering
Society**



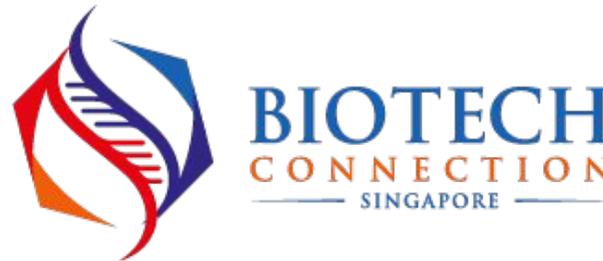
**Singapore Society
for
Microbiology and
Biotechnology**



**Stem Cell
Society**



**Singapore Consortium
or Synthetic Biology**



**Biotech Connection
Singapore**



**Association for Medical
and Bioinformatics**



**Singapore Neuroscience
Association**



**Temasek
Life Sciences Laboratory**



Executive Summary

Singaporean Healthspan Expectancy Lags Behind Life Expectancy

In a 2017 article for the *Straits Times*, Dr. Brian Kennedy, former CEO of the Buck Institute for Research on Aging and the new Director of the Center for Healthy Aging at the National University Health System (NUHS), noted that although Singaporean life expectancy is rising, its healthspan expectancy is lagging behind. Dr. Kennedy cited a 2012 global study, which concluded that from 1990 to 2010, lifespan in Singapore grew by 5.4 years for females and 6 years for males. In contrast, healthspan only increased 3.4 and 4.1 years, respectively, during the same period. However, the stress of Singapore's aging population, combined with the government's progressive aim as a global leader in healthcare efficiency may spur Singapore to lead human aging research on a global scale.

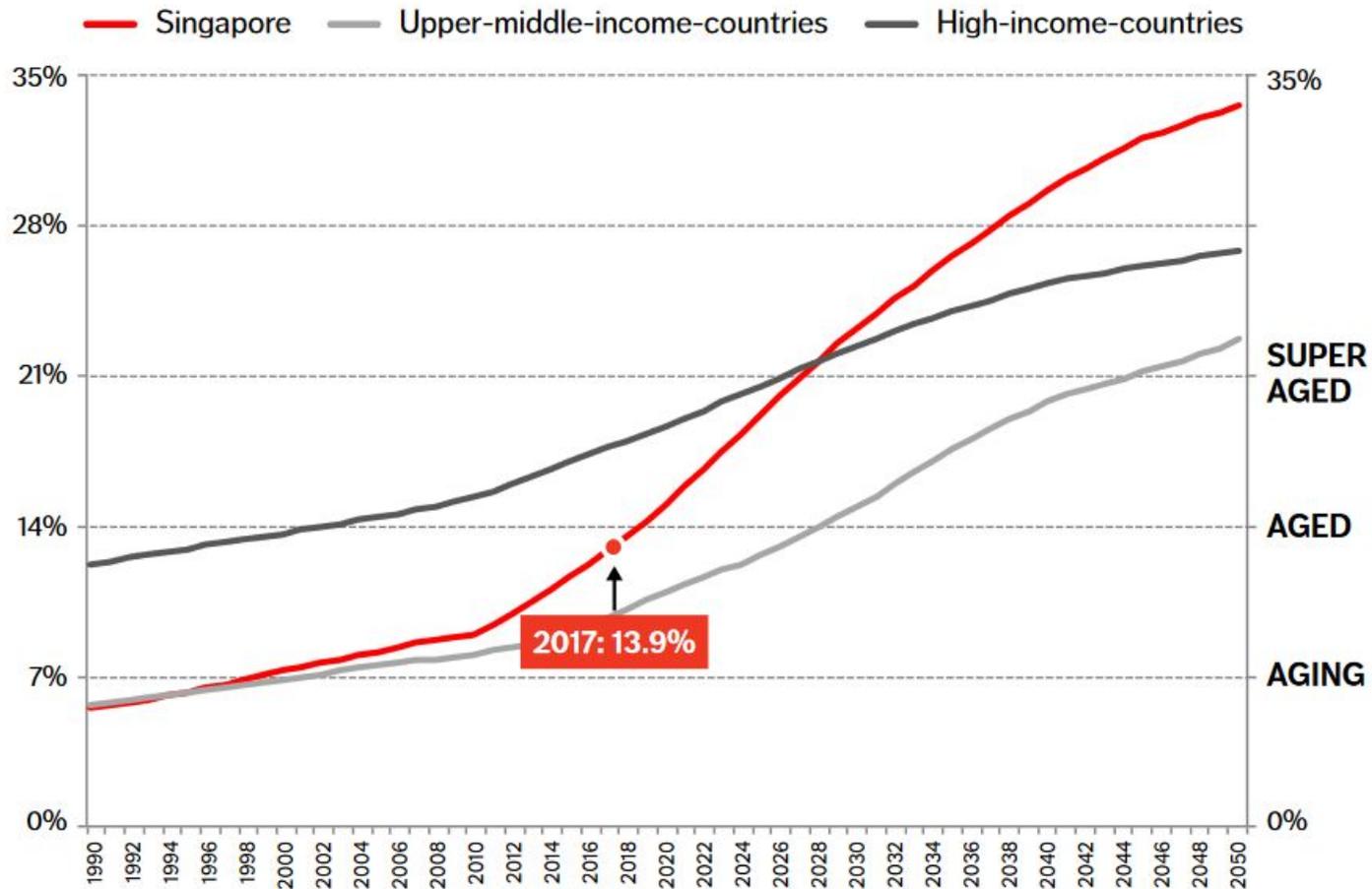
The newly established Center for Healthy Aging puts this commitment into action. The center promotes research into behavioral and lifestyle interventions, such as exercise and fasting, and longevity-extending drugs to delay aging. The studies will determine whether healthspan-extending interventions similarly affects different population demographics and ethnicities. Furthermore, the center will collaborate with the Institute for Aging Research at the Albert Einstein College of Medicine in the US to determine whether the common diabetes drug metformin can extend human healthspan.

