
Annual Meeting of the New Champions 2009

Groundbreaking Discoveries in Science

Dalian, People's Republic of China 10-12 September

In a world filled with entrenched problems, the challenge is finding groundbreaking solutions. Young Scientists and Technology Pioneers experience bold thinking in science and explore ideas that could change lives.

Key Points

- Participants discussed the impact of current and future research on nanotechnology, energy, human health, the environment and information technology.
- Each discussion leader presented on a specific area and participants broke out into groups according to subject area to present their ideas, which were then presented in a report.

Synopsis

Some of the ideas that emerged included the following.

Nanotech/Materials Science

- Create nanotechnology-based solar cells: cheap, clean, renewable, flexible, scaleable
- Develop new materials that will optimize energy harvesting, whether using solar power or fossil fuels
- Build quantum computers at the nano-scale, which could radically increase computing power

Human Health

- Personalize databases of health-related data for individuals, with data collected and fed into software which analyses behaviour and health of the individual, giving warnings to at-risk individuals
- Compute models for identifying and predicting new trends in complex human disease, able to track changes in human genetic trends over time

Environment

- Develop clean and renewable coal technology
- Create a biologically based "pesticide" that targets environmental pollutants
- Undertake a complete inventory of all known species on Earth

Data/IT

- Harness modern computational power to build software capable of performing both diagnosis and prescription, allowing optimized use of limited health care resources
- Shift from people using the Web to look for data, to the data proactively finding individuals who need it

Participants agreed that some of the proposals under data/IT were the most immediately realizable. Yet, privacy issues related to government and security remain.

Many different ideas at various stages of development are on offer. But the most exciting and pressing question for science currently is, "What are the key questions that we all must address?"

World Economic Forum Summary

Session Panellists

Fabio Cavalli, Chief Executive Officer and Chief Business Architect, mondoBIOTECH, Switzerland; Technology Pioneer

Merieme Chadid, Explorer and Astronomer, Antarctica Research Station, France; Young Global Leader

James A. Hendler, Tetherless World Senior Constellation Professor, Rensselaer Polytechnic Institute (RPI), USA

David Hutchinson, Senior Lecturer, University of Otago, New Zealand; Young Scientist

Nitsara Karoonuthaisiri, Head of Microarray Laboratory, National Center for Genetic Engineering and Biotechnology, Thailand; Young Scientist

Hiba Mohamed, Assistant Professor of Molecular Biology, Institute of Endemic Diseases, University of Khartoum, Sudan; Young Scientist

Michael Sutherland, Royal Society University Research Fellow, University of Cambridge, United Kingdom; Young Scientist

James Tickner, Stream Leader, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia; Young Scientist

Challenger

Howard Alper, Chair and President, Science, Technology and Innovation Council, Canada; Young Scientist

Facilitated by

Jonathan Dordick, Howard P. Isermann Professor and Director, Center for Biotechnology and Interdisciplinary Studies, Rensselaer Polytechnic Institute (RPI), USA

Disclosures

This summary was prepared by Stéphanie Nassenstien-Zacchi and Kaiser Kuo. The views expressed are those of certain participants in the discussion and do not necessarily reflect the views of all participants or of the World Economic Forum.

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Recommended reading for: Meeting participants, Young Scientists, Technology Pioneers