

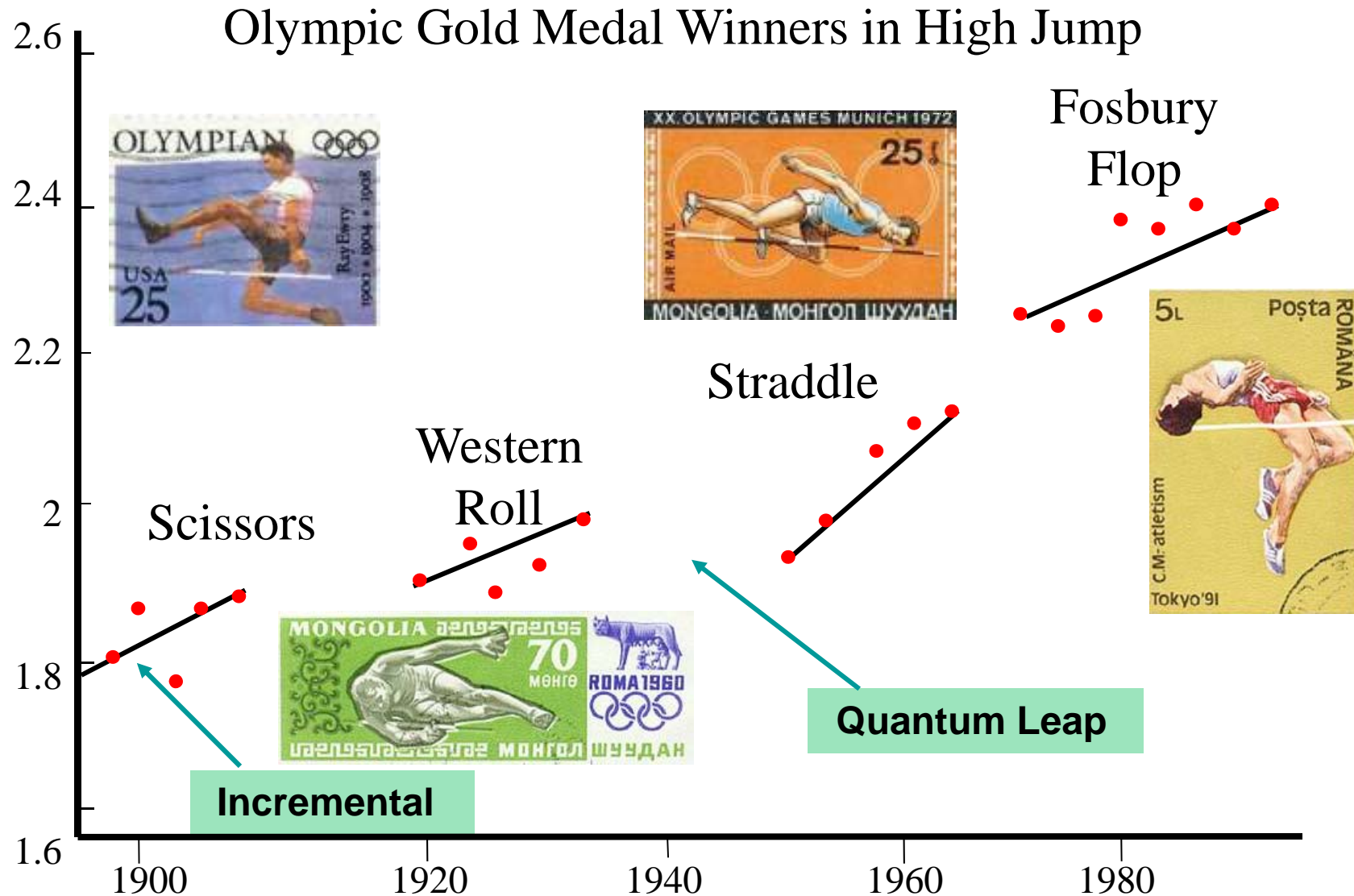


**Life Science
for
Health and Innovation**

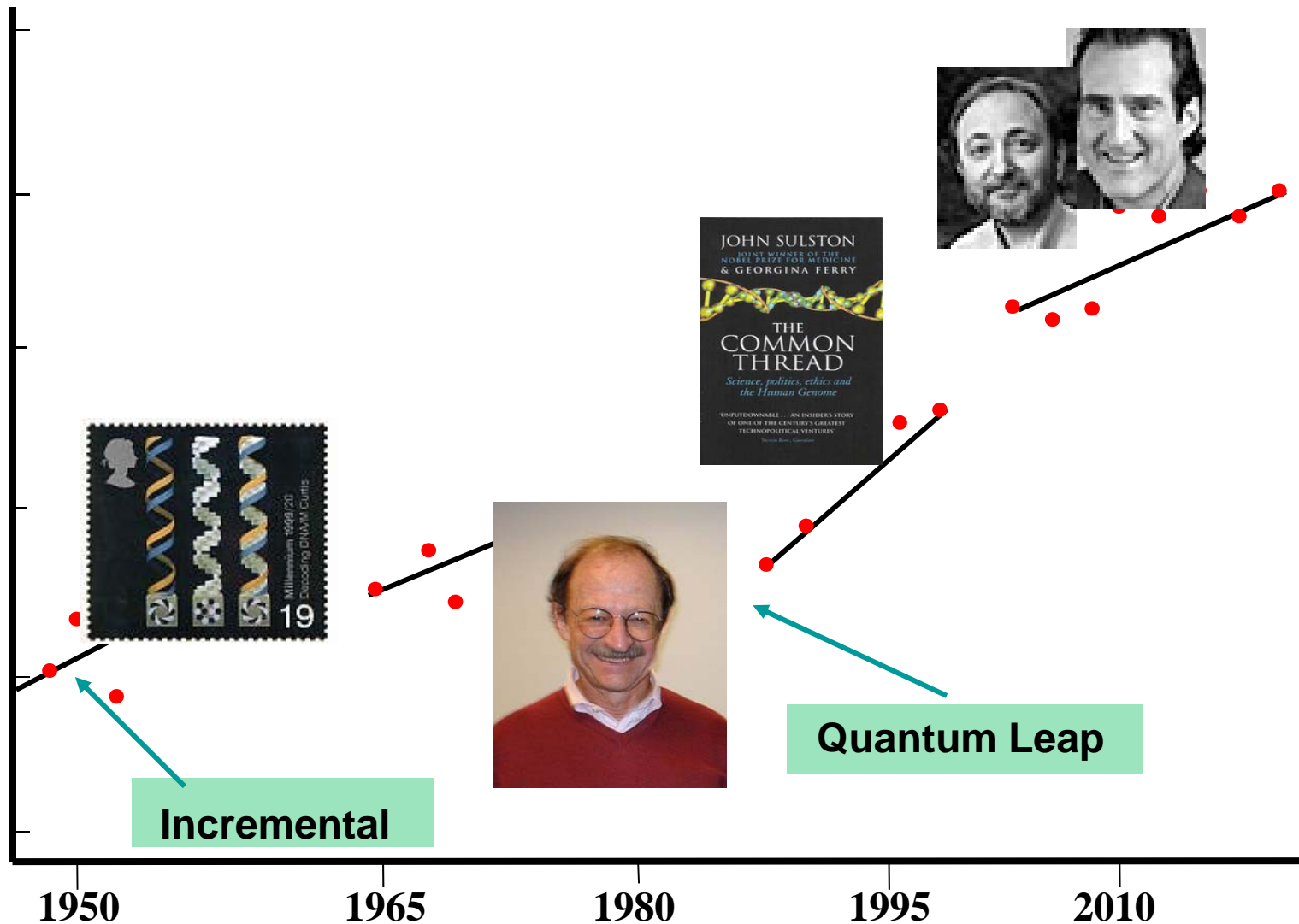
