INTRODUCTION

INTRODUCTION

Personal History with Cybernetics

1. **Engineering Cybernetics**

   Chemical Reaction Simulation
   Process Control Simulation

2. **Social Cybernetics**

   System Dynamics
   Distributed Computer Simulation
   Global E-Learning
   Globally Collaborative R&D

3. **Biological Cybernetics**

   E-Healthcare/Telemedicine

Contents

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

Globally Collaborative Innovation Network (GCIN)

“Global Peace Through The Global University System”

1. Introduction of Book
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“Global Peace Through The Global University System”

CONTENTS

Global Social Transformation

All of us, as a society, are witnessing an extraordinary historical transition between the Industrial Age and the Information -- or Digital Age.

When a society's fundamental technologies change and its economy begins to transform, the political and social institutions inevitably follow.

In this new era, nothing will be as important as education. The current educational systems of the developed world -- suited to the requirements of the masses of the Industrial Age -- is becoming obsolete. We, and our children, need to be prepared.

With multimedia personal computers, learning will become interactive and individualized.

The man-in-the-street and politicians alike are asking the same questions -- where are we and where are we going?

From a flyer of TELECOM Interactivity 97 of ITU

Global Social Transformation

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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/ Cretive Economy**
   Obedience to Creativity

Dawn of 21st Century

1. Digitalization
   Analog to Digital

2. Globalization
   Local to Global

3. New Economy
   Obedience to Creativity

Dawn of 21st Century

1. Digitalization
   Analog to Digital

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Principles of Information and Knowledge Societies

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

Sharing:

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

Five Pillars of Information Age

- Numbers are used to represent all information.
- These numbers are **1**s and **0**s.
- Computers transform information by doing arithmetic on these numbers.
- Communication systems move information around by moving these numbers.
- Computers and communication systems combine to form computer networks. Computer networks are tomorrow's information infrastructures, which in turn are the basis of the Information Marketplace.

7Cs Recommendations

UNDP's Human development Report

- more **connectivity**: setting up telecommunications and computer hardware;
- more **community**: focusing on group access, not just individual ownership;
- more **capacity**: building human skills for the knowledge society;
- more **content**: putting local views, news, culture and commerce on the Web;
- more **creativity**: adapting technology to local needs and opportunities;
- more **collaboration**: developing Internet governance to accommodate diverse national needs;
- more **cash**: finding innovative ways to fund the knowledge society.

Characteristics of Virtual Learning Community

- collectively creates knowledge, using computer-mediated communications and global resources;
- enables individuals, regardless of their race, gender, or class, to produce, access and interact with information in ways that are compatible with their needs;
- embraces the characteristics of each culture represented and includes them in the new cultural fabric;
- respects different perspectives and promotes diversity of thought;
- seeks and develops commonalities in experience and purpose (Feyten 1999:4).

Characteristics of Distance Education (DE)

DE encompasses:

- Correspondence courses,
- One-way satellite television,
- Video-taped instruction, or
- Closed-circuit or educational TV courses.

These types of courses lack the key elements of interaction and active learning of e-Learning.

Benefits of Virtual Learning Community

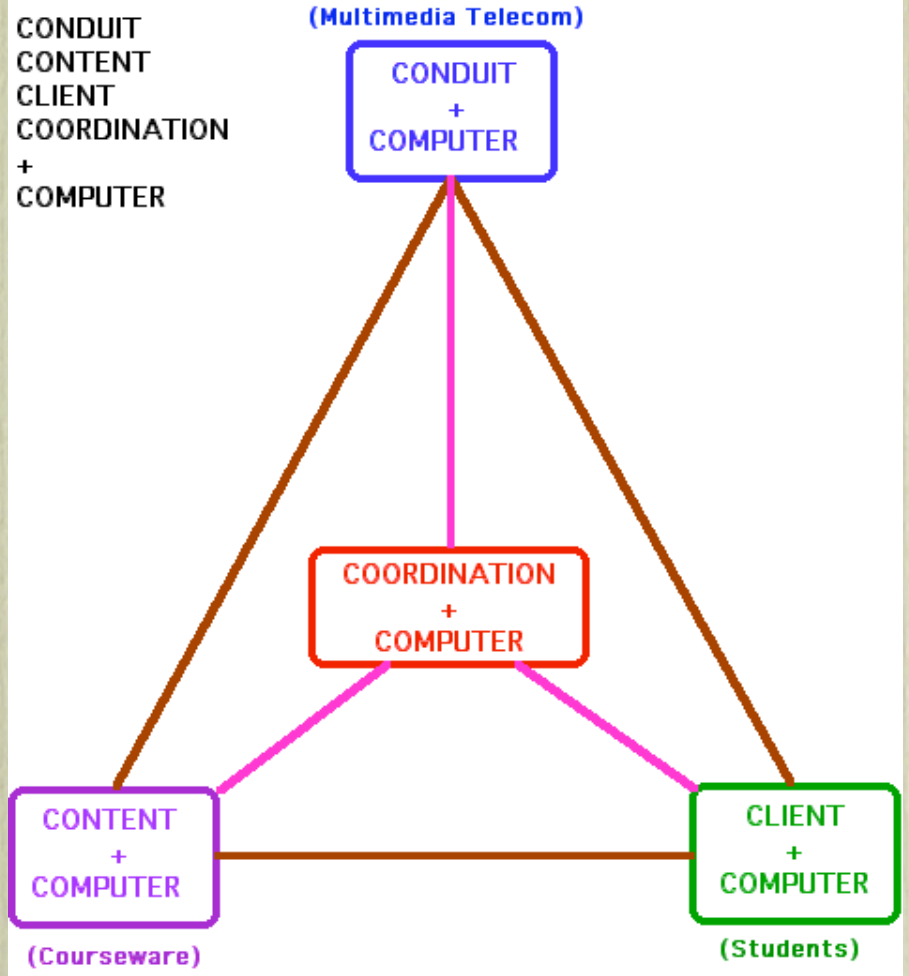
- **Enrichment of social life in a community:** a Social Web can offer the opportunity for people to co-enjoy new forms of culture, entertainment, and leisure.
- **Creating and sharing knowledge in a community:** a Social Web can help to organize the exchange of the wealth of knowledge and experience in local and world-wide communities outside of market mechanisms.
- **Reducing social isolation in a community:** a Social Web can support people in finding others with similar interests, needs, and goals, thereby expanding a person's social radius independent of geographical bounds (Tschang 2001:257).

Key Elements of e-Learning

- Computer-mediated communication,
- Active-learning type interactions,
- Instruction taking place at a distance, and
- Synchronous or asynchronous communication

FIVE "C's" OF ELECTRONIC DISTANCE EDUCATION

CONDUIT
CONTENT
CLIENT
COORDINATION
+
COMPUTER



Here, the use of computer with broadband Internet is emphasized, rather than analog broadcasting of replicating conventional classroom.

GUS BOOK

GUS BOOK

“Global Peace Through The Global University System”

Economic interdependence among nations and cultures is spawning a global economy. Such globalization inevitably magnifies the negative consequences of population growth, environmental degradation, and the unequal distribution of resources and wealth among nations. Globalization also promotes clashes of divergent cultures and belief systems, political and religious. As a result, wars and rumors of wars abound. If global peace is ever to be achieved, global-scale education with the use of the modern digital telecommunications will be needed to create mutual understanding among nations, cultures, ethnic groups, and religions. The Internet is the future of telecommunications and can be a medium for building peace.

The Global University System (GUS) is a worldwide initiative to create satellite/wireless tele- communications infrastructure and educational programs for access to educational resources across national and cultural boundaries for global peace. The GUS helps higher educational institutions in remote/rural areas of developing countries to deploy broadband Internet in order for them to close the digital divide and act as the knowledge center of their community for the eradication of poverty and isolation. Education and job skills are the keys in determining a nation's wealth and influence. At the ultimate stage, competition among nations will be competition among educational systems. The GUS education thus will promote world prosperity, justice, and peace, based on moral principles rather than political or ideological doctrines. The aim is to achieve “education and healthcare for all,” anywhere, anytime and at any pace.

ISBN 951-44-5695-5

cover painting: Juhani Palmu “Communications II”
cover design: Hanna Varis

Tapio Varis - Takeshi Utsumi - William Klemm (eds.)
GLOBAL PEACE THROUGH THE GLOBAL UNIVERSITY SYSTEM

RCVE

Tapio Varis - Takeshi Utsumi - William Klemm (eds.)

GLOBAL PEACE THROUGH THE GLOBAL UNIVERSITY SYSTEM

UNESCO Chair in Global e-Learning
University of Tampere, Research Centre for Vocational Education

Part I: Greetings and Visions

Former President of Finland and Laureate of Fulbright Prize, Martti Ahtisaari

Minister for Foreign Affairs of Finland, Erkki Tuomioja

European Comissioner for Education and Culture, Belgium, Ms. Viviane Reding

Former Director-General of UNESCO, Spain, Federico Mayor

Former Director-General of ITU, Finland, Pekka Tarjanne

Director-General of ITU, Switzerland, Yoshio Utsumi

Director-General of ILO, Switzerland, Juan Somavia

Vice Chancellor of The Open University, UK, Ms. Brenda M. Gourley

Former Director of Higher Education of UNESCO, France, Marco Antonio R. Dias.

Part III: Global E-Learning and E-Healthcare

- Implementation plan for realizing GUS with a community development approach and paradigm shift from industrial age to knowledge society of the 21 st century,
- Past and current experiences of eLearning practices through narrow band Internet and other ways,
- Proposed schemes on how to extend eLearning through narrow-band Internet to developing countries, and
- Vision of how to enhance eLearning courses with broadband Internet and proposed schemes – how to realize them.

Part IV: Global Collaboration

Papers in Part IV describe how GUS can help promote collaboration for attaining global peace, particularly with the use of virtual reality and virtual laboratories through the advanced GRID computing network technology for globally collaborative, experiential/ constructive creation of new knowledge by young people around the world.

INTER-CULTURE

INTER-CULTURE

“Creative Destruction”?

Photo taken at Da Vinci Science and Technology Museum, Milan, Italy (March, 2005)

What is peace through culture?

The word "culture" is deriven from the two words "cult" and "ur." "Cult," of course, means cultivation. "Ur" is an ancient Chaldean term meaning "light" -- the creative aspect of the universe. Hence, culture is literally the cultivation of creativity.

Peace is more than just the absence of war. Just as it takes acts of war to make war, it takes acts of peace to make peace. Peace, then, is a structure of positive acts of creativeness that are carried out in a spirit of high idealism.

> **"Genuine peace must be the product of many nations, the sum of many acts. It must be dynamic, not static, changing to meet the challenge of each new generation. For peace is a process -- a way of solving problems."**
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> John F. Kennedy

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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

Global Leader

"The great leaders of tomorrow will be the ones who understand how to get everyone to participate."

FORTUNE, January 25, 1993, Page 69

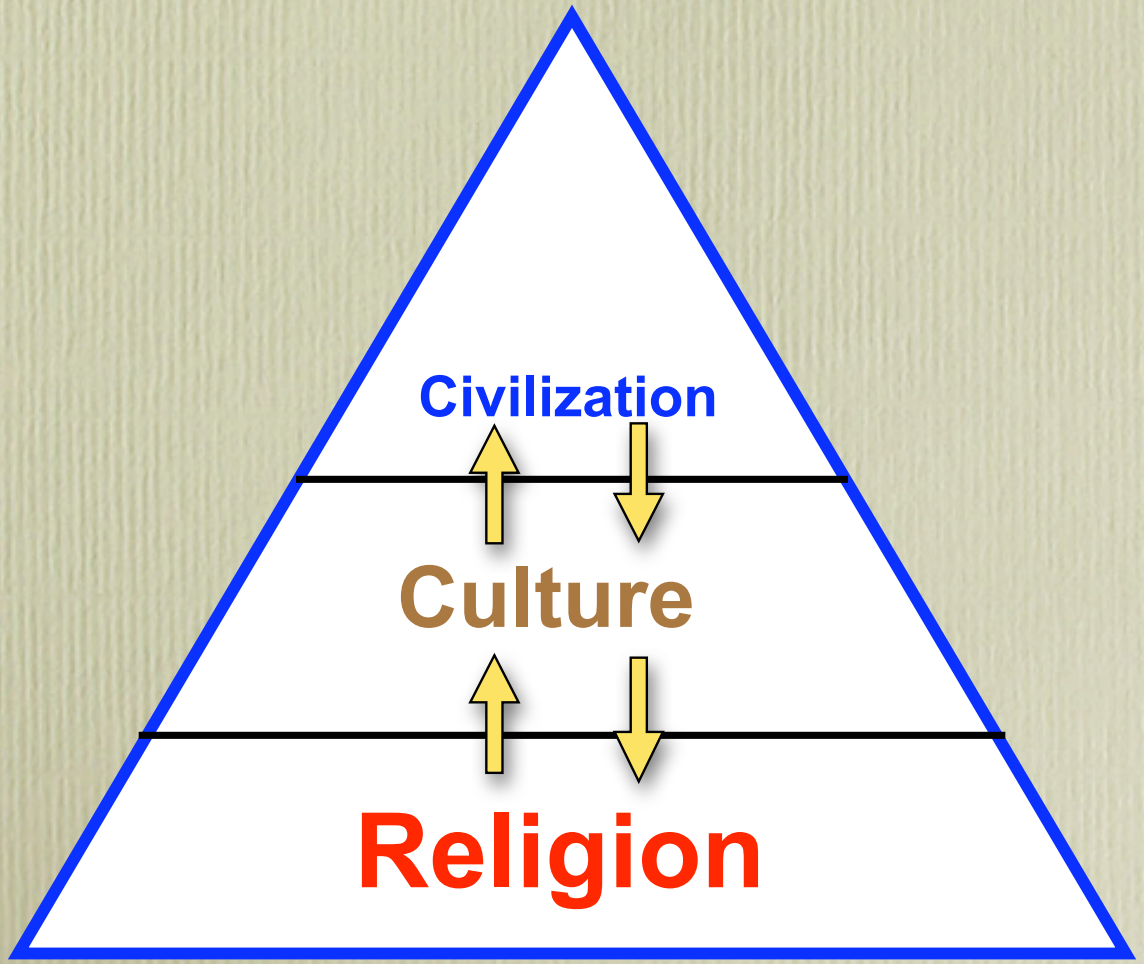
Global Leadership

“Leadership requires patience, perseverance, humility, commitment and compromise.”

Oscar Arias, former President of Costa Rica and 1987 Nobel Peace Laureate

4th GLF. Istanbul.

Hierarchy of Civilization, Culture and Religion

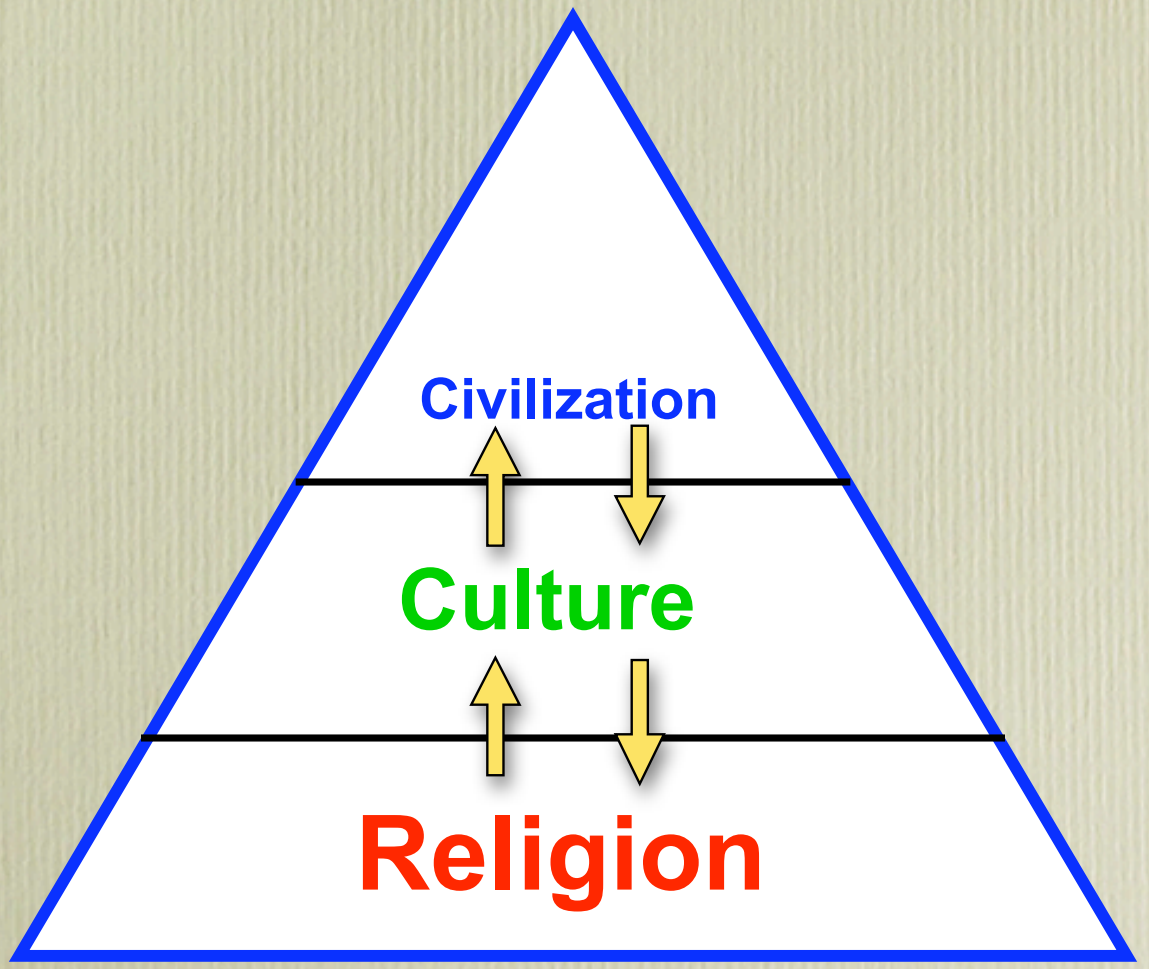


Fruits, Flowers

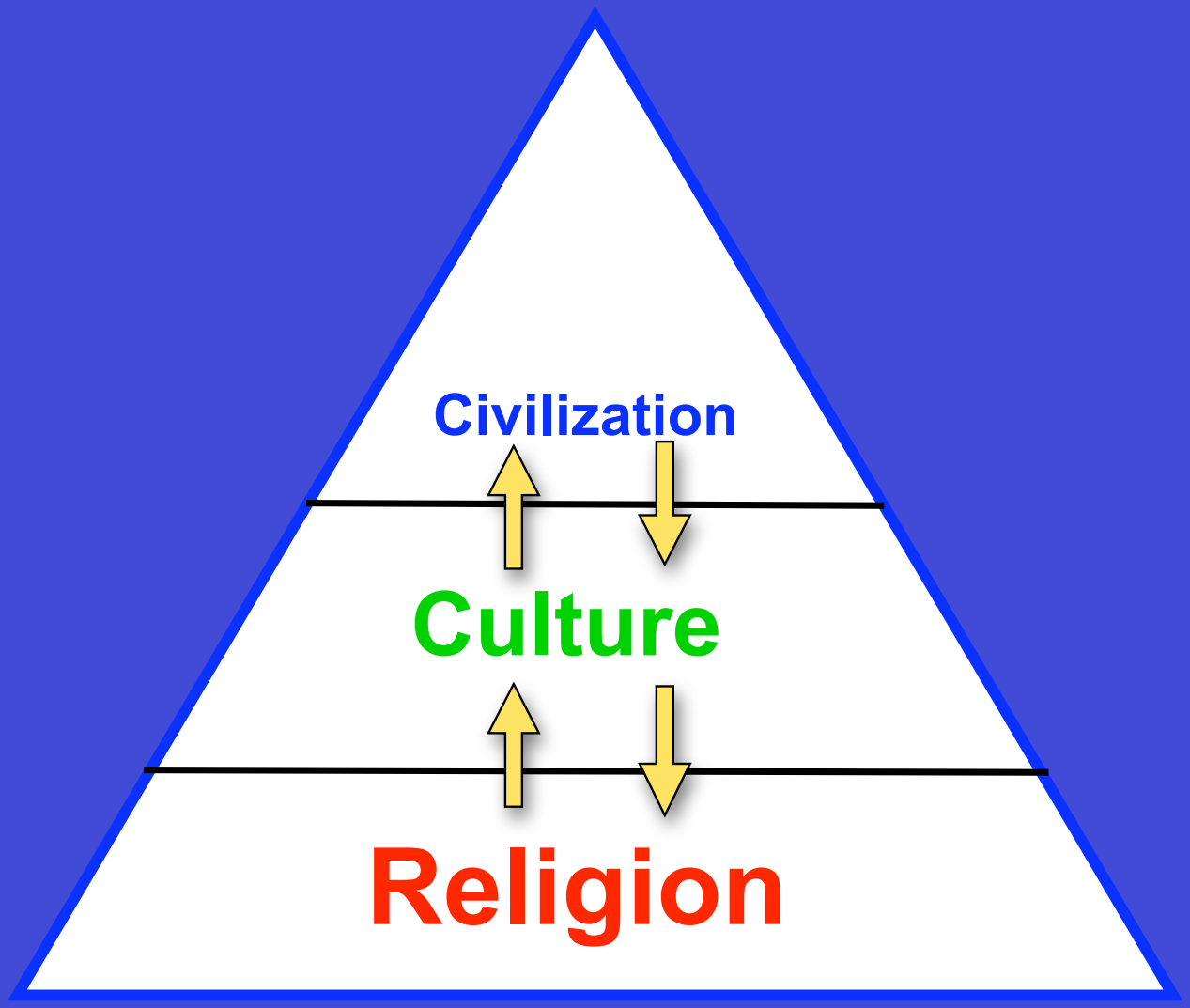
Trunk

Root

Hierarchy of Civilization, Culture and Religion



Hierarchy of Civilization, Culture and Religion



Comparison of Eastern and Western Cultures

T. Utsumi, 1998

Eastern Culture (monotheism)	Western Culture (polytheism)
Japan: Champion	USA: Ch
Synthesis	Analytica
Literature	Scientifi
Art	Objec
Subjective	Ratio
Emotional thinkng	Critic

Both cannot and should not dominate other, but should have close dialogues between them.

Global University System (GUS) is adopting philosophies and principles that emphasize trans-cultural and moral values rather than ideologies. The priority is in academic freedom and quality in education.

Tapio Varis
UNESCO CHAIR OF PHILOSOPHY FOR PEACE
MA PROGRAM IN PEACE AND DEVELOPMENT STUDIES
http://www.epd.uji.es/Outlines/fall2003/varis.htm

Crumbling down pyramid in Japan

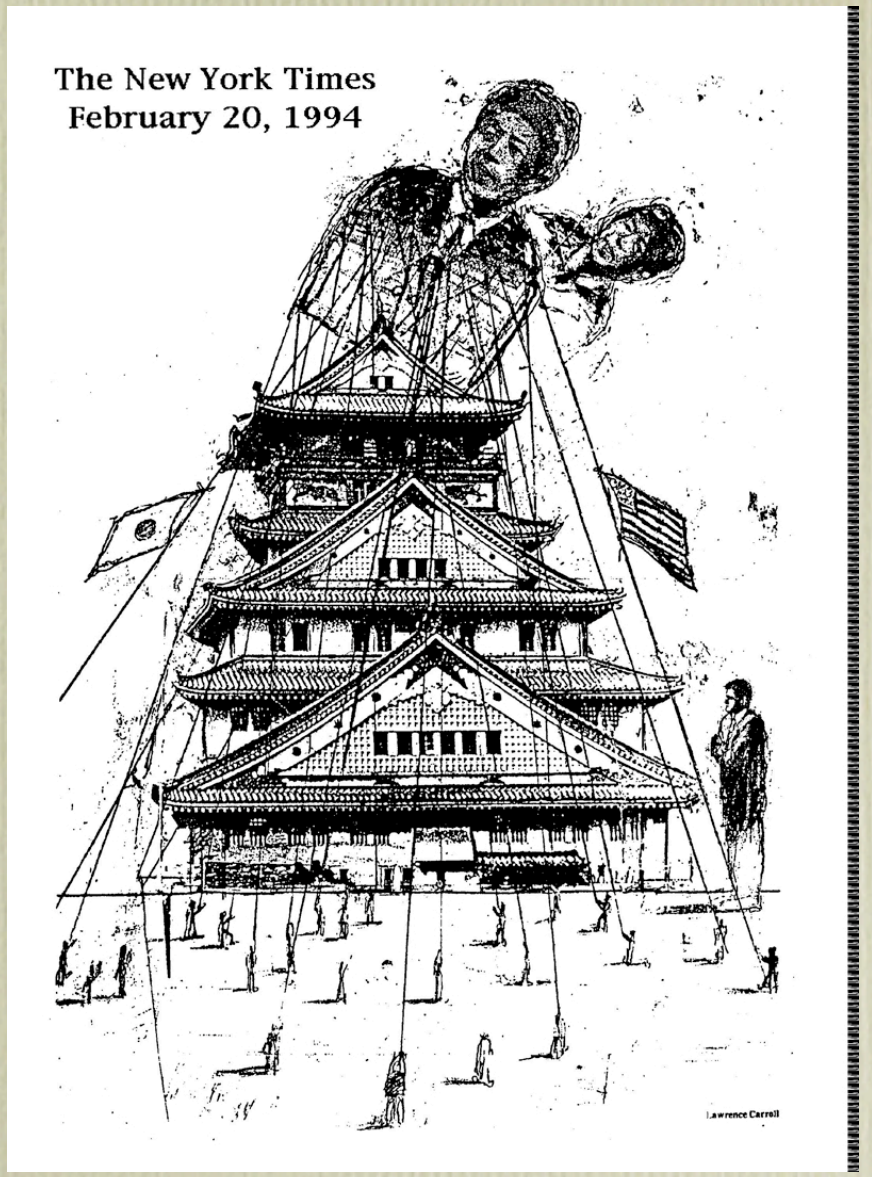
平成ニッポン

真夏の模様

ピラミッド崩し

横のネット ひそかに拡大

Crumbling Feudalistic Hierarchy



Outsourcing

The New York Times, March 14, 2004

Moral of Civilization

"Civilization consists not in the multiplication of wants but in the deliberate and voluntary reduction of wants."

Mahatma Gandhi (1869-1948)

忘己利他

(Forget-Self-Profit-Others)

瀬戸内 晴美

2006年11月 文化勲章を受賞

Rainbow Bridge Across the Pacific
太平洋に架ける虹の橋

Book of John (1:1)

εν αρχη, ην ο λογοσ,

(beginning) (Word)

In the beginning, there was Word,

και ο λογοσ ην προσ τον θεον,

(and) (Word) (with) (God)

and the Word was with God,

και θεοσ ην ο λογοσ.

(and) (God) (was) (Word).

and God was the Word.

Logos

1. Soul, God, Truth → Religion

2. Greek origin of logic → zero (0) and one (1)

→ Computer

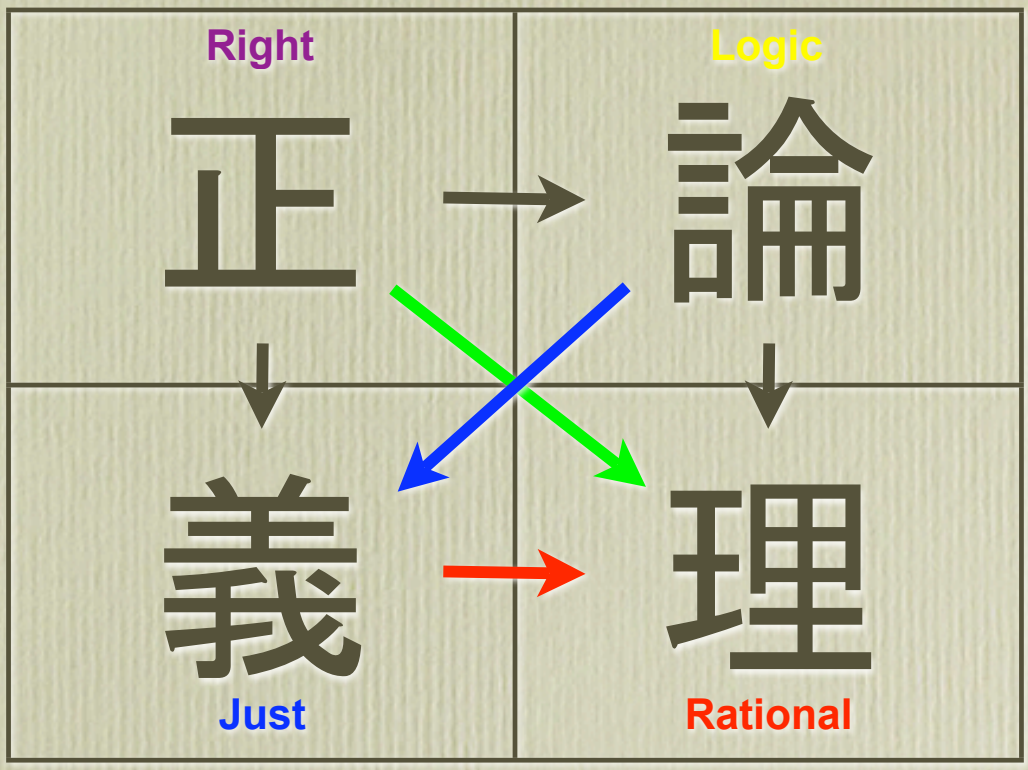
God created the integers and the rest is the work of man.

Famous mathematician, Kronecker
The New York Times, October 23, 1988

3. Word → Communication

→ Internet

Justice and Logic



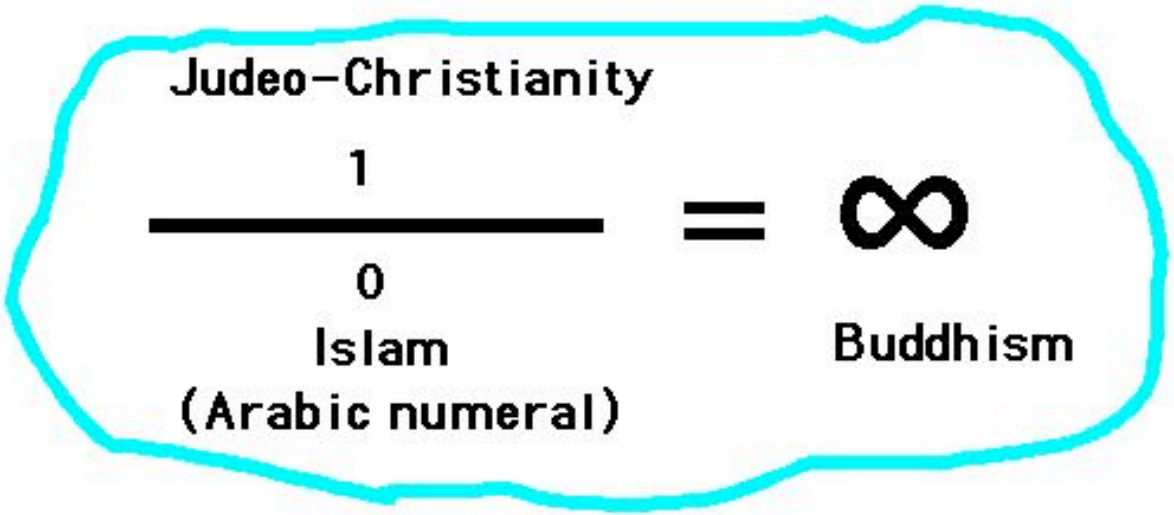
正しいことを、理をたてて論議する。

Without justice, there is no peace.

義なくして、和はありえない。

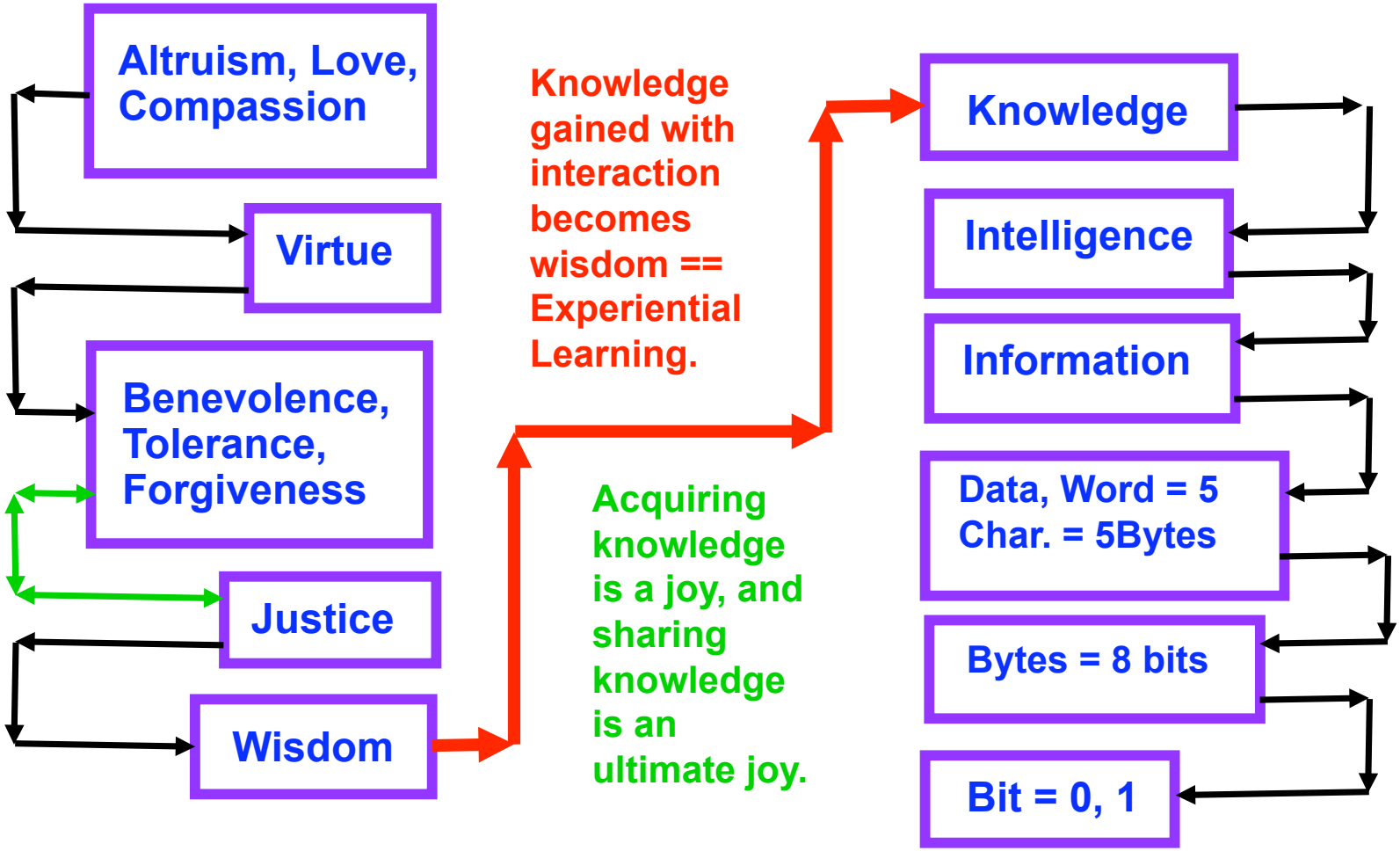
Rainbow Bridge Across the Pacific
太平洋に架ける虹の橋

Mathematical Expression of Religions and Cultures



Peaceful coexistence of those three religions can bring Infinite Possibilities

Hierarchy of Information and Ethics



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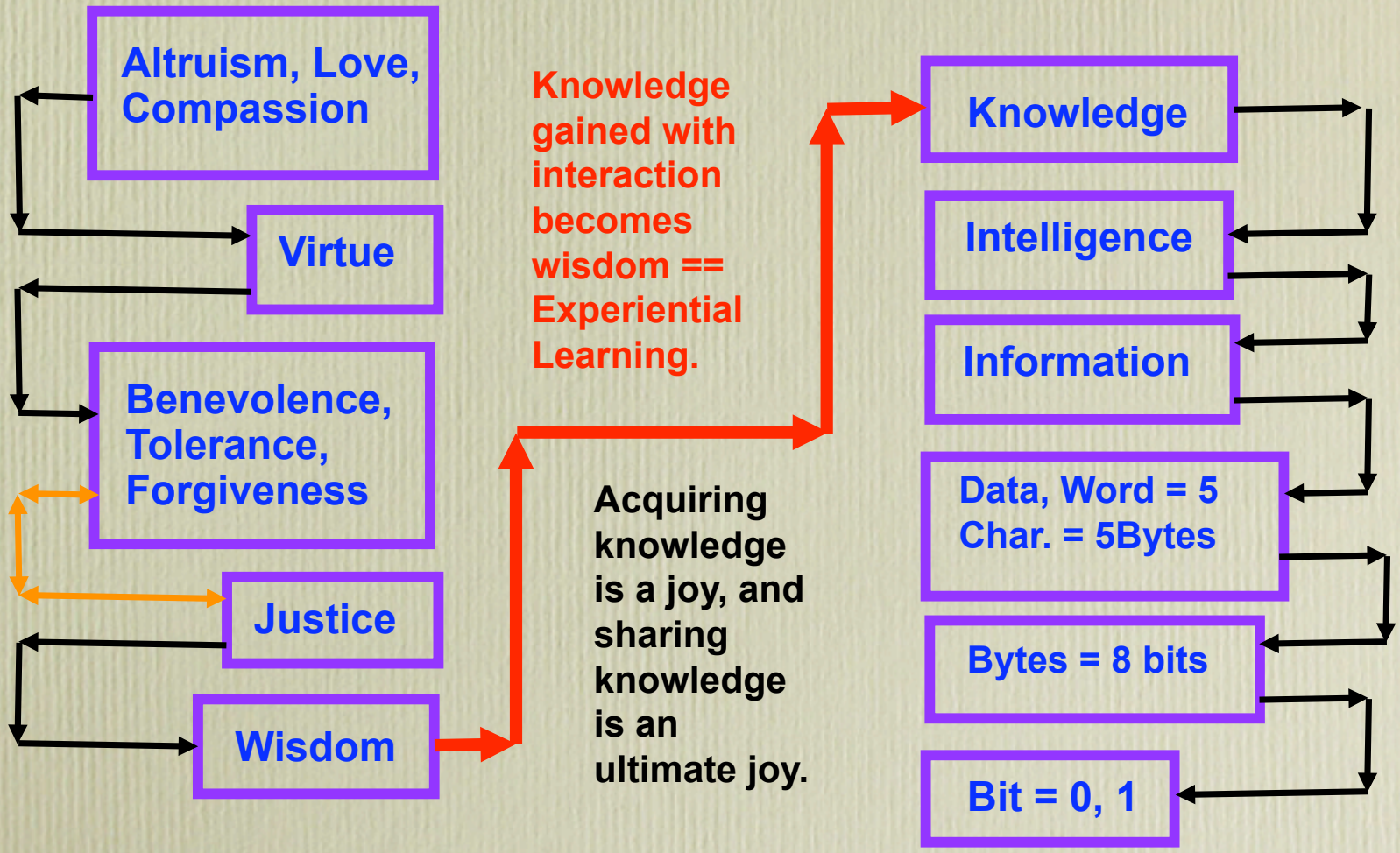


Knowledge and Wisdom

- **“Knowledge is power.”**

  Francis Bacon

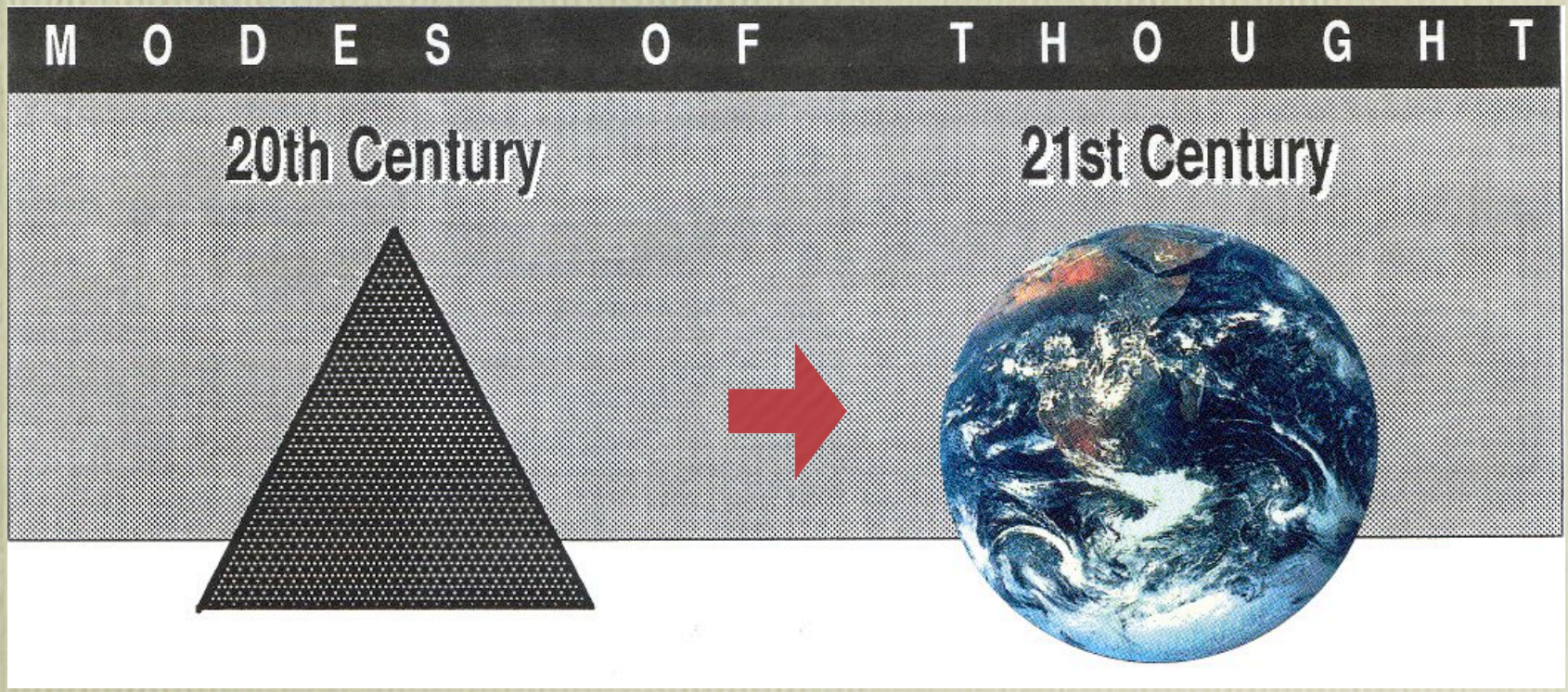
- **“Knowledge cuts up the world; Wisdom makes it whole.”**

  David Maybury-Lewis

  The New York Times Book Review (Date Unkown)

- **Analysis and Synthesis**

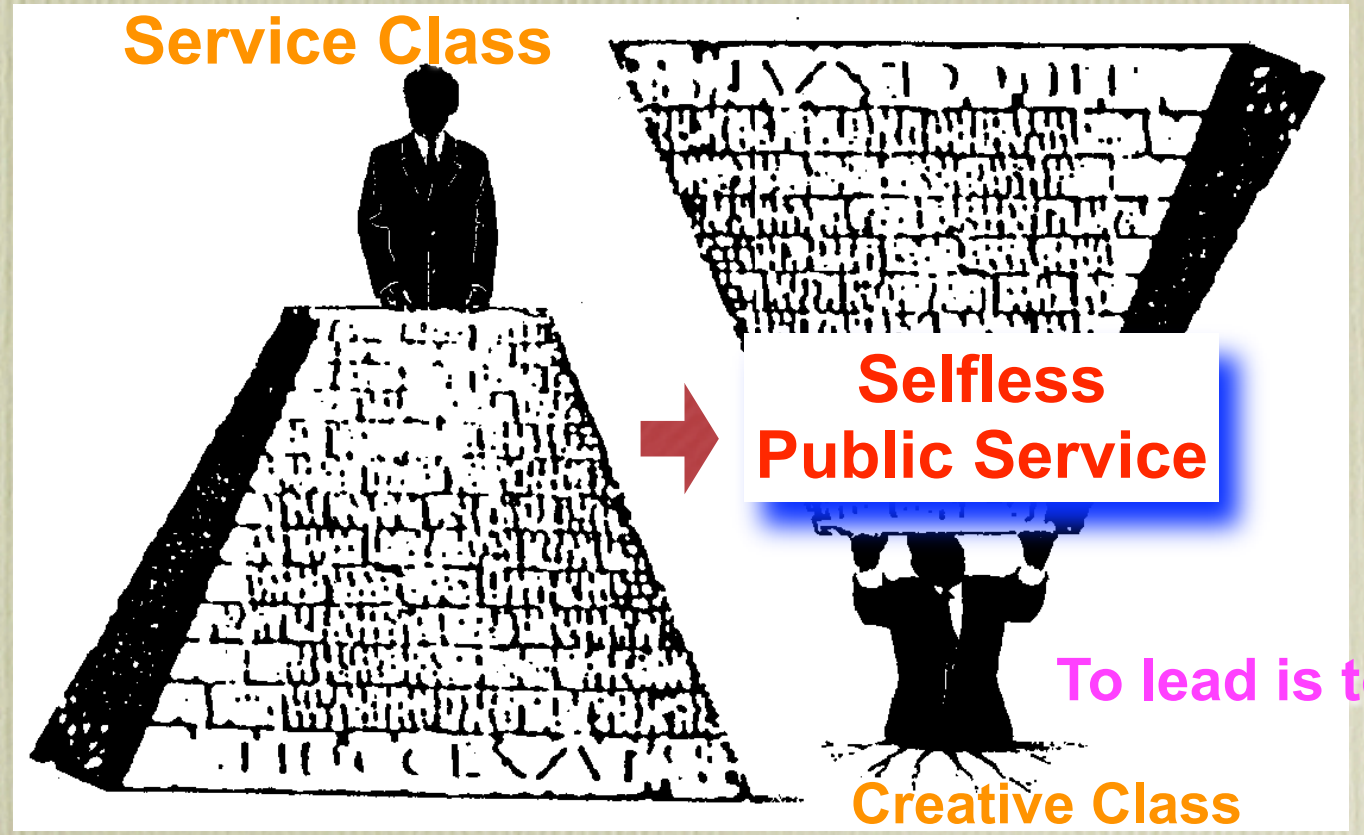
Mind Change
20th Century to 21st Century



