

# Longevity Industry in UK

LANDSCAPE OVERVIEW Q4 2018



# Longevity Industry in UK

## Landscape Overview Q4 2018

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260 Companies: Longevity in UK	236
250 Investors: Longevity in UK	500
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Ageing Analytics Agency is pleased to announce the publication of a new analytical report, *Longevity Industry in UK, Second Edition*, over 1,000 pages in length. Although the first edition was released only six months ago, we were compelled to update the report in response to the outstandingly rapid growth in the UK Longevity industry over this short period of time. The Second Edition features in-depth profiles of 260 companies and 250 investors in the UK Longevity sphere, and three new chapters: an overview of recent Longevity industry developments in Q4 of 2018; a chapter calling for the establishment of an All-Party Parliamentary Group on Longevity to coordinate cross-industry efforts and initiatives; and a chapter focusing on the economics of Longevity in the UK.

# Longevity Industry in UK Landscape Q4 2018

## Personalized Medicine

Companies - 260  
Investors - 250  
Non-Profits - 10  
Research Labs - 10

Investors  
Companies  
Non-Profits

## AgeTech

## Research Labs

## Preventive Medicine

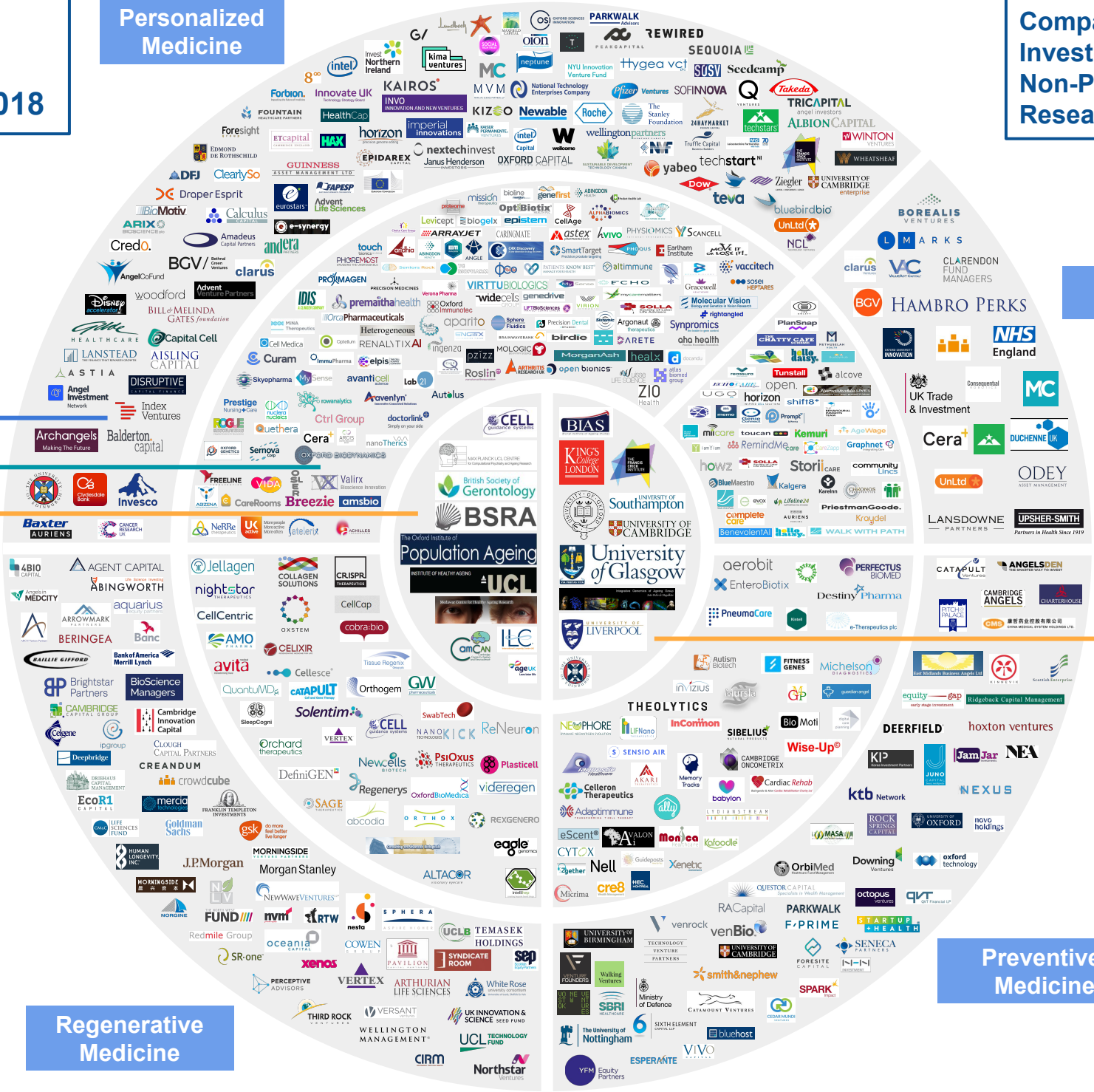
## Regenerative Medicine

**AGING ANALYTICS AGENCY**

**DEEP KNOWLEDGE ANALYTICS**

**Longevity UK**

**Biogerontology Research Foundation**  
Prevent. Restore. Preserve.



## Scientifically-Validated Lifestyle Recommendation



## Prosthetics



## Nutraceuticals



## Biomarkers



## Progressive Wellness



## Gene therapy



## Research



## Regenerative Medicine



## AgeTech



## Other



260 Companies

## Microbiome



## Neurotech



## Longevity Industry in UK Q4 2018

## Personalised Medicine



## Preventive medicine



## Diagnostics



## Drug Discovery



## Geroprotectors



## Cell Therapies



LongevityUK

Consulting on Advanced Biologicals

ORTHOX

AGING ANALYTICS AGENCY

## JOURNALS



## RESEARCH LABS



**Non-Profits - 50**  
**Journals - 25**  
**Research Labs - 25**  
**Conferences - 20**  
**Media entities - 10**

## MEDIA ENTITIES



**The Science of Longevity in UK Landscape Overview Q4 2018**

## CONFERENCES



## NON-PROFITS



# 50 UK Longevity Nonprofit Organizations



Age UK	Agile Ageing Alliance	Alzheimer's Disease International (ADI)	Alzheimer's Society	APPG Housing and Care for Older People	Association for Education & Ageing (AEA)	British Geriatrics Society (BGS)	British Longevity Society	British Society for Research on Ageing (BSRA)	Cambridge Centre for Ageing and Neuroscience
CASMI	Centre for Better Ageing	Centre for Health and Human Performance	Centre for Policy on Ageing (CPA)	Centre for Research on Ageing and Gender (CRAG)	Centre for Social Gerontology	British Geriatrics Society (Clinical Ageing Research Unit (CARU) BGS)	Collider Health	Dementia Research Centre (DRC)	Alzheimer's Research UK
International Longevity Centre	Kingston University	Knowledge Transfer Network	Manchester Institute for Collaborative Research on Ageing (MICRA)	Max Planck UCL Centre for Computational Psychiatry and Ageing Research	Medawar Centre for Healthy Ageing Research	New Dynamics of Ageing	NIHR Newcastle Biomedical Research Centre (BRC)	Oxford Institute of Population Ageing	Biogerontology Research Foundation
Charity, Friends of the Elderly	Salford Institute for Dementia	The Positive Ageing Company	The Silver Line	Contact the Elderly	UCL Innovation and Enterprise	Help Age International	Wolfson Centre for Age-Related Diseases (Wolfson CARD)	Centre for Integrated Systems Biology of Ageing and Nutrition (CISBAN)	British Society of Gerontology (BSG)
Digital Health and Care Alliance	Digital Health and Care Institute	Digital Health.London	European Parkinson's Disease Association (EPDA)	Health Foundry	Institute of Ageing and Chronic Disease Research	Imperial White City I-HUB	Independent Age	Alzheimer's Association UK	Institute of Healthy Ageing (IHA)

