

# **Aging Analytics Agency**

# Longevity Policy & Governance Activities

- Longevity Policy & Governance Big Data Analytical Dashboard
- Supporting Partner of UK All-Party Parliamentary Group for Longevity,
   Founding Partner of APPG for Longevity Secretariat, Official Member of United Nations NGO Committee on Ageing
- Region-Specific (National & Municipal) Longevity Policy SWOT Analysis,
   Practical Recommendations & Development Plans
- Policy Proposals to WHO, WEF, UN, and Others

#### Aging Analytics Agency Overview

#### Longevity-Focused Analytical Subsidiary of Deep Knowledge Group

Deep Knowledge Group is a consortium of commercial and nonprofit organizations active on many fronts in the realm of DeepTech and Frontier Technologies (AI, Longevity, FinTech, GovTech, InvestTech), ranging from scientific research to investment, entrepreneurship, analytics, media, philanthropy and more.

#### Strategic Partners of Aging Analytics Agency



Supporting Partner for the UK All-Party Parliamentary Group for Longevity and a Source of Data and Analytics for the APPG Secretariat



Official Member
Organization of the
United Nations NGO
Committee on Ageing



Media Partner for Metabesity Conference in Washington D.C.



Main Source of Market Intelligence and Industry Analytics for the Longevity.Capital



Supporting Partner of the Annual International Longevity Policy & Governance Summit

# Aging Analytics Agency Longevity Policy & Governance Activities (General Overview)

#### "National Longevity Development Plans" Case Study Presented in UK Parliament













#### House of Lords Report Response



HOUSE OF LORDS

Science and Technology Select Committee

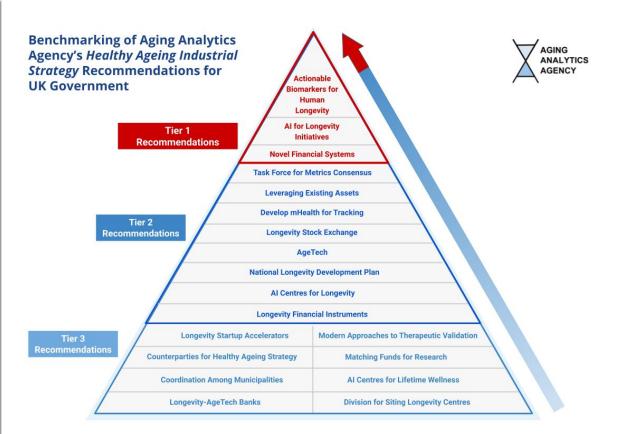
1st Report of Session 2019-21

#### Ageing: Science, Technology and Healthy Living

Ordered to be printed 1 December 2020 and published 15 January 2021

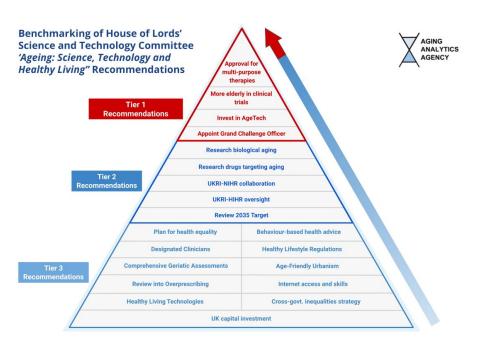
Published by the Authority of the House of Lords

HL Paper 183

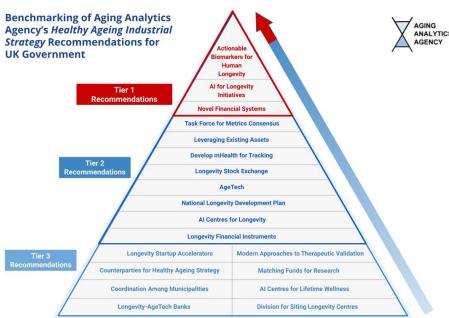


#### House of Lords vs. Aging Analytics Agency Recommendations

## House of Lords Recommendations



### Aging Analytics Agency Recommendations



Home / North West / Business news / Specialist agency will profile Greater Manchester's healthy ageing assets

## Specialist agency will profile Greater Manchester's healthy ageing assets





Greater Manchester is seeking to exploit the growing 'grey economy'.

Highlighted as one of the UK's four grand challenges in the Government's Industrial Strategy, ageing populations across the world are driving demand for new technologies, products and services and the region is in a prime position to take advantage of this global change.

Already recognised as the UK's first age-friendly region by the World Health Organisation, MIDAS – Greater Manchester's inward investment agency – has appointed a specialist company to characterise the region's strengths to support a rapidly growing longevity industry.



Why Manchester

. . . .

Investment Support

Media & Events

About MIDAS

Newsletter Sign-up Partner Login



You are here > Latest News > Media & Events > MIDAS appoints specialist agency to profile Greater Manchester's healthy ageing assets

Browse Sector ▼

Browse Date ▼

#### MIDAS appoints specialist agency to profile Greater Manchester's healthy ageing assets

3 March 2021

Category: Life Science and Healthcare



#### Related sectors Life Science and Healthcare

Highlighted as one of the UK's four grand challenges in the government's Industrial Strategy, ageing populations across the world are driving demand for new technologies, products and services and Greater Manchester is in a prime position to take advantage of this global change.

Already recognised as the UK's first age friendly region by the World Health Organisation, MIDAS - Greater Manchester's inward investment agency has appointed a specialist company, Aging Analytics Agency to characterise Greater Manchester's strengths to support a rapidly growing longevity industry.

# THE 2ND INTERNATIONAL LONGEVITY POLICY AND GOVERNANCE SUMMIT

Kenji Shibuya

Adriane Berg

**Stephen Johnston** 



Ms Joanna Bensz

**John Godfrey** 

**Brian Kennedy** 

#### Aging Analytics Agency - International Longevity Policy & Governance Summit

#### **International Longevity** Longevity Xuk **Policy and Governance Summit** November 12th 2019, 09:00 - 13:45 King's College, London, UK

Aging Analytics Agency was also a strategic and supporting partner of the inaugural International Longevity Policy and Governance Summit, organized by Longevity International UK at King's College, London on November 12th 2-19 (where several Aging Analytics Agency executives delivered presentations and chaired panel discussions) in an effort to support and promote a greater degree of international synergy and cooperation on the expanding frontier of Longevity Policy Governance. The summit focused on the international response to harnessing the opportunities of an ageing demographic, and was attended by a number of high-profile representatives and government officials of healthcare departments from Longevity-progressive countries.



Tina Woods Longevity International UK



**Dmitry Kaminskiy** Aging Analytics Agency



Eric Kihlstrom Longevity International UK



Rt Hon Damian Green MP All-Party Parliamentary Group for Longevity



Lord Geoff Filkin CBE All-Party Parliamentary





Sergey Young Longevity Vision Fund



Dr Charles Alessi HIMSS



Professor, Kenji Shubuya Institute for Population Health, Kings College

Mike Hodin Global Coalition on Aging

Cross-Border Collaboration Establishing Mutually-Beneficial Implementing the Dialogue, Exchange Best Examples of Cooperation and Development **Policy Formulation** with Longevity and Synergetic **Progressive Nations** Coordination

Learning from Past Mistakes in Policy. Initiatives Overseas,

Government Representatives

Healthcare & Financial Executives

NGOs, NonProfits, Think-Tanks

Foreign Ambassadors Policy Experts











"Living Longer, Healthier and **Productively for Global Prosperity"** 

**Building Cross-Country and Cross-Sector Bridges for Longevity Politics and** Governance Initiatives



#### **Supporting Partners**

Longevity International Policy and Governance Summit is supported by:







Longevity International UK is the Secretariat for the All-Party Parliamentary Group for Longevity.



#### **Dmitry Kaminskiy International Longevity Policy Activities**

Dmitry Kaminskiy is actively involved in the work of the initiative group and was instrumental at the initial stage of the launch of the **All-Party Parliamentary Group for Longevity in the UK Parliament**. He now serves as **Co-Director** of the **APPG Secretariat**, overseeing the APPG's **international Longevity cooperation development division**.



Official Launch All-Party Parliamentary Group for Longevity House of Lords, London, UK



All Party Parliamentary Group for Longevity Inaugural Meeting House of Lords, London, UK

#### **Dmitry Kaminskiy Longevity International Policy Activities**

Dmitry Kaminskiy on behalf of Aging Analytics Agency, has presented its findings on International Longevity Policy, and its Big Data special analytical case studies on National Longevity Development Plans, at several the UK All-Party Parliamentary Group for Longevity board and evidence meetings, providing quantitative data and practical recommendations used in part for the formulation of the APPG's "Health of the Nation" Report, which provided a set of key recommendations to the UK government to help them achieve the goal set out by former UK Prime Minister Theresa May (and carried forward by current UK Prime Minister Boris Johnson) to add 5 extra years of healthy lifespan to the UK population by the year 2035.



All-Party Parliamentary Group for Longevity Strategic Advisory Board Meeting - House of Lords, London, UK



Longevity Policy & Governance Report Presented at Inaugural All-Party Parliamentary Group for Longevity

#### National Longevity Development Plans 2019 - Special Case Study

Aging Analytics Agency's first major Longevity Policy & Governance project was its 2019 case study, National **Longevity Development Plans Global** Landscape Overview 2019. Because Aging Analytics Agency is the main source of Longevity industry data and analytics for the UK All-Party Parliamentary Group for Longevity, the representatives of agency presented some of the special case study's major conclusions at All-Party Parliamentary Group Longevity Strategic Advisory Board meeting in **UK Parliament** on April 30th, arguing that the UK Government needs to extend existing efforts and create a framework to change the deficit model of the 'Ageing Society' to an asset model around 'Longevity' and be bold with a national strategy to harness the 'Longevity Dividend' to benefit all people in society.



