Future of Work & Technology 2050
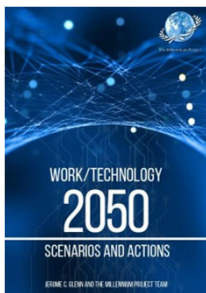
The Millennium Project
Ibon Zugasti

… Acts like a *TransInstitution*

Universities

UN Organizations

The Millennium Project

Corporations

Governments

NGOs and Foundations

68 Nodes...and two regional networks in Europe and Latin America

are groups of experts and institutions that connect global and local views in:

Nodes identify participants, translate questionnaires and reports, and conduct interviews, special research, workshops, symposiums, and advanced training.

Global Futures Intelligence System (www.themp.org)

STATE OF THE FUTURE
19.1
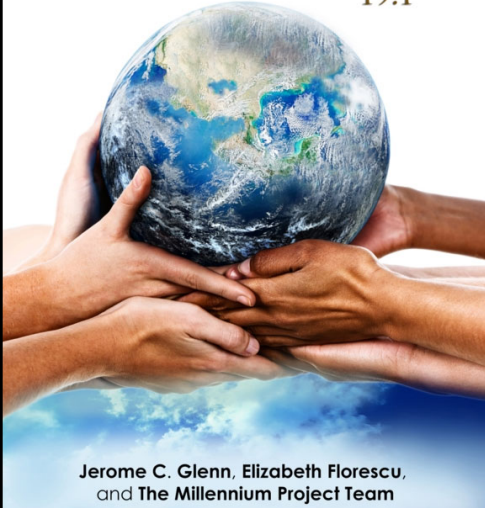
Jerome C. Glenn, Elizabeth Florescu,
and The Millennium Project Team

Chapter 4: Work/Tech 2050
Inevitability of New Economics

- Concentration of wealth is increasing
- Income gaps are widening
- Employmentless economic growth seems the new norm
- Return on Investment in capital and technology is usually better than labor
- Future technologies can replace much of human labor
- Long-term structural unemployment is a "business as usual" or "surprise free" trend forecast

What can we do about this?

Next Technologies (NT): Imagine How NT Synergies Will Create New Businesses

Artificial Intelligence

Robotics

Synthetic Biology & Genomics

Computational Science

Cloud & Big Data Analytics

Artificial & Augmented Reality

Nanotechnology (two kinds)

IoT, Tele-Everything & Tele-Everybody, the Semantic Web

Quantum computing

Tele-Presence, Holographic Communications

Intelligence augmentation

Collective Intelligence

Blockchain

3D/4D Printing Materials/Biology

Drones, Driverless Cars (and other autonomous vehicles)

Conscious-Technology

Synergies Among These

Artificial Narrow Intelligence (ANI) is often better and faster than humans at:

Lip reading (LipNet; Deep Mind)

Flying planes, driving trucks

Mathematics

Live voice translation (Microsoft)

Playing games (Chess: Deep Blue, Jeopardy & Go: Alpha Go)

Face recognition

Medical diagnosis (IBM Watson - Cancer)

Reading comprehension speed (Microsoft and Alibaba)

Legal analysis (LawGeex)

Income tax preparation (TurbTax)

Organizing shipping (Amazon)

Specific research (Google; Alexa)

Traffic navigation (Google Maps)

And AI/robots for repetitive tasks and large scale data analysis

Why is Tech-Unemployment different this time?

1. The acceleration of technological change
2. The globalization, interactions, and synergies among next technologies
3. The existence of a global platform—the internet—for simultaneous technology transfer … with far fewer errors in the transfer than in the past
4. Standardization of data bases and protocols
5. Few plateaus or pauses of change allowing time for individuals and cultures to adjust to the changes
6. Billions of empowered people in relatively democratic free markets able to initiate activities
7. Machines can learn how you do what you do, and then do it better than you
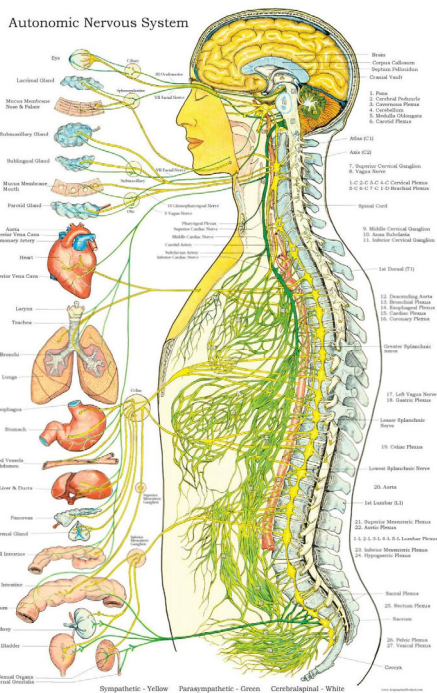
Autonomous Nervous System & Civilization

Just as the autonomous nervous system runs much of our body, freeing the mind to be creative;

AI and other Next Technologies (NT) will run much of the physical infrastructure of future civilization freeing more of humanity to be creative.

Future Work/Technology 2050 Study

1. Literature and Related Research Review
2. Real-Time Delphi
3. Three Global Scenario Drafts to 2050
4. Separate RTDelphi Feedback on each Scenario
5. Final Scenarios, Policy Issues, and Workshop Considerations
6. National Workshops to Explore Long-range Strategies
7. Collect results of the national planning workshops, analyze & synthesize results
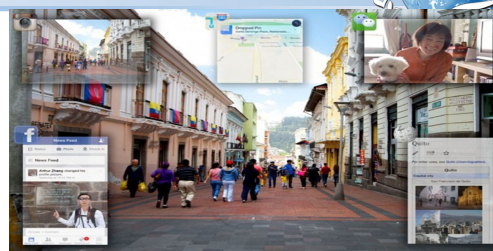8. Final Report for Public Discussion

Three Alternative Global Scenarios 2050

It's Complicated - A Mixed Bag

Political/Economic Turmoil
Future Despair

If Humans Were Free
The Self-Actualizing Economy

Scenario 1:

It's Complicated – A Mixed Bag

- A business-as-usual trend projection
- Increasing acceleration of change with both intelligence and stupidity
- Irregular adoption of advance technology
- Major employment growth in Biotech Industries
- High unemployment where governments did not create long-range strategies
- Mixed success on the use of universal basic income.
- Giant corporations grow beyond government control, in this government-corporate, virtual-3D, multi-polar world of 2050.

IoT AI Contact Lens – always in Virtual and Augmented Reality connected to the word