# 25 Longevity in UK Universities & Research Labs



BIAS



C4AR



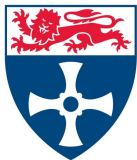
BGRF



ARCHA



CCACE



CISBAN



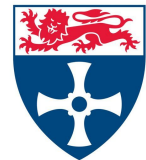
SID



PARI



GARN



CARU



OIPA



CIMA



NDORMS



FCI



IACDR



CRA



ATI



MICRA



UbbLE



ILC - UK



Ageing Research at King's



IHA



CRAG



MCHAR



Centre for Social Gerontology



David Sinclair



Baroness Sally Greengross OBE



Eric Kihlstrom



Helen Whately



John Bell



Matt Hancock



Andrew Scott



Charles Alessi



Aubrey de Grey



Tina Woods



Jim Mellon



Dmitry Kaminskiy



David Amess





Malcolm Jackson



Tom Kirkwood



George P. Willis



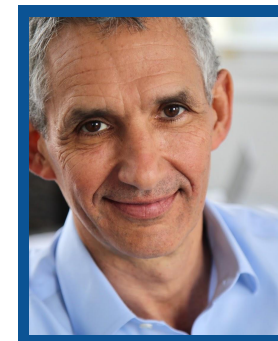
Helen R. Griffiths



Martin Green



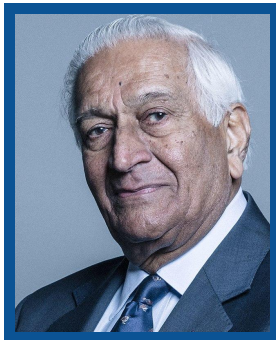
Anders Sandberg



Tim Spector



Ben Franklin



Narendra Patel



Qing-Jun Meng



Ilora Gillian Finlay



Leslie Arnold Turnberg



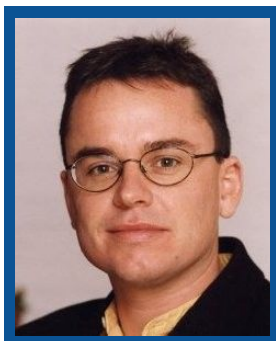
Dame Denise Platt



Philippa Whitford



Linda Partridge



David Kipling



Paul Keith Potter



Julia Neuberger



John Speakman



Suzanne Wait



Jon Date



Paul Thornalley



Janet Thornton



Manlio  
Vinciguerra



Thomas von  
Zglinicki



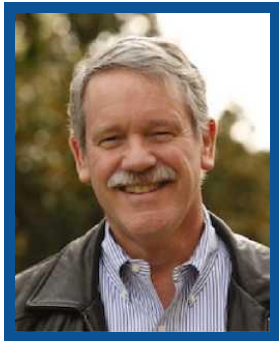
William Bains



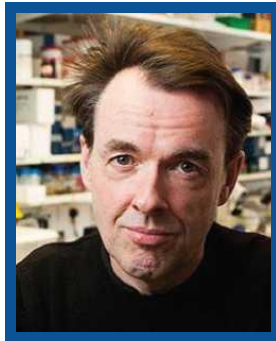
Richard Barker



Richard Faragher



Robert Freitas



David Gems



Andrew Krentz



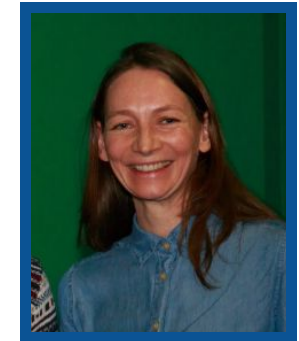
Aisling Burnand



J. P. de  
Magalhaes



Anne McArdle



Cleo Bishop



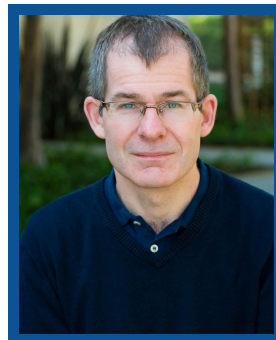
Dr Richard Siow



John Pattison



Maggie Throup



Peter Adams



Janet M. Lord



Colin Blakemore



Sally-Marie  
Bamford



Lindsay Cook



Andrew Jack



James Paton



Jeremy Kahn



Hugh Pym



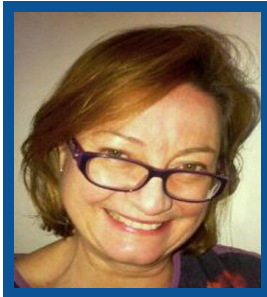
Justin Lawler



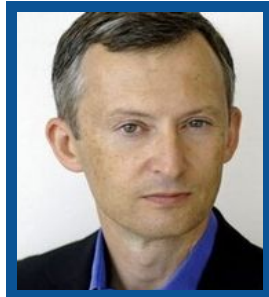
Maria Cohut



Richard Staines



Catharine Paddock



Fergus Walsh



James Gallagher



Hannah Crouch



Dan Kendall



Laura Mason



Tim Sandle



Tina Woods



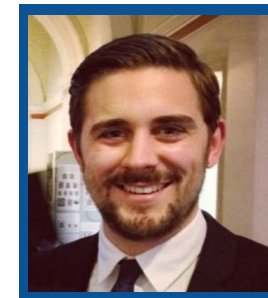
Olivia Lerche



Steve Hill



Peter Swindon



Thomas Tamblyn



Dominick Burton

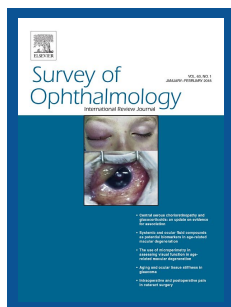
# Articles on Longevity Published by British Scientists



The diagnosis of mild cognitive impairment due to Alzheimer's disease



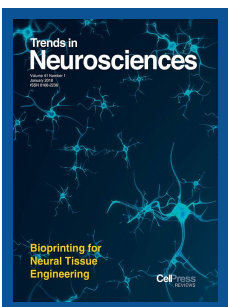
The age distribution of cancer and a multi-stage theory of carcinogenesis



The role of oxidative stress



The association between quantitative measures



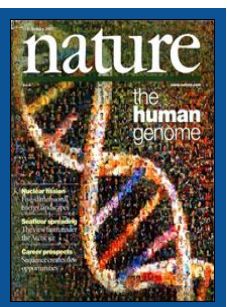
Interactions between glutamatergic and monoaminergic systems



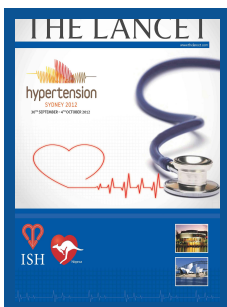
Early-onset Alzheimer's disease



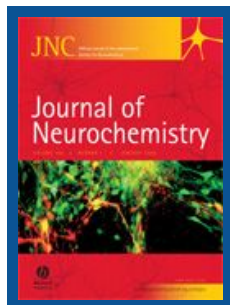
Folate, vitamin B12, and serum total homocysteine levels



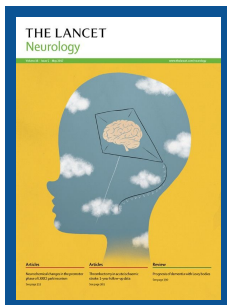
A DNA damage checkpoint response in telomere-initiated senescence