#### "National Longevity Development Plans" Case Study Presented in UK Parliament

On May 7, 2019, Aging Analytics Agency Founder Dmitry Kaminskiy also delivered a presentation highlighting major conclusions from Aging Analytics Agency's "National Longevity Development Plans Global Overview" report at UK Parliament, as part of the official Launch Event for the All-Party Parliamentary Group for Longevity.

Aging Analytics Agency serves as the primary source of analytics and data for the APPG for Longevity.

Pictured left is the current UK Secretary of Healthy and Social Care, Matt Hancock, delivering a speech against the backdrop of the front cover of Aging Analytics Agency's special analytical case study.



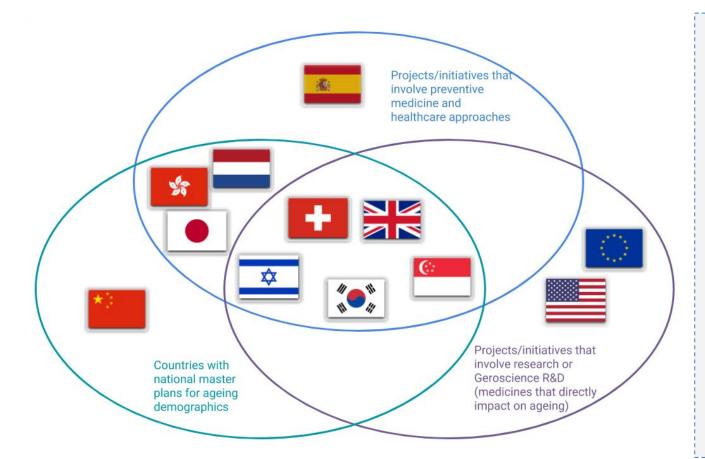
#### NATIONAL LONGEVITY DEVELOPMENT PLANS: GLOBAL OVERVIEW 2019 (First Edition)



#### Launch of the UK All-Party Parliamentary Group (APPG) for Longevity, House of Commons

Aging Analytics Agency Co-Founder Dmitry Kaminskiy and Strategic Director Eric Kihlstrom alongside The Secretariat with Rt Hon Damian Green MP (APPG Chair), The Lord Filkin CBE (Advisory Board Chair), Professor Andrew Scott (Advisory Board Member) and Rt Hon Matt Hancock MP, Secretary of State for Health and Social Care at the Launch of the APPG for Longevity, where Aging Analytics Agency's Global Longevity Governance Report was Premiered, distributed and discussed.

#### National Longevity Initiatives Classification Framework



A <u>comprehensive analysis</u> of the strength, relevance and proactivity of various countries' governmentled efforts at projects and initiatives to reduce the economic burden of an aging population and manifest the opportunities of Healthy Longevity.

Overall, there are 6 levels of proprietary metrics which differ based on the nature of the parameters they consist of. Indicators, their growth rates and their ratios are calculated separately and then integrated in the final metrics system.

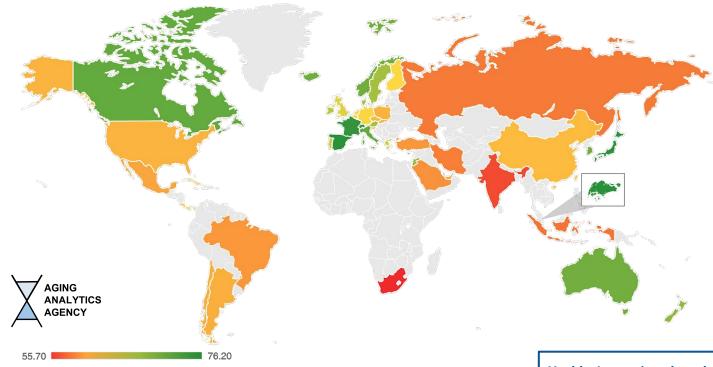
Thus, the ranking system reflects both strengths and opportunities of different countries regarding the development of national Longevity strategies. It can be applied for the evaluation of the current state of a country, as well as of its prospects. Some metrics indicators are directly interconnected, since the ratios are derived from single values which are parameters themselves.

#### Number of Government Led Longevity Initiatives by Region



#### National Healthy Longevity Heat Map

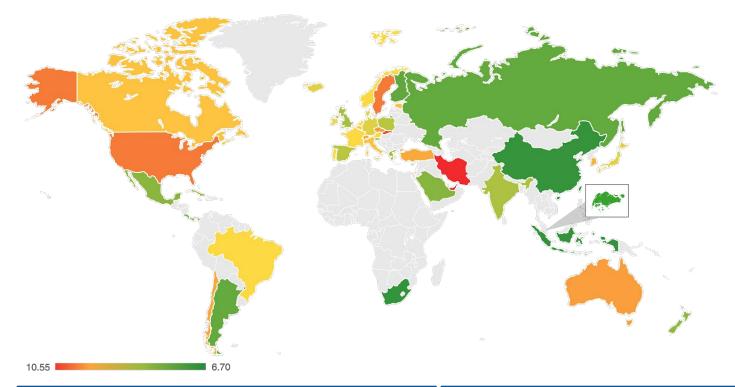




Healthy Longevity relates here to the number of years that a person live without serious health problems or injuries.

#### Size of Gap Between National Healthy Longevity (HALE) and Life Expectancy

Size of Gap Between Healthy Longevity and Life Expectancy

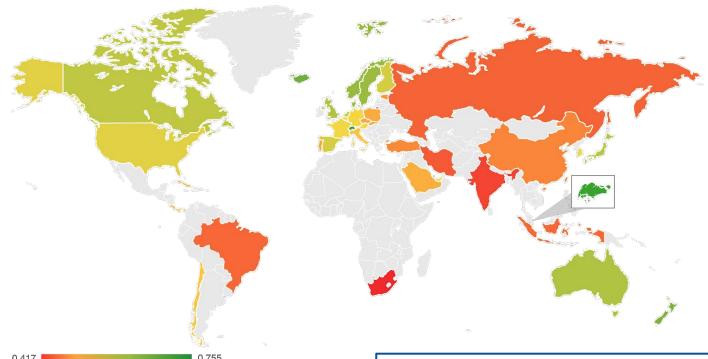


Health-Adjusted Life Expectancy (HALE), used here as a measure of Healthy Longevity, is the average number of years an individual can expect to live free of chronic age-related disease.

Life expectancy (LE) at birth reflects the overall mortality level of a population. It summarizes the mortality pattern that prevails across all age groups in a given year – children and adolescents, adults and the elderly.

#### National Longevity Rankings: Health-Adjusted Life Expectancy & HALE GAP





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.

#### Singapore vs. US: Longevity Progressive vs. Regressive Nations

Singapore United States

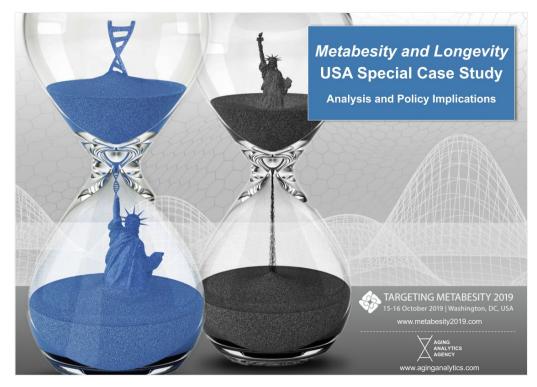
HALE: 76.2 HALE: 68.5 HALE GAP: 10.0 Life Expectancy: 82.9 Life Expectancy: 78.5

Healthcare Efficiency Rank: #2 Healthcare Efficiency Rank: #25 % GDP Healthcare Spending: 4.5% % GDP Healthcare Spending: 18%

By analyzing the specific circumstances of Longevity outliers - nations with an unusually large or small gap between healthy-adjusted life expectancy and unadjusted life expectancy - the special case study is able to derive insights into the factors likely to either increase or decrease this gap.

The health care system in Singapore, for example, appears more geared toward raising up all its citizens than on achieving excellence in a few high-profile areas. By contrast, the United States (which is the subject of another recent policy-focused analytical report, "Metabesity and Longevity: USA Special Case Study") spends a disproportionate amount on health care, and yet has the lowest levels of healthy life expectancy among high-income developed countries.

This illustrates the extreme disparities and variation in healthcare efficiency across the globe, exemplified by the enormous gap between HALE and life expectancy in different countries (e.g., Singapore's gap of 6.7 years vs. a gap of 10.0 years in the USA).



#### Aging Analytics Agency - International Longevity Policy Proposals

increasing number countries progressive and government bodies begin actively solicit consultation Longevity policy, strategy development plans, Aging Analytics Agency has correspondingly increased the scope of its activities in the realm of Longevity policy, and during September 2019 submitted three proposals to a number of national and international governance and policy-structuring organizations concerned with the issues of aging population and the opportunities of Healthy Longevity, including the UK All-Party Parliamentary Group for Longevity, the World Health Organization, and the UK House of Lords Science and Technology Committee.







Longevity Policy and Governance in Switzerland (Joint Project with Longevity Swiss Foundation)



#### The Future of Longevity Governance: Forecasts for 2020 - 2025



In the next few years, several technologically advanced small smart states will emerge as global competitors in the development of integrated Longevity Industry ecosystems, some of which will focus on specific sectors tuned to their unique strengths, while others will seek to create fully integrated hubs encompassing the entire multifaceted scope of the Longevity Industry.