Time to Transform

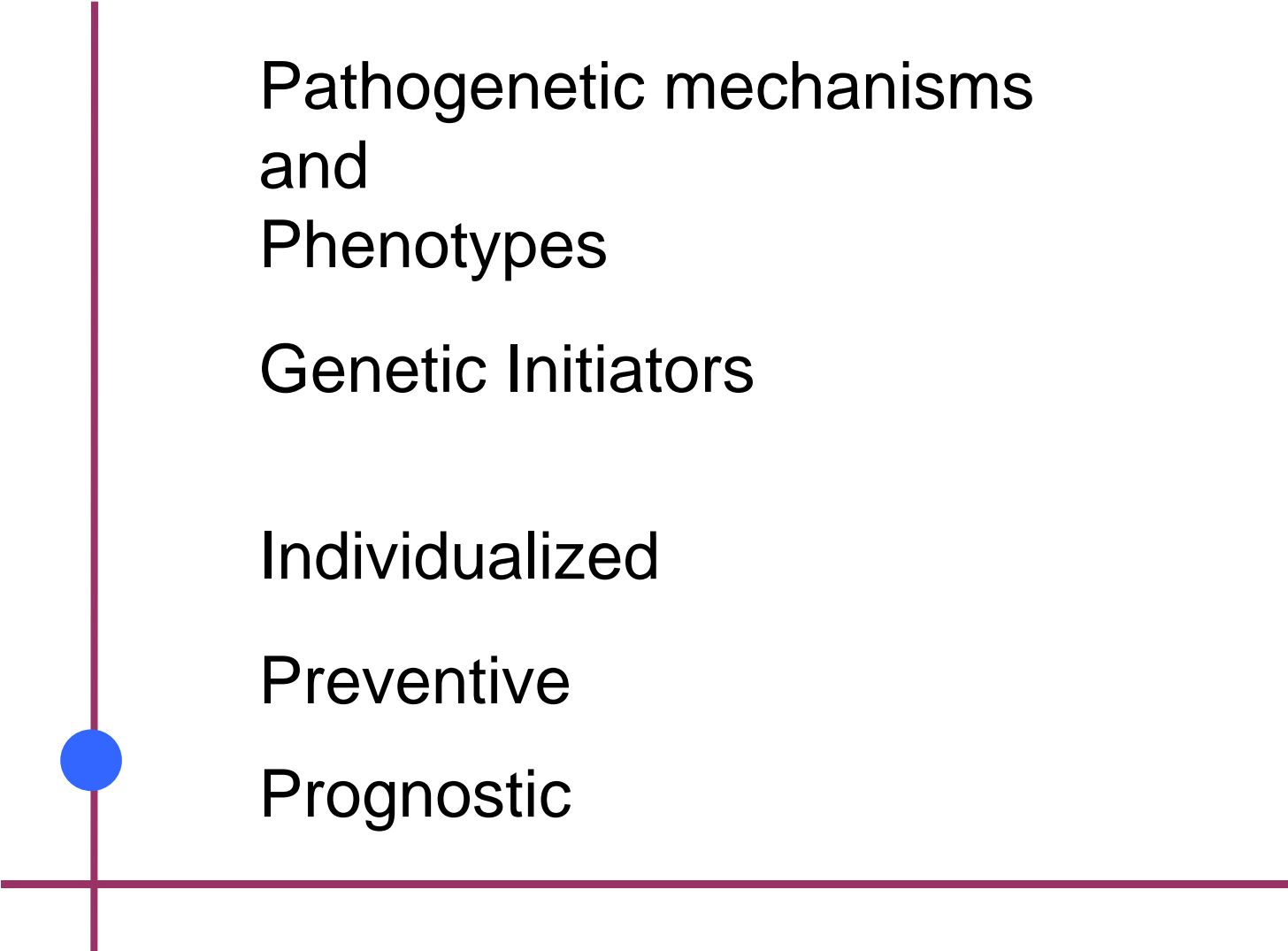
Sten G E Lindahl
Karolinska Institutet
Karolinska University Hospital
Stockholm, Sweden

Incremental or Quantum Leaps?



Molecular Biology towards Molecular and Regenerative Medicine





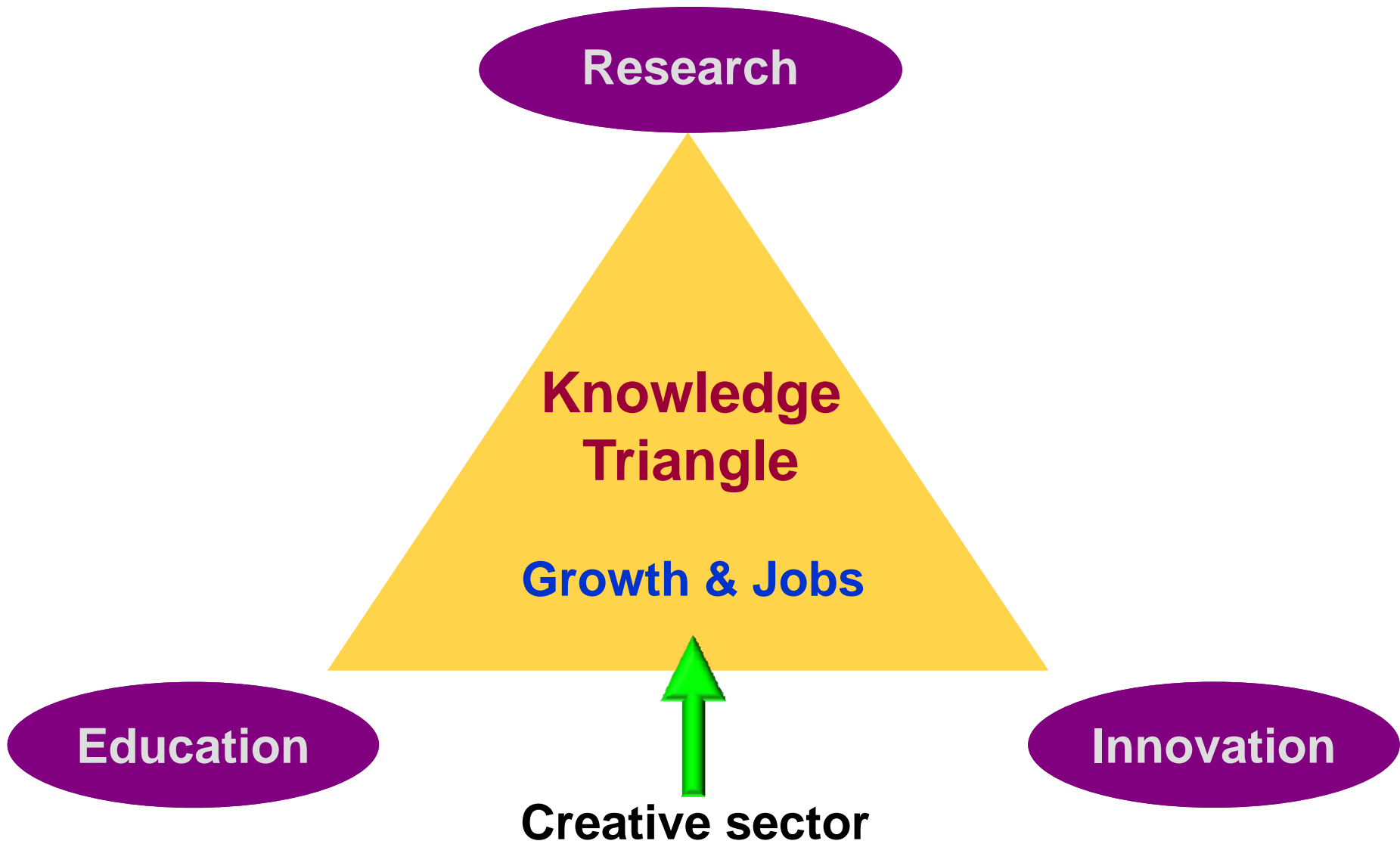
Pathogenetic mechanisms
and
Phenotypes

Genetic Initiators

Individualized

Preventive

Prognostic



Challenges

Clusters

More integration than before

Universities

- Long term research
- Frontier research

Capacity building

- infrastructure

Systems

Collaborative research

Joint Technology Initiatives

such as medicines, nanoelectronics aso

International cooperation

Partnerships

Univ - Univ Hosp
&
Society/Industry

Intellectual Property
&
Biotechnology



Outline

Life Science & Modern Health Care

Scientific questions

Public and Private

Transforming



**Life Science
&
Modern Health Care**

Medical Research

Basic Medical Science

Clinical Science/Clinical testing

Implementation in Clinical Practice

Natural Sciences

Physics

Mathematics

Chemistry

Biology

Medicine

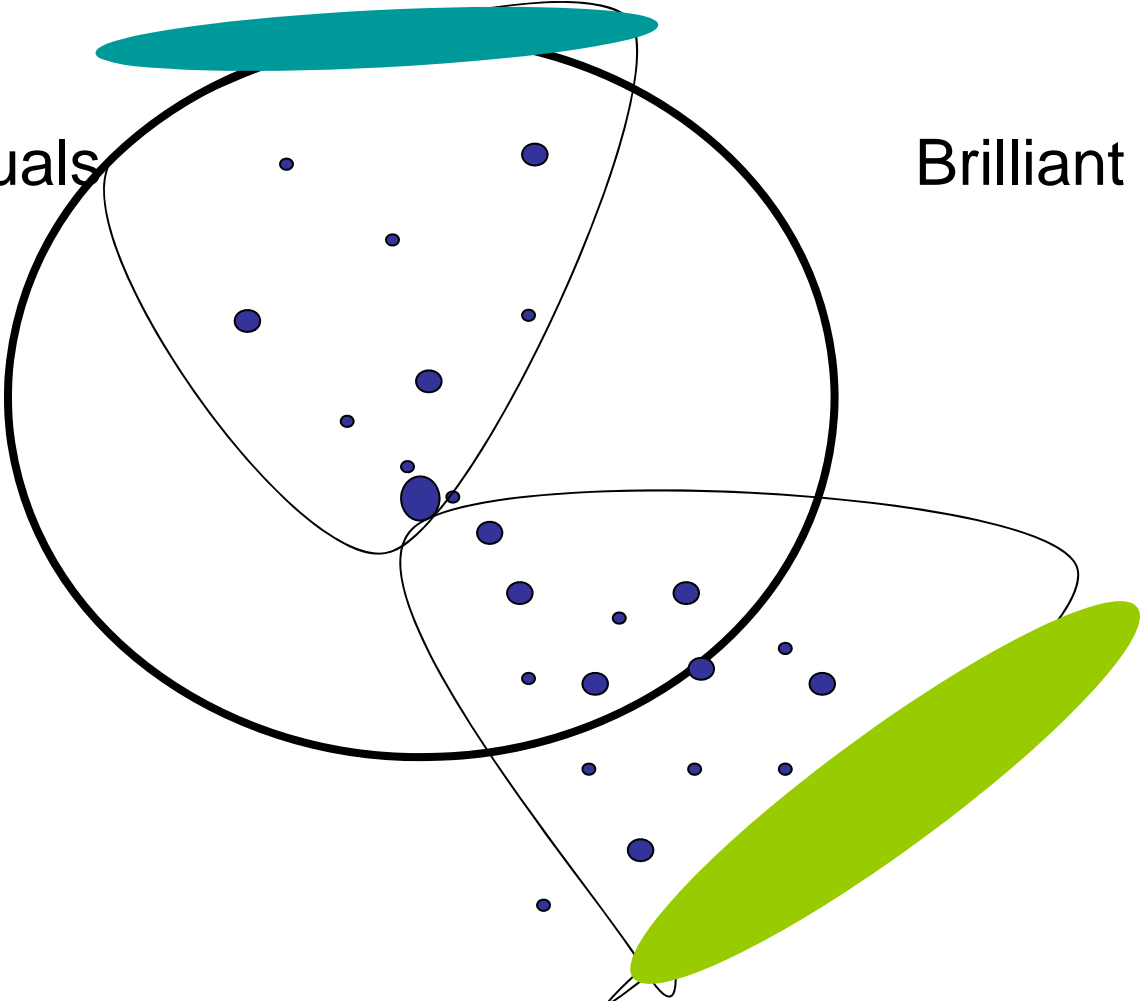
Technology

Current clinical subjects
Entirety or Fragmentation?