Given that nearly 25 percent of Singapore's population will be over the age of 65 by the year 2030, the need for increased governmental commitment to prioritizing healthspan extension research is all the more pressing. A recent report by Marsh and McLennan Asia-Pacific Risk Center, "Elderly health costs to rise tenfold by 2030: Report," estimated that annual elderly healthcare costs will rise 10x by 2030, reaching nearly S\$52,000 (US\$38,000) per capita.

Singapore has already taken a progressive stance on demographic aging through other initiatives, such as implementing social policy changes to increase quality of life for its elderly demographic. These include increased healthcare access, the promotion of intergenerational bonding, and accessible post-secondary education. However, social initiatives are not sufficient. The Singaporean government needs to further cement its commitment to funding research into the clinical validation and translation of healthspan-extending interventions. Indeed, as noted in a recent the *Straits Times* article, "by emphasizing preclinical and clinical studies to slow aging, Singapore can take the lead in combating the medical crisis of this century."

Figure 1. People Age 65 and Older as Percentage of Total Population

A city-state and island country in Southeast Asia, Singapore is one of the fastest aging high-income societies.



Source: United Nations, Department of Economic and Social Affairs, Population Division

Retirement Security in Singapore

According to the Natixis Investment Managers' Global Retirement Index, this year Singapore ranked 28th globally and 3rd in Asia (behind Japan and South Korea) for the strength of their retirement security. The index ranks countries according to 18 different performance indicators that cover key aspects of retirement security, including the material means to live comfortably; access to quality financial services to help preserve savings value and maximize income; access to quality health services; and a clean and safe environment.

Singapore ranked high compared to the other 42 countries surveyed in the retirement financing sub-index, placing second after New Zealand. Although the country ranked first in the previous year, it slipped down a place due to lower scores in government indebtedness, bank non-performing loans, old-age dependency and governance.

The report also highlighted areas in which there is room for improvement for the nation. For example, although Singapore has the seventh-highest life expectancy of all the countries ranked in the report, a large portion of healthcare expenditure is not covered by insurance.

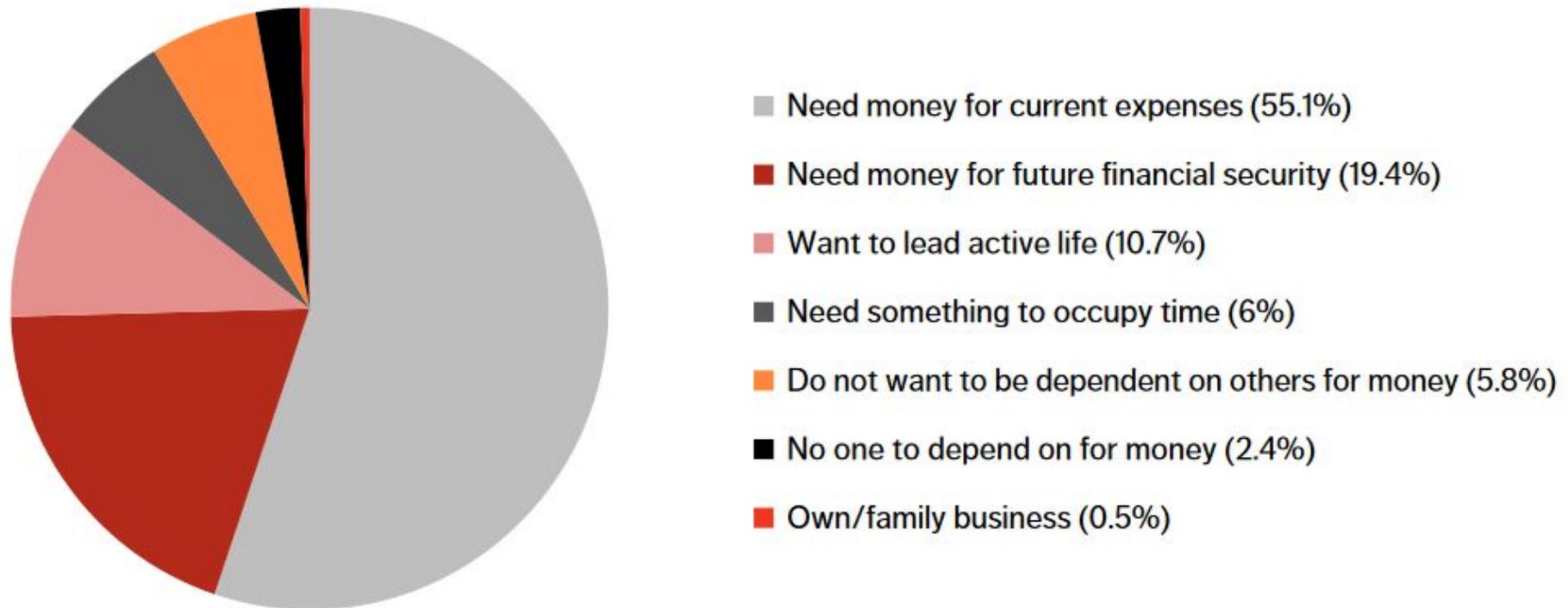
Furthermore, a recent survey titled "Ready for 100? Preparing for longevity in Singapore" conducted by the international research firm Economist Intelligence Unit (EIU) and insurer Prudential reported that the majority of the 1,214 Singaporean residents surveyed expected to continue working at 62, which is the standard retirement age in Singapore.