Industrial Society **Global Society**

"*ABC's for the 21st CENTURY*," Countdown 2001, 110 North Payne Str., Alexandria, VA 22314, USA

Private vs Public Service

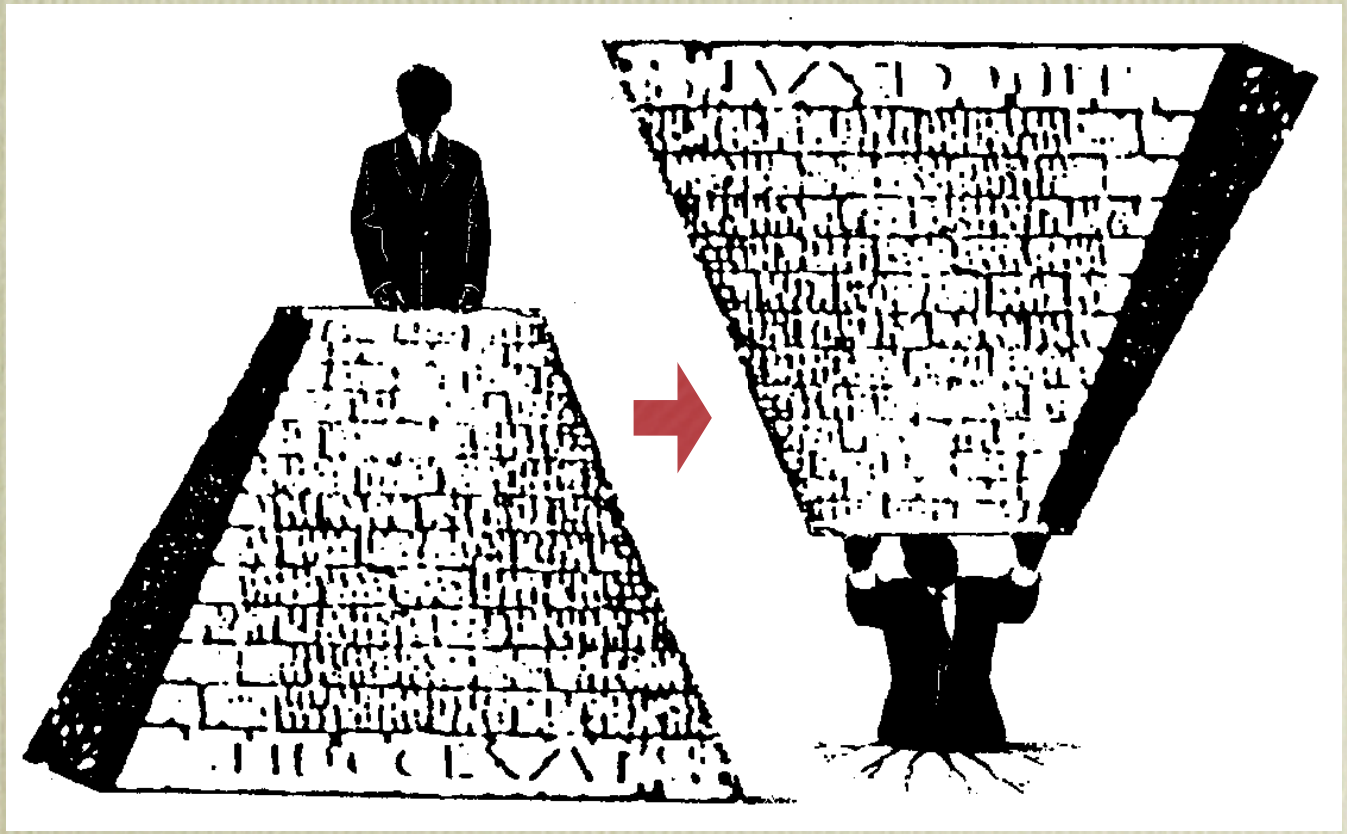


Industrial Society of 20th Century

Global Society of 21st Century

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

Private vs Public Service



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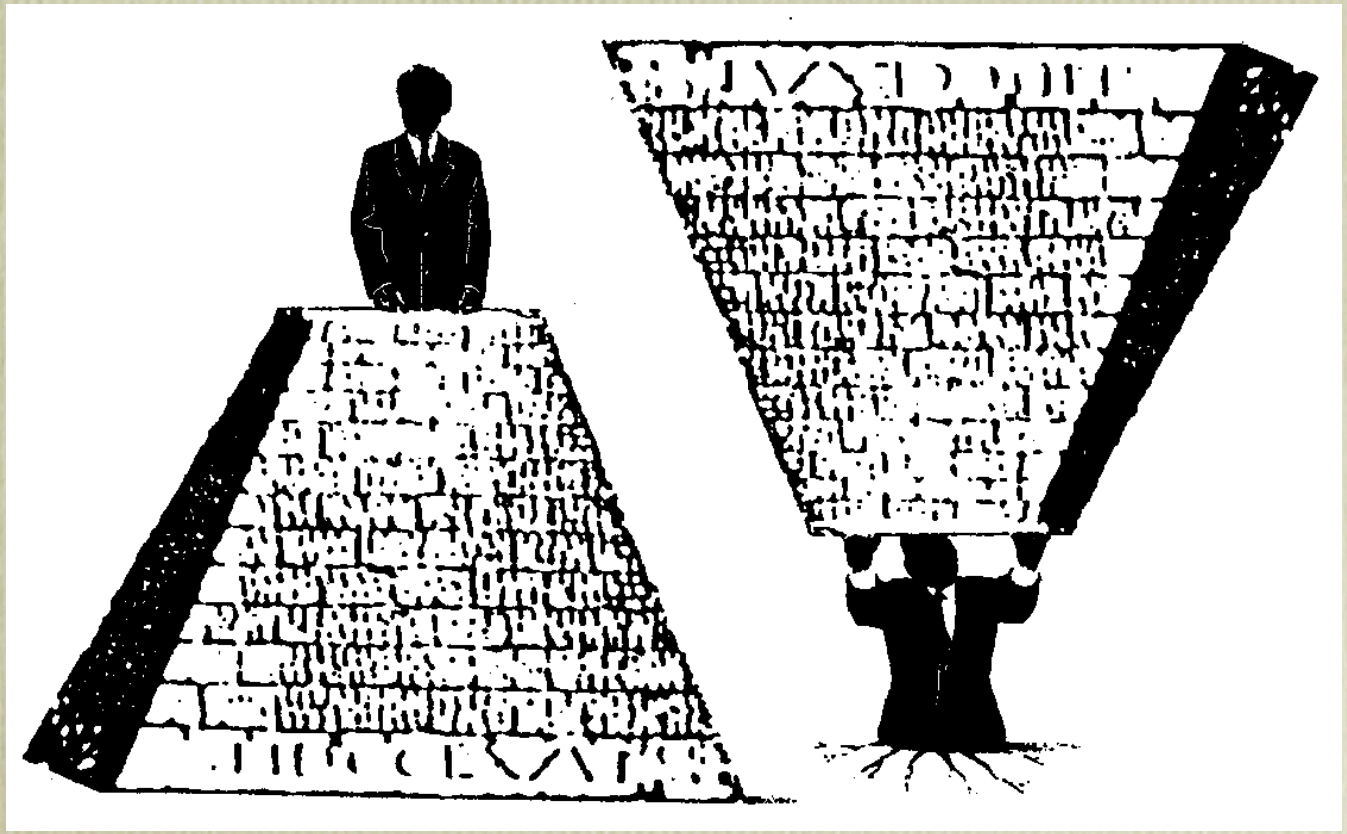

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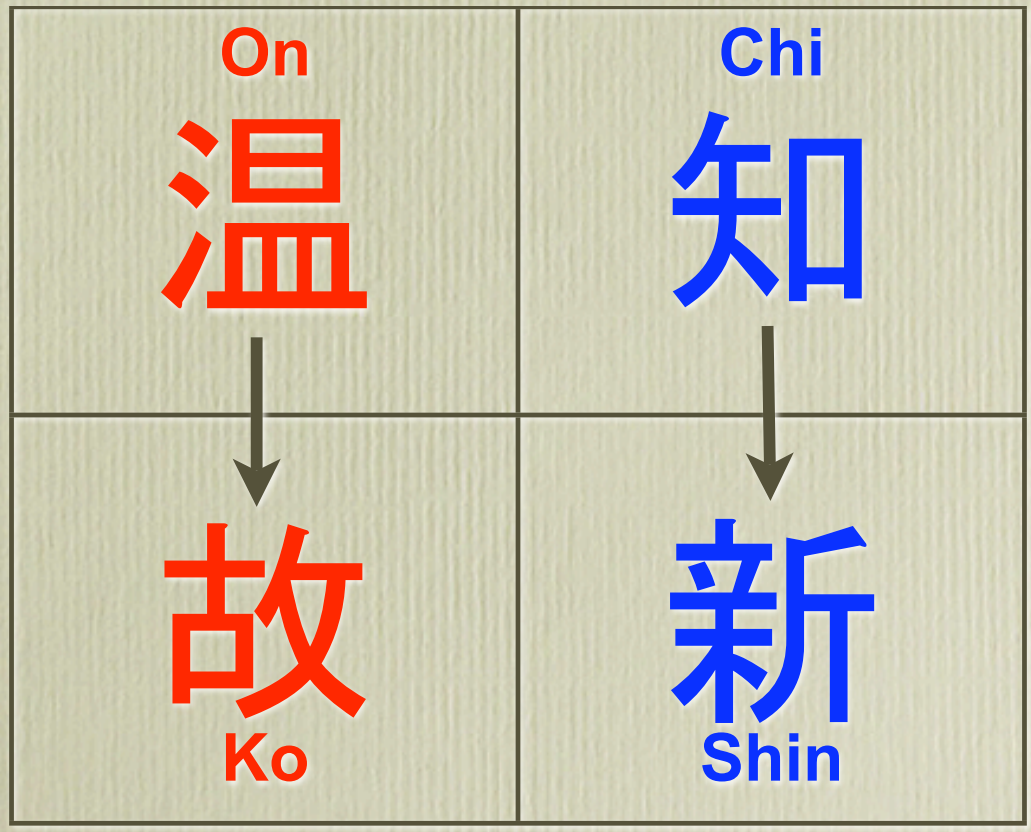
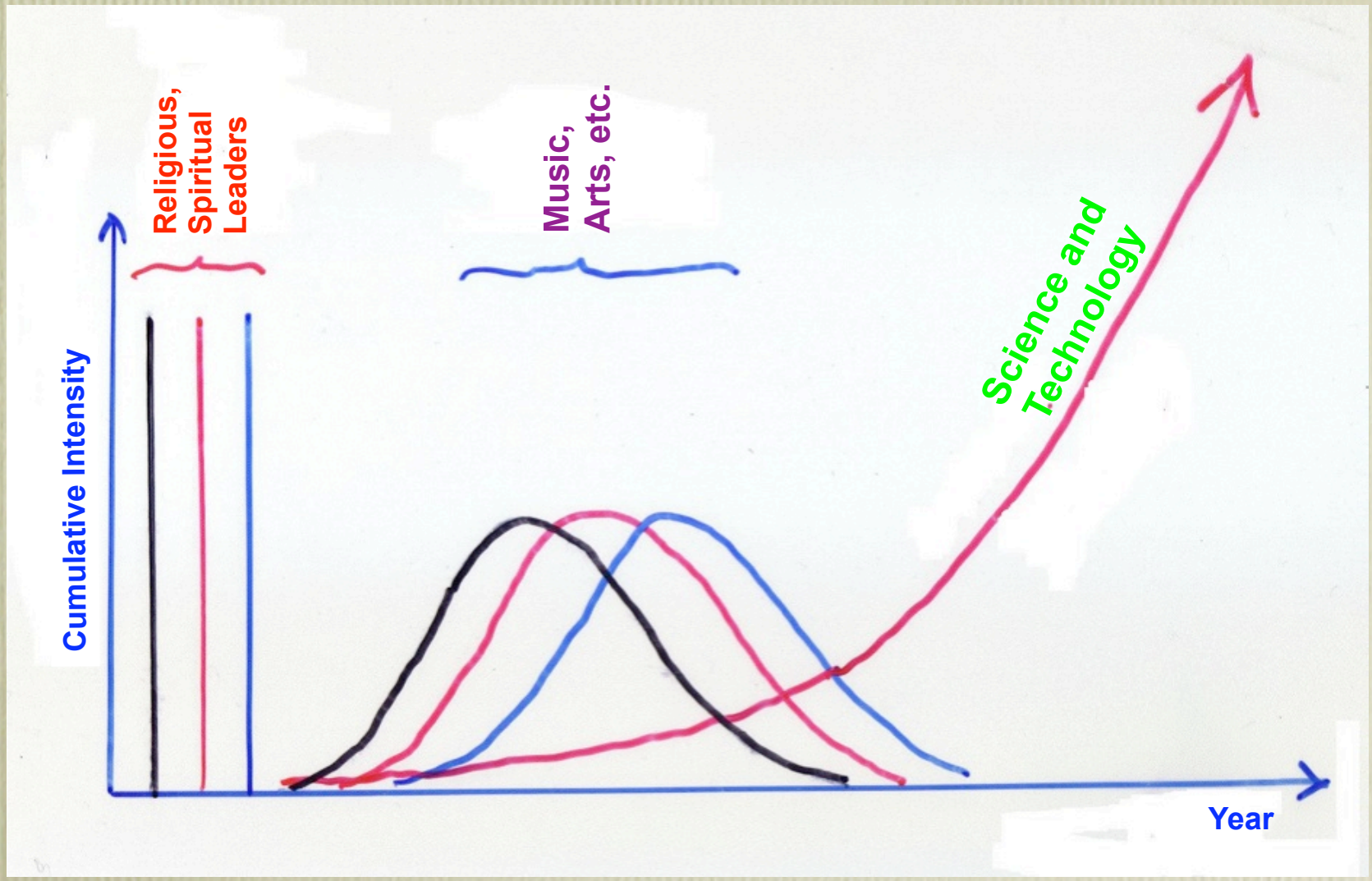
Cherish Tradition and Learn New



Historical Diagram

Depicted from "Space Ship EARTH"
by Barbara Ward



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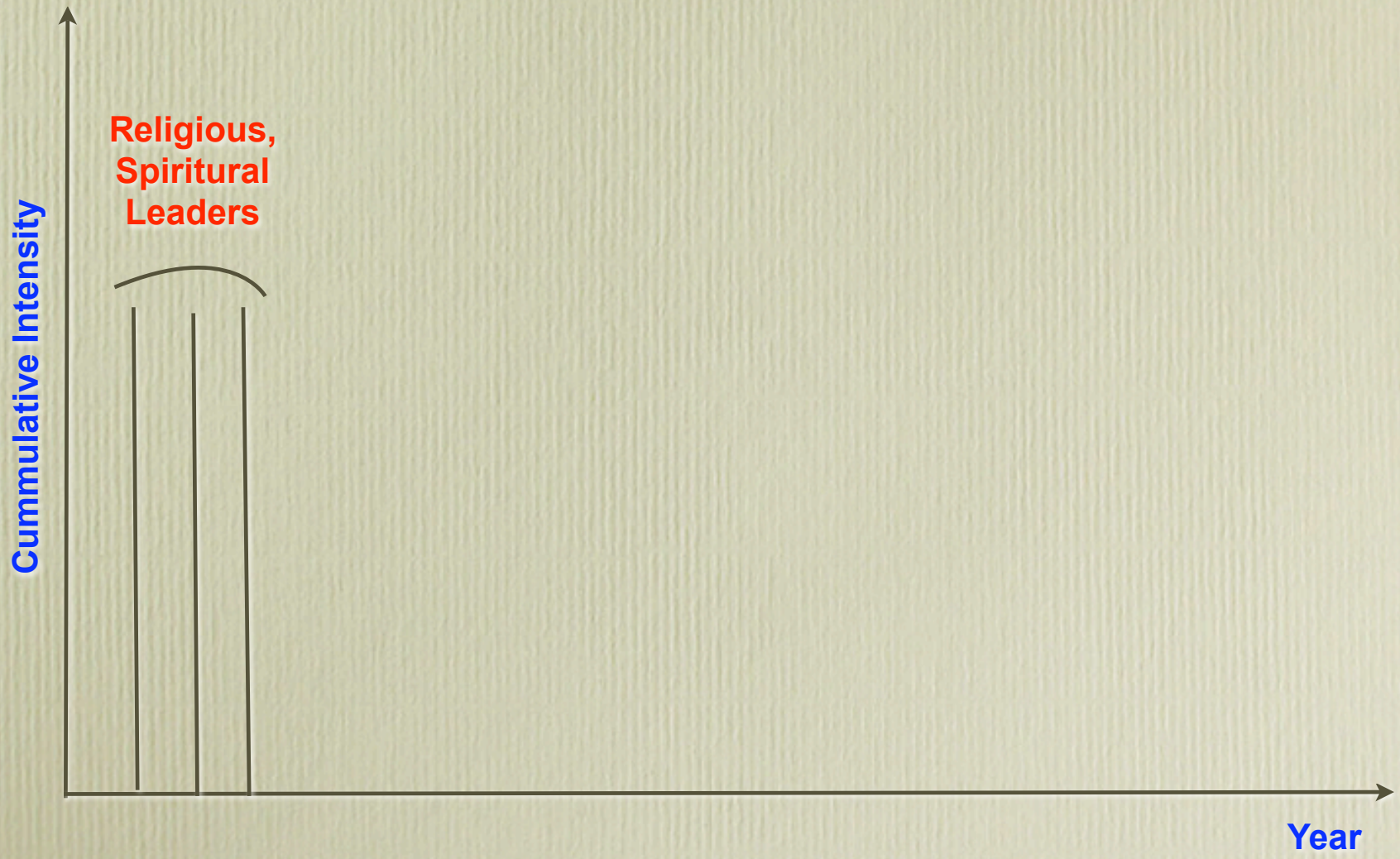
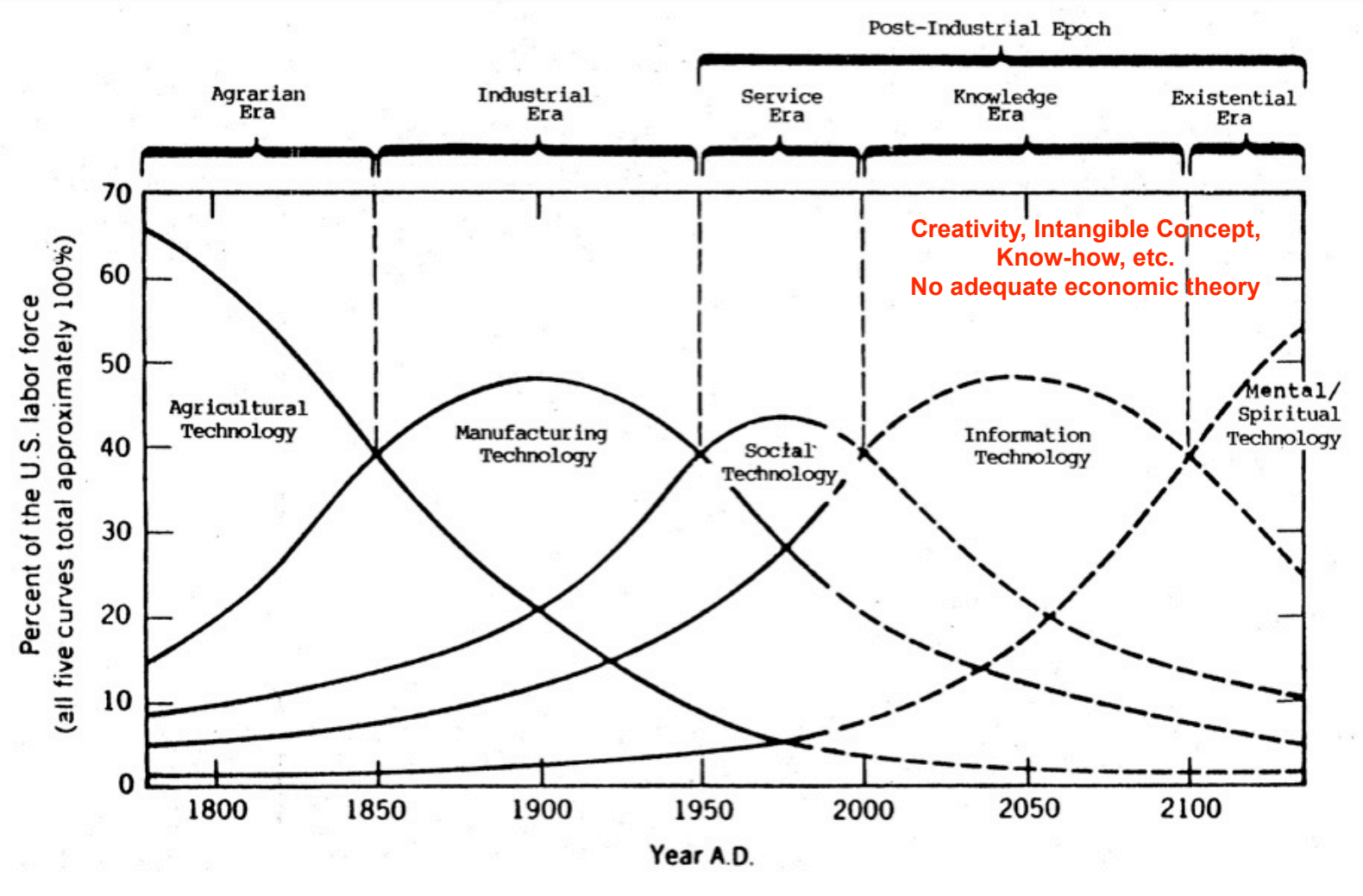


Evolution of Technology



Halal, W. E., "The Life Cycle of Evolution," ICIS Forum 20:2, April, 1990, Page 32

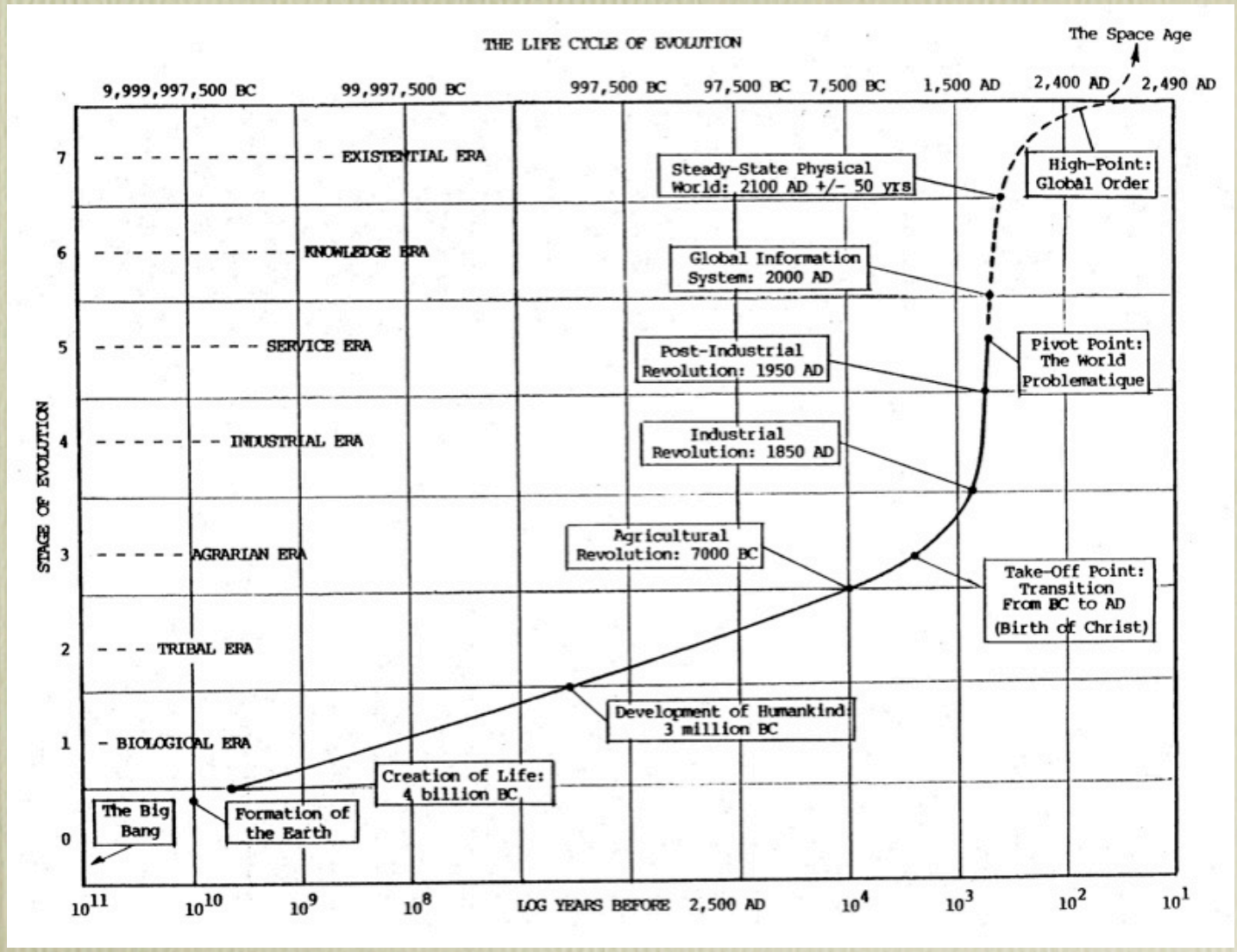
Stages of Evolution

	1	2	3	4	5	6	7
STAGE OF EVOLUTION:	Biological Era	Tribal Era	Agrarian Era	Industrial Era	Service Era	Knowledge Era	Existential Era
Technical Base:	genetics	primitive tools	agriculture	manufacturing	social structure & interaction	computerized information processing	mental/ spiritual technology
Beginning of Era:	4 billion BC	3 million BC	7000 BC	1850 AD	1950 AD	2000 AD*	2100 AD**
Initiating Step:	creation of life	development of humans	agricultural revolution	industrial revolution	post-industrial revolution	global information systems	steady-state physical world
Energy Source:	biomass	human labor	animals	machines	attitudes & emotions	data & knowledge	symbols, beliefs and values
Form of Organization:	organisms	nomadic tribes	feudal estates	factories & distribution systems	complex organizations	information networks	global community, leading to a space age

* This estimate is based on various studies; margin of error about +/- 5 years.
** Based on extrapolating the LCE; probable margin of error about +/- 50 years.

Halal, W. E., "The Life Cycle of Evolution," ICIS Forum 20:2, April, 1990, Page 31

Life Cycle of Evolution



Halal, W. E., "The Life Cycle of Evolution," ICIS Forum 20:2, April, 1990, Page 37

Logo of GLOSAS/USA

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

Requirements for Innovation

- Freedom of thought
- Independent thinking
- Immigration of new minds
- Risk-taking
- Intent for transparent bureaucracy
- Financial market and venture capital
- Spread of democracy should be with cooperative innovation, not weapons.

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

Culture of America

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3Bs of having “aHa”!!

- Bus
- Bed
- Bathroom

Botanical Garden, instead of Bus.

Archimedes have **discovered** the principles of **density** and **buoyancy**, also known as **Archimedes' principle**, while taking a bath. The story goes that he then took to the streets naked, being so elated with his discovery that he forgot to dress, crying "**Eureka**!" ("I have found it!").

Nobel Economic Prize: Prof. William Vickrey of Columbia University in 1996 for the economic theory of incentives under asymmetric information

3Ts for fostering Creativity

- Talent
- Technology
- Tolerance

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

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.

How to Fire Up The Innovation Machine

BusinessWeek, October 11, 2004, Page 240

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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)

On Creativity

There is nothing higher than creativeness, and there is no greater joy. Therefore – create and rejoice! Be daring in creative flight. "Create courageously!"

Let thought undistorted and unrestricted be impressed in your being. Let it be free from the shadow of the censor's scalpel.

Be true to yourself because there is nothing higher than creativeness.

Slide taken from World Island Project


GUS

GUS

New ways of learning

- Online courses and collaborative learning provide means of improving the quality of learning opportunities, by supporting schools and institutions an environment not dependent on space or time.
- This requires small classes mentored by skilled faculty members.

21st Century Version of Fulbright Exchange Program (1/2)

TIME, March 29, 1993 Advertisement T. Utsumi was a Fulbrighter from 1954 to 1957.

THE IMPORTANCE OF PERSON-TO-PERSON COMMUNICATION: A JAPANESE FULBRIGHTER TALKS ABOUT THE FULBRIGHT PROGRAM

Ever since 1952, when 31 Japanese Fulbrighters sailed to the United States and 17 American Fulbrighters departed for Japan, the Fulbright Program has played an important role in strengthening person-to-person links between the two countries. It has also been effective in producing leaders: many of the nearly 6,000 Japanese Fulbrighters have since become prominent figures in the fields of science, education, business and government.

After 40 years of enabling young Japanese and U.S. scholars to further their studies and deepen their understanding of each other's cultures, the Fulbright Program can point to a long record of accomplishment. But large problems still confront the U.S.-Japan relationship; despite decades of effort, trade friction persists and cultural misunderstandings abound. How much can this exchange program, which was first proposed to the U.S. Congress by Senator J. William Fulbright in 1945, best contribute to solving the problems of 1993? How can it best cope with the challenges of a New Media age?

Dr. Heisuke Hironaka, a 1957 Fulbrighter and mathematician who has been awarded the prestigious Fields Prize and is currently chairman of the Japan Association for Mathematical Sciences (JAMS), recently spoke on these and other topics, including his personal experience with the Fulbright Program and his own efforts to bridge the cultural gap between the United States and Japan.

Q: How did you become involved with the Fulbright Program?

A: I was awarded a Fulbright travel grant in 1957. At that time there weren't many applicants. That was lucky for me because my English wasn't very good (laughs). I was much more interested in mathematics. Language was a kind of tool; if it served my purpose, it was good enough.

So I didn't do well in the examination, but I had a very strong recommendation from a mathematician at Harvard. Nowadays it would be much more difficult—the competition is much tougher in the language test.

Once in the United States, I used to dream at night about having to return to Japan. In the dream I would say "I don't want to go," afraid that if I left I would never have the chance to come back [to the United States]. When I told other Japanese in Boston about this dream, they said that they'd had the same one (laughs).

The idea of the Fulbright Program was to invite foreigners to the United States to get an education, see America and perhaps have the experience of working there. When those objectives were achieved, the Fulbright Scholar was expected to return to his or her own country, but I didn't! I stayed, got married, earned a Ph.D. and found a teaching job.

It was a very exciting place to be then and it still is today. The [U.S.] university system is strong and diversified. It's not a cafeteria, but a sort of United States of best restaurants that caters to all different tastes (laughs).

Q: Do you think that the Fulbright Program has had a real effect on U.S.-Japan relations?

A: I think so. It's not there to produce a large number of people who love the United States, but it has produced a large number of foreigners who know the United States better, whether they are critical or understanding or supportive. Certainly there are Fulbrighters who are critical of certain aspects of the United States, but that is far better than not knowing [the United States] at all.

You can see the scenery of the United States on television or read books or look at photographs or join a tour many, many times, but these experiences lack something: individual acquaintance and the feeling of being there. If you stay in Cambridge for one year and study with a certain objective,

Dr. Heisuke Hironaka

collaborating with someone who shares that objective, driving around and seeing the autumn colors and feeling the coldness of winter, it stays with you. I can still picture it. It's not an edited TV program about the four seasons of New England. It's very different.

Also, having personal contacts is very different from reading books about American culture. You can read a hundred books and become an expert on American sociology or social affairs, but that alone doesn't give you a personal feeling for the people.

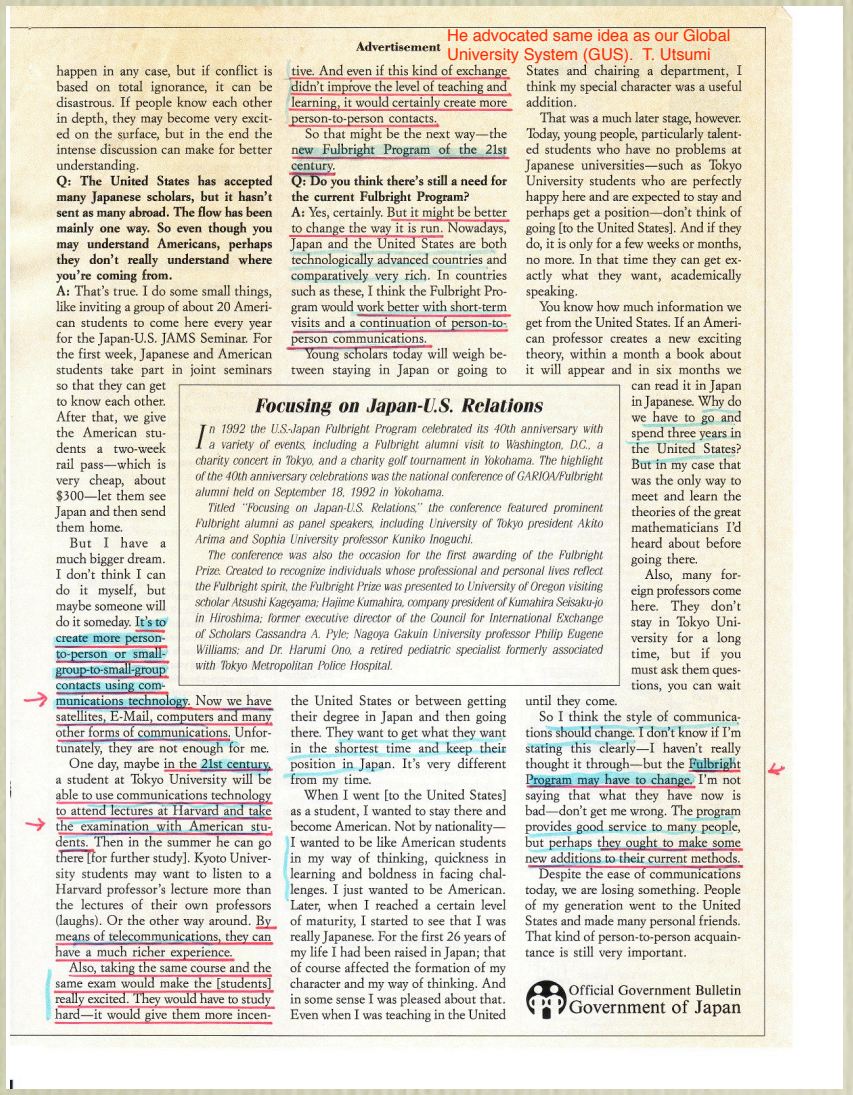
That kind of person-to-person feeling is cultivated through working together with the same objective, with the same feeling of joint failure (laughs) or joint success.

I would even say that, practically speaking, if you can create enough person-to-person contact between the people of the two countries, you may have economic conflict and so on, but you won't have full-scale war. I think it would be impossible. If people can picture even one person from the other country that they like—and the number of people who can do that is big enough—I don't think that you can have war.

It doesn't mean that those people become *shinbeiha*—pro-American. But the person-to-person contact can be the basis of peace. Conflict is going to

TIME, March 29, 1993

21st Century Version of Fulbright Exchange Program (2/2)



He advocated same idea as our Global University System (GUS). T. Utsumi

happen in any case, but if conflict is based on total ignorance, it can be disastrous. If people know each other in depth, they may become very excited on the surface, but in the end the intense discussion can make for better understanding.

Q: The United States has accepted many Japanese scholars, but it hasn't sent as many abroad. The flow has been mainly one way. So even though you may understand Americans, perhaps they don't really understand where you're coming from.

A: That's true. I do some small things, like inviting a group of about 20 American students to come here every year for the Japan-U.S. JAMS Seminar. For the first week, Japanese and American students take part in joint seminars so that they can get to know each other. After that, we give the American students a two-week rail pass—which is very cheap, about $300—let them see Japan and then send them home.

But I have a much bigger dream. I don't think I can do it myself, but maybe someone will do it someday. It's to create more person-to-person or small-group-to-small-group contacts using communications technology. Now we have satellites, E-Mail, computers and many other forms of communications. Unfortunately, they are not enough for me.

One day, maybe in the 21st century, a student at Tokyo University will be able to use communications technology to attend lectures at Harvard and take the examination with American students. Then in the summer he can go there [for further study]. Kyoto University students may want to listen to a Harvard professor's lecture more than the lectures of their own professors (laughs). Or the other way around. By means of telecommunications, they can have a much richer experience.

Also, taking the same course and the same exam would make the [students] really excited. They would have to study hard—it would give them more incentive. And even if this kind of exchange didn't improve the level of teaching and learning, it would certainly create more person-to-person contacts.

So that might be the next way—the new Fulbright Program of the 21st century.

Q: Do you think there's still a need for the current Fulbright Program?

A: Yes, certainly. But it might be better to change the way it is run. Nowadays, Japan and the United States are both technologically advanced countries and comparatively very rich. In countries such as these, I think the Fulbright Program would work better with short-term visits and a continuation of person-to-person communications.

Young scholars today will weigh between staying in Japan or going to the United States or between getting their degree in Japan and then going there. They want to get what they want in the shortest time and keep their position in Japan. It's very different from my time.

When I went [to the United States] as a student, I wanted to stay there and become American. Not by nationality—I wanted to be like American students in my way of thinking, quickness in learning and boldness in facing challenges. I just wanted to be American. Later, when I reached a certain level of maturity, I started to see that I was really Japanese. For the first 26 years of my life I had been raised in Japan; that of course affected the formation of my character and my way of thinking. And in some sense I was pleased about that. Even when I was teaching in the United States and chairing a department, I think my special character was a useful addition.

That was a much later stage, however. Today, young people, particularly talented students who have no problems at Japanese universities—such as Tokyo University students who are perfectly happy here and are expected to stay and perhaps get a position—don't think of going [to the United States]. And if they do, it is only for a few weeks or months, no more. In that time they can get exactly what they want, academically speaking.

You know how much information we get from the United States. If an American professor creates a new exciting theory, within a month a book about it will appear and in six months we can read it in Japan in Japanese. Why do we have to go and spend three years in the United States? But in my case that was the only way to meet and learn the theories of the great mathematicians I'd heard about before going there.

Also, many foreign professors come here. They don't stay in Tokyo University for a long time, but if you must ask them questions, you can wait until they come.

So I think the style of communications should change. I don't know if I'm stating this clearly—I haven't really thought it through—but the Fulbright Program may have to change. I'm not saying that what they have now is bad—don't get me wrong. The program provides good service to many people, but perhaps they ought to make some new additions to their current methods.

Despite the ease of communications today, we are losing something. People of my generation went to the United States and made many personal friends. That kind of person-to-person acquaintance is still very important.

Official Government Bulletin
Government of Japan

Focusing on Japan-U.S. Relations

In 1992 the U.S.-Japan Fulbright Program celebrated its 40th anniversary with a variety of events, including a Fulbright alumni visit to Washington, D.C., a charity concert in Tokyo, and a charity golf tournament in Yokohama. The highlight of the 40th anniversary celebrations was the national conference of GARIOA/Fulbright alumni held on September 18, 1992 in Yokohama.

Titled "Focusing on Japan-U.S. Relations," the conference featured prominent Fulbright alumni as panel speakers, including University of Tokyo president Akito Arima and Sophia University professor Kuniko Inoguchi.

The conference was also the occasion for the first awarding of the Fulbright Prize. Created to recognize individuals whose professional and personal lives reflect the Fulbright spirit, the Fulbright Prize was presented to University of Oregon visiting scholar Atsushi Kageyama; Hajime Kumahira, company president of Kumahira Seisaku-jo in Hiroshima; former executive director of the Council for International Exchange of Scholars Cassandra A. Pyle; Nagoya Gakuin University professor Philip Eugene Williams; and Dr. Harumi Ono, a retired pediatric specialist formerly associated with Tokyo Metropolitan Police Hospital.

TIME, March 29, 1993

Principle of Global E-Learning

- Collaborative Learning
- Experiential Learning
- Objective Learning
- Autonomous Learning

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Chinese Proverb

When I hear, I forget.

When I see, I remember.

When I do, I know.

Confucius

Knowledge applies with interaction becomes wisdom.

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Experiences of multimedia instruction

- Constraints imposed by the Internet
- Evolution of Web based delivery platforms
- Students learning culture
- Multimedia enhancements
- Interactivity and promoting collaborations
- The synchronous dimension

Research findings

- Learning networks can be as effective or more effective than traditional classrooms, in terms of access and learning outcomes
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Problems and promises

- Experience demonstrates that collaborative ventures are unlikely to be succesful, even where they are well financed, and especially when they are based on existing providers and reliant on re-engineering of existing teaching and learning practices.
- A spirit needed that recognizes the values of a multicultural world, civil society and participation and empowerment of people.
- Digital literacy

Global University System (GUS) - I

Mission

GUS aims to build a higher level of humanity with mutual understanding across national and cultural boundaries for global peace.

The mission of GUS is to help higher educational institutions in remote/rural areas of developing countries to deploy broadband Internet in order for them to close the digital divide.

These institutions act as the knowledge center of their community for the eradication of poverty and isolation through the use of advanced Information and Communications Technologies (ICTs). They also have an important role as the gateway to the world for collaboration of creating new knowledge in global knowledge society of the 21st century.

The key to global peace, which is the ultimate aim of GUS education, can be attained by promoting mutual understanding and trust among the people of the world.

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A GUS education thus hopes to promote world prosperity, justice, and peace, based on moral principles rather than political or ideological doctrines.

Global University System (GUS) - I

GUS aims to create a worldwide consortium of universities to provide the underdeveloped world with access to 21st Century education across national and cultural boundaries via advanced Internet technologies.

Education and job skills are the keys in determining a nation's wealth and influence. The GUS education thus will promote world prosperity, justice, and peace, based on moral principles rather than political or ideological doctrines. The aim is to achieve "education for all," anywhere, anytime.

Global University System (GUS) - II

GUS helps higher learning and healthcare institutions in remote/rural areas of developing countries to deploy broadband Internet in order for them to close the digital divide. Those institutions affiliated with GUS become members of the GUS/UNESCO/UNITWIN Networking Chair Program located at the University of Tampere in Finland.

These institutions act as the knowledge center of their community for the eradication of poverty and isolation. They also have an important role as the gateway to the world for collaboration of creating new knowledge in global knowledge society of the 21st century.

Global University System (GUS) - II

The GUS is a world-wide initiative to create telecommunications infrastructure for accessing educational resources across national and cultural boundaries for global peace.

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Global University System (GUS) - III

Learners may take courses from different member institutions around the world obtaining a GUS degree, thus freeing them from being confined to one academic culture of a single university or country

These learners and their professors from participating institutions will also form a global forum for exchange of ideas and information and for conducting collaborative research and development with emerging global GRID computer network technology.

Global University System (GUS) - III

The GUS has group activities in the major regions of the globe with partnerships of higher learning and healthcare institutions. They foster the establishment of GUS in their respective regions, with the use of an advanced global broadband Internet virtual private network. Those institutions affiliated with GUS become members of the GUS/UNESCO/UNITWIN Networking Chair Program located at the University of Tampere in Finland.

Students in these regions will be able to take their courses, via advanced broadband Internet, from member institutions around the world to receive a GUS degree.

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Global University System (GUS)
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Mission of GUS

The mission of the Global University System program is not the mere enhancement of job skills with e-learning, but the creation of youngsters for the global peace for the eradication of borderless terrorism by reduction of poverty through the use of advanced Information and Communication Technologies (ICT) in remote/rural areas around the world.