The potential of government to bring about this type of development is not to be underestimated. The previously underdeveloped Zug canton in Switzerland for example - through a set of legislative initiatives, and some government coordination, as well as initiatives within the "crypto community" - quickly became known worldwide as the 'Crypto Valley'. All that was required was for the cantonal authorities to foster a legislative environment (combined with some international promotional efforts) that would incentivize relevant expertise to relocate there and set up business. In other words, the government created conditions which attract a self-selecting population of community of crypto entrepreneurs.

Some countries are now selling their citizenship to foreign expats present and working in those countries for a certain period, thereby utilizing the same technique of selectively attracting human expertise that was used by Singapore in the creation of its technological mega-hub. We expect five years from now to see a "new normal" of small technocratic nations selling their citizenship selectively to people committed to advancing Longevity-related technologies, in exchange for access to some of the most sophisticated and advanced healthcare, life insurance, MedTech, AgeTech and WealthTech ecosystems available.

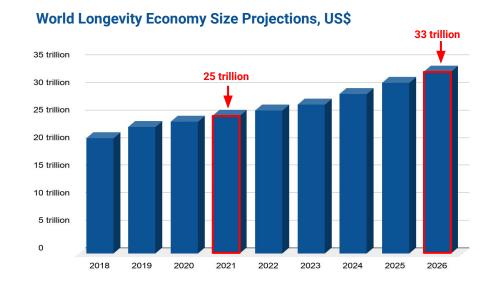
# Longevity Governance Big Data Analytics Dashboard

#### **Longevity Governance Analytics**

#### **About Longevity Governance Big Data Analytics Dashboard**

Longevity governance analytics dashboard developed by Aging Analytics Agency (AAA) is aimed at delivering to strategic decision-makers across the private sector, global investment community, financial industry, governance and policy ecosystem access to Big Data analytics and visualization, market intelligence, competitive analysis, technology and policy benchmarking, SWOT analysis, practical recommendations and other strategic tool sets capable of handling the unprecedented complexity and multidimensionality of the full-scope Global Longevity public and private sector ecosystem.

The project is dedicated to offering tangible and practical recommendations tuned to the specifics of individual countries, providing the necessary set of tools to allow countries currently leading the international Healthy Longevity race to maintain and improve their current standing.



#### This analytics can deliver value to governments to enhance healthcare system in their countries

#### Government Agencies, Healthcare, Economy & Industrial Development Ministries, & International Policy Organizations

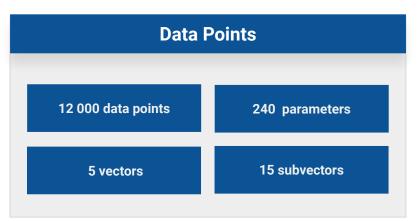
- Recommendation packs tuned to the specifics of individual countries;
- Analytics & Benchmarking 150 countries;
- Industrial strategies to improve current position in Healthy Longevity;
- Advanced IT-solutions;
- Modernization advises.

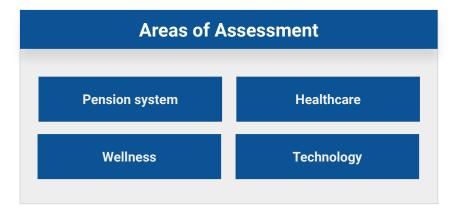
#### Longevity Governance Big Data Analytics Dashboard

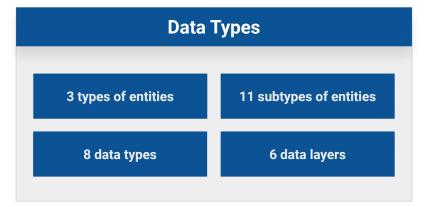


#### Database Scope and Size







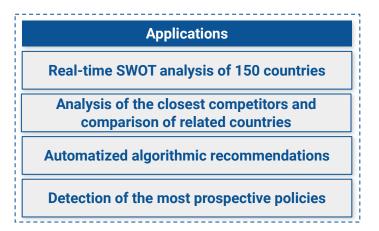


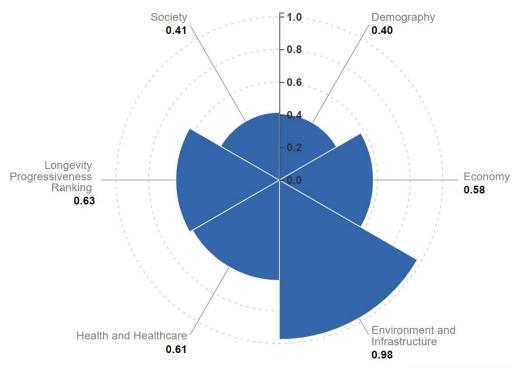
#### Multiparametric Assessment Analysis (Using Big Data Analytics Platform)

Aging Analytics Agency offers a state-of-the-art interactive online Al-based **SWOT analysis system** covering more than 150 countries.

The product allows the governments to conduct initial data-driven competitive analysis **instantly**, **automatically**, **and holistically** by comparing 200-300 data points for each country combined in the 10-20 vectors of national longevity development.

The results of the analysis are represented in the easily perceived form of 2-dimensional and 3-dimensional radar charts.

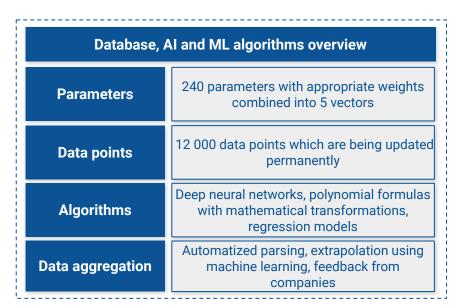


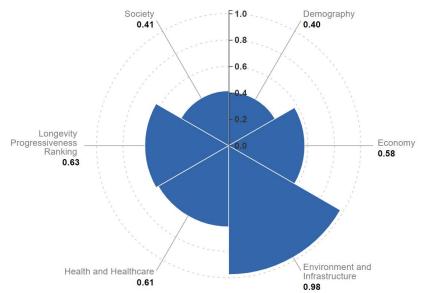


#### Multiparametric Assessment Analysis (Using Big Data Analytics Platform)

Automatized SWOT analysis system allows to replace long, resource-requiring, manual, and unsystematic process of competitive analysis and public policy development by a real-time available product extracting insights from the largest in the world longevity industry database with the help of deep learning algorithms and multidimensional polynomial formulas calibrated by combining expert opinions with big data analysis.

This enables the conduct of public policy analysis, which is **faster, more precise, and cheaper** simultaneously, since it is being done automatically, permanently, without essential human interaction, and using more data points.



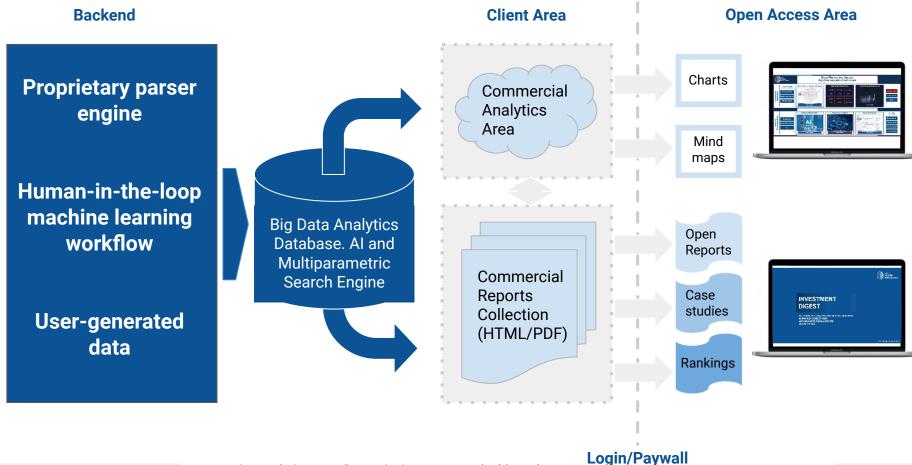


#### Our Technologies

The technologies (AI, ML, algorithms, data aggregation, mathematical transformations) that are applied for each of our products are listed below.

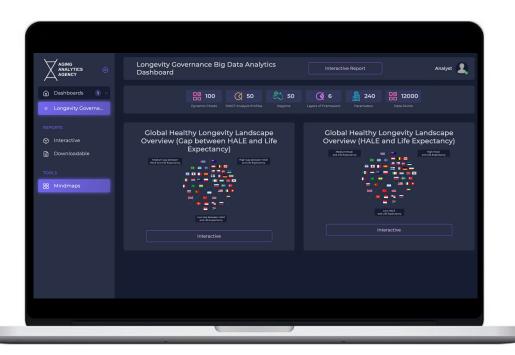
SWOT analysis	Data aggregation	Model creation		
Polynomial formulas, multidimensional vector spaces	Data extrapolation through regressions	Factor analysis of LE-HALE gap determinants (multiple regression)		
Mathematical transformations: logarithmic, exponential, parabolic, multiplicative	Data extrapolation through deep neural networks	Analysis of variance of major longevity parameters across groups of countries (ANOVA)		
Business development harmonization analysis: definite integrals, standard deviation	Natural language processing for tag cloud creation	Defining leading countries in longevity governance (ranking)		
Variance-covariance analysis of the parameters of the countries	Data parsing	Estimation of relationships between metrics (intraclass correlation)		
Linear algebra	Deep neural networks for data structuring	Assessment of effectiveness of healthcare systems		

#### Big Data Analytics Platform at a Glance



#### Longevity Governance Dashboard: Main Features

The Longevity Governance Dashboard applies big data analysis to **identify social policy, healthcare, medical, financial and socioeconomic factors** having the greatest effect on the gap between life expectancy at birth and Health-Adjusted Life Expectancy (HALE) for 150 regions.



The dashboard focuses on identifying the factors and practices behind certain regions' success in maintaining high National Health Longevity, and a low gap between Health-Adjusted Life Expectancy (HALE) and unadjusted Life Expectancy.

