Future Technologies and Implications for Government Actions

Future Institute, National Assembly, Seoul, Korea

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The Millennium Project

Agenda/Outline

- Brief introduction to The Millennium Project
- Strategies to address future and other technologies, impacts on economics and work
- Information warfare deterrence
- collective intelligence systems to support decisionmaking.

- **Areas for collaboration with The Millennium Project**

  Futures Research Methodology Training

  Korean State of the Future Index

  State of the Korea's Future Report

  How to use the Global Futures Intelligence System

  Development of Korean Futures Intelligence System

  Use of the Work/Technology 2050: Scenarios and Actions report

… Acts like a *TransInstitution*

64 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.

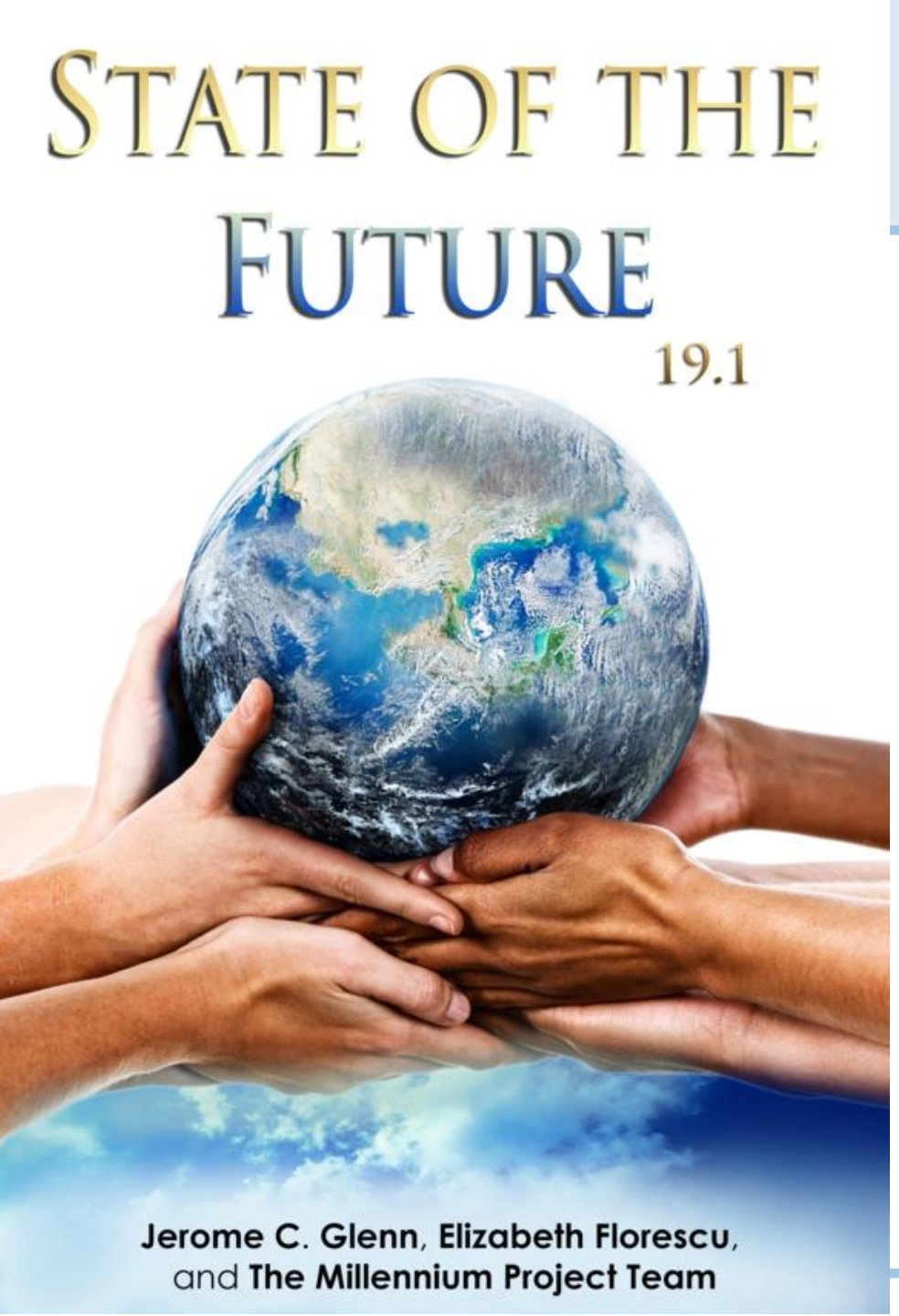
39 Chapters
37 Different Methods

1,300 pages

Largest collection of Internationally peer-reviewed methods to explore the future ever assembled in one source

Global Futures Intelligence System

https://themp.org



Preface
Executive Summary
Ch 1 Global Challenges
Ch 2 2017 State of the Future Index
Ch 3 Future Terrorism & Deterrence
Ch 4 Work/Tech 2050 Scenarios
and Workshop Strategies
Ch 5 Conclusions
Appendix

MP Futures Research… so far

1. African Futures Scenarios 2025, and UNDP workshop at the UN (1994)
2. Millennium Project Feasibility Study final report (1995)
3. Global Issues/Strategies four-round Global Lookout (Delphi) study (1996)
4. Lessons of History (1997)
5. Global Opportunities and Strategies Delphi (1997)
6. Definitions of Environmental Security (1997)
7. Futures Research in Decisionmaking (and checklist) (1998-99)
8. Global Normative 2050 Scenario (1998)
9. Environmental Security Threats and Policy Leadership (1998)
10. Current/Potential UN military doctrine on Environmental Security (1999)
11. Six Alternative Year 3000 Scenarios (1999)
12. S&T Issues over the next 25 years (2000)
13. Future Technological Implications for Society and the UN System (2000)
14. Analysis of UN Summit Speeches (2001)
15. Military environmental crimes and the role of the ICC (2001)
16. Management Implications of Future S&T 2025 Issues (2001)