The report argues that this trend is largely due to the nation's life expectancy of 83.1 years, which is the third longest in the world behind Japan and Switzerland. 75% of respondents indicated that they are not financially prepared to live to 100 years of age.

Meanwhile, the Singapore government's National Population and Talent Division indicates that the number of citizens living to 100 years of age is increasing, from 50 in 1950 to 1,100 in 2015.



Figure 4. Reasons for Working or Returning to Work, Age 55 and Older, 2011



Source: Institute of Policy Studies 2011

What is the Singaporean Ministry of Health Doing to Combat Population Aging?

In a recent the *Straits Times*-AIA roundtable entitled "Managing Singapore's Health with an Aging Population: What more needs to be done?", Singapore's Senior Minister of State for Health, Dr. Amy Khor, noted that in 2015, the ministerial committee for aging had already launched the action plan for successful aging, consisting of a multi-pronged approach that includes:

- Preventive and active aging programs that start at the early age of 40;
- The launch of The Silver Academy, a continuing-education program that offers 900 courses, currently with 21,000 students enrolled;
- Barrier-free access for those with restricted mobility;
- Traffic junctions that provide the elderly with more time to cross the street;
- Silver Generation Ambassadors who visit citizens when they turn 65 to determine their needs, and offer referrals to relevant services where necessary;
- Increased funding by the Health Ministry to healthcare infrastructure like hospitals, nursing homes and day care facilities;
- A program that screens five key age-related conditions for \$5 or less.

Commenting on the progress of these initiatives over the past several years, Dr. Khor stated "I think few places in the world, if any, do this. It is being done [here] systematically, and not on an ad hoc basis," adding that the 2015 action plan is a "living document" and that "we have to build up on it and as we implement programs, we learn and we refine and implement other new programs that may be useful."

Singapore is Rapidly Embracing AgeTech

Singapore has enthusiastically embraced the rising AgeTech sector to improve the quality of life and levels of social engagement of its elderly population. AgeTech, which encompasses any digital technologies that aid the elderly, are being rapidly adopted by medical institutions and nursing homes across the nation.

One illustrative device is the Bond Stick, which is a three-in-one walking stick, alarm sensor and MP3 player. The stick reduces dementia through sensory stimulation, and its auto-fall sensor alerts caregivers to potentially devastating falls.

At the 9th annual Aging Asia Innovation Forum, a recent conference showcasing AgeTech devices, Singapore's Senior Minister of State for Health Dr. Amy Khor noted that "rethinking aged care and supporting our aged population is not a task that can be accomplished overnight. To succeed in these efforts, the public, private and people sectors will have to work in partnership to re-imagine new possibilities and solutions."

The market for products and services targeted for Singaporeans aged 50 and over is projected to triple from SGD 33 billion (USD 24 billion) in 2015 to SGD 91 billion (USD 66 billion) in 2025.

Interestingly, pioneering companies at the forefront of Singapore's AgeTech market are almost entirely technology startups, with very limited private sector interest from larger corporations other than Singapore's multinational healthcare technology companies. Wong Poh Kam, Director of the National University of Singapore's Entrepreneurship Center, commented that "the awareness of big corporations towards aging population might be lower than you expected [in Singapore], compared with other advanced economies like Japan."

Bridging the Divide Between Singapore's Elderly and Digital Literacy

Singapore is a global leader in its Information Communications Technology (ICT) infrastructure, and was ranked #1 globally in the most recent World Economic Forum's Global Networked Readiness Index.

It is no surprise, then, that the Singaporean government has been working for several years to promote technological engagement among its elderly population and to proactively develop its AgeTech industry through funding and partnerships with relevant stakeholders.

However, interest in Singapore's burgeoning AgeTech scene has been relatively limited to health technology startups.