Hands-free, phone-free, laptop-free, AI-Human symbiosis
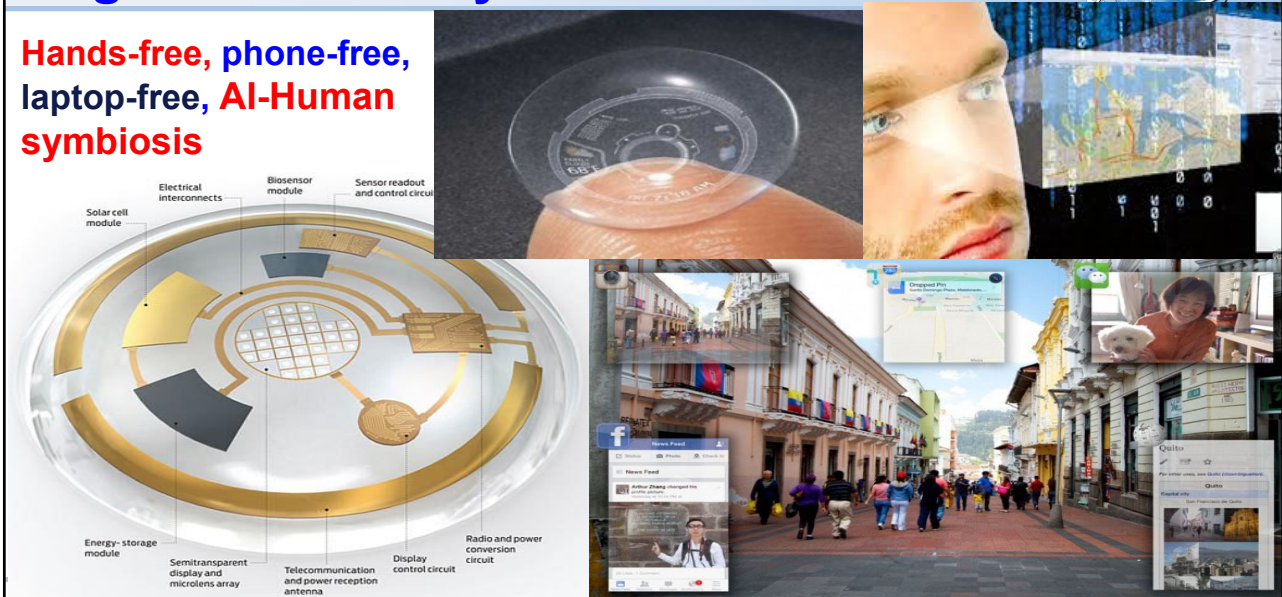
Scenario 2:

Political/Economic Turmoil – Future Despair

- Political grid-lock increases social polarization, prevents decisionmaking
- Political, economic, environmental migrations increase ethnic conflicts
- Governments did not anticipate impacts of artificial **general** intelligence: hence, no strategies to address increasing mass unemployment
- Unemployment exploded in the 2030s leads to 2050 in political turmoil
- Financial systems cannot support ageing societies, financial crises
- World order has deteriorated into a combination of nation-states, mega-corporations, local militias, terrorist groups, and organized crime

Scenario 2 Jobless Migrations

In Scenario 2 AI makes this Combination Far More Powerful…

…Making Democracy and Free Markets…

Organized Crime

Terrorism

Corruption

Information Warfare

**…An Illusion**

Scenario 3:

If Humans Were Free
the Self-Actualization Economy

- Governments did anticipate the impacts of artificial general intelligence
- Conducted extensive research on how to phase in universal basic income systems
- Increasing intelligence becomes a goal of education
- Self-employment promoted
- Artists, media moguls, and entertainers helped to foster cultural change from an employment culture to a self-actualization economy.

Scenario 3 Your Personal AI Avatar searches the web while you sleep…

… then wakes you up in the morning ….with all kinds of interesting things to do, some for income, some because the are just fun, and some that are both all with smart contacts if needed.
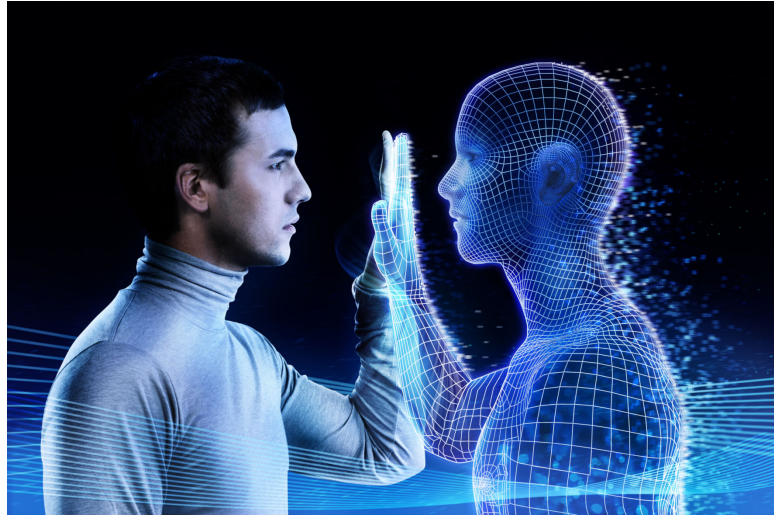
Self-Actualization Economy: New Social Contract and Human Rights

