INTRODUCTION

Big Problems

- Global Warming
- Global Peace

Contents

1. Intercultural Understanding for Global Peace
2. Global University System (GUS)
3. Globally Collaborative Environmental Peace Gaming (GCEPG)

Globally Collaborative Innovation Network (GCIN)

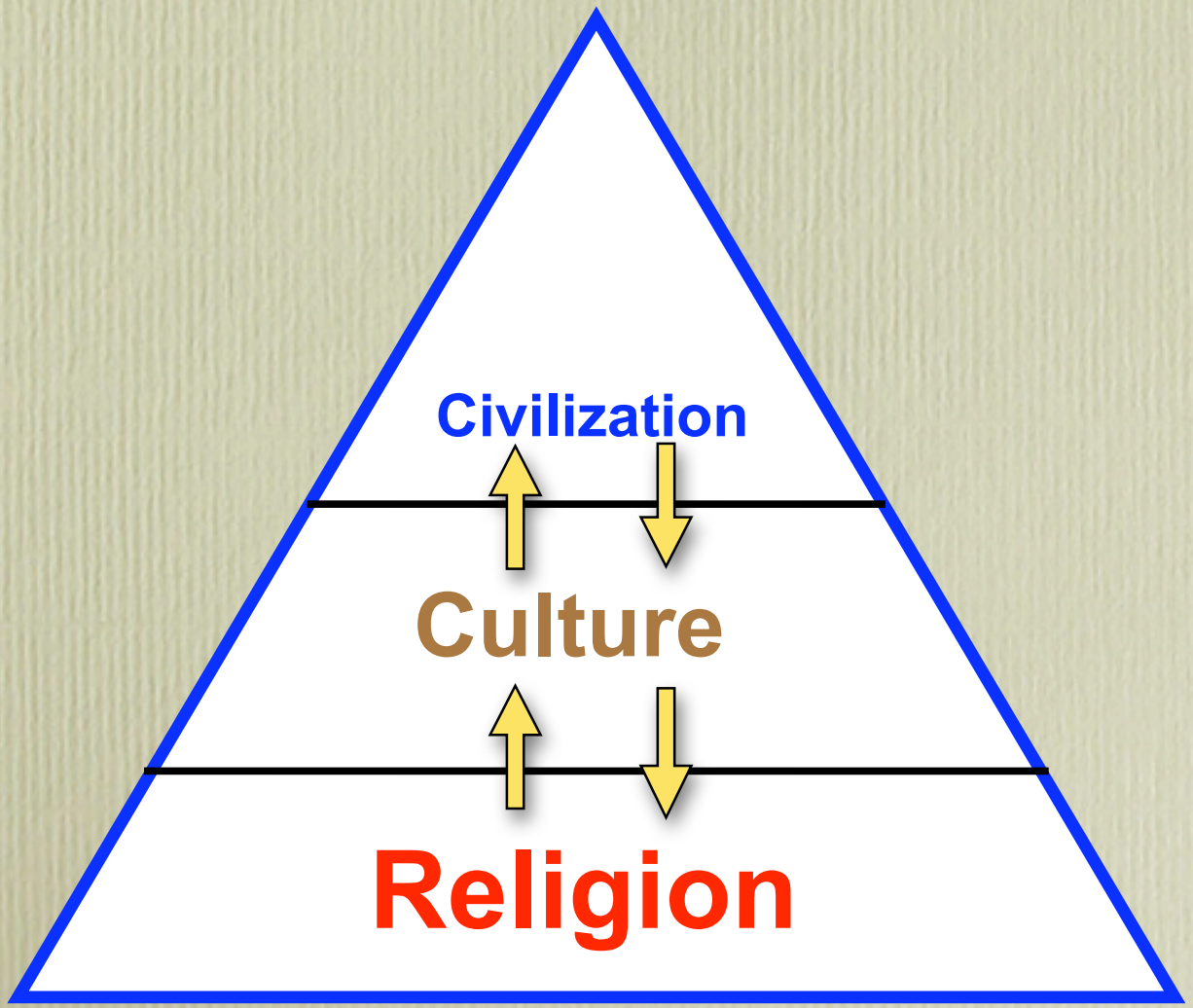
Human Brain

Right Hemisphere		Left Hemisphere
Intuition, passion, dream, image and qualitative analysis		Logic, language and quantitative analysis
Both are connected with a corpus callosum for communication.		