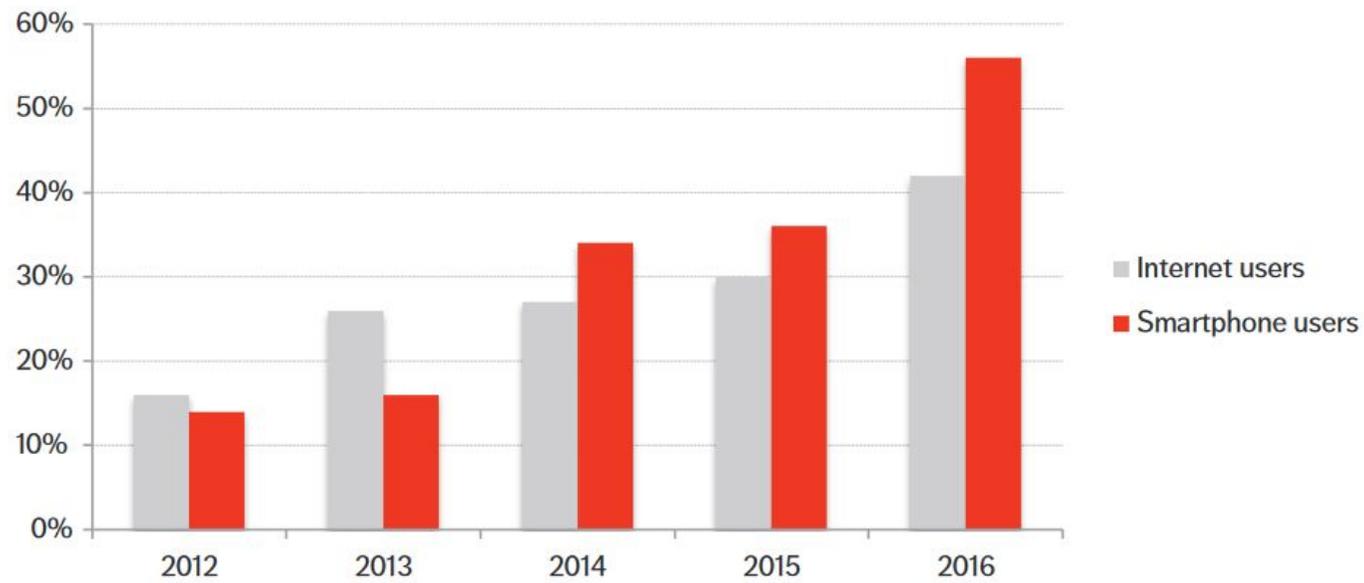
In recent years, adults 65+ in Singapore have been adapting to the internet and smartphones, with internet usage increasing from around 16% in 2012 to over 40% and smartphone usage to over 50% in 2016. Thus, in just four years internet usage among the elderly had tripled, and smartphone usage had quadrupled.

One way the government proactively bridged the divide between the elderly and digital technology is through the Silver Infocomm Junctions, launched by the government agency Infocomm and Media Development Authority in 2007 to establish "a network of community-based digital learning hubs for people aged 50 and older". The program provides personalized training in digital literacy at the relatively low cost of 8-10 SGD (6-7.6 USD) per hour.

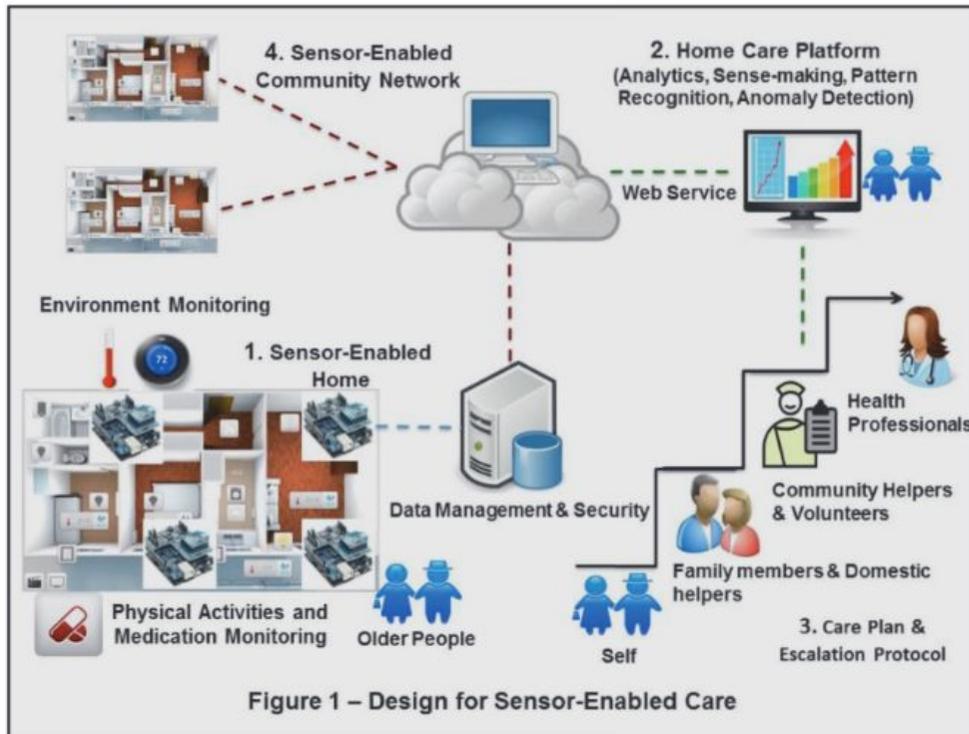
The successful program educated the elderly in computer literacy and the internet, and also taught more advanced processes such as managing banking transactions online, sharing large files and editing photos. The organization has carried out more than 80,000 training sessions by the end of 2015.



Figure 5. Digital Technology Usage Age 60 Years and Older, 2013-2016



Sources: Annual Surveys on Infocomm Usage in Households and by Individuals 2014, 2015, and 2016



The Singaporean Government is Actively Promoting the Development of a Robust AgeTech Sector

To accelerate the development of Singapore’s digital technologies, in 2014 the government launched its Smart Nation Plan, which envisions the future Singapore as a place where "people live meaningful and fulfilled lives, enabled seamlessly by technology, offering exciting opportunities for all." Thus far, the government has allocated SGD 4.8 billion (USD 3.5 billion) in funding to build the nation's digital infrastructure, digital analytics and digital citizenship and cybersecurity programs. The government also specifically emphasized the need to improve digital literacy among its elderly citizens in the plan, and allocated funding to a subset of the plan titled SHINESeniors (Smart Homes and Intelligent Neighbors to Enable Seniors), an R&D program actuated through industry-university partnerships.

The program aims to "develop an integrated home system that enables aging in place, consisting of non-intrusive sensors that detect motions and monitor medical conditions, as well as function buttons that facilitate communication with care providers."