Brilliant individuals

Brilliant systems



Advantages – Enhanced Potentials

Create an Internal Market for Research

Research better funded

Diminish Fragmentation

www.toolsofscience.eu

- Chamber of Commerce, Milano, Italien
- One Nucleus, London-Cambridge, Storbritannien
- Heidelberg Technology Park, Heidelberg, Tyskland
- INNOVA, Debrecen, Ungern
- Medicen, Paris, Frankrike
- Matimop, Tel Aviv, Israel
- Alsace Biovalley, Alsace, Frankrike
- Bioindustry Park Silvano Fumero, bioPmed innovation cluster, Torino, Italien
- Barcelona Science Park, Barcelona, Spanien
- BioWin, Vallonien, Belgien
- Medicon Valley Alliance, Medicon Valley, Danmark-Sverige
- BioM Biotech Cluster Development, Munchen, Tyskland
- Stockholm Science City, Stockholm, Sverige

www.stockholm-life.se



Searching

Common Denominators



Future Medicine based on Science and Development

Would Pathogenetic mechanisms be the
logical denominator?

If so, are today's clinical departments based
on pathogenetic mechanisms?

If not, what then??



Clusters

Cardiovascular-Diabetes-Kidney

Cancer-Hematology

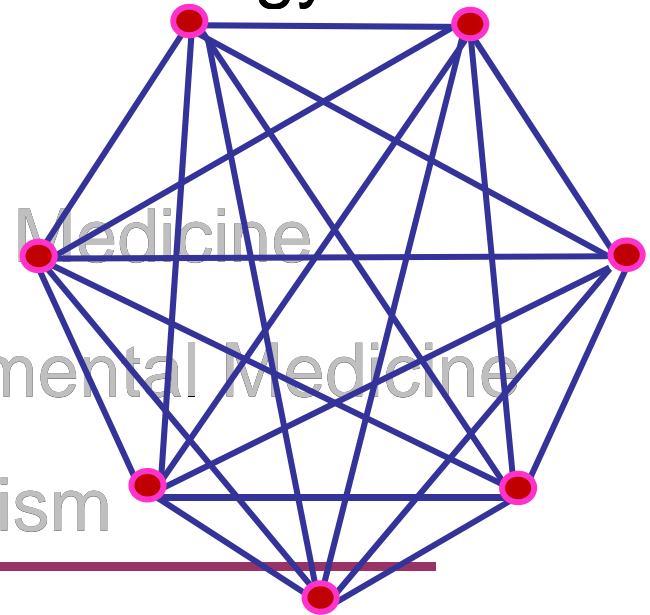
Infection-Inflammation-Immunology

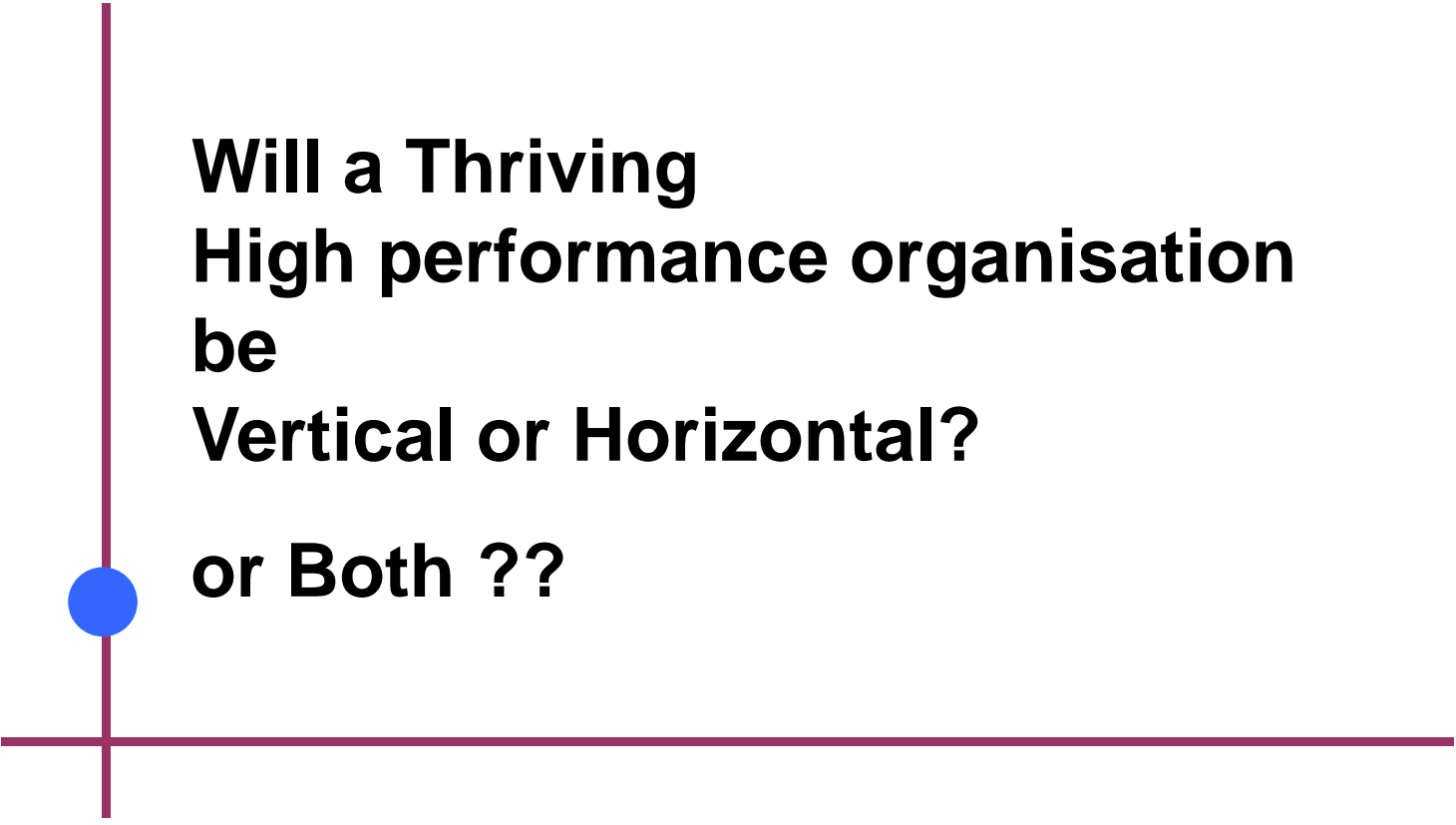
Neuroscience-Psychiatry

Regenerative/Reparative Medicine

Reproduction & Developmental Medicine

Endocrinology & Metabolism





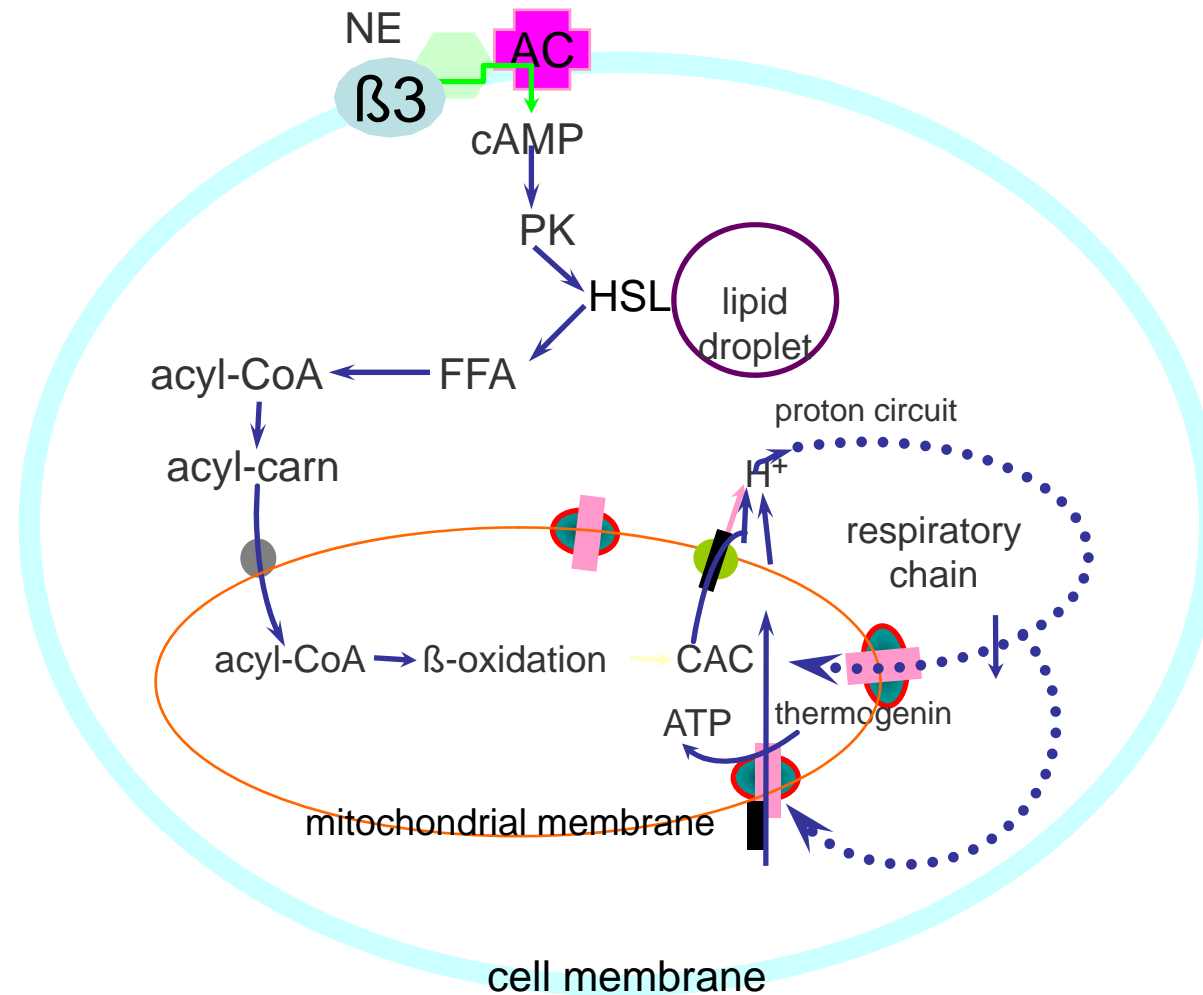
**Will a Thriving
High performance organisation
be
Vertical or Horizontal?
or Both ??**

The Scientific Question

*Einsteins challenge
(but not Bohrs)*



Proton gradient across Mitochondrial Membranes



Biomechanics

from
macro- to nano-scale

1 nanometer, nm, is 1 billionth of a meter

1 atom = 0.1nm; 1 turn of the DNA-spiral is 3.4 nm

When will we be able to image/visualize a turn of the spiral ?

