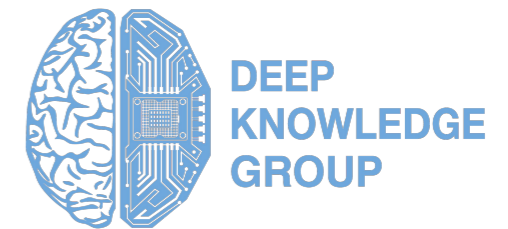


Global Longevity Policy and Governance Landscape Overview

50 Countries Big Data
Comparative Analysis of
Longevity Progressiveness



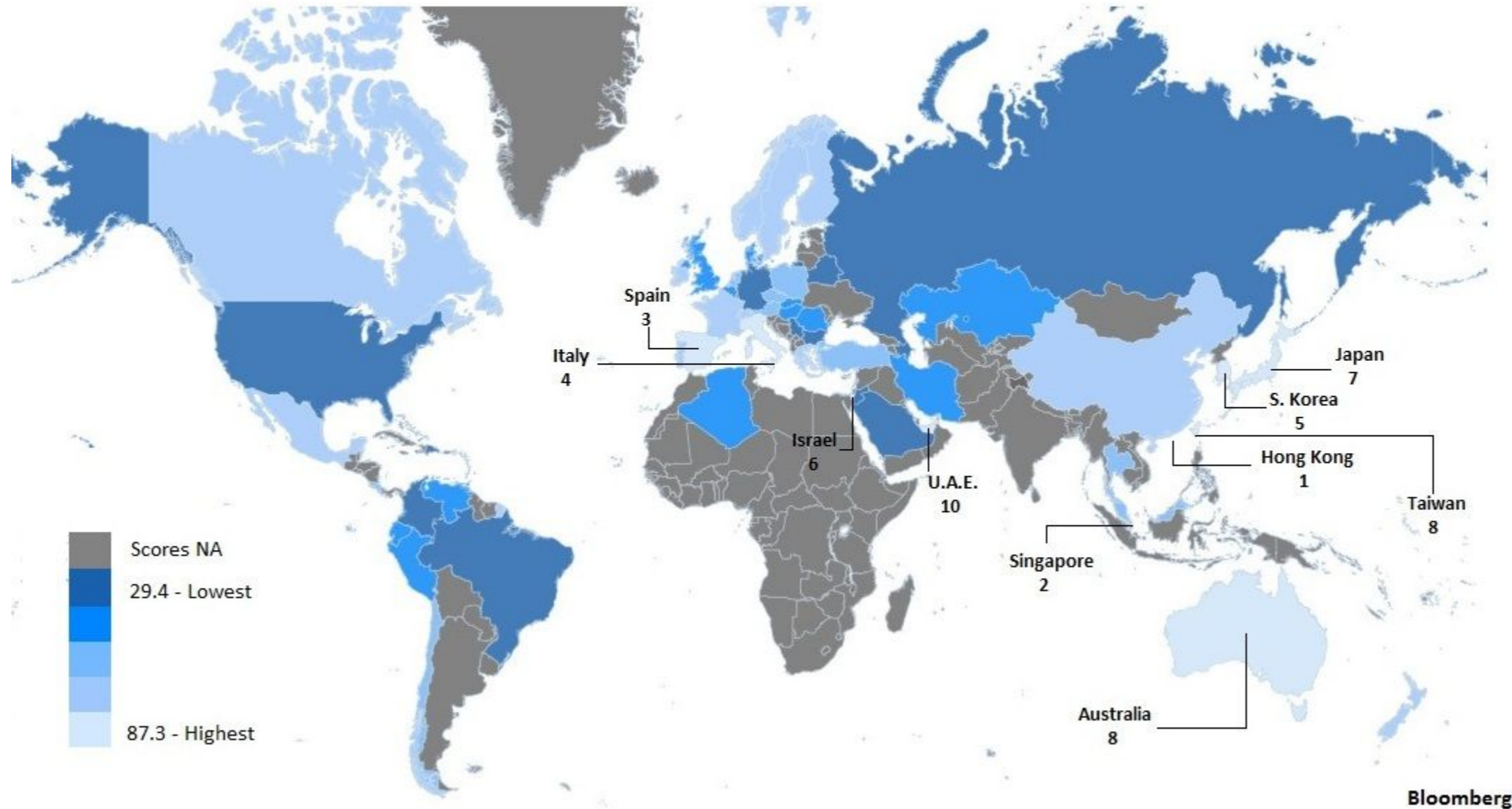
Dmitry Kaminskiy
Aging Analytics Agency



 **12 November, London**

2018 Bloomberg Healthcare Efficiency Index

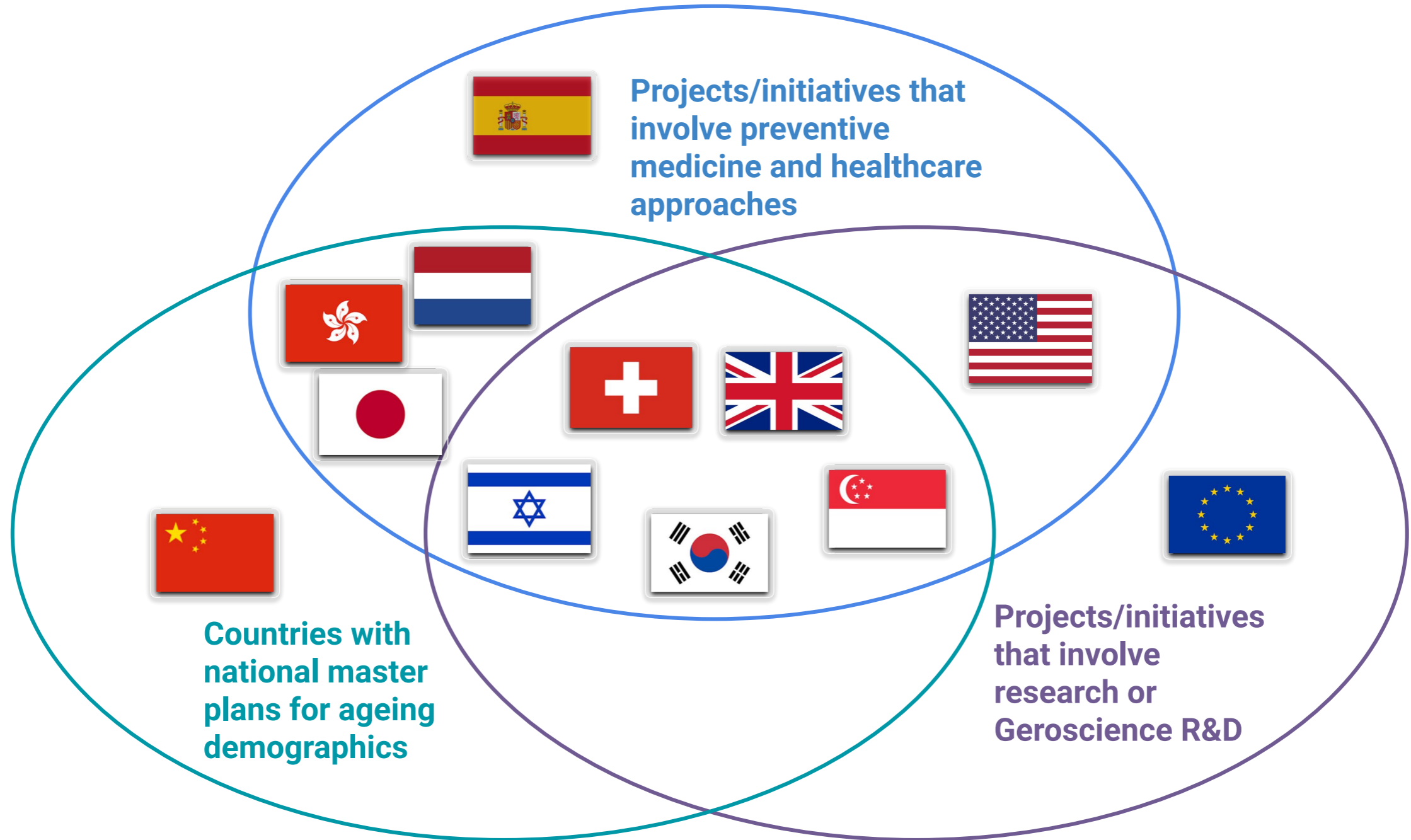
Health Care Efficiency Scores in 56 Economies



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



Longevity Initiatives Classification Framework

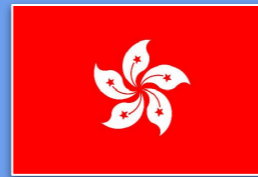
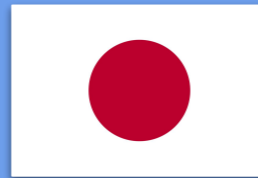


Scale and Scope of Government Longevity Development Plans

Local or Municipal Government Plans



National Master Plans



Industrial Strategies



UK in Leading Position to Become International Leader of Healthy Longevity



Global Longevity Governance Landscape

50 Countries Big Data
Comparative Analysis of
Longevity Progressiveness



AGING
ANALYTICS
AGENCY

www.aginganalytics.com

- ◆ **50 Countries**
- ◆ **10.000 Data Points**
- ◆ **200 Parameters per Country**
- ◆ **12 Independent Validated High-Quality Data Sources**
- ◆ **6 Data Science Techniques**
- ◆ **6-Layer Analytical Framework**

Standard Comparisons Parameters

Taken into Account - Healthcare and Longevity

- ◆ **Socio-economic inequality and Healthy longevity**
- ◆ **Smoking, alcohol consumption, insufficient physical activity**
- ◆ **Level of non-communicable and communicable diseases**
- ◆ **Relationship between HALE and healthcare expenditures**
- ◆ **Developed physical infrastructure (urbanization, sanitation, water sources)**

Main Parameters Determining Healthy Longevity

- ◆ **Public-private balance in health care system**
- ◆ **Level of economic development**
- ◆ **Developed physical and information infrastructure**
- ◆ **Socio-economic inequality**
- ◆ **Care delivery focused on quality, efficiency and costs**
- ◆ **Burden of behavioral risk factors**
- ◆ **Ageing and age-related diseases**