In addition to funding, the government is also supporting the program by facilitating partnerships with care providers, and testing the technology in 100 public housing apartments free of charge in June 2018, with plans to expand to 300.



SHINESeniors: Smart Homes and Intelligent Neighbors to Enable Seniors



Legend

Fixed   Semi-Fixed

-  Gateway
-  Passive Infra-Red
-  Bed
-  Door Contact
-  Water Usage
-  Medication Box



The Singaporean Government is Actively Promoting the Development of a Robust AgeTech Sector

Given the apathy from private sectors in growing Singapore's AgeTech landscape, the government is also providing seed funding for startups looking to improve the quality of life of the elderly through digital technologies, in hopes of propelling the industry landscape into action. The program, the Modern Aging incubator, launched in 2015 with the aim of "identifying, developing, and scaling up startups that focus on products and services to meet the needs of older adults." Every year Modern Aging selects 10 companies to enter its 10-week program, where startups are mentored, provided with seed funding of up to SGD 50,000 (USD 36,300) and given the opportunity to pitch investment deals to an audience of investors and corporations. As of 2015, the incubator has awarded SGD 225,000 (USD 163,350) to the top 5 companies in their program.

The screenshot shows the 'ACCELERATOR' page of the Modern Aging Singapore website. The page features a navigation bar with links for HOME, ACCELERATOR (underlined), PHOTO CONTEST, EVENTS, BLOG, and JOIN THE ECOSYSTEM. Below the navigation bar is a timeline of four key milestones for the 2018 program, each represented by an icon in a circle:

- 30 JUNE 2018**: Deadline for submission of business ideas (represented by a calendar icon).
- JULY 2018**: Selection of teams (represented by a bell icon with a checkmark).
- AUGUST 2018**: Business Development program (represented by a sailboat icon).
- DECEMBER 2018**: Modern Aging finale (represented by a document icon with a dollar sign).

High Turnover Rate for Eldercare Workers in Singapore

Singapore intends to grow the size of its long-term care workforce by as much as 45 by 2020 to meet increasing needs. By 2030, one in three Singapore citizens is projected to require one or more forms of eldercare services, with one in four Singaporeans over the age of 65.

However, a report published in July 2018 by the Lien Foundation found a disturbingly high turnover rate for eldercare workers in Singapore, with workers staying on average only 3.4 years at a given workplace. The high turnover may be partly due to significantly lower wages compared to their counterparts in other countries affected by population aging.

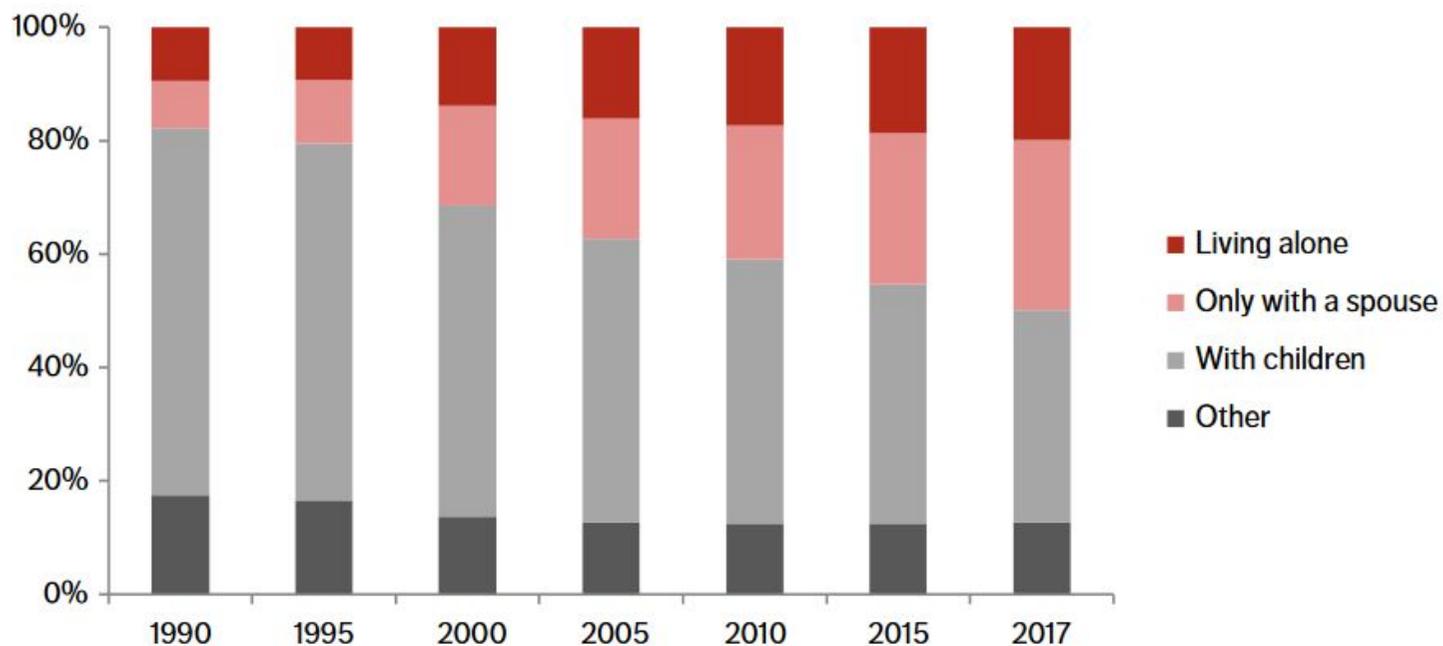
The report surveyed 20 elder care industry players in Singapore, polled more than 250 eldercare workers, and paired the findings with similar surveys conducted in other Asia-Pacific economies affected by a rapidly aging population, including Australia, Hong Kong, Japan and South Korea. Singapore was found to rank the lowest among the surveyed countries in wages for long-term care workers.