It utilizes the results of its region-specific analysis to offer tangible and practical recommendations tuned to the specifics of individual territories, providing the necessary set of tools to enable national governments, individual economy, healthcare and industrial development industries, international policy organizations other responsible and stakeholders to formulate and implement policies and development strategies capable of transforming the challenge of aging into **the opportunity** of Healthy Longevity for the mutual benefit of their citizens and their economy.

#### Longevity Governance Dashboard: Major Use Cases

#### Government Agencies, Healthcare, Economy & Industrial Development Ministries, & International Policy Organizations

- The Longevity Governance Dashboard delivers access to continuous monitoring of the specific governmental policy activities directly impacting both National Healthy Longevity and Longevity Industrialization, and to consistently track and analyze data points related to government-led Longevity Development initiatives.
- Applies **big data analysis** to identify social policy, healthcare, medical, financial and socioeconomic **factors** with the greatest effect on the **gap** between life expectancy and **Health-Adjusted Life Expectancy (HALE)** for 100 regions.
- Identifies factors and practices behind certain regions' success in maintaining a high degree of **National Healthy Longevity** and a low gap between HALE and Life Expectancy
- Provides tangible and practical recommendations tuned to the specifics of individual countries, providing the necessary set of tools to allow countries currently leading the international Healthy Longevity race to maintain and improve their current standing.
- Features region-specific **recommendation packs** to enable governments currently lagging behind others to reduce their HALE gap and improve their comparative global standing, transforming the deficit and challenge of the silver tsunami into the **asset** and **opportunity** of Healthy Longevity for the mutual benefit of their citizens and their economy.

Longevity Governance	Recommendation Packs	Industrial Strategies	Precision Health
Longevity Governance	Advanced IT-Solutions	Analytics & Benchmarking	Modernization

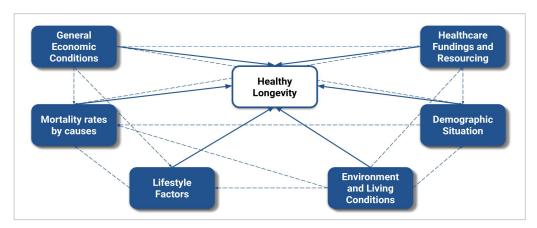
#### Analytical Precedents: Big Data Analysis of Global Longevity Governance

"Global Longevity Governance Landscape: 50 Countries Big Data Comparative Analysis of Longevity Progressiveness" 540-page is а analytical case study featuring a sophisticated multidimensional big data analytics that is used to provide intelligible and fact-driven benchmarking of 50 nations in relation to levels of Healthy Longevity, as measured by Health-Adjusted Life Expectancy (HALE), their current gaps between HALE and unadjusted life expectancy, their current levels of success in growing and maintaining National Healthy Longevity and dealing with the issue of aging, and tangible policy recommendations on how to either maintain or improve their standing and optimize their National Healthy Longevity.

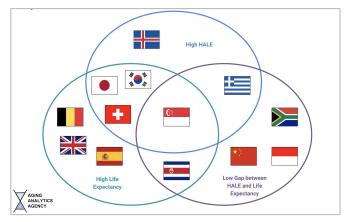


#### Key Topics for Analysis and Practical Recommendations

- What specific features of healthcare systems, socio-economic conditions, environmental factors affect public health the most?
- How does the impact of such factors differ across countries?
- What constellation of factors contributes the most to Healthy Longevity?
- Which factors are the main drivers of health-adjusted life expectancy and disability-adjusted life years?
- What countries are leaders in Longevity governance?
- Why do disproportionate healthcare expenditures in the United States contribute to poor healthcare system performance and a decline in overall life expectancy in recent years?
- Why is the healthcare system in Singapore considered as one of the most efficient in the world?
- What can be done to improve National Healthy Longevity in each country globally?



**Healthy Longevity Determining Factors** 



**Health-Adjusted Life Expectancy Specification Framework** 

#### Longevity Governance Dashboard: Regional Specification

**50 Regions** were analysed **of levels of their Longevity Progressiveness** and presented in Global Longevity Governance Landscape report as well as they will appear in Longevity Governance Dashboard.

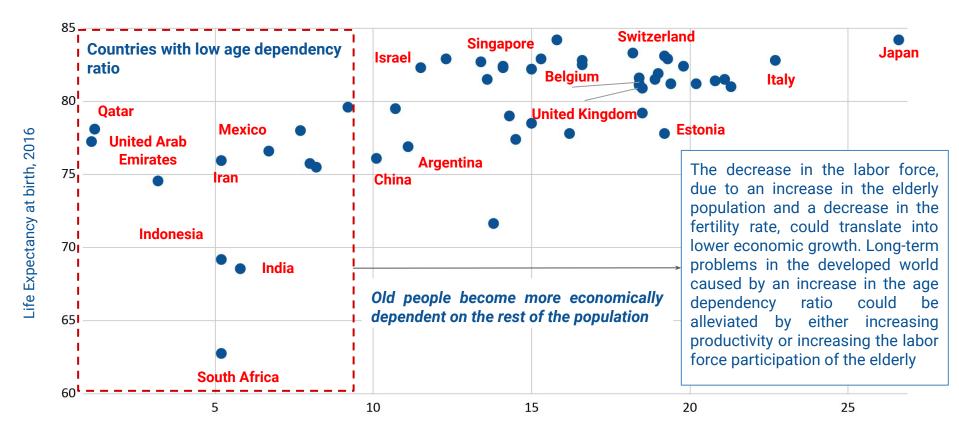
1	Argentina	13	Estonia	26	Japan	39	Saudi Arabia
2	Australia	14	Finland	27	Luxembourg	40	Singapore
3	Austria	15	France	28	Malta	41	Slovakia
4	Belgium	16	Germany	29	Mexico	42	Slovenia
5	Brazil	17	Greece	30	Netherlands	43	South Africa
6	Canda	18	Hong-Kong, SAR	31	New Zealand	44	Spain
7	Chile	19	Iceland	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		

#### Longevity Governance Dashboard Prototype

To derive the interconnection between metrics and classify countries into groups, patterns recognition is **based on a comparison** of 240 parameters across regions according to their distribution and variation.

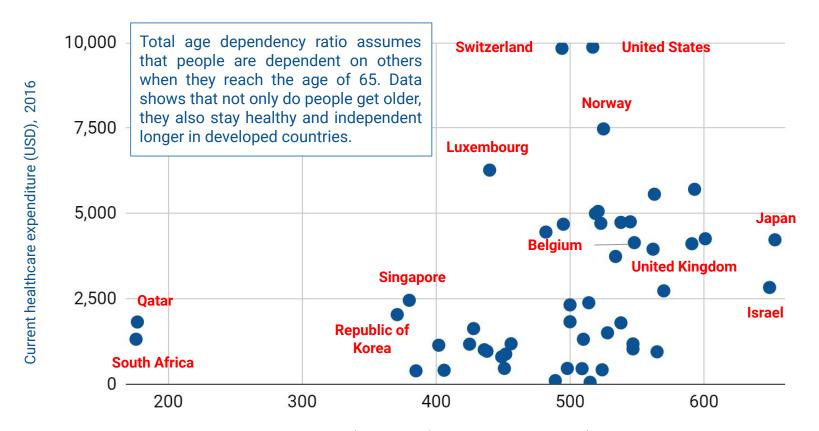


#### Analytics Example N1: Life Expectancy vs. Ageing Population



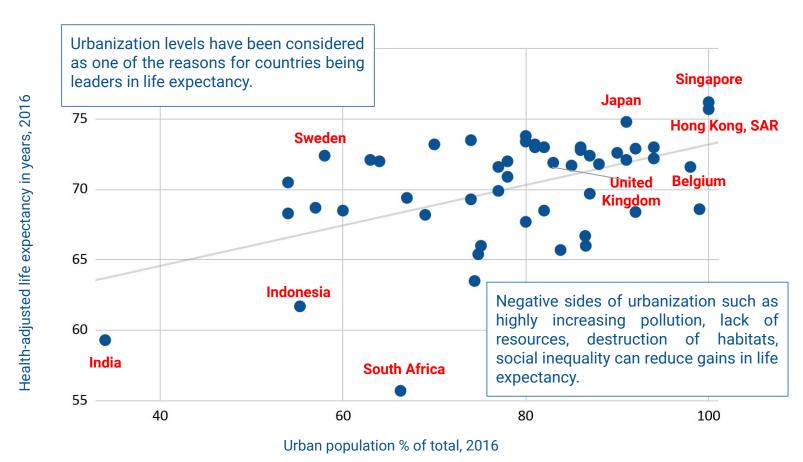
Age over 65, % (by 2016) Size of aged demographic