Global University System (GUS)

The GUS is a world-wide initiative to create satellite/wireless telecommunications infrastructure and educational programs for access to educational resources across national and cultural boundaries for global peace.

The GUS helps higher educational institutions in remote/rural areas of developing countries to deploy broadband Internet in order for them to close the digital divide and act as the knowledge center of their region for the eradication of poverty and isolation.

Education and job skills are the keys in determining a nation's wealth and influence. The GUS education thus will promote world prosperity, justice, and peace, based on moral principles rather than political or ideological doctrines. The aim is to achieve "education for all", anywhere, anytime.

GUS/UNESCO/UNITWIN Networking Chair program

is to construct global scale knowledge forum with advanced ICT, e.g., with the use of massive parallel processors of globally distributed and yet interconnected mini-supercomputers around the world through Global Broadband Internet (GBI) of the global neural computer network.

Global University System (GUS)
(continued)

The GUS has task forces working in the major regions of the globe with partnerships of higher education institutions. Students in these regions will be able to take their courses, via advanced broadband Internet, from member institutions around the world to receive a GUS degree.

These students and their professors from participating institutions will form a global forum for exchange of ideas and information and for conducting collaborative research and development.

Global University System (GUS) - A

The Global University System (GUS) is a worldwide initiative to create telecommunications infrastructure for access to educational resources across national and cultural boundaries for global peace.

GUS aims to create a worldwide consortium of universities to provide all world citizens, with special emphasis on the underdeveloped world, with access to 21st Century education via Internet technologies.

Global University System (GUS) - B

The GUS works in the major regions of the globe with partnerships of higher education and healthcare institutions.

Learners in these regions will be able to take their courses from member institutions around the world to receive a GUS degree.

These learners and their professors from partner institutions will also form a global forum for exchange of ideas and information and for conducting collaborative research and development with emerging global GRID computer network technology.

The aim is to achieve “education and healthcare for all,” anywhere, anytime and at any pace.

Global University System (GUS) - #I

The Global University System (GUS) is a worldwide initiative to establish broadband Internet infrastructure for enhancing e-learning and e-healthcare across national and cultural boundaries for global peace.

The philosophy of GUS is based on the belief that global peace and prosperity would only be sustainable through education. The prime objective is to achieve "education and healthcare FOR ALL," anywhere, anytime and at any pace.

Global University System (GUS) - #2

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.

Both the learning (students or lifelong learners) and teaching (professors) societies of partner institutions will also form a global forum for exchange of ideas and information and for conducting collaborative 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.

Global University System (GUS)

- 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 for exchange of ideas and information and for conducting collaborative research and development with the emerging global GRID c network technology.
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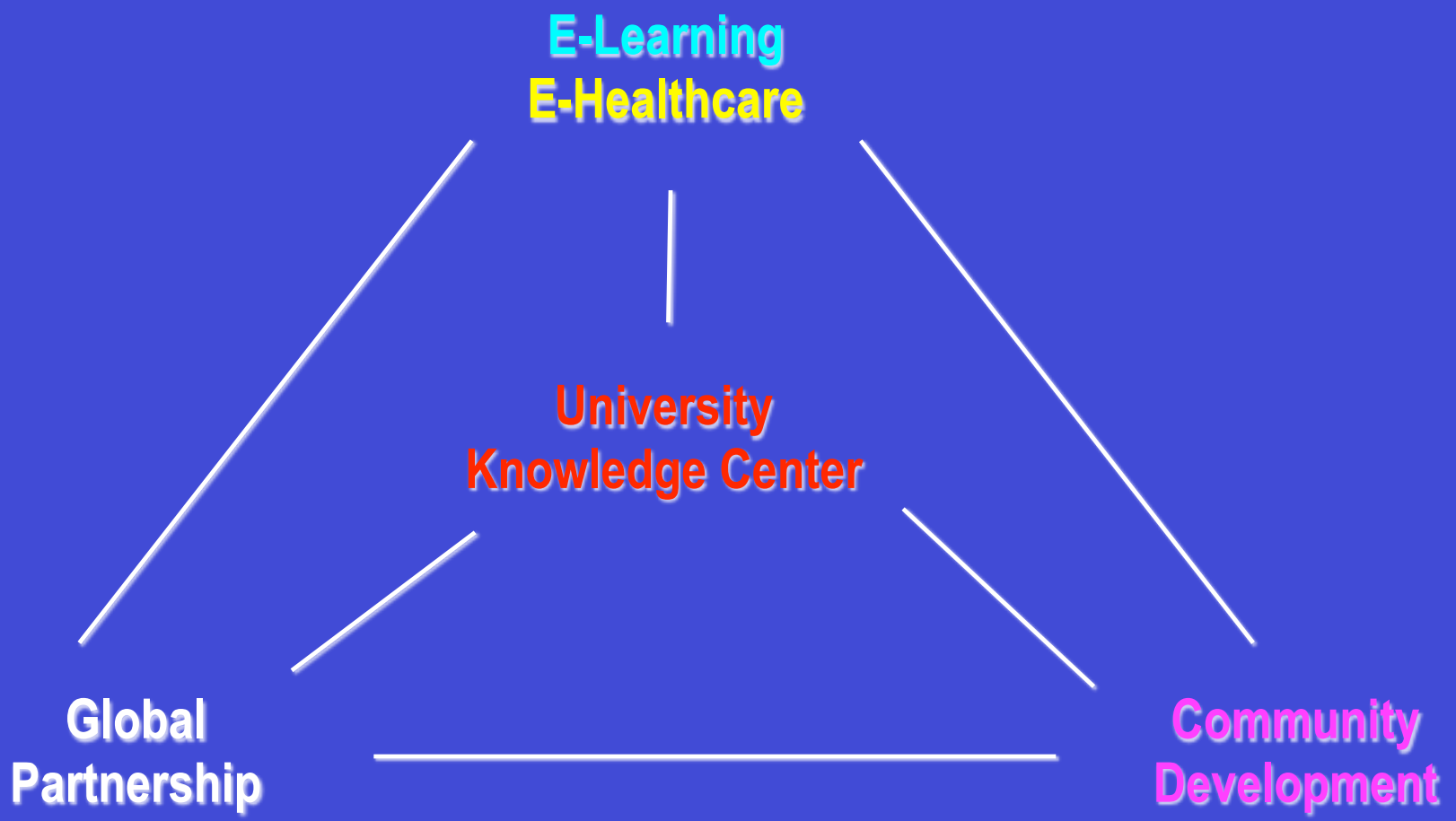
1. Wordwide consortium

2. 21st century version of Fulbright exchange program

3. Globally collaborative Research and Development

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



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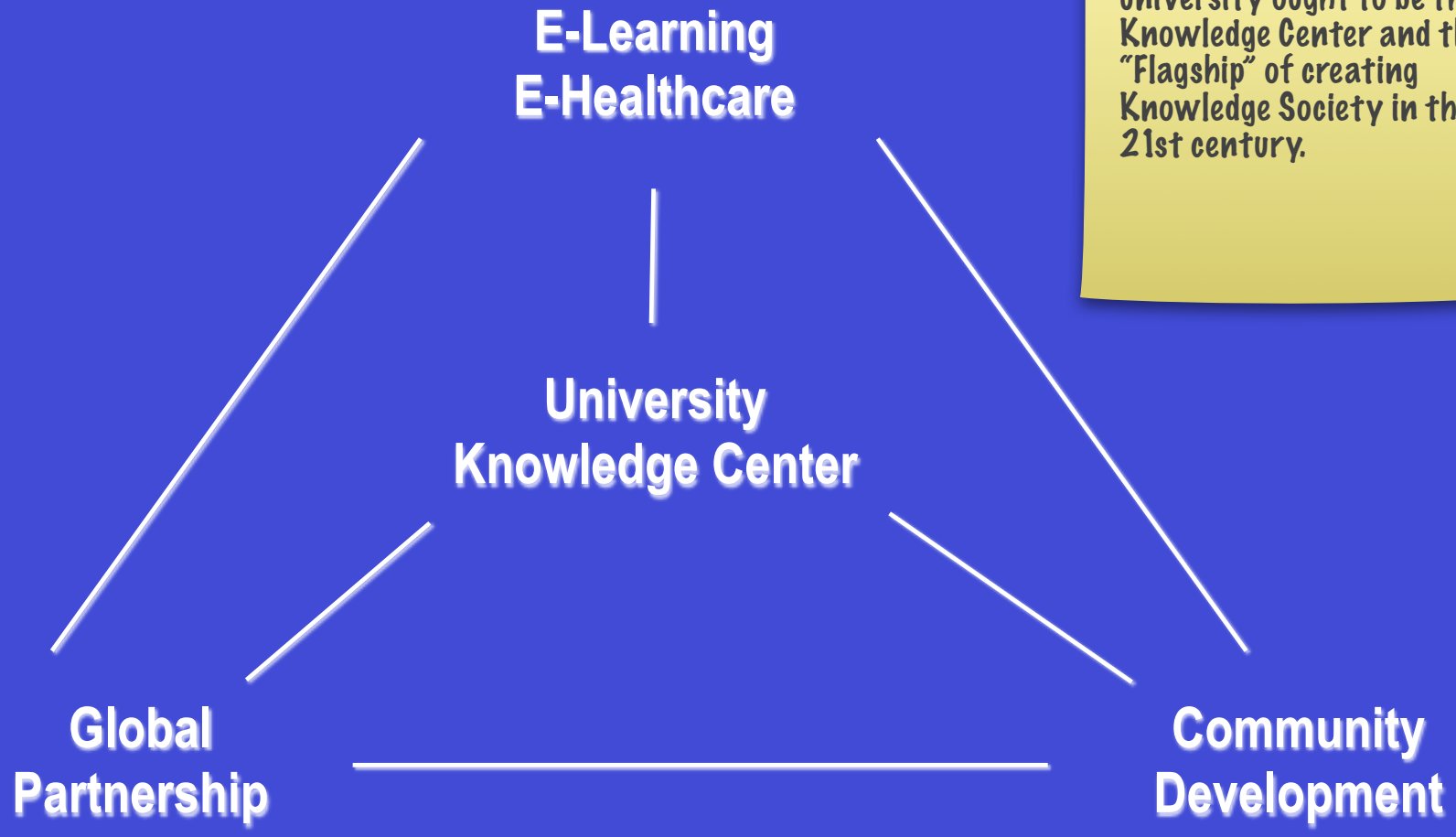
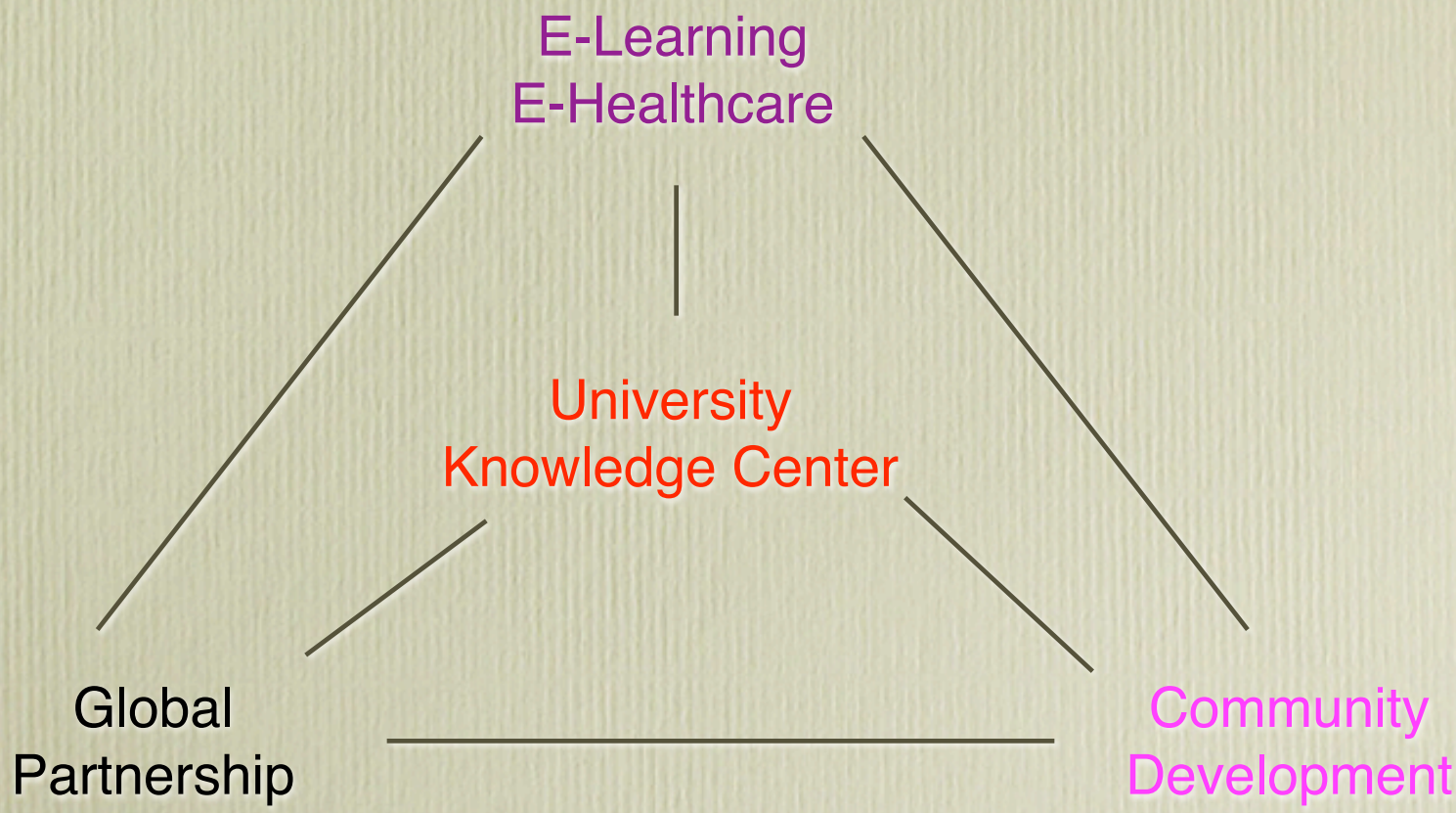


Connotation of "University" is "Universe." Thus, the university ought to be the Knowledge Center and the "Flagship" of creating Knowledge Society in the 21st century.

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



Improving a specific university

- Learn from others, imitate strong universities
- Have a strategic plan
- Manage intellectual competition creatively
- Use quality improvement methods
- Encourage faculty research

Contributing to the local community

- Expand service learning
- Imitate Campus Compact, www.compact.org
- Teach group facilitation methods
- Work to improve processes in local organizations

Strengthening international academic cooperation

- Increase faculty and student collaboration between campuses
- Use existing funding opportunities
- Standardize degree structure and semester schedules
- Cooperate in offering distance education

Goals of GUS

- eLearning
- Joint research, professional development and knowledge-building
- Data- and media-intensive exchanges
- Globalization of employment opportunities

Objective of GUS

- Construction of global broadband Internet networks
- Development of teaching materials
- Global network of facilitators

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Objectives of GUS

- Improving the global learning and wellness environment for people in the global knowledge society, where the global responsibility is shared by all;
- Sharing and exchanging knowledge among the sectors of education-related research, industry and trade;
- Giving priority to actions improving learning and healthcare world-wide;
- Harnessing the technologies of broadband Internet connectivity among institutions of higher learning in the developing countries, in order to provide learners of all ages access to global e-learning across national and cultural boundaries;
  (continue)

Objectives of GUS

(continued)

- **Fostering youngsters around the world in a creative competition for relevance and excellence through affordable and accessible broadband Internet;**
- **Supporting systems which complement the traditional institutions of learning and healthcare by using conventional methods together with advanced electronic media;**
- **Improving learning and health of the disadvantaged by increasing their access through the utilization of new technologies, basing its long-term orientations on societal aims and needs and reinforcing the role of service to the whole society.**

Philosophies and Principles of GUS

- Transcultural, globalwide initiative
- The GUS to demonstrate moral leadership
- Priority on academic freedom
- The GUS to stress quality education
- Initiative to be shared with students
- Transnational collaboration on research
- Commitment to openness
- Toward transcultural unity-in-difference

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Global University System (GUS)

Worldwide -- broadband Internet infrastructure for enhancing e-learning and e-healthcare across national and cultural boundaries for global peace.

Premises for Global University System

- Modern communication technology enhances peace, health, and prosperity.
- Rural/global communication systems are cost-effective investment.

Characteristics of GUS

- Local/international collaboration at all levels
- Integrated, multi-use internet infrastructure
- Cutting-edge, globally collaborative university research on “best practices”
- Optimal use of existing resources
- Agendas for gender, indigenous peoples, special-needs populations
- An experimental spirit

Characteristics of GUS/Altai Mir

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- An experimental spirit

Working Groups of GUS/Altai Mir

- Infrastructure
- Global e-learning
- Global e-heatlhcare/telemedicine
- Community Development
- Globally Collaborative Research and Development

Three Premises for Global University System

- Modern communication technology enhances peace, health, and prosperity.
- Rural/global communication systems are cost-effective investment.
- Altai is an excellent place to demonstrate these premises.

Background and Rationale

- The Internet, with its rapidly expanding and improving infrastructure, will be the main telecommunication media of tomorrow.
- The full potential for achieving revolutionary advances in education and healthcare in developing countries cannot be realized with the currently available information delivery infrastructure and at currently prevailing market prices.

Background and Rationale #1

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Background and Rationale II

- Improved e-learning requires much better ways of presenting information and of enabling learners to interact with facilitators to enable the learners to process that information into personal knowledge.
- What is needed is both high quality audio/ video delivery and high quality interactivity.
- Developing countries need broadband Internet via international satellite and fiber-optic cable.

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New ways of learning

- Online courses and collaborative learning provide means of improving the quality of learning opportunities, by supporting schools and institutions an environment not dependent on space or time.
- This requires small classes mentored by skilled faculty members.

Enabling Distributed Learning Communities Via Emerging Technologies #1

Dr. Chris Dede, Harvard University
T.H.E. Journal, September, 2004

"Distributed learning" is a term used to describe educational experiences that are distributed across a variety of geographic settings, across time and across various interactive media.

Enabling Distributed Learning Communities Via Emerging Technologies #2

Dr. Chris Dede, Harvard University
T.H.E. Journal, September, 2004

A culture of learning in which everyone is involved in a collective effort of understanding. Its four characteristics are;

- **Diversity of expertise among its members who are valued for their contributions and given support to develop,**
- **A shared objective of continually advancing the collective knowledge and skills,**
- **An emphasis on learning how to learn, and**
- **Mechanisms for sharing what is learned.**

This is a radical departure from the traditional view of schooling, with its emphasis on individual knowledge and performance, and the expectation that students will acquire the same body of knowledge at the same time.

Enabling Distributed Learning Communities Via Emerging Technologies #3

Dr. Chris Dede, Harvard University
T.H.E. Journal, September, 2004

To fully prepare students for 21st century work and citizenship, the education system must transform to provide support for inquiry-based learning in classrooms, in homes and in communities since this is how complex skills such as systems thinking, creativity and collaborations are acquired.

Experiences of multimedia instruction

- Constraints imposed by the Internet
- Evolution of Web based delivery platforms
- Students learning culture
- Multimedia enhancements
- Interactivity and promoting collaborations
- Synchronous dimension

Research findings

- Learning networks can be as effective or more effective than traditional classrooms, in terms of access and learning outcomes
- Collaborative learning designs are more effective for online learning than individuals working alone with materials posted online

Problems and promises

- Experience demonstrates that collaborative ventures are unlikely to be succesful, even where they are well financed, and especially when they are based on existing providers and reliant on re-engineering of existing teaching and learning practices.
- A spirit needed that recognizes the values of a multicultural world, civil society and participation and empowerment of people.
- Digital literacy

Expected Benefits

It is expected that GUS will provide the following benefits to students and participating universities:

- **Broadband Internet connection, supporting modern distance education via the World Wide Web.**
- **Help member universities build a network of facilitators to support e-learners.**
- **Learners may take courses from different member universities, obtaining their degree from the GUS, thus freeing them from being confined to one academic culture of a single university or country.**

Expected Benefits

(continued)

- Learners and faculties can promote the exchange of ideas, information, knowledge, and joint research and development of Web-based teaching materials.

- Researchers in developing countries can partner with colleagues in more advanced countries, and perform joint collaborative research and development with the use of virtual reality/virtual laboratories for experiential/constructive learning and creation of knowledge through emerging global GRID computer networking technology.

- Learners, faculties, and public policy makers can promote community development and many other advances at a local, regional and even on a global scale.

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Expected Benefits

- Consortium member universities will be able to build the network of facilitators for support of e-learners,
- Learners may take one course from a university of different country to get his/her degree from the GUS, thus freeing them from being confined with one philosophy of a university and a country,
- The broadband Internet will enable web-based teaching with more interaction among/between learners and instructors compared with less interaction in replicating class-room teaching via analog broadcasting satellite, -- thus stimulating global dialogues among them to attain global peace, (continue)

Expected Benefits (continued)

- Learners and faculties at the member universities can promote exchange of ideas, information, knowledge and joint research and development of web-based teaching materials, community development, and many others locally, regionally and even in global scale,

- Researchers in even developing countries can perform joint collaborative Hi-Tech research and development with virtual reality and virtual laboratory of various academic and engineering subjects with colleagues in developed countries, e.g., Globally Collaborative Environmental Peace Gaming, micro-biology, meteorology, chemical molecular study, DNA analysis, 3D human anatomy, etc.

Expected Benefits

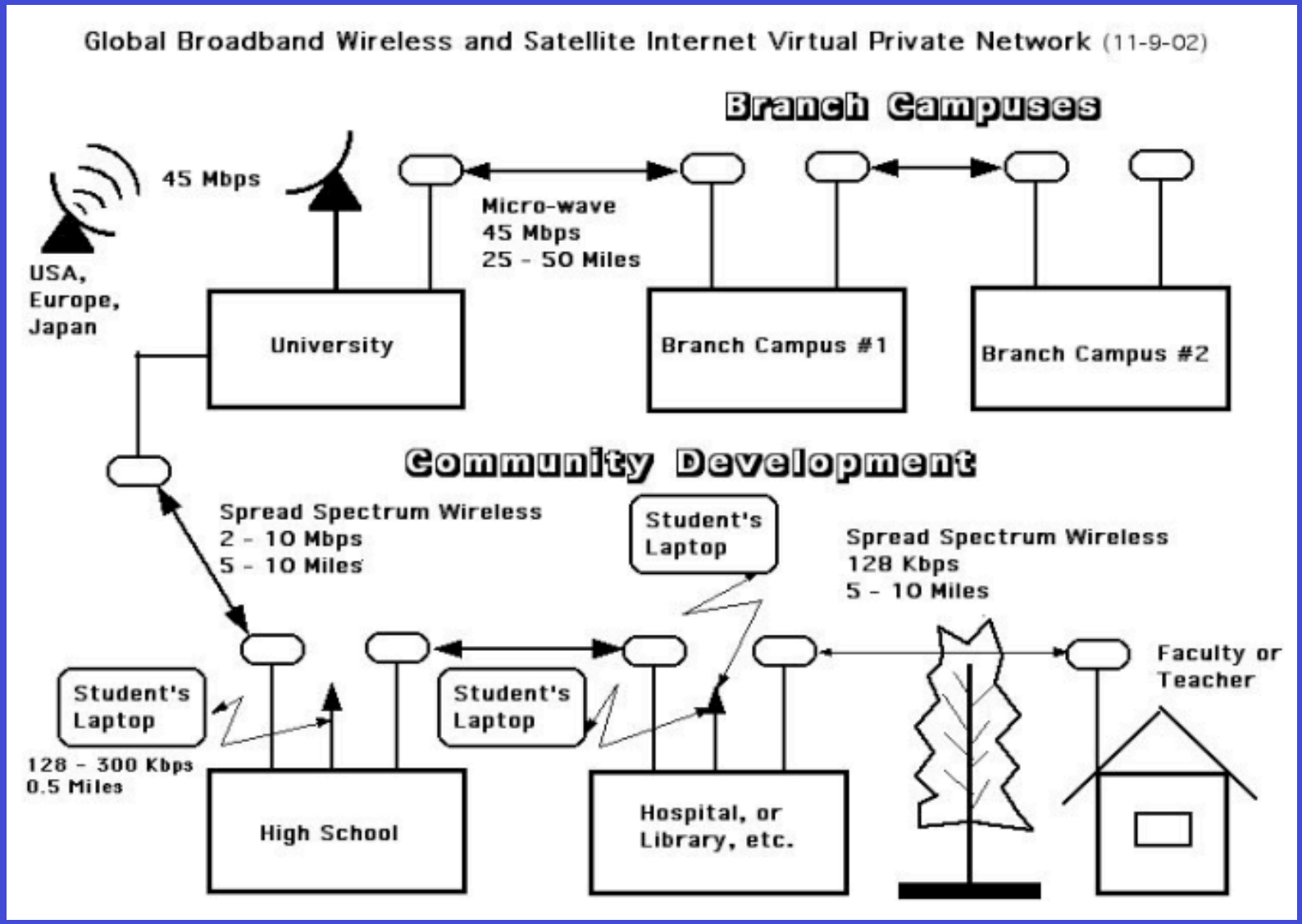
- Support of e-learners and e-healthcare
- Freedom from geographical limitations
- Global dialogues for global peace
- Exchange of ideas, information, knowledge
- Joint colloborative Hi-Tech research and development

INFRASTRUCTUR

INFRASTRUCTURE

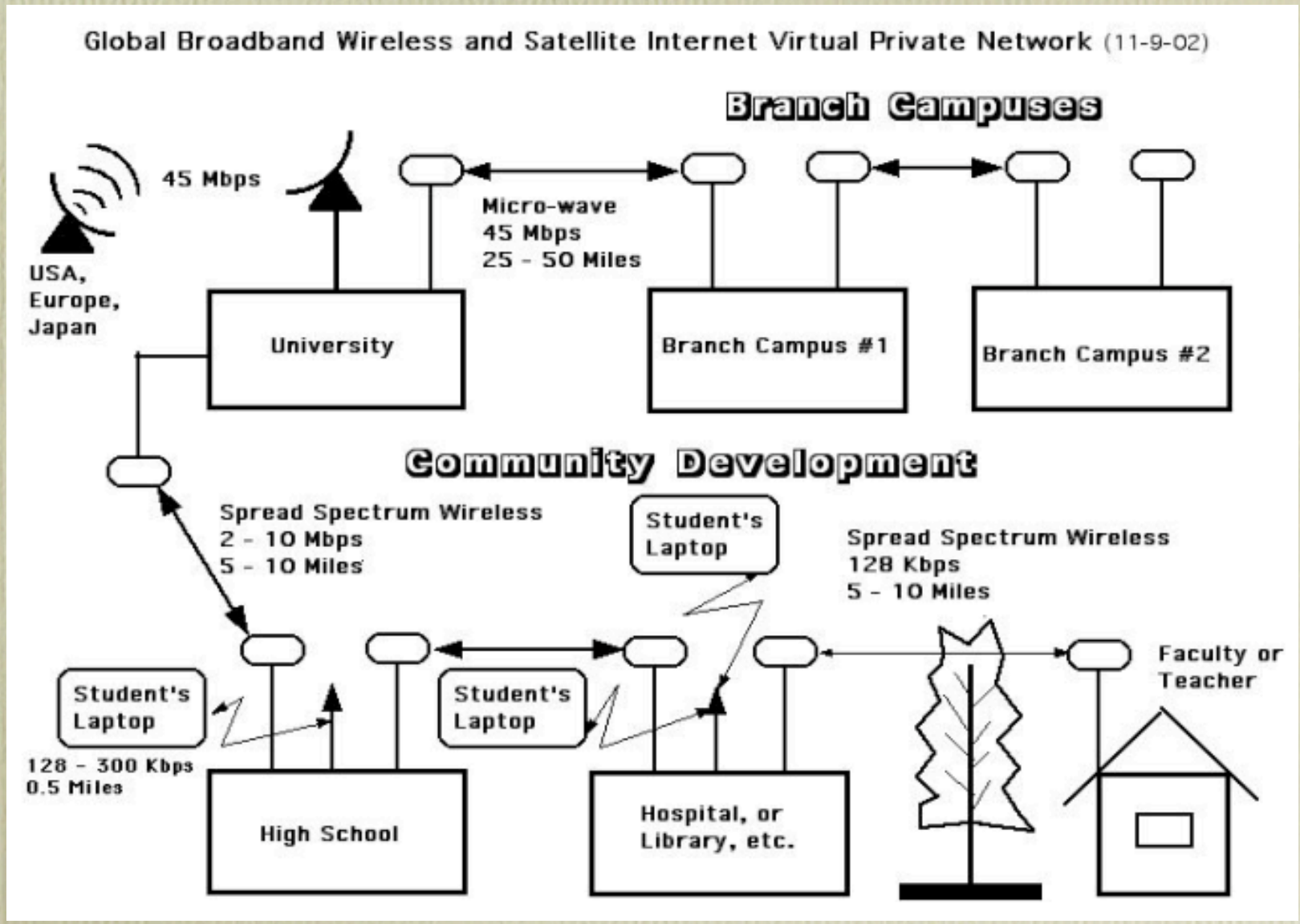
Global Broadband Internet (GBI)

Virtual Private Network with QoS

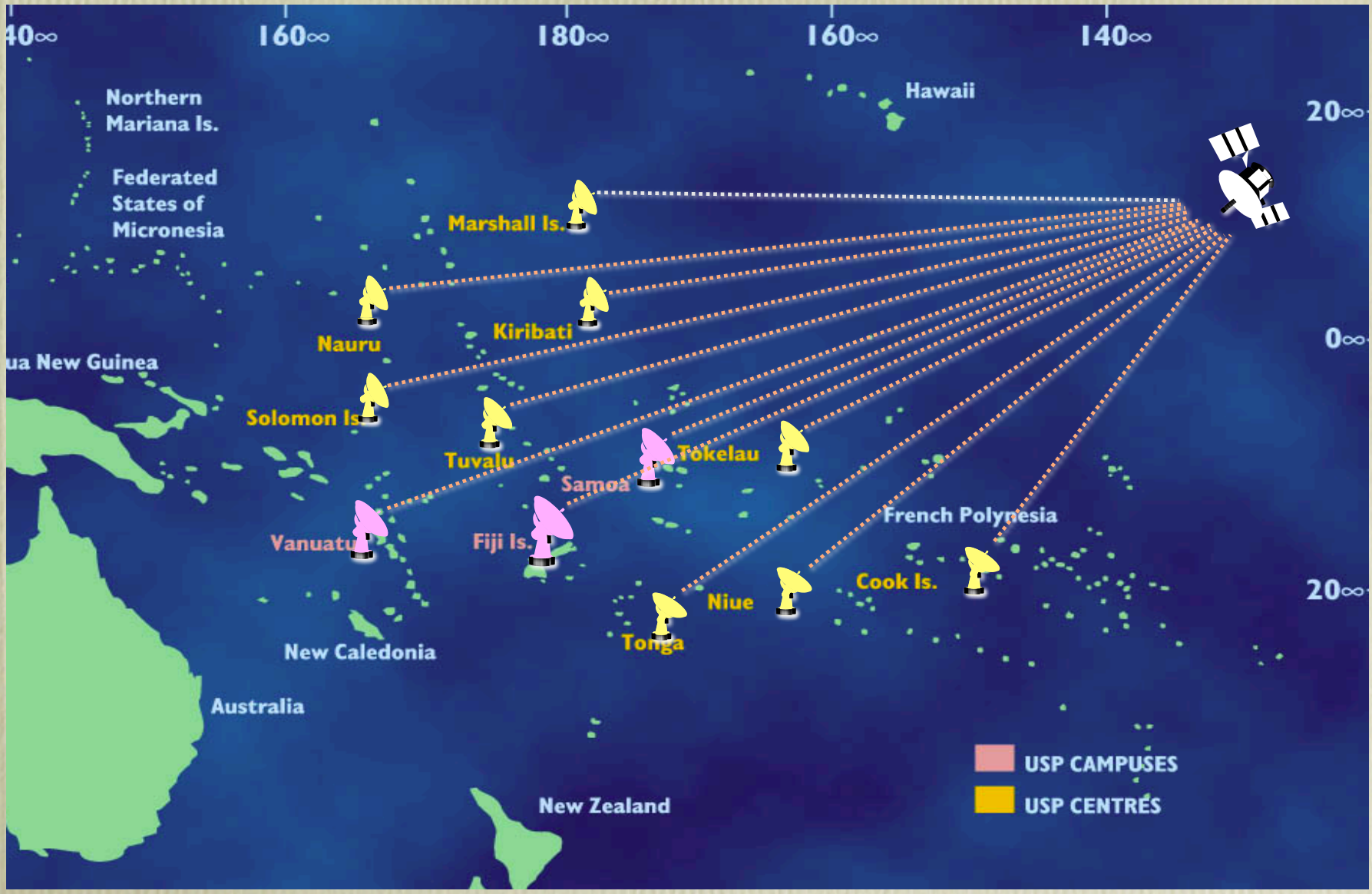


Global Broadband Internet (GBI)

Virtual Private Network with QoS

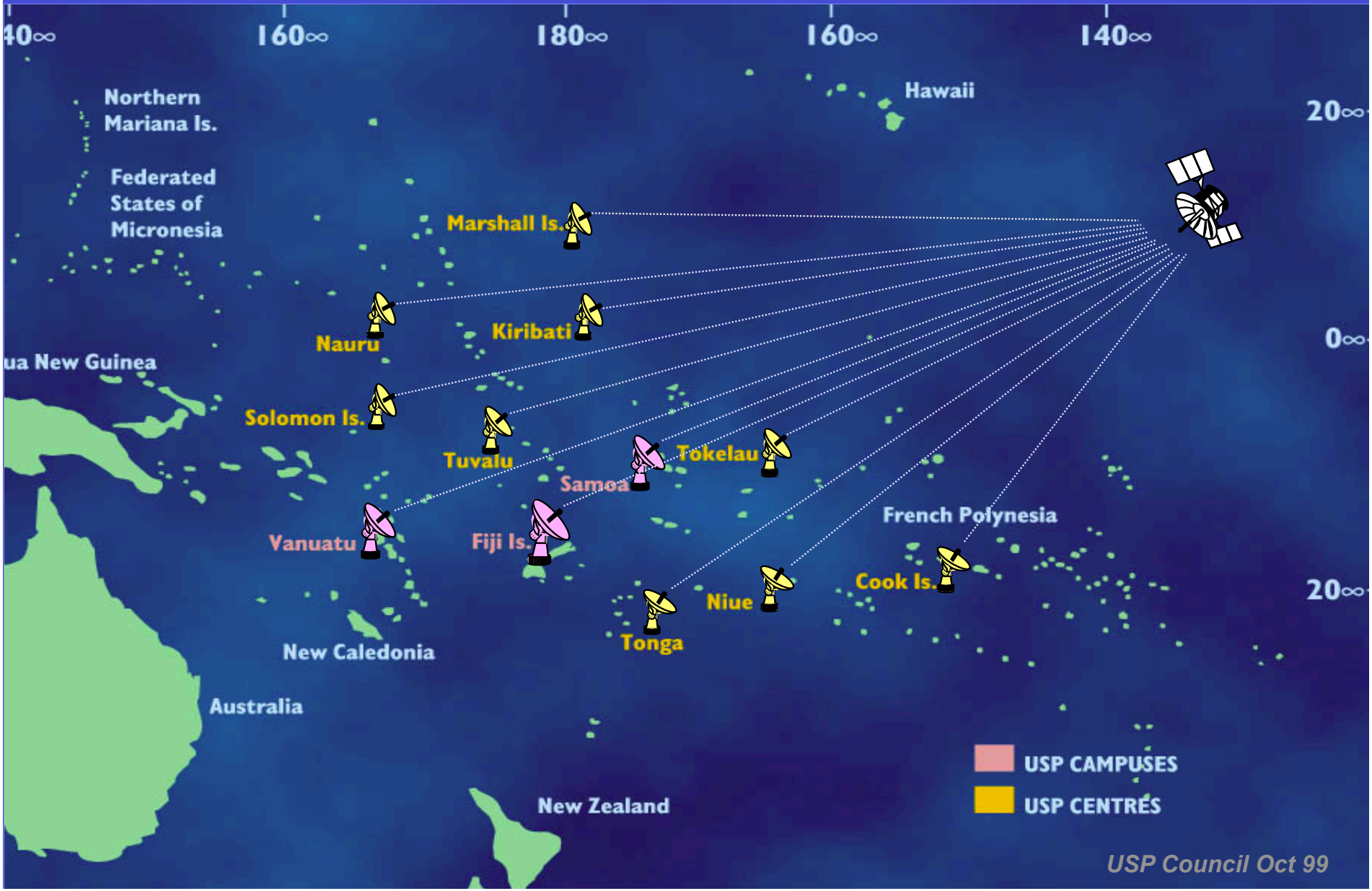


USPNet VSAT Network



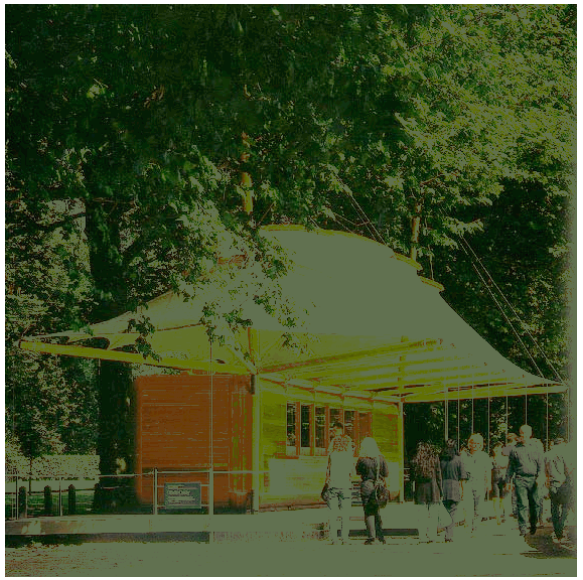
USP Council Oct 99

USPNet VSAT Network



LINCOS (Little Intelligent Communities) or "Unwiring the World"

Hewlett-Packard, Microsoft, FTL Happold, Northsails, UTC, Becton-Dickenson, Wyle, V-Tel, **Tachyon**



Foundation for Sustainable Development of Costa Rica
Institute of Technology of Costa Rica
MIT Media Lab
University of Rochester

Digital Town Centers

8-10 Computers
2 Printers, 2 Scanners
Cell phone base station (15 mile radius)
Smart card reader
Medical diagnostic bay
Analytical equipment as appropriate
External large screen (when available)
VSAT satellite connection

Purpose: to provide a multi-purpose information center for isolated regions, with high-speed (40 Mb/s) internet access and integrated local wireless communications, at affordable cost for developing nations

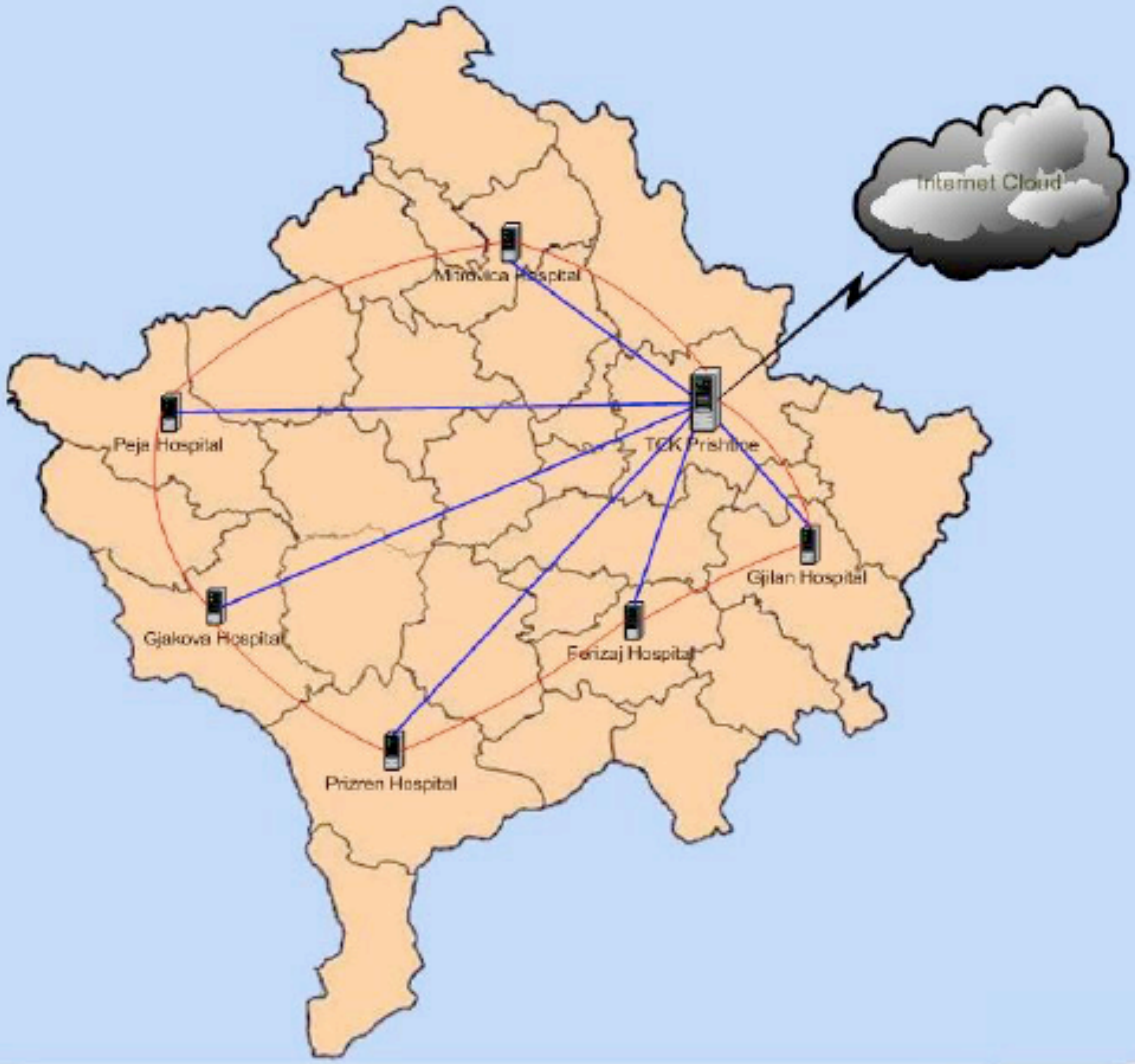
Telemedicine
Agricultural extension services
Environmental monitoring
Education

Computer Lab
Electronic Commerce
Banking
Digital Services

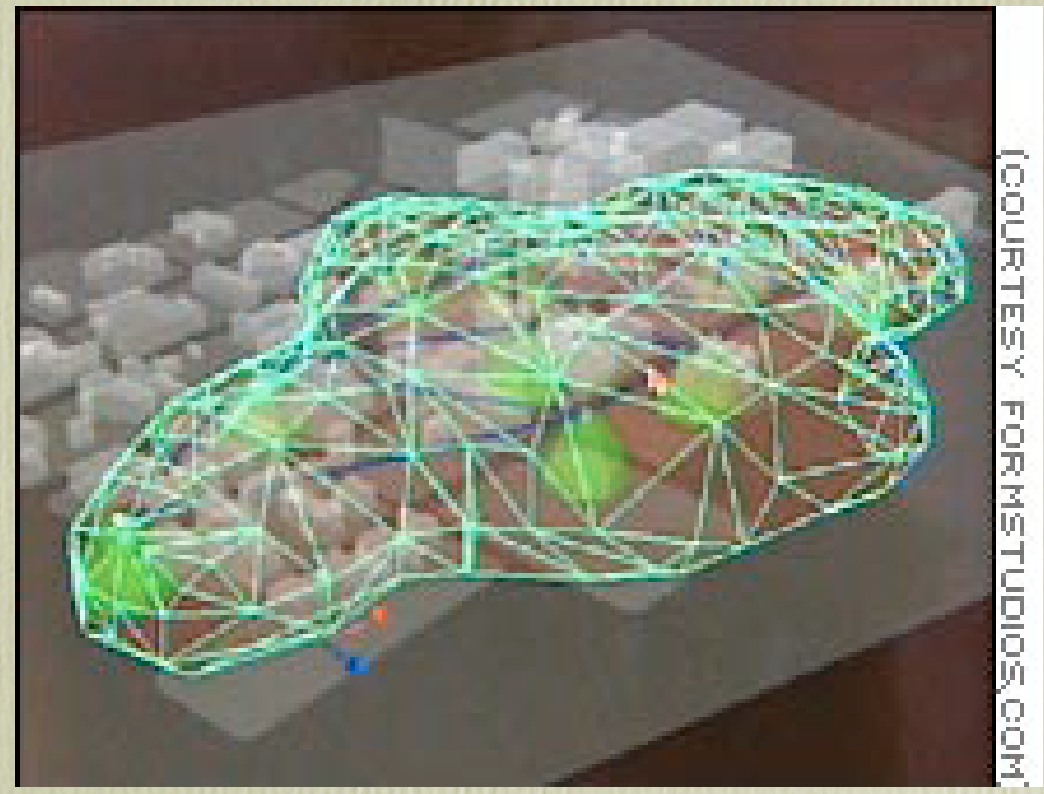
Telemedicine Centre of Kosova - Virtual Private Network

VPN and Internet specifications

- Dedicated physical lines between regional hospitals.
- Up to 512 Kbps between sites
- 2 Mbps internet connection



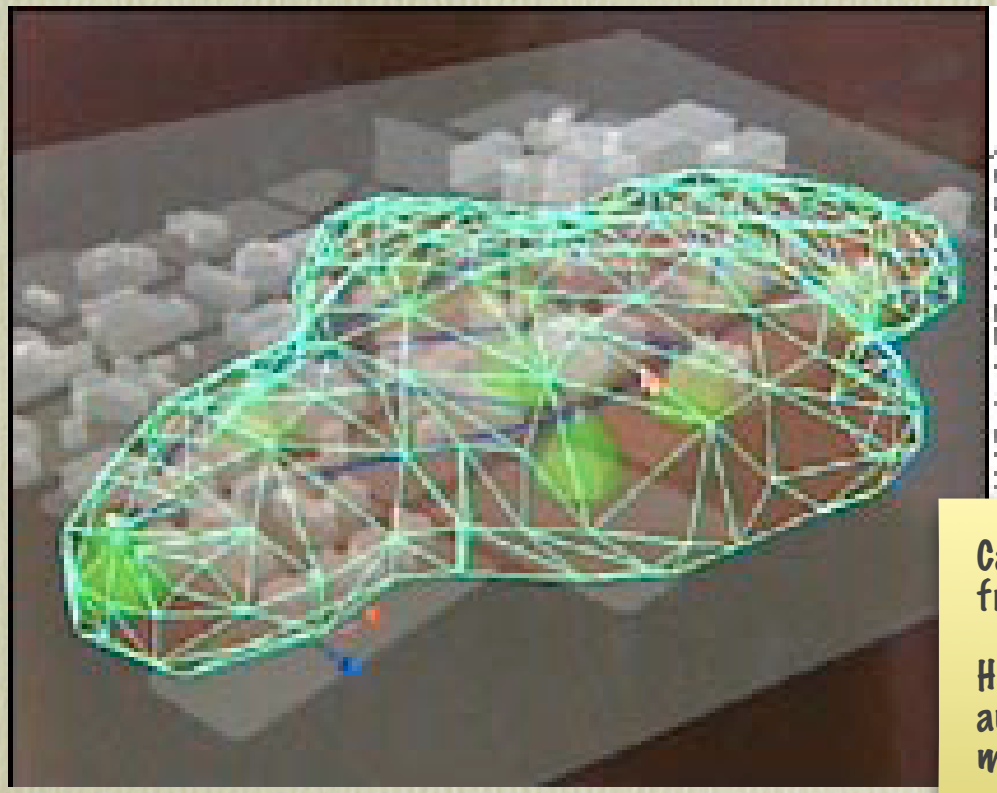
WiFi Cloud



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

WiFi Cloud



(COURTESY FOR

Can access from our hotel free of charge!!