For instance, while the average wage of a local nursing aide in Singapore is \$1,350 per month, it is \$3,750 in Hong Kong and \$3,290 in Australia.

Although the Ministry of Health plans to add another 3,700 long-term care workers by the year 2020 (in addition to the 8,300 it has as of March 2017), it needs to ensure competitive salaries to meet the oncoming need for a sufficiently large eldercare workforce as the Singapore population ages.



Figure 3. Living Arrangement, Percentage of Households Headed by People Age 65 and Older



Source: Department of Statistics Singapore

Tackling Population Aging in the Near Future

When combining Singapore's aging population with its low fertility rate, it becomes quickly apparent that the nation is headed for a population crisis that will result in a smaller labor force and declining economic productivity.

In the short term, this will lead to worker shortages, forcing companies to pay higher salaries to compete for talent, which in turn creates a very uncompetitive economic landscape that may result in companies leaving to conduct business elsewhere.

While increased governmental investment into preventive medicine and healthspan extension can help curb these potential issues in the long-run, the government also needs to continue ramping up near-future solutions to its aging population problem, such as by investing in AgeTech and continuing education to equip its elderly demographics with the tools necessary to remain productive members of the workforce.

One indication that the government is heading in this direction is that last year they raised the national retirement age from 65 to 67. Another initiative that helps maintain the elderly as productive workers is the Special Employment Credit, which provides subsidies to companies that hire workers above the age of 50. Companies can also apply for the Age Management Grant and the Job Redesign Grant, which provide funds to aid workplace redesigns to make them more friendly to seniors.

Additionally, Singapore is transitioning from an economy dominated by skills and manual labor towards one that makes greater use of the nation's smaller but highly skilled and educated workforce—that is, the transition from labor-intensive industries toward capital-intensive industries. This reflects a larger trend in automation, in which an increasing number of labor-intensive jobs are being automated in Singapore.

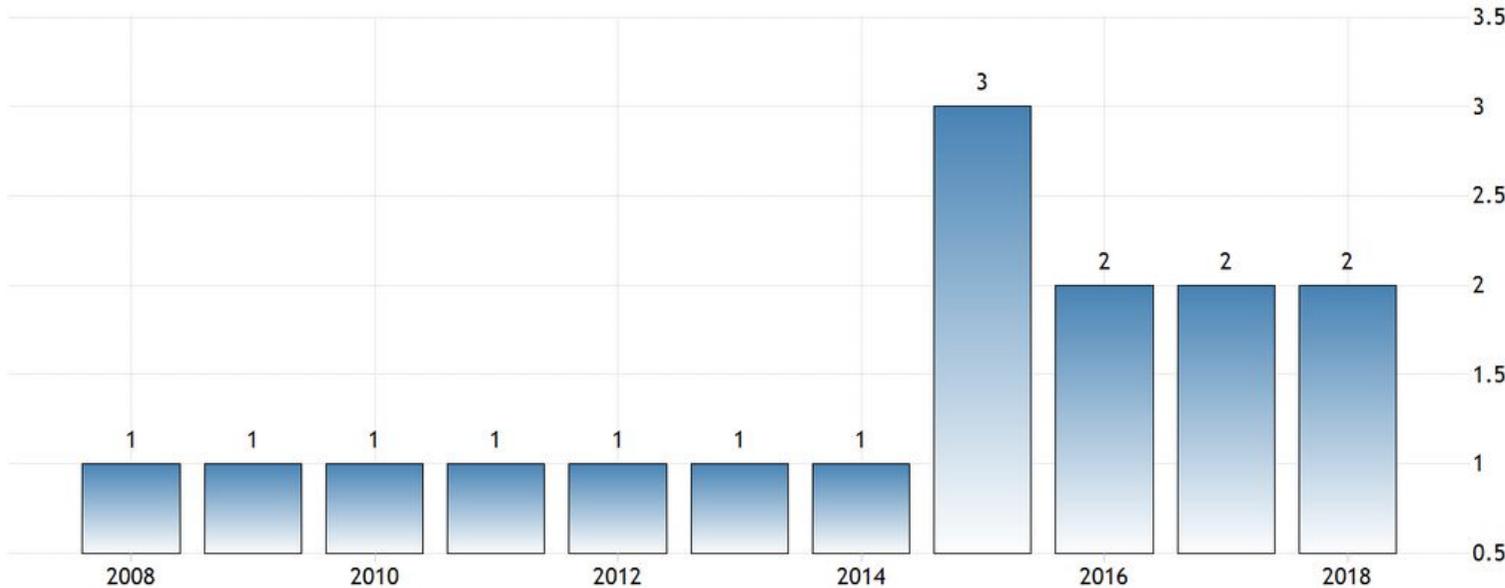


Singapore: an Attractive Region to Conduct Business

Singapore has established itself as a very attractive region to do business, ranking second in the World Bank's Doing Business Index in 2017, and sixth globally in ease of starting a business.

This is one of the reasons that Singapore is home to more than 60 multinational healthtech companies, either in the form of headquarters or R&D centers. This makes it the third largest region in Asia after China and India for healthtech startups, accounting to 11% of all such companies in 2017.