17. New Military Environmental Security Requirements 2010-2015 (2001)
18. Global Goals for the year 2050 (2002)
19. Future S&T Scenarios 2025 (2002)
20. Emerging Environmental Security Issues for Future UN Treaties (2002)
21. Monthly Reports: Emerging Environmental Security Issues (2002-2011)
22. Middle East Peace Scenarios (2002-04)
23. Early Warning System for Kuwait Oil Company (2003-04)
24. Nanotech Military R&D Health/Env Research Prevention Priorities 2004-05)
25. Future Ethical Issues (2004-05)
26. Global Energy Scenarios (2006-07)
27. South Korea SOFI (2006)
28. Future of Learning and Education 2030 (2007)
29. Global Climate Change Situation Room for Gimcheon, South Korea (2007-2008)
30. Conceptual design for global energy collective intelligence (GENIS) (2008)
31. Status of Government Future Strategy Units (2008)
32. RTDelphi for UNESCO World Water Report (2008)
33. WFUNA Human Rights (2008)
34. Decision Criteria Evaluation of Global Environment Facility (2008)
35. South Korea SOFI and South African SOFI (2008)
36. Early Warning System PMO Kuwait (2008-2009)
37. Potential Future Elements of the Next Economic System (2009)
38. UNESCO World Water Scenarios project (2009)
39. Future of Ontologists (2009)
40. Future Hopes and Fears: a Kuwait Perspective (2010-2011)
41. Latin America 2030 Scenarios (2009-2011)
42. Egypt 2020 (2010)
43. Changes to Gender Stereotypes (2011)
44. Azerbaijan SOFI (2011)
45. Future Arts, Media, and Entertainment: Seeds for 2020 (2011)
46. Cooperatives 2030: Factors Impacting Future of Cooperatives and Business (2012)
47. Egypt's national Synergetic Information System (ECISIS) (2013-16)
48. Hidden Hunger: Unhealthy Food Markets in the Developing World (2013)
49. Vulnerable Natural Infrastructure in Urban Coastal Zones (2013)
50. FUTURES Dictionary/Encyclopedia (English and Spanish) (2014)
51. SIMAD and Lone Wolf Terrorism Counter Strategies (2014)
52. Czech Rep., Hungary, Poland, Slovakia, Visegrad Region SOFIs (2014-2015)
53. Water-Energy-Food Nexus in the Context of Climate Change (2015-16)
54. Pre-Detection of Terrorism Strategies RTDelphi, NATO Workshop (2015-17)
55. Future Work/Technology 2050 Global Issues, Scenarios, Workshops (2015-17)

