The Weizmann Institute of Science for The Benefit of Society

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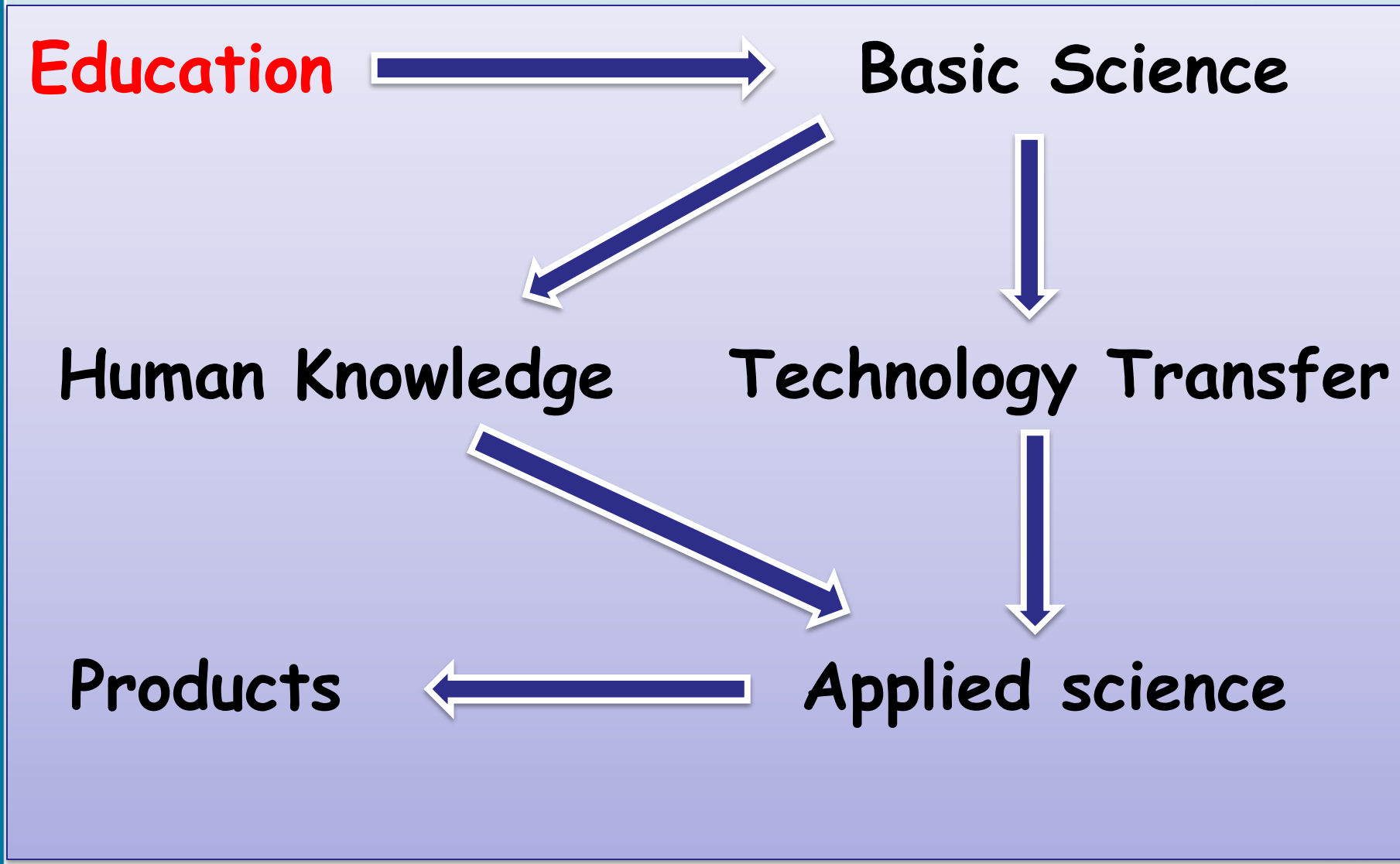
Technology Transfer
The Weizmann Institute, Israel

Conference NITT SK 2013 – Technology Transfer in Slovakia and Abroad –
Oct. 8th, 2013

"Innovation"-How?



The Weizmann Institute of Science

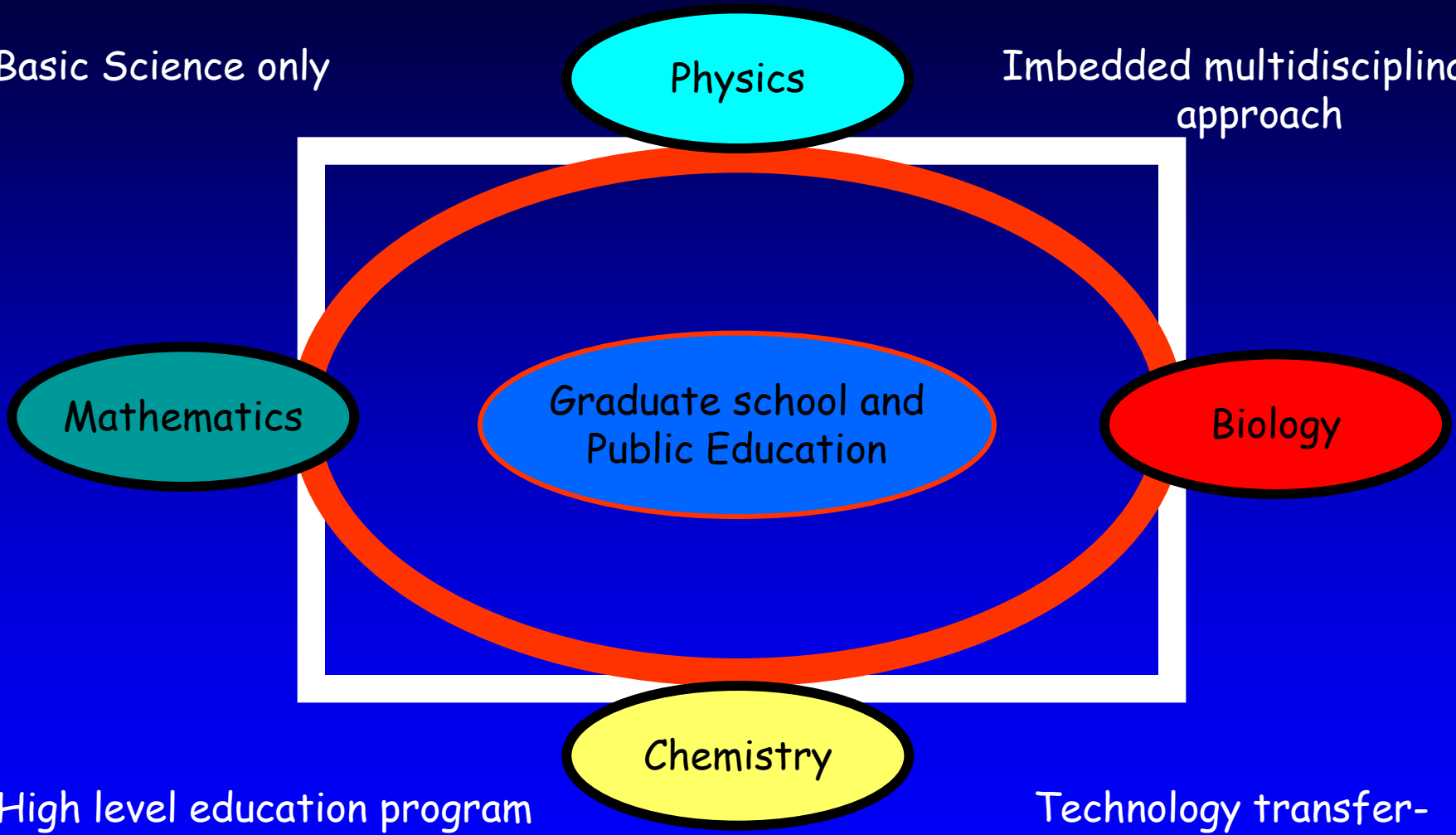
Curiosity Driven Research

מכון ויצמן למדע
WEIZMANN INSTITUTE OF SCIENCE

Weizmann Approach: Basic Research Landscape

Basic Science only

Imbedded multidisciplinary approach



High level education program

Technology transfer- Yeda

מכון ויצמן למדע
WEIZMANN INSTITUTE OF SCIENCE

The next scientific revolution will be driven by scientists who Have:

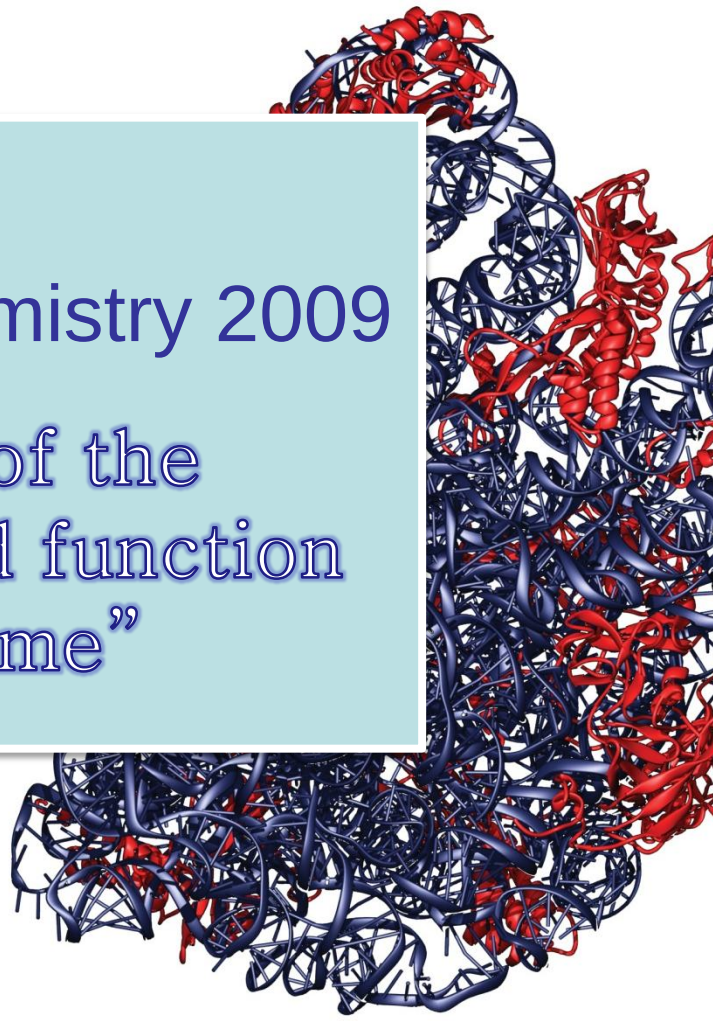
A multidisciplinary view of science,
the opportunity to take risks,
the infrastructure to work,
and the freedom to think.

The Weizmann Institute of Science
2009 Nobel Prize in Chemistry

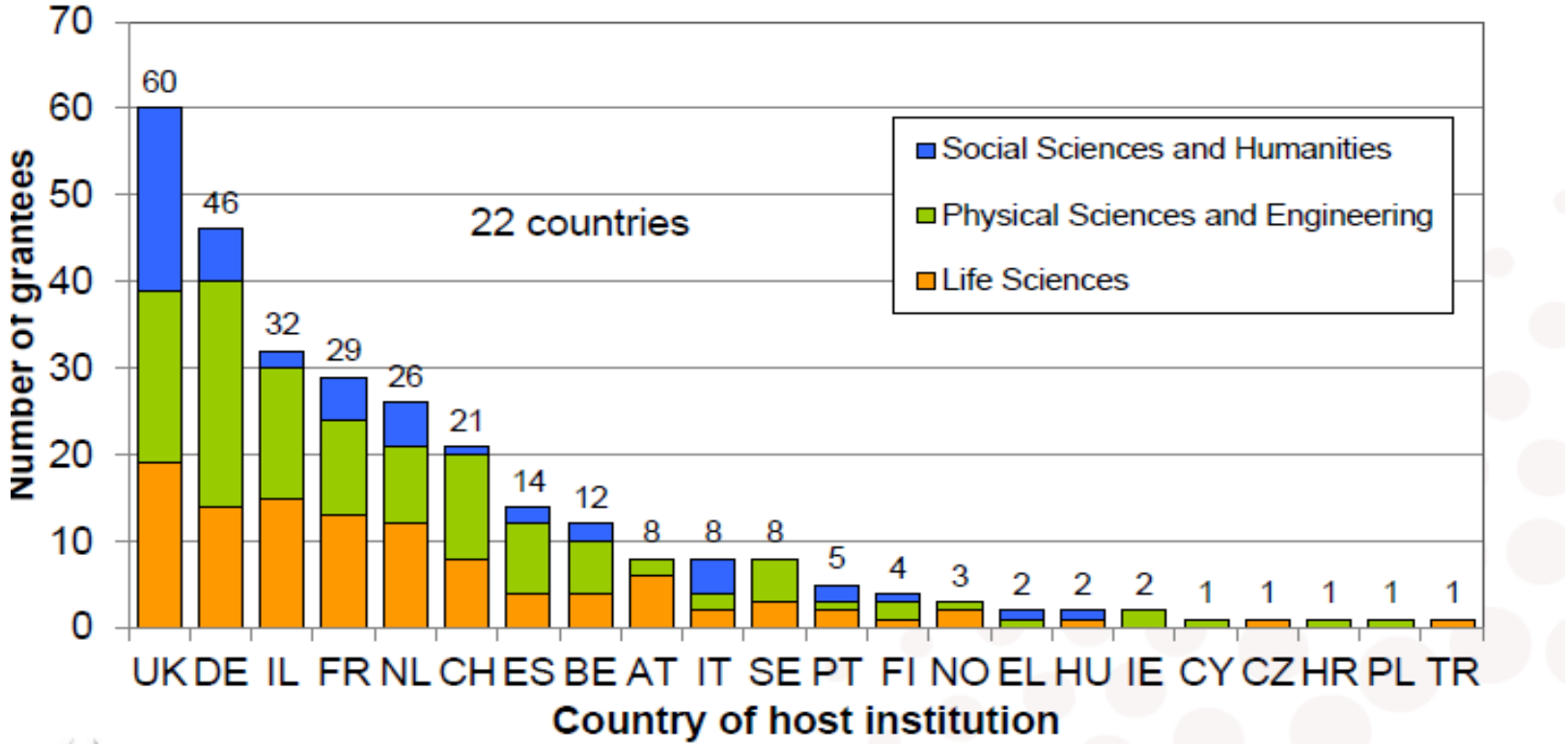
Prof. Ada Yonath

Nobel Prize in Chemistry 2009

"for studies of the structure and function of the ribosome"



ERC Starting grants-2013 call



To succeed in science you need 3 G's

Paul Ehrlich (1902)

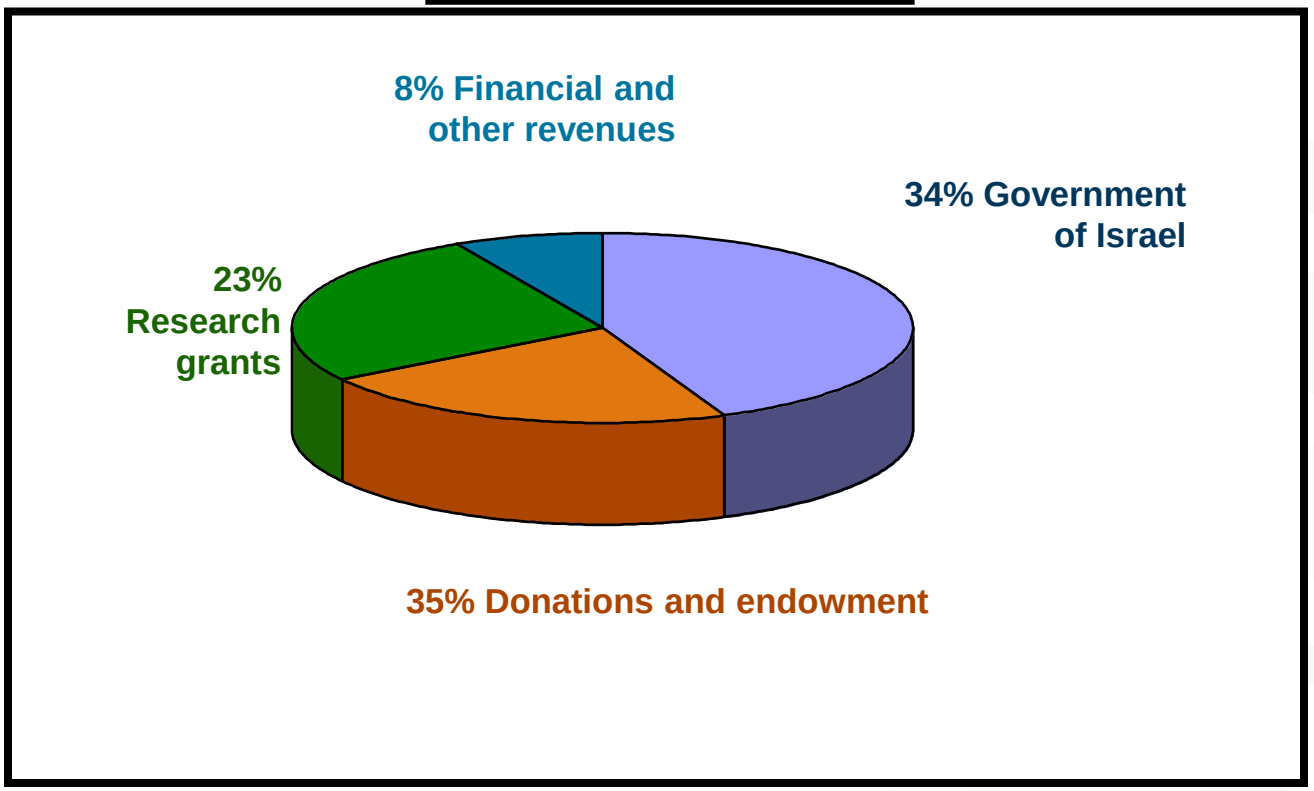
Gedacht = Original Ideas

Geduld = Patience

Geld !! = Money !!

Weizmann Budget

Budget: ~$300 M



Technology Transfer Tradition

1915 Professor Chaim Weizmann invented a new bio-technological method to produce **acetone from starch**.

1916 Weizmann (that **owned over 100 patents**) applied for a patent and transferred the technology to the British Navy.

1917 Navy Laboratories successfully mass produced acetone which was used to produce explosives during WWI.

After the war, this became the common industrial method for **acetone production**.

1934 Weizmann Established the **Daniel Sieff Research Institute**, which later became the **Weizmann Institute of Science**.

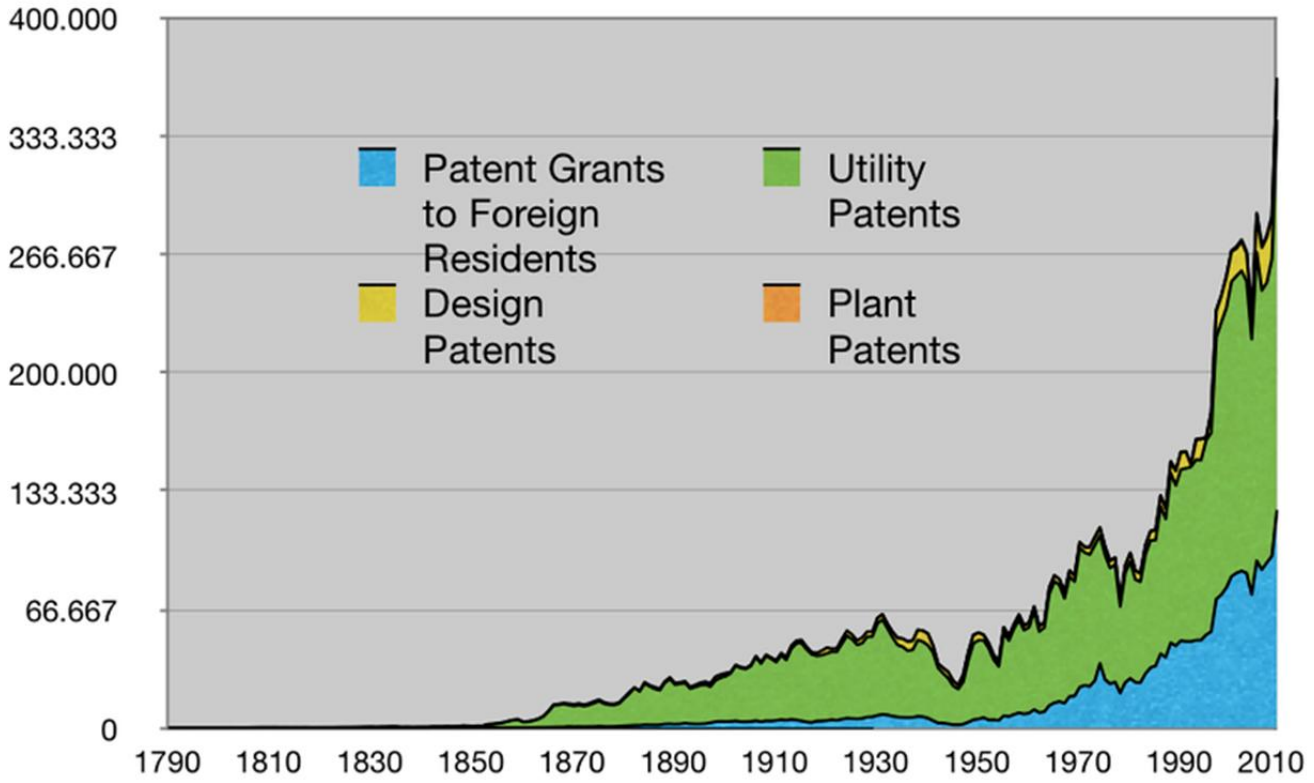
1948 Weizmann became Israel's first **President**.

It is very difficult to make predictions-especially about the future…

Niels Bohr

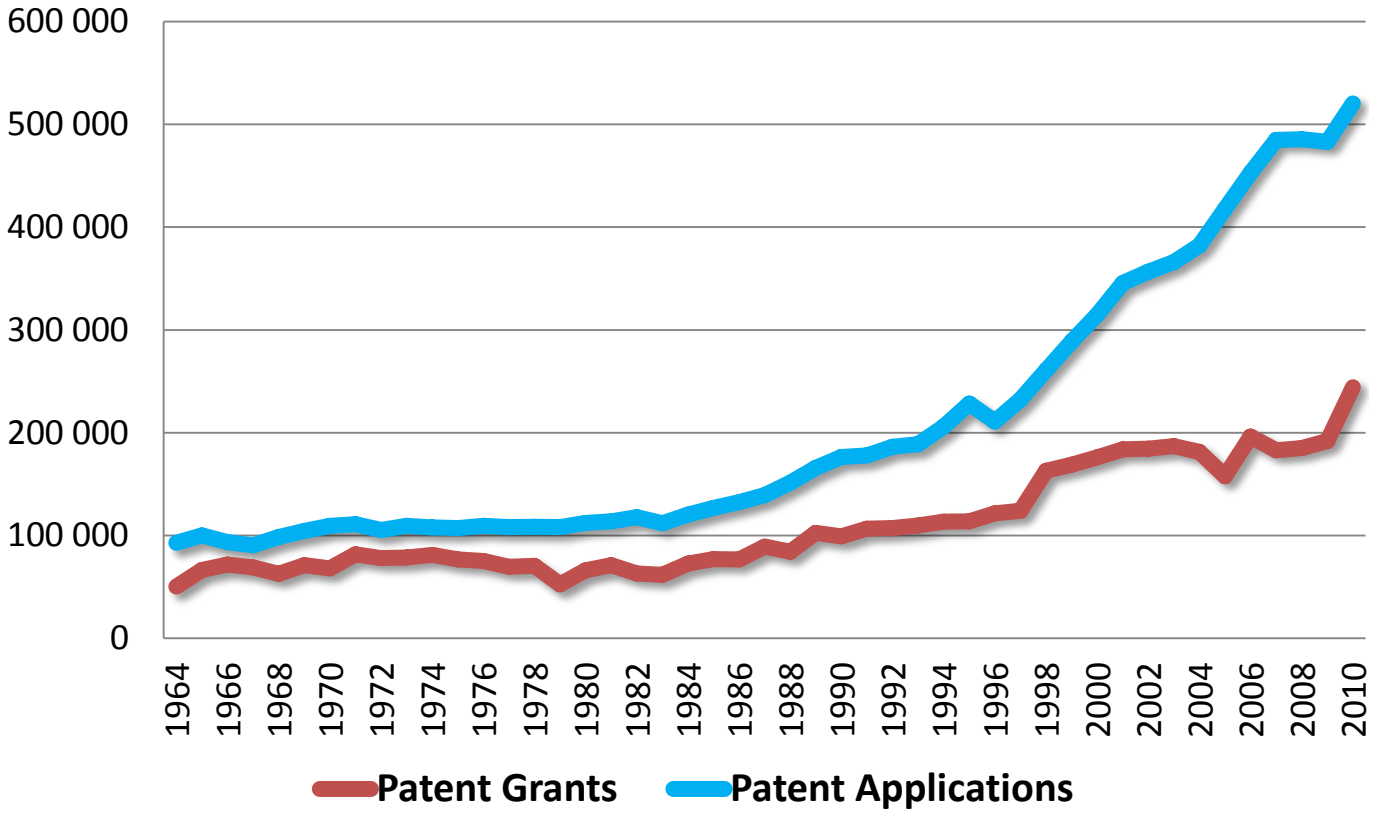
"Everything that can be invented has been invented"

CHARLES H. DUELL, Commissioner US. Office of patents, **1899.**



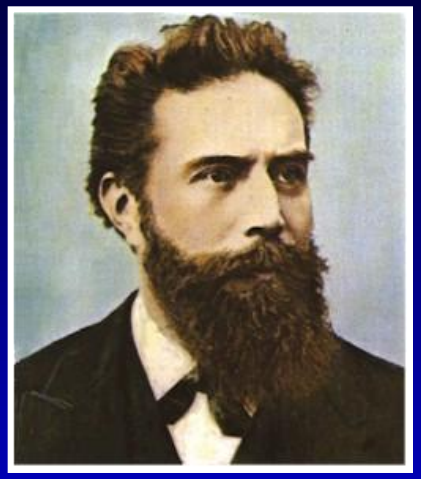
U.S. patents granted, 1790–2010.

U.S. Patent Statistics Chart
Calendar Years 1963 - 2010



Basic Science:
The serendipity model
X-ray

Serendipity:
The faculty of making fortunate discoveries by accident.



Röntgen

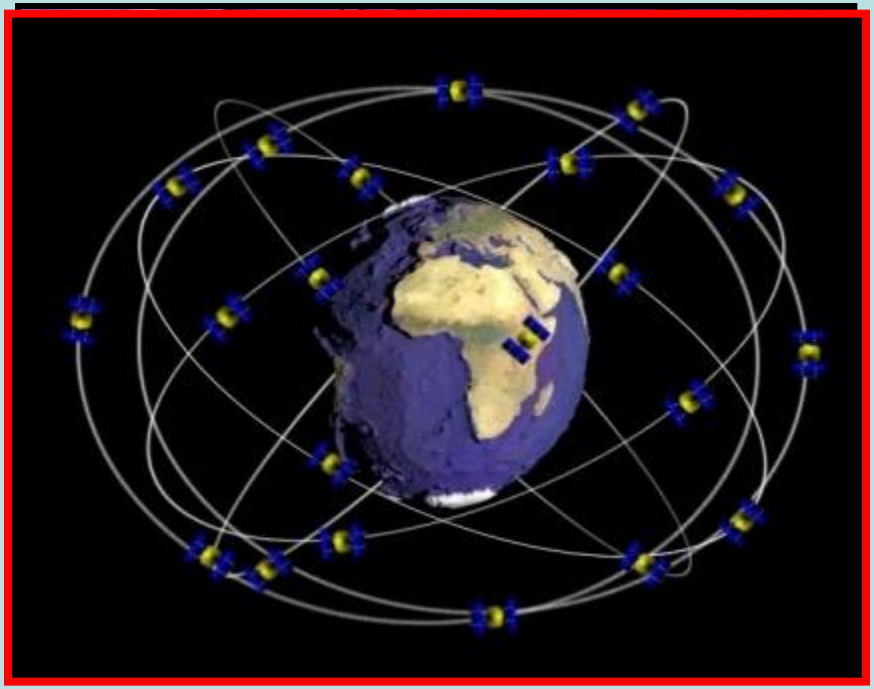
Crookes tube

Röntgen
wife's hand

Röntgen was "playing" with a Crookes tube, and tried to understand the behavior of electric current in such a device.