Had to pay horrendous amount in Moscow last month.

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

Mobil Learning Era

The evidence is overwhelming that mobile learning (m-Learning) is beginning to take hold:

- Over 50 percent of all employees spend up to half of their time outside the office.
- More than 75 percent of all Internet viewing will be carried out on wireless platforms by 2002.
- Mobile devices will outnumber landline PCs by 2002 and exceed the 1 billion mark the following year.
- More than 525 million web-enabled phones will be shipped by 2003.
- Worldwide mobile commerce market will reach $200 billion by 2004.
- There will be more than 1 billion wireless internet subscribers worldwide by 2005.

Connotations

❇ WIRED	✲ **WIRELESS**
❇ Slave	✲ **Freedom**
❇ Crime	✲ **Flexibility**

Brazil

Amazon


VENEZUELA
COLOMBIA
SURINAME
FRENCH GUIANA
ECUADOR
B R A Z I L
BOLIVIA
PARAGUAY
SOUTH AMERICA

Amazon Project

Deployment of Broadband Internet

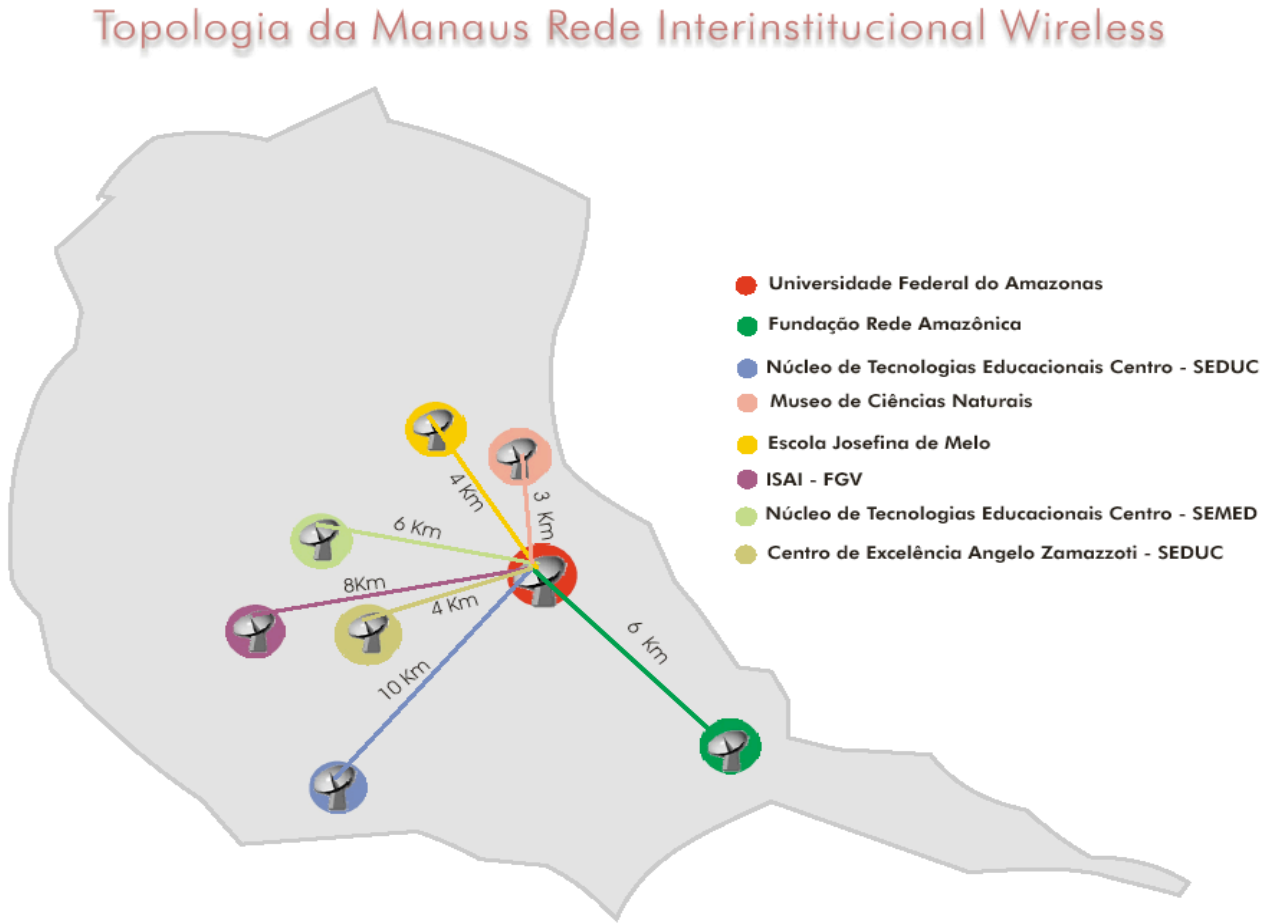
- CampusNet Amazonia
- Community Development Networks (CDNs)

Slide 5

Regional Backbone

Manaus Community Network

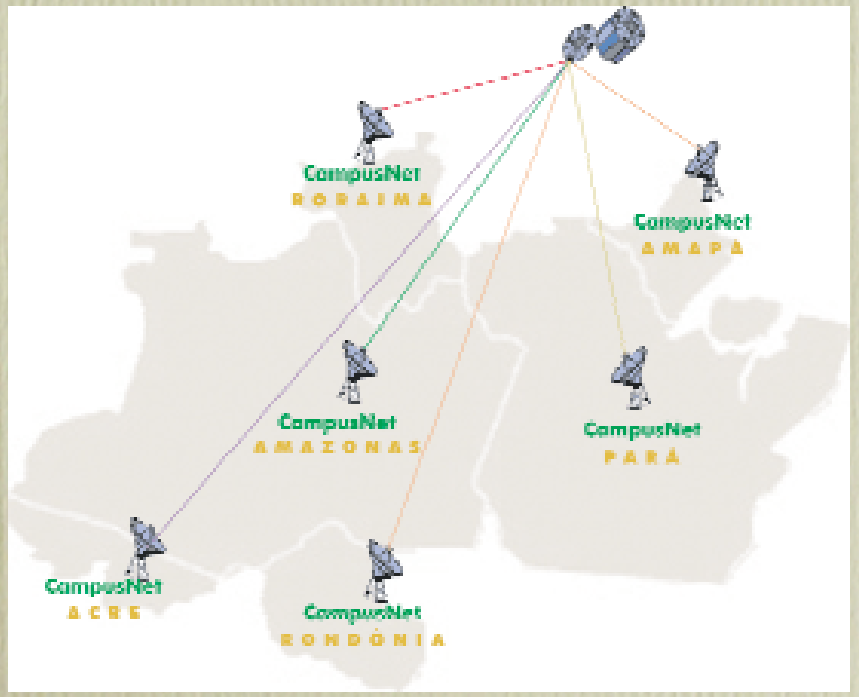
(Configuration 1)



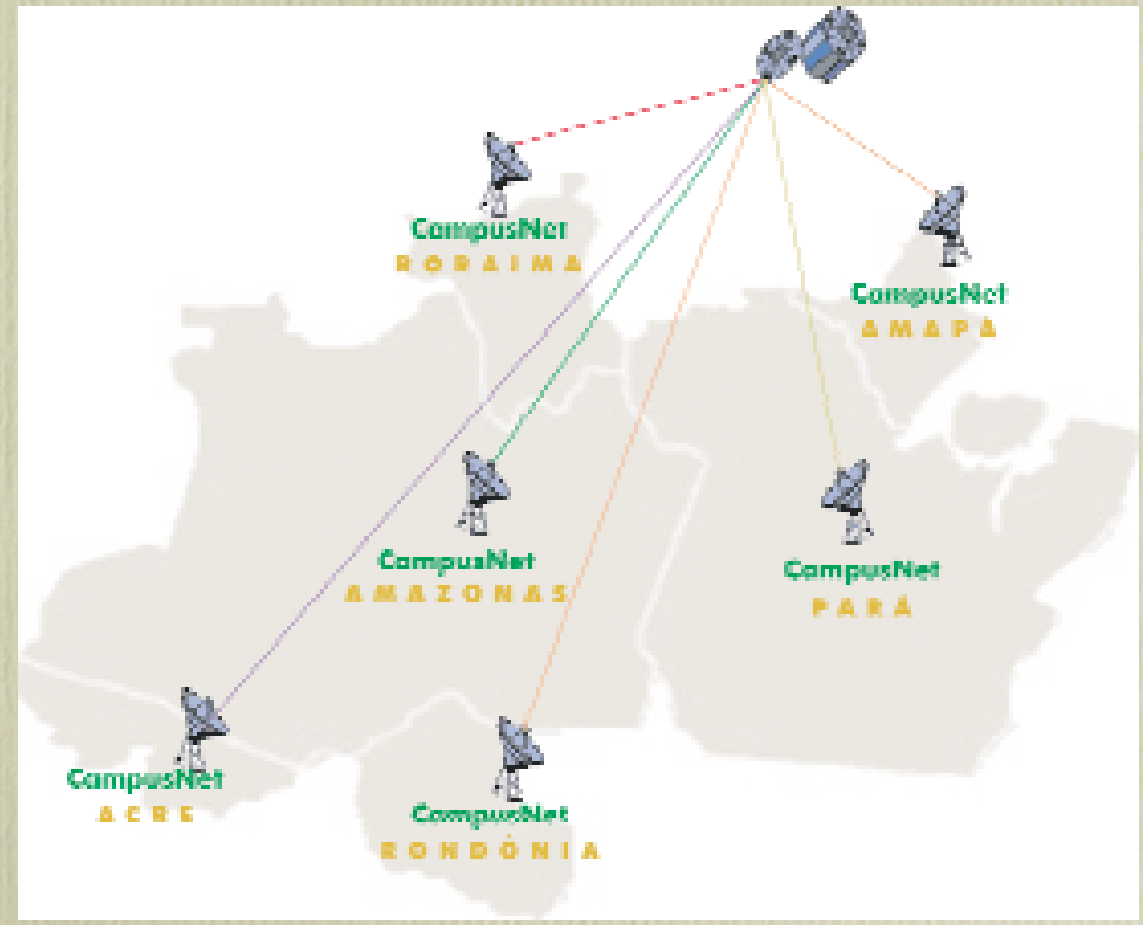
Amazon Project

Deployment of Broadband Internet

CampusNet Amazonia will interconnect Multimedia Resource Centers (MRCs) of all six Federal Universities in the Amazon region by broadband satellite Internet.



CampusNet Amazonia



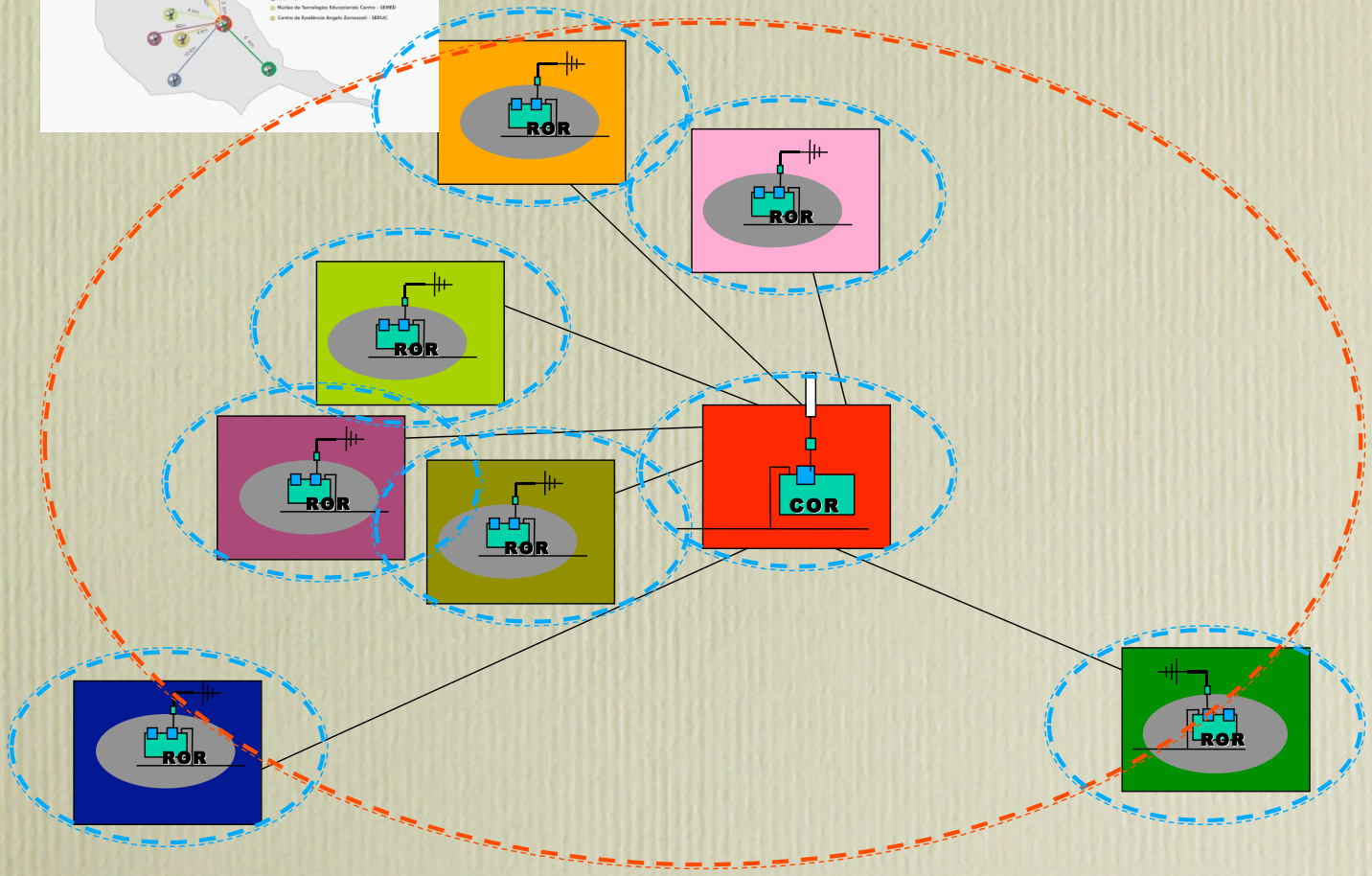
Amazon Project

Deployment of Broadband Internet

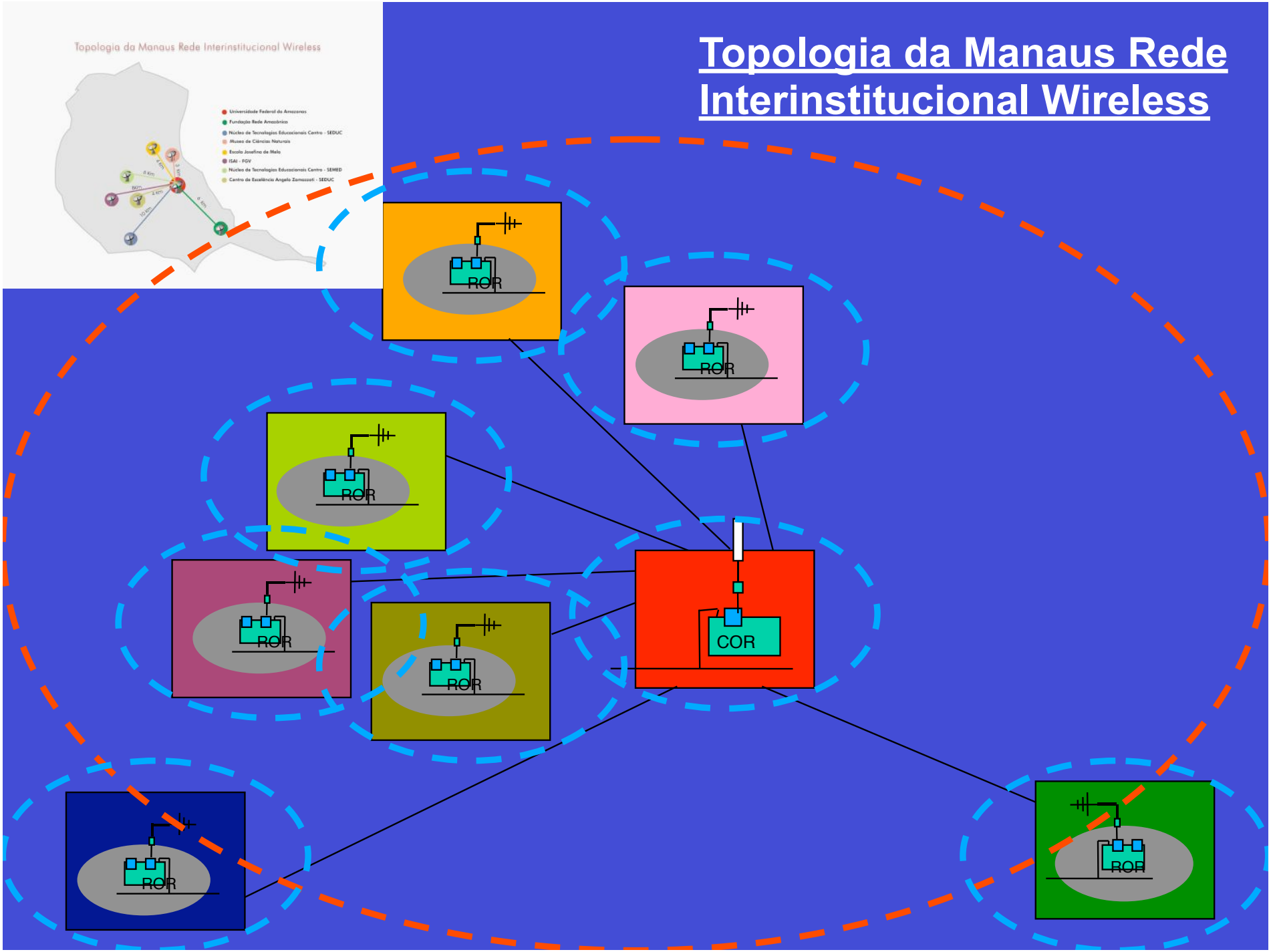
Community Development Networks (CDNs) will connect higher, secondary and elementary schools, libraries, hospitals, local government offices and NGOs, etc., firstly in the City of Manaus and later in the cities of main campuses of the CampusNet affiliated universities, with the use of broadband wireless Internet.

Community Development Networks (CDNs)

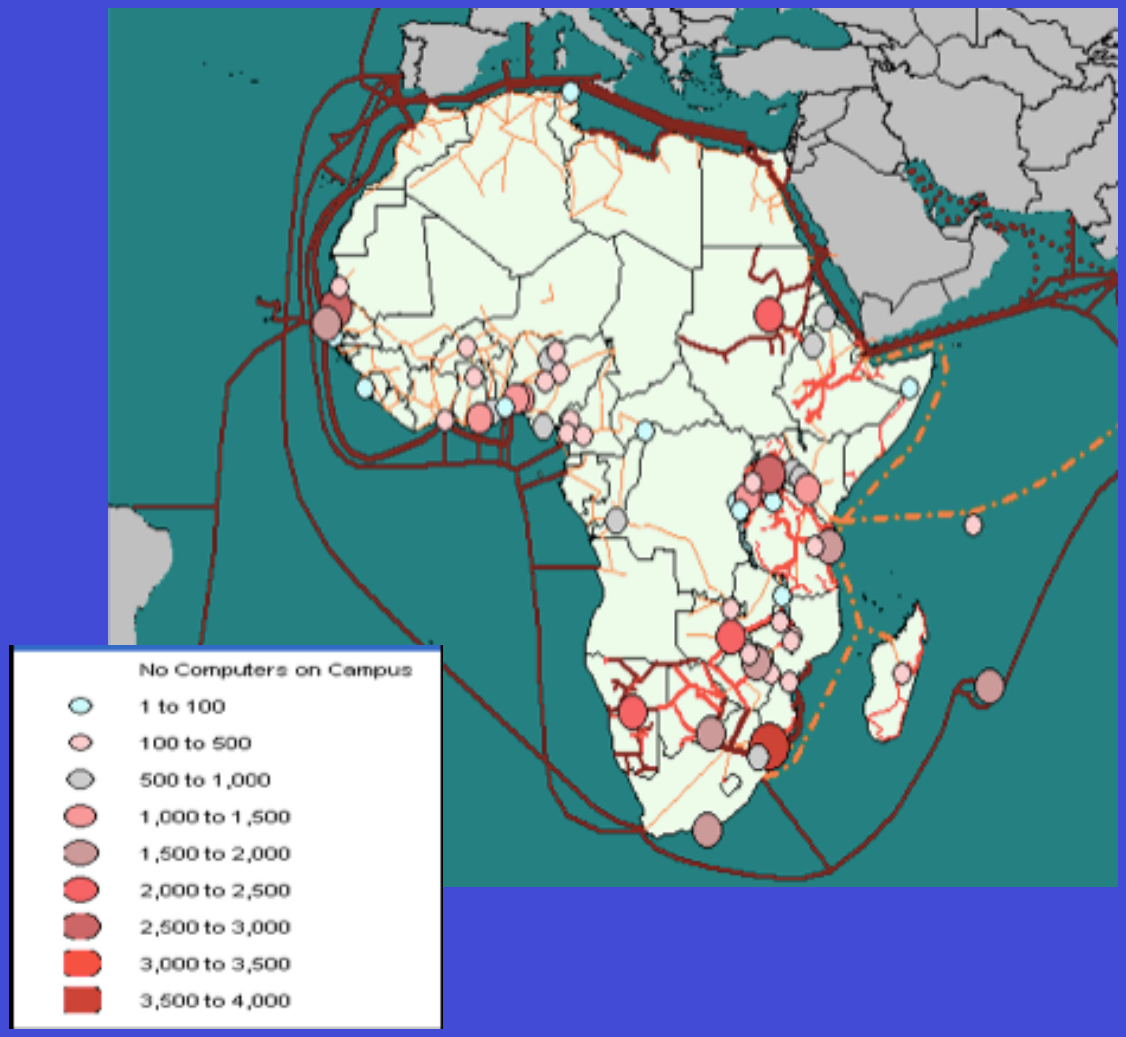
Topologia da Manaus Rede Interinstitucional Wireless



Topologia da Manaus Rede Interinstitucional Wireless



Number of computers that were networked or connected to the Internet.

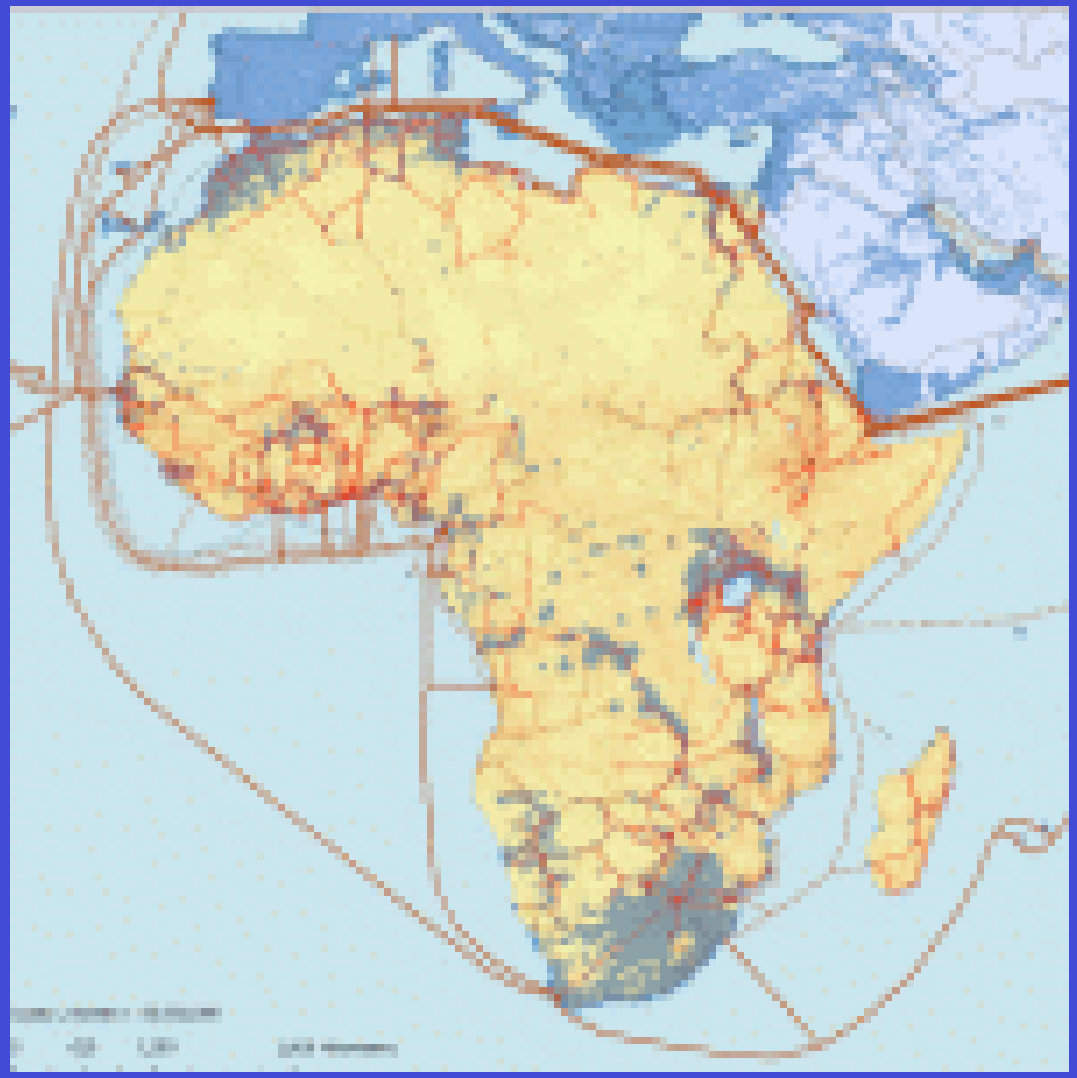



Europe
Atlantic Ocean
Tunisia
Morocco
Southwest Asia
Algeria
Libya
Egypt
W.Sahara
Cape Verde
Mauritania
Mali
Niger
Chad
Sudan
Senegal
The Gambia
Guin.-Bissau
Burkina Faso
Djibouti
Guinea
Benin
Togo
Ghana
Nigeria
Somalia
Sierra Leone
Ivory Coast
Ethiopia
Liberia
C.A.R.
Came-roon
Index to
Northern
Africa
Southern Africa
Indian Ocean

Map of Nigeria


Index to
Southern
Africa
Southwest
Asia
Northern Africa
Eq. Guinea
Sao Tome
& Principe
Gabon
Congo
Zaire
Uganda
Kenya
Rwanda
Burundi
Tanzania
Seychelles
Comoros
Angola
Malawi
Zambia
Mozambique
Zimbabwe
Madagascar
Mauritius
Reunion
Namibia
Botswana
Swaziland
Lesotho
South
Africa
Atlantic
Ocean
Indian
Ocean
Antarctica

Fibre for Africa

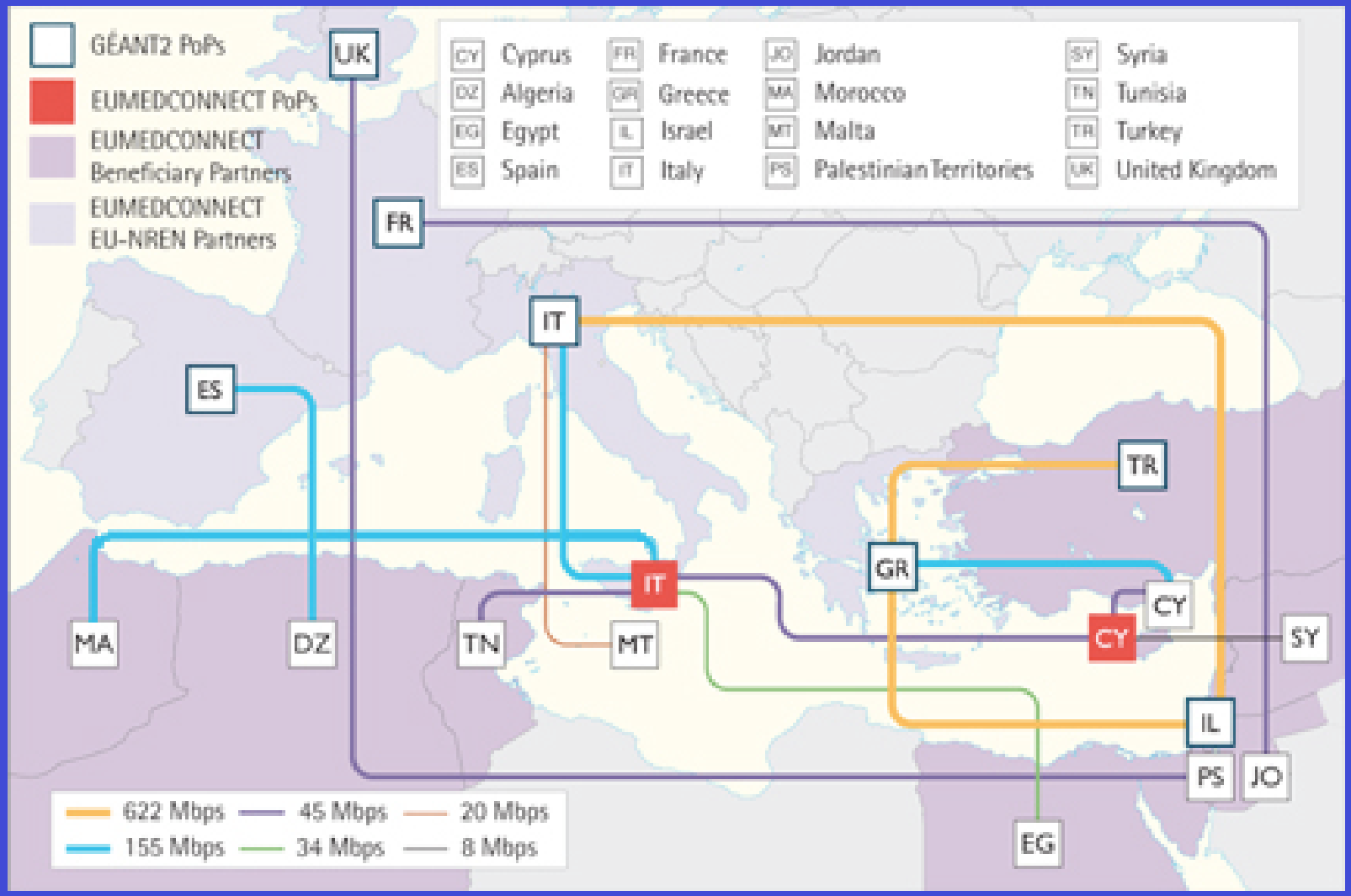


http://www.fibreforafrica.net/index.shtml

EUMEDCONNECT Network

(March, 2007)

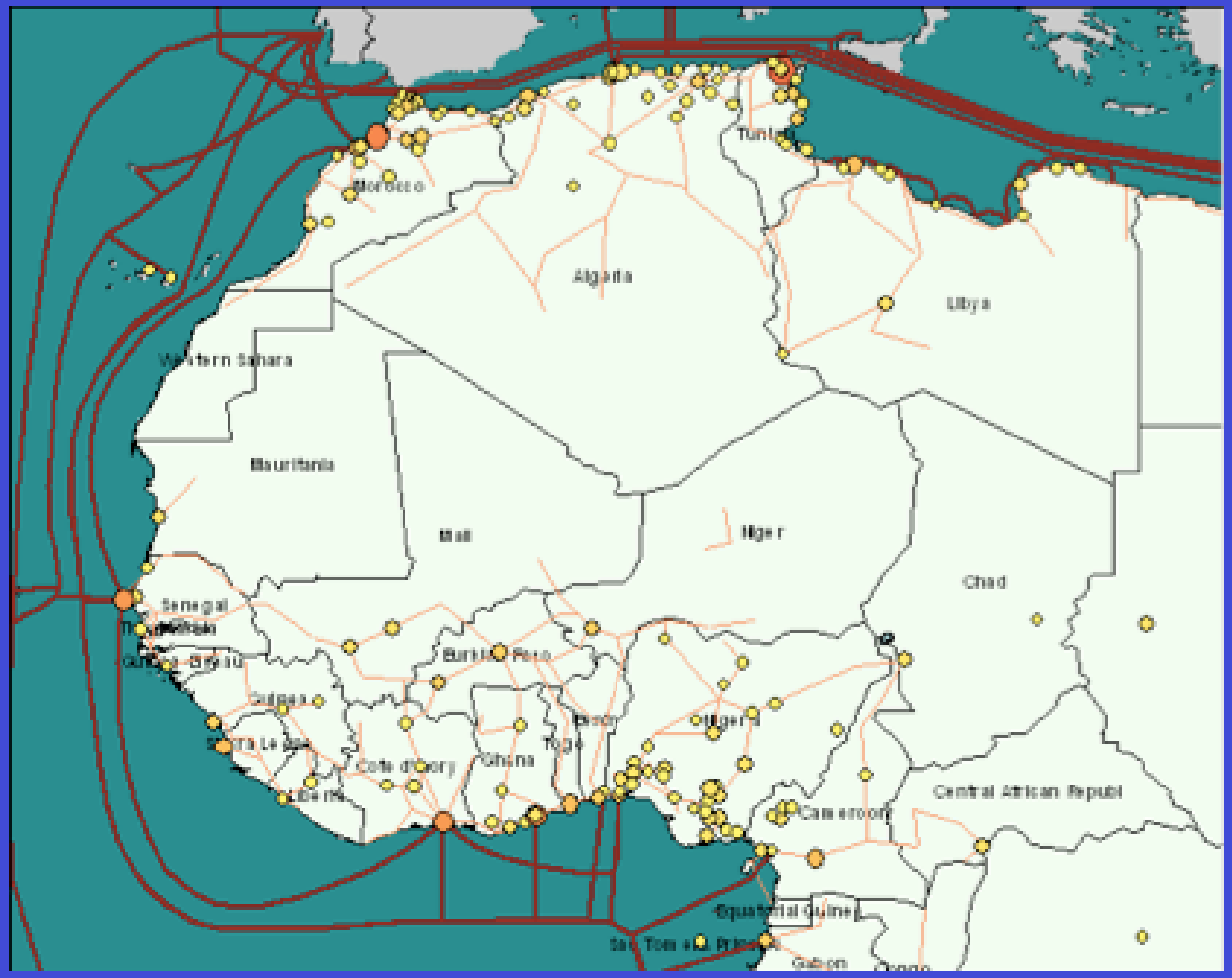
http://www.eumedconnect.net/server/show/conWebDoc.727



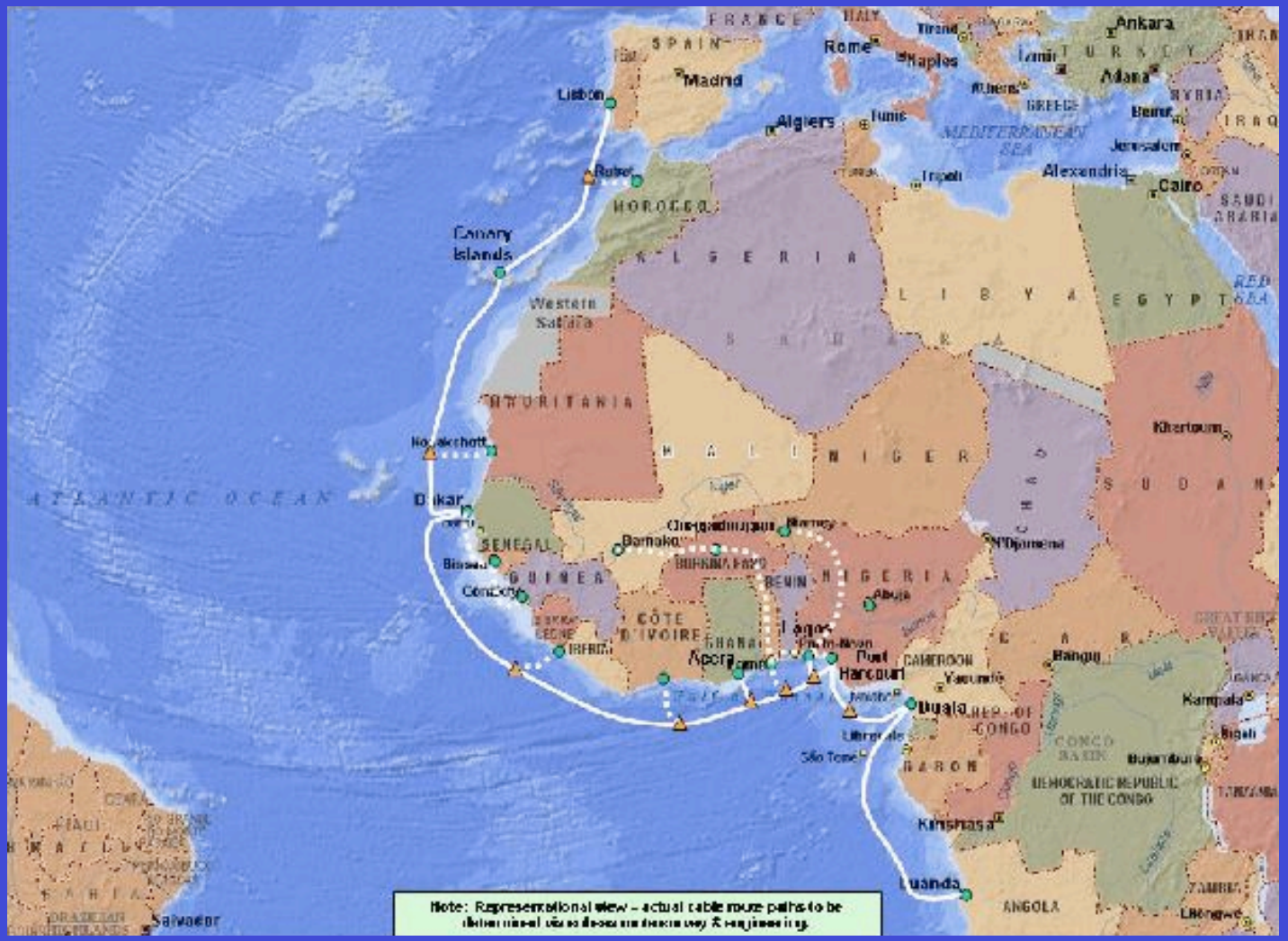
Panaftel

Detail of West and Northern Africa

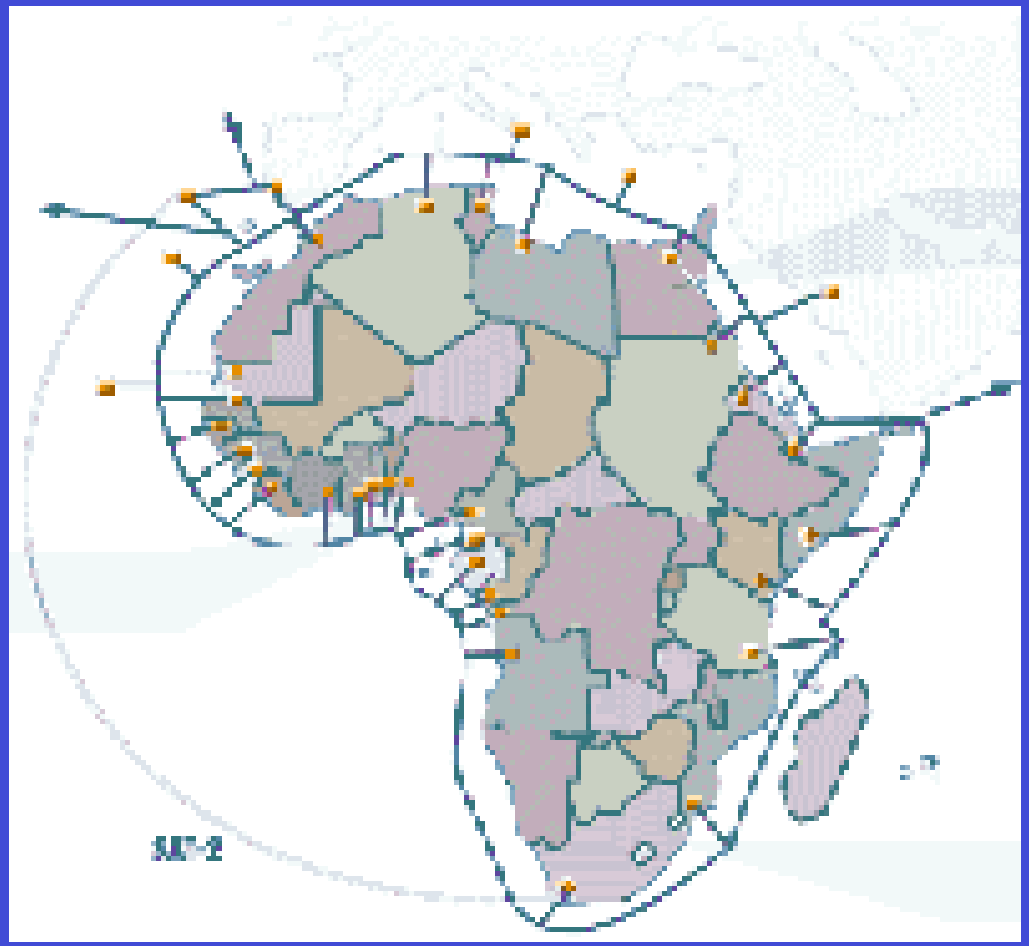
<http://www.connectivityafrica.ca/page.php?file=PAREN_Report_final.pdf>



Infinity Worldwide Telecom Group of Companies (IWTGC)



Africa ONE
(Africa Optical NEtwork)