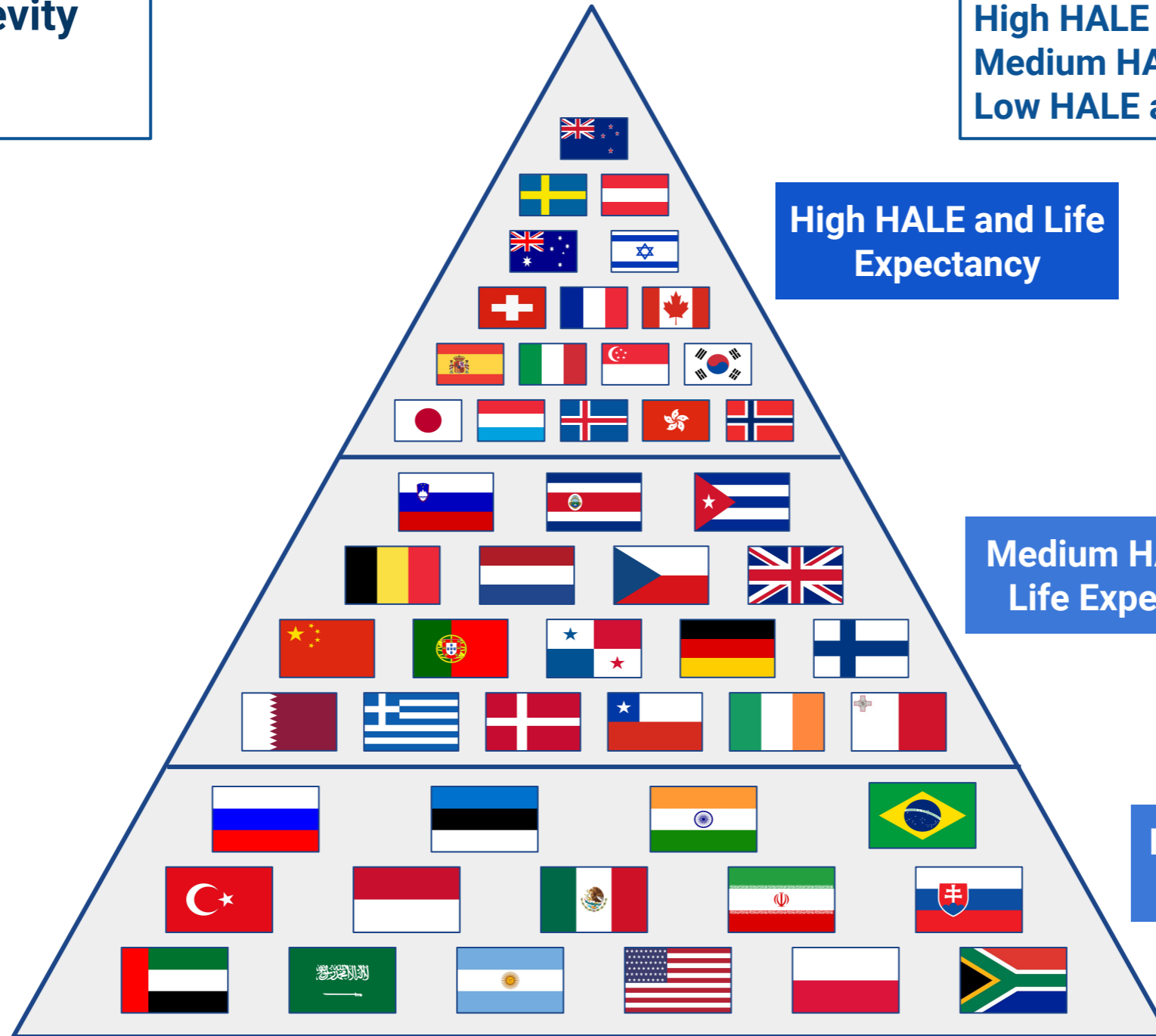
Unique Comparisons Parameters

Taken into Account - Healthcare and Longevity

- ◆ **Level of Corruption**
- ◆ **Level of IT-Development**
- ◆ **Level and Consistency of Sun Activity (Radiation)**
- ◆ **Level of Pollution**
- ◆ **Average Temperature**
- ◆ **Level of Mobility Efficiency**
- ◆ **Specific Diets**
- ◆ **Level of Educational Development**

Global Healthy Longevity Landscape Overview

50 Countries:
High HALE and Life Expectancy - 17
Medium HALE and Life Expectancy - 18
Low HALE and Life Expectancy - 15



High HALE and Life Expectancy

Medium HALE and Life Expectancy

Low HALE and Life Expectancy

Global Healthy Longevity Landscape Overview

50 Countries:
Small Gap between HALE and LE - 9
Medium Gap between HALE and LE - 18
Big Gap between HALE and LE - 23

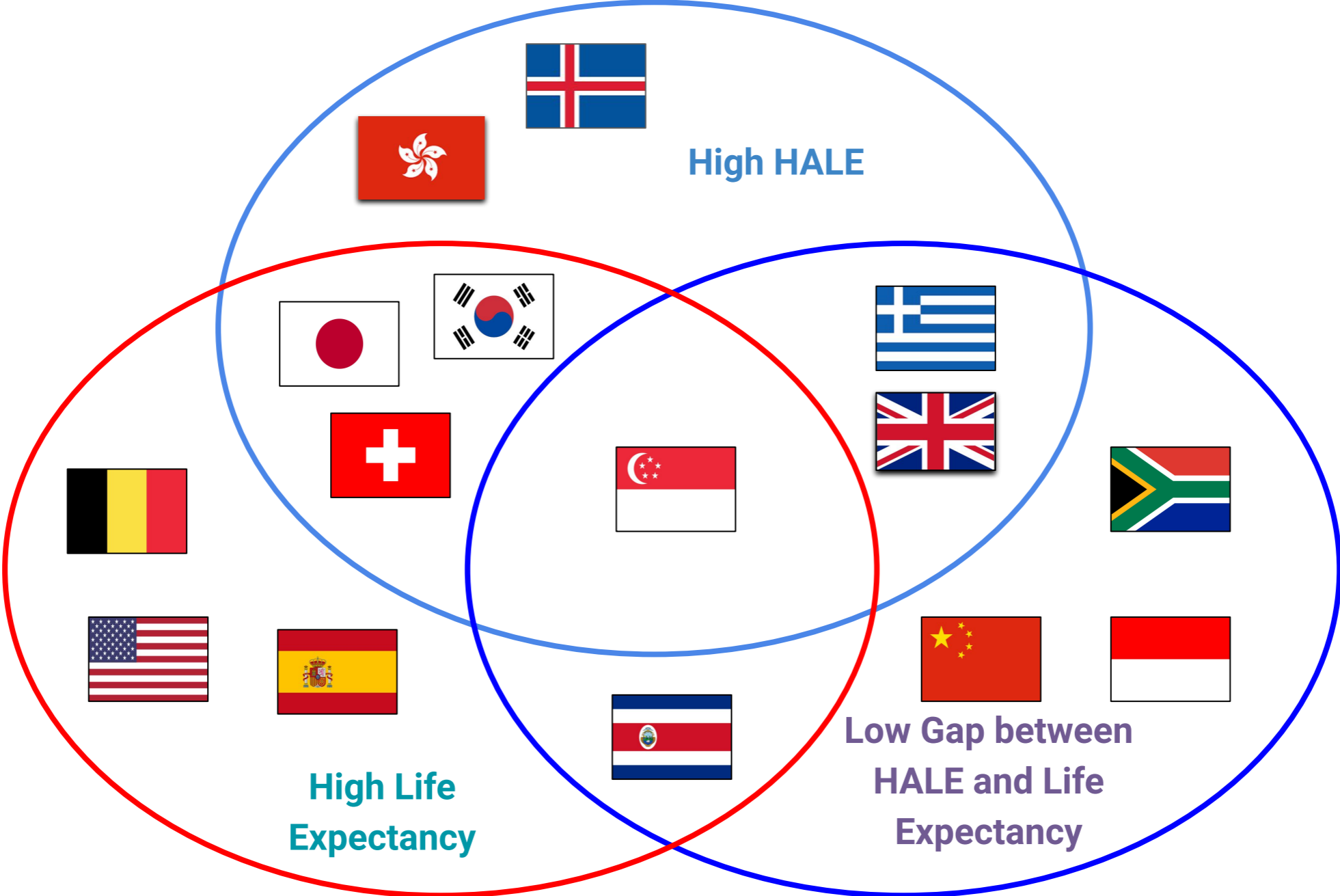


Small Gap between HALE and Life Expectancy

Medium Gap between HALE and Life Expectancy

Big Gap between HALE and Life Expectancy

Health-Adjusted Life Expectancy Specification Framework





Big Data Comparative Analysis Framework

Big Data Comparative Analysis Framework - 10.000 Data Points

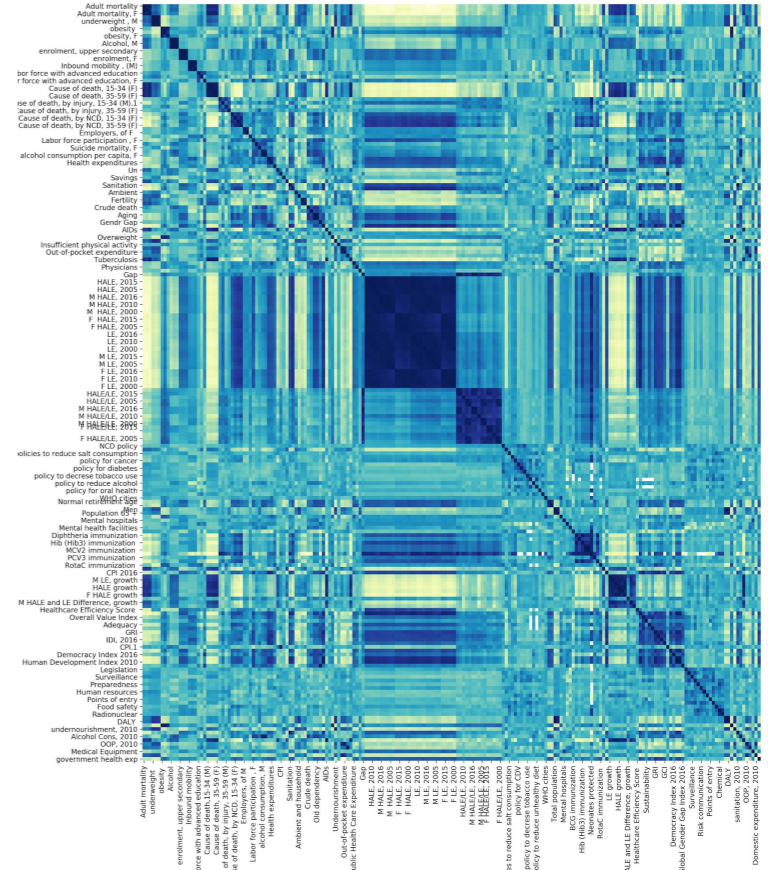
50 Countries

6 Layers and 200 Parameters

Correlations Between Parameters



Cause of death, 15-34 (M)	Improved Water	government health exp	Female HALE growth	Human Development Index 2010	Domestic health expenditure	undernourishment	IDI, 2016	Adequacy	Female LE, 2016	Male HALE growth	Female LE, 2015						
Health Status	Environment and Infrastructure	Healthcare	Healthcare	Human Capital	Healthcare	Life Style	Human Capital	Healthcare	Demography	Healthcare	Cause of death, by injury, 15-34 (M),1						
Tuberculosis	Hib (Hib3) immunization	Female LE, growth	Male LE, 2005	Female LE, 2000	obesity	Male LE, growth	Public Health Care Expenditure	Health expenditures	Normal retirement age Women	Male LE, 2000	Cause of death, by injury, 15-34 (M),1						
Health Status	Healthcare	Healthcare	Demography	Demography	Life Style	Healthcare	Healthcare	Economy	Economy	Demography	Health Status						
Cause of death, 15-34 (F)	Cause of death, by NCD, 35-59 (F)	LE, 2015	AIDs	PCV3 immunization	Crude birth rate	Overall Value Index	CPI 2016	Points of entry	OOP, 2010	Mental health facilities	Murder rate and LE	Female HALE Difference, growth Healthcare					
Health Status	Health Status	Demography	Health Status	Education Index	CPI	GDP	Male HALE, 2005	Surveillance	Female HALE, 2010	Out-of-pocket expenditure	Old dependency	Male HALE, 2015	Male HALE, 2015				
Health Status	HALE growth	LE, 2005	Diphtheria immunization	Economy	Economy	Economy	Health Status	Healthcare	Health Status	Healthcare	Demography	Health Status	Health Status				
Cause of death, 35-59 (M)	Healthcare	Demography	Healthcare	Normal retirement age Men	Male HALE, 2010	HALE, 2000	Population 65+	Cause of death, by NCD, 15-34 (M)	Female HALE, 2000	HALE, 2016	Labor force with advanced education, F	Net migration	Underwe...				
Health Status	Adult mortality	Adult mortality, M	Ambient and household	Economy	Health Status	Health Status	Demography	Health Status	Health Status	Health Status	Health Status	Demography	Life Style				
Cause of death, 35-59 (F)	Health Status	Health Status	Environment and Infrastructure	GRI	HALE, 2005	Demography	Economy	Gini	Female HALE, 2015 Health Status	Savings	Policy for cancer Health Policy	GCI	Coordina... Underwe... Alcohol consum... per capita, F				
Health Status	Male LE, 2010	Human Development	HAQ (The Healthcare Access and Quality Index) -2016	Human Capital	Health Status	Obesity, F	Labor force with advanced education	Cause of death, by injury, 15-34 (M)	Rotac immuniz...	Human Capital	Demogra...	Health Policy	Healthcare				
Health Status	Obesity, M	Demography	Human Capital	Pe3 Immunization	Female HALE, 2005	Life Style	Underweig... M	Cause of death, by DALY	Physicians	Health...	Prepare...	Risk catast... expend... Economy	Biome... engine... Health...	Alcohol consum... M Life Style	Zoome... Labor force partic...		
Life Style	AIDs, 2010	Human Development Index 2016	Domestic expenditure, 2010	Healthcare	Health Status	Life Style	Overweig...	Life Style	Sanitation, Emplo... and Infrastruc...	NCD policy and Health Policy	HALE and LE Differ...	Health...	Health...	Life Style	Human Capital	Human Capital	
Life Style	Adult mortality, F	Health Status	Human Capital	Healthcare	Healthcare	Life Style	Healthcare	Health Status	DALY	Healthcare Efficiency Score	Policy for chronic respirato...	Cause of death, by Aggr...	policy to decrease tobacc...	Risk com...	Health...	Health...	Life Style
Life Style	GAI	Healthcare	Health Status	Life Style	Health Status	Health Status	Health Status	Health Status	Unemplo... 2000	Risk of cataract... spend... 2010	Healthcare	Alcohol, F	WHO age-Friendl... Life Style	Hea... Pol...	Hea... Pol...	Hea... Pol...	Hea... Pol...
Human Capital	Healthcare	Life Style	Demography	Infrastructure	Healthcare	Health Status	Health Status	Health Status	Economy	Physical activity public aware...	Alcohol, M	Democr... Index Health Capital	Urban... Style	Hea... Cap...	Hea... Cap...	Hea... Cap...	Hea... Cap...

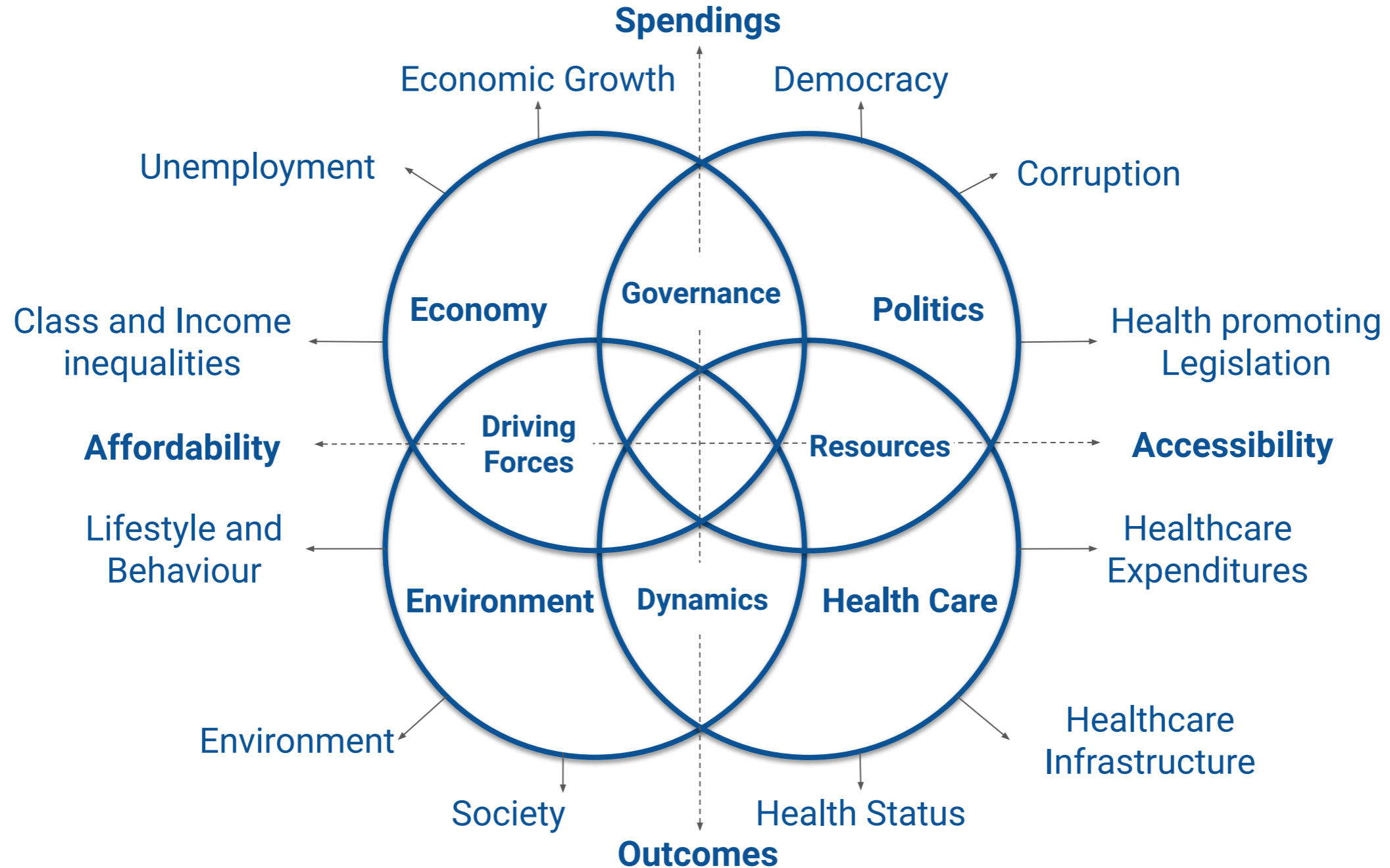


Healthy Longevity

6-Layer Multidimensional Analytical Framework



Major Factors Affecting Healthy Longevity Progressiveness



Main Patterns Affecting Healthy Longevity

***50 Countries Big Data
Comparative Analysis***

Health-Adjusted Life Expectancy and Life Expectancy

HALE and Life Expectancy (LE)	Countries	GAP
High HALE and LE	Australia, Austria, Canada, France, Italy, Luxembourg, Norway, Switzerland, Sweden, Republic of Korea	Big GAP between HALE and Life Expectancy
Medium HALE and LE	Belgium, Chile, Czech Republic, Denmark, Finland, Germany, Ireland, Slovenia	
Low HALE and LE	Estonia, United Arab Emirates, United States of America	
High HALE and LE	Iceland, Israel, Japan, New Zealand, Spain, United Kingdom	Medium GAP between HALE and Life Expectancy
Medium HALE and LE	Cuba, Greece, Malta, Netherlands, Portugal, Qatar	
Low HALE and LE	Brazil, India, Mexico, Poland, Slovakia, Saudi Arabia	
High HALE and LE	Hong Kong, Singapore	Small GAP between HALE and Life Expectancy
Medium HALE and LE	China, Costa Rica, Panama	
Low HALE and LE	Argentina, Indonesia, Russia, South Africa	

Health-adjusted Life Expectancy and Life Expectancy

HALE, 2016

HALE/GAP between HALE and LE,
2016

76.2		Singapore	6.7
74.8		Japan	9.4
73.8		Spain	9.3
73.5		Switzerland	9.8
73.0		South Korea	9.7
72.9		Israel	9.4
72.1		Netherlands	9.5
71.9		United Kingdom	9.2
68.7		China	7.4
68.5		USA	10.0



Source:

WHO

Health-adjusted Life Expectancy and Gross Domestic Product

HALE, 2016

GDP per Capita (Thousand \$) 2016

76.2		Singapore	56.7
74.8		Japan	38.8
73.8		Spain	26.6
73.5		Switzerland	80.0
73.0		South Korea	26.7
72.9		Israel	37.4
72.1		Netherlands	46.0
71.9		United Kingdom	40.5
68.7		China	8.1
68.5		USA	57.9

Source:

WHO

Healthy Longevity and Public Health Care Expenditure

HALE, 2016

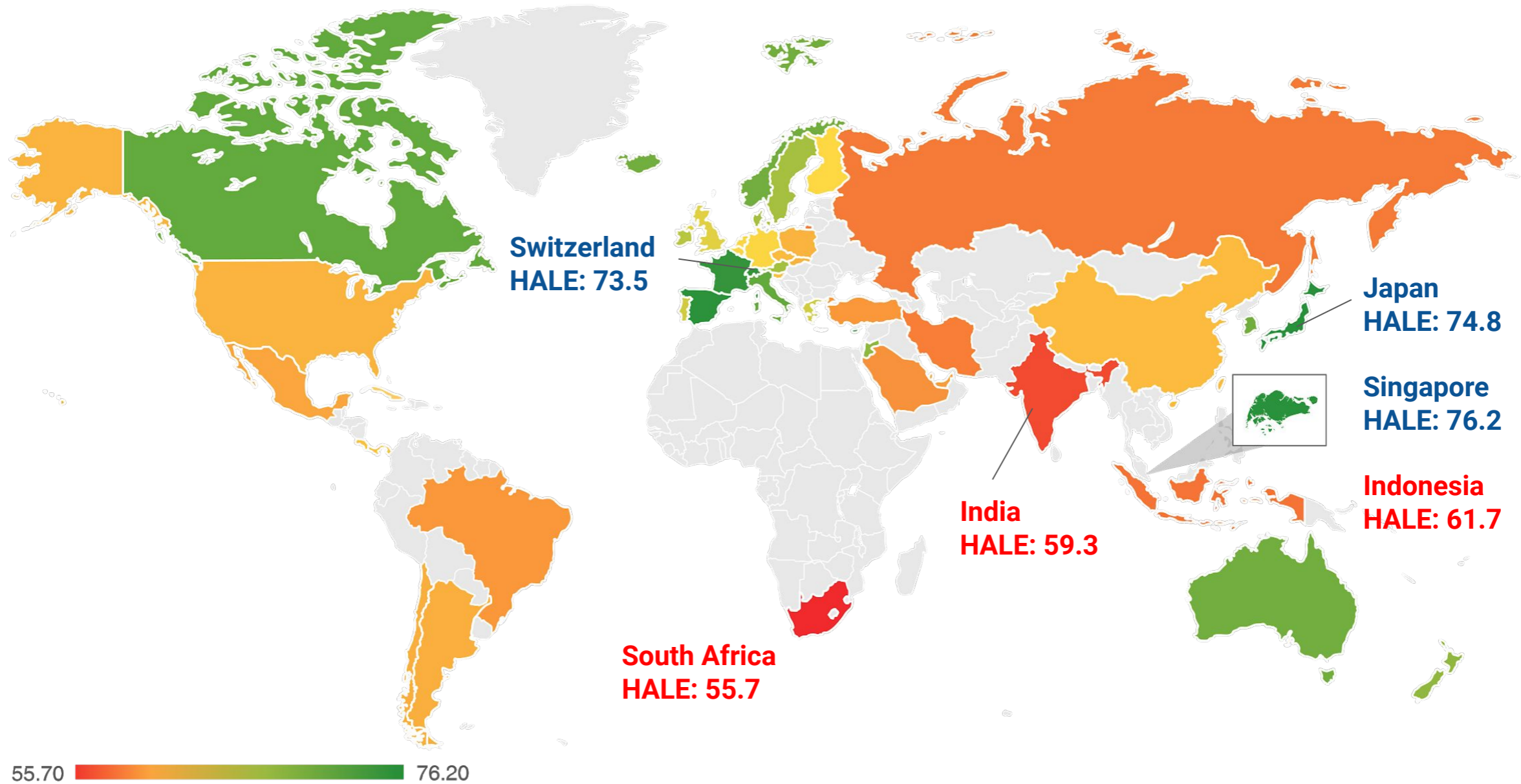


Public Health Care Expenditure (as % of GDP) 2016

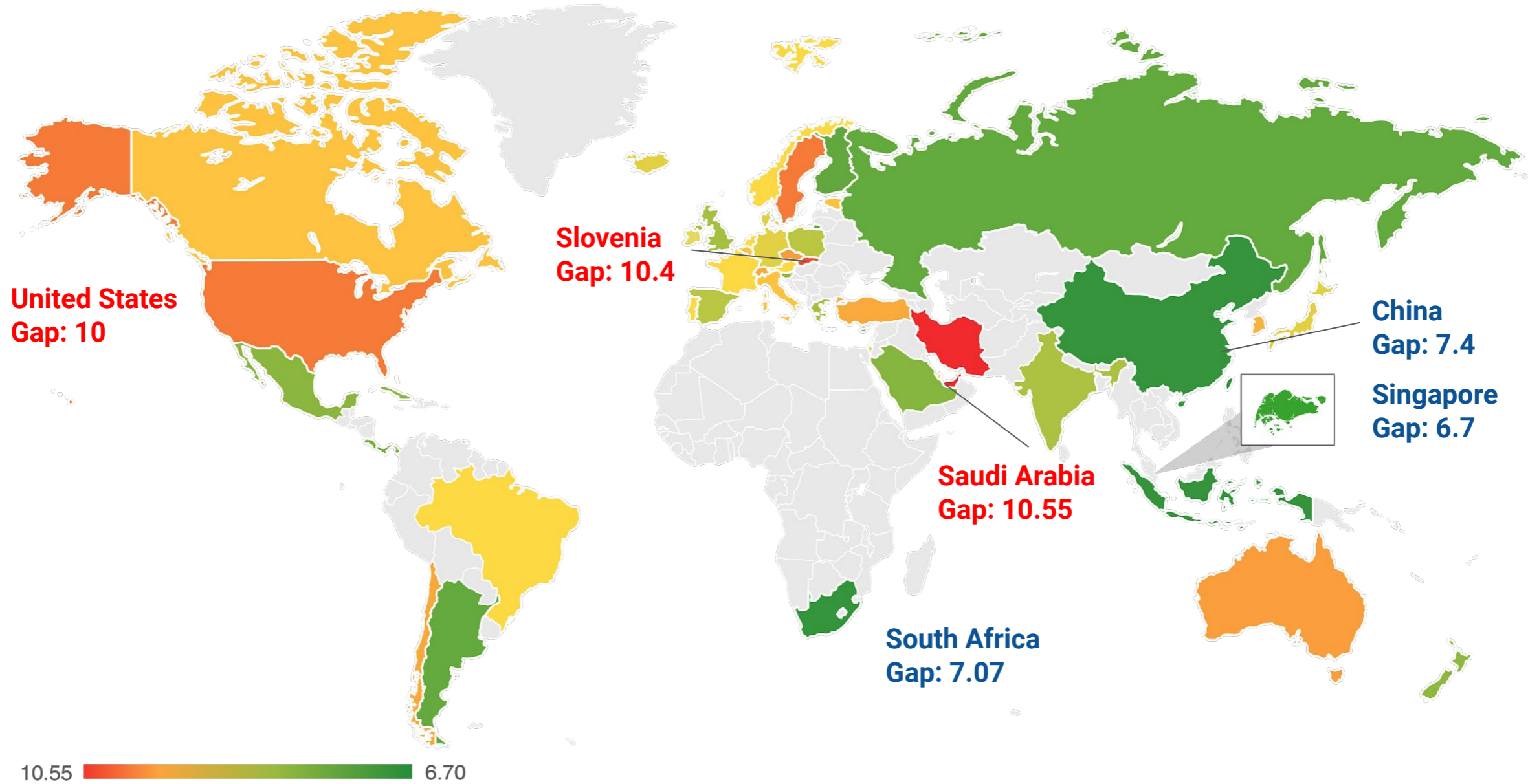
Source:

WHO

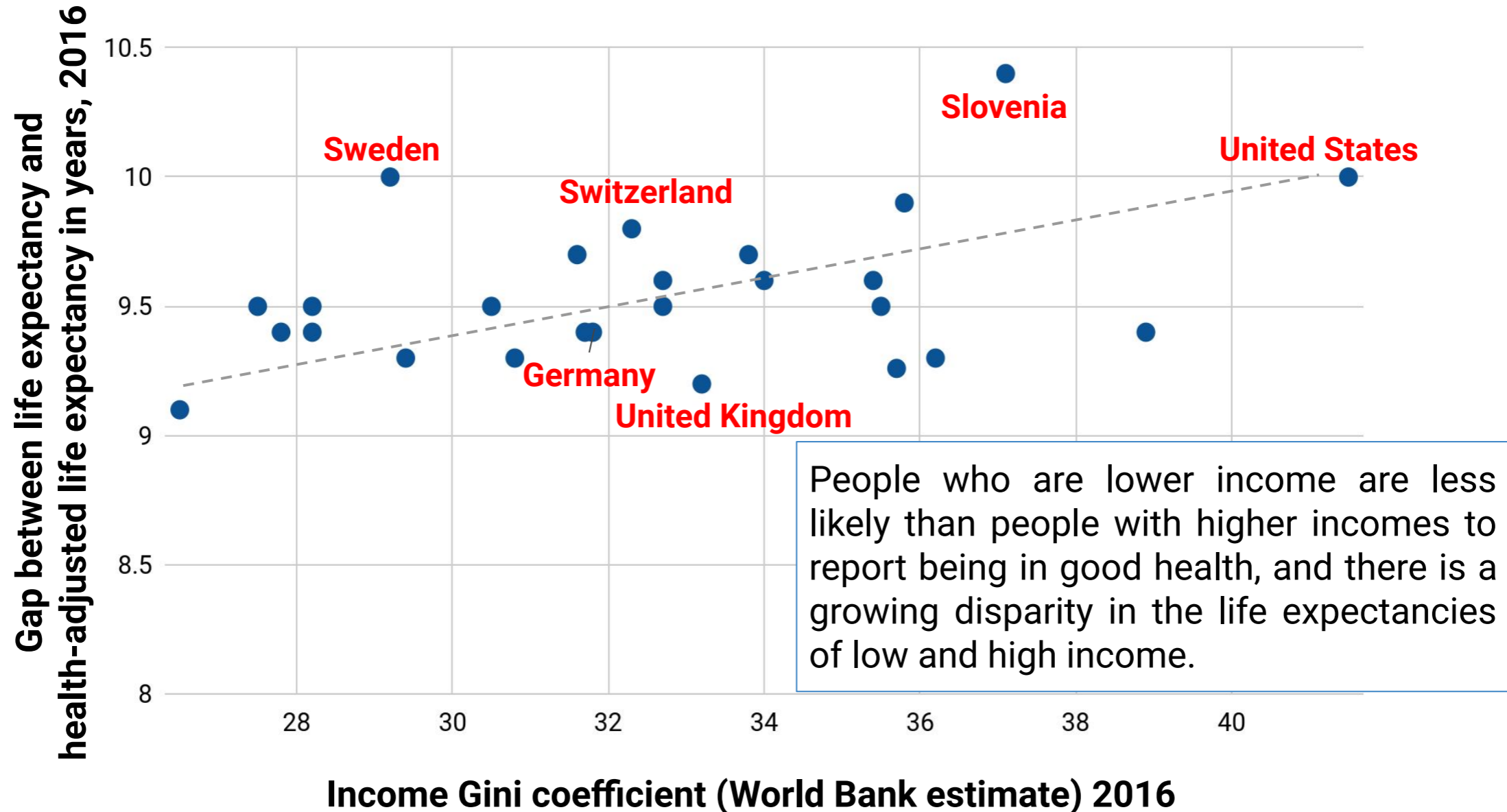
Healthy Longevity Heat Map



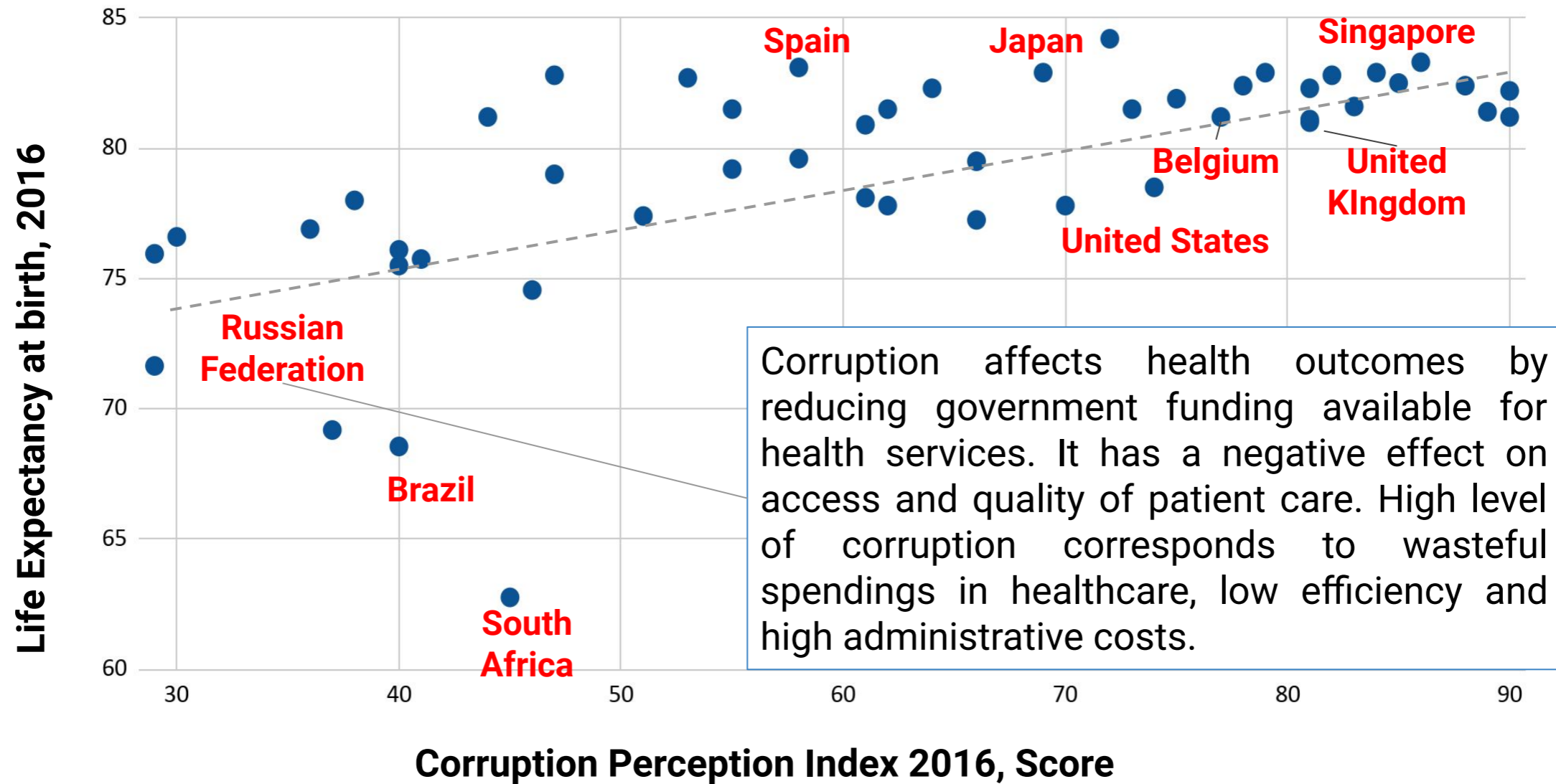
Size of Gap Between Healthy Longevity and Life Expectancy



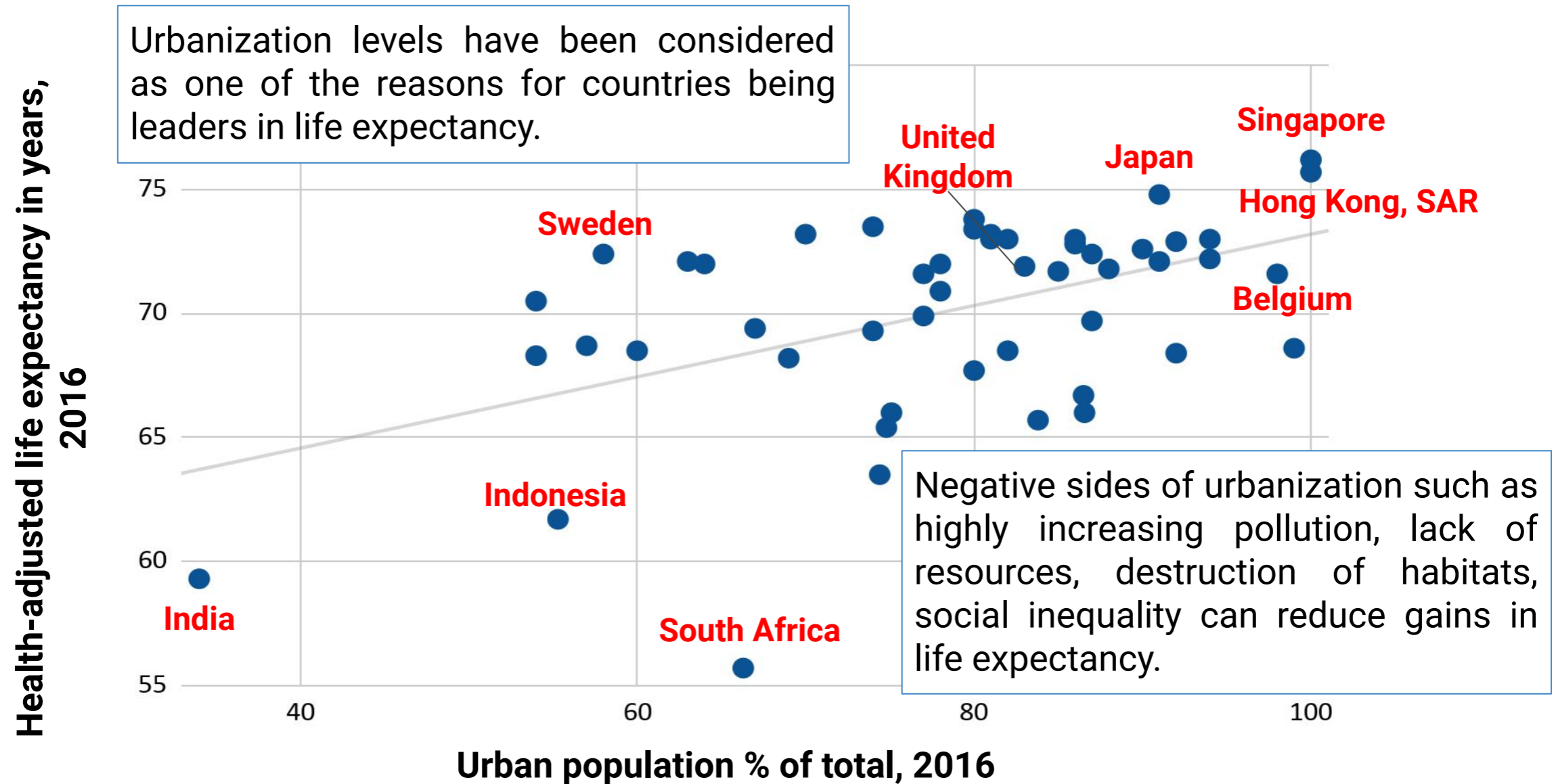
Socio-Economic Inequality and Gap between Life Expectancy and Health-adjusted Life Expectancy



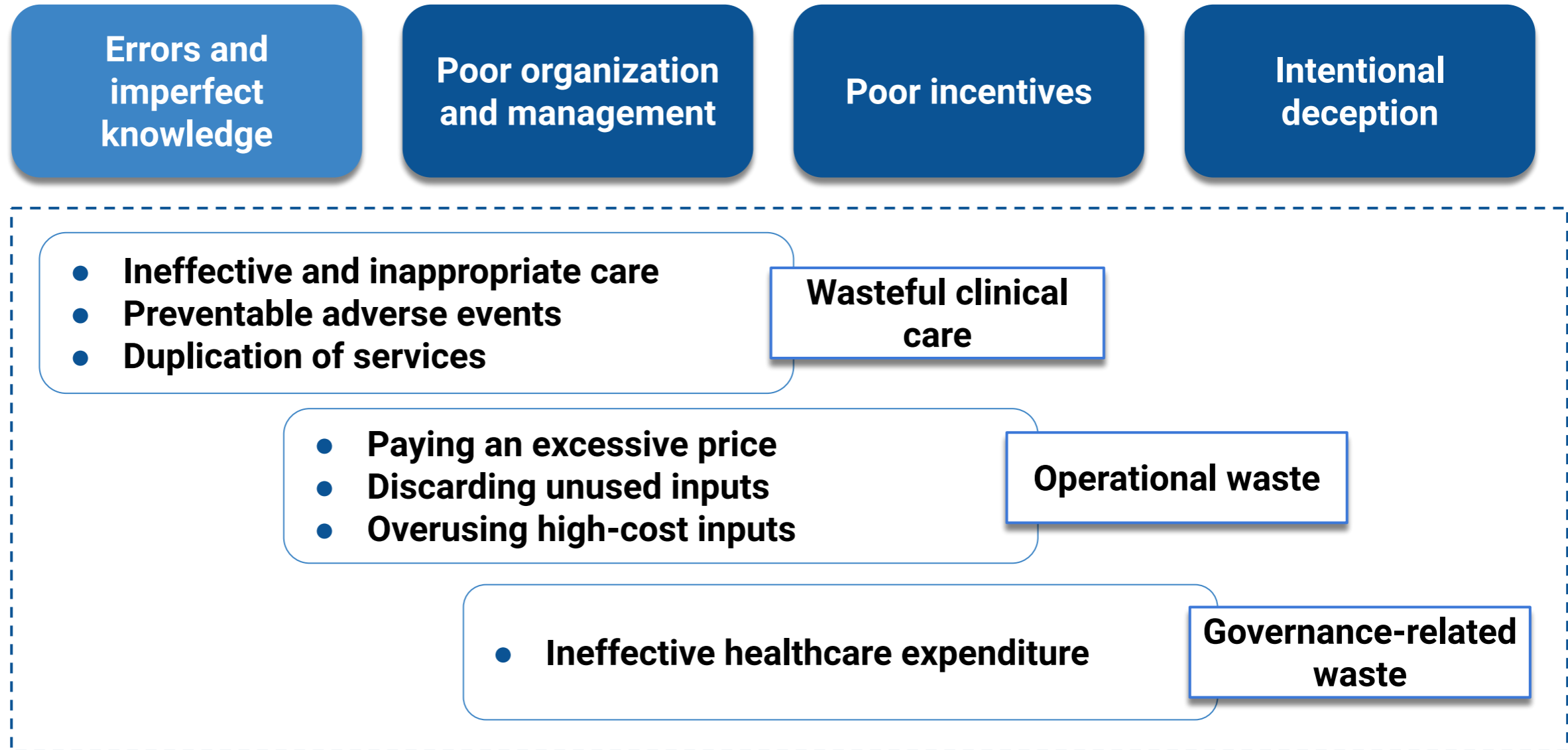
Life Expectancy and Corruption Perception



