

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

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Distinguished delegates, Ladies and Gentlemen.

It is my great honor and privilege to have this opportunity to describe our “Global University System (GUS)” project along with “Globally Collaborative Environmental Peace Gaming” project, for which I have been working in the past three decades.

I greatly appreciate kind and generous invitations to this very exciting and well organized seminar. Thank you very much, indeed.

Dawn of 21st Century

1. Digitalization
Analog to Digital
2. Globalization
Local to Global
3. New Economy
Obedience to Creativity

2

Circuit switching to packet switching -- “mind-change,” particularly of bureaucrats as Machiavelli once said almost a half millennium ago.

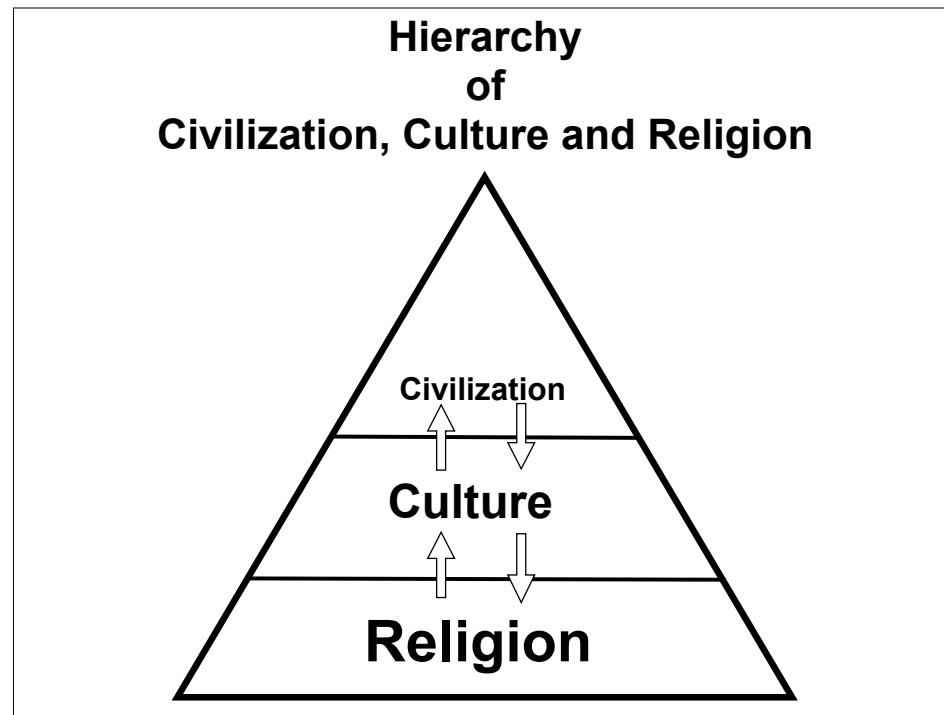
Raw material of industrial age was tangible, the raw material of knowledge age in the 21st century is IN-tangible.

There is NO economic theories for the latter -- incidence of Nobel economic laureate of Columbia University.

Dr. Kaisa Kautto-Koivula of Nokia said in her paper in Part II of the book that “**The biggest barrier for new development of Human-Centric Knowledge Society is our Industrial Age mindset!**”

Creativity is the province of Homo sapiens. We live for future, not in past. Science and technology open the future. However, the application of new technology often meets with “Creative Destruction” -- the famous words by Joseph Schumpeter.

Here needs good understanding of traditions and culture, and strong belief in scientific and moral principles. This is because the interchange of creativity makes possible an international understanding and mutual appreciation that can lead to global peace.



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Portugal was the first western country Japan dealt with almost a half millennium ago. In 1549, St. Francisco de Xavier was sent to Japan by John III of Portugal to spread Christianity and gained many converts to the Roman Catholic Church, but, alas, after obtaining the technology of musket gun, Tokugawa Shogunate banned the spread of Christianity -- subsequently, Christian population in Japan is still only less than 1% even after a half millennium since Xavier's introduction.

This is the first precedence of the Japanese technology transfer pattern, i.e., cream-skimming civilization (the fruits of science and technology), but not importing culture nor religion. Although I admit that this is a provocative statement, this pattern is, I believe, the cause of the serious doldrums of current Japanese economy after bursting its bubble almost a dozen years ago.