Selective loss of central cholinergic neurons in Alzheimer's disease



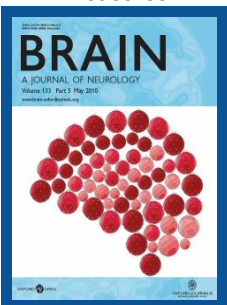
Basal lipid peroxidation in substantia nigra is increased in Parkinson's disease



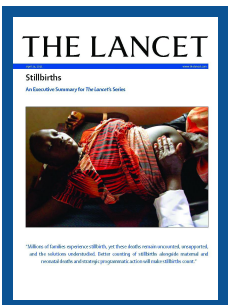
Research criteria for the diagnosis of Alzheimer's disease



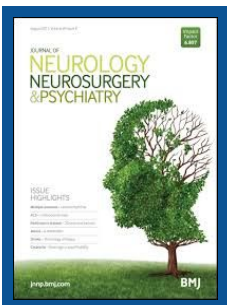
Body fat assessed from total body density and its estimation from skinfold thickness



Ageing and Parkinson's disease



Global prevalence of dementia



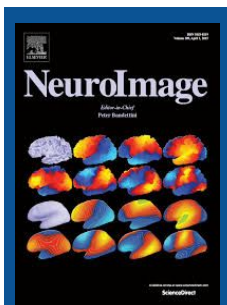
The relevance of the Lewy body



Segregation of a missense mutation



Multiple isoforms of human microtubule associated protein tau



A voxel-based morphometric study of Ageing in 465 normal adult human brains



Effect of age and high blood pressure on baroreflex sensitivity in man



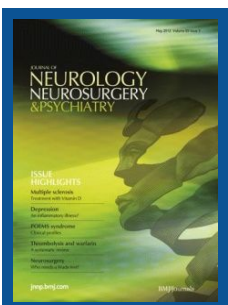
Cerebral blood flow in dementia



The moulding of senescence by natural selection



Telomere reduction in human colorectal carcinoma and with ageing



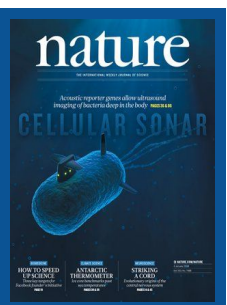
Accuracy of clinical diagnosis of idiopathic Parkinson's disease



Identification of a novel aspartic protease (Asp 2) as beta-secretase



Oxidative stress in Parkinson's disease

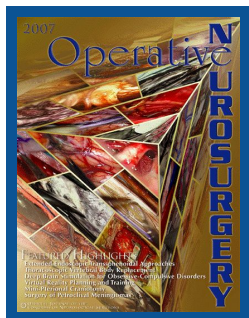


Why do we age?



Age-specific relevance of usual blood pressure to vascular mortality

# Articles on Longevity Published by British Scientists



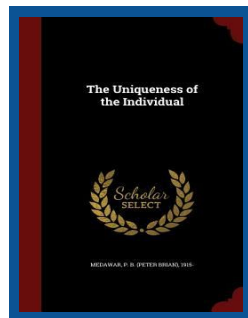
Electrical stimulation of the subthalamic nucleus in advanced Parkinson's disease



Instability and decay of the primary structure of DNA



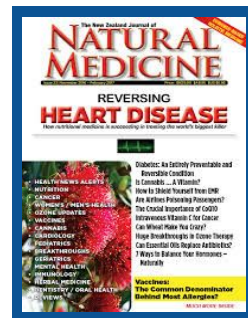
Consensus guidelines for the clinical and pathologic diagnosis



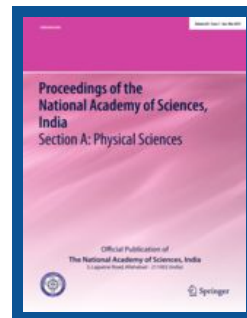
An unsolved problem of biology



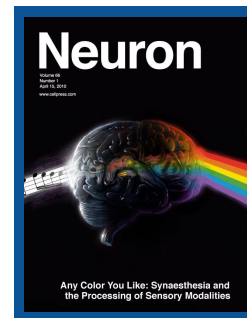
A pathogenic mutation for probable Alzheimer's disease



Neuropathology of human Alzheimer's disease



The maintenance of the accuracy of protein synthesis and its relevance to ageing



Cloning of the gene containing mutations



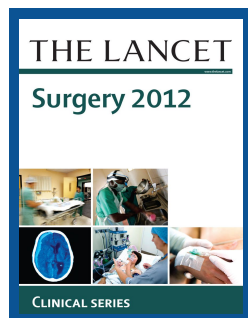
Macrophage phagocytosis of ageing neutrophils in inflammation



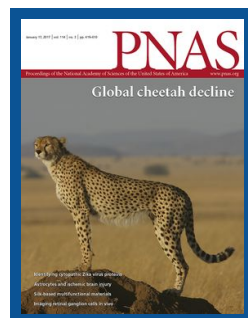
Mitochondrial complex I deficiency in Parkinson's disease



Increased amyloid beta-peptide deposition



Pravastatin in elderly individuals at risk of vascular disease



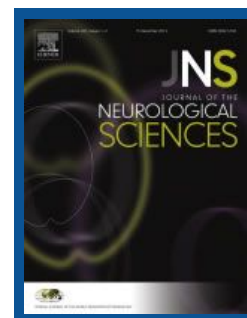
Alpha-Synuclein in filamentous inclusions



Alpha-Synuclein in Lewy bodies



Binding of human apolipoprotein E to synthetic amyloid-beta peptide



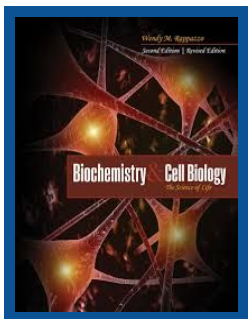
Observations on the brains of demented old people



p53 mutant mice that display early ageing-associated phenotypes



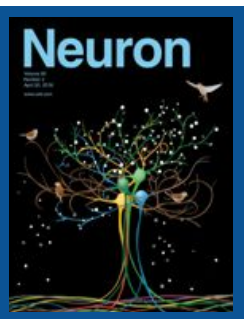
Hereditary early-onset Parkinson's disease caused by mutations in PINK1



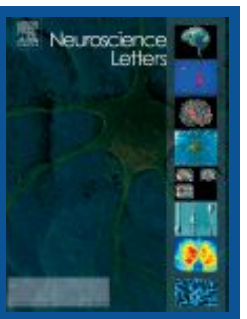
Free radicals and antioxidants in normal physiological functions and human disease



Questioning Macular Pigment Measurement Methods and Genetic Risk of Age-Related Macular Degeneration.



Tau proteins of Alzheimer paired helical filaments: abnormal phosphorylation of all six brain isoforms

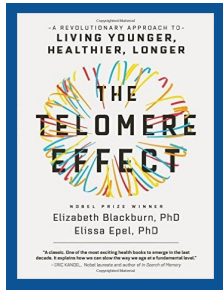


Sequencing of exons 16 and 17 of the beta-amyloid precursor protein gene in 14 families with early onset Alzheimer's disease fails to reveal mutations in the beta-amyloid sequence.