EASE OF DOING BUSINESS IN SINGAPORE



SOURCE: TRADINGECONOMICS.COM | WORLD BANK

Top 10 Economies	2018 Ranking	2017 Ranking
New Zealand	1	1
Singapore	2	2
Denmark	3	3
Korea, Rep	4	5
Hong Kong SAR, China	5	4
United States	6	8
United Kingdom	7	7
Norway	8	6
Georgia	9	16
Sweden	10	9

Singapore Has Established its Reputation for Proactive, Interventionist, Meritocratic Social Policies & Governance

Singapore has established a strong reputation for its capacity to enact proactive and effective top-down social and policy innovations through cross-sector collaboration. The nation has a highly interventionist government that focuses on long-term strategy, ranking #1 globally for "government effectiveness" and "regulatory quality" according to the 2016 World Bank's Worldwide Governance Indicators.

Singapore is also adept at adopting the best proven practices developed by other countries. For instance, in the 1990s it mimicked Japan's age-friendly housing policies. Likewise, Singapore also adopted Japan's policy of increasing the retirement age to keep people in the workforce for longer. By establishing the Tripartite Committee on Employability of Older Workers, Singapore further passed legislation promoting the re-employment of older workers. The committee brings together representatives of employer associations, governments and labor unions to re-employ elderly workers past the statutory retirement age.

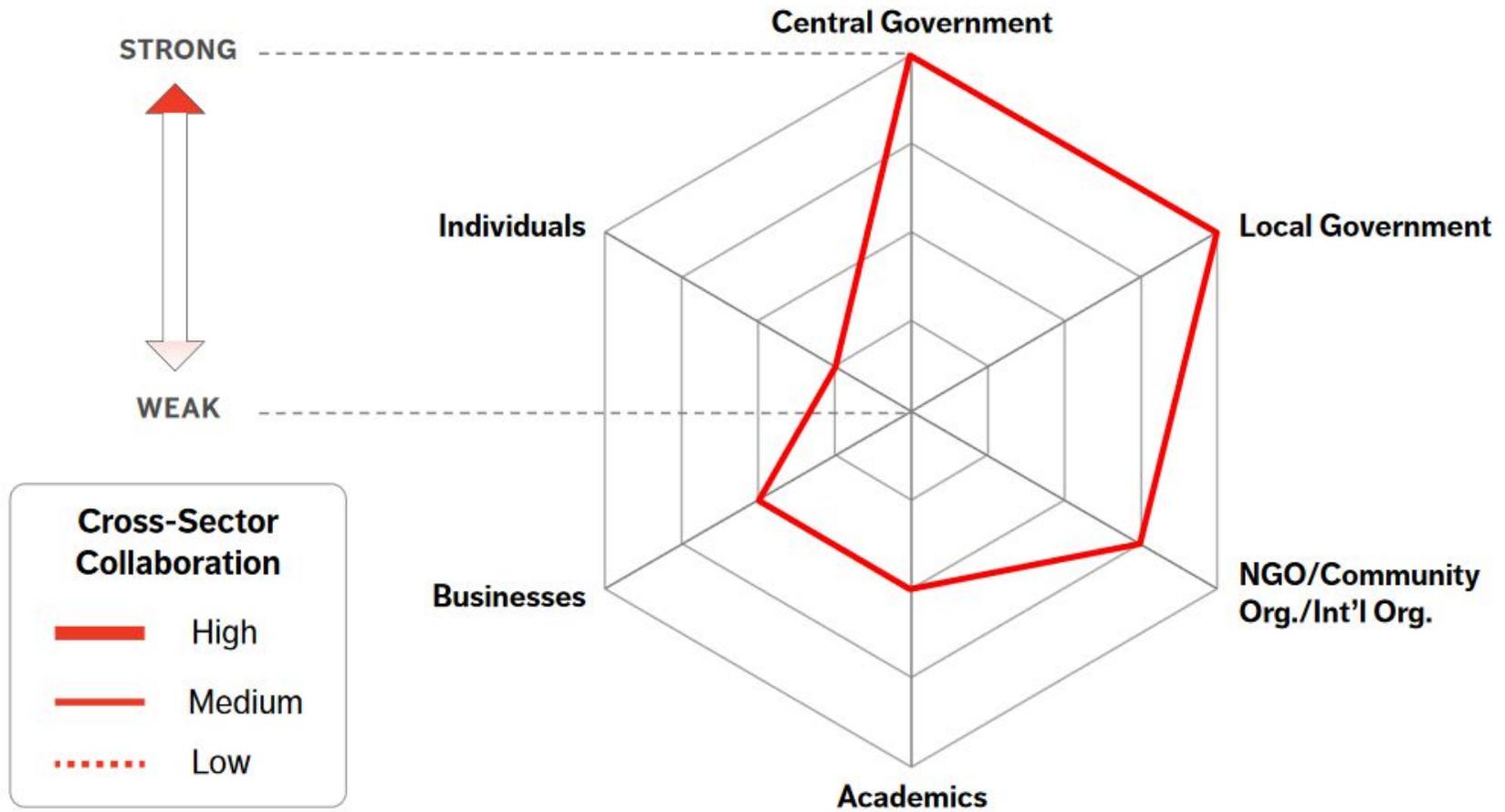
These properties underlie Singapore's potential to proactively combat population aging through a combination of social and initiatives and prioritized healthspan extension measures.

“Aging issues have long been under the radar of the Singaporean government, who has been constantly introducing pre-empting programs.”