What is peace through culture?

The word “culture” is derived 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.”

John F. Kennedy

Global University System (GUS) - #1

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.

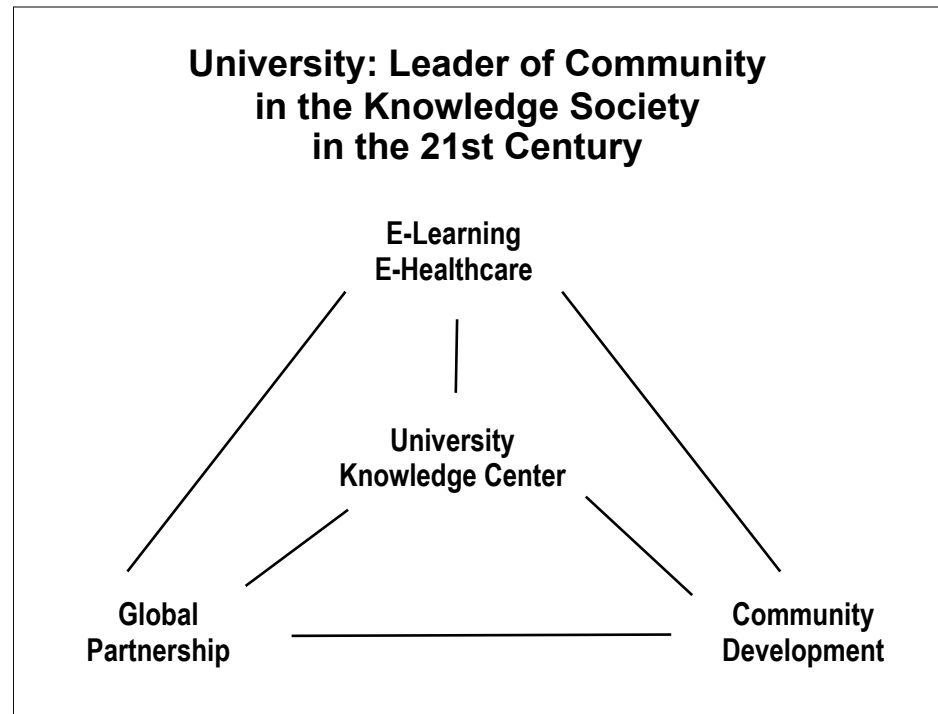
Global University System (GUS) - #2

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.



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Mission of GUS: 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 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).

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

Goal of 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.

Activities of GUS: GUS has group activities in the major regions of the globe in partnership with 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.

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.

Background and Rationale #1

-  **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 #2

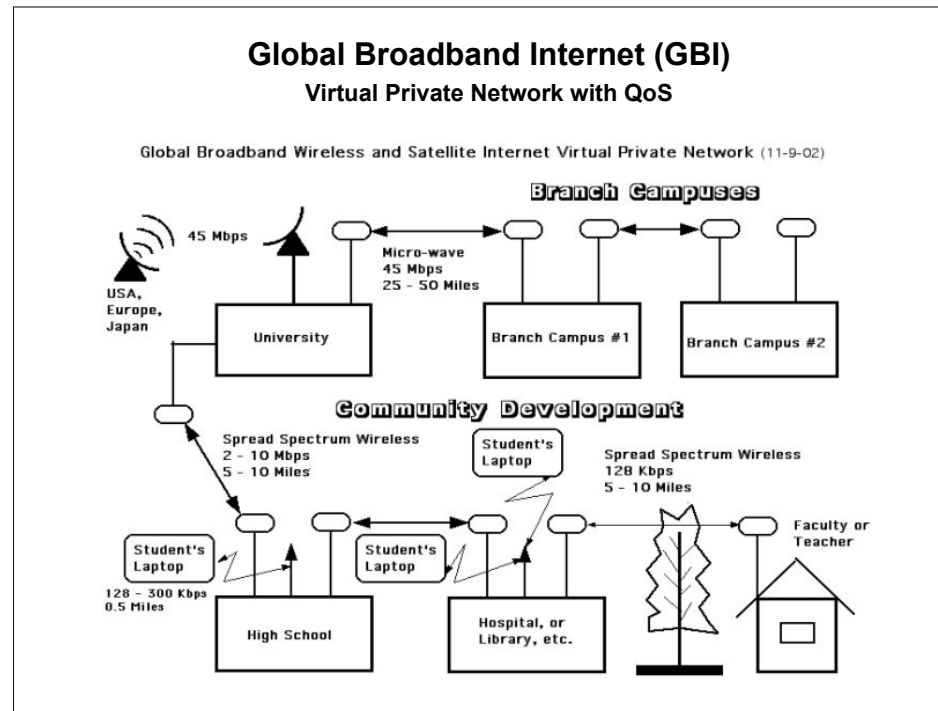
-  **Improved e-learning requires much better ways of presenting information and of enabling learners to interact with facilitators to enable the learners to process that information into personal knowledge.**
-  **What is needed is both high quality audio/video delivery and high quality interactivity.**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