Nanotechnology 2015

2 million jobs ;10 billion €



Public and Private

The Boston Globe

SATURDAY, JULY 1, 2006

*'We hope they sort it out quickly
and get back to the business of
getting this stuff out.'*

FINTAN STEELE, *spokesman for the Broad Institute*

Research altruism is colliding with a for-profit feud

Trust in Research

Weakening trust for researchers in western regions (around 50%).

It may be comforting that the figure for Medical researchers was 77%.

A leading traditional university can no longer state:

"?? is not obliged to compete. There are no challengers perpetually ready to depose ?? from its pre-eminent position"




Universities are being challenged

There is a Competition

Ranking and Metrics

To Measure and Be Measured

To Change – But How?



The University as a Marketplace

A University cannot be run by cost accountants

or

Act as a commercial enterprise responding only to changing markets.

*That is bad for academies
and the societies we seek to serve.*

Henry Rosovsky,
The University, W W Norton and Company, 1991



Competing logics

Different levels of Partnerships

Managerialism & Professionalism

Knowledge transfer

Academia & Commercialism

A Partnership is a Partnership is a Partnership

Academic Medical Centers (mergers are high risk)

Universities (LoI or MoU)

Public and Private (open innovation)

Departments

Research groups

Individuals





Competing logics

Different levels of Partnerships

Managerialism & Professionalism





Competing logics

Different levels of Partnerships