## Analytics Example N2: Ageing Population vs. Healthcare Expenditure

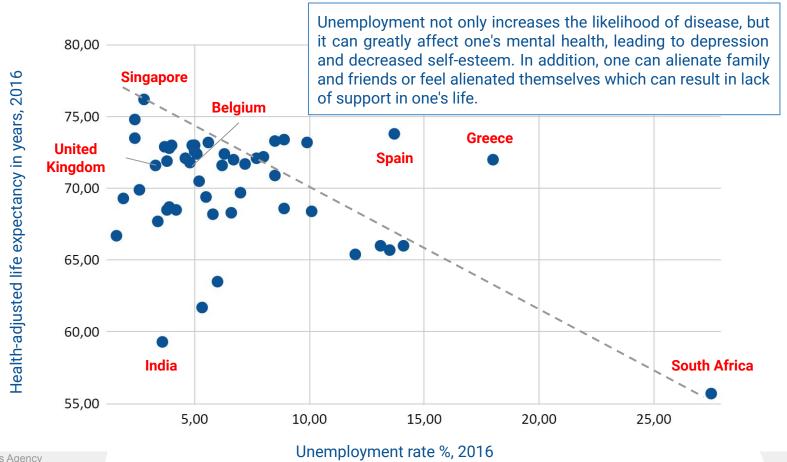


Total age dependency ratio (per 1000 of working-age population), 2016

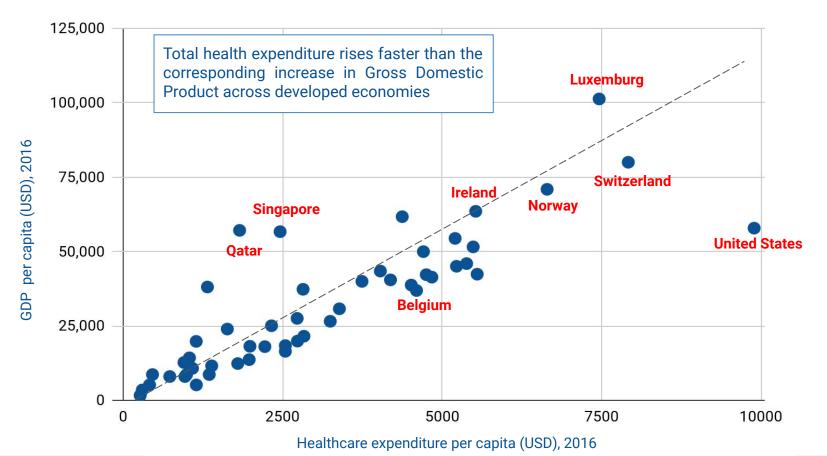
## Analytics Example N3: Urbanization vs. Healthy Longevity



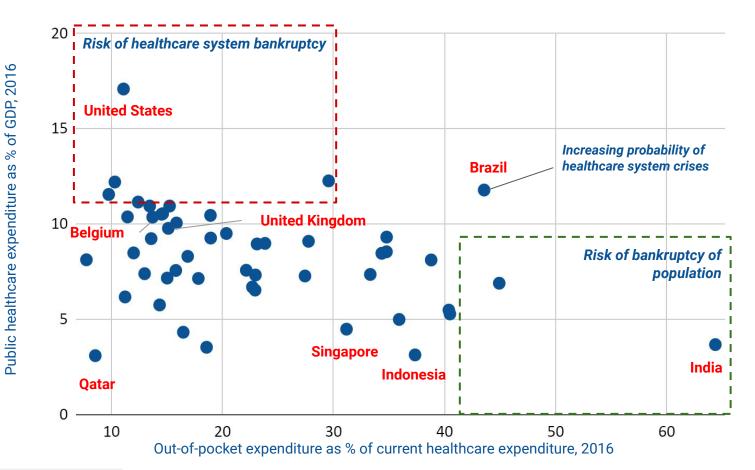
## Analytics Example N4: Unemployment vs. Healthy Longevity



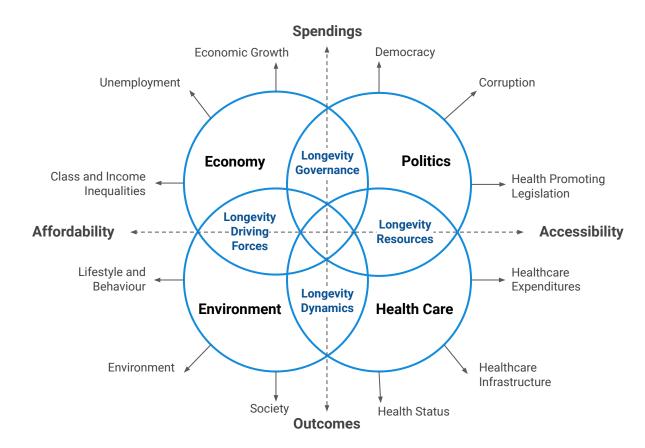
## Analytics Example N5: Healthcare Spendings vs. GDP Per Capita



## Analytics Example N6: Public Health Expenditure vs. Out of Pocket Expenditure



## **Longevity Progressiveness**



Longevity progressiveness is important for driving economic progress and competitiveness — both for developed and developing economies.

**Healthy Longevity is affected by** many groups factors such as: socioeconomic status. demography. income, wellbeing, the quality of the health system and the ability of people to access it, health behaviours such as tobacco and excessive alcohol consumption, poor nutrition and lack of exercise, **social factors**, genetic factors and environmental factors including overcrowded lack clean housing. drinking water and adequate sanitation.

Longevity progressiveness should be based **on four pillars.** They are good health outcomes, cost-efficiency, affordability of healthcare treatment for the population and widest possible access to services and products.

## Longevity Governance Dashboard Big Data Analytics Framework

**Data Collection** 

- 150 regions
- 240 parameters per region
- 12,000 parameters in total

**Data Cleaning** 

Aggregation of data by 5 dimensions

- Economic conditions
- Demography
- Health care and Longevity
- Environment
- Social factors

**Model Creation** 

- Factor analysis of LE-HALE gap determinants (multiple regression)
- Analysis of variance of major longevity parameters across groups of countries (ANOVA)
- Defining leading countries in longevity governance (ranking)
- Estimation of relationships between metrics (intraclass correlation)
- Assessment of effectiveness of healthcare systems

**Model Validation** 

- Hypothesis testing
- Sensitivity analysis

Development of Recommendations

 Incorporation results of research in practical region-specific and department-specific recommendations

## Longevity Progressiveness Methodology

Step	Name	Details	Stats
01	Data input	Filling in data for each country's metric selected by DKG experts from open-source databases.	146 metrics
02	Data Assessment	An assessment table assigns a point for each metric for each country depending on the allocation of a particular country's metric within the analyzed set.	Max 408 Points
03	Data Weighted Evaluation	Categories and their metrics are assigned with a particular weight which impacts the final score of a metric.	Max 100 Score
04	Pivot Results	At the final step all scores are gathered in the Pivot table.  Initially table is grouped by categories and their score for each country. However, using slicers enables user to arrange table due to his needs.	50 Countries Ranking

## Semi-automatic SWOT

Step	Name	Details	Stats
01	Data input	Filling in data for each country's metric selected by DKG experts from open-source databases.	146 metrics
02	Data Assessment	An assessment table assigns a point for each metric for each country depending on the allocation of a particular country's metric within the analyzed set.	Max 408 Points
03	Country Selection	User selects a country for which he wants to receive a set of recommendations.	List of 50 Countries
04	Recommendations	At the final step user receives a full list of recommendations with a description as well as short summary of country's score in each category.	107 Guidances

## Analytical Precedents: National Longevity Development Plans

Aging Analytics Agency's first major Longevity Policy & Governance project was its 2019 case study, National **Longevity Development Plans Global** Landscape Overview 2019. Because Aging Analytics Agency is the main source of Longevity industry data and analytics for the UK All-Party Parliamentary Group for Longevity, representatives of the agency presented some of the special case study's major conclusions at All-Party Parliamentary Group Longevity **Strategic Advisory Board** meeting in **UK Parliament** on April 30th, arguing that the UK Government needs to extend existing efforts and create a framework to change the **deficit model** of the 'Ageing Society' to an asset model around 'Longevity' and be bold with a national strategy to harness the 'Longevity Dividend' to benefit all people in society.



## "National Longevity Development Plans" Case Study Presented in UK Parliament

On May 7, 2019, Aging Analytics Agency Founder Dmitry Kaminskiy also delivered a presentation highlighting major conclusions from Aging Analytics Agency's "National Longevity Development Plans Global Overview" report at UK Parliament, as part of the official Launch Event for the All-Party Parliamentary Group for Longevity.

Aging Analytics Agency serves as the primary source of analytics and data for the APPG for Longevity.

Pictured left is the current UK Secretary of Healthy and Social Care, Matt Hancock, delivering a speech against the backdrop of the front cover of Aging Analytics Agency's special analytical case study.



NATIONAL LONGEVITY DEVELOPMENT PLANS: GLOBAL OVERVIEW 2019 (First Edition)



## Launch of the UK All-Party Parliamentary Group (APPG) for Longevity, House of Commons

Aging Analytics Agency Co-Founder Dmitry Kaminskiy and Strategic Director Eric Kihlstrom alongside The Secretariat with Rt Hon Damian Green MP (APPG Chair), The Lord Filkin CBE (Advisory Board Chair), Professor Andrew Scott (Advisory Board Member) and Rt Hon Matt Hancock MP, Secretary of State for Health and Social Care at the Launch of the APPG for Longevity, where Aging Analytics Agency's Global Longevity Governance Report was Premiered, distributed and discussed.

## Aging Analytics Agency - International Longevity Policy & Governance Summit



Aging Analytics Agency was also a strategic and supporting partner of the inaugural International Longevity Policy and Governance Summit. organized by Longevity International UK at King's College, London on November 12th 2-19 (where several Aging Analytics Agency executives delivered presentations and chaired panel discussions) in an effort to support and promote a greater degree of international synergy and cooperation on the expanding frontier of Longevity Policy and Governance. The summit focused on the international response to harnessing the opportunities of an ageing demographic, and was attended by a number of high-profile representatives and government officials of healthcare departments from Longevity-progressive countries.



Tina Woods Longevity International UK



Dmitry Kaminskiy Aging Analytics Agency



Rt Hon Damian Green MP Eric Kihlstrom Longevity International UK All-Party Parliamentary Group for Longevity



Lord Geoff Filkin CBE All-Party Parliamentary Group for Longevity



Mike Hodin

Global Coalition on Aging



Sergey Young Longevity Vision Fund



Dr Charles Alessi



Julia Randell-Khan Center on Longevity. Stanford University



Institute for Population Health, Kinas College





Longevity International Policy and Governance Summit is supported by:







Longevity International UK is the Secretariat for the All-Party Parliamentary Group for Longevity.