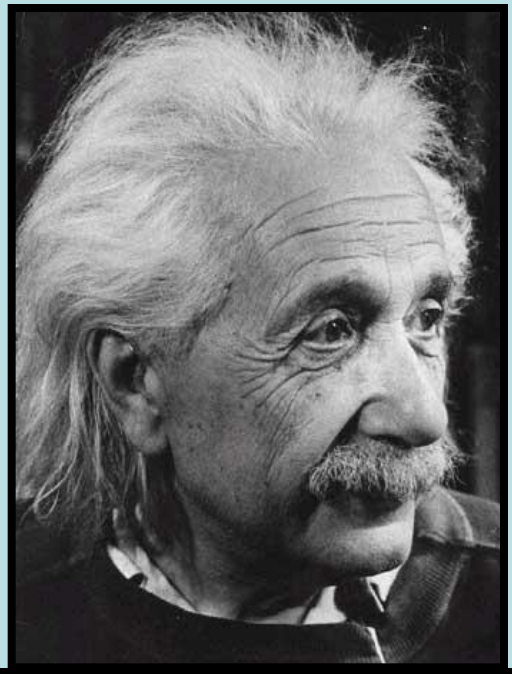
Basic science:
The initially unknown applications

Atomic clock



GPS: Global Positioning System

Theory of relativity



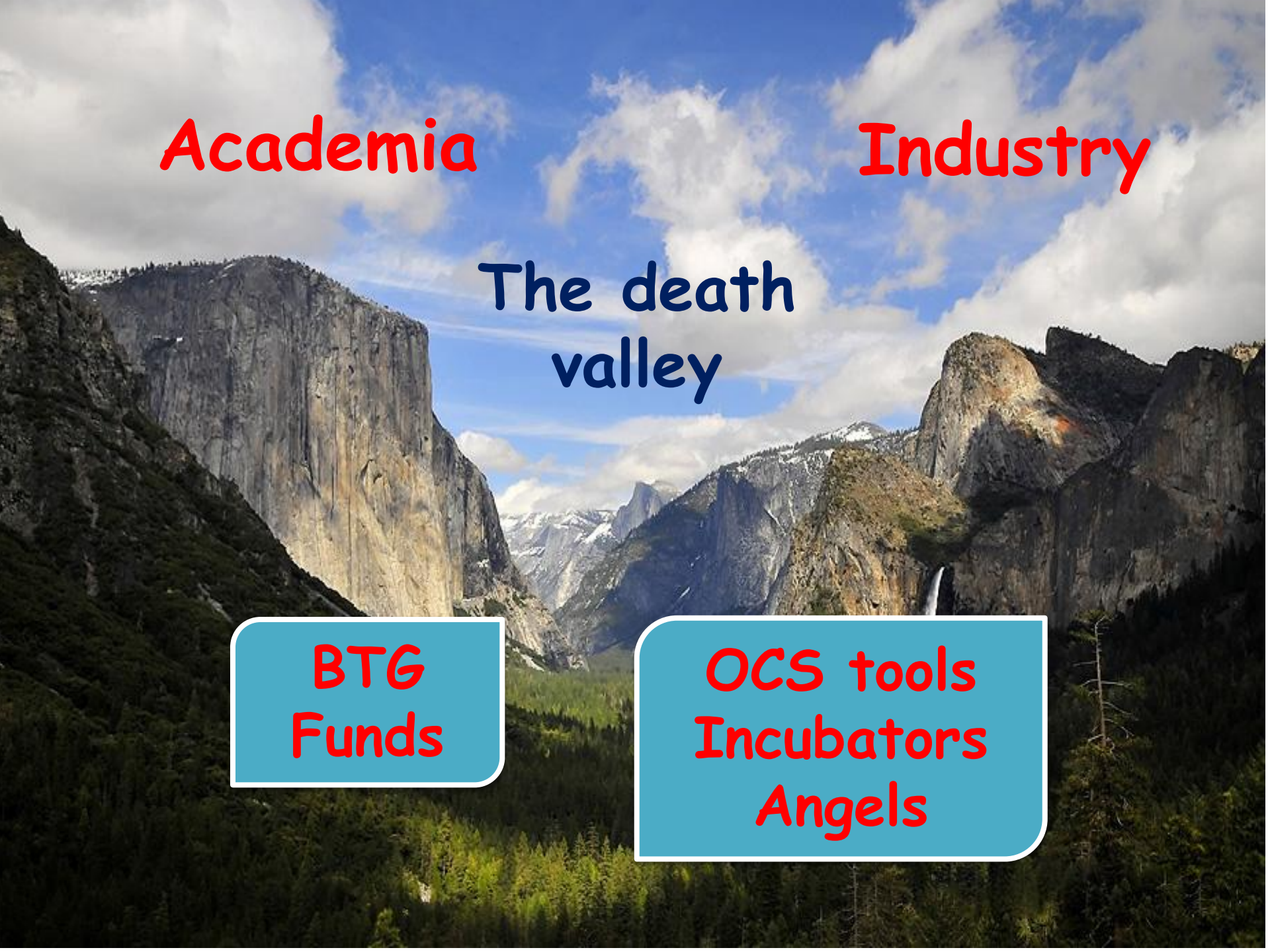
- Technological developments are fueled by scientific innovations coming from academia.