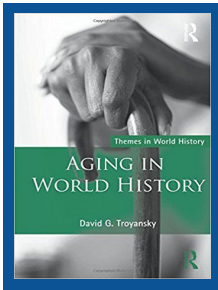


Selective loss of central cholinergic neurons in Alzheimer's disease

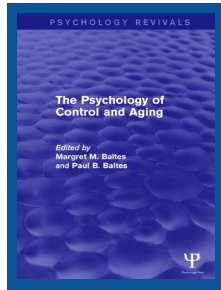
# Books on Longevity Published in UK



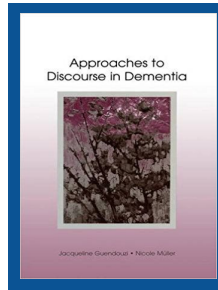
The Telomere Effect



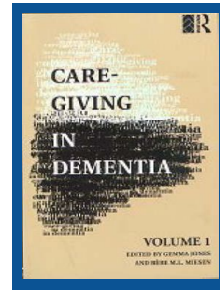
Aging in World History



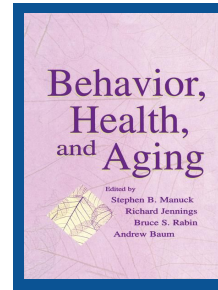
The Psychology of Control and Aging



Approaches to Discourse in Dementia



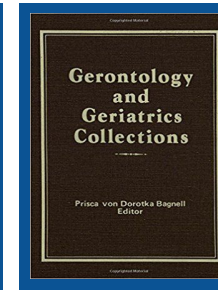
Care-Giving in Dementia



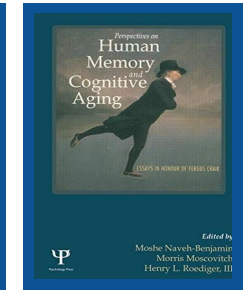
Behavior, Health, and Aging



Aging Populations in Post-Industrial Democracies



Gerontology and Geriatrics Collections



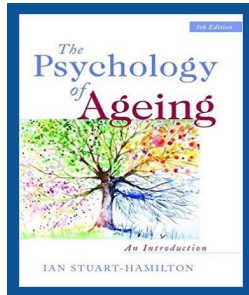
Perspectives on Human Memory and Cognitive Aging



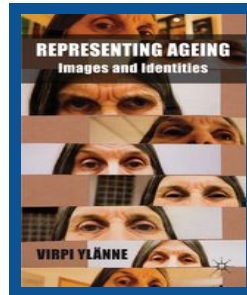
Aging and Economic Growth in the Pacific Region



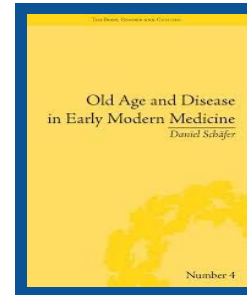
Researching Later Life and Ageing



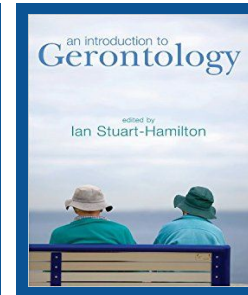
The Psychology of Ageing: an Introduction



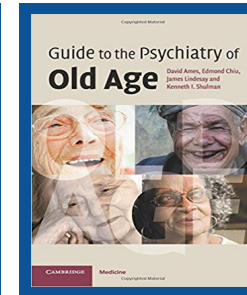
Representing Ageing: Images and Identities



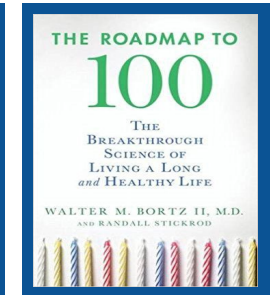
Old Age and Disease in Early Modern Medicine



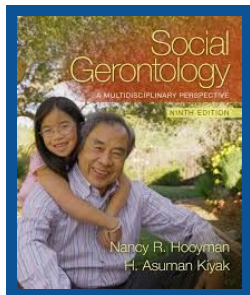
An Introduction to Gerontology



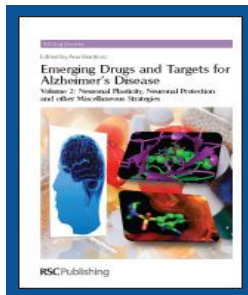
Guide To the Psychiatry of Old Age



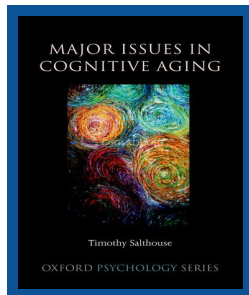
The Roadmap To 100



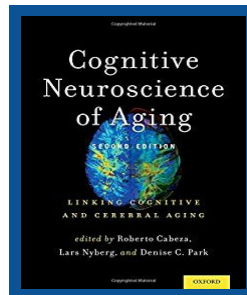
Social Gerontology



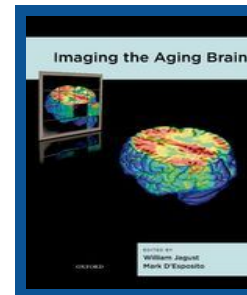
Emerging Drugs and Targets for Alzheimer's Disease



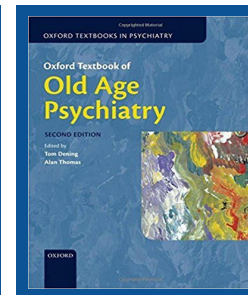
Major Issues in Cognitive Aging



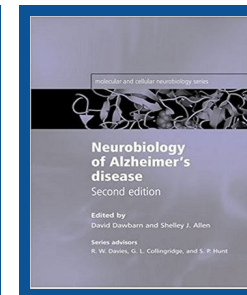
Cognitive Neuroscience of Aging



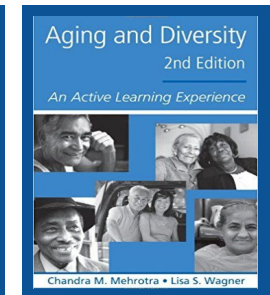
Imaging the Ageing Brain



Oxford Textbook of Old Age Psychiatry

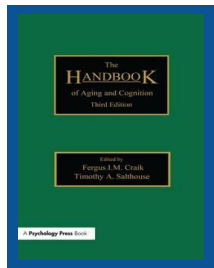


Neurobiology of Alzheimer's Disease

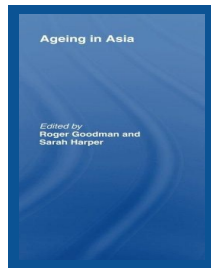


Ageing and Diversity

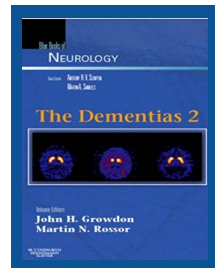
# Books on Longevity Published in UK



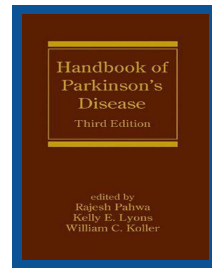
The Handbook of Ageing and Cognition



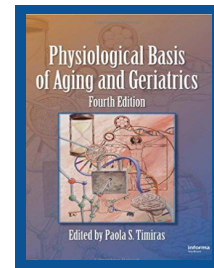
Ageing in Asia



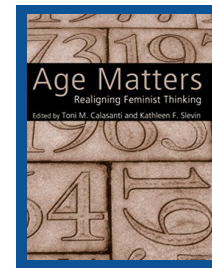
Blue Books of Neurology Series



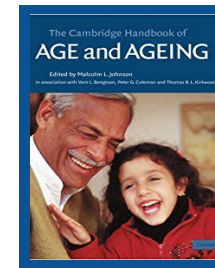
Handbook of Parkinson's Disease



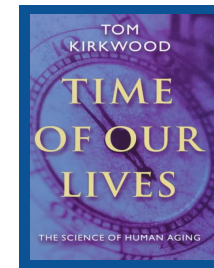
Physiological Basis of Ageing and Geriatrics



Realigning Feminist Thinking



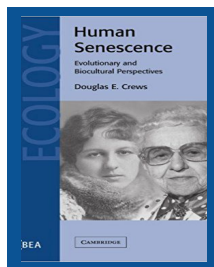
The Cambridge Handbook of Age and Ageing



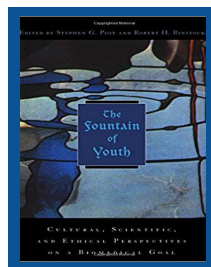
Time of Our Lives: The Science of Human Aging