## Aging Analytics Agency - International Longevity Policy Proposals

increasing number countries progressive and bodies government begin actively solicit consultation Longevity policy. strategy and development plans. Aaina Analytics has Agency correspondingly increased the scope of its activities in the realm of Longevity policy, and during September 2019 submitted three proposals to a number of national and international governance and policy-structuring organizations concerned with the issues of aging population and the opportunities of Healthy Longevity, including the UK All-Party Parliamentary Group for Longevity, the World Health Organization, and the UK House of Lords Science and Technology Committee.











Proposal to the United Nations on Optimization

of International Longevity Policy and



# Aging Analytics Agency Longevity-Focused Analytical Subsidiary

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

The company provides strategic consulting services in fields relating to Longevity, and currently serves as the supporting partner for the **UK All-Party Parliamentary Group for Longevity**.



Website: www.aginganalytics.com

## Aging Analytics Agency Timeline

Aging Analytics Agency has produced dozens of the Longevity Industry Landscape Overviews and Proprietary Analytical Case Studies during the last four years. In April 2021, the agency has presented 100+ Page Report, and Interactive IT Platform Features Detailed Analysis, Comprehensive Commentary & Tangible Benchmarking of UK House of Lords' Science and Technology Select Committee "Ageing: Science, Technology and Healthy Living" Report.

































2018

2019

2020

Website: www.aginganalytics.com

2021

## Media About Aging Analytics Agency Activities



READ THE ARTICLE

"Aging Analytics Agency is the only analytics entity exclusively focussed on examining and representing healthy ageing and is uniquely positioned to provide MIDAS and key stakeholders within the city region with a detailed analysis of Greater Manchester's longevity landscape including the identification of companies, investors, R&D hubs, academic institutions and industry professionals operating within this field."



READ THE ARTICLE

"According to figures compiled by the **Aging Analytics Agency**, Covid-19 has facilitated the development of not only the biotech capital markets, but the longevity sector in particular, resulting in more than 30% of growth of public companies compared to the previous year."

# **Forbes**

READ THE ARTICLE

"According to a recent report by **Aging Analytics Agency**, Switzerland has the elements necessary to become a leading Longevity financial hub, including factors such as a lean political system that facilitates rapid implementation of integrated government programs, a strong research environment for geroscience, a strong research and business environment for digital health, and most importantly, international financial prowess."



READ THE ARTICLE

Aging Analytics Agency's Report "Longevity Industry in the UK" was highlighted in Financial Times. "The one billion retired people globally are a multi-trillion dollar opportunity for business," said Dmitry Kaminskiy, co-author of the UK Longevity Industry Analytical Case Study.

Website: www.aginganalytics.com

## Aging Analytics Agency: Value Proposition

Aging Analytics Agency is the only specialized analytics agency in the world that focuses exclusively on the emerging Longevity Industry. They are recognized internationally as the premier analytics agency for advanced data analysis, industry reports and next-generation infographics on the topics of Aging and Longevity.

#### Aging Analytics Agency is focusing on three key activities:

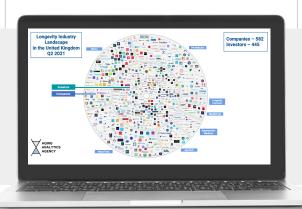
#### **Providing Commercial Services**

Conducting customised case studies, research and analytics for internal (organizational) use, tailored to the precise needs of specific clients.

# Longevity Industry in the Greater Manchester Area Q2 2021

#### **Preparing Open Access Reports**

Producing regular open access and proprietary analytical case studies on the emerging topics and trends in the Longevity Industry.



#### **Building Big Data Analytics Platforms**

Offering customised analysis using specialised interactive industry and technology databases, IT-platforms and Big Data Analytics Dashboards.



Website: www.aginganalytics.com



## Longevity Governance Big Data Analytics Dashboard











Longevity Governance Market Intelligence

Pre-Subscribe for Beta

COVID-19 Dashboard

3D Visualization

#### Longevity Governance Search Engine

Benchmarking Charts

Major Trends

Search Engine

Practical Recommendations

Big Data Framework

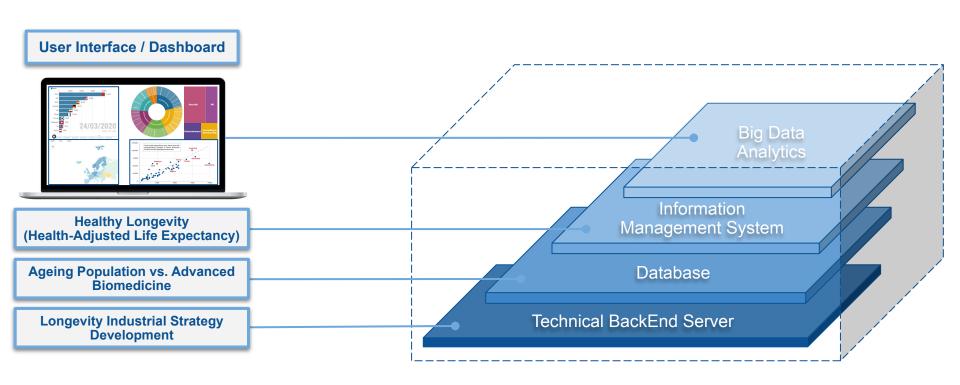








## Big Data Analytical System Architecture: Longevity Governance Dashboard



## **Dashboard Parameters**

DATA POINTS

12000

**PARAMETERS** 

240

**REGIONS** 

50

LAYERS OF FRAMEWORK

6

DYNAMIC CHARTS

100

SWOT ANALYSIS PROFILES

**50** 

- Reinforcement learning for comparative Longevity Policy analysis
- Longevity policy initiative and development plan benchmarking (ranking)
- Semi-automated SWOT analysis on region-specific Longevity governance and policy projects
- Semi-automated
   Practical
   recommendations to
   optimize Longevity
   policy and governance
   strategy

## Longevity Governance Dashboard: Major Use Cases

#### Government Agencies, Healthcare, Economy & Industrial Development Ministries, & International Policy Organizations

- The Longevity Governance Dashboard delivers access to continuous monitoring of the specific governmental policy activities directly impacting both National Healthy Longevity and Longevity Industrialization, and to consistently track and analyze data points related to government-led Longevity Development initiatives.
- Applies big data analysis to identify social policy, healthcare, medical, financial and socioeconomic factors with the
  greatest effect on the gap between life expectancy and Health-Adjusted Life Expectancy (HALE) for 100 regions.
- Identifies factors and practices behind certain regions' success in maintaining a high degree of National Healthy
   Longevity and a low gap between HALE and Life Expectancy
- Provides tangible and practical recommendations tuned to the specifics of individual countries, providing the
  necessary set of tools to allow countries currently leading the international Healthy Longevity race to maintain and
  improve their current standing.
- Features region-specific recommendation packs to enable governments currently lagging behind others to reduce
  their HALE gap and improve their comparative global standing, transforming the deficit and challenge of the silver
  tsunami into the asset and opportunity of Healthy Longevity for the mutual benefit of their citizens and their
  economy.

Longovity Covernance	Recommendation Packs	Industrial Strategies	Precision Health
Longevity Governance	Advanced IT-Solutions	Analytics & Benchmarking	Modernization

## Major Topics of Analysis and Areas of Practical Recommendations

The Longevity Governance Dashboard applies big data analysis to identify social policy, healthcare, medical, financial and socioeconomic factors having the greatest effect on the gap between life expectancy at birth and Health-Adjusted Life Expectancy (HALE) for 100 regions.

Many governments are putting policies on Longevity at the center of their growth strategies and budget planning, while others lag behind. Identifying the factors and practices behind certain regions' success is critical to enabling national governments and interactional policy organizations to formulate and implement policies and development strategies capable of transforming the challenge of ageing population into the opportunity of Longevity.

The dashboard utilizes the results of its analysis to offer tangible and practical recommendations tuned to the specifics of individual countries and territories, providing the necessary set of tools to allow regions currently leading the international Healthy Longevity race to maintain and improve their current standing, and to allow countries currently lagging behind others to improve their comparative global standing, enabling inflection points within the opposed megatrends of Ageing Population and Advanced Biomedicine to be leveraged to enable economic growth and increases in quality of life.

#### **Key Topics for Analysis and Practical Recommendations**

- What specific features of healthcare systems, socio-economic conditions, environmental factors affect public health the most?
- How does the impact of such factors differ across countries?
- What constellation of factors contributes the most to Healthy Longevity?
- Which factors are the main drivers of health-adjusted life expectancy and disability-adjusted life years?
- What countries are leaders in Longevity governance?
- Why do disproportionate healthcare expenditures in the United States contribute to poor healthcare system performance and a decline in overall life expectancy in recent years?
- Why is the healthcare system in Singapore considered as one of the most efficient in the world?
- What can be done to improve National Healthy Longevity in each country globally?