Urbanization and Healthy Longevity



Wasteful Health Care Spendings





Metabesity and Longevity
USA Special Case Study
Analysis and Policy Implications



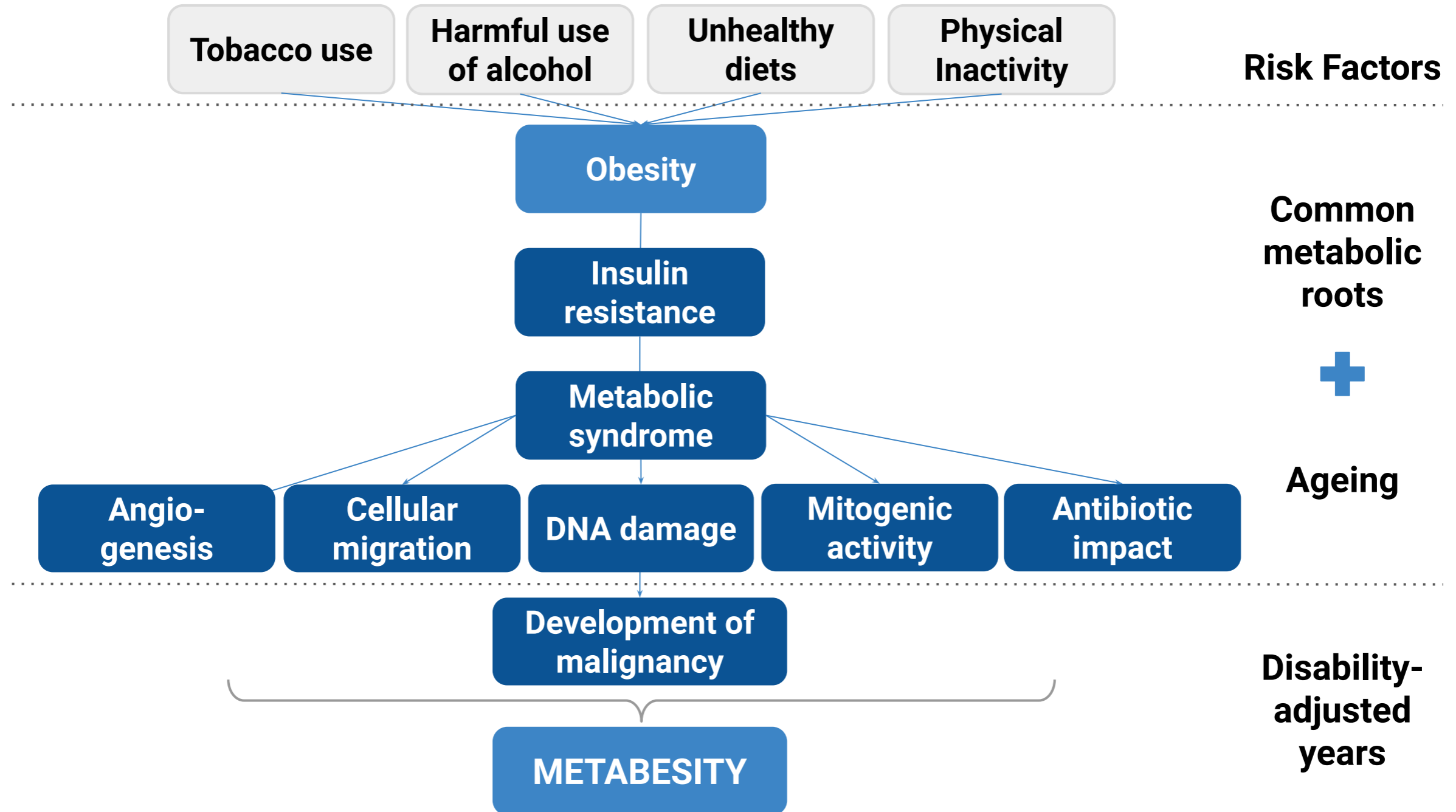
TARGETING METABESITY 2019
15-16 October 2019 | Washington, DC, USA

www.metabesity2019.com



www.aginganalytics.com

Metabesity and Healthy Longevity



Singapore and USA

Healthy Longevity Comparison



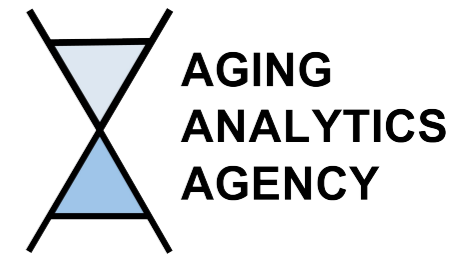
Singapore and the US Healthy Longevity Comparison



General metrics

76.2 years	Both Sexes HALE (2016)	68.5 years
6.7	HALE/Life Expectancy Difference 2016	10.0
56.72 thousand \$	GDP per Capita, Current Prices (2016)	57.90 thousand \$
3.0 %	Annual GDP Growth (2016)	1.6 %
2.46 thousand \$	Current Health Expenditure per Capita (2016)	9.87 thousand \$
4.47 % of GDP	Public Health Care Expenditure 2016	17.07 % of GDP
38	Age Dependency Ratio 2016	52
12.3 %	Population over 65, 2016	15.0 %
1	Number of WHO Age Friendly Cities and Communities	357
2.0	Alcohol Consumption per Capita (Litres of Pure Alcohol) 2016	9.8
851	Annual Cigarette Consumption (Units per Capita) 2016	1016
31.8 % of adults	Prevalence of Overweight among Adults 2016	67.9 % of adults

Singapore and USA Healthy Longevity Comparison



Singapore

HALE: 76.2

HALE GAP: 6.7

Life Expectancy: 82.9

Healthcare Efficiency Rank: #1

Healthcare Spending: 4.5% GDP

United States

HALE: 68.5

HALE GAP: 10.0

Life Expectancy: 78.5

Healthcare Efficiency Rank: #25

Healthcare Spending: 18% GDP

Recommendations for Singapore

Provide affordable for everybody basic services by minimizing out-of-pocket medical costs.

Plan and implement developmentally appropriate programs in school-aged environments.

Focus on the health status of the elderly.

Promote research and initiate a wider utilization of Artificial Intelligence for preventive medicine.

Identify, modify and avoid key risk factors for non-communicable diseases.

Set a developed portfolio of targeted tools to address specific problems to respond to aging.

Recommendations for the U.S.

Move to a life-course perspective in tackling the rising epidemic of “metabesity.”

Initiate strategies to improve the health of the nation.

Perform the shift from treatment to prevention, which leads to a coming age of precision health.

Focus on insurers’ payment strategies to boost prevention.

Utilize the strength in the artificial intelligence in Longevity industry.

Offer an option health plan to provide consumers with alternative to commercial insurance.



Aging Analytics Agency's Longevity Policy Proposals

Aging Analytics Agency's Policy Proposals and Initiatives

All-Party Parliamentary Group for Longevity



PROPOSAL

Proposal to the APPG for Longevity's "National Strategy for Five More Years of Healthy Life Expectancy While Closing the Social Gap by 2035: Call for Evidence and Solutions"

World Health Organization



World Health Organization

PROPOSAL

Response to the World Health Organization's "Decade of Healthy Aging: 2020 – 2030 Draft Zero Action Plan"

UK House of Lords Science and Technology Committee



UK House of Lords

PROPOSAL

Proposal to the UK House of Lords Science and Technology Committee's "Ageing: Science, Technology and Healthy Living" Evidence Inquiry

Aging Analytics Agency Joins the United Nations NGO Committee on Ageing



In 2019, Aging Analytics Agency became an Official Member Organization of the The United Nations NGO Committee on Ageing.

Delivering Benchmarking of Global Government-Led Longevity Development Plans in the UK Parliament



Dmitry Kaminskiy and **Eric Kihlstrom** on behalf of Aging Analytics Agency presented key findings from the agency's 265-page open-access report on government-led Longevity development plans at the All-Party Parliamentary Group for Longevity Strategic Advisory Board meeting, which took place in UK Parliament on 30 April 2019.

Speaking at the meeting were **Matt Hancock**, UK Secretary of State for Health and Social Care and the APPG Chair **Rt Hon Damian Green** MP and Chair of Advisory Board Lord **Geoffrey Filkin** CBE.