Six Great Thoughts of East and West

East	West
Truth	Justice
Goodness	Equality
Beauty	Freedom

Hierarchy of Civilization, Culture and Religion

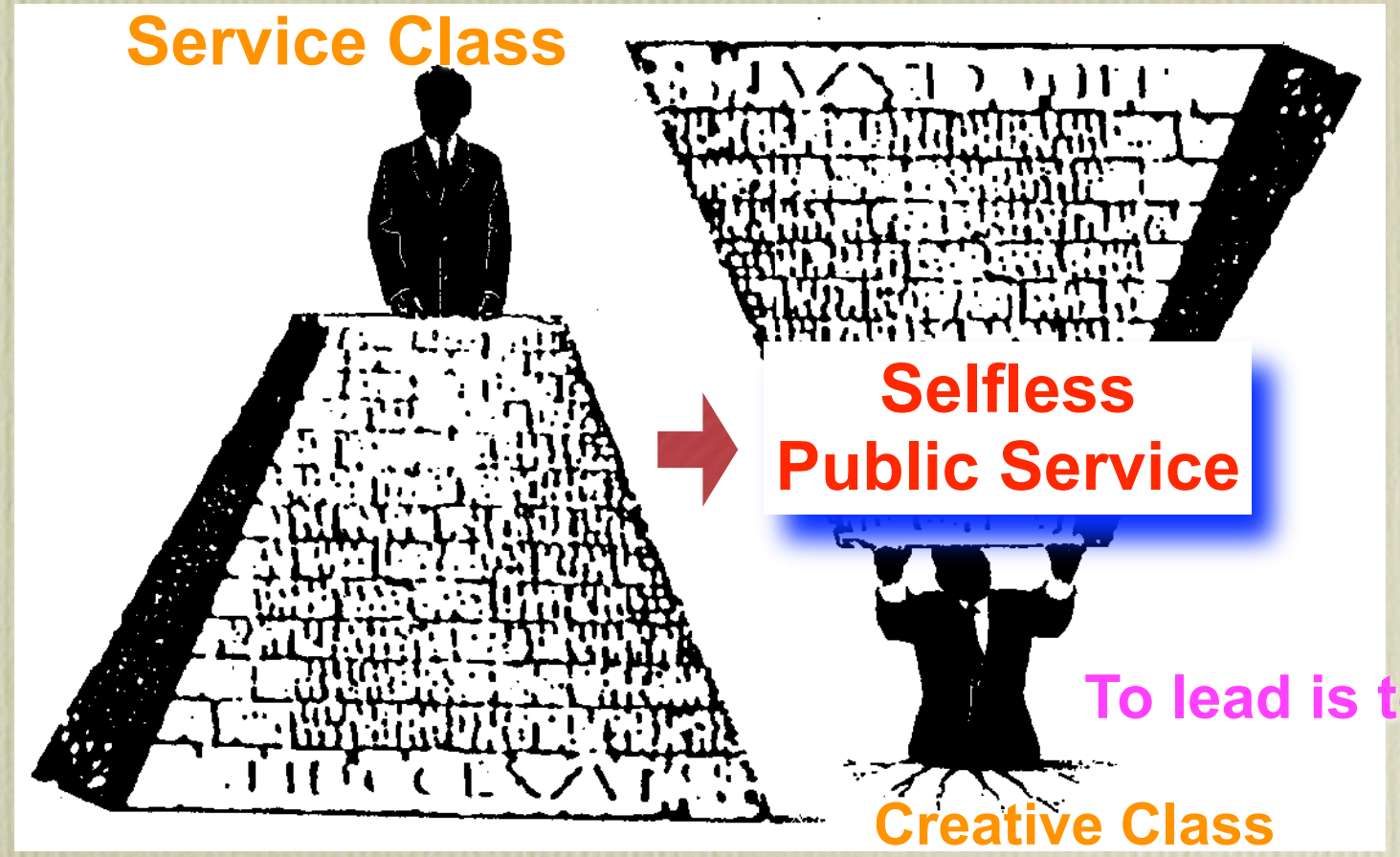


Fruits, Flowers

Trunk

Root

Private vs Public Service



Industrial Society of 20th Century

Global Society of 21st Century

"Why Business Fail in Government," The New York Times, 1987

On Peace

Peace is a never-ending process, the work of many decisions by many people in many countries.

It is an attitude, a way of life, a way of solving problems and resolving conflicts... It requires us to work and live together.

Oscar Arias Sanchez; Nobel acceptance speech, 1987

Learning together and working together are the first steps toward global peace. Senator Fulbright

Trends of 21st Century

1. **Shift of Technology**
   Analog to Digital
2. **Globalization of Society, Commerce, and Culture**
   Local to Global
3. **Emergence of New Knowledge/ Creative Economy**
   Obedience to Creativity

CREATIVITY

Culture of America

(Unique crucible for innovation)

- Freedom of thought
- Independent thinking
- Immigration of new minds
- Risk-taking
- Non-corrupt bureaucracy
- Financial market and venture capital

These institutions, which nurture innovation, are the real crown jewels of American culture.

Friedman, T. L., "The Secret of Our Sauce," The New York Times, March 7, 2004

How to Fire Up The Innovation Machine

BusinessWeek, October 11, 2004, Page 240

At a time of intense division, with deep political and religious fault lines splitting the world, innovation stands out as a powerful integrative force.

It ties countries, companies, and consumers together in creating value, solving problems, and generating wealth.

An innovation economy demands that society be open, dynamic, educated, international, and risk-taking. Given a chance, innovation can improve all our lives.

Financial risk-taking is the fuel that powers the process of change.

Worldwide innovation networks are the new keys to R&D vitality -- and competitiveness.

3Ts for fostering Creativity

- Talent
- Technology
- Tolerance

Florida, Richard, "Geography is Destiny," BusinessWeek, August 7, 2006, page 18

Change the World

"Never doubt that a small group of dedicated individuals can change the world. In fact, it is the only thing that ever has."

American anthropologist, Margaret Mead (1901-1978)

Principles of Information and Knowledge Societies

- **Information Society**
  - Packet-switching technology
    - Sharing
- **Knowledge Society**
  - GRID technology
    - Collaboration
- **Global Peace**
  - Sharing and Collaboration

Sharing:

Internet is to realize the dream of Karl Marx to have egariterian society.

Knowledge grows when we share it.

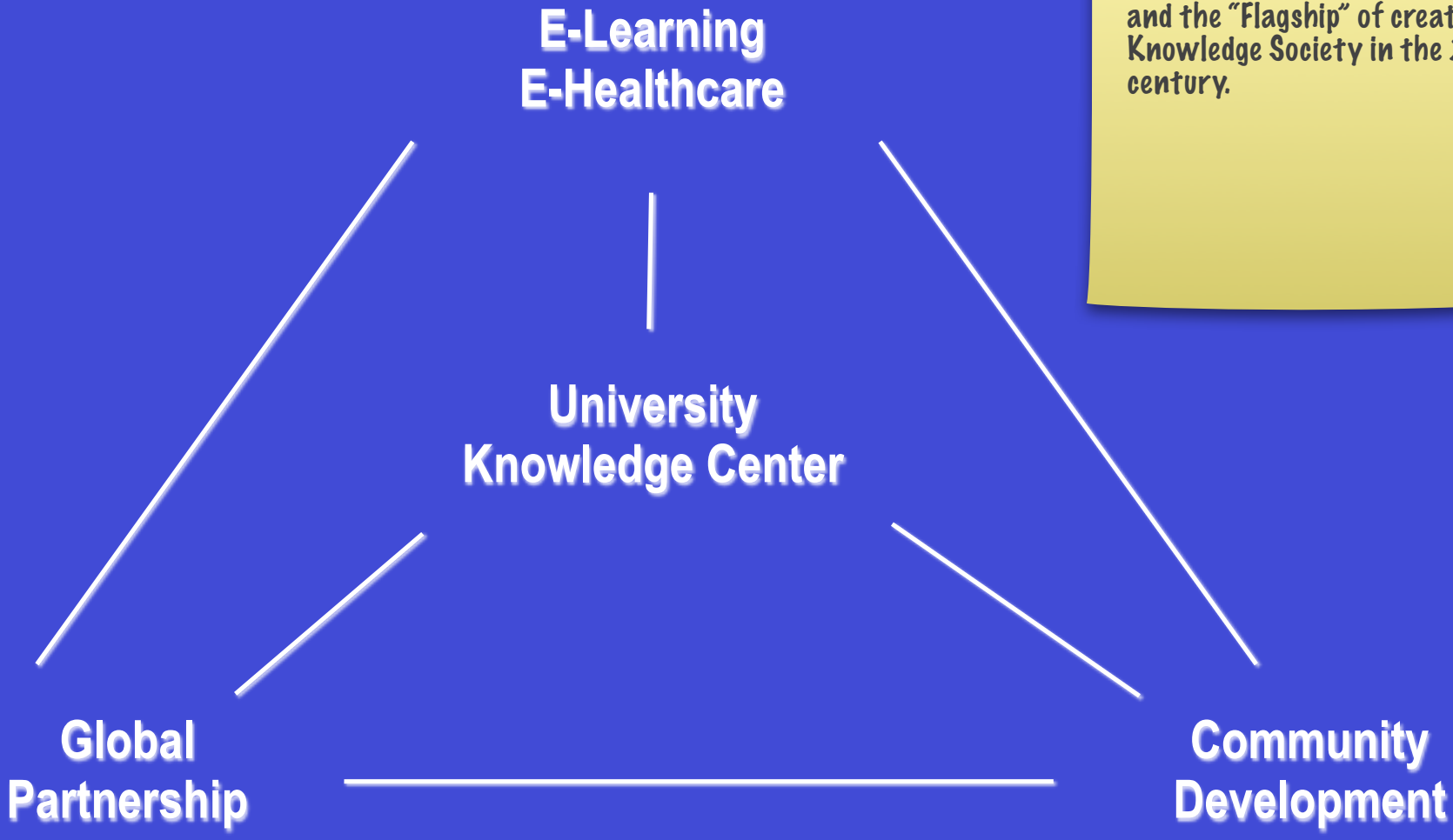
GUS

Global University System (GUS)