"The guy who invented the first wheel was an idiot. The guy who invented the other three, he was a genius".

Sid Caesar

Yeda was established in 1959. Yeda's mission:

1. To allow society to benefit from discoveries made at Weizmann.
2. To create an additional source of income to the institute so that more independent research can be conducted.


Academia
Industry
The death valley
BTG Funds
OCS tools
Incubators
Angels

Favorable Environmental Conditions for Technology Transfer

- Legal structure similar to Bayh-Dole act
  - IP owned by the Institution
  - Sharing royalty with the inventors
- Government support programs
  - Incubators
  - Direct tech transfer support programs
- Developed VC community, Entrepreneurs

Internal Conditions for successful Tech Transfer

- Scientists' focus on excellence in Basic Science, not on commercialization.
- A pro-active tech transfer operation.
- Tech Transfer officers: background in Business and Academia.
- Clear internal IP rules, enforced by University management.

Selected Success Stories

COPAXONE®

- Indicated for Multiple Sclerosis COPAXONE represents a new class of drugs for the treatment of the disease
- Copaxone is a synthetic copolymer acting as an immunomodulator
- 1971: First Patent filed by Yeda
- 1987: Licensed to Teva Pharmaceuticals Ltd.
- 2012 Sales: $US 4 Billion

  Share market: ca. 37%

Rebif®

- Indicated for Multiple Sclerosis Rebif is a recombinant interferon beta 1a.
- Rebif is marketed worldwide by **Merck Serono**.
- 1982: Licensed to Interpharm.
- 2012 Sales: **Euro 2.3 Billion**
  2012 Market share: **32%**

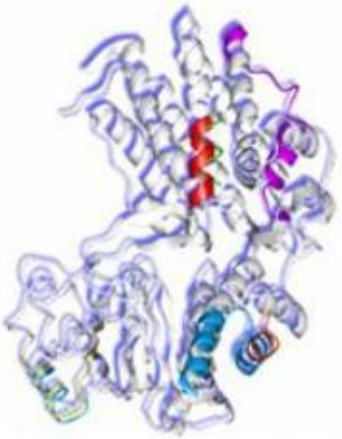
Encryption Algorithm

- Technology developed by Prof. Adi Shamir and colleagues.
- Patent filed by Yeda in 1986.
- Licensed in the early 90's to a start up company in Jerusalem, later purchased by **NDS group**.
- 52 million TV set-top box smart-cards in use worldwide.
- **2012 Sales: $US 1 B**

NDS

A Drug for Type 1 Diabetes Developed by Prof. Irun Cohen – Phase III

- DiaPep277® is a unique peptide, containing 24 amino acids, is derived from the sequence of the human heat shock protein 60 (Hsp60).
- The peptide acts by modulating the immune system, preventing the destruction of the pancreatic cells that secrete insulin.
- It appears that the patients treated with the drug for a year or more had significantly higher pancreas function than those in the control group.
- Licensed to Andromeda Biotech.



DiaPep277 ®

Yeda Research & Development Co. Ltd.
A World Leader in Technology Transfer

- Dozens of "Weizmann-Inside" products on the market.
- Total annual sales of Weizmann-based products in 2012: Over $22 Billion.
- Over 50 new companies were established around Yeda's technologies.
- Yeda owns one of the largest portfolio of patents in Israel:
  660 live patent families, with more than 1,700 patent families filed since 1971.

Favorable environment for innovation

- Education- Provide "tools" for learning and approach new problems; Curiosity.
- Create strong academic system; Provide "freedom" to young scientists;
- **Encourage taking risks.**
- Strengthen "technology transfer" and taking risks in industry.
- **Governmental wise support.**

However!

Academy-Industry cooperation, as love making between hedgehogs, is a desired activity that has to be exercised with extreme caution.

Thank you for your attention