- Maslow's Hierarchy of Needs can be applied to society
- Basic physical needs are being met; extreme poverty gone by 2030
- Social Media Platforms and Content are addressing much of our love and belongingness needs and as well as our self-esteem needs.
- Over half the world is connected to the Internet – we can now find markets for our interests around the world rather than a local job which may not exist in the future.
- You don't run out of your life's work, you just need to connect to enough around the world
- If universal basic income comes in around the 2030, then all this is even easier.

Global Employment Assumptions
### Workforce 3 billion 2000; 6 billion 2050

	Scenario 1 Business as Usual	Scenario 2 Political Turmoil	Scenario 3 Self-Actualization
Employed	2 Billion	1 Billion	1 Billion
Self-Employed	2 Billion	1 Billion	3 Billion
Unemployed or in transition	1 Billion	2 Billion	1 Billion
Informal Economy	1 Billion	2 Billion	1 Billion

Future Work/Tech 2050 Workshops

Initial workshops	Initial workshops	In planning	Exploratory talks
1. Argentina (2 and series)	11. Italy (2, and 3rd in planning)	China	Australia
2. Bolivia (series)	12. The Netherlands (2)	El Salvador	Croatia
3. Brazil (Sao Paolo)	13. Mexico (2)	Peru (2030 study first)	Dubai, UAE
4. Bulgaria	14. Poland	Kenya	Egypt
5. European Foresight Network	15. Spain (3)	Pakistan	Georgia
6. Finland	16. South Africa	Romania	India
7. Germany (series)	17. South Korea (2)	Slovakia	Iran
8. Greece	18. Uruguay (series in progress)	Sri Lanka	Montenegro
9. Hungary	19. Venezuela	Zambia	Slovenia
10. Israel (2)	20. United States (2)		Turkey
			United Kingdom

Workshop Discussion Groups
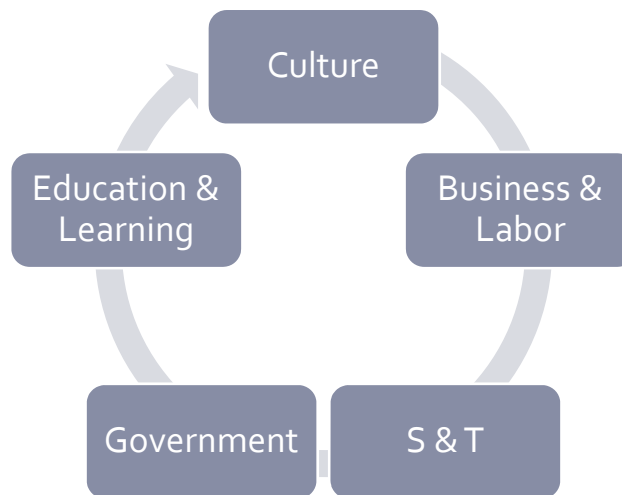
Current and Next Activities

- Real-Time Delphi on Global Developments for input the global report of EY (Ernst & Young) and the next State of the Future report by The Millennium Project
- Assessment of Global Governance Systems for the Transition to Artificial General Intelligence
- UN Office of Strategic or Existential Threats
- Next State of the Future report
- World Future Day March 1st 2022

For further information

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State of the Future 19.1:
http://www.millennium-project.org/state-of-the-future-version-19-1/

Futures Research Methodology 3.0:
http://www.millennium-project.org/publications-2/#method

Global Futures Intelligence System:
http://www.millennium-project.org/projects/global-futures-intelligence-system/