Current and Previous Sponsors/Clients:

- Academy of Scientific Research and Technology, Egypt (2013-2015)
- AGAHI Pakistan (2016-18)
- Alan F. Kay & Hazel Henderson Foundation (1996–2000)
- Amana Institute, São Paulo, Brazil (2004)
- Applied Materials, Santa Clara, California (2002–09)
- Argentina Ministry of Agriculture (2012)
- Azerbaijan State Economic University (2009-2016)
- City of Gimcheon (via UN Future Forum, So. Korea) (2009–10)
- Deloitte & Touche LLP, Cleveland, Ohio (1998–09)
- The Diwan of His Highness the Amir of Kuwait (2010–11)
- Environmental Law Institute (2017)
- Ford Motor Company (1996–97, 2005–06)
- Foundation for the Future, Bellevue, Washington (1997–98, 1999–2000, 2007–08)
- General Motors, Warren, Michigan (1998–2003)
- Government of the Rep. of Korea (via UN Future Forum) (2007–08)
- The Hershey Company (2008–09)
- Intel (2017)
- Hughes Space and Communications, (1997–98, 2000)
- Kuwait Oil Company (via Dar Almashora (2003–04)
- Kuwait Petroleum Corp. (via Dar Almashora for Consulting) (2005–06)
- Ministry of Communications, Republic of Azerbaijan (2007–11)
- Ministry of Educucation and Presidential Commission on Education, Republic of Korea (2007)
- Monsanto Company, St. Louis, Missouri (1996–98)
- Montenegro Ministry of Science and Technology (2012)
- Motorola Corporation, Schaumburg, Illinois (1997)
- NATO, Brussels, Belgium (2016)
- Pioneer Hi-Bred International, West Des Moines, Iowa (1997)
- Rockefeller Foundation (2008–11; 2013)
- Shell International (Royal Dutch Shell Petroleum Company), London, UK (1997)
- UNESCO, Paris, France (1995, 2008–10)
- United Nations Development Programme, New York, (1993–94)
- United Nations University, Tokyo, Japan (1992–95, 1999–2000)
- Universiti Sains Malaysia (2011)
- U.S. Army Environmental Policy Institute, Arlington, Virginia (1996–2011)
- U.S. Department of Energy, Washington, D.C. (2000–03)
- U.S. Environmental Protection Agency, Wash., D.C. (1992–93, 1996–97)
- U.S. Department of Defense, Off of the Secretary
- Woodrow Wilson International Center for Scholars (Foresight and Governance) (2002)
- World Bank (via World Perspectives, Inc. 2008 and GEF Evaluation Office 2012)

- In-kind Sponsors:
  - Google
  - George Washington University
  - Harvard University
  - Organization of American States
  - The Smithsonian Institution
  - UNESCO
  - World Academy of Art and Science

Strategies to address future and other technologies, impacts on economics and work

Inevitability of New Economics, Changing social contract and human rights

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?