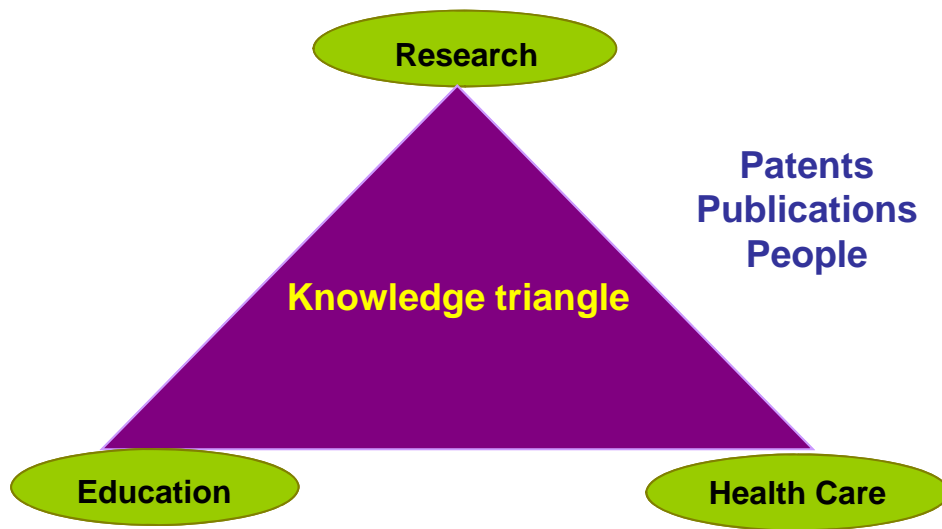
Managerialism & Professionalism

Knowledge transfer

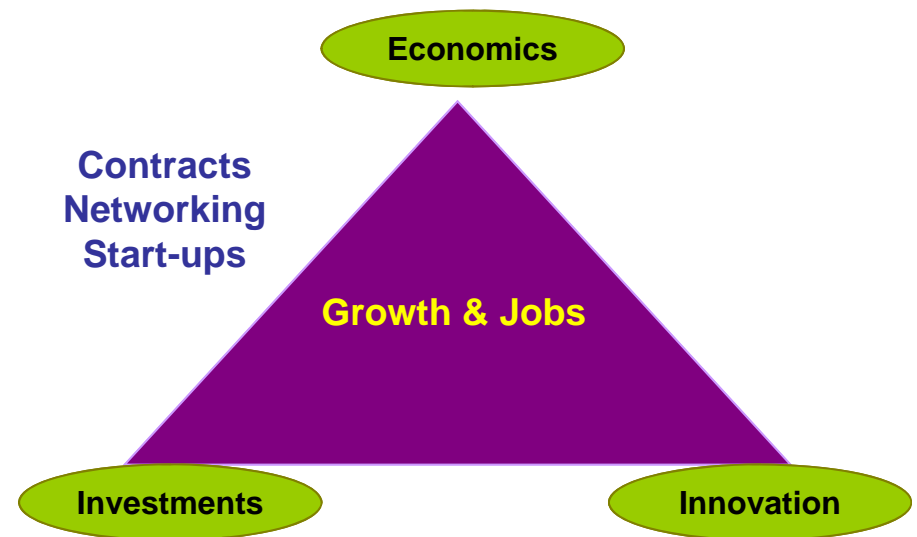
Academia & Commercialism

Knowledge Transfer

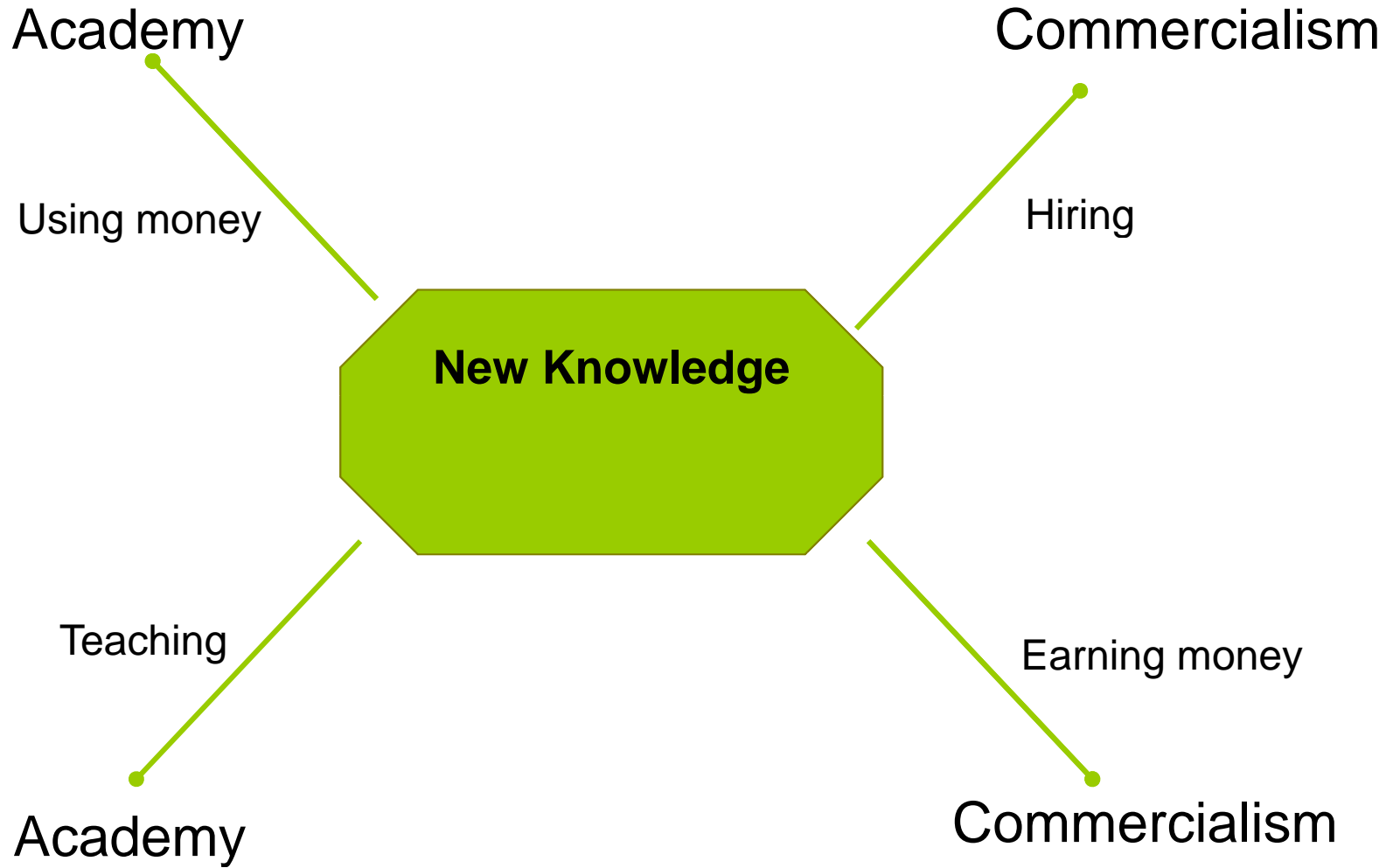
Academic Health Centers



Society



Knowledge Transfer





Transforming

Doubt, Develop and Change

Transforming

Challenges in the North

Neurodegenerative diseases
Cancer
Cardio-Vascular and Hypertension
Diabetets
The Metabolic Syndrome
Stress and Psychiatric conditions

Challenges in the South:

Nutrition and Poverty
Gastrointestinal diseases and Diarrhea
HIV/AIDS
Malaria-Polio-Tuberculosis
Familyplanning
Tobacco and Nicotin

The Art of Maintaining Wellness





Leadership

Measurements

Change

The
philosophical
doubt
Descartes and
Spinoza

Development:
the driving force
Comte and Spencer
Darwin and Haeckel





To Measure & To Be Measured

Own

Other

High Performance

To Measure



To be
Measured



Sigmund Freud to Stefan Zweig:

"Up to now I have considered my means of... as incurable madness. The young Spaniard, however,..... has made me reconsider....."

Metamorphosis of Narcissus

In fact, it would be very interesting to investigate the way in which such a painting has been composed."

Change

The
philosophical
doubt
Descartes and
Spinoza

Development:
the driving force
Comte and Spencer
Darwin and Haeckel



Innovation/Development/Change

The enemy of Status Quo

Summing up

Fantasy

**Life Sci
&
Modern
Health
Care**

Creativity

**Public and
Private**

Transforming

Scientific questions