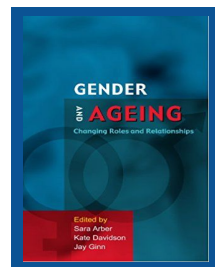
Successful Ageing



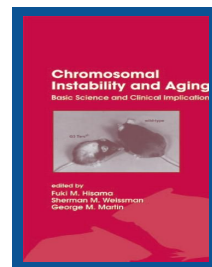
Human Senescence



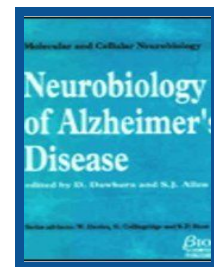
The Fountain of Youth



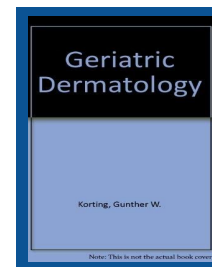
Gender and Ageing



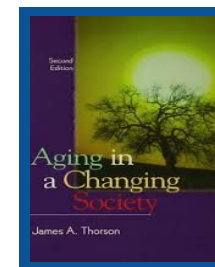
Chromosomal Instability and Ageing



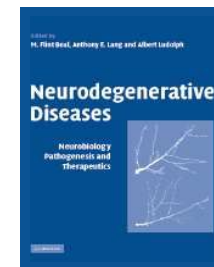
Neurobiology of Alzheimer's Disease



Geriatric Dermatology



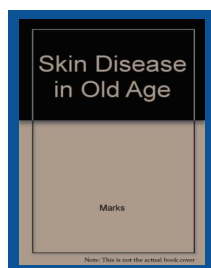
Ageing in a Changing Society



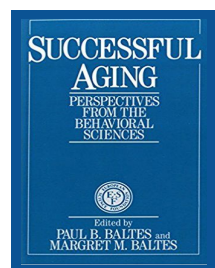
Neurodegenerative diseases



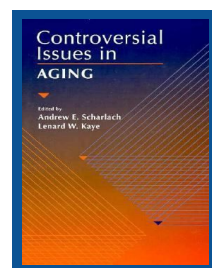
Cognitive Ageing: A Primer



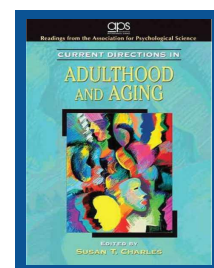
Skin Disease in Old Age



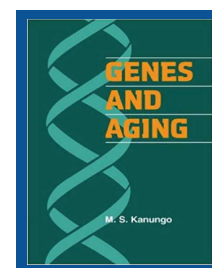
Successful Ageing



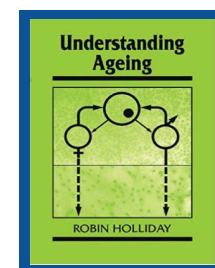
Controversial issues in Ageing



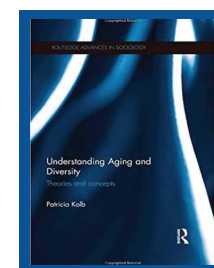
Current Directions in Adulthood and Ageing



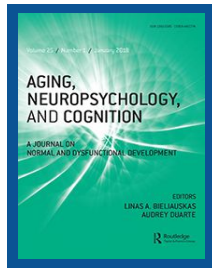
Genes and Ageing



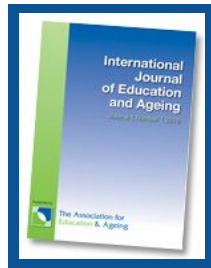
Understanding Ageing



Understanding Ageing and Diversity



Ageing, Neuropsychology and Cognition



International Journal of Education and Ageing



Age and Ageing



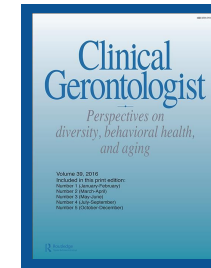
Ageing & Society



Ageing & Mental Health



Ageing Health



Clinical Gerontologist



Journal of Ageing, Humanities, and the Arts



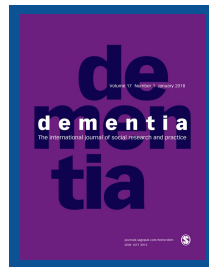
Ageing Horizons



Alzheimer's Research & Therapy



Canadian Journal on Ageing



Dementia



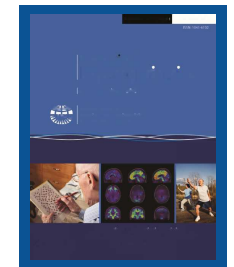
Educational Gerontology



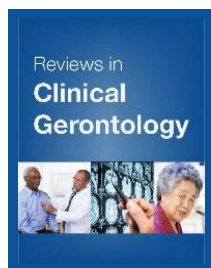
Experimental Ageing Research



Immunity & Ageing



International Psychogeriatrics



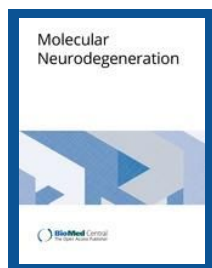
Reviews in Clinical Gerontology



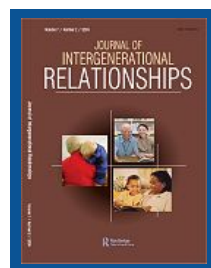
The Ageing Male



The Journals of Gerontology, Series A: Biological Sciences



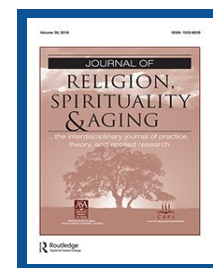
Molecular Neurodegeneration



Journal of Intergenerational Relationships



The Journals of Gerontology, Series B: Psychological Sciences



Journal of Religious Gerontology



Work, Ageing and Retirement



British Medical Journal



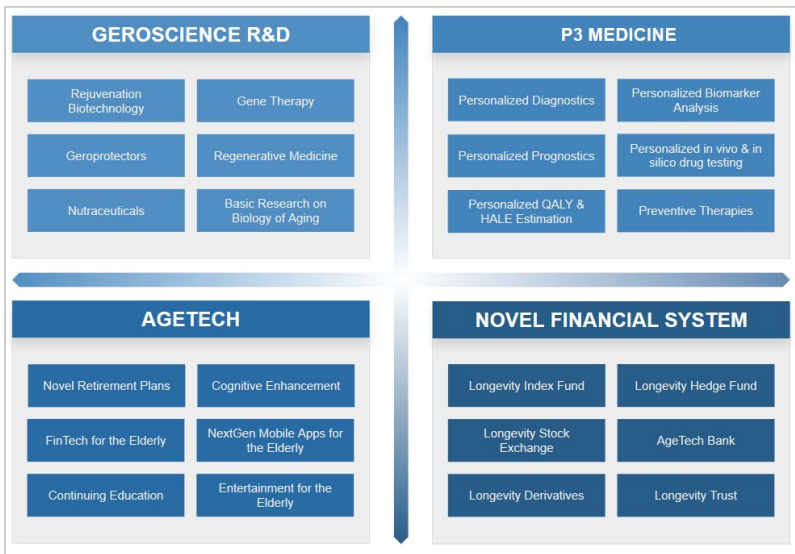


# Executive Summary



In 2018, Aging Analytics Agency systematised the Longevity Industry for the first time in a series of reports providing a comprehensive assessment of the global Longevity industry. Our first report, *Longevity Industry Landscape Overview 2018 Volume I: The Science of Longevity*, at 760 pages, identified the emerging technologies and scientific developments that could be utilised against ageing. The first half of that report tied together various threads of progress into a coherent narrative, and described the interrelation of biomedical gerontology, regenerative medicine, precision medicine, and AI. The second half profiled 650 research hubs, nonprofits, leading scientists, conferences, databases, books and journals. The report utilised infographics to illustrate where research institutions stood in relation to each other.