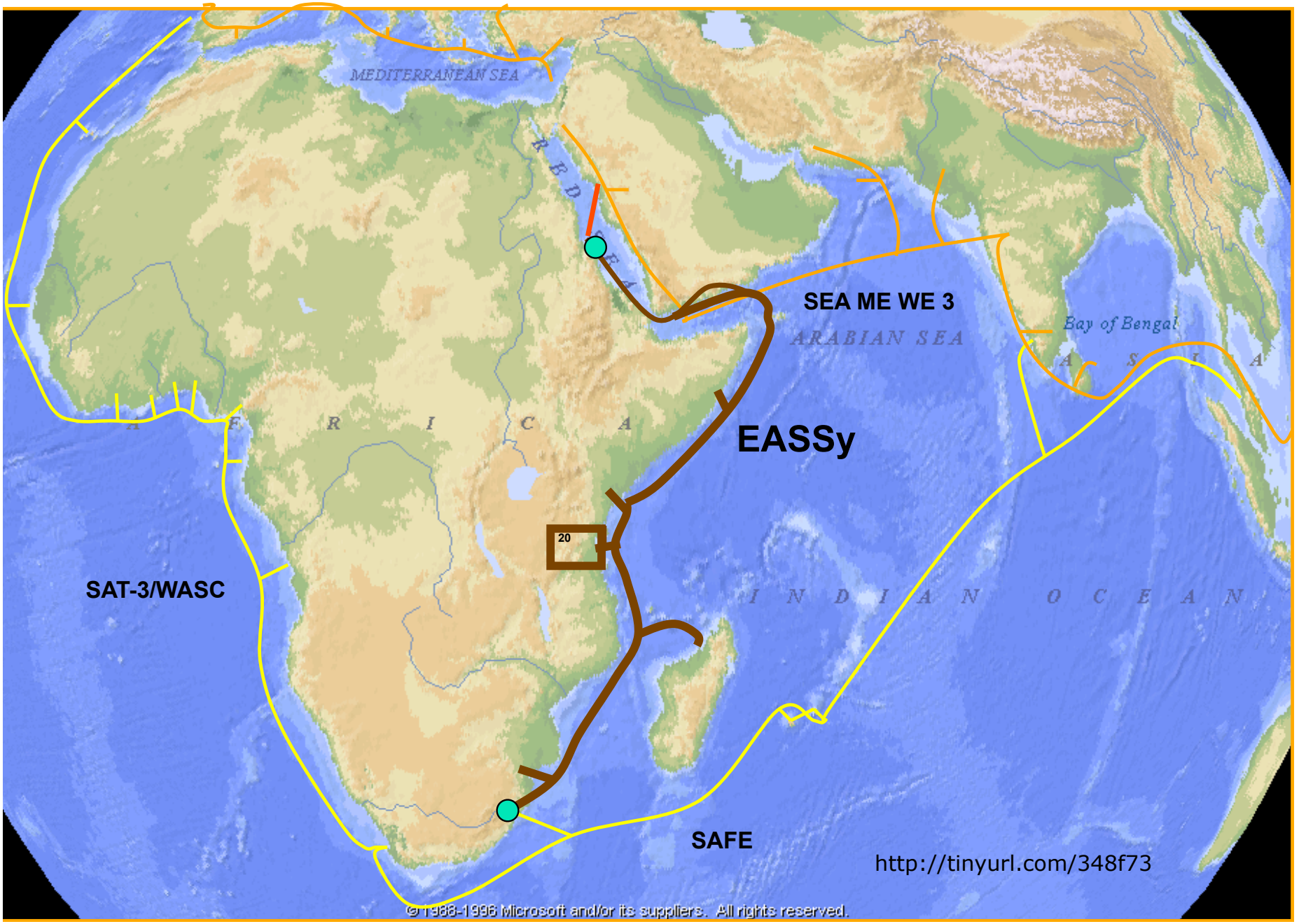
http://emeagwali.com/interviews/Guardian/6.html

Africa ONE Legends

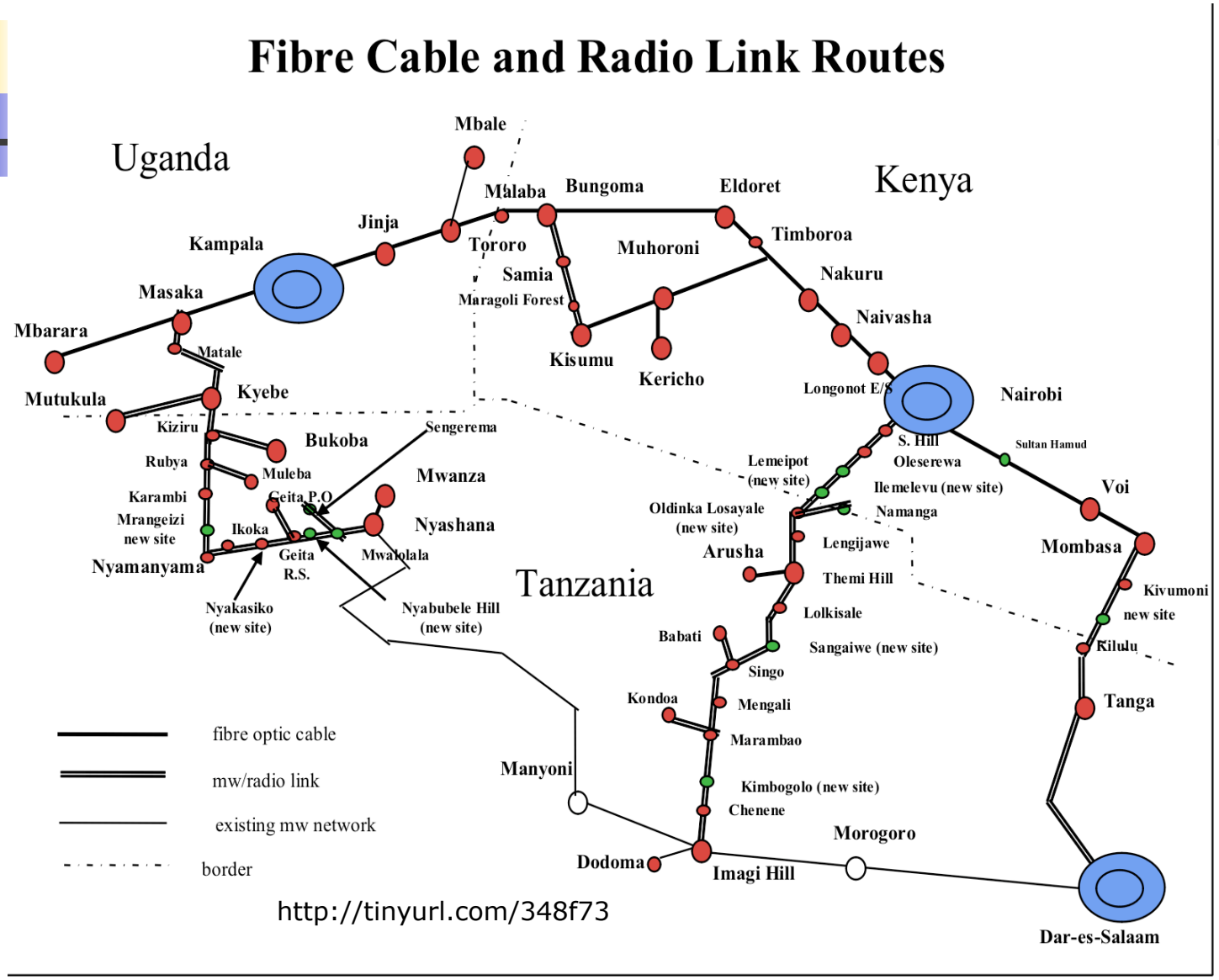
http://emeagwali.com/interviews/Guardian/6.html

Eastern Africa Submarine System

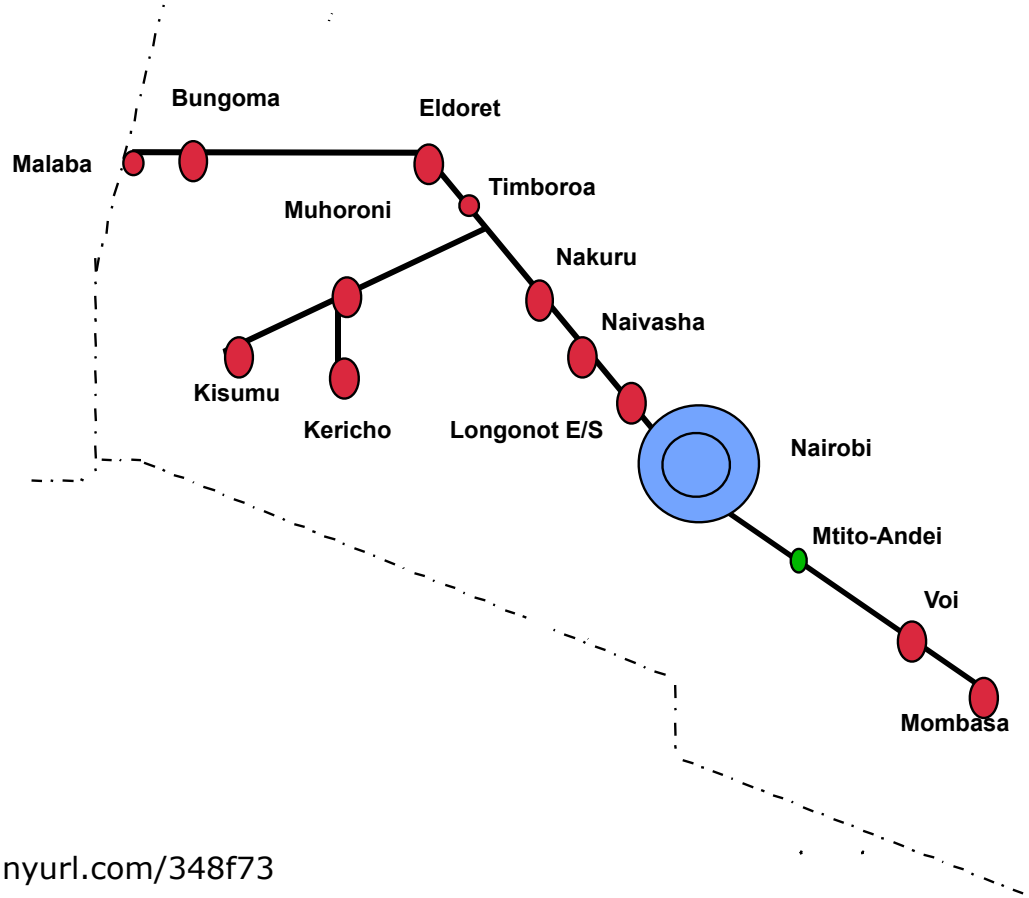
Global Connectivity



East Africa Digital Transmission System (EADTS)



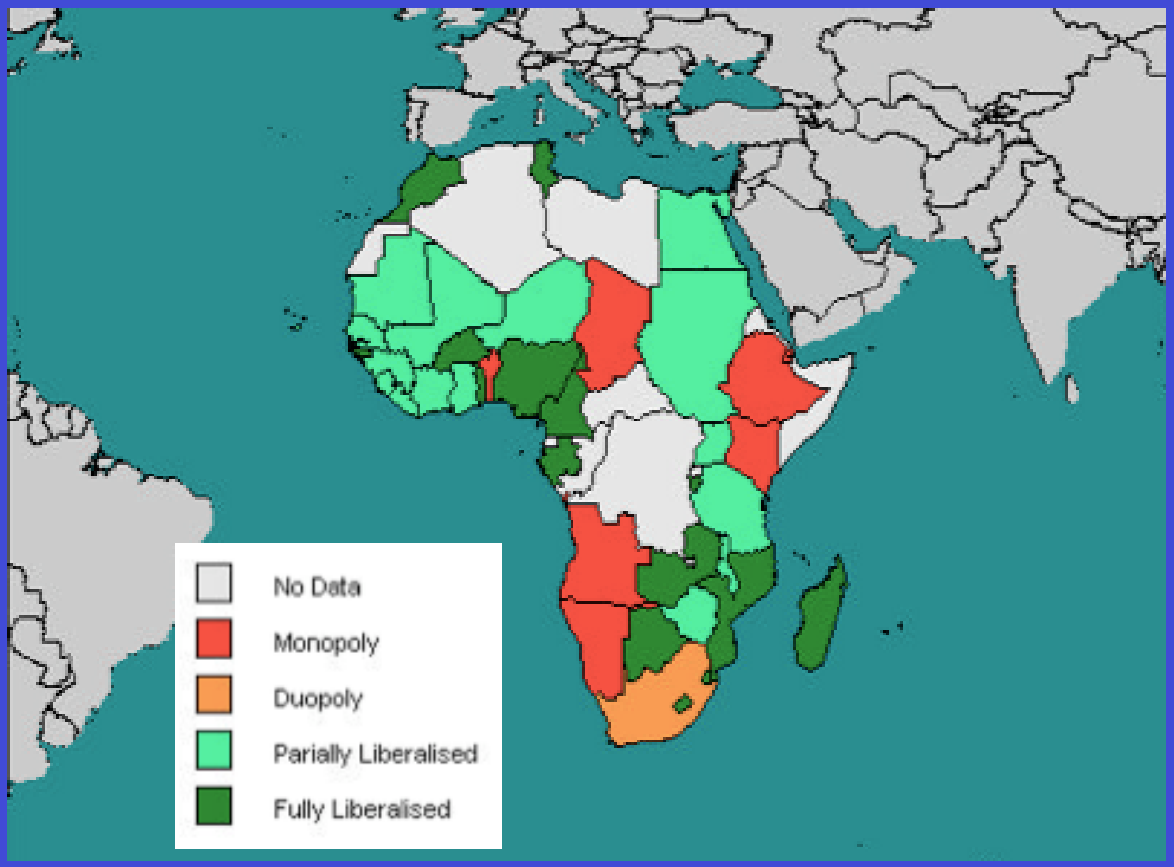
KENYA FIBER PORTION OF THE EAST AFRICA BACKHAUL TRANSMISSION LINK



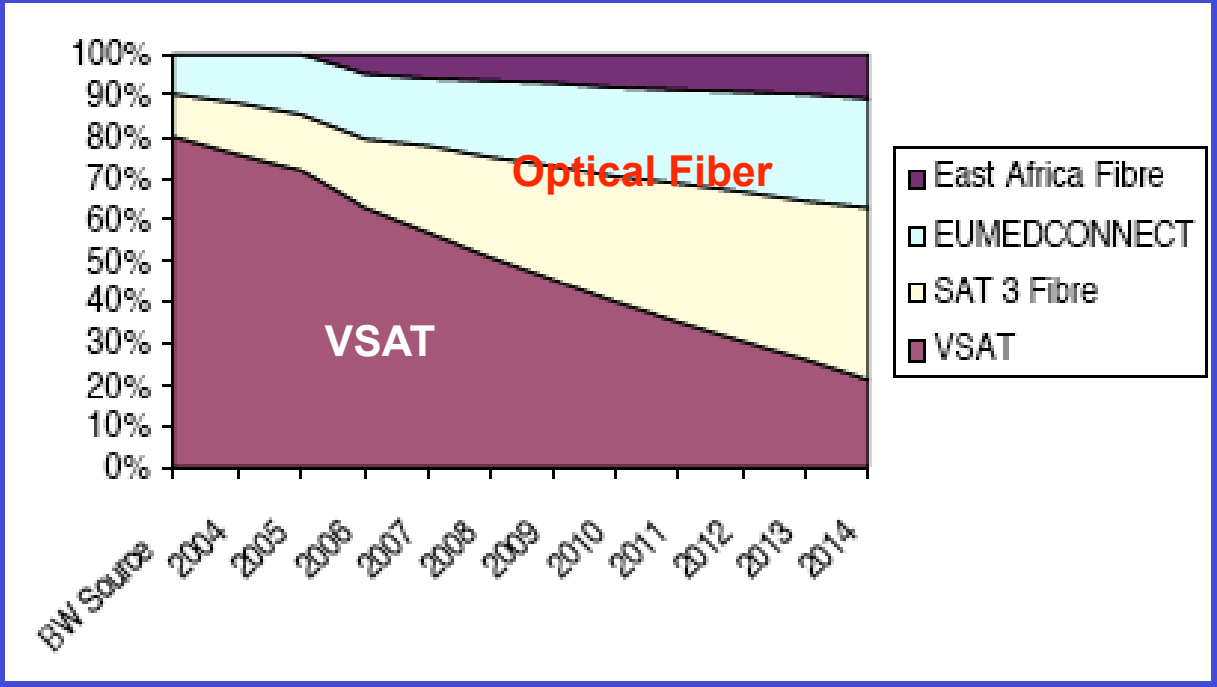
http://tinyurl.com/348f73

VSAT Liberalization in Africa

<http://www.connectivityafrica.ca/page.php?file=PAREN_Report_final.pdf>

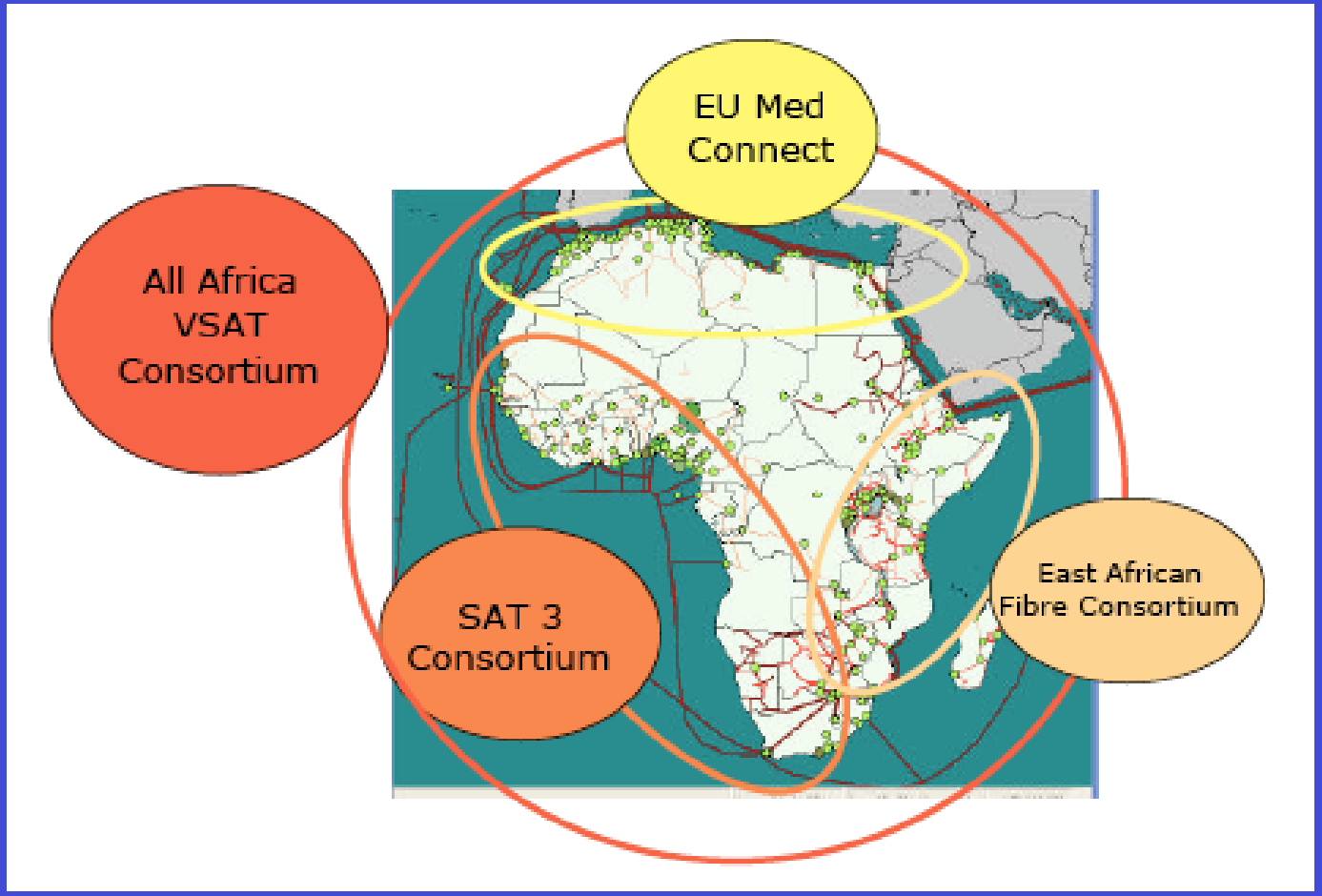


Growing importance of Optical Fiber in Africa



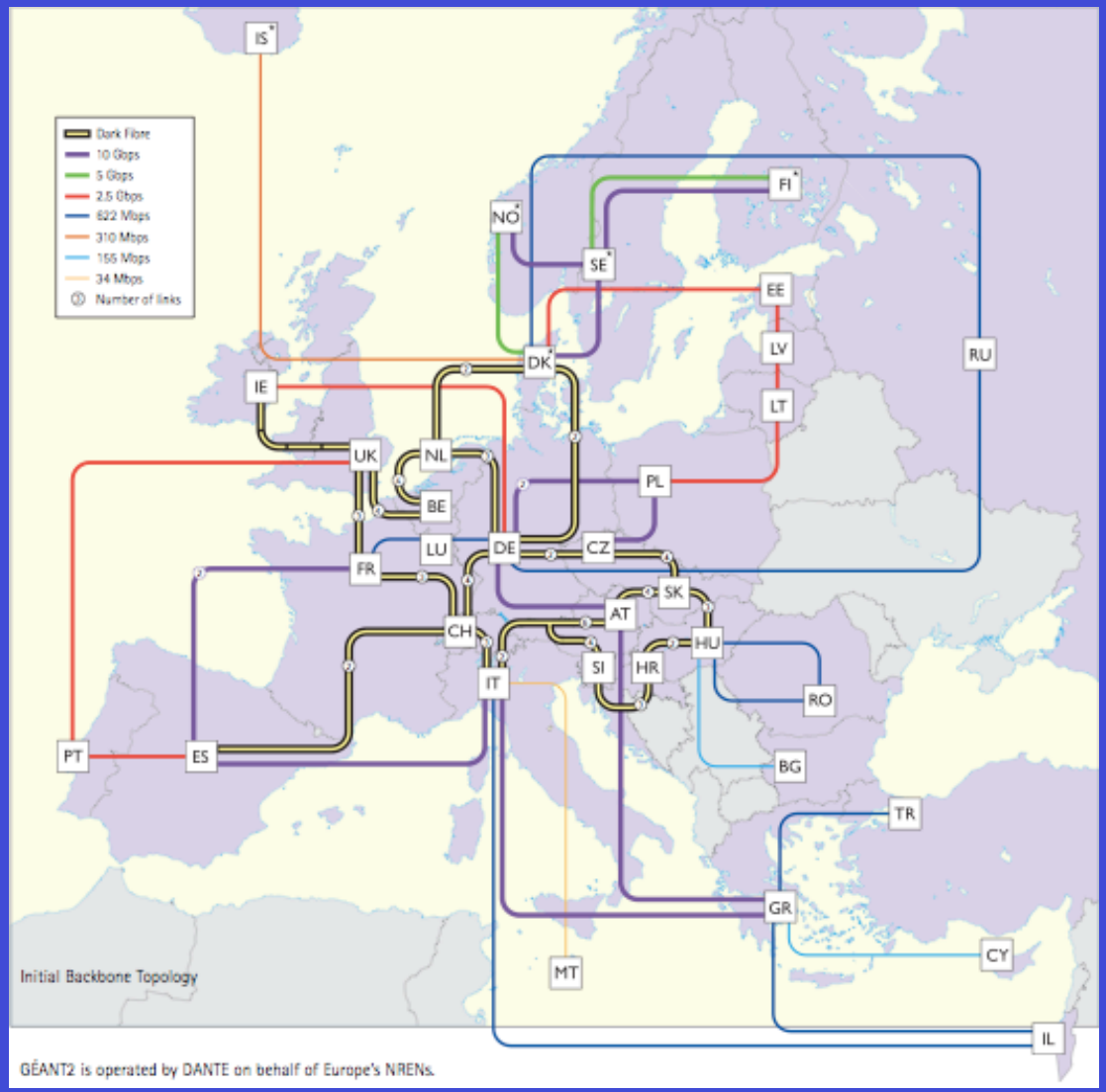
Potential Consortia in Africa

http://www.connectivityafrica.ca/page.php?file=PAREN_Report_final.pdf

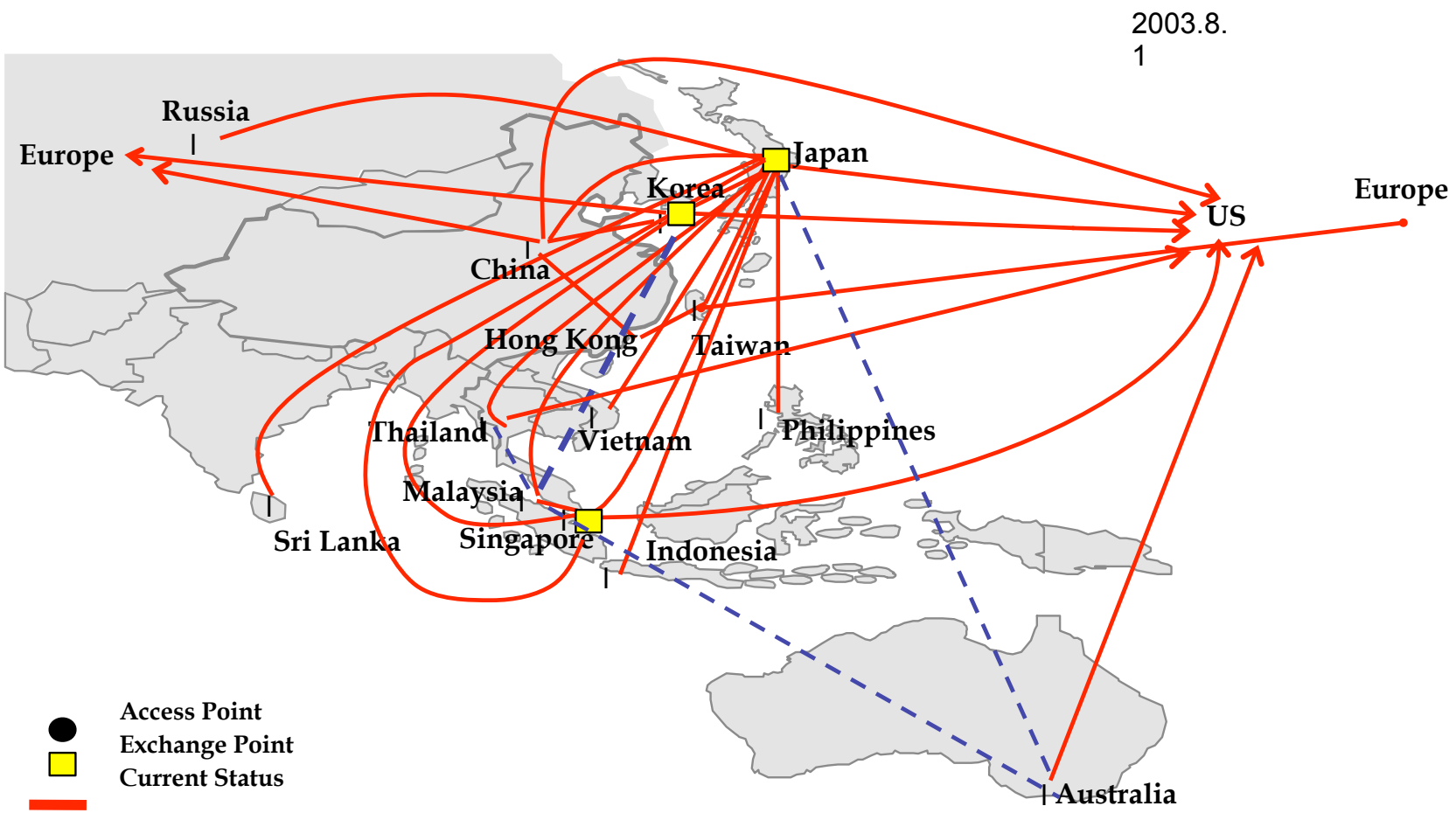


GEANT2

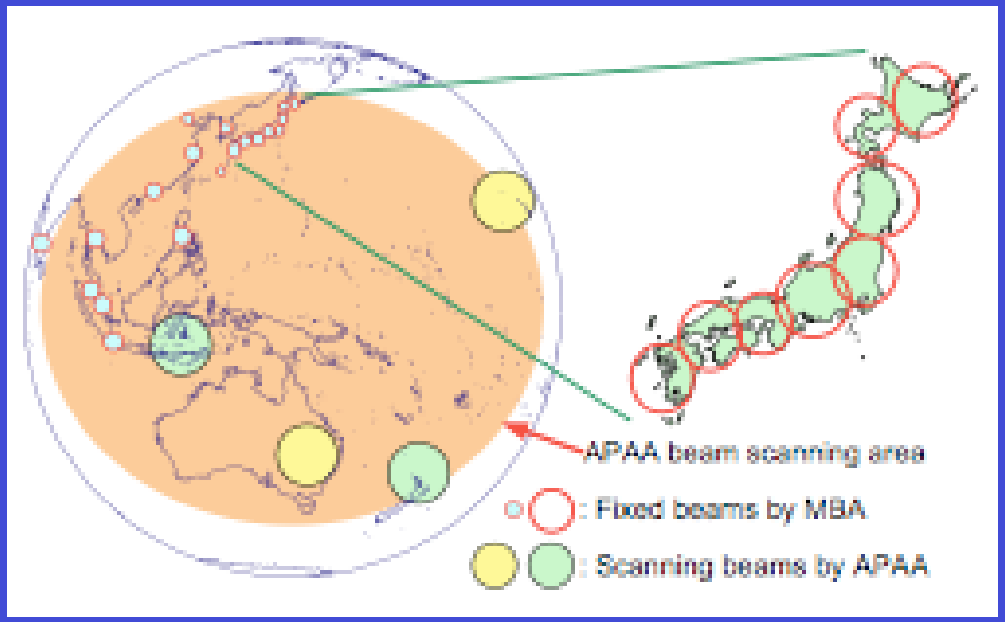
<http://www.geant2.net/upload/pdf/GEANT2_Topology_August_05.pdf>



APAN Network Topology

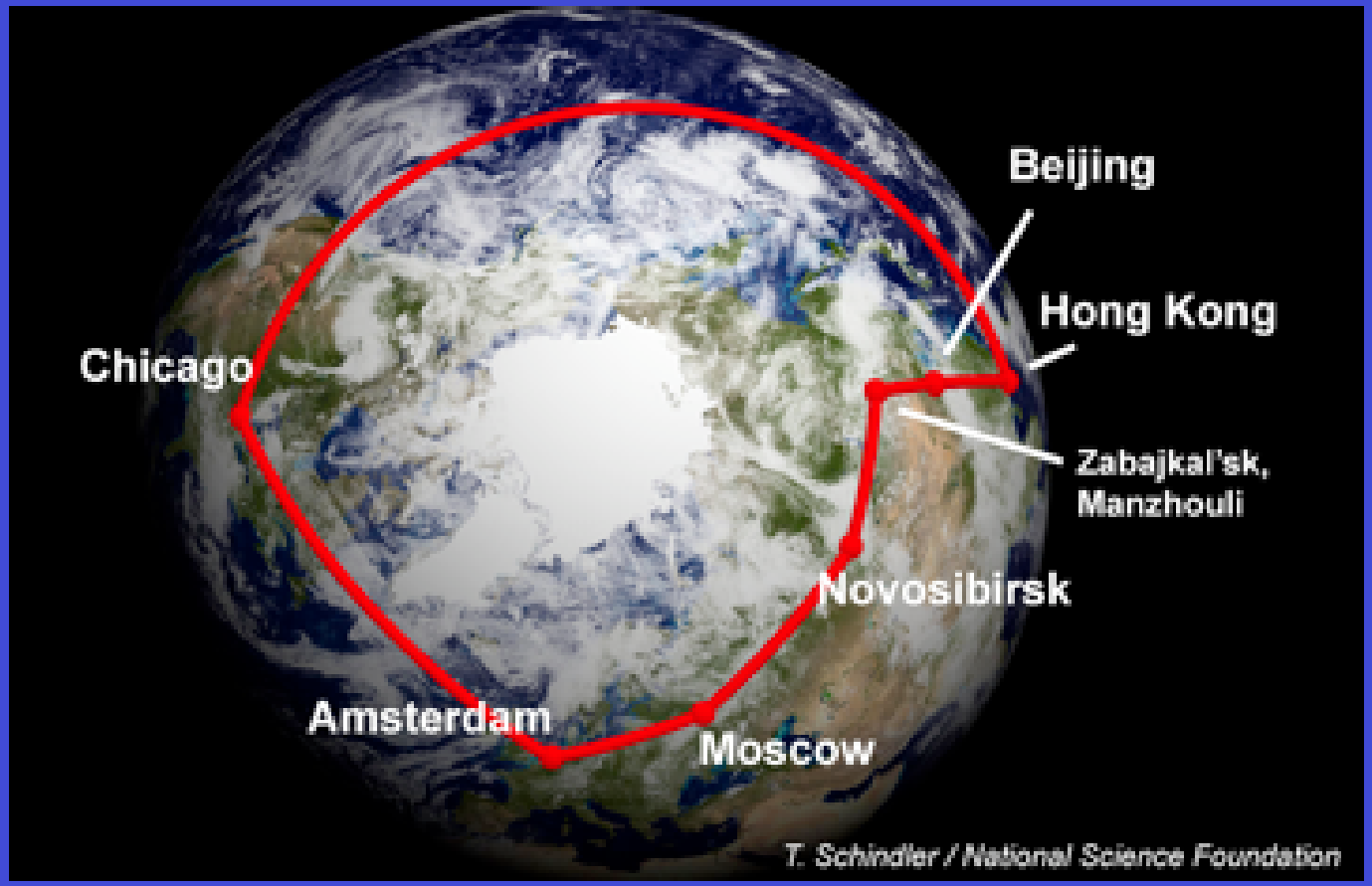


Wideband InterNetworking engineering test and Demonstration Satellite (WINDS)



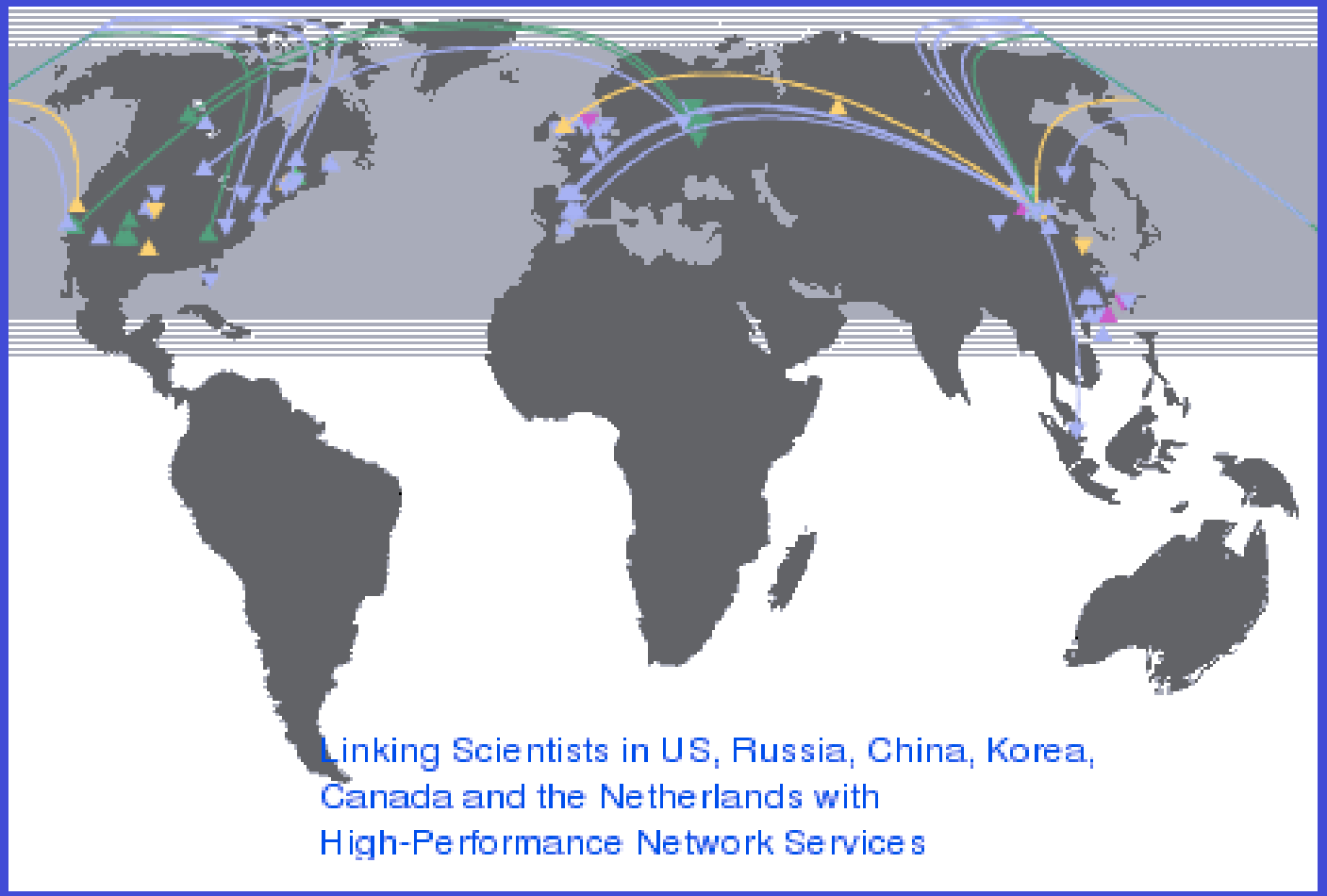
GLORIAD

(Global Ring Network for Advanced Application Development)



GLORIAD

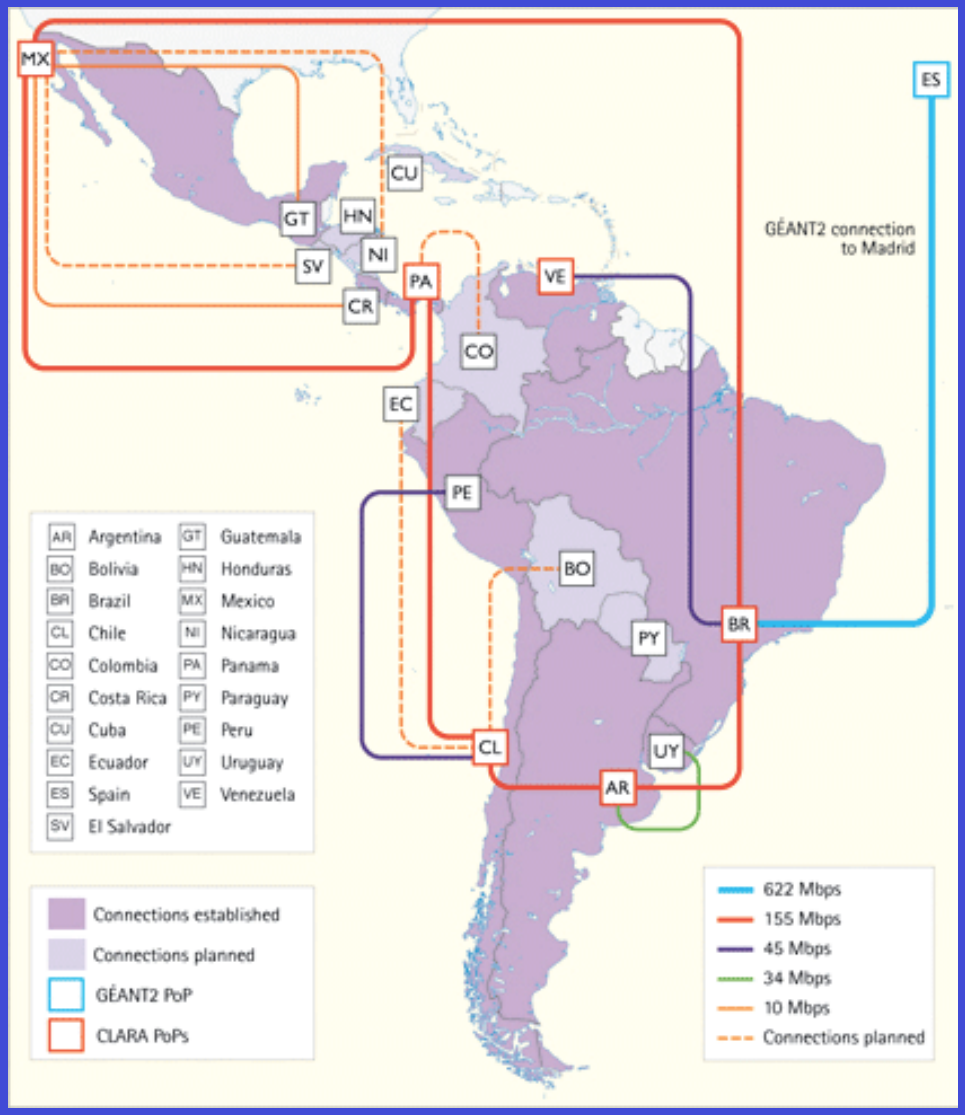
<http://www.gloriad.org/gloriad/index.html>



RedCLARA Network

(October, 2005)

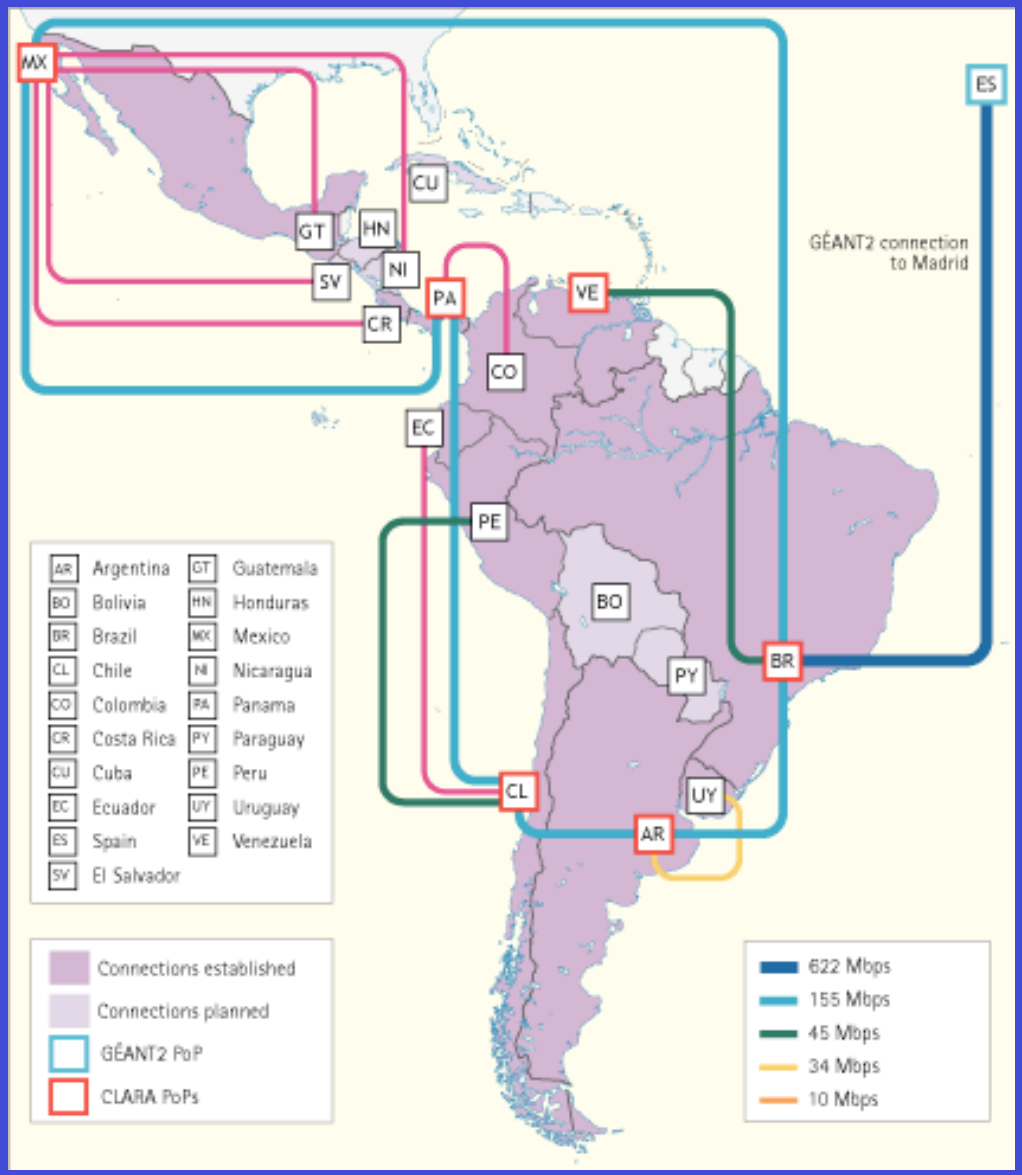
http://alice.dante.net/server/show/nav.1098



RedCLARA Network

(May, 2006)

http://alice.dante.net/server/show/nav.1098




PEACE
GAMING

PEACE GAMING

Globally Collaborative Environmental Peace Gaming (GCEPG)

Contents

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.