- GUS aims to create a worldwide consortium of educational and healthcare institutions and NGOs, particularly benefiting those in remote/rural areas of developing countries for the eradication of poverty and isolation.
- Learners in those countries will be able to take their courses, via advanced broadband Internet, from member institutions around the world to receive a GUS degree.
- Learns, instructors and reserchers of partner institutions will also form a global forum to exchange ideas and information and to collaborate in research and development with the emerging global GRID computer network technology.
- Thus, the higher education institutions will close the digital divide, act as the knowledge center of their community and lead their development.

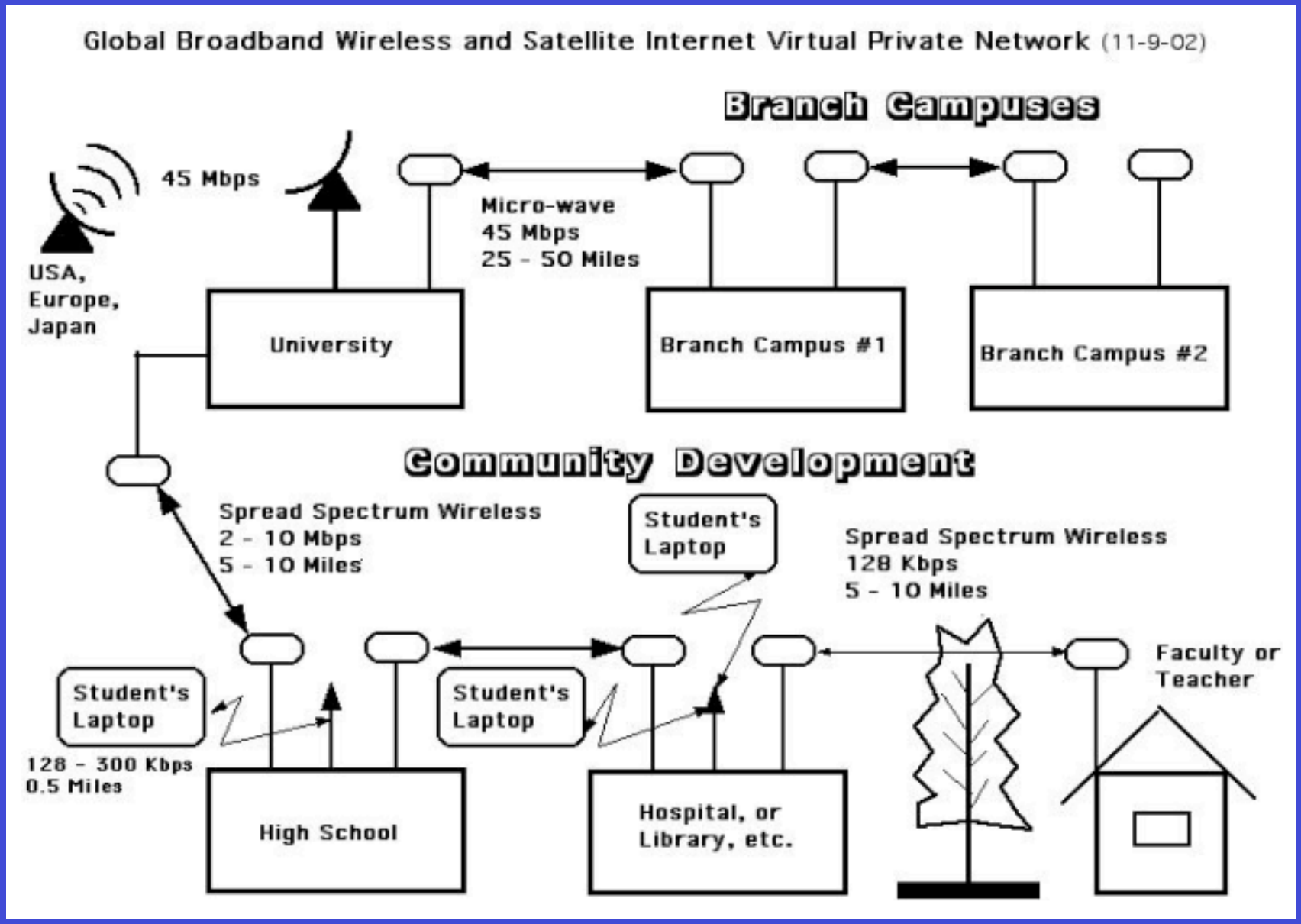
University: Leader of Community in the Knowledge Society in the 21st Century

Connotation of "University" is "Universe." Thus, the university ought to be the Knowledge Center and the "Flagship" of creating Knowledge Society in the 21st century.