Aging Analytics Agency's Policy Proposals and Initiatives

United States



Metabesity and Longevity:
USA Special Case Study
(Joint Project with Targeting
Metabesity)

United Nations



Proposal to the United
Nations on Optimization of
International Longevity
Policy and Governance

Switzerland



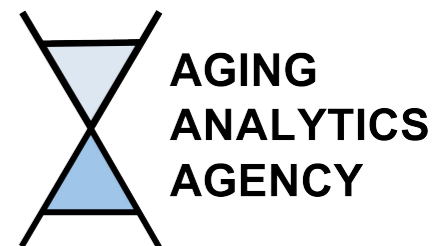
Longevity Policy and
Governance in Switzerland
(Joint Project with
Longevity Swiss
Foundation)

Global Longevity Policy and Governance

*Upcoming 3d Edition:
Longevity GovTech - Q1 2020*

Upcoming 3d Edition: Longevity GovTech - Q1 2020

- ◆ **100 countries in its analysis**
- ◆ **Enhanced HALE factors analysis**
- ◆ **Machine learning and AI techniques**
- ◆ **Comprehensive understanding of development of Healthcare and Longevity Industries**
- ◆ **Analysis of features that increase investment attractiveness, and problems that impede the growth of the Longevity Industry**





AI and Data Science for Preventive Medicine and Longevity

One Universal Solution and Driver for National Healthy Longevity

AI FOR LONGEVITY SUMMIT 2019

November, 12th



Biomarkers of Longevity



Analytical Report

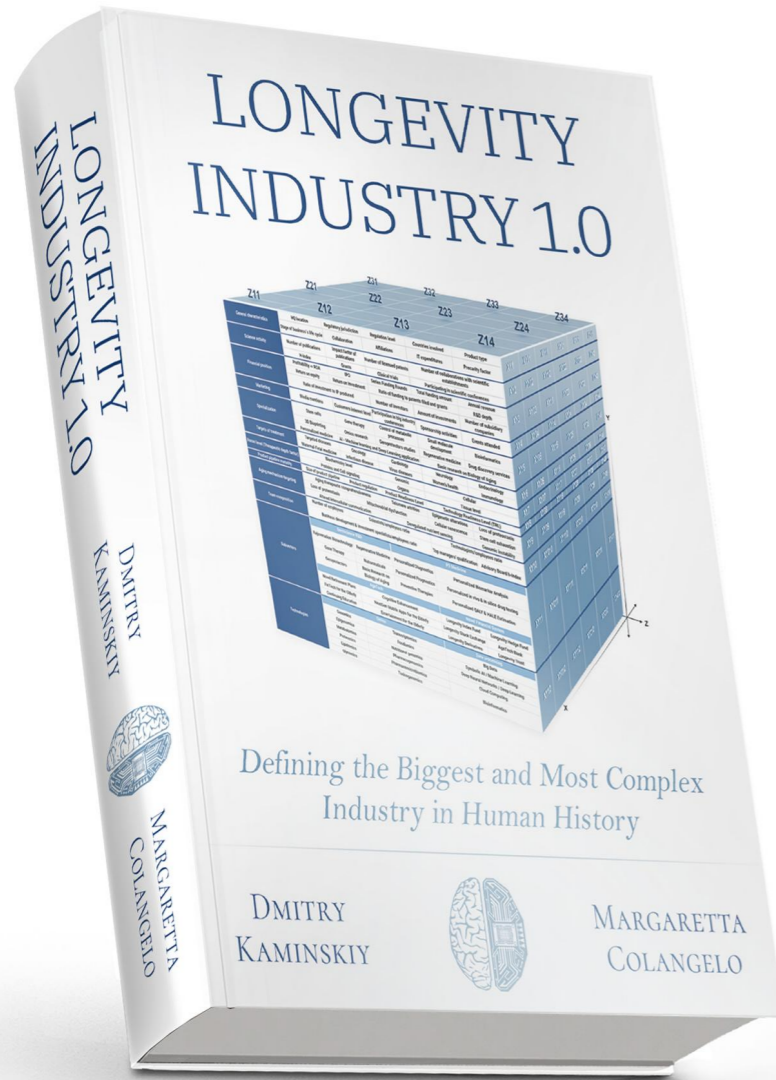
**Current State, Challenges and Opportunities
Landscape Overview 2019**

**Increasing Role of Data Science and Artificial
Intelligence in Biomarker Discovery and
Monitoring**

Longevity Industry 1.0

*Defining the Biggest and Most
Complex Industry*

Longevity Industry 1.0: Evolution of the Longevity Industry from Zero to 1.0



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

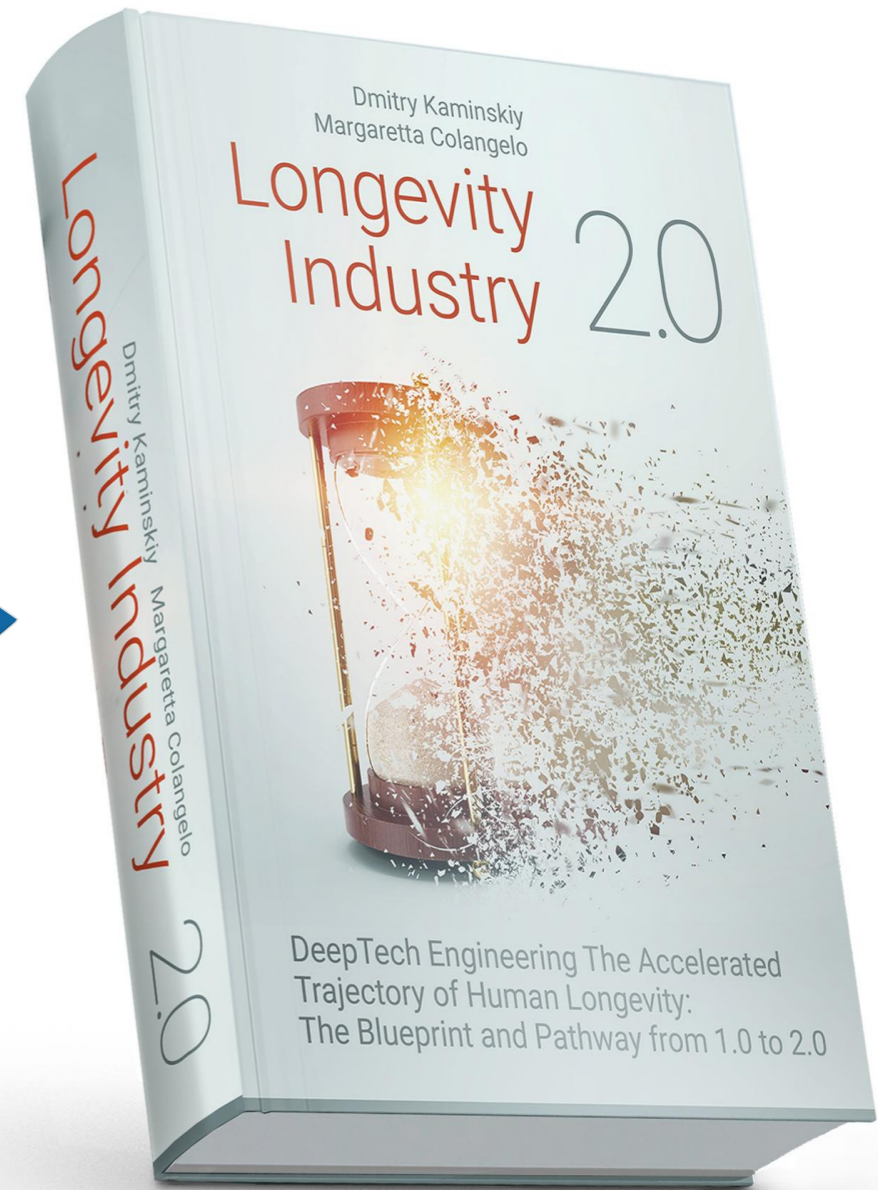
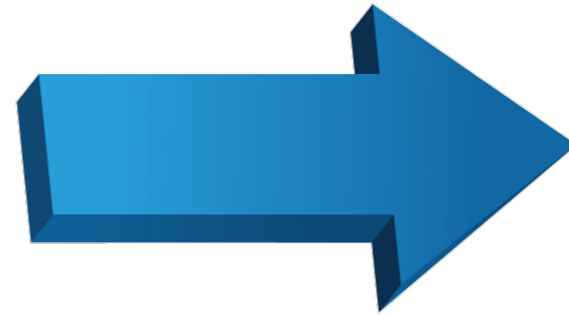
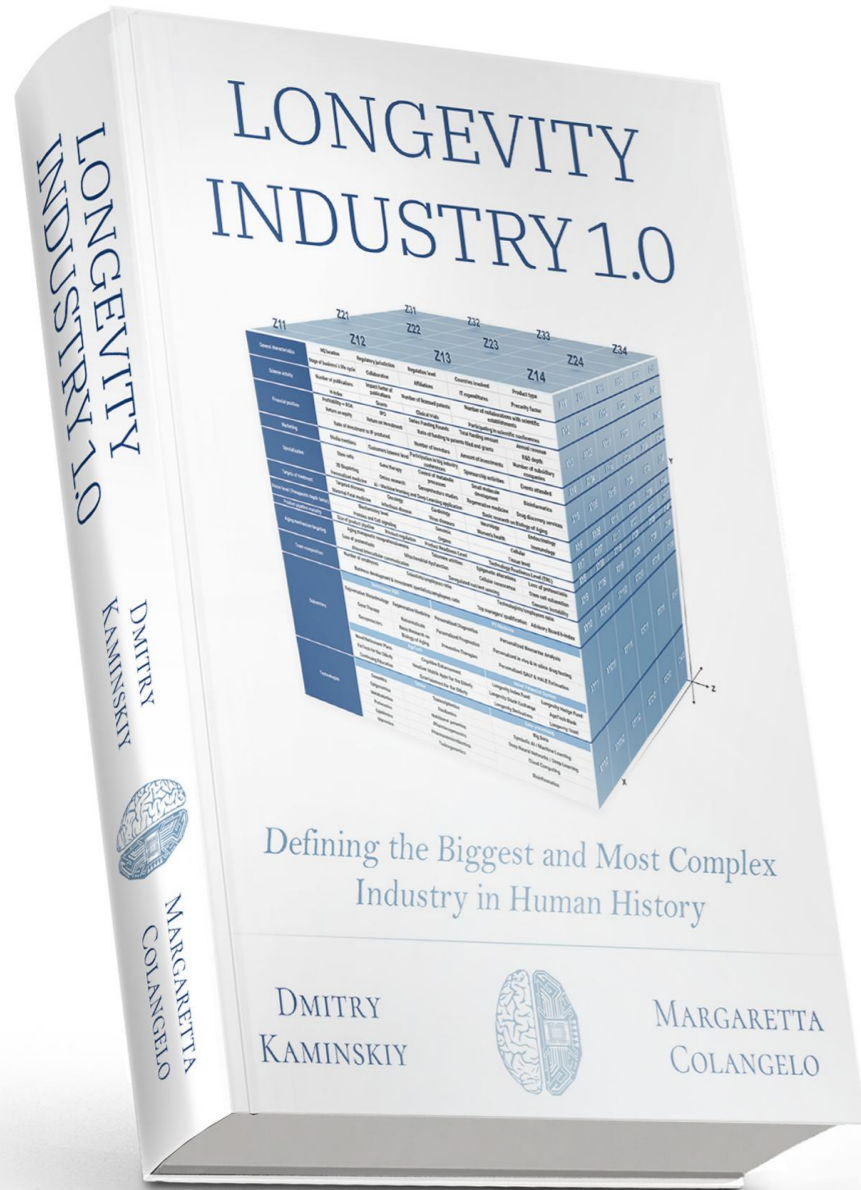
Part II: Longevity Governance

- ❖ The Rise of Longevity Technocracies and Megahubs
- ❖ The Development of Longevity Industrial Strategies
- ❖ Government-Led Healthy Longevity Development Plans
- ❖ Longevity Governance as the Next Great Frontier of the Global Longevity Sphere