## Longevity Governance Dashboard BigData Analytics Framework

**Data Collection** 

- 100 regions
- 200 parameters per region
- 20,000 parameters in total

**Data Cleaning** 

Aggregation of data by 5 dimensions

- Economic conditions
- Demography
- Health care and Longevity
- Environment
- Social factors

**Model Creation** 

- Factor analysis of LE-HALE gap determinants (multiple regression)
- Analysis of variance of major longevity parameters across groups of countries (ANOVA)
- Defining leading countries in longevity governance (ranking)
- Estimation of relationships between metrics (intraclass correlation)
- Assessment of effectiveness of healthcare systems

**Model Validation** 

- Hypothesis testing
- Sensitivity analysis

Development of Recommendations

 Incorporation results of research in practical region-specific and department-specific recommendations

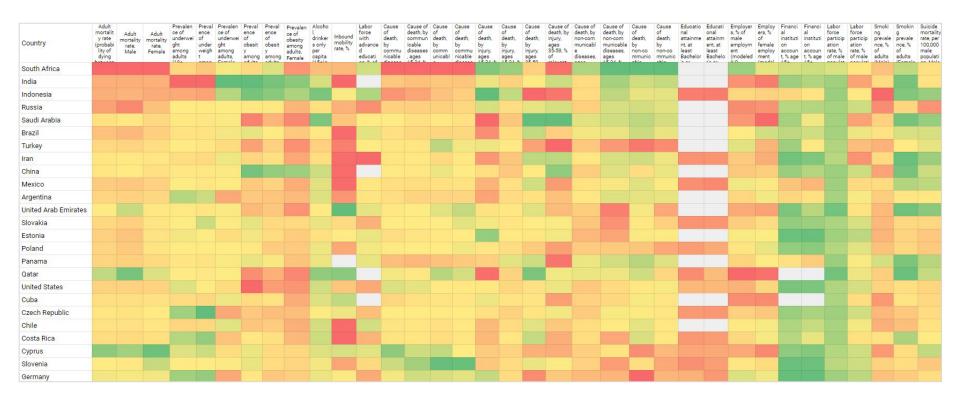
## Longevity Governance Dashboard: Regional Specification

50 Regions were analysed of levels of their Longevity Progressiveness and presented in Global Longevity Governance Landscape report as well as they will appear in Longevity Governance Dashboard.

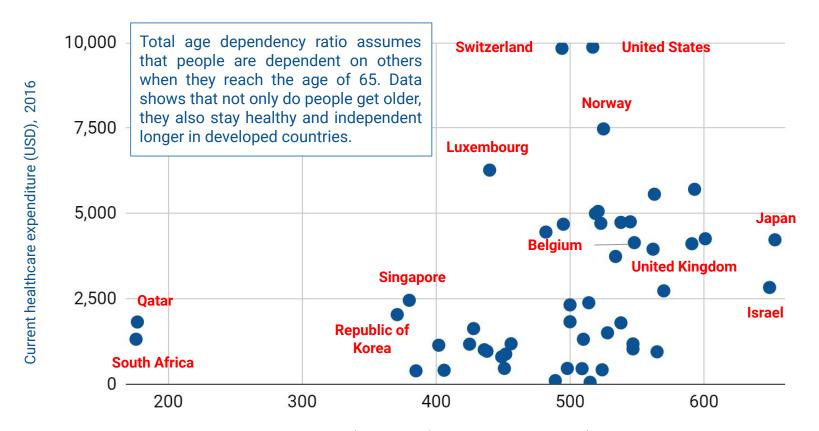
1	Argentina	13	Estonia	26	Japan	39	Saudi Arabia
2	Australia	14	Finland	27	Luxembourg	40	Singapore
3	Austria	15	France	28	Malta	41	Slovakia
4	Belgium	16	Germany	29	Mexico	42	Slovenia
5	Brazil	17	Greece	30	Netherlands	43	South Africa
6	Canda	18	Hong-Kong, SAR	31	New Zealand	44	Spain
7	Chile	19	Iceland	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		

## Longevity Governance Dashboard Prototype

To derive the interconnection between metrics and classify countries into groups, patterns recognition is based on a comparison of 200 parameters across regions according to their distribution and variation.

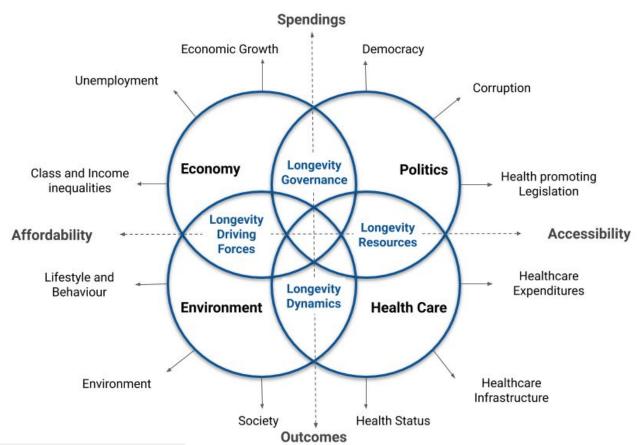


## Analytics Example: Ageing Population vs. Healthcare Expenditure



Total age dependency ratio (per 1000 of working-age population), 2016

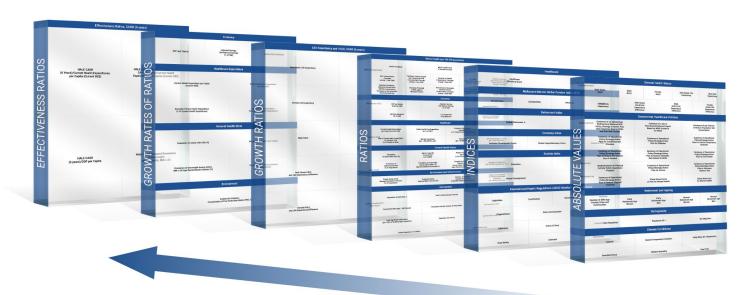
## Global Longevity Governance: Big Data Analysis of 50 Countries



Longevity progressiveness important for driving economic progress and competitiveness - both developed and developing Healthy Longevity is economies. affected by many groups of factors such socioeconomic status. demography, income, wellbeing, the quality of the health system and the ability of people to access it, health behaviours such as tobacco and excessive alcohol consumption, poor nutrition and lack of exercise, social factors. genetic factors includina environmental factors overcrowded housing, lack of clean drinking water and adequate sanitation. Longevity progressiveness should be based on four pillars. They health are dood outcomes. cost-efficiency. affordability of healthcare treatment the widest possible population and access to services and products.

## Global Healthy Longevity 6 Layer Analytical Framework

The previous "Global Longevity Governance Landscape: 50 Countries Big Data Comparative Analysis of Longevity Progressiveness" special analytical case study used 200 parameters that were divided into 6 layers which differ based on the nature of the parameters they consist of. Effectiveness ratios are derived metrics from absolute values and ratios. Effectiveness ratio indicates how effective longevity governance has been in using financial resources to generate an acceptable increase in health-adjusted life expectancy and improvement of the quality of life. All 200 parameters will be enabled in Longevity Governance Dashboard to provide the full scope of system's features.



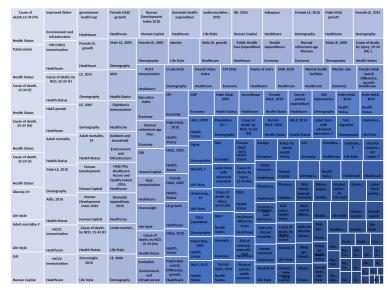
## Global Longevity Governance: Big Data Analysis of 50 Countries

Aging Analytics Agency's Global Longevity Governance analytical case study utilized Big Data comparative analysis to identify the factors, patterns, relationships, parameters and *parameter correlations* that determine the levels of Longevity progressiveness across countries of different levels of economic development and income groups.

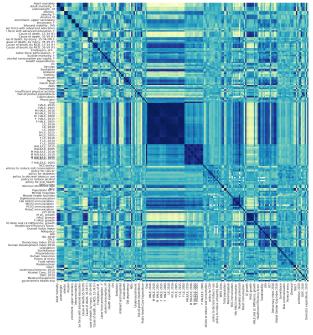
#### **50 Countries**



#### **6 Layers and 200 Parameters**

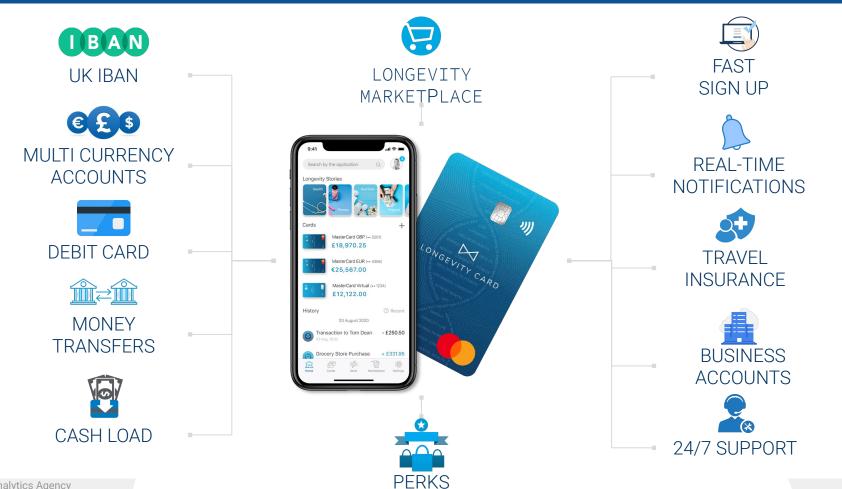


#### **Correlations Between Parameters**

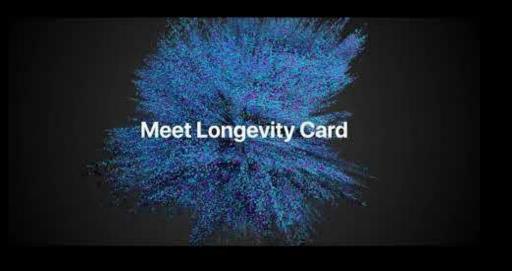


## **Longevity Banking Card**

## **Longevity Card**



## LONGEVITY CARD | VIDEOS





CLICK TO WATCH THE VIDEO

CLICK TO WATCH THE VIDEO

## Longevity Card: Marketplace

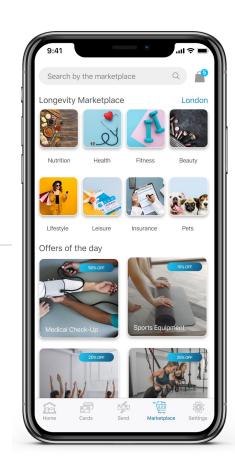
FITNESS & WELLNESS

HEALTHCARE

BEAUTY & COSMETICS

HEALTH & TRAVEL INSURANCE

WELLNESS TOURISM & SPA



**HEALTHY LIFESTYLE** 

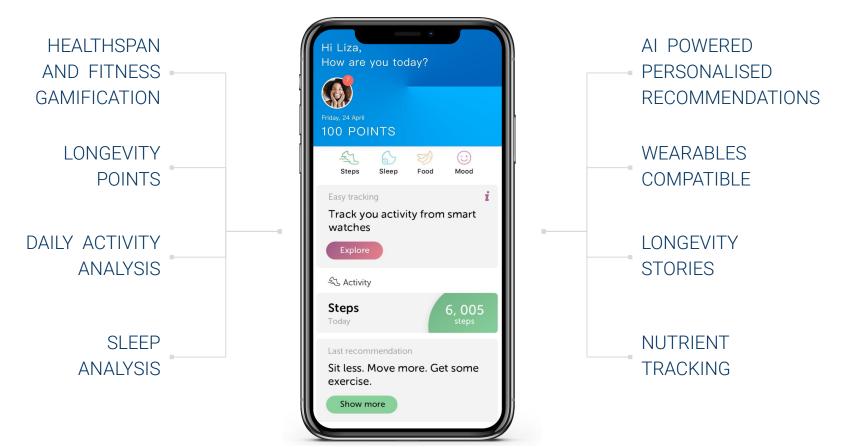
**PRIVATE CLINICS** 

MEDICAL CHECK-UPS

HEALTHY NUTRITION & FOOD

PET CARE

## Longevity Card: Healthtech Integration



## **Longevity Card In Press**



READ THE ARTICLE

"Pioneers of the new world: Your winners. After a wave of nominations from our readers, we have selected over 80 European founders and companies shaping the post-pandemic world."

### FINTECH FUTURES

**READ THE ARTICLE** 

"Longevity Card users can also earn 'Longevity Points' by tracking their daily activity and nutrition through the app, which the fintech will do through an artificial intelligence (AI) healthtech integration. They can then spend these on products within the marketplace ecosystem."



**READ THE ARTICLE** 

"Currently Longevity Card is in the process of creating a focus group of 70+ aged people, which will be responsible for making the seamless user journey for the Seniors."



**READ THE ARTICLE** 

"Longevity Card aims to make users' mobile banking experience more convenient and intuitive for all ages. It will offer Healthtech and Agetech services that include financial products designed specifically for people who may live live extra long lives and would like to remain high functioning and financially independent."



**READ THE ARTICLE** 

"Longevity Card is part of a project that will transform traditional banking into the health- and longevity- focused generation of financial services."

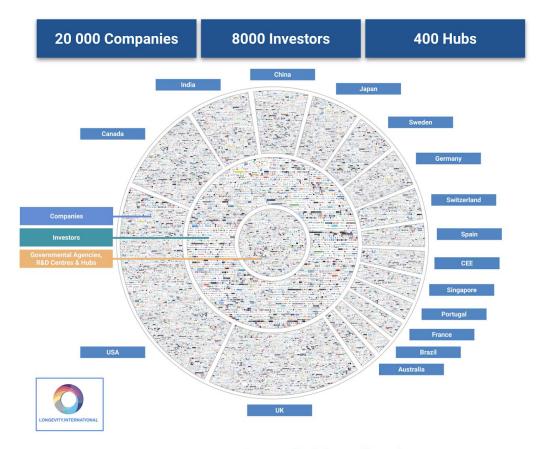


**READ THE ARTICLE** 

"There has never been more emphasis on physical fitness: every day there seems to be a new workout or meal plan designed to get us into shape. But what if there were also a financial incentive? Meet Longevity Card, which combines maintaining a healthy lifestyle with money management."

# Aging Analytics Agency General Overview & History

## **Global Longevity Ecosystem 2021**



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

<sup>\* –</sup> Central and Eastern Europe

### **Global Longevity Ecosystem - 20 000 Companies by Sectors**



#### Geroscience



#### **Longevity WealthTech**



#### **Deep Diagnostics**



#### **Longevity Biomarkers**



#### FinTech



#### **Longevity FemTech**

**Space Medicine** 



#### **Regenerative Medicine**



#### **Al for Longevity**



#### InsurTech

VALUE OF SQUARE HOLD TO BE SEE TO SAME STATE STA
The Street Property of the Park Control of the
Millioned or William AC II restart to a property of the Company of
Marrie Stronger San
Secretary Designation Community and DOM and Market Designation of Secretary Companies of Secretary Companies of Companies
- Top. IN - gard - IV - gard - IV - gard - IV - gard - IV - I
Show the Court have to the work to the Court of the Court
AN II N. THEOREM C. AL. & COLUMN COLUMN AND DESCRIPTION OF MARRIED CO.
A CONTRACTOR OF THE PROPERTY O
The same of the sa
NVCC : III NAMED TO DESCRIPTION OF THE PARTY
WINDLE A STORE OF THE PARTY OF
TTO IN MARKING DEED OF PRINCE OF PRI

#### **Advanced Cosmetics**

a. mou de	O A	ME CONTRACTOR	1 M - M		SEC.
THE PER	Jan Transferri Maragera		me Sony Innovation	Turken Park Couch	AS-ITOR
Spentificia	W JAFCO'	THE RESIDENCE	Inpro	Service Ricog algostale Colons	of All Street
				9 IYOgi missimou Yufei	
A A	THE RESERVE AND LABOR.	-Vitrasa president	MALCONE PORTO	WHR TITE O	XXX
AL AIFOS	YS OTIC -	MACLY AL PROPERTY	RELEGION DO	CO COURSE An. to	-
	CONTRACT APPLICA	Marriage Common	- 10 So III	Installment William College	CO Healt

#### **Longevity Gene Therapy**



#### NeuroTech



#### AgeTech



#### **Clinical Data Management**



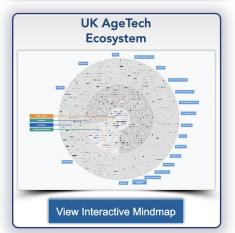
#### **P4 Medicine**



## AgeTech UK IT-Platform

## UK AgeTech IT-Platform Highlights:

- Visualizes Entire UK AgeTech Ecosystem
- Individual Profiles of 1200+ Entities
- Interactive Connection Lines Between Entities
- Comprehensive Industry Subsector Segmentation





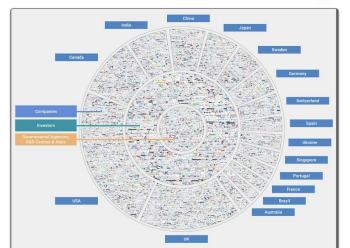


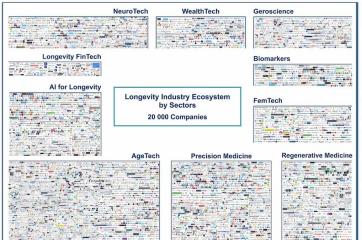




## **Global Longevity Ecosystem**

#### **Longevity Ecosystem Dashboard**







#### **Interactive Sector MindMaps**











## Aging Analytics Agency: Previous Analytical Reports



**UK AgeTech Analytics** IT-Platform

**COMING SOON** 

Top-50 Women

**Longevity Leaders** 

DOWNLOAD REPORT

**Top-50 Women Longevity Leaders** 











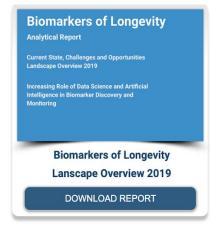




Landscape Overview 2019 DOWNLOAD REPORT

## Aging Analytics Agency: Previous Analytical Reports

















## **About Aging Analytics Agency**



**Aging Analytics Agency** is primarily interested in strategic collaboration with international corporations, organizations, and governments in Longevity-related projects and initiatives.

**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 (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 meets our interests, Aging Analytics Agency is open to co-sponsoring research and analytics for the production of internal and open-access industry reports, as well as special case studies for a variety of governmental, international, and corporate clients. Their topics of interest may include Longevity, the Longevity Financial Industry, Longevity Policy and Governance, and the development and execution of fully-integrated National Healthy Longevity Development Plans tailored to the specific needs of national governments and economies.



E-mail: info@aginganalytics.com Website: www.aginganalytics.com

#### Aging Analytics Agency (AAA) Disclaimer.

The information and opinions in this report were prepared by Aging Analytics Agency. The information herein is believed by AAA to be reliable but AAA makes no representation as to the accuracy or completeness of such information. There is no guarantee that the views and opinions expressed in this communication will come to pass. AAA may provide, may have provided or may seek to provide advisory services to one or more companies mentioned herein. In addition, employees of AAA may have purchased or may purchase securities in one or more companies mentioned in this report. Opinions, estimates and analyses in this report constitute the current judgment of the author as of the date of this report. They do not necessarily reflect the opinions of AAA and are subject to change without notice. AAA has no obligation to update, modify or amend this report or to otherwise notify a reader thereof in the event that any matter stated herein, or any opinion, estimate, forecast or analysis set forth herein, changes or subsequently becomes inaccurate. This report is provided for informational purposes only. It is not to be construed as an offer to buy or sell or a solicitation of an offer to buy or sell any financial instruments or to participate in any particular trading strategy in any jurisdiction.