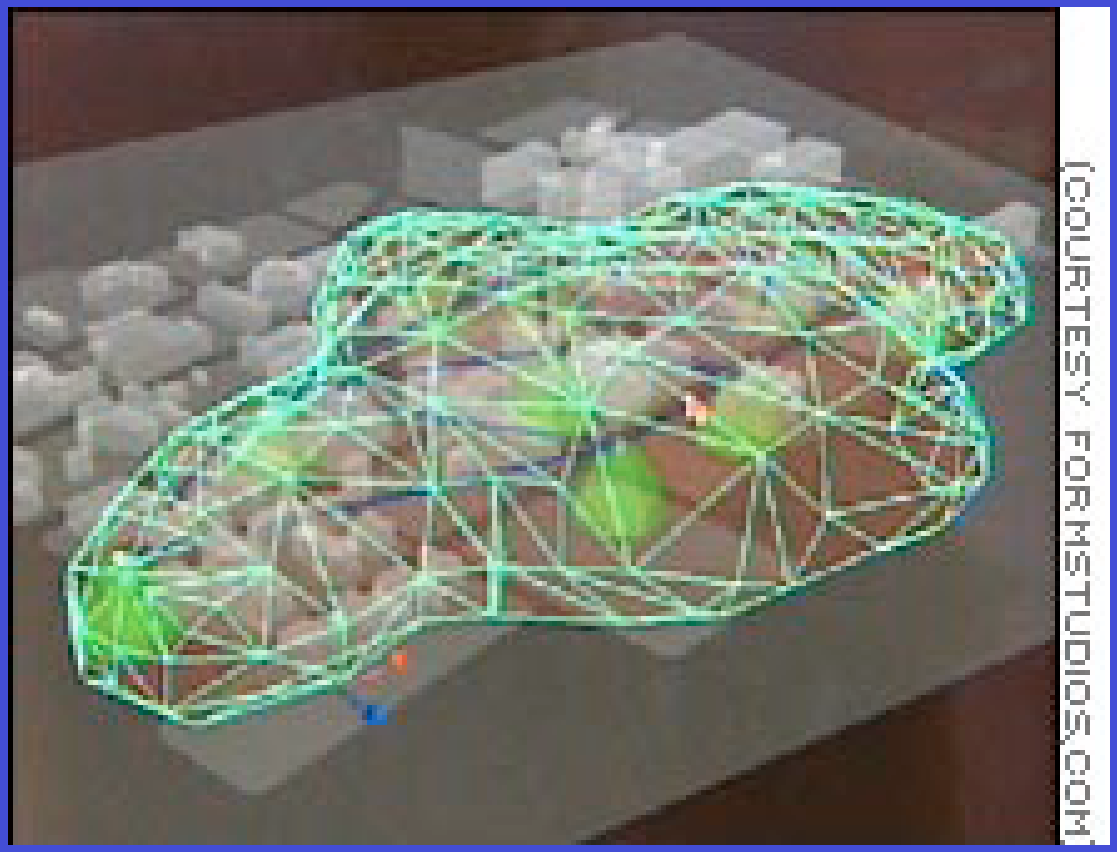


Global Broadband Internet (GBI)

Virtual Private Network with QoS



WiFi Cloud



•This 3-D animation shows the wireless "cloud" over downtown Athens, Georgia. The project is aimed at attracting new users and creating new content for wireless laptops and PDAs.

•“Wireless 'cloud' may offer silver lining; Or is it just 'pie-in-the-sky' technology?

•CNN.com/SCI-TECH; July 31, 2002

•http://www.cnn.com/2002/TECH/science/07/31/coolsc.wireless.cloud/index.html

Inventor of Wireless

Ms. Hedy Lamarr

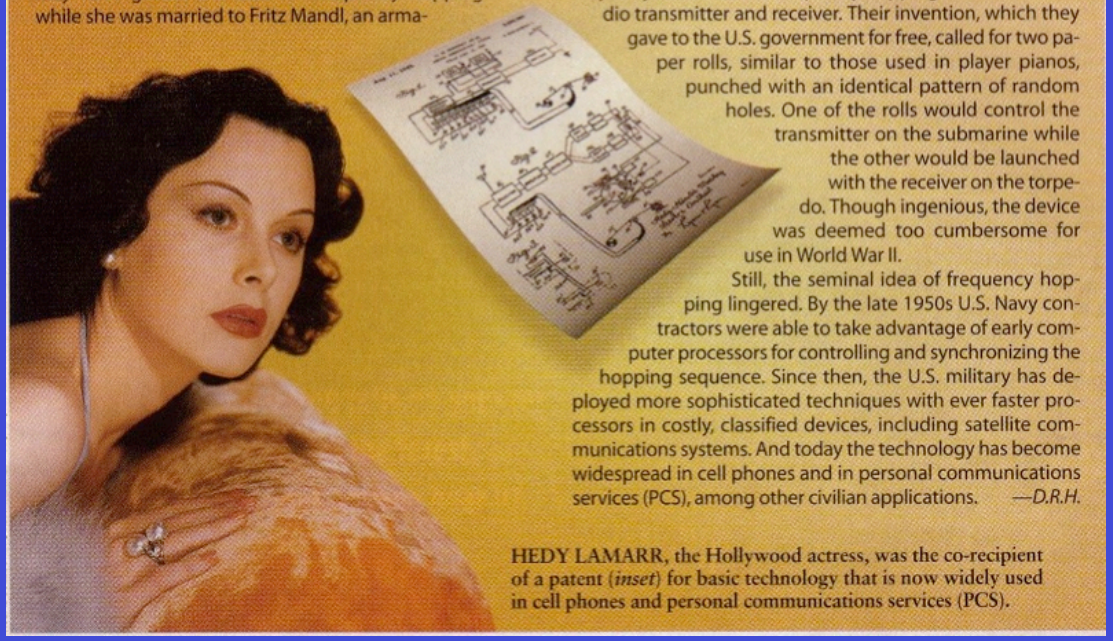
The Improbable Inventors of Frequency-Hopping Radio

She was gorgeous, glamorous and talented. And she had a mind for technology. In 1941 actress Hedy Lamarr, along with the avant-garde composer and musician George Antheil, filed for a patent to cover their "Secret Communication System," a device designed to help the U.S. military guide torpedoes by radio signals that would continually jump from one frequency to another, thus making enemy interception and jamming difficult.

Born Hedwig Maria Eva Kiesler in Vienna, Austria, Lamarr may have gotten the idea of "frequency hopping" while she was married to Fritz Mandl, an armament manufacturer who sold munitions to Adolf Hitler. Through a marriage arranged by her parents, Lamarr was Mandl's trophy wife, and she accompanied him to the many business dinners and meetings, where, unbeknownst to the participants, she silently learned about Axis war technology. After four years with Mandl, Lamarr, a staunch anti-Nazi, fled to London, where MGM's Louis B. Mayer "discovered" her and convinced her to move to the U.S.

In Hollywood she met Antheil, who helped her figure out a way to synchronize the frequency hopping between the radio transmitter and receiver. Their invention, which they gave to the U.S. government for free, called for two paper rolls, similar to those used in player pianos, punched with an identical pattern of random holes. One of the rolls would control the transmitter on the submarine while the other would be launched with the receiver on the torpedo. Though ingenious, the device was deemed too cumbersome for use in World War II.

Still, the seminal idea of frequency hopping lingered. By the late 1950s U.S. Navy contractors were able to take advantage of early computer processors for controlling and synchronizing the hopping sequence. Since then, the U.S. military has deployed more sophisticated techniques with ever faster processors in costly, classified devices, including satellite communications systems. And today the technology has become widespread in cell phones and in personal communications services (PCS), among other civilian applications. —*D.R.H.*

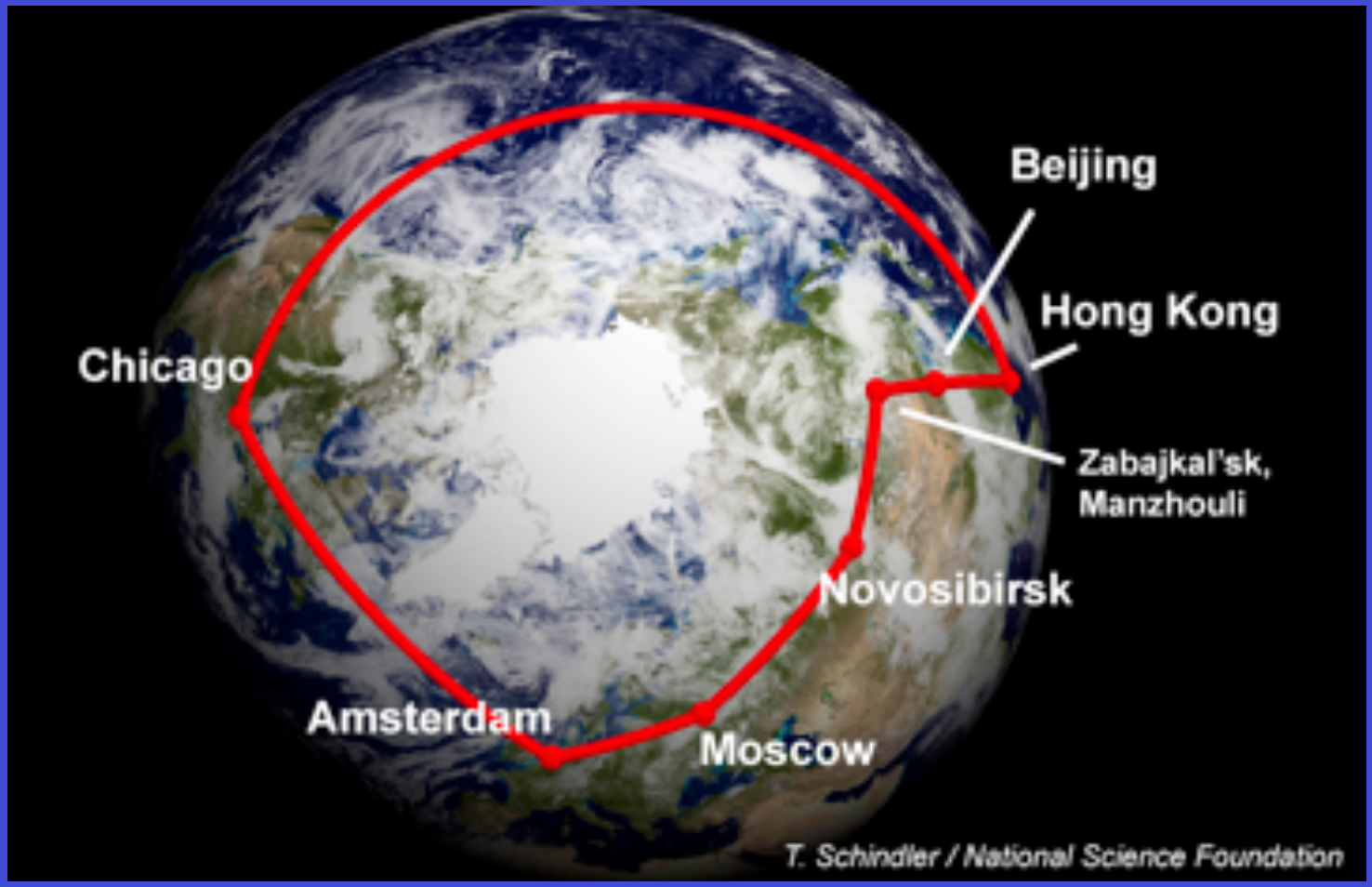


HEDY LAMARR, the Hollywood actress, was the co-recipient of a patent (*inset*) for basic technology that is now widely used in cell phones and personal communications services (PCS).

"Spread-Spectrum Radio" by David, R. Hughes and Dewayne Hendricks, Scientific American, April 1998, p 94-96

GLORIAD

(Global Ring Network for Advanced Application Development)



Expected Benefits

- Support of e-learners and e-healthcare
- Freedom from geographical limitations
- Global dialogues for global peace
- Exchange of ideas, information, knowledge
- Joint colloborative Hi-Tech research and development

PEACE GAMING

Globally Collaborative Environmental Peace Gaming

Globally Collaborative Environmental Peace Gaming (GCEPG) with a globally distributed computer simulation system, focusing on the issue of environment and sustainable development in developing countries, is to train would-be decision makers in crisis management, conflict resolution, and negotiation techniques basing on "facts and figures."

With global GRID computer networking technology and Beowulf mini-super computers of cluster computing technology, we plan to develop a socio-economic-environmental simulation system and a climate simulation system in parallel fashion, both of which are to be interconnected in global scale.

War and Peace Games

Peace Game is for Global Understanding

War Game vs Peace Gaming

The purpose of the War Game is to win the war once it happened, and the purpose of the Peace Gaming is to avoid the occurrence of the war.

Avoiding war is cheaper than winning war.

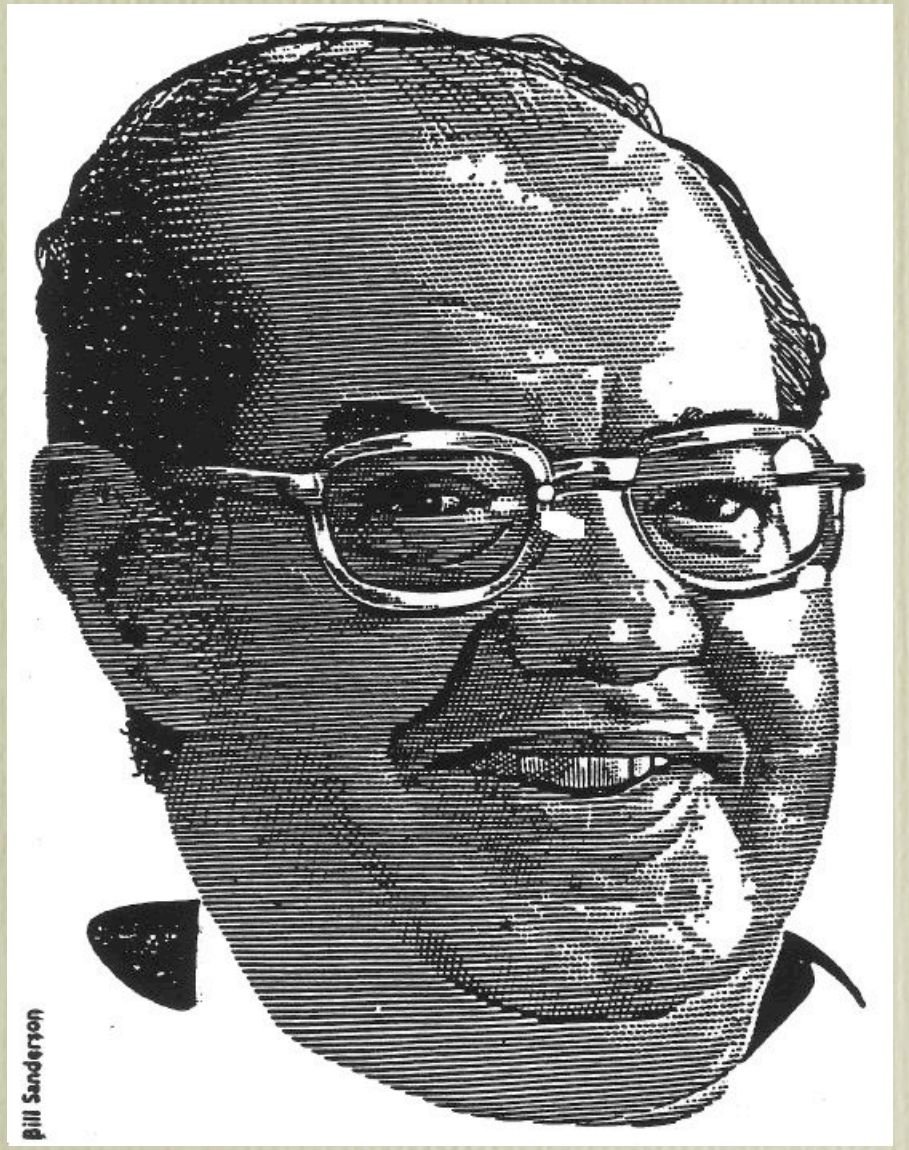
T. Utsumi coined the word "Peace Gaming" in early 1970s.