*Longevity Industry Landscape Overview 2018, Volume II: The Business of Longevity*, is a 650-page report that offers a more comprehensive look at the key players, companies, investors and influencers that comprise the emerging global Longevity Industry. The report profiled 100 companies and 100 investors Longevity sphere, and highlighted the most prominent individual investors and thought leaders. It provided an overview of the Longevity Industry, its beginnings in 2016 and rapid emergence in 2017-2018, forecasted the major trends and developments in the industry, and offered a detailed discussion on the major risks, roadblocks, and issues that may jeopardize the credibility and success of the industry.



Together, the *Longevity Industry Landscape Overview* reports comprehensively classified various sectors of the Longevity industry at a scale exceeding previous efforts. The diagram shown on this slide was created to illustrate the framework of that classification and to provide a breakdown of sub-sectors within each of the four major sectors of the industry. In addition to the science of ageing, the report also surveyed the emerging advanced biomedicine field, the AgeTech sector, consisting of non-biomedical technologies that assist elderly people in maintaining quality of life, and the financial sphere as niches of the expanding Longevity Industry.

This edition of the Longevity Industry in the UK report is structured to introduce readers to the major trends and players in the industry via several infographic MindMaps, thus allowing a quick grasp of the report's major analytical findings and conclusions. It provides a framework to better structure readers' understanding of the entire Longevity sector. The report then dives into greater detail in each successive chapter, focusing on specific areas of the Longevity industry in the UK.

- **The executive summary** charts the major trends in the UK Longevity Industry in recent years, and concludes that the UK is in an excellent position to achieve a strong position within the global Longevity industry landscape, so long as it optimises the assembly of its existing resources. The summary also highlights one of the report's strongest conclusions: that the UK government should prioritise the coordinated development of its AI, financial and Longevity industries, not separately but synergistically.
- **Preface: Recent UK Longevity Industry Developments: A Highlight on Q4 2018**, a new section, overviews in detail the Longevity Industry developments that took place in Q3 and Q4 of 2018, after the publication of the first edition of this report. It especially emphasises new developments on the front of government projects and initiatives, and illustrates the progress that the UK government has made in executing its Ageing Society Industrial Challenge plans..
- **Chapter I: UK Longevity Industry Landscape Overview** provides a detailed overview of the UK Longevity industry, major developments over recent years, and charts the landscape in-depth to identify major trends and patterns..
- **Chapter II: History of Geroscience in the UK** offers a detailed overview of the history of geroscience and the Longevity industry in the UK.
- **Chapter III: Current State of Longevity in the UK** comprehensively covers the state of the Longevity Industry in the UK in 2018, analyses crucial roadblocks, and identifies major trends and developments likely to occur over the next several years.
- **Chapter IV: APPG on Longevity**, newly added in this edition, outlines the rationale for forming of an APPG on Longevity. It explores the beneficial results from establishing UK's APPG on AI and APPG on Blockchain, respectively, in terms of guiding industry developments. It further details how an APPG on Longevity could fulfil the unmet need for a governmental body, to specifically focus on providing a framework for inter-stakeholder and cross-disciplinary dialogue and collaboration, thus achieving greater synergy between various players and institutions working to develop UK's Longevity Industry into one of international repute.
- **Chapter V: Global Longevity Industry Landscape Overview** provides an overview of the broader international Longevity Industry landscape, and shows how the UK compares to other longevity-progressive countries, which provides context to the report's UK-specific insights, trends and conclusions.
- **Chapter VI: Media and Conferences**, updated for Q4 2018 in this new edition, provides an overview of the Longevity conference and media landscape in the UK. It illustrates the largest Longevity-themed conferences in 2018, and showcases other events planned for 2019. In particular, it highlights the recent rise of Longevity-focused conferences held by large UK private wealth banks and financial institutions, which in turn reflects growing interest in Longevity from the financial sector as an investment-worthy topic for their executives and clientele.
- **Chapter VII: The Economics of Longevity in the UK**, newly added in this edition, analyses in detail the economic considerations of ageing and Longevity in the UK. It gives equal attention to the economic challenges, for example, to the UK's healthcare and pension systems, and opportunities presented by the rising Longevity Industry. It also overviews the broader biomedical economic landscape, identifying trends in biomedical funding and investment. The chapter concludes by detailing how the UK should be striving for a greater degree of synergy and convergence between two of its four grand industrial strategy challenges, AI and Ageing Society, to accelerate the development of its AI and Longevity industries to scale.



The report concludes with a detailed appendix of profiles on the major entities and influencers making up the UK Longevity Industry, profiling:

- 260 Longevity companies (compared to 170 in the first edition of this report);
- 250 Longevity investors (compared to 190 in the first edition of this report);
- 50 Longevity articles published by UK geroscientists;
- 50 Longevity books published by UK geroscientists;
- 25 Longevity scientific journals published by UK geroscientists;
- 50 The top Longevity non-profit organisations;
- 55 Longevity influencers in the UK;
- 25 Longevity university labs and research labs.



Aging Analytics Agency is pleased to announce the publication of a new analytical report, *Longevity Industry in UK, Second Edition*, over 1,000 pages in length. Although the first edition was released only six months ago, we were compelled to update the report in response to the outstandingly rapid growth in the UK Longevity industry over this short period of time. The Second Edition features in-depth profiles of 260 companies and 250 investors in the UK Longevity sphere, and three new chapters: an overview of recent Longevity industry developments in Q4 of 2018; a chapter calling for the establishment of an All-Party Parliamentary Group on Longevity to coordinate cross-industry efforts and initiatives; and a chapter focusing on the economics of Longevity in the UK.

Thanks to our significant presence in the UK, we have expertise in country's industry players and trends. This, along with UK's dynamic development of geroscience and advanced biomedicine, made the country an obvious first choice for conducting a case study for its regional Longevity Industry. Studying the UK in depth, we listed various factors that make the UK longevity-progressive. These include:

**Demographics:** Britain's population is ageing rapidly. By 2040, one in seven people in the UK will be aged over 75. Meanwhile, money and power is concentrated in the hands of those who would benefit from greater expenditure on biomedical advances.

**Data and AI:** The centralised healthcare system, the adoption of electronic health records and the rich data coming through the NHS (stratified by patient type and disease condition) makes the UK an excellent testing ground for longevity interventions.

**Finance:** London is home to a FinTech industry. The Longevity industry can be viewed as the integration of biomedical technology with financial advances, including pension funds and insurance companies.

**Research and academia:** The UK is a crossroad for millions of professionals exchanging ideas and resources. The London-Oxford-Cambridge biotech triangle makes it home to some of the most Longevity-relevant scientists, universities, scientific publications and conferences..



We concluded that the UK had all the ingredients necessary to become a Longevity biotechnology hub rivaling Silicon Valley, and a cradle for a fourth industrial revolution.

**But we also warned that these ingredients would need to be successfully combined to propel the revolution, and, similar to Silicon Valley, this necessitates government initiative. Indeed, through the ongoing development of their Healthy Aging Industrial Strategy Challenge Fund, the UK government is already on track.**

## So why revisit the UK case study, after less than a year?

Because since the 2017 general election, the government has displayed a willingness to seize this initiative.

In a direct reference to the “silver tsunami” threat described in our previous reports, the UK’s newly-created Department for Business, Energy & Industrial Strategy (BEIS) identified an “ageing society” as one of its four grand challenges that would need to be addressed to ensure that the UK takes advantage of major global changes to improve British productivity and quality of life.



Growing the Artificial Intelligence and data driven economy

Ageing society

Clean growth

Future of mobility

*“The UK population is ageing, as it is across the industrialised world. The prospect of longer lives will require people to plan their careers and retirement differently. Ageing populations will create new demands for technologies, products and services, including new care technologies, new housing models and innovative savings products for retirement. The state has an obligation to help older citizens lead independent, fulfilled lives, continuing to contribute to society, must be created an economy which works for everyone, regardless of age.”*

*~ BEIS policy paper on the “ageing society” grand challenge*



*In Longevity Landscape Vol II: The Business of Longevity we predicted the advent of an AgeTech sector, consisting of non-biomedical technologies that can assist elderly people maintain quality of life, and the financial sphere as a key aspect of the Longevity Industry.*

According to a policy paper released in May 2018, BEIS appears to be laying the groundwork for this sector.

*“Ageing populations will create new demands for technologies, products and services, including new care technologies, new housing models and innovative savings products for retirement.”*

~ May 2018 policy paper, Department for Business Energy and Industrial Strategy

Startups are now moving towards AgeTech. In February 2018, London’s Innovation Warehouse, originally founded in 2010 as a community for digital startups, established an AgeTech & Longevity Hub, providing mentoring and corporate finance services to early stage FinTech enterprises, with the stated aim of “extending healthier lifespans and maintain quality of life for our growing, ageing population.”

## In our previous UK report we concluded:

“The United Kingdom has enough resources in each of the three most crucial sectors - Longevity, Artificial Intelligence and Financial Industry - to be in a strong position to succeed; nonetheless, the nation should focus on cross sector collaboration and synergetic convergence, to accelerate innovation and progress in its Longevity industry at scale”.

## 2018 has seen the following developments:

- Parliamentary debate on AI (November)
- Parliamentary debate on Healthcare Data (September)
- Government Office for AI established
- Digitalisation of Medicines Challenge Fund
- Rollout of Genomic Medicine Service in England
- AgeTech Hub established in London

## In light of these developments, our primary conclusions and forecasts are as follows:

The UK has turned its attention to cross-sector collaboration, particularly between AI and healthcare. There has also been a general recognition of the central role of technology, and financial technology in particular, in improving the lives of the elderly. However, explicit suggestions and efforts that intelligently direct these technological agendas towards improving healthy Longevity itself have been lacking. **A new industry is more than just a collaboration between existing industries.** It means a new direction, with a new objectives and new metrics. This requires intelligent coordination. In the British political tradition, this generally means a governing body equivalent the recently created Office for AI.

Only when Lords committees and government ministries demonstrate explicit interest in Longevity can we confidently claim that there is a Longevity industry decisively underway in the UK.

## Theresa May says AI revolution will help NHS prevent thousands of cancer-related deaths by 2033

Medical records, along with information about patients' habits and genetics, will be cross-referenced with national data to spot those at an early stage of cancer

Ashley Cowburn Political Correspondent | @ashcowburn | Sunday 20 May 2018 21:45 | 48 comments | 722 shares





By listing aging society as an industrial Grand Challenge, the UK has taken an excellent first step to prioritize the problem as a primary area of its national industrial development agenda. However:

- **The UK needs more than just an industrial strategy. It needs a Longevity industry strategy**, and the first step is to combine AgeTech and progressive social policies in a manner that keeps seniors functioning healthily for longer;
- **The UK still needs** an explicit commitment to healthspan extension and tackling ageing itself rather than individual diseases;
- **The UK still needs** to create an ecosystem for cross-sector collaboration between industry, academia and non-profits – a Longevity industry equivalent of the AI and FinTech industries’ “London-Oxford-Cambridge Triangle”;
- **The UK still needs** to recognise how solutions to ‘Grand Challenges’ complement each other. Its policy papers contain little mention of how advances in ‘AI and data’ might improve ‘ageing in society’, when AI has implications for a great many advances influencing lifespan and healthspan, ranging from AI in AgeTech (e.g. smart homes, virtual assistants and chatbots) to AI in Biomedicine (e.g., AI-driven drug discovery for Longevity-focused drugs and therapies).



Nonetheless, the past year has seen an explosion of the political will necessary to harness the resources outlined in *Longevity in the UK*, in many of the same ways recommended in The Business of Longevity. Furthermore, the science and business Longevity landscapes in the UK has also shifted, with continued academic and industry progress since the last edition of this report.

The purpose of this report is to resurvey the UK and assess whether a fully integrated Longevity industry is closer to reality, with specific emphasis on industry developments in Q3 - Q4 of 2018, and an updated forecast of the challenges, opportunities and bottlenecks facing the industry as it moves forward into 2019.

Why revisit the UK Longevity Industry Landscape after just a few months? There has been an explosion of new developments in the UK longevity sphere, with the government building broad, synergetic foundations in the areas of AI, preventive medicine and longevity-focused biotech. We also saw the first steps towards a potential national development strategy for Longevity.

In July 2018, Aging Analytics Agency published Longevity Industry in UK Landscape Overview 2018. The publication of the First Edition in July 2018 coincided with the launch and development of the UK government's Healthy Aging Industrial Strategy Challenge Fund, and private initiatives such as the establishment of the London AgeTech and Longevity Hub. However, Q3 and Q4 of 2018 were periods of astonishingly accelerated industry development for this sector. Given this exponential progress, it became relevant to reassess, update and extend the trends, insights and major conclusions of the original report. Furthermore, a re-evaluation allows us to closely tie new conclusions to progress made in Q4 2018, allowing a more quantitative understanding of these new developments. The Second Edition features in-depth profiles of 260 companies and 250 investors in the UK Longevity sphere, and three new chapters: an overview of recent Longevity Industry developments in Q4 of 2018; a chapter outlining the rationale for the establishment of an All-Party Parliamentary Group on Longevity to coordinate cross-industry efforts and initiatives; and a chapter focusing on the economics of Longevity in the UK. All signs indicate that the current period of rapid developments in this sector will continue into 2019.

Feb  
2018

### AgeTech & Longevity Hub Established

London's Innovation Warehouse, originally founded in 2010 as a community for digital startups, established an AgeTech & Longevity Hub, providing mentoring and corporate finance services to early-stage FinTech enterprises, with the stated aim of "extending healthier lifespans and maintain quality of life for our growing, ageing population."



12 March  
2018

### Industrial Strategy Challenge Fund Allocated

Innovate UK, the UK's technology strategy board, which reports directly to BEIS, allocate £300 million from their Industrial Strategy Challenge Fund, to develop methods to help the global ageing population, with opportunities for businesses and researchers to work together.



1 April  
2018

**United Kingdom Research and Innovation (UKRI) Created** by the government to direct research funding. It takes control of Innovate UK, which ceases to report to BEIS, and brings it together with the seven existing research councils of the UK under the same coordination.



16 April  
2018

## “AI in the UK: Ready. Willing and Able?” Lords Report Published with Implications For Personalised Preventative Medicine and Diagnostics

The House of Lords Select Committee's report “AI in the UK: Ready, willing and able?” is presented to Parliament by BEIS. The paper suggests AI could have significant beneficial impact on patient care, research, diagnostics and personalised medicine, and calls on NHS England to urgently develop a consistent and rigorous approach to data sharing agreements, thus urging NHS to adopt AI initiatives in healthcare. After many volumes of written evidence, it concludes that the following organisations should be granted oversight of AI and AI-specific policies: The AI Council (national policy framework), Centre for Data Ethics and Innovations (to introduce a cross-sector AI ethical code for sharing public data), the Alan Turing Institute (for funneling graduate talent into AI and helping universities develop spinout companies), and the Government Office for AI (to coordinate the work of AI institutions, existing bodies and regulators).