- TAN ERN SER, Associate Professor of Sociology at National University of Singapore



Figure 2. Driving Forces of Innovation and Cross-Sector Collaboration



As a city-state, Singapore has only one level of government, so “Central Government” and “Local Government” are considered together to represent the government’s overall performance

Retirement System Reform in Singapore

In 2011 Singapore introduced the Retirement and Re-employment Act, the largest step towards retirement system reform in its history. Part of this legislation required employers to re-employ workers between 62 and 65 years of age.

Previously, in 2008, the government released guidance titled “Tripartite Advisory on the Re-employment of Older Workers” on best practices for negotiating re-employment contracts between older workers and employers. These guidelines were expanded into the 2011 “Tripartite Guidelines on the Re-Employment of Older Employees.”

Since its enactment, nearly 98% of workers above 62 have been effectively re-employed, and as of 2016, Singapore's labor force participation rate grew 30% in just five years.

Nonetheless, much remains to be done. Commenting on the effectiveness of these re-employment efforts, Amos Garcia of the Milken Institute Asia Center, based in Singapore, stated that “when re-employed, older workers are usually put at a different job position, which are oftentimes paid less, or require low skills, due to skill gaps and ageism.”

“TriCom creates opportunities for the government perspectives, such as cost concerns by employers and payment fairness concerns by employees (which) help it to make effective decisions.”

- Walter Theseira, Associate Professor of Economics at Singapore University of Social Science

Dissecting What Population Aging Means for Singapore's Labor Participation Ratio

For the first time in Singapore's history, the number of people over 65 is above those aged 15 or younger.

By 2050, the number of Singaporeans aged 65 and over will be 3.08 million out of a total 6.58 million—nearly half of the entire population—compared to just 722,000 aged 15 and under.

According to current estimates, average life expectancy will increase to 85.6 for women and 89.3 for men born between 2045 and 2050. This means that by 2050 Singapore's dependency ratio will be nearly 1:1, with one adult supporting either a child or elderly person, a reduction of exactly one half compared to today.

This will place an incredible burden on the economy with the workforce shrinking, leading to a further decline in economic efficiency and productivity, and skyrocketing costs for elderly care.

Further work is also required to foster more inclusive and engaging social lives for the nation's elderly to combat the negative psychological effects of population aging. Suicide rates in elderly Singaporean citizens rose dramatically last year, with 129 people above the age of 60 in a total of 361 who committed suicide. Whereas suicide rates dropped in all other demographics, it rose in the elderly population compared to the previous year.

The Ministry of Social and Family Development recently reported that the number of families receiving long-term financial aid from the government is increasing, up 24% since 2013, partly as a result of shrinking family sizes and the effects of population aging.

In addition to the Ministry of Health, other government divisions are also striving to make Singapore one of the most progressive countries with regards to solving the aging population problem in the years to come.

One such agency is the National Population and Talent Division, which runs a group called Population.sg that *"brings together people with diverse backgrounds to discuss and write about population matters in Singapore, focusing on demographic challenges in Singapore and what needs to be done to create a strong Singaporean core with good opportunities and high-quality living for Singaporeans."*

“The SkillsFuture program is a game changer and creates a platform that facilitates engagement of various stakeholders. As a result, the whole society is thinking about lifelong learning right now.”

- CHRISTOPHER GEE, Senior Research Fellow at the Institute of Policy Studies at National University of Singapore

“Since we cannot double the care capacity within a short term to meet the increasing demand driven by the aging population, the capacity building needs to be complemented with innovation.”

- JULIAN KOO, Co-Founder of Jaga-Me

“The incubation program has created a network that brings stakeholders, such as service providers and young entrepreneurs, together to exchange ideas and promote better understandings of aging issues.”

- WONG POH KAM, Director of Entrepreneurship Centre, National University of Singapore



AGING ANALYTICS AGENCY

www.aginganalytics.com | info@aginganalytics.com

Aging Analytics Agency is dedicated to the production of industry analytical reports on the topics of Longevity, Personalised and Preventive Medicine. It is the only analytical agency focused exclusively on Ageing, Geroscience and Longevity. Operating for over five years, we began producing in-depth reports on Longevity long before it emerged as an industry. In 2014 we successfully predicted the boom in industry development and financing rounds in 2017, at a time when the vast majority of investors, business analysts, and even geroscientists believed its emergence to be in the next decade. The company also provides strategic consulting in the fields of Longevity, Preventive Medicine and Advanced Biomedicine.



LONGEVITY INTERNATIONAL

www.longevity.international | info@longevity.international

Longevity.International is an online interactive database of longevity scientists, companies, and investors. This platform allows different stakeholders in the longevity industry to connect, network, research and analyze.

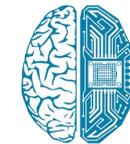
On the next stage this platform will also employ cutting-edge data visualization software and a networking section where various stakeholders within the longevity industry can connect and collaborate, where longevity companies are matched with the right investors, and where scientists can make contributions.



LONGEVITY.CAPITAL

www.longevity.capital | info@longevity.capital

Longevity.Capital is a specialised Longevity industry Index Hedge Fund with enhanced liquidity that uses hybrid investment technologies to combine the profitability of venture funds with the liquidity of hedge funds, thus significantly de-risking the interests of LPs and providing the best and most promising Longevity companies with relevant amounts of investment.



DEEP KNOWLEDGE ANALYTICS

www.dka.global | info@dka.global

Deep Knowledge Analytics – the analytical arm of Deep Knowledge Ventures, specialising in forecasting on the convergence of technological megatrends, conducting special case studies and producing advanced industry analytical reports on AI, DeepTech, Blockchain and Invest Tech.