Future Work/Technology 2050 Study

1. Literature and Related Research Review
2. Real-Time Delphi on questions not asked or poorly answered
3. Three Global Scenario Drafts to 2050
4. Three Separate RTDelphi's for Feedback on each Scenario
5. Final Scenarios, given for Millennium Project Nodes
6. National Workshops to Explore Long-range Strategies
7. Collect suggestions from the national planning workshops, distilled in to 93 actions, assess all via five (5) Real-Time Delphi's
8. Final Report for Public Discussion

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

Work/Tech Global Scenarios 2050

Each scenario is about 10 pages of detailed cause & effect sequences that illustrate decisions

1. It's Complicated - A Mixed Bag

2. Political/Economic Turmoil – Future Despair

3. If Humans Were Free – The Self-Actualizing Economy

Future Work/Tech 2050 Workshops

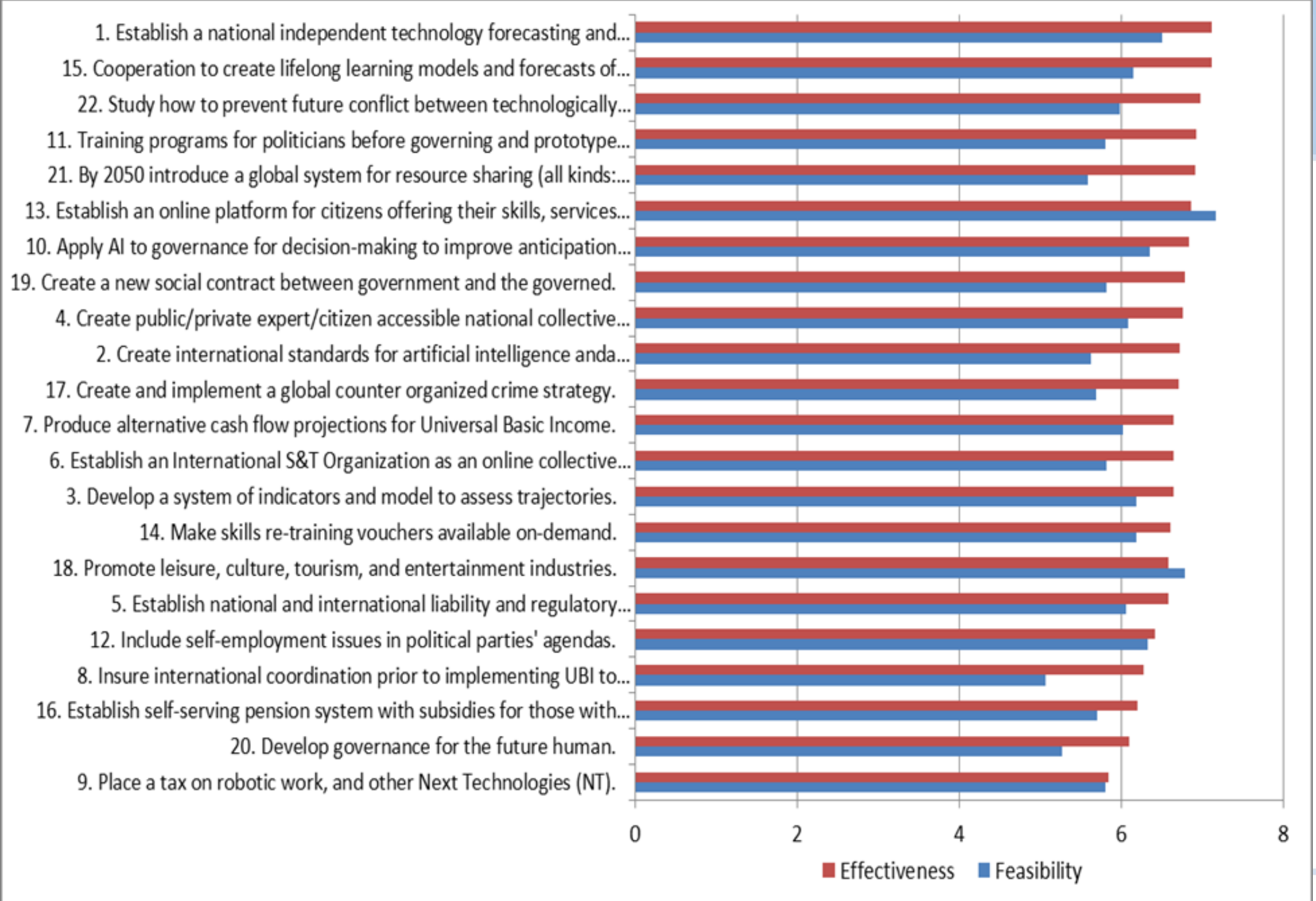
Initial workshops	Initial workshops	In planning	Exploratory talks
1. Argentina (2 and series)	11. Italy (2, and 3rd in planning)	China	Australia
2. Bolivia (series)	12. The Netherlands (2)	El Salvador	Croatia
3. Brazil (Sao Paolo)	13. Mexico (2)	Peru (2030 study first)	Dubai, UAE
4. Bulgaria	14. Poland	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