Three Necessary Components for Peace Gaming

1. **Telecommunication Infrastructure**
   - Packet-Switching Telecommunication
     - Internet
2. **Communication Means**
   - E-mail
     - Multimedia
3. **Game Players**
   - Global University System

Paul Baran

Inventor of
Packet-switching Data Telecom Technology



Deregulation of Japanese Telecom Policy for the Use of Email

UNITED STATES DEPARTMENT OF COMMERCE
International Trade Administration
Washington, D.C. 20230

APR 6 1982 **April 6 1982**

Dr. Takeshi Utsumi
Global Information Services
43-23 Colden Street
Flushing, N.Y. 11355

Dear Dr. Utsumi:

Enclosed are three cables from the U.S. Embassy in Tokyo reporting on the recent move by the Ministry of Posts and Telecommunications (MPT) to remove the usage restrictions on the ICAS system.

According to the Embassy, MPT's action will allow Global Information Services to offer electronic mail, computer conferencing, and word processing services to Japanese customers via the ICAS system. It thus appears that Global's TFC case has been favorably resolved. ← **Electronic Mail**

Please review the enclosed cables and let me know your reaction. If you have no objection, we will close this case.

Sincerely,

Philip R. Agress
TFC Staff Officer

Enclosures (3)

Users of E-mail

(More than one billion as of 2006)

Business Week, June 27, 1994, page 6

Initiation of GRID Concept

Excerpt from
SIMULATION IN THE SERVICE OF SOCIETY (S3), Simulation, September 2000
John McLeod A Technical Editor **Suzette McLeod** A Managing Editor

Power (?) Grid! **Mission Earth (M/E)**

As readers may have noticed, this writer has been interested in the desirability/possibility of someone, or some agency, developing a global communication network since my first discussing the matter with **Tak Utsumi** in **1972**. At the time Tak and I were both primarily interested in the use of such a network for the **distributed simulation of "Peace Gaming,"** as contrasted with the war games so widely used by the military of all countries. However, my early enthusiasm had to be redirected from personally contributing to such an undertaking when I realized the enormity of the technical problems. But **Tak has persevered and has successfully demonstrated many components of a necessary infrastructure.**

Tak and his colleagues have had to raise funds from any sources that they could, as well as pushing back the technical frontiers. But recently several powerful publicly funded organizations have entered the picture. NASA of course has a worldwide communication network which is necessary in support of its space program. However, I understand--perhaps mistakenly--that it is to be made available commercially. More on that when I learn more.

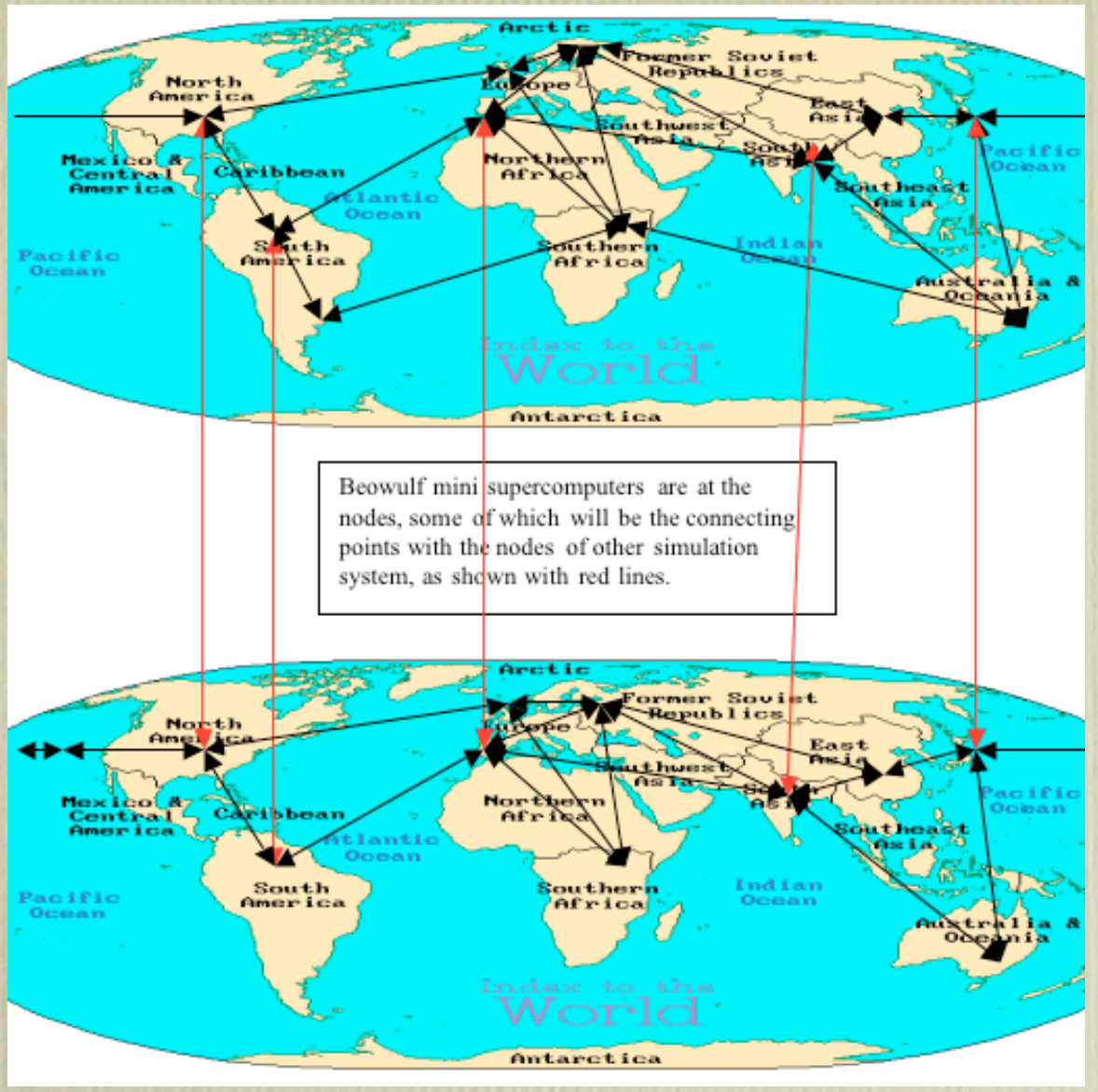
And now we have the following article describing a communication network which it seems to me is misnamed, and I wonder how many others, think of a power grid as a network for the distribution of electrical power. Be that as it may, the description seems to be that of an information network, and the list of participants seems to indicate that it is supported largely by the National Science Foundation. -JM

Building an Information Power Grid ....

http://makeashorterlink.com/?H241159B9

Globally Collaborative Environmental Peace Gaming (GCEPG)

Globally Distributed Climate Simulation System



Globally Distributed Socio-Economic-Environmental Simulation System

Principles of Gaming/Simulation

(a) **Iron rule of simulation** –
"Make simulation as close to simuland as possible,"

(b) **Greyhound Bus' Motto** –
"Leave Driving to Us."

Both of which necessitate division of functions to collaborative stakeholders and experts of their fields and countries who would be interconnected with a globally distributed simulation system.

Advantages of Distributed Simulation

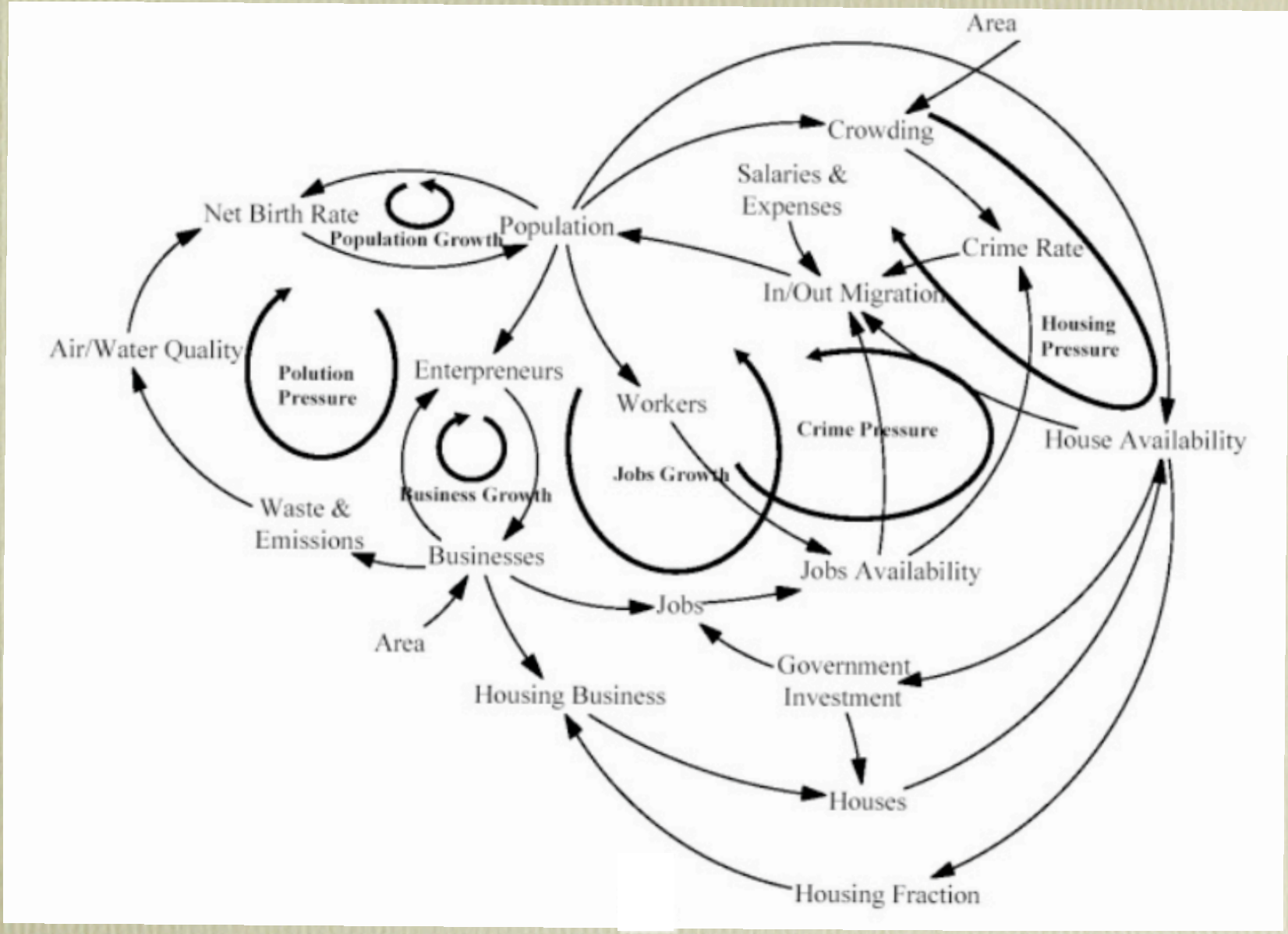
1. Increase of Credibility
2. Data Security
3. Flexibility
   a. Use of any language within local simulation
   b. Same for methodology, machine, etc.
4. Participatory Democracy with Bottom-up Decision
5. Cooperation for Better Understanding
6. Suitable for Large-scale, Confrontation-prone, Global problems

Methodologies

Followings (but not limited) are major simulation methodologies we will use;

1. Dynamic Methodologies:
   a. Econometrics
   b. System Dynamics
2. Static Methodologies:
   a. Input/Output Method
   b. Linear Programming
3. Communication-oriented Methodologies:
   a. Policy Delphi
   b. Cross-Impact Matrix Analysis (Probabilistic System Dynamics)

