ALTIUS

2015 CONFERENCE
OXFORD UNIVERSITY
MARTIN SCHOOL

THE EXTENSION OF LIFE

Challenges and Opportunities of Living Longer Lives

4th – 6th September 2015

Lecture Theatre, Martin School, University of Oxford

Introduction

The second Altius Conference will take place in Oxford in early September 2015. The title of this year's Conference will be "The Extension of Life: Challenges and Opportunities of Living Longer Lives".

We expect several global trends to come under scrutiny during this year's Conference: first, the increase in life expectancy driven by biological and technological research; second, implications of a greater life expectancy in different demographic contexts: stagnant populations in developed countries, mostly in Europe and certain parts of America and Asia; and growing populations in developing countries, mostly in Africa and Latin America. Combined, these trends pose serious challenges to our future societies on a wide range of aspects: our cultural and ethical frameworks, our economic and political governance, our energy resources, and our cities and infrastructure. The Altius Conference will bring together senior experts with young leaders from different fields around five different panels to explore some of the most pressing issues for the future of our society that stem from a greater life expectancy.

The **first panel** will explore some of the fundamental biological principles behind the extension of life. It will serve as an introduction to the main scientific advances in the field and it will provide a basic framework from which we will later examine some of the challenges and opportunities that lie ahead. The **second panel** will explore the implications of living longer lives from a humanist perspective. How will scientific and technological breakthrough fit with our moral values? Will these values adapt to new scientific knowledge or will they remain intact? How will the consciousness of living longer lives affect our career and personal choices? Longer or better lives?

The **third panel** will analyse the political and economic questions that will emerge from medical advances in the extension of life. How will pension systems cope with a growing population of individuals that will tend to live longer lives? How will labour policies and educational policies adapt? What will be the role of technology in that process of adaptation?

The **fourth panel** will focus on the impact that a growing population of individuals living longer lives will have on natural resources and energy. Can this world feed all? What challenges does demography play for our current energy resources? Will we be in need of more efficient energy resources? What could they be?

The **last panel** will explore some of the ways in which architecture and engineering might help us to cope with the ageing prospects. What will our future houses look like? How can infrastructure support the ageing population? Can we expect cities to continue to grow? If so, how will they grow?

The issues addressed in this second Altius conference are bound to be central challenges of our governments, businesses and societies in the coming decades. The magnitude of changes in demography and life expectancy call for deep and interdisciplinary analysis. Grasping their complexity and suggesting possible ways forward will be an essential step in making the most of the opportunities change will bring and at the same time avoiding some of its pitfalls.

Friday,
4th September

Agenda

15:00-15:30 **Registration**, Oxford Martin School
15:30-16:00 **Welcome Remarks**

First Part: Introducing Key Parameters

16:00-18:00 Panel I: Future of Life Sciences

Topic One*: *The Future of Demography

- Current in demography: Population dynamics to 2050 and beyond
- Conditions and factors impacting demographic trends
- Possible alternatives to population trends and their challenges

Topic Two: The Human Genome and Epigenetics

- Current technology in the field genomics
- What is the upper limit of life expectancy – and how do we get around it?
- Bottlenecks to genetic extension of life

Topic Three: Changes in Biotechnology: Drug Development

- Current State of the art: new drugs and extension of life
- Are drug development methods keeping pace?
- What's next in the drug development pipeline

Topic four: Regenerative Medicine: The promise of Stem Cells

- Can we regrow organs and when?
- How much cellular reprogramming can be done
- Overall impact of stem cell research on life extension

Topic Five: Life beyond biology

- Alternatives to the life sciences in the extension of life
- Life robotics
- The brain as even bigger data: uploading and transcendence

18:15-19:45 **Keynote**

"The Combat Against Aging: Technology and the Struggle for Immortality"

20:00-22:30 **Dinner at Exeter College Hall**

Saturday, 5th September

9:30-11:30 Panel II: Arts & Humanities

Topic One: Filling longer lives

- Longer retirements: can we handle so much free time?
- Rethinking professional careers?
- Rethinking maternity: will fertility limits mirror the extension of life?

Topic Two: Intergenerational responsibilities

- New family structures: coexistence of four or five generations within one family
- Longer working lives: competition for jobs across generations

Topic Three: Bioethics

- Under what conditions is it desirable to extend a patient's/person's life?
- Genetic engineering: a universal right?
- Cloning and its implications

11:30-12:30 Group Photo

12:30-14:00 Lunch at *Oxford Martin School*

Second Part: The Extension of Life and its Impact on Certain Fields

14:00-16:00 Panel III: Politics and Economic Governance

Topic One: Leisure: The 'Work vs. Leisure' Trade-Off

- Life where work is limited to 50% of people's life span
- The Quality of life v. Length of life dichotomy
- New consumption patterns for the old

Topic Two: Labor: The Workforce Crisis of 2030

- Towards labor shortage and skill mismatch
- The impact on inequality, and the role of migration
- Old-age cognitive capacities

Topic Three: Eternal Life: Will Technology Help Us?

- Manual labor eradicated by technological progress
- Will Malthus turn out to be right after all? Eternal life and escalating populations
- The aging vs. productivity dilemma: Will "retirement" retire?

Topic Four: Governance: The Challenges for Political and Economic Governance

- The increasing "Dependency Ratio", and its impact on tax policy
- Government spending on Healthcare and Pensions
- Are financial institutions resilient to this transformation? Will higher pension savings reduce capital investment?

16:00-16:45 Coffee Break

Saturday, cont´d

6:45-18:45 Panel IV: Energy

Topic One: Energy Supply in a world of growing and aging population

- Meeting the challenge of supplying a growing global population
- Enabling and sustaining economic growth through reliable and cheap access to energy

Topic Two: Hydrocarbon vs Renewable Energy Sources

- The declining installation cost of renewable energy sources
- Supply & demand, subsidies & embargoes: the economics and politics of oil pricing in a time of accelerating demographic change

Topic Three: The Future of Energy

- Will utility scale battery technology enable intermittent renewable sources to act as baseload and rewrite the global energy mix?
- How will technologies such as LED lighting and Electric cars impact our consumption patterns, particularly those of an aging population?

19:30-20:00 Drinks Reception at Oriel College Garden

20:00-22:30 Dinner & Keynote at *Oriel College Hall*

"Aging in the Arts"

Sunday, 6th September

09:30-11:30 Panel V: Architecture & Engineering

Topic One*: *Design principles for ageing populations

- Asking the question: how do I want to live as I age?
- Principles of universal access and human-centred design
- Design for discerning "experts at living" – is the "silver economy" good for the rest of us?

Topic Two: Engineering Independence

- New frontiers of assistive technology: personal robotics and the internet of things
- Maintaining human connections with the help of technology
- Preventing falls with remote sensing technology

Topic Three: Architecture for longevity

- Designing safer environments to enable citizens to live independently for longer in their own home
- The "apartments for living" concept – housing for the elderly which is integrated with other forms of residential and commercial stock
- The need for a cultural shift towards earlier downsizing of accommodation to keep people close to work, community and family

Topic Four: Planning accessible and liveable communities that promote "ageing in place"

- Fostering belonging through place-making
- Planning for "lifetime" homes and neighbourhoods
- The importance of walkable cities and universally accessible public transport in promoting independence and connectedness

11:30-12:30 Closing Remarks

Keynote Speaker:

Closing Remarks

12:30 Lunch at Oxford Martin School

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