Actions to Address issues in the Work/Tech 2050 Global Scenarios

Workshop Discussion Group	Actions Assessed	Additional Suggested Actions
Education and Learning	20	26
Government and Governance	22	26
Business and Labor	19	23
Culture, Arts, and Media	17	18
Science and Technology	15	25
Totals	93	118

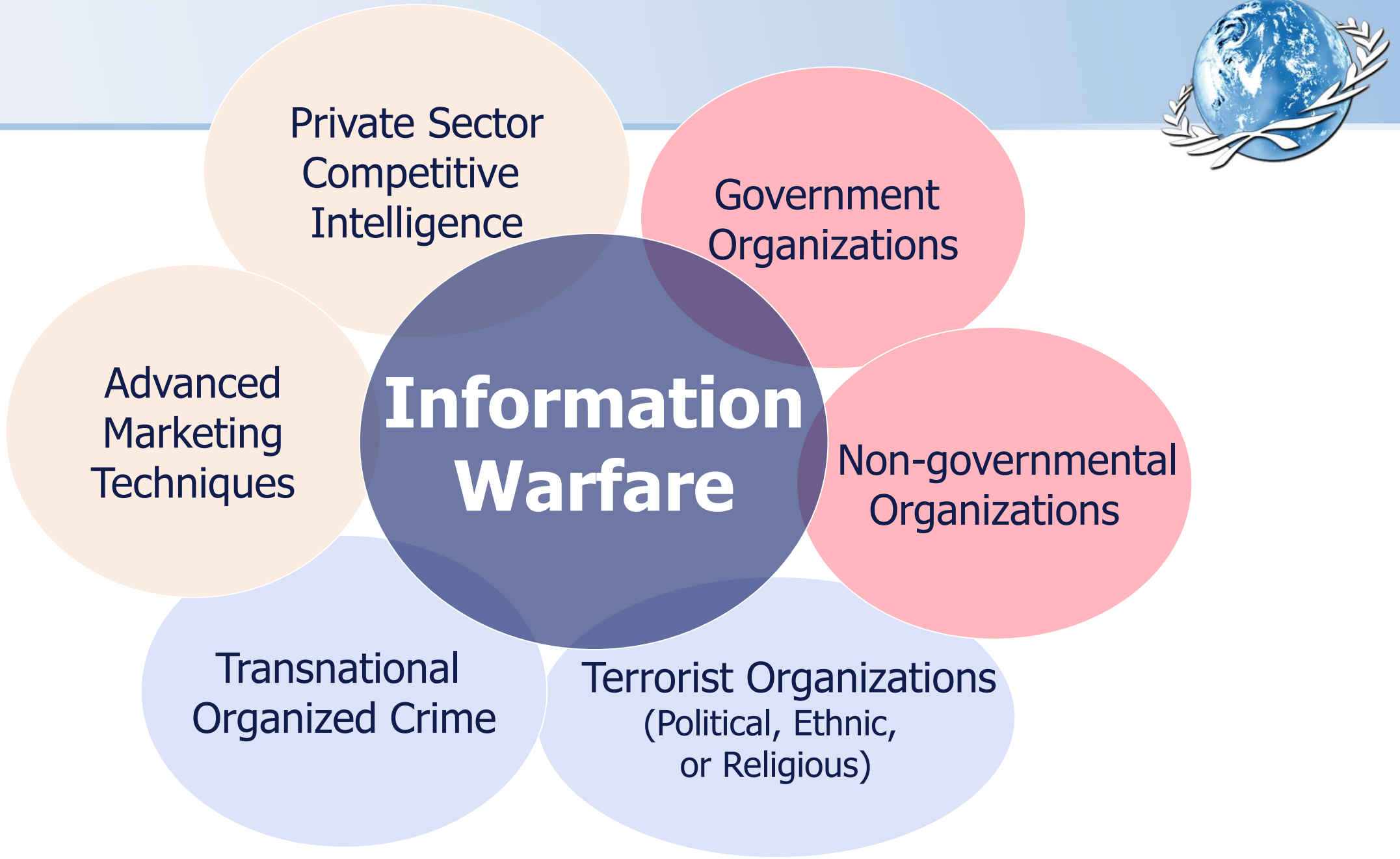
Government and Governance (Top 5)