Globally Collaborative Environmental Peace Gaming through Global Neural Computer Network

- Need
- Computer Simulation Models
  - Socio-Economic Model
  - Climate Simulation Model
- Beowulf Mini Supercomputer
  - Maui Community College in Hawaii
- Global Grid Computing

John McLeod • Technical Editor Suzette McLeod • Managing Editor

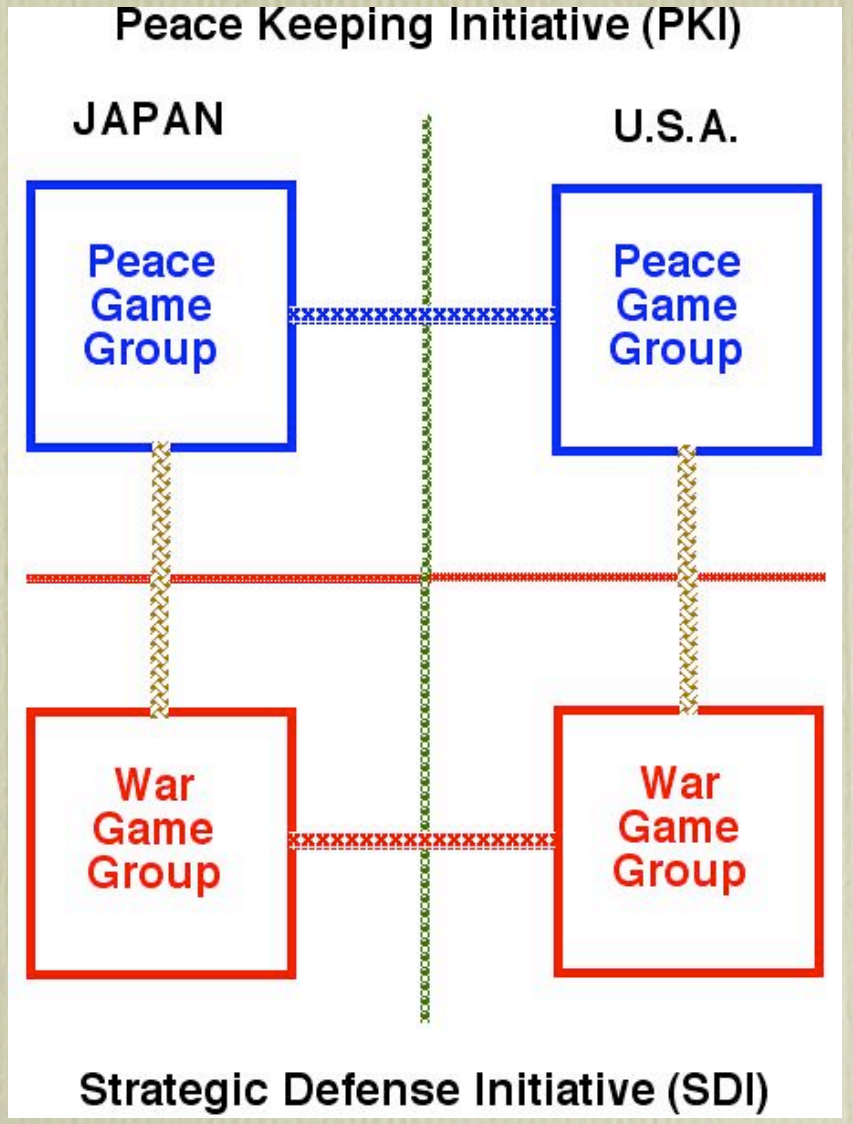
Big Game!

The push for understanding is going "out of this world" — literally. It is going to satellites and back. With feedback. That's the big game, a Global Game, today. So let's see where it's coming from.

Many moons ago, more than 200 in fact, there was great interest in world models. Those were the days of Jay Forrester, Dennis and Donella Meadows, Yoichi Kaya, Aurelio Peccei and the Club of Rome. Even your Ed. had visions of developing a world model when he started the World Simulation Organization — too soon. That effort fell on its face because the required infrastructure was inadequate and the push was too feeble.

Today the technology required to support the infrastructure is here, or nearly so, and one man who has been pushing hard for 18 years is making demonstrable progress. That man is Dr. Takeshi Utsumi, who has given his time, talent, and considerable personal money to the effort.

Peace and War Gaming



War and Peace Games

Peace Game is for Global Understanding

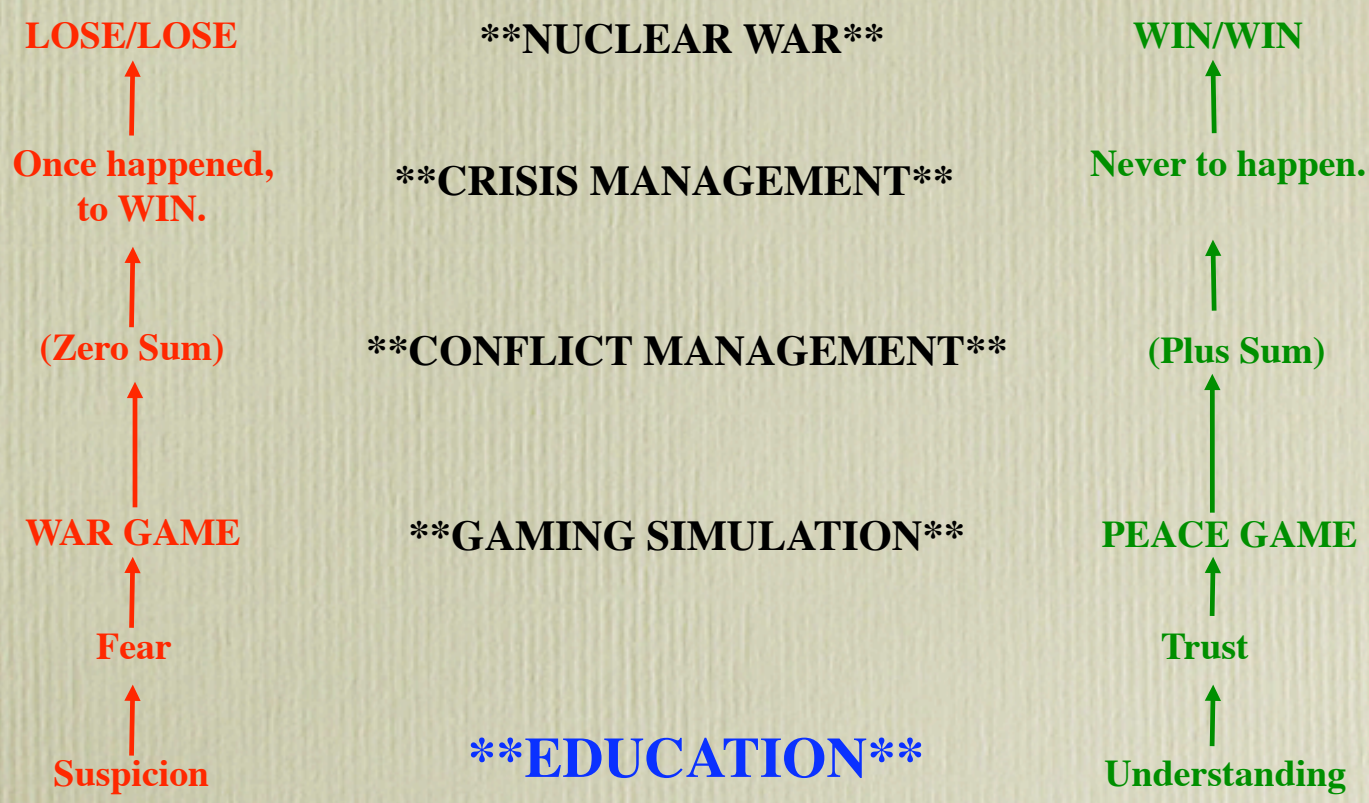


Figure 2

War and Peace Games

Peace Game is for Global Understanding

Hans Blix, the chief inspector of United Nations Monitoring, Verification and Inspection Commission (UNMOVIC):

"…on many [other] issues the United States must be multilateral: … To me the question of the environment is more ominous than that of peace and war. We will have regional conflicts and use of force, but world conflicts I do not believe will happen any longer. But the environment, that is a creeping danger. I'm more worried about global warming than I am of any major military conflict."

The New York Times, "QUOTE OF THE WEEK: Hans Blix's Greatest Fear," March 16, 2003

Global Changes

- In a few generations humankind is in the process of exhausting fossil fuel reserves that were generated over several hundred million years.
- Nearly 50% of the land surface has been transformed by direct human action, with significant consequences for biodiversity, nutrient cycling, soil structure and biology, and climate.
- More nitrogen is now fixed synthetically and applied as fertilizers in agriculture than is fixed naturally in all terrestrial ecosystems.
- More than half of all accessible freshwater is used directly or indirectly by humankind.
- The concentrations of several climatically important "greenhouse" gases, in addition to CO2 and CH4, have substantially increased in the atmosphere
- Coastal wetlands have also been impacted by human activities, with the loss of 50% of the world's mangrove ecosystems.
- Extinction rates are increasing sharply in marine and terrestrial ecosystems around the world; we are now in the midst of the sixth great extinction event in Earth's history, but the first one caused by the activities of a biological species.

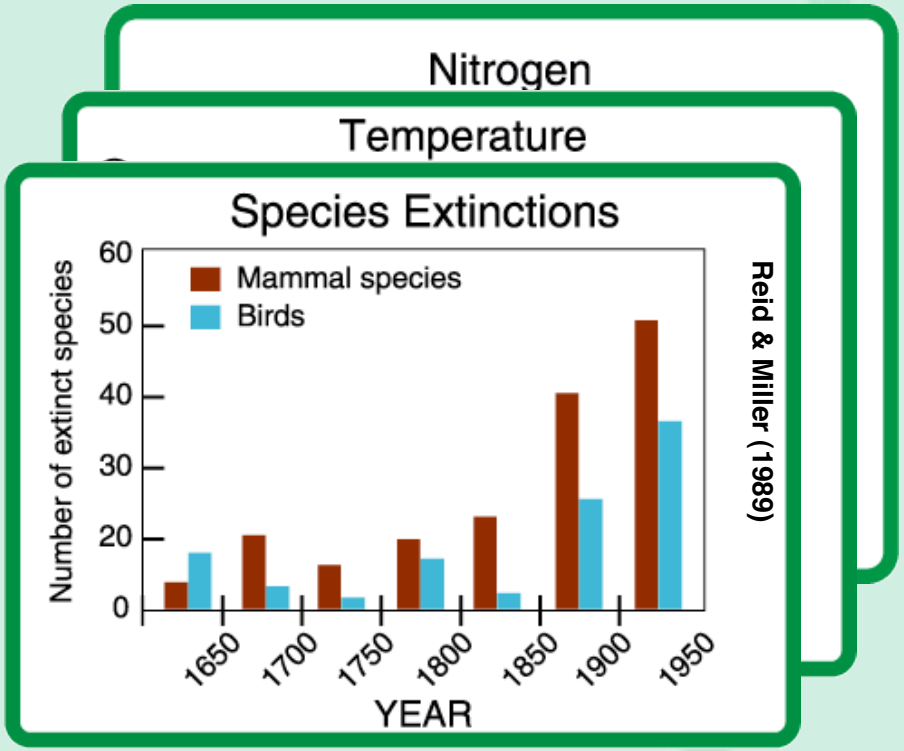
National Academies/International Geosphere-Biosphere Programme (IGBP)
http://www.igbp.kva.se/cgi-bin/php/frameset.php

What is Global Change?

1. Global-scale changes that affect the functioning of the Earth System
2. Much more than climate change
3. Natural as well as anthropogenic changes
4. Socio-economic as well as biophysical

For example, changes in:

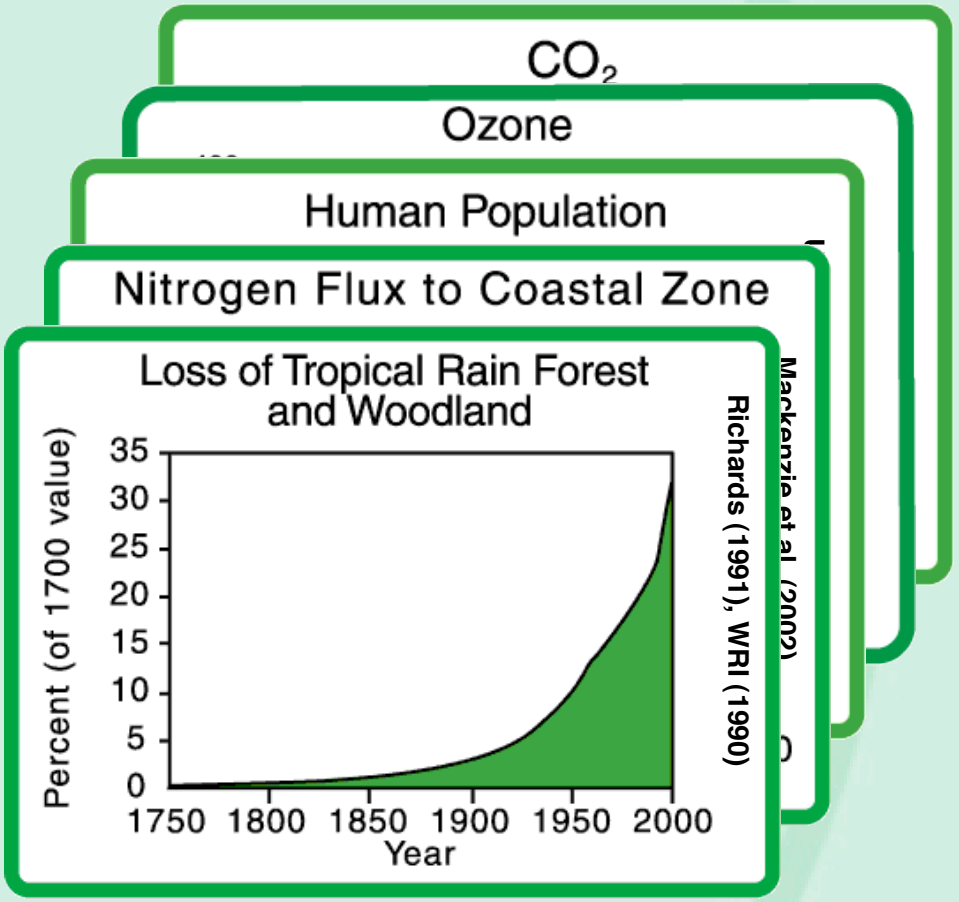
- Nitrogen fixation
- Temperature
- Biodiversity……..



What is Global Change?

For example, changes in:

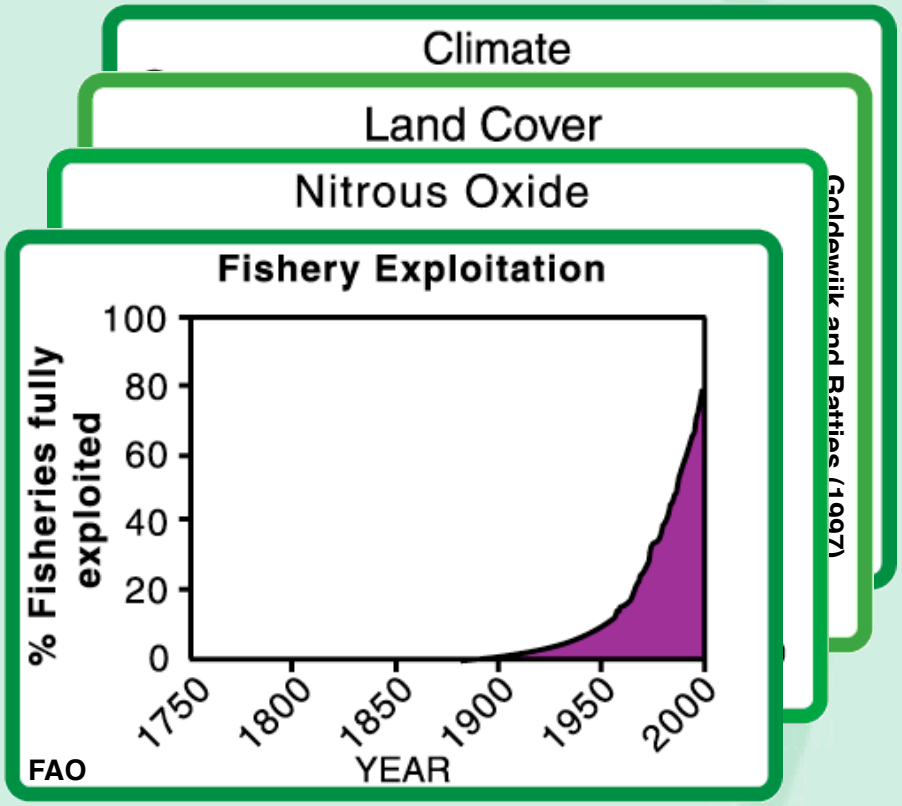
- Nitrogen fixation
- Temperature
- Biodiversity
- Atmospheric composition
- Population
- Nitrogen in the coastal zone
- Forest cover



What is Global Change?

For example, changes in:

- Nitrogen fixation
- Temperature
- Biodiversity
- Atmospheric composition
- Population
- Nitrogen in the coastal zone
- Forest cover
- Climate
- Land use
- Nitrous oxide
- Exploitation of fisheries

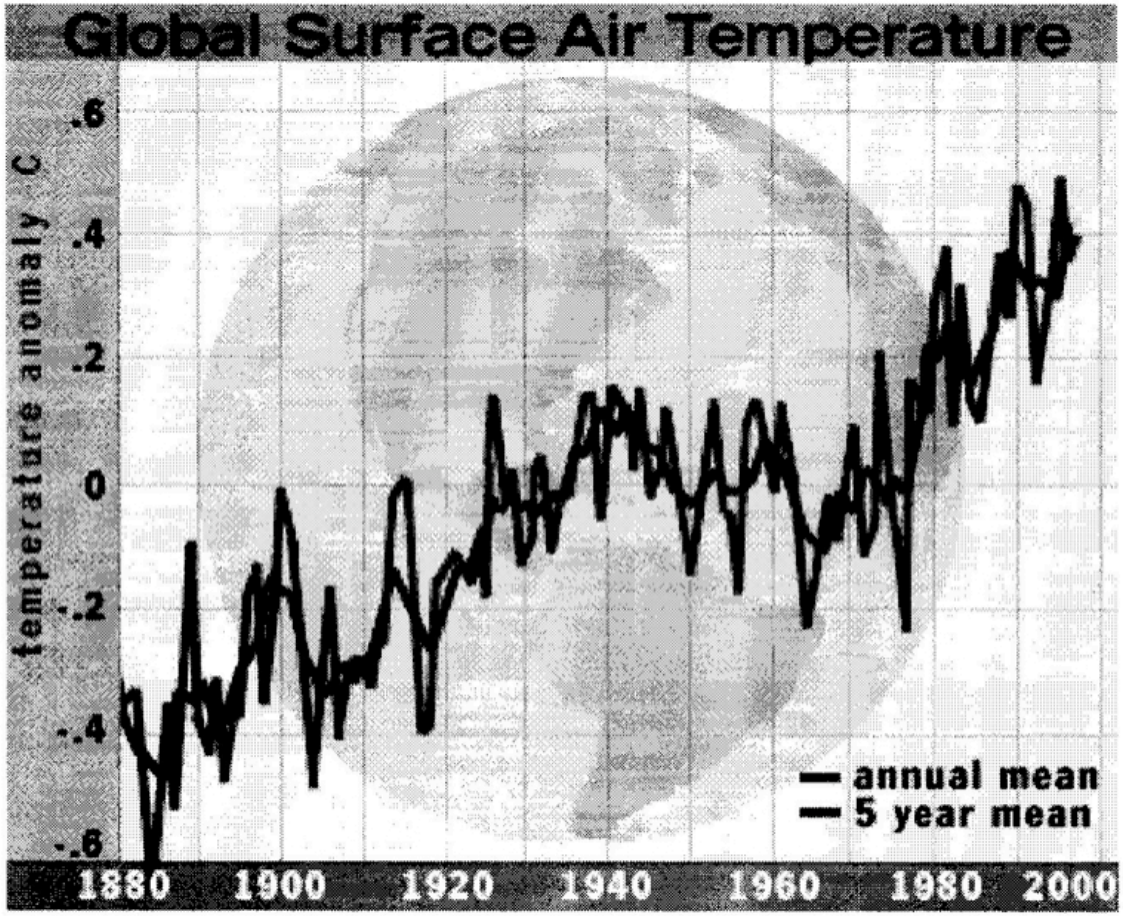


Global Complexities

- Economy and Trade,
- Industrial Structures,
- Natural Resources,
- Environment and Pollution,
- Population,
- Etc.

Cold War to Environmental Calamity

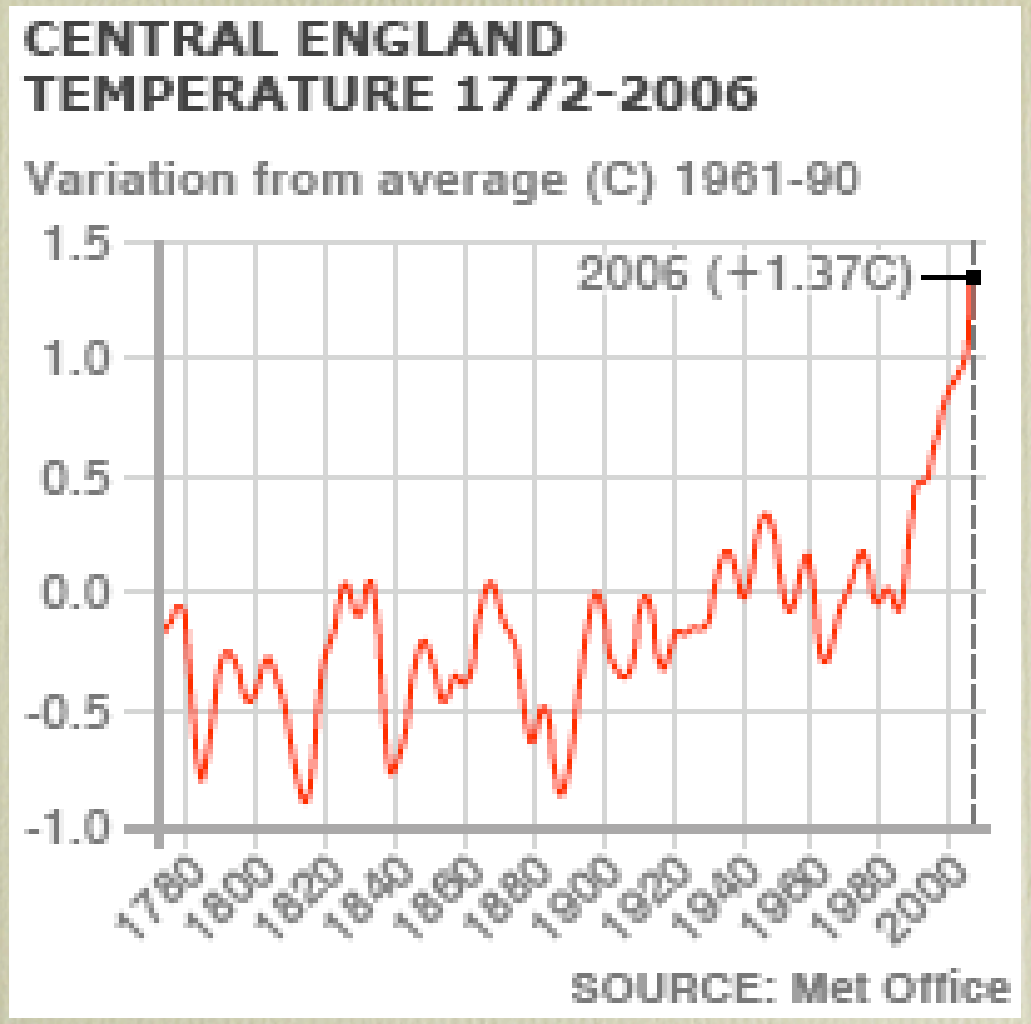
Rise of Global Surface Air Temperature



The global surface temperature differences since 1880 as compiled by NASA's Goddard Institute for Space Studies.
(Source: Goddard Institute for Space Studies)

http://www.abcnews.com/sections/scitech/warming1212/index.html
December 12, 1997

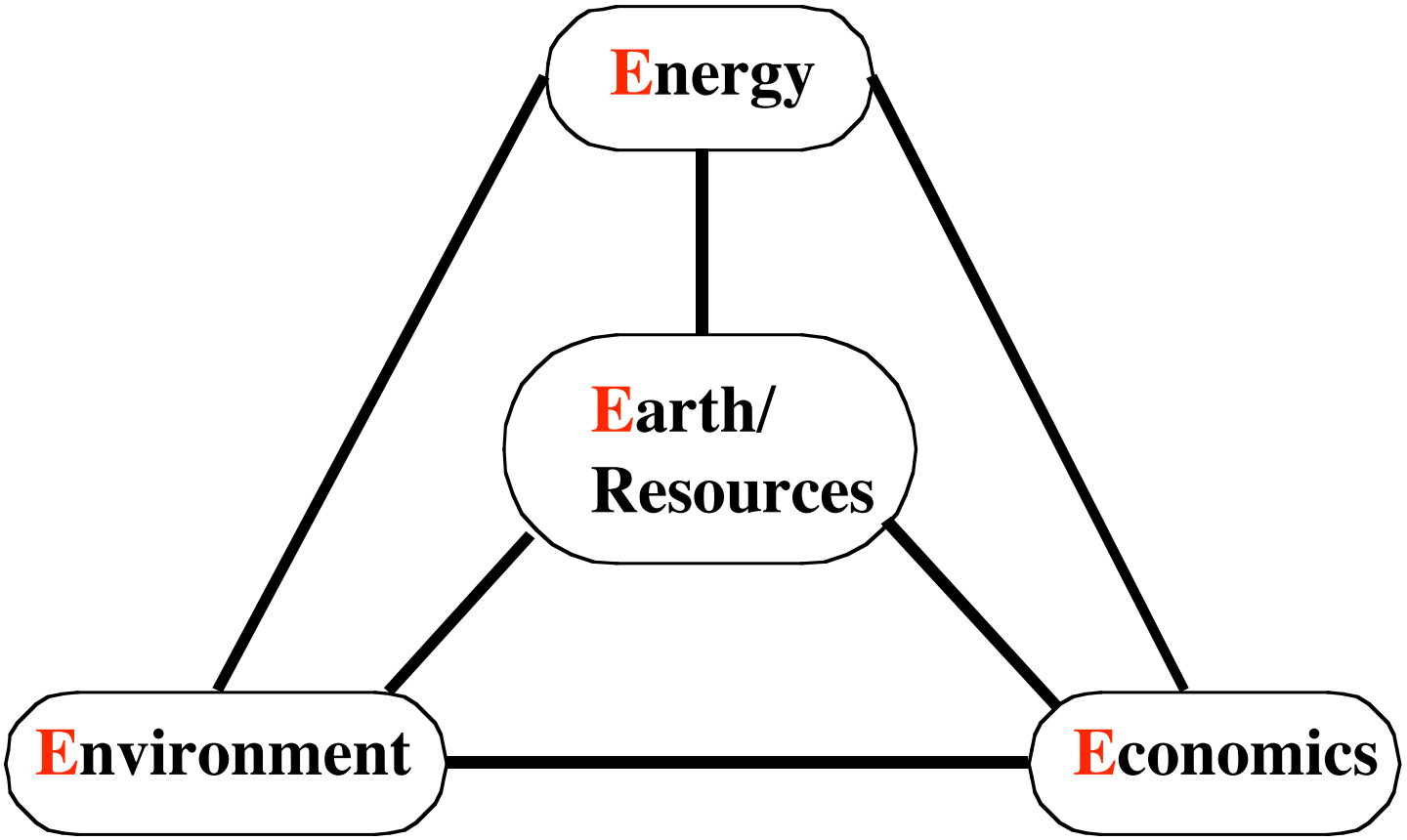
Global Warming?



Winter ‘second warmest on record’
BBC NEWS; http://tinyurl.com/2oesy3

Figure 4

4 E Components of
Globally Collaborative Environmental Peace Gaming



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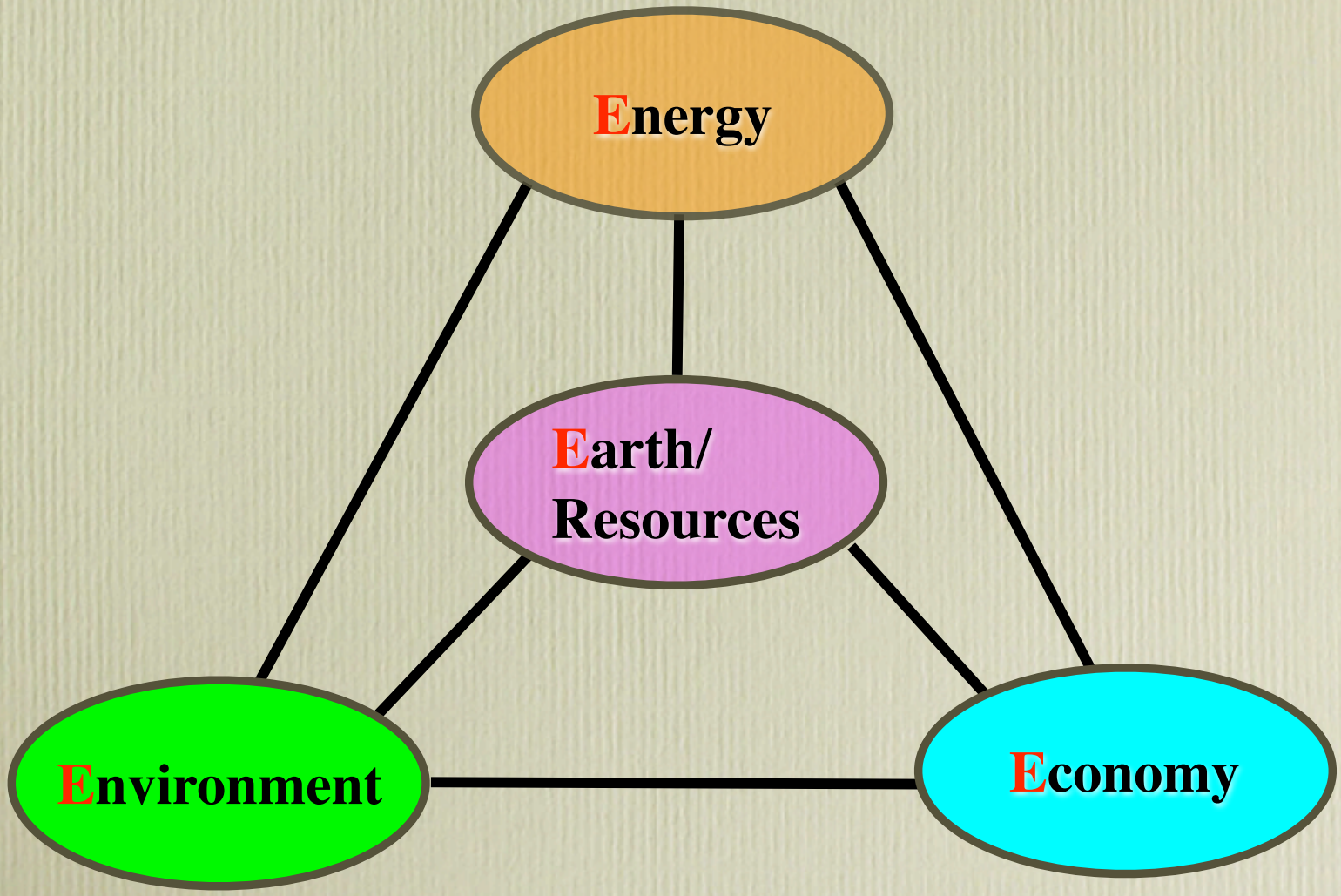
Globally Collaborative Environmental Peace Gaming



Necessary Systems to Construct

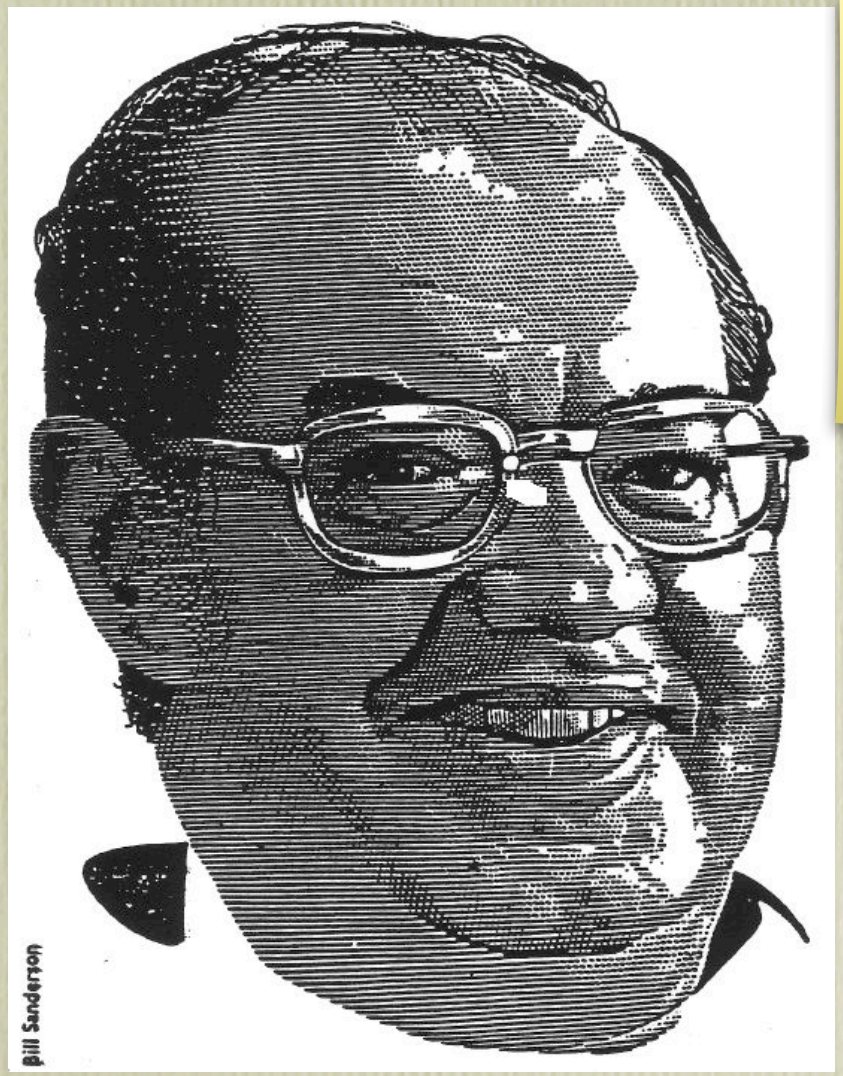
- Globally distributed computer simulation system,
- Globally distributed decision-support system,
- Global neural (GRID) computer network system

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



He combined analog and digital.

Telephone with 1, 2, 3 .. at top,
Computer with 1, 2, 3 .. at bottom.

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)

Move Mountain

(Gu-Kou-I-San)

Even a stupid fellow can move a mountain.

Chinese word	Japanese Pronunciation	English
愚	GU	Stupid
公	KOU	Fellow
移	I	Move
山	SAN	Mountain

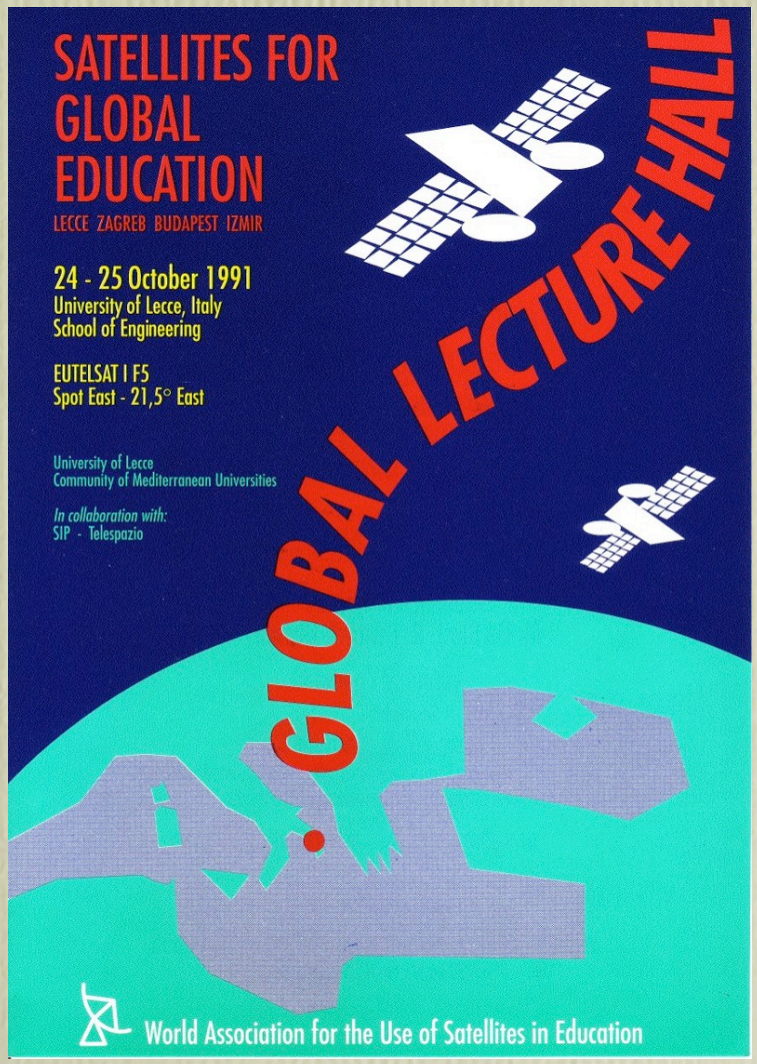
Users of E-mail

(More than one billion as of 2006)

Business Week, June 27, 1994, page 6

Global Lecture Hall (GLH)

Lecce, Zagreb, Budapest, Izmir
University of Lecce, October 24-25, 1991



Dr. Yusuf Ozturk
Ege University
Izmir, Turkey

Modeling, Simulation and Gaming

- **MODELING:** should refer to the gathering and structuring of data in such a way that the values of the parameters, the initial values of the variables, and their interrelationships are formalized.

- **SIMULATION:** (Real-World oriented, Mathematical Model) should be reserved to the use of a model to carry out "experiments" specifically designed to study selected aspects of the simulant, i.e., the real-world or a hypothesized system that has been modelled.

- **GAMING:** (Decision making oriented) refers to man-machine-simulation in which human judgement is exercised to influence the dynamics of the model during the course of a study.

Reference: McLeod,J.; "Simulation Today - and Yesterday ";Simulation Today, No. 1, p.3 (Appearing in SIMULATION, Vol 18, No. 5, May (1972))

Three Modes of Simulation

1. **MAN-SIMULATION:** Human beings model a simulant of the real world or of a hypothesized system and the descision-makings are entirely made by them with computer conferencing systems.

2. **MACHINE-SIMULATION:** The structure and activity as well as the decision making functions are entirely embedded in computer software.

3. **MAN-MACHINE-SIMULATION:** Computer software is used to model part of simulant, the decision-making apparatus is divided in some manner between a human being and a computer.

GAMING (interactive) SIMULATION
implies to MAN-MACHINE-SIMULATION

Methodologies of Socio-Economic Simulation

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)

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

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Global Neural Computer Network

In 1981, I coined the phrase "Global Neural Computer Network" in which each participating game player, with his/her own desktop computer, database and sub-model, would correspond to a neuron, router to synapses, with the Internet serving as nerves in a global brain.

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.

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.