HOUSE OF LORDS  
Select Committee on Artificial Intelligence  
Report of Session 2017-19

### AI in the UK: ready, willing and able?

Ordered to be printed 13 March 2018 and published 16 April 2018  
Published by the Authority of the House of Lords

1 June  
2018

## BIRAX Ageing Created

The British Council, the Pears Foundation and the British Embassy in Israel announced The Britain Israel Research and Academic Exchange Partnership (BIRAX), a multimillion-pound initiative to advance innovative scientific research into ageing, big data and personalised medicine. They immediately announced a four-day conference at King's College London, bringing together representatives of the British Embassy in Tel Aviv, British and Israeli scientists and British peers to discuss the problems and solutions to demographic ageing. Thus far £5 million has been committed to BIRAX Ageing, and some of its initial disease targets include Parkinson's, Alzheimer's, heart disease, multiple sclerosis, diabetes, multi-morbidity and frailty. BIRAX announced its first call for research proposals in April 2018, focusing on two broad themes: research into the impact of ageing processes on human health, and using precision medicine and big data to identify innovative biomarkers, algorithms and computational techniques to help prevent the harmful effects associated with ageing.



28 June  
2018

## Government Responds to Lords Report on AI in the UK: Ready. Willing and Able?

In its response the government specifies the Prime Minister's desire to “make the UK a world leader in the use of data, AI and innovation to transform the **prevention, early diagnosis and treatment of chronic diseases by 2030**”. Deferring to the Department of Health and Social Care, the government responds that “The use of AI technologies should augment human expertise”, adding that “This will depend on effective communication with patients and health and care professionals, and ensuring that patients continue to be able to give informed consent for any treatment provided”. The report places particular emphasis on a possible future role for the Centre for Data Ethics and Innovations.



4 Sep  
2018

### Disruption Summit Held in London

The emergent Longevity industry is discussed among entrepreneurs from all the constituent fields, with special emphasis on a “Longevity dividend”, referring to the opportunities hidden amongst the impending demographic crisis. The role of artificial Intelligence, big data, blockchain are also discussed.



6 Sep  
2018

### NHS Healthcare Data Debate

House of Lords sits to debate how NHS healthcare data could be used to improve the health of the nation.



10 Sep  
2018

### Digitalisation of Medicines Manufacturing Challenge Fund Opened

Innovate UK, begin awarding the Digitalisation of Medicines Manufacturing Challenge Fund, an investment of up to £8 million in capital infrastructure, to projects which “ enable existing medicines manufacturing operations to improve their scope, efficiency and effectiveness through the application of digitally-enabled technology “.



1 Oct  
2018

### Genomic Medicine Service in England Launched

Hospitals across England will be connected to specialist centres that read, analyse and interpret patient DNA to help diagnose rare diseases, match patients to the most effective treatments, and reduce adverse drug reactions. People suffering from some 22 rare diseases and some paediatric and haematological cancers will be among the first to routinely be tested this financial year. Those offered testing will be able to opt in to share their data with a central database, to help improve understanding of rare diseases.



18 Oct  
2018

### Innovating for Ageing Competition Shortlisted Companies Announced

The International Longevity Centre UK (ILC-UK, a think tank on the impact of longevity on society) and Just Group (UK financial services group focusing on attractive segments of the UK retirement income market) announce shortlisted entries for Innovating for Ageing competition from 77 submissions. They are the Behavioural Insights (social purpose company that aims to connect the elderly through a low-cost and accessible buddying platform to combat social isolation), Team, Chatty Cafe Scheme (a signage scheme for cafés to set aside a table so that customers can meet others and encourage strangers to talk to each other), Digital Care Planning (uses artificial intelligence-enabled voice technology to help individuals and families take an active role in planning and managing their care), Echo, Ferret Information Systems, Fuss Free Phones, MorganAsh, MyCareMatters (an online tool that collects and shares a person’s non-medical needs and preferences so they can receive dignified and tailored care when they are no longer able to engage in these conversations), MySense (takes data from a number of fixed and wearable Smart devices to detect if there is a decline in an old person’s health or wellbeing), Society of Later Life Advisers (SOLLA), Toucan (app that lets users share their bank balance status with a trusted friend or carer using a simple traffic light system to inform them of their financial status), and Walk With Path (company that has made a mobility aid in the form of a shoe attachment for those with neurological conditions such as Parkinson’s, said to increase walking confidence).



5 Nov  
2018

## Longevity Forum held in London

The Longevity Forum in London, hosted by Jim Mellon, brought together scientists, insurance and medical industry functionaries, biotechnology investors, and political figures. The forum concluded that large financial institutions are not currently capable of adjusting to increased life expectancy.



THE LONGEVITY  
FORUM

19 Nov  
2018

## Government AI strategy debated in parliament

The government's response to *Ready, Willing and Able?*, which contained key suggestions for applying AI to personalised and preventive medicine, is debated in parliament and a motion is agreed to implement the advice. Lord St John of Bletso, present at the NHS healthcare data parliamentary debate, played a prominent role.



4 Feb  
2019

## Longevity Leaders Conference

Thought leaders, key opinion leaders, CEOs, innovators and disruptors from life sciences, technology, financial services, government and the investment community will convene in Aldersgate, London, to discuss how to tackle the grand challenge of longevity and seize significant opportunities, and to forge the partnerships and relationships to succeed in this new age.



LONGEVITY  
LEADERS

19 Mar  
2019

## Healthy Ageing Grand Challenge Conference

While not officially affiliated with the UK government, this conference focuses on the UK's Grand Challenge, Ageing Population. Topics to be discussed include the current and future increasing health needs of the UK's elderly, how to promote better health in later life and manage long-term conditions such as diabetes, cardiovascular vascular and respiratory diseases, cancer, mental health and dementia. Topics also include how healthy ageing can be incorporated as a core part of the Industrial Strategy Grand Challenge and how funding should be allocated to promote better health and economic benefits.



10 June  
2019

## London Longevity Week

November established as the month in which London becomes a networking hub for the entire industry, where many of the same scientific, financial, medical and political figures attend both the Master Investor Conference, where multi-millionaire and billionaire investors from multiple sectors liaise to talk strategy, and Jim Mellon's annual Longevity Forum.



JUVENESCENCE



**Biogerontology**  
Research Foundation  
Prevent. Restore. Preserve.

[www.bg-rf.org.uk](http://www.bg-rf.org.uk) | [info@bg-rf.org.uk](mailto:info@bg-rf.org.uk)

**The Biogerontology Research Foundation (BGRF)** is the UK's oldest longevity nonprofit organization founded by leading geroscientists.

**The BGRF** funds and conducts research that aims to develop biotechnological interventions to remediate the molecular and cellular deficits that accumulate with age and underlie age-related illnesses.

**The BGRF's** Board of Trustees include British billionaire Jim Mellon, prominent longevity investor Dmitry Kaminskiy, renowned geroscientists Dr. Alex Zhavoronkov, Dr. João Pedro De Magalhães and Dr. Richard Faragher, and Jim Plante.



[www.longevityinternational.org](http://www.longevityinternational.org) | [info@longevityinternational.org](mailto:info@longevityinternational.org)

**Longevity International CIC (UK Chapter)** is a social enterprise which aims to become the leading global hub for the longevity industry to ensure the 'longevity dividend' is accessible to everyone. Its knowledge is powered by an analytics platform that gathers intelligence and reports on the latest developments in the longevity industry



**LONGEVITY.CAPITAL**

[www.longevity.capital](http://www.longevity.capital) | [info@longevity.capital](mailto: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.



**AGING ANALYTICS AGENCY**

[www.aginganalytics.com](http://www.aginganalytics.com) | [info@aginganalytics.com](mailto: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, it began producing in-depth reports on Longevity long before it emerged as an industry. In 2014 it 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 more than a decade away. The company also provides strategic consulting in the fields of Longevity, Preventive Medicine and Advanced Biomedicine.