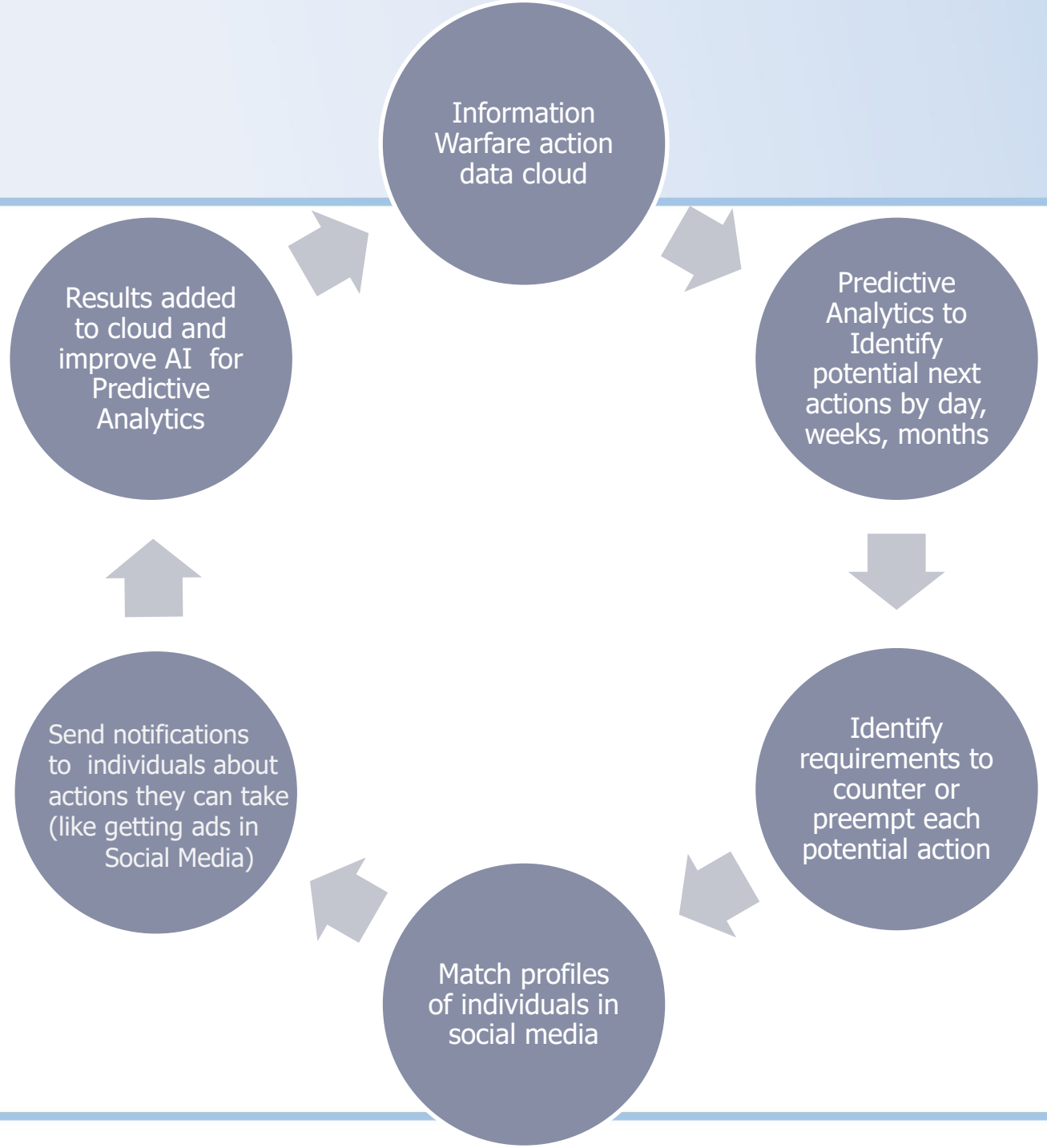
- Establish a national independent (as much as possible) technology forecasting and assessment agency to inform legislative, judicial, and executive functions of government about future technology and their impacts (a government Agency for the Future).
- The government, employers, and the labor unions should cooperate to create lifelong learning models including forecasts of future skills.
- Study how to prevent future conflict between technologically augmented humans (via, AI, genetics, electronics or other means) and non-augmented citizens.
- Training programs for politicians before governing.
- By 2050 introduce a global system for S&T knowledge sharing.