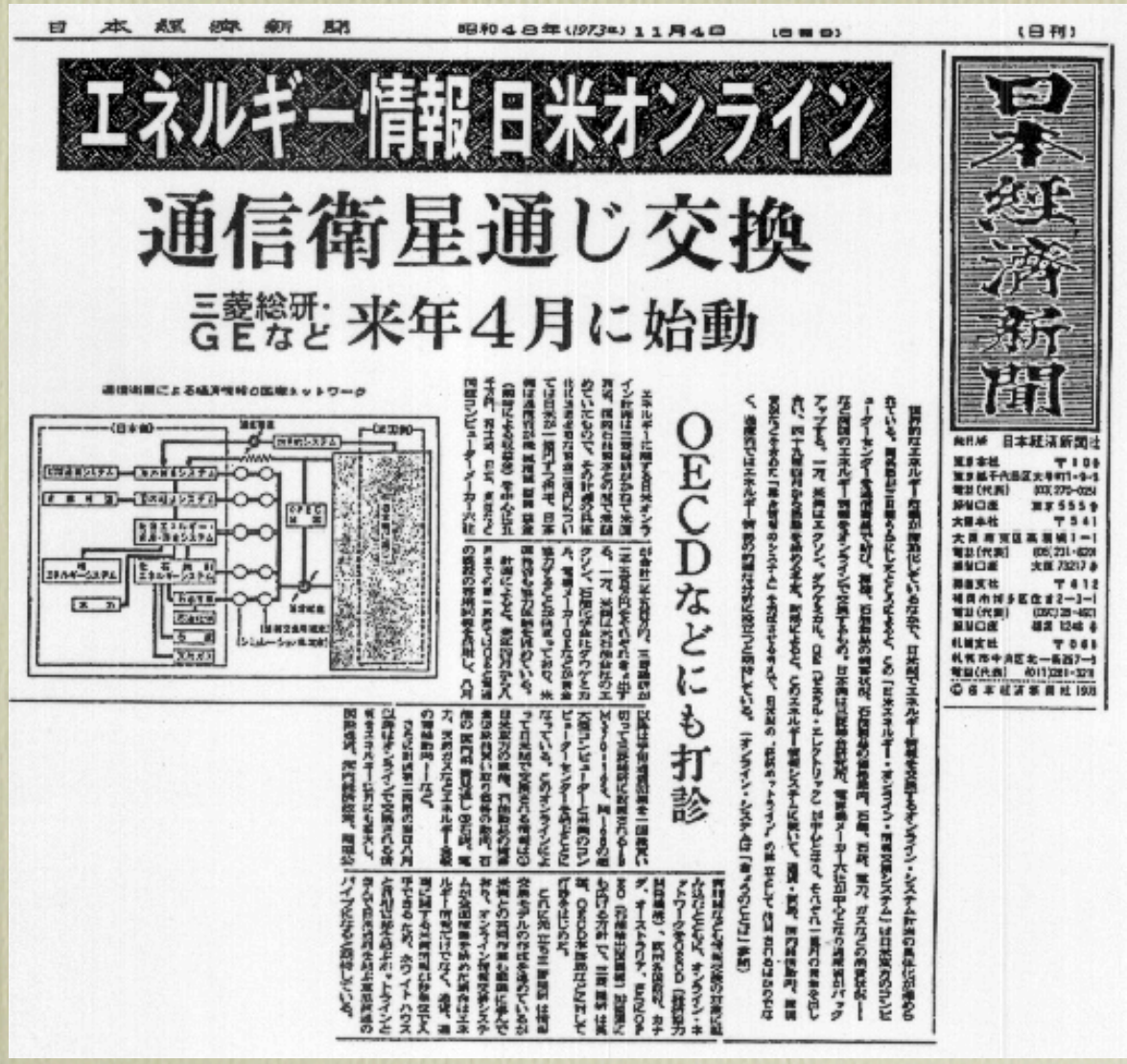
And now we have the following article describing a communication network which it seems to me is misnamed, and I wonder how many others, think of a power grid as a network for the distribution of electrical power. Be that as it may, the description seems to be that of an information network, and the 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

Initial Announcement of Global Peace Gaming

Nikkei Newspaper, (November 4, 1973)



日本経済新聞　昭和48年(1973年)11月4日　(日刊)

エネルギー情報 日米オンライン

通信衛星通じ交換

三菱総研・GEなど 来年4月に始動

OECDなどにも打診

日本経済新聞

Protection of Creative Idea

(Nikkei, August 17, 1989)

トレードシークレット

日米ハイテク摩擦の実像 ③

「米では常識」採用迫る

アイデアも手厚く保護

「ろそだわ。この合併案は私のアイデアよ」――ある証券会社に勤める秘書のテス・マクギル嬢は合併調印式の真っ最中、涙ながらに訴えた。彼女の提案を盗用しようとした上司への反撃である。昨年のクリスマスシーズンに全米で大ヒットした映画「ワーキング・ガール」の一シーンだ。

ピンとこない日本

自分の発案はほんの思いつきでも自分のもの。たとえ上司でも無断で盗むと社会的な制裁を受ける。こんな米国の風土を背景に、優れたアイデアを出して出世街道を駆け上がる若い女性の姿を映画は生々しく映し出す。

だが、発案が手厚く保護される米国の「常識」は、日本人にはもう一つピンとこない。現実には「部下のアイデアは自分のもの」と意識せず利用してしまう上司も少なくない。こうした発想の違いがいま、日米の企業間で新たな火種になろうとしている。典型的な例が企業の持つ秘密、トレードシークレットにからむ問題だ。

この七月、日立製作所と特許相互交換契約を結んだ米クレイ・リサーチは「特許を取っていない情報（トレードシークレット）はこの契約の対象外」とわざわざ断った。「日本企業にトレードシークレットを盗まれたら困る」という危機感がそこにある。

米連邦捜査局（FBI）のおとり捜査で話題になった一九八二年の日立の産業スパイ事件ももとをただせばトレードシークレットの盗用。「日本への疑惑が現実のものになった」と米国が対日不信を強めるきっかけになった事件である。

狩猟民族の発想

顧客名簿、製品の原価、人事情報、新人教育のシステムと、トレードシークレットの範囲は広い。なかでもハイテク（先端技術）にかかわるものが懸案の中心。それは、公表と代償に保護される特許と違って、うっかり開示してしまうとその価値を失ってしまう一種の知的所有権だ。ライバル企業に盗用されると思わぬ損害を被る。そのために米国は百年以上にわたってトレードシークレットを保護してきた。

ところが、相手が外国企業だとその効力は直接及ばない。ガット（関税貿易一般協定）の多角的貿易交渉などの場で米国が執拗（しつよう）にトレードシークレットを保護する制度の採用を日本に要求してきている背景だ。

トレードシークレットに詳しい山口朔生弁理士はこう解説する。「農耕民族の国、日本では『駒ケ岳に霧がかかったら天気が崩れる』という情報はみんなで共有しなければ意味がない。これに対し米国は狩猟民族国家、どこが鹿の餌場（えさば）かは自分だけの秘密にする」。いわば、歴史、文化的な違いから摩擦が生じているという。

上司と部下、2人の女性がひとつのアイデアをめぐり出世競争 映画「ワーキング・ガール」から（20世紀フォックス極東映画提供）

米国の要求に対応して最近、日本企業の間でもトレードシークレットを積極的に守ろうとする意識が高まってきた。薬品大手の武田薬品工業は米国企業並みのトレードシークレット保護に向け検討を始めた。松下電器産業、沖電気工業も七月、トレードシークレットに関する社員向けセミナーを開いた。

武田薬品の岩田弘取締役は「日本企業はトレードシークレット保護の必要性を感じつつも、これまで困ったことがなかった。日本企業の海外進出などで今後はそんな悠長なことは言っていられない」と指摘する。

企業買収に待った

昨年十月、米ペンシルベニア州高等裁判所は日本企業をハッとさせる判決を下した。トレードシークレットの保護を理由に西独シーメンスの米国現地法人シーメンス・キャピタルが進めていた米企業買収に待ったをかけた。

シーメンスは買収交渉を通じA社のトレードシークレットに接近していたが、買収先を突如、A社のライバルB社に切り替えた。トレードシークレットの漏えいにつながるとA社に訴えられたシーメンス・キャピタルは向こう三年間、ライバル企業を買収できなくなった。米国企業の買収を活発化している日本企業にとって他人事では済まされない判決だ。

インサイダー取引（内部情報を利用した株式の不正取引）規制に象徴されるように、時代の流れは情報管理を強化する方向にある。企業がその先導役だ。

しかし、日本企業はこれまで情報を「共有」することによって活力を見いだしてきた面も否定できない。「何でも米国流で決めるやり方は必ずしも日本社会になじまない」（河野愛・横浜国立大学助教授）。日本流のトレードシークレットのあり方を考え出すことができるかどうか。米国からの外圧で市場開放を強いられてきたこれまでの対応とは違う新たな知恵が求められている。（国際一部 桜井記者）

Outcome of Peace Gaming Project at Mitsubishi Research Institute

(Nikkei, November 1, 1974)

日本経済新聞

通信衛星と電算機使った

日米石油情報計画を中止

需給緩和で必要薄れる

三菱総研・日本情報開発協

三菱総合研究所（本社東京、社長中島正樹氏、資本金十億円）は三十一日、日本情報開発協会（理事長…）と共同で進めてきた「グローサス・プロジェクト」を中止すると発表した。同プロジェクトは通信衛星を利用した日米間のコンピューター会議を通じて、石油対策のエネルギー資源の計画策定を検討するために取り組んでいたもの。その後、石油需給の緩和で需給逼迫が発生する可能性も薄れてきたので、中止することを決めたもの。

同プロジェクトは昨年末、石油危機に対処して、日米両国が石油需給計画のための情報交換を通信衛星と両国のコンピューター・ネットワークを使って推進し、需給安定に役立てようという構想で、日米の関係者が進めていた。米国のGE（ゼネラル・エレクトリック）との間で結んでいる通信衛星ネットワーク「マークⅢ」を使って、三菱総研と情報開発協が石油会社の寄付を受けてソフトウエアを開発した。

米国側でもバッテル研究所、オレゴン大学などが中心となって同プロジェクトを推進していたが、石油消費国会議での討議などから、エネルギー問題はきわめて政治的であるとの判断から米国側も中止を決めたという。

Fate of
Fifth Generation Computer Project
with US$500 million

日本経済新聞
1991年(平成3年)6月24日(月曜日)

NEXTステージ

第六世代コンピューター 5

産学協同研究体制の構築を

十年と五百億円をかけた「第五世代コンピューター」計画は、期待はずれになることがほぼ確実となった。通称「第六世代コンピューター」計画は、第五世代の失敗を償い、それに代わって新しい概念のコンピューターを生み出すことが出来るだろうか。ニューロコンピューターがひとつの方向を示していることは確かだ。しかし、それは国家プロジェクトとしてではないことを主張したい。

日本では、国家(官僚)主導のプロジェクトは欧米に追いつくためにのみ有効だった。コンピューター分野でもかつての「超大型計算機」プロジェクトは国内コンピューター産業の育成(すなわちIBMに追いつくこと)に力を発揮した。しかし第五世代のように、新しい概念や技術を生み出そうとすると失敗してしまう。個々にはいろいろな理由があるのだろうが、銘記すべきは、研究開発も企業間の競争に任せることで最大の効果が得られる、ということだ。

実際、二十一世紀のビジネスとして可能性のある研究ならば、少々リスクがあっても今の企業には独自に取り組む力があるし、有力な企業はすでにそうしている。国家プロジェクトは、企業にとって「余計なお世話」とも言えるのだ。このままでは(体制面での問題で)第六世代も失敗に終わると見る企業関係者は決して少なくない。

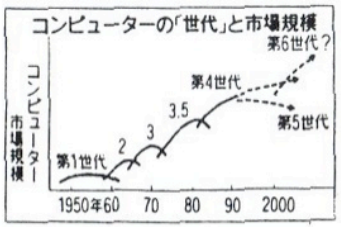
もう一つの主張は、大学と企業の共同研究体制を構築することである。技術開発に関する限り、研究者間の自由な競争とビジネスへの関与こそが、研究者の能力を最大限に引き出すと考えるからだ。

それに産学協同は、現状ではむしろ大学側にとって必要なことだ。既存のコンピューター分野では大学がもはや企業から相手にされていないことは周知の通り。しかし、第六世代の柱となるであろうニューロコンピューター分野では、大学にまだまだ力がある。今のうちに協力関係を築いておくことが今後の大学のニューロ研究にとって不可欠に思える。

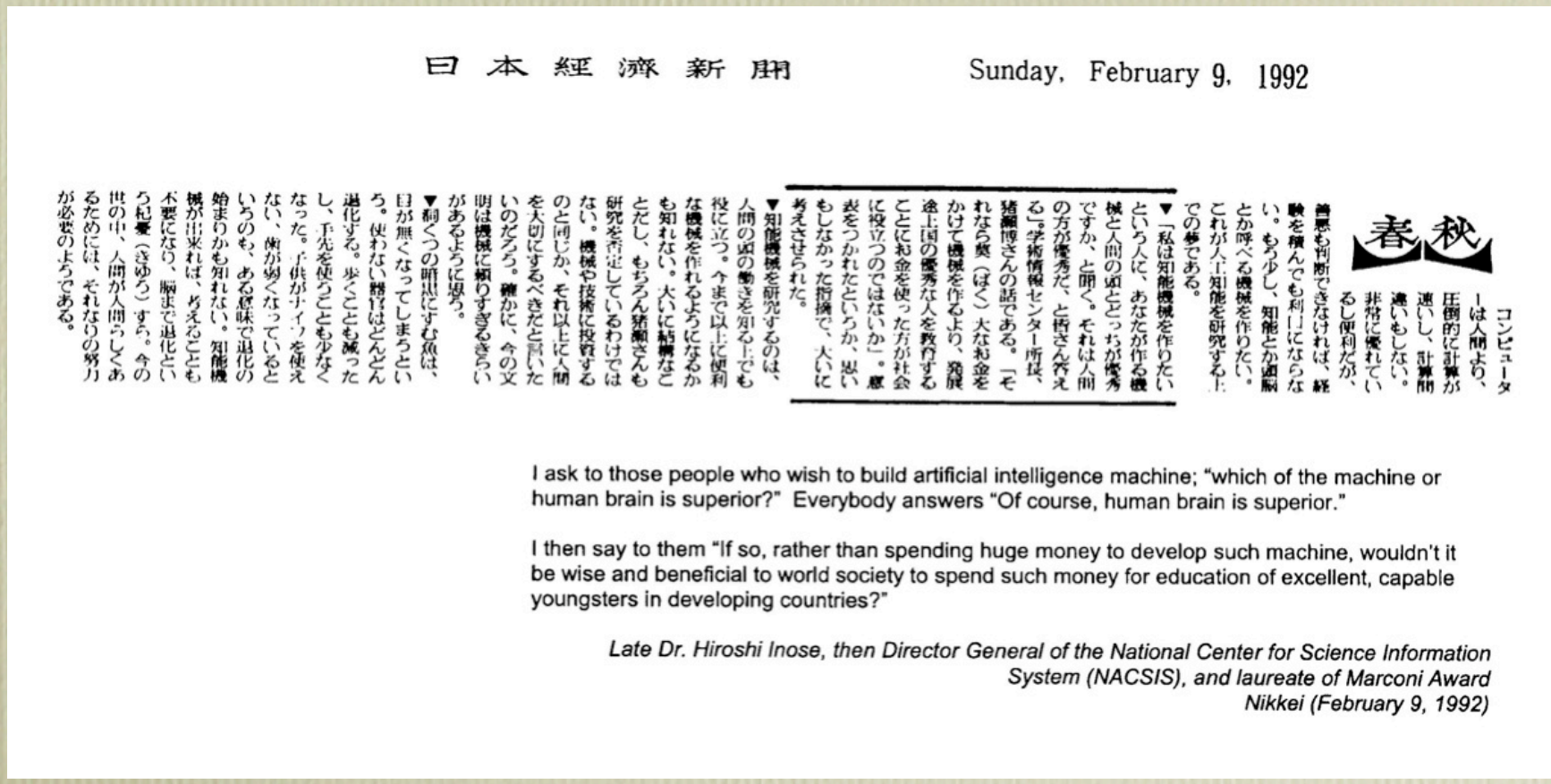
もちろん、現在の制度では産学協同は難しい。しかし、そうした枠組みを改善する「合法的な」努力とともに、抜け道を探す「非合法的な」工夫をすべきである。これには、大学側が率先してアプローチしなければならない。企業のニューロ開発を軽視していると、やがて企業に追い抜かれ、今のコンピュータ分野と同じ有り様になってしまうことだろう。

(日経AI編集長　石井　茂)

(おわり、次回から「バイオ新製時代」を掲載します)



Fifth Generation Computer Project
vs
Global University System



日本経済新聞 Sunday, February 9, 1992

春秋

コンピュータは人間より、圧倒的に計算が速いし、計算間違いもしない。非常に優れているし便利だが、善悪も判断できなければ、経験を積んでも利口にならない。もう少し、知能とか頭脳とか呼べる機械を作りたい。これが人工知能を研究する上での夢である。

▼「私は知能機械を作りたいという人に、あなたが作る機械と人間の頭とどっちが優秀ですか、と聞く。それは人間の方が優秀だ、と悟さん答える」。学術情報センター所長、猪瀬博さんの話である。「それなら奨（ばく）大な お金をかけて機械を作るより、発展途上国の優秀な人を教育することに お金を使った方が社会に役立つのではないか」。意表をつかれたというか、思いもしなかった指摘で、大いに考えさせられた。

▼知能機械を研究するのは、人間の頭の働きを知る上でも役に立つ。今まで以上に便利な機械を作れるようになるかも知れない。大いに結構なことだし、もちろん猪瀬さんも研究を否定しているわけではない。機械や技術に投資するのと同じか、それ以上に人間を大切にするべきだと言いたいのだろう。確かに、今の文明は機械に頼りすぎるきらいがあるように思う。

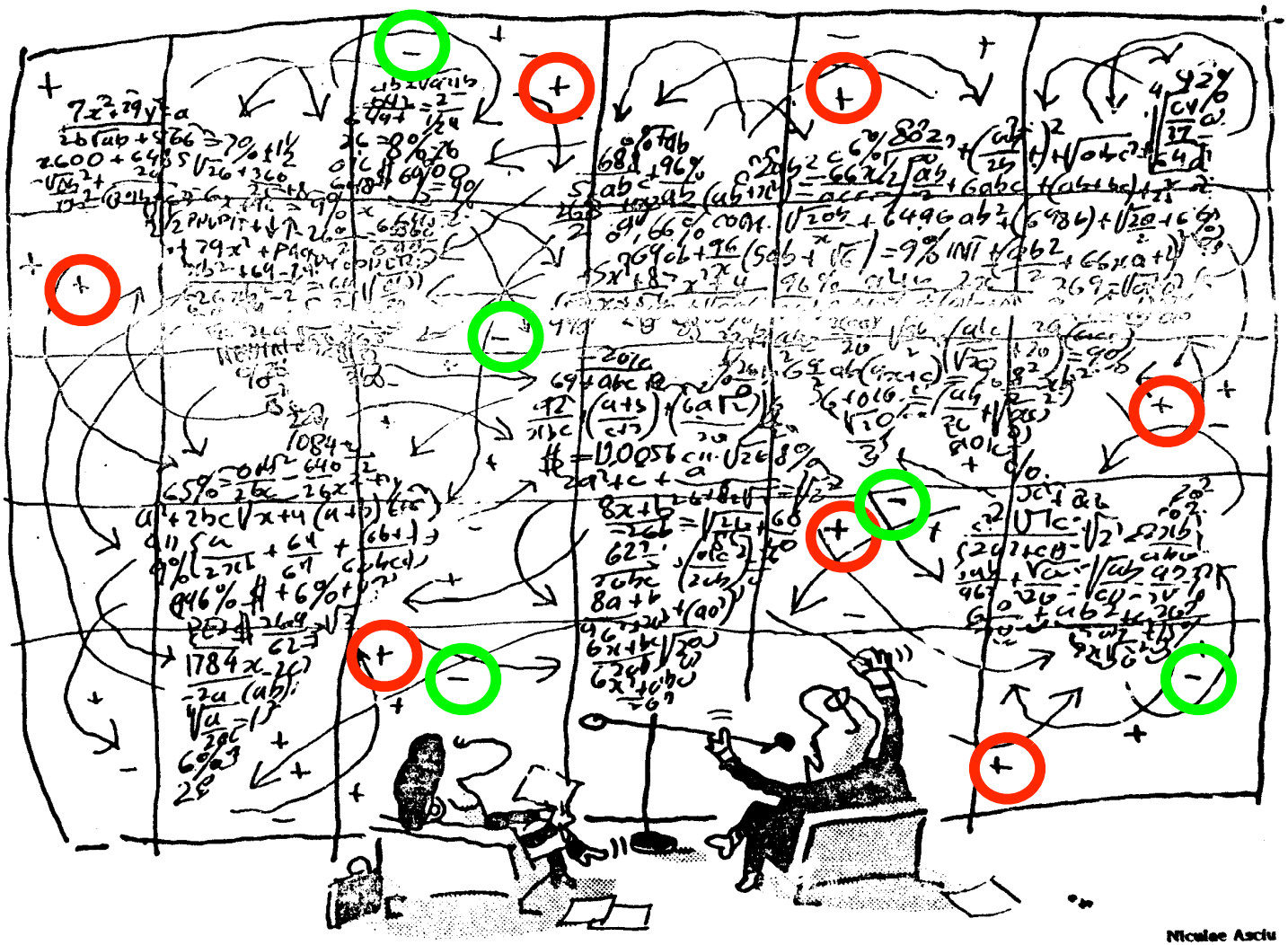
▼洞くつの暗黒にすむ魚は、目が無くなってしまうという。使わない器官はどんどん退化する。歩くことも減ったし、手先を使うことも少なくなった。子供がナイフを使えない、箸が持てないというのも、ある意味で退化の始まりかも知れない。知能機械が出来れば、考えることも不要になり、脳まで退化という記憶（きゆう）すら。今の世の中、人間が人間らしくあるためには、それなりの努力が必要のようである。

I ask to those people who wish to build artificial intelligence machine; "which of the machine or human brain is superior?" Everybody answers "Of course, human brain is superior."

I then say to them "If so, rather than spending huge money to develop such machine, wouldn't it be wise and beneficial to world society to spend such money for education of excellent, capable youngsters in developing countries?"

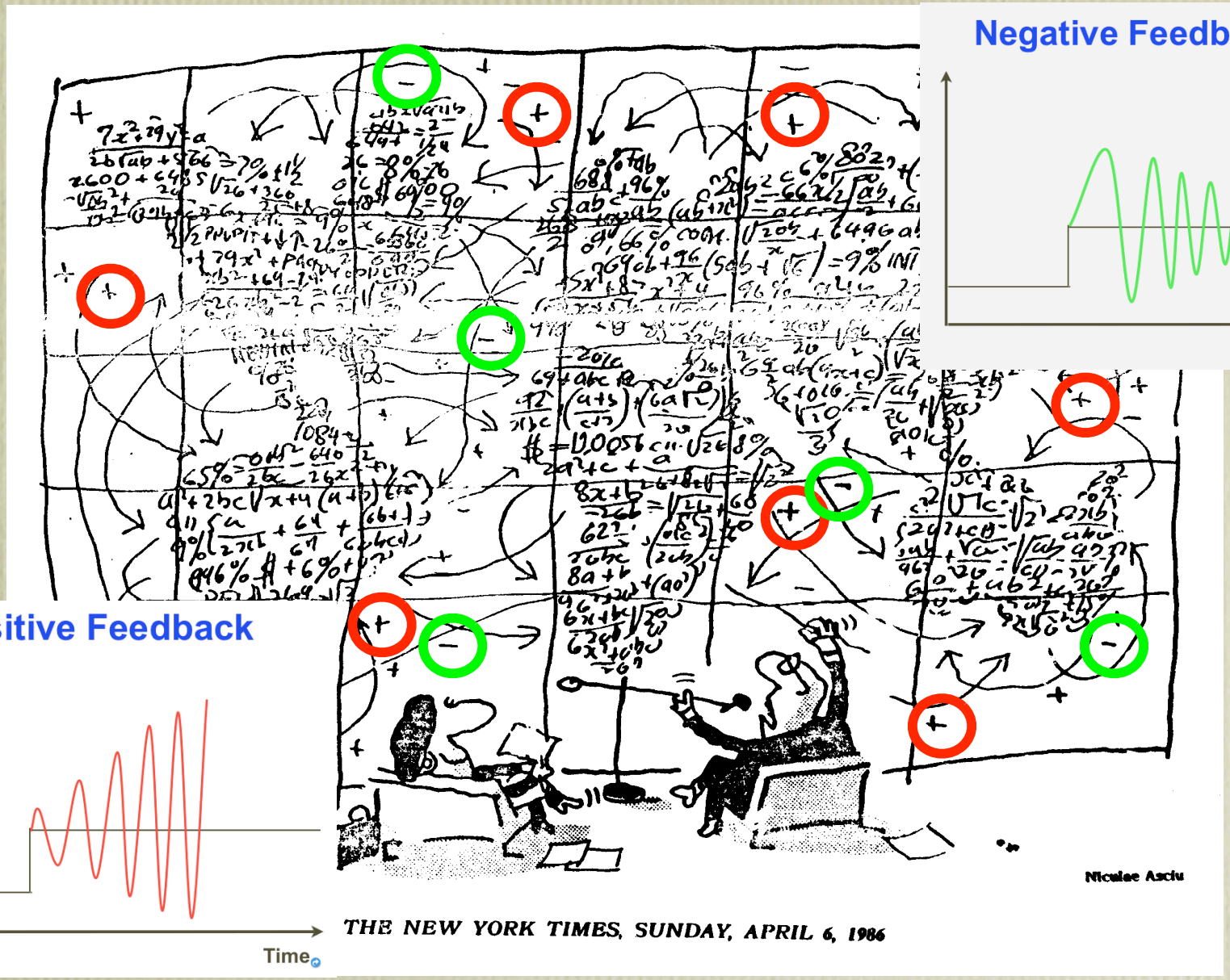
Late Dr. Hiroshi Inose, then Director General of the National Center for Science Information System (NACSIS), and laureate of Marconi Award
Nikkei (February 9, 1992)

Systems Analysis of the World

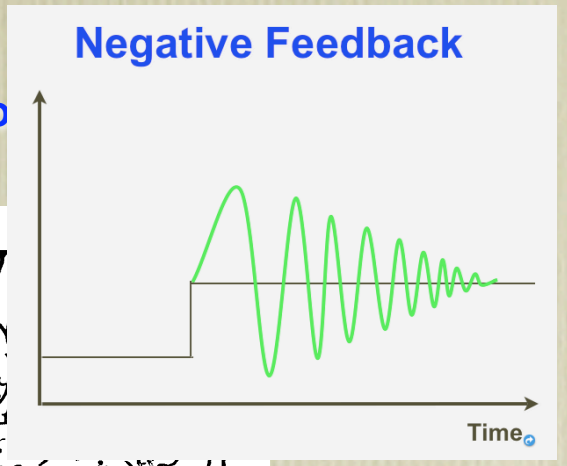


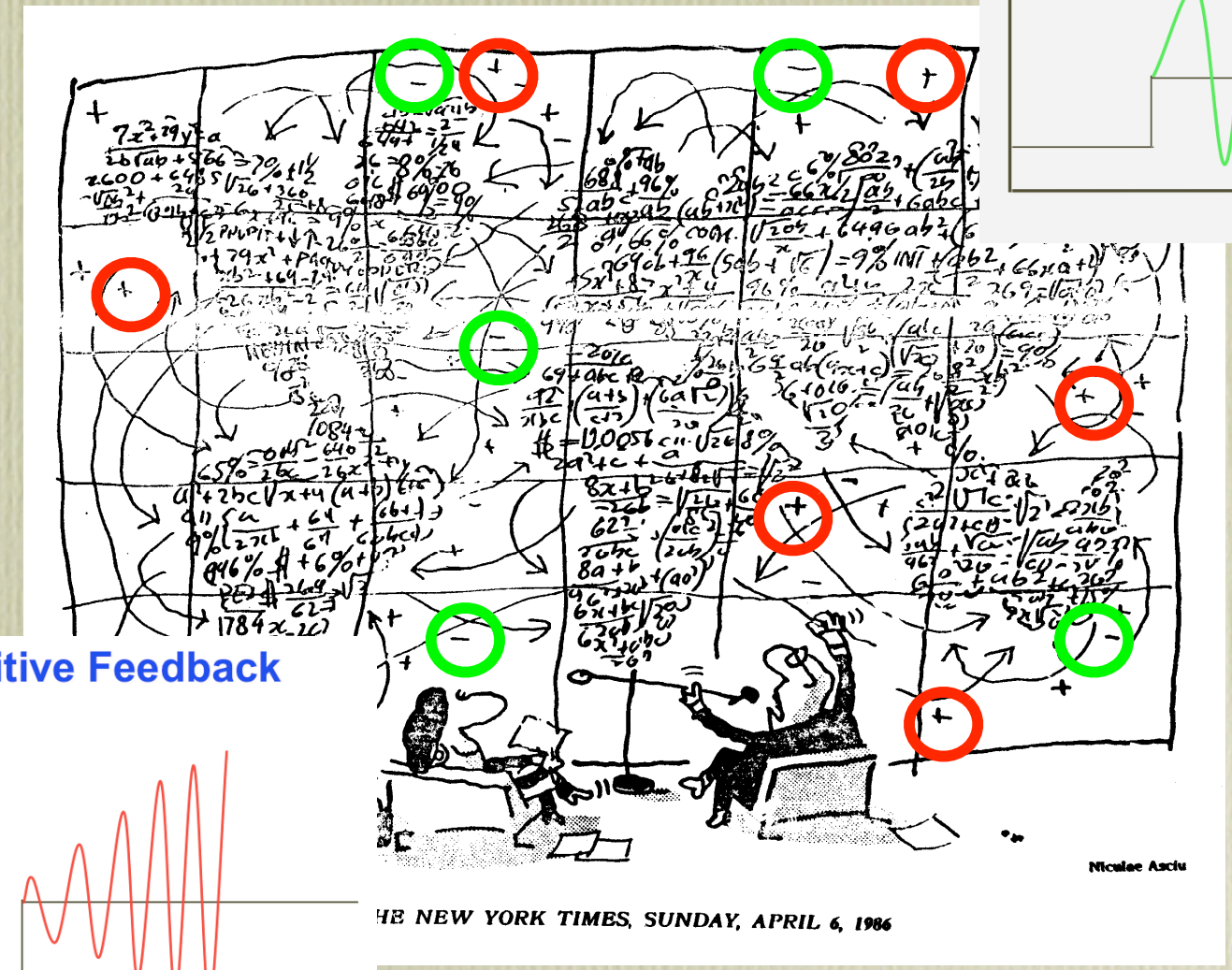
THE NEW YORK TIMES, SUNDAY, APRIL 6, 1986

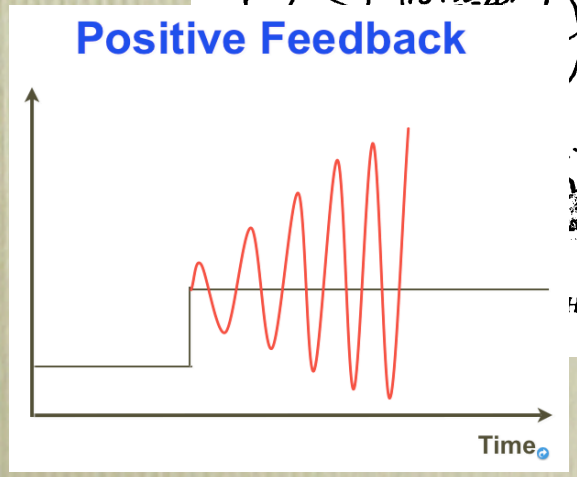
Systems Analysis of the World



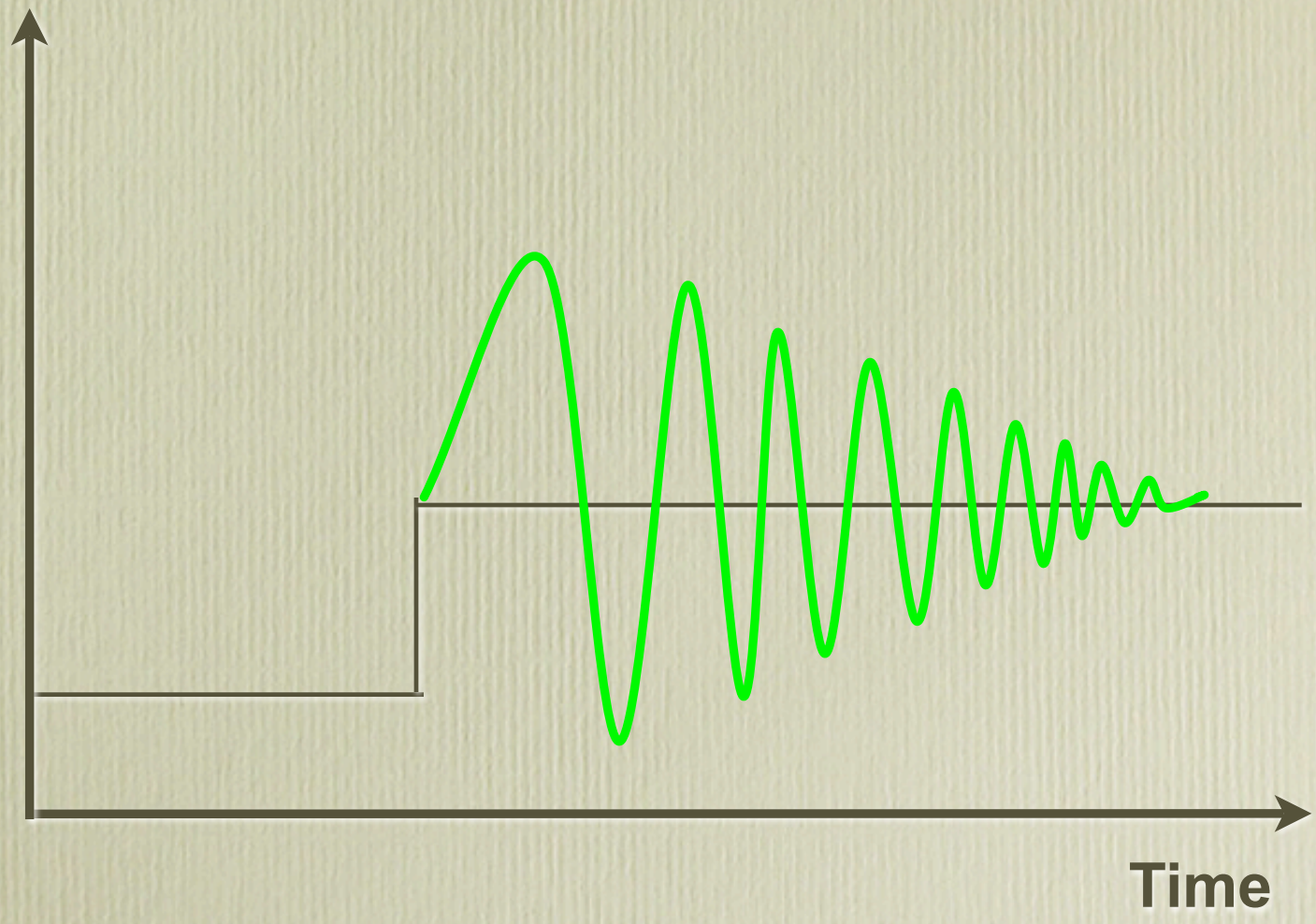
Global Problem-Solving Collaboration using GRID Computer Neto



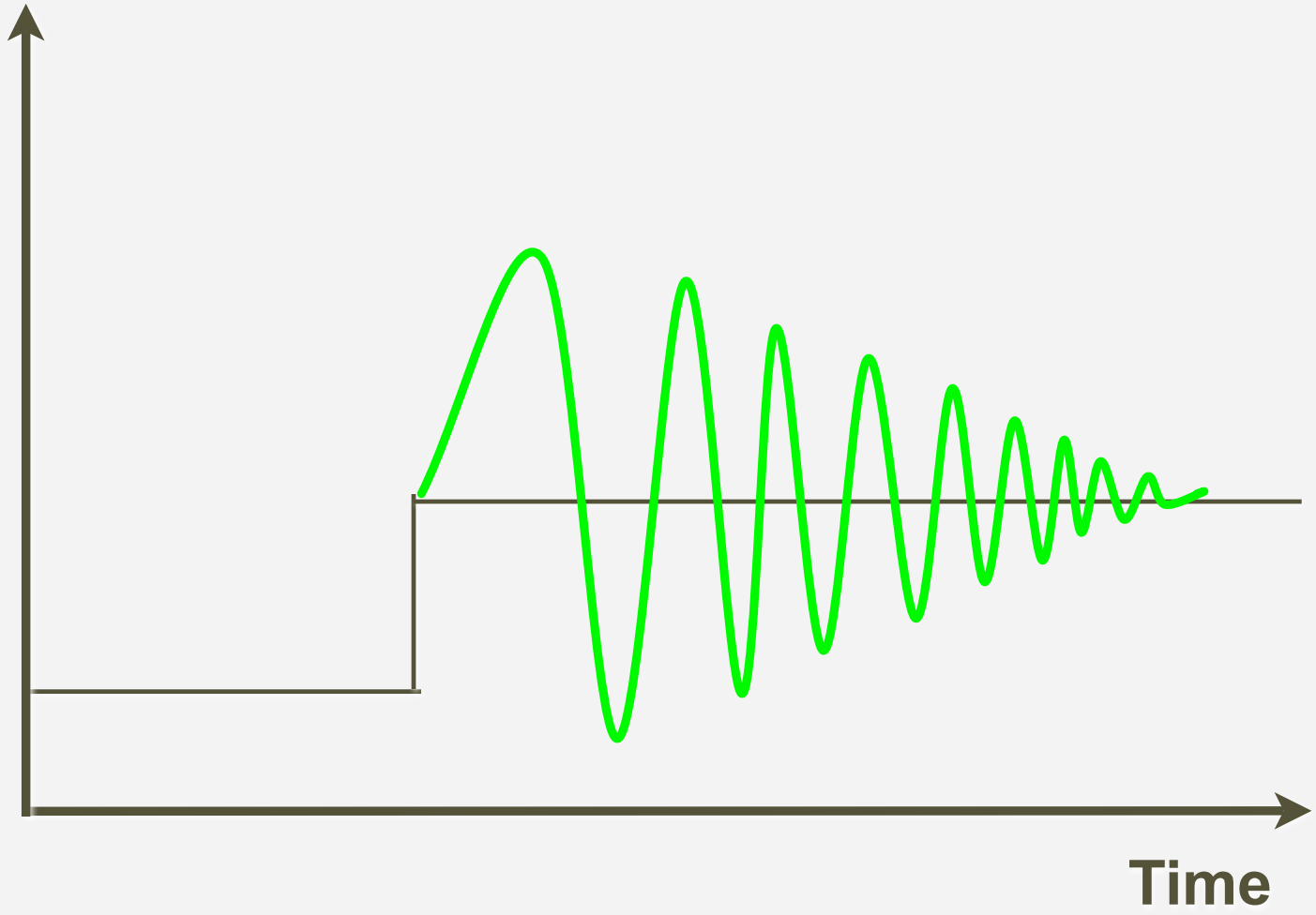




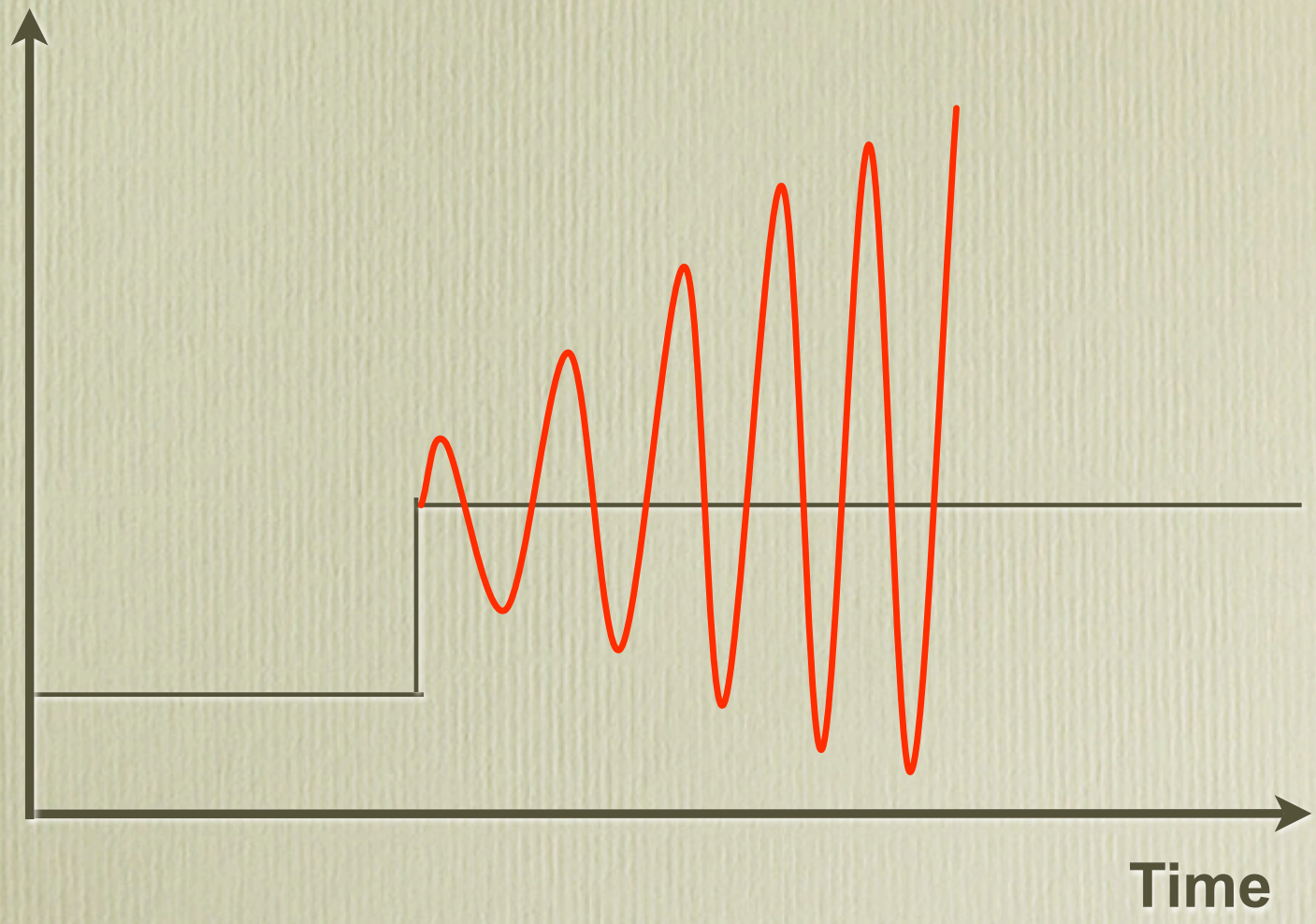
Negative Feedback



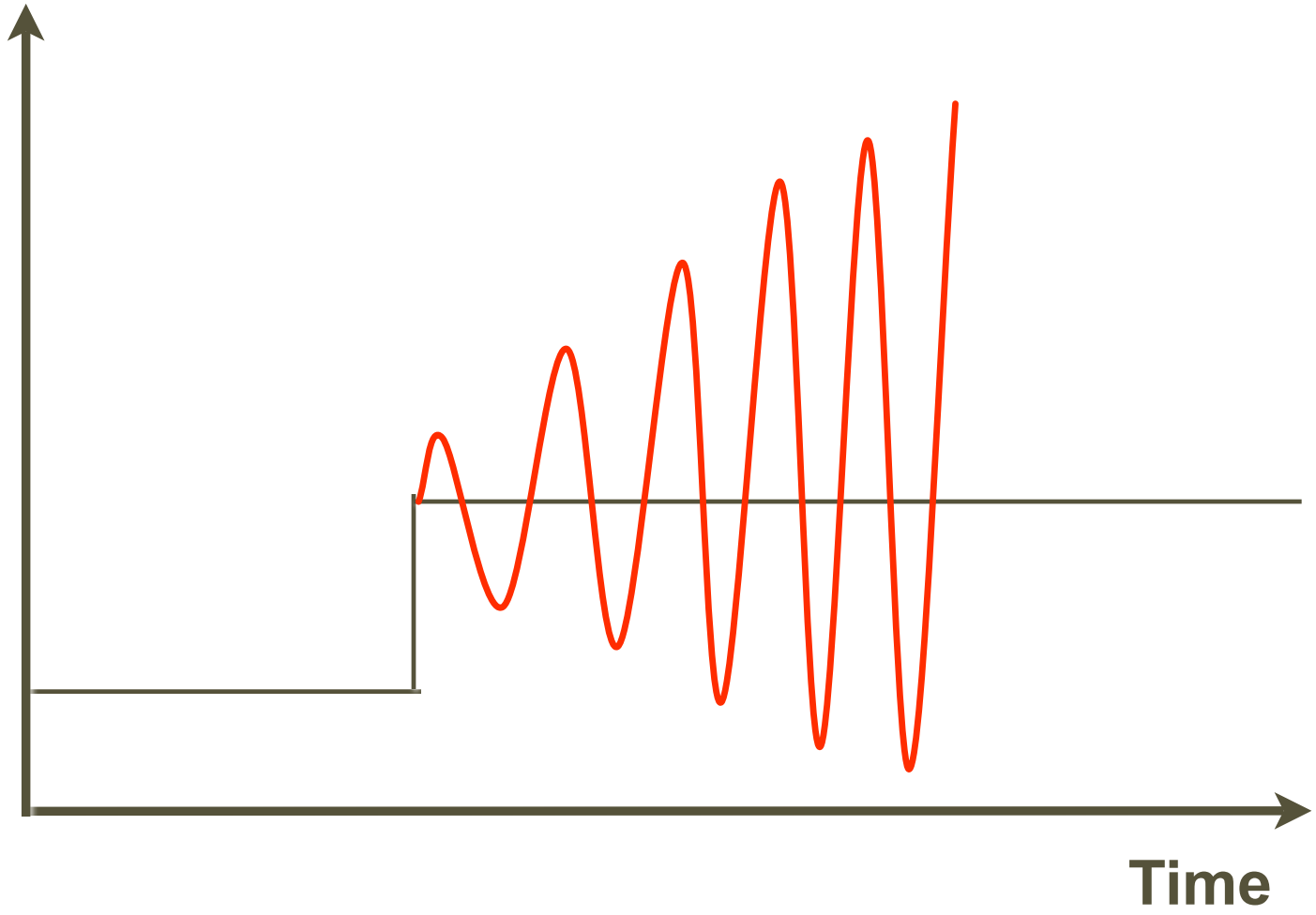
Negative Feedback



Positive Feedback



Positive Feedback



Cause-and-Effect Diagram of World Dynamics Model

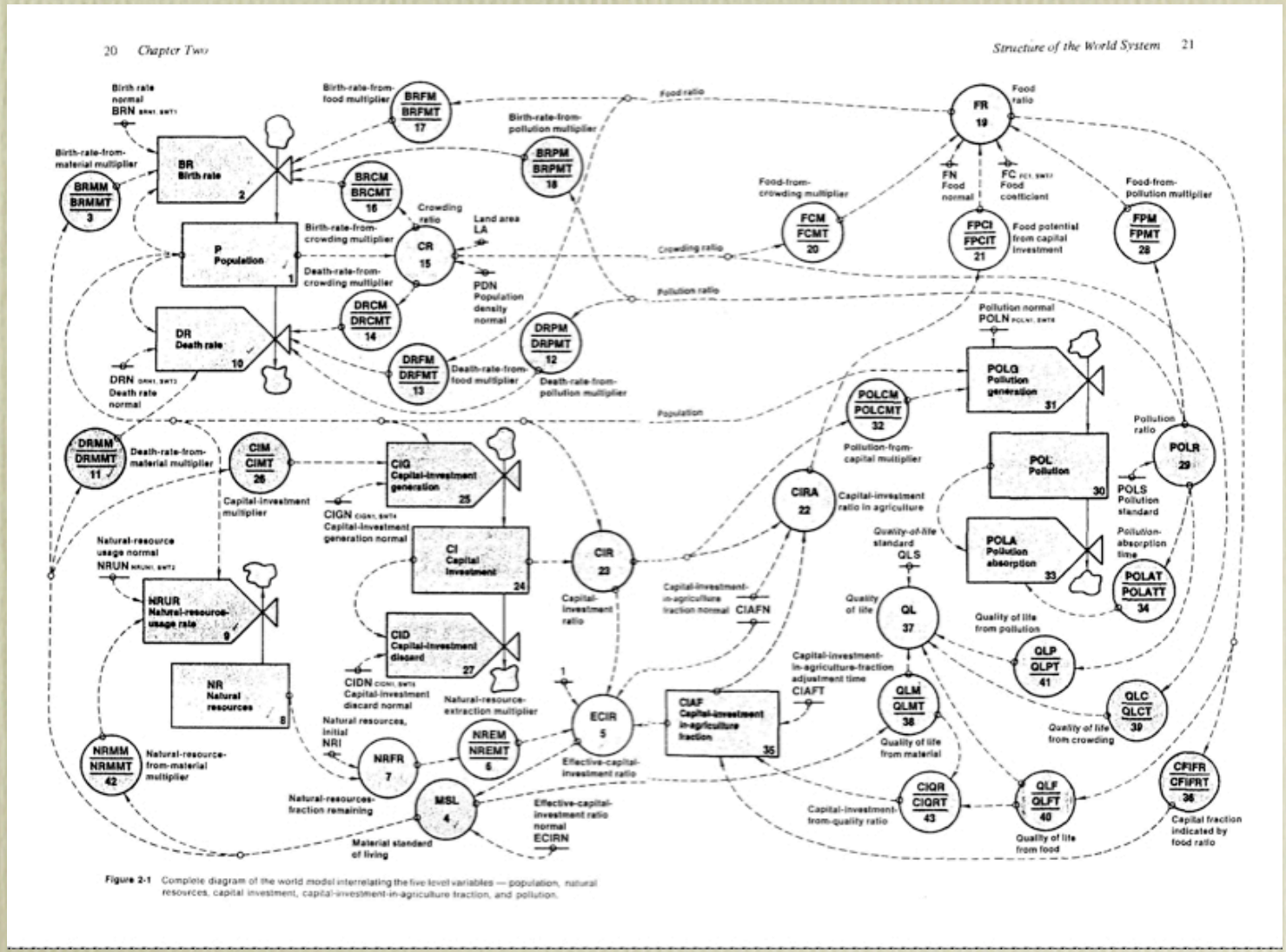
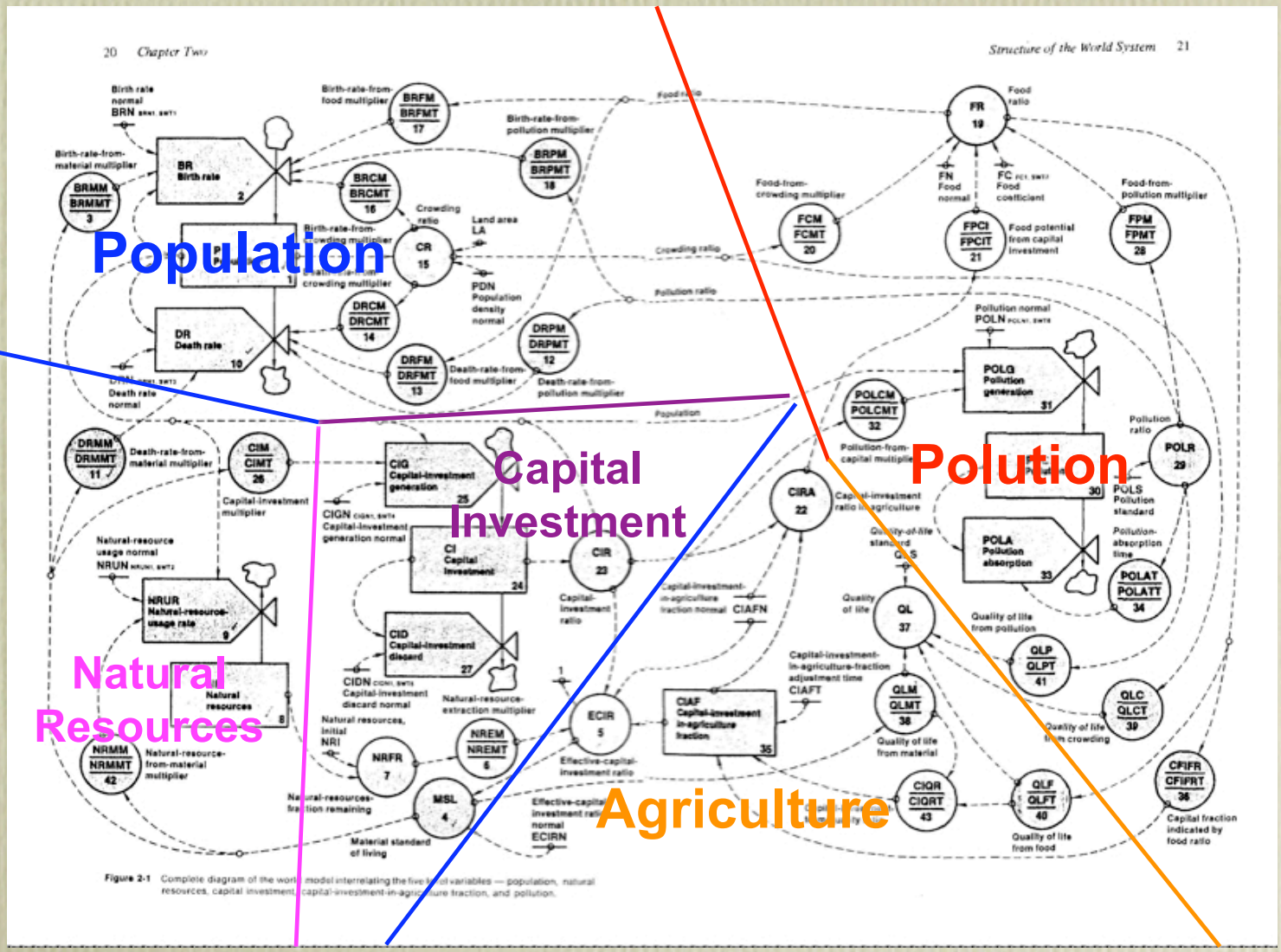


Figure 2-1 Complete diagram of the world model interrelating the five level variables — population, natural resources, capital investment, capital-investment-in-agriculture fraction, and pollution.