Population Growth in City Development

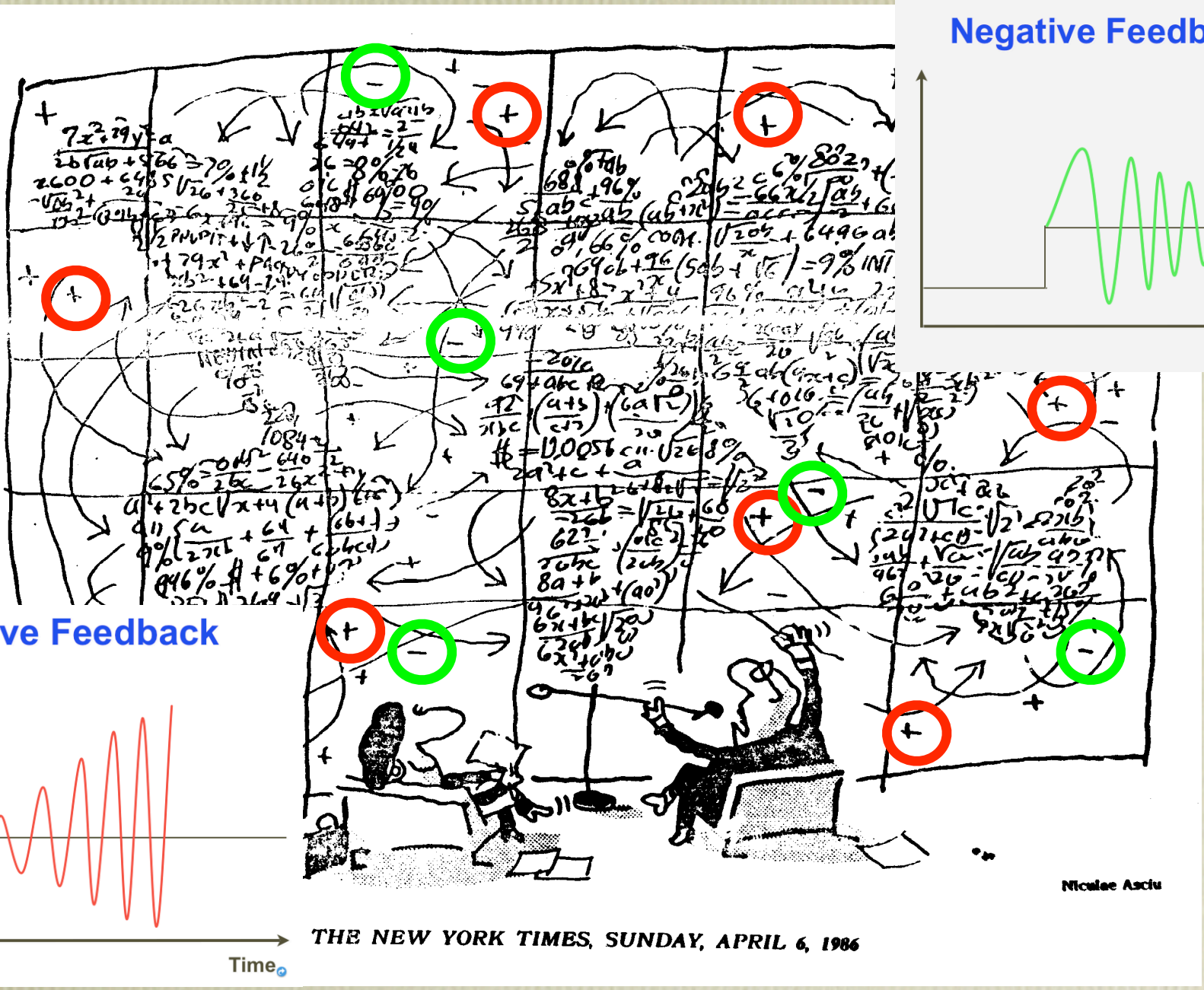


Barlas, Y., System Dynamics: Systemic Feedback Modeling for Policy Analysis

System Dynamic Simulation with Cause-and-Effect Analysis and Feedback Loop

- Non-linear, holistic thinking of the whole system instead of linear, narrow, single issue thinking.
- Counter-intuitive, instead of intuitive.
- Learning the system mechanism and its behavior.
- Rational decision making habit based on FACTS and FIGURES.
- GOOD FOR POLICY ANALYSIS OF SOCIO-ECONOMIC SYSTEMS.

Systems Analysis of the World



Examples of Policy Analysis

- Mr. Al Gore recently proposed to replace fossil fuel with renewable one to generate electricity in the USA in ten years.
- President Obama recently proposed to supply 20% of the US total electricity generation with wind energy source by the year 2030, compared with only 0.8% currently.
- Dr. Rajendra Pachauri, Chairman of the Intergovernmental Panel on Climate Change (IPCC) recently advocated reduction of meat-eating for mitigating climate change.
- Energy security with the deployment of gas pipeline from Tomsk, Siberia to China, and the construction of hydroelectric dam in the Republic of Altai, Siberia.
- Economic and community development in Niger Delta Region of Nigeria, along with low-sulphur content crude oil production which 40% is exported to north America for electricity generation, which may be replaced with renewable energy sources if Mr. Al Gore's and/or President Obama's propositions would succeed.

Two Tier System

- One for training young would-be decision makers in crisis management, conflict resolution, and negotiation techniques basing on "facts and figures"
- The other for helping decision makers construct a globally distributed decision-support system for positive sum/win-win alternatives to conflict and war.

The youth will be called upon to exercise leadership and address the dramatic and complex challenges of climate change in the decades to come. It is at a young age that new mindsets and habits can be most effectively cultivated. They need to develop thinking in terms of systems, processes and relationships rather than in terms of isolated disciplines. They also need to develop the ability to initiate projects, to inspire action, to engage in collective decision-making, and to cultivate their sense of dignity and self-worth.

Problems Solved or To Be Solved

- Need for interconnection of dissimilar models.
- Interconnection of distributed databases.
- Integration of simulation models and databases.
- Advanced programming languages.
- Synchronous and asynchronous communication networks.
- Rollback mechanism for asynchronous scheduling.
- Its integration with global economic and other forecasting submodels.

Future Steps of Global Development

- Evolution of distributed gaming simulations, as splitting each country submodel of FUGI to its country expert and location,
- Globally distributed computer simulation system,
- Emergence of a public database of existing submodels,
- Interface of these dissimilar submodels.

Unavoidable Conditions of Global Peace Gaming

- **Time difference** among game players due to the roundness of globe
- **Latency** of signal of distributed simulation models to/from geo-synchronous satellite
- **Head-scratching time** of game players for democratic decision-making with consensus

Funding

- GUS projects will combine (1) the Japanese government's Official Development Assistance (ODA) funds and (2) Japanese electronic equipment with

  (a) the Internet technology and (b) content development of North America and Europe,

- to help underserved people in rural and remote areas of developing countries by closing the digital divide.

GLOSAS Projects

(GLObal Systems Analysis and Simulation Association in the U.S.A.)

http://www.friends-partners.org/GLOSAS/

Click "Current Reference Websites" in this home page.

Takeshi Utsumi, Ph.D., P.E.

- **Chairman, GLOSAS/USA**
- **Laureate of Lord Perry Award for Excellence in Distance Education**
- **Founder and V.P. for Technology and Coordination of Global University System (GUS)**

Two year senior recipient of the same award was Sir Arthur C. Clarke, the inventor of satellite.

Four Arts

武: 戈 (sword) + 止 (stop) = Peace

士: Samurai = Chivalry

武士: Takeshi = Chivalry of Peace