Suggestions for Government

Information Warfare and Deterrence


Private Sector Competitive Intelligence
Government Organizations
Advanced Marketing Techniques
Information Warfare
Non-governmental Organizations
Transnational Organized Crime
Terrorist Organizations (Political, Ethnic, or Religious)



Use infowarfare-related data to develop an AI model to predict future actions;

identify characteristics needed to counter/prevent them;

match social media users with those characteristics and invite their actions.

How Facebook… could save face

For further information

The Millennium Project

Info@Millennium-Project.org

Work/Technology 2050: Scenarios and Actions

http://www.millennium-project.org/publications-2/

State of the Future 19.1

http://www.millennium-poject.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/

Areas for collaboration with The Millennium Project

- Futures Research Methodology Training
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High Impact Integrated Strategies

Factors to Consider in Connecting Futures Research to Decisionmaking

1. Make sure leaders know what futures research is and is not
2. Include decisionmakers in the process, connect to strategic planning
3. Include workshops and training for decisionmakers
4. Include interest groups and actors
5. If goals are lacking, include as an issue
6. Determine who has responsibility to act
7. Balance long-term and short-term views
8. Use at least one formal method that all understand
9. Provide information that demonstrates a crisis
10. Include knowledge about what is possible
11. Make options clear; connect to goals and strategies
12. Demonstrate feasibility of recommendations
13. Include subjective descriptions of alternative futures

Connecting Futures Research to Decisionmaking (cont.)

14. Connect costs to benefits
15. Suggest ways of making decisions in uncertainty
16. Include intended actions of others
17. Develop indicators
18. Using testimony of eminent scientists
19. Project effects of action or inaction in scenarios
20. Show technical feasibility to overcome fear of failure
21. Use computer models
22. Link to similar activities
23. Avoid information overload
24. Allow time for individuals to integrate concepts
25. Include media
26. Make work integrative and cumulative