Cause-and-Effect Diagram of World Dynamics Model



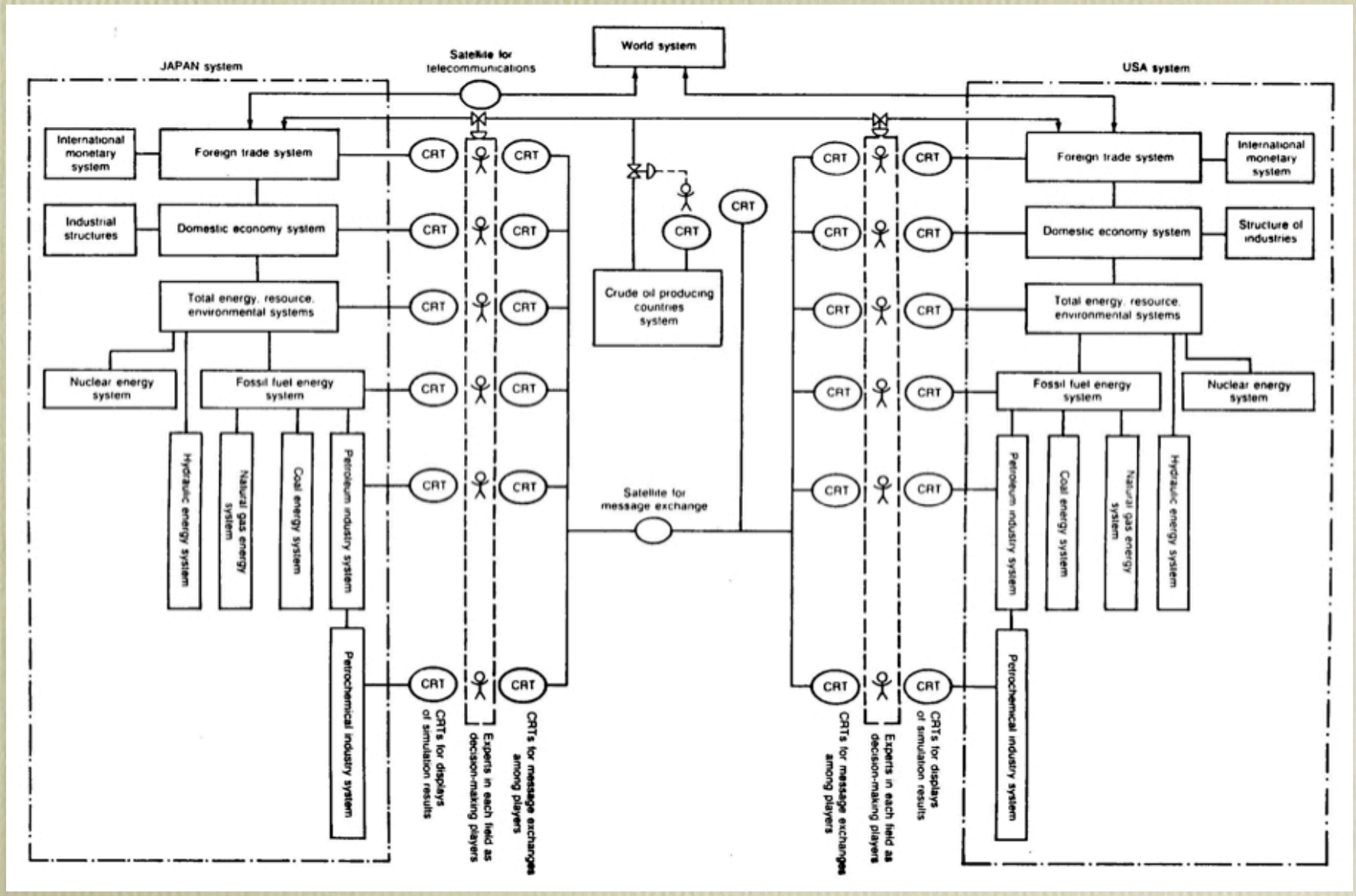
Advantages of Distributed Simulation

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

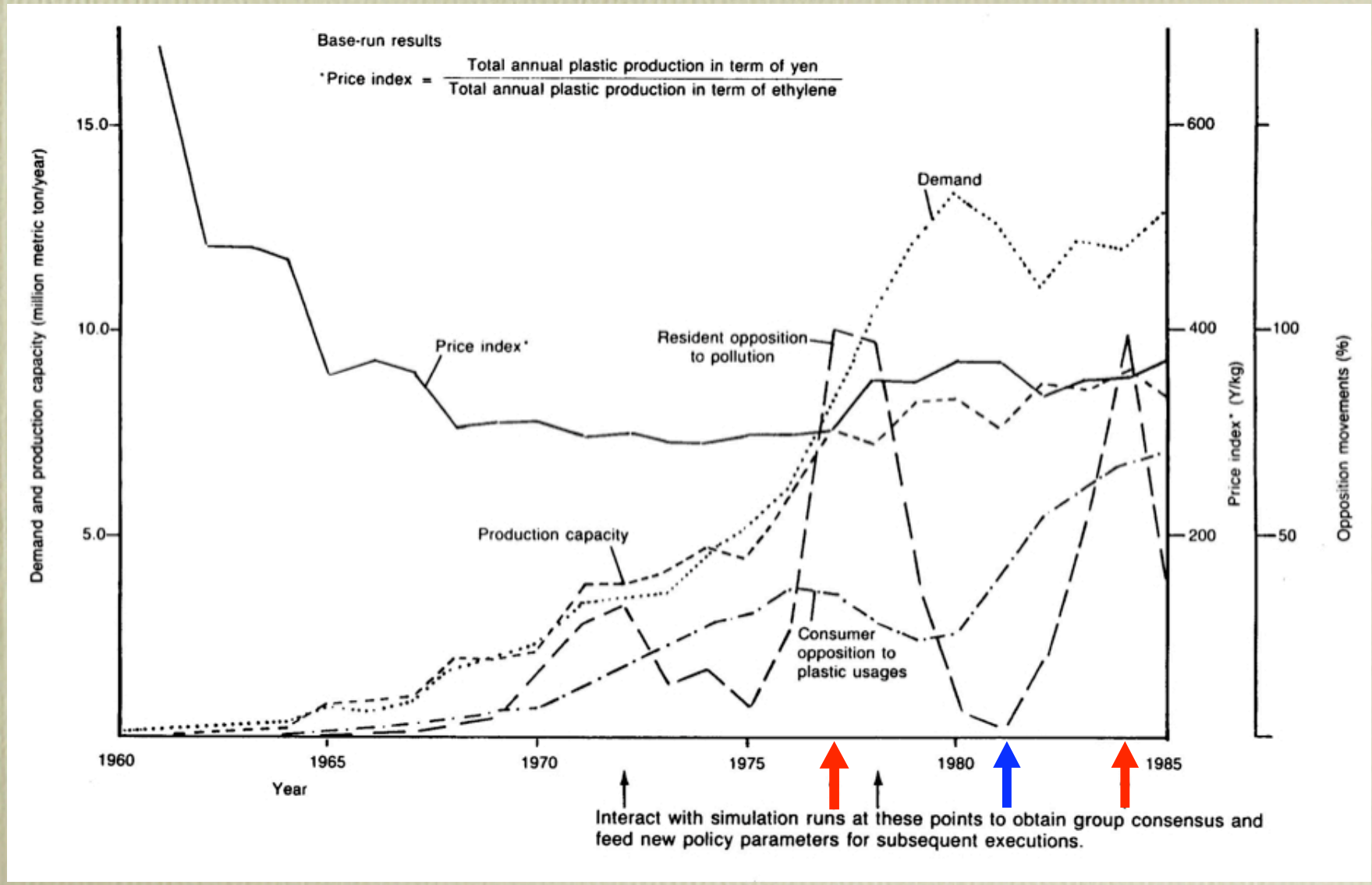
Globally Collaborative Environmental Peace Gaming (GCEPG)

Structure of Integrated Models and Communication Network

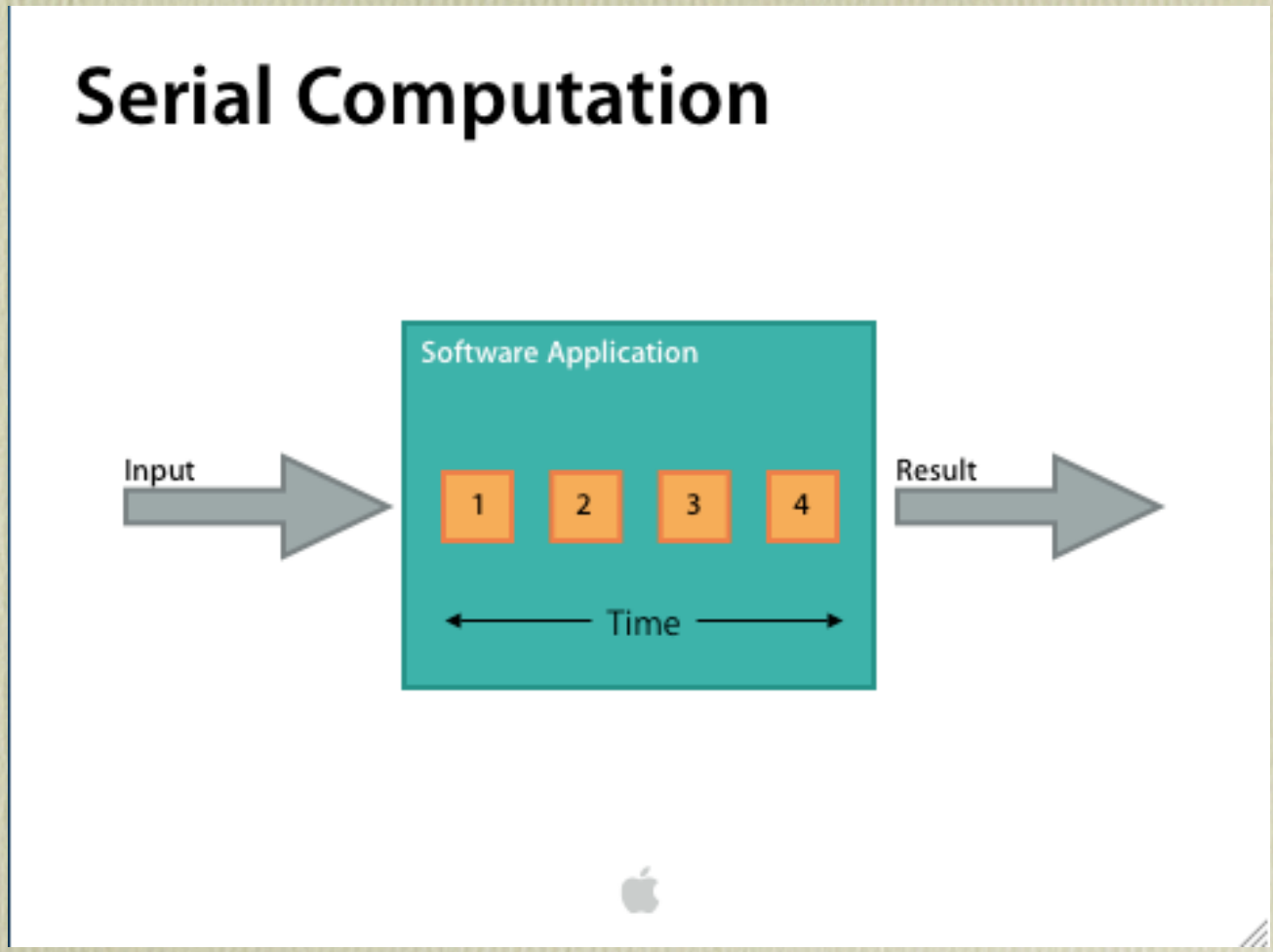
Boxes are dispersed, dissimilar computers around the global Internet.



Growth of Japanese Petrochemical Industry



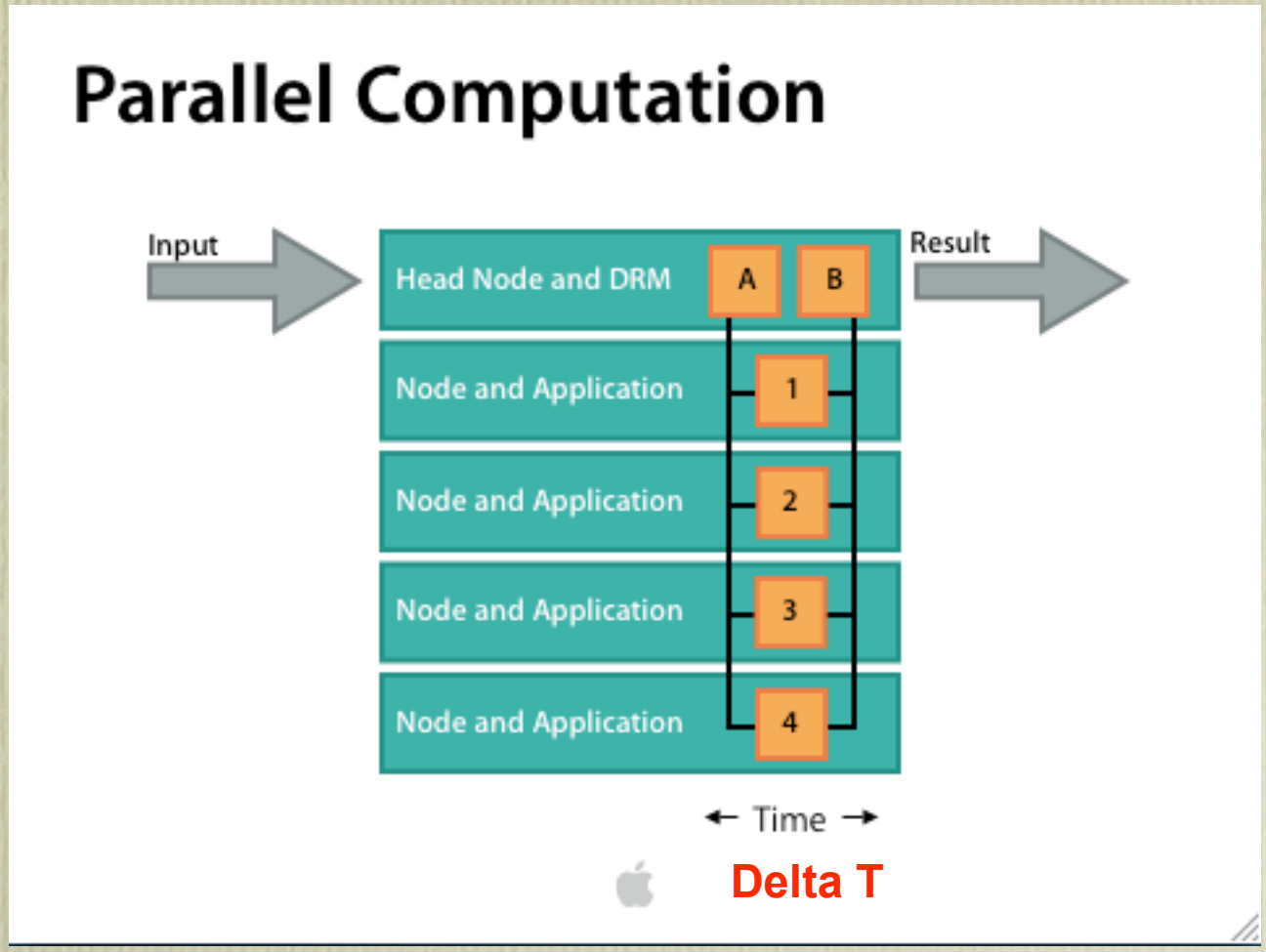
High Performance Computing (#1 of 2)



Getting Started with High Performance Computing
Webcast - hosted by Apple.

http://seminars.apple.com/seminarsonline/hpc/apple/index1.html

High Performance Computing (#2 of 2)



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Globally Collaborative Environmental Peace Gaming through Global Neural Computer Network

- Need: Kyoto Protocol
- Computer Simulation Models
  - Socio-Economic-Environment Model
  - Climate Simulation Model
- Beowulf Mini Supercomputer
  - Maui Community College in Hawaii
- Global Neural (Grid) Computer Network

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Vice President Al Gore

"The Department of Defense is investing well over $1 billion in the development and implementation of networked distributed interactive simulation.

This technology, which allows dispersed learners to engage in collaborative problem solving activities in real time, is now ready for transfer to schools and workplaces outside of the defense sector."

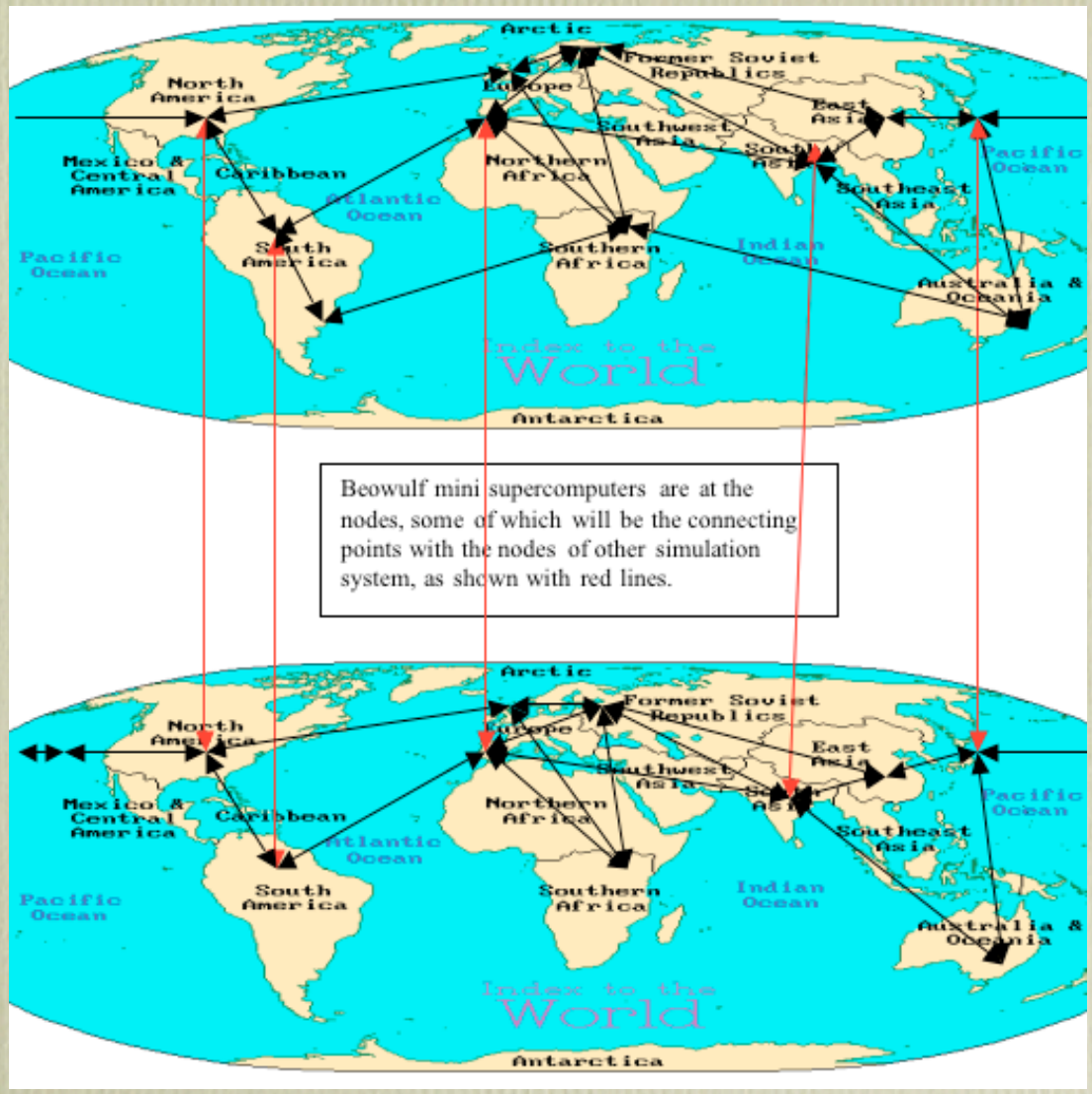
January 11, 1994
Speaking to communications industry leaders

GRID Computer Network

- Mini super-computer with clusters of PCs
- Global Collaborative Problem Solving

Globally Collaborative Environmental Peace Gaming (GCEPG)

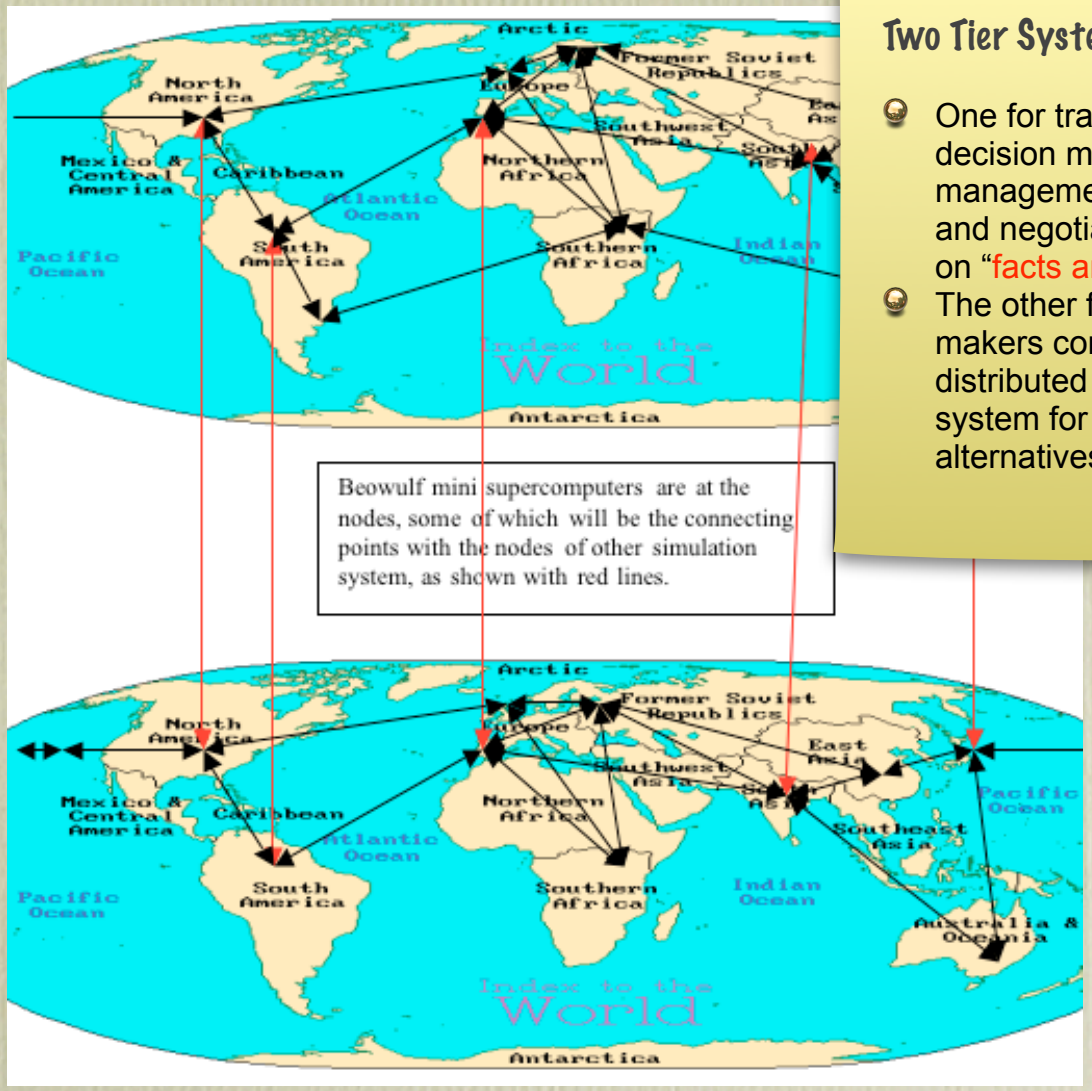
Globally Distributed Climate Simulation System



Globally Distributed Socio-Economic-Environmental Simulation System

Globally Collaborative Environmental Peace Gaming (GCEPG)

Globally Distributed Climate Simulation System



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.

Globally Distributed Socio-Economic-Environmental Simulation System

Globally Collaborative Environmental Peace Gaming (GCEPG)

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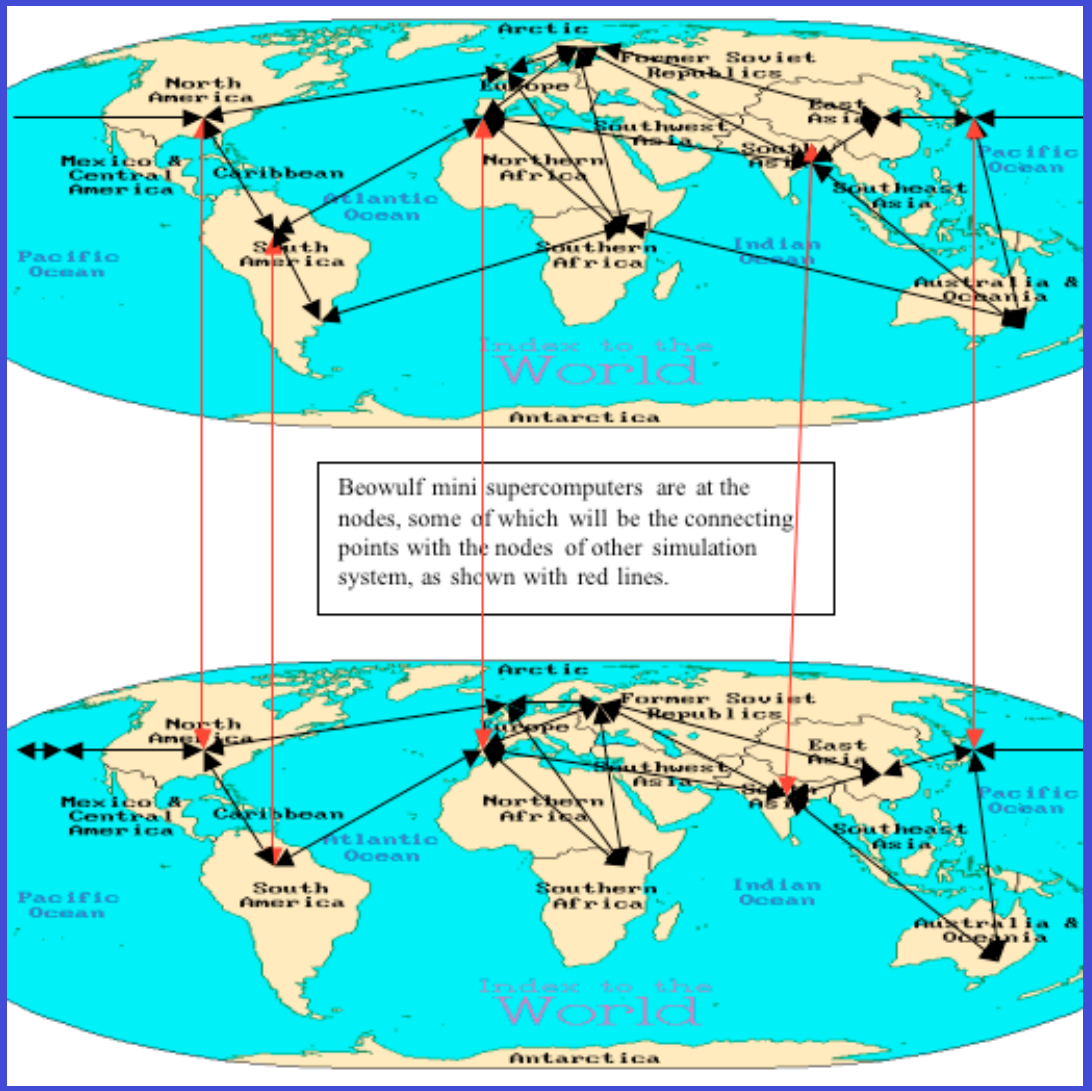


Globally Distributed Socio-Economic-Environmental Simulation System

NASA's Distributed Simulation

SOFTWARE

HELPING COMPUTERS TALK ABOUT THE WEATHER

IF WEATHER-forecasting computers around the world could compare notes as easily as people chitchat about the oppressive summer heat, meteorologists would have a much better way to forecast disasters such as hurricanes —or coming Ice Ages. But the dozens of supercomputers that simulate the earth's climate were built at different universities and government agencies, many with custom code, so it's next to impossible to get them to talk to one another.

On July 20, NASA researchers announced that they're testing a software platform designed to solve those problems. The product allows researchers to switch components in and out of different simulations and to test and create more precise global models of the weather in a snap. Researchers believe the improved collaboration will not only aid short-term forecasting but also will boost their understanding of issues such as global warming.

–Burt Helm

BusinessWeek, August 15, 2005

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.

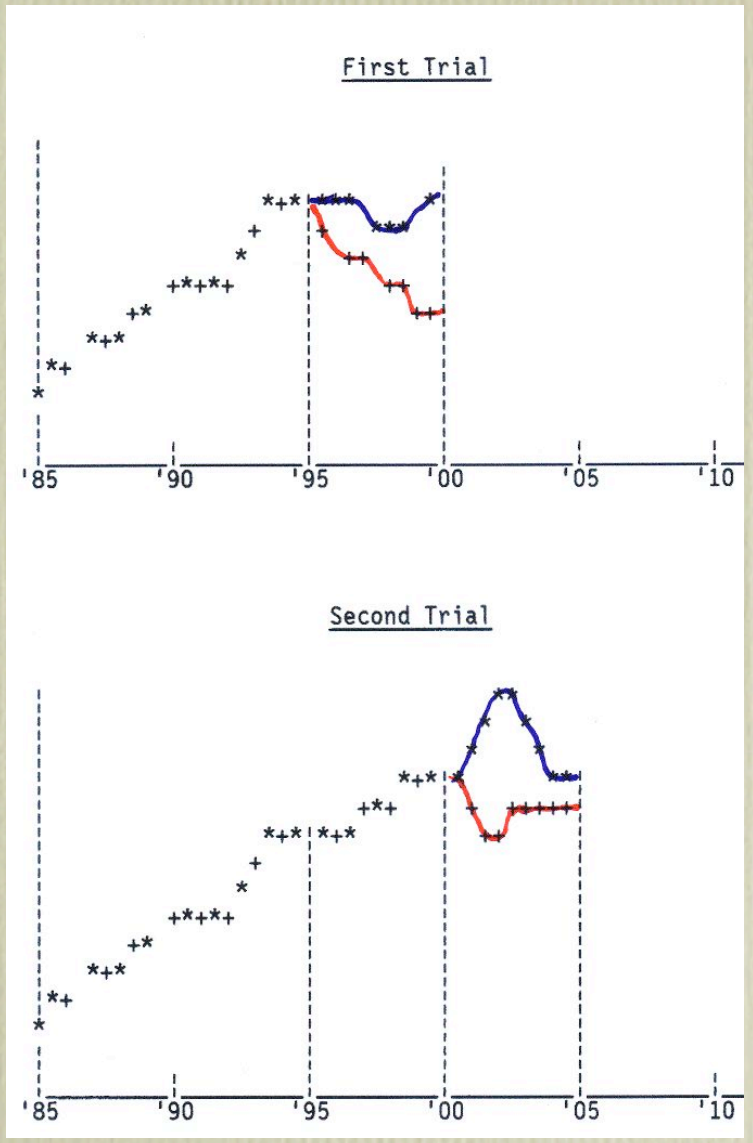
Future Steps of Global Development

- 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

Asynchronous GRID
with
Rollback Mechanism of Virtual Time/Time Warp Method



GCEPG and ELeGI Projects

GCEPG project could be a complete and powerful demonstrator of ELeGI Project to show:

1. **the advantages coming from using advanced technologies (i.e., GRID for accessing to computing resources and collaboration environments) for supporting simulations execution, data analysis, etc., and**
2. **simulations for learning through the definition of innovative pedagogical models (i.e., socio-constructivist contextualized learning approach), and**
3. **to show all the benefits coming from the harmonized and synergistic use of advanced technologies together with innovative pedagogical models for learning (i.e., ELeGI).**

Two Tier System

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FINANCING

FINANCING

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Late Dr. Hiroshi Inose, then Director General of the National Center for Science Information System (NACSIS), and laureate of Marconi Award

Nikkei (February 9, 1992)

Financing

- Japanese Official Development Assistance (ODA) Fund
- Other medical and commercial sources
- International foundations.

Financing

- During the Okinawa Summit in July of 2000, Japanese government pledged US$15 billion to close the digital divide in developing countries and for the eradication of poverty and isolation.
- During the G8 Summit in Canada in June of 2002, and at the Environment Summit in South Africa in September of 2002, they also pledged another US$2 billion to aid education and healthcare in developing countries, respectively.
- They have now also pledged to double their aids to African countries.

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Financing
(continued)

- 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.

Funding

- GUS projects will combine (1) the Japanese government's Official Development Assistance (ODA) funds, (2) medical, commercial, and foundation funds and (3) Japanese electronic equipment with
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CONCLUSION

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Three Steps How to Proceed

- Fact-finding and assessment trip
- Mini-workshop
- Large-workshop

Step 1: Fact-finding and assessment trip

- To meet a champion, who will pursue our joint project diligently and tenaciously,
- To find out current Internet capability for a demonstration during the mini-workshop, and what e-learning from the US and other countries can be extended,
- To plan the organization of and fund raising for the mini-workshop, etc.

Step 2: Mini-workshop, say, three to six months after Step 1

- With people from locality and from the US and/or other countries who will show what of their e-learning courses would be available through the currently available Internet capability,
- To form a coalition of higher, secondary and elementary schools, hospitals, libraries and local non-profit organizations and governmental agencies,
- To plan outline of the subsequent large workshop and fund raising for it, etc.

Step 3: Large-workshop, probably a half year after Step 2

- To brainstorm on the systems design, feasibility study and market survey of broadband Internet,
- To plan the content development with the use of the envisioned broadband Internet,
- To prepare submission of a comprehensive document to obtain the non-cultural aid grant of the Japanese government, etc.

Conclusions

Our projects are clearly ambitious due to its scope and nature. Any one group, university, or national government cannot achieve it. They requires substantial collaborative contribution of ideas, expertise, technology resources, and funds from multiple sources.

We invite those who value the visions of our Global University System (GUS) project and Globally Collaborative Environmental Peace Gaming (GCEPG) project to join us in this great and noble enterprise for human survival.

Conclusions

Clearly, our GCEPG Project is ambitious due to its scope and nature. Any one group, university, or national government cannot achieve it. The program will however need substantial collaborative contribution of ideas, expertise, technology resources, and money from multiple sources.

We invite those who value the vision of this Globally Collaborative Environmental Peace Gaming Project to join us in this urgently necessary project for human survival.

COMPUTER SIMULATIONISTS OF THE WORLD UNITE!!

Tak Utsumi, December 2003

To build:

Global Neural (GRID) Computer Network

For:

Globally Distributed Decision Support System

With:

Globally Distributed Peace Gaming Simulation

GLOSAS Projects

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

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

Click "Current Reference Websites" in the home page listed above.

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Dr. Utsumi's Overview/History

- Enabled global e-mail by de-regulation of Japanese policy. (Received Lord Perry Award for the Excellence on Distance Education in 1994.)
- Initiated Japanese government's pledge of $15 billion to close the digital divide in developing countries.
- I am now working on the recipient side for the available Japanese funds for GUS.

Dr. Utsumi's Overview/History

- (1) My primary contacts have been:
  - former Minister of Foreign Affairs and the DG of its subsidiary, Japan International Cooperation Agency (JICA) (who was the high commissioner of refugees at the UN, and whose husband is a former President of Japan Development Bank and was the same year Fulbright student with me),
  - former Minister of Health (my classmate), and also
  - former director of Economic Affair Bureau (which handles ODA) who is now the DG of UNESCO, etc., to name but a few.

Three Arts

医術: Art of Medicine

To heal illness of individual human

仁術: Art of Wisdom/Virtue

To heal illness of nation and globe

武術: Art of Peace-Making

To attain global peace

武: 戈 (sword) + 止 (stop) = Peace

士: Samurai = Chivalry

武士: Takeshi = Chivalry of Peace

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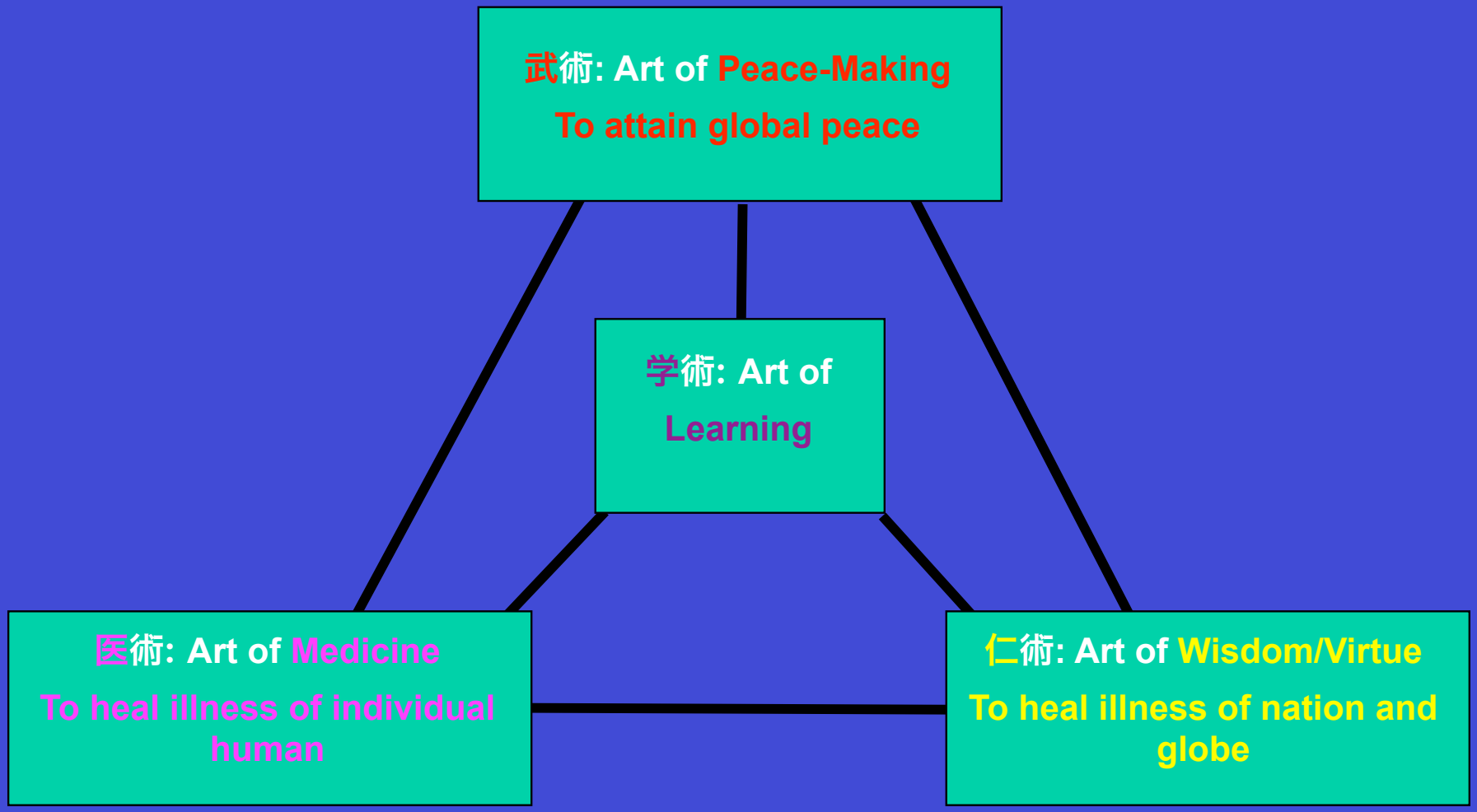
Four Arts



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Four Arts

武術:

Art of Peace-Making
To attain global peace

学術:

Art of Learning
To cherish old and learn new

仁術:

Art of Wisdom/Virtue
To heal illness of nation and globe

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Muito Obrigado

Arigato

("Thank you" in Japanese)

(not alligator)