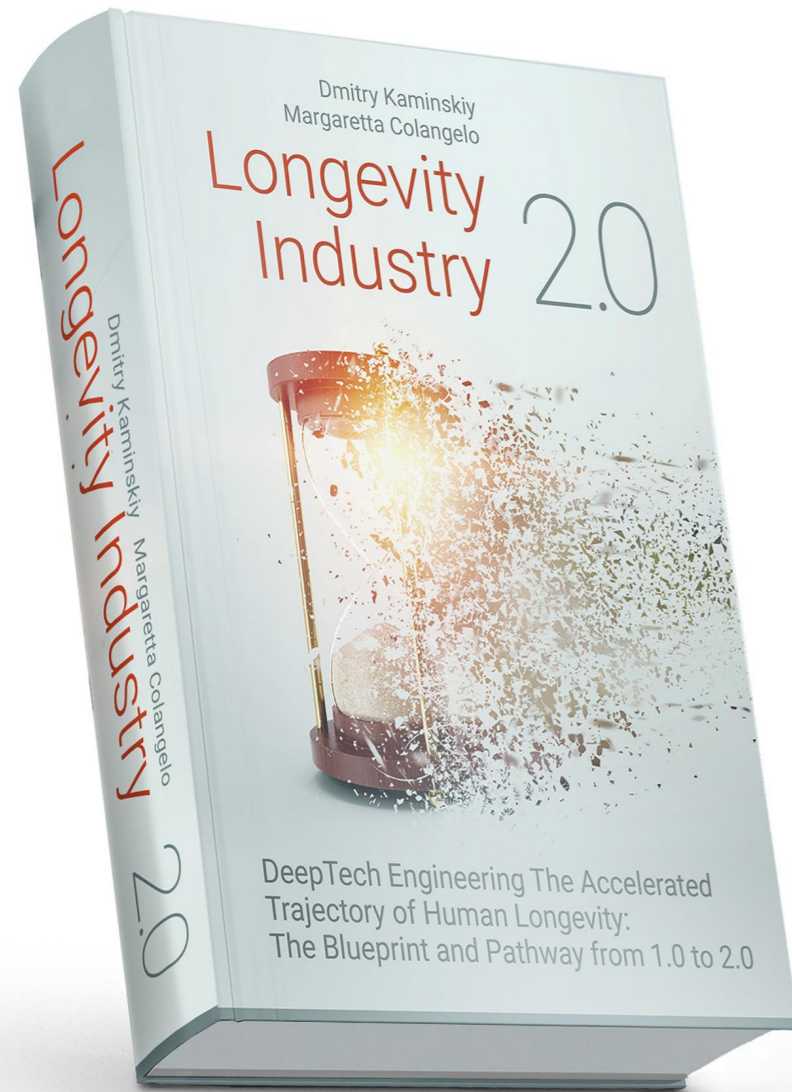


The nations that initiate these reforms would be capable of attracting several trillions of potential wealth that is currently inaccessible and locked away, and succeed in building a bridge between the currently separate spheres of the Longevity Industry on the one hand, and the conservative investment community on the other.

Longevity Industry 2.0: DeepTech Engineering the Accelerated Trajectory of Human Longevity - The Blueprint and Pathway from 1.0 to 2.0



Longevity Industry 2.0: DeepTech Engineering the Accelerated Trajectory of Human Longevity - The Blueprint and Pathway from 1.0 to 2.0



- ◆ **Global Industrialization of Longevity to Scale**
- ◆ **The Evolution from Longevity Start-ups to Multi-Trillion Dollar Longevity Corporations**
- ◆ **How AI Will Replace Doctors by 2025**
- ◆ **The Disruption of BioTech and Healthcare by Novel AI-Driven InvestTech Solutions**
- ◆ **The Rise of Progressive Longevity MegaHubs**

GovTech

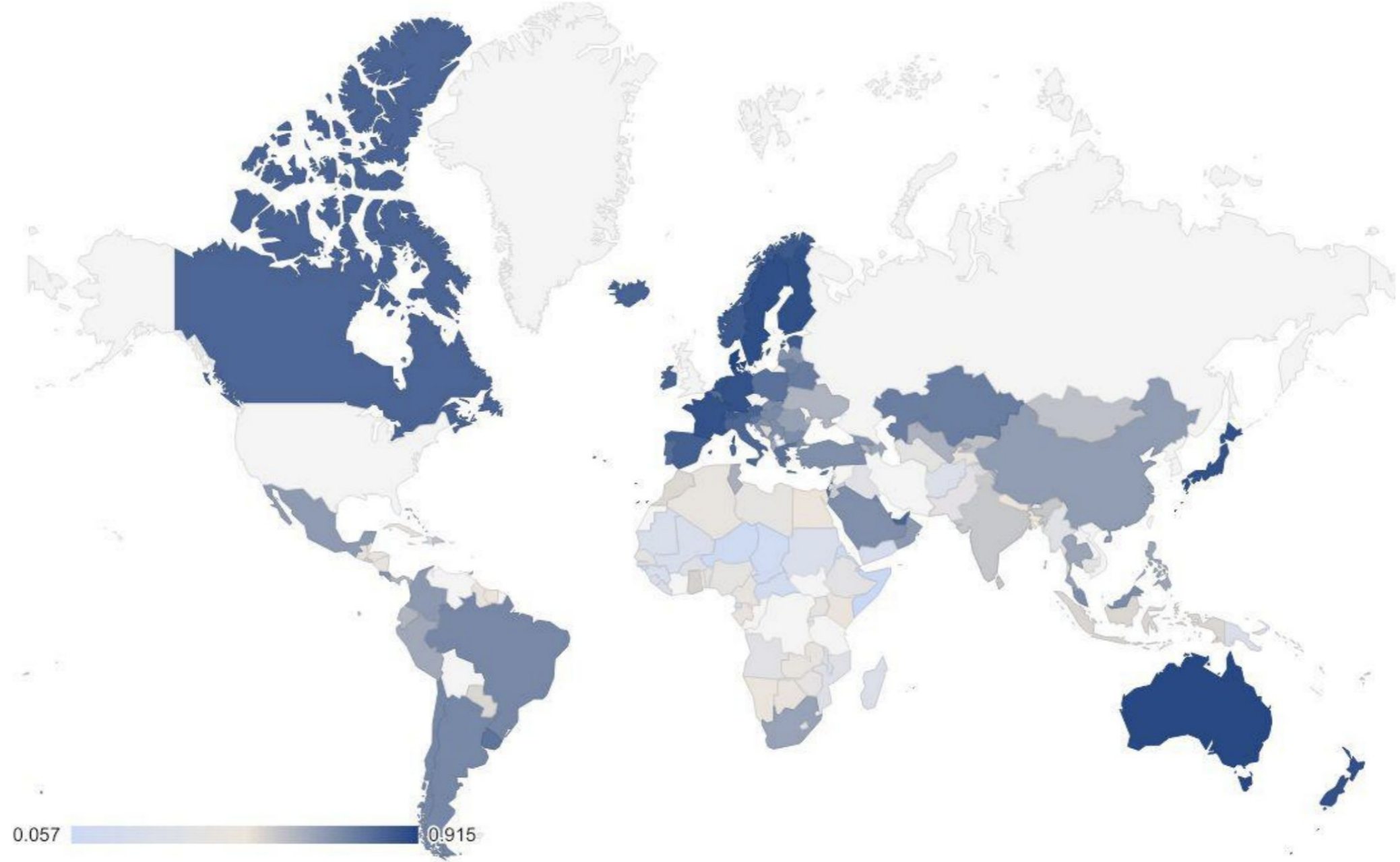
e-Governance

**Advanced Government
Management Technologies**

GovTech / e-Governance 2020 - 2025

- ◆ **DataScience**
- ◆ **BlockChain**
- ◆ **Artificial Intelligence**
- ◆ **Enhanced Cybersecurity**
- ◆ **Technocracy Driven Government Management**

E-Government Development Index 2018



GovTech / E-governance Global Industry Landscape Overview 2019



Teaser



DEEP
KNOWLEDGE
ANALYTICS
GOVTECH DIVISION

GovTech / E-governance Global Industry Landscape Overview 2019

Companies - 100
Investors - 350
Tech Hubs - 15

Digital Participation

Companies

Investors

Tech Hubs



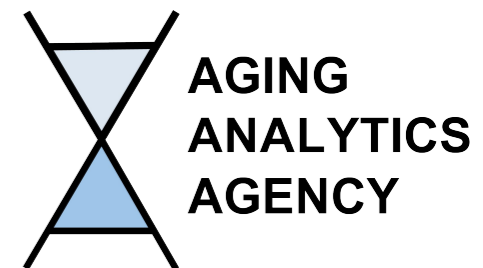


The Future of Longevity Governance

Longevity GovTech

Upcoming 4th Edition - Q2 2020

- ◆ **GovTech + Longevity**
- ◆ **Data Science and AI for Longevity**
- ◆ **Advanced GovTech evolving into Longevity GovTech**
- ◆ **Next-generation Longevity Strategy Solutions for Progressive Countries and Economies**



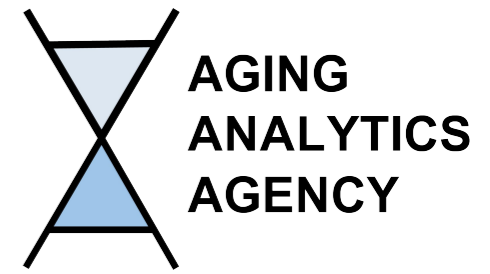
The Future of Longevity Governance: Forecast for 2020-2050

- ◆ **Smart States** will emerge as global competitors in the development of integrated Longevity Industry ecosystem
- ◆ **Longevity MegaHubs** will incentivize the elderly to relocate in exchange for access to the best forms of **AgeTech**, **HealtTech**, **WealthTech**

The Future of Longevity Governance: Forecast for 2020-2050

- ◆ **Longevity Technocracies:** Longevity-progressive hubs will become the most attractive places for the relocation of HNWIs instead of tax havens
- ◆ **Novel Financial System** will be developed to monetize **Healthy Longevity** as the most important asset
- ◆ **Longevity** will become a **major electoral talking-point** and policy priority that will **determine the success** of parties and politicians

Strategic Consulting on Longevity GovTech 2020 - 2025



AI & Data Science

**Recommendation
Packs**

**Advanced IT
Solutions**

**Industrial
Strategies**

**Longevity
GovTech**

**Analytics &
Benchmarking**

Risk Forecasting

Precision Health

Modernization

Formula for 21st Century 2025

Most Progressive Country =

Ministry of AI + Ministry of Longevity



**AGING
ANALYTICS
AGENCY**

Website: www.aginganalytics.com

Link to the Report: www.aginganalytics.com/global-longevity-governance

E-mail: info@aginganalytics.com

E-mail: policy@aginganalytics.com