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 on various 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.**



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1. Satellite linkage:

GUS will be based on regional satellite hubs, typically located at a major university, that connect via high-speed satellite (~ 45 Mbps) to educational resource cities in the E.U., U.S., and Japan. In a sense, the regional satellite hub is to be the major Internet Service Provider (ISP) for not-for-profit organizations in the region, and the gateway to the outside world.

2. Microwave linkage:

Regional hubs link to branch campuses or other regional educational institutions via micro-wave (~ 45 Mbps) over relatively short distances (25-50 miles), if optical fiber network is not readily available.

3. Community Development Network:

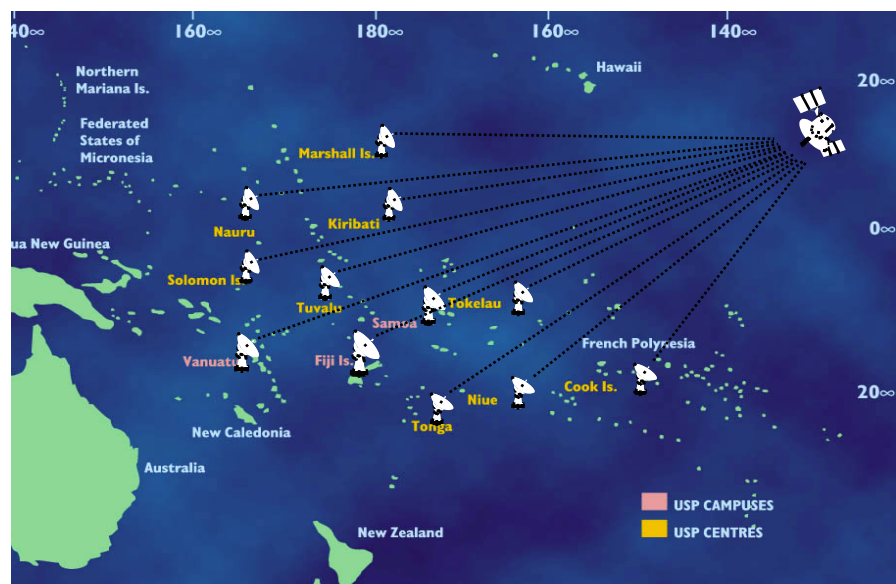
Communication from the hub and branch campuses to local sites, over distances up to 10 miles, is to be achieved by spread-spectrum wireless (~ 2-10 Mbps) Internet networks, which do not require licenses in most countries.

4. Wi-Fi connection:

The buildings with a broadband Internet connection will then also become relay points for the low-cost "Wi-Fi (wireless fidelity)" networks at 10 Mbps that are now rapidly appearing in Japan, USA and Europe.

This advanced wireless communication with laptop computer will make e-learning possible for anyone, anywhere, and anytime with capabilities of Internet telephony, fax, voice mail, e-mail, Web access, videoconferencing, etc. This is not only to help local community development, but also to assure close cooperation among higher, middle and lower levels of education.

USPNet VSAT Network



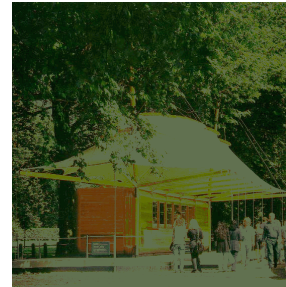
USP Council Oct 99

LINCOS (Little Intelligent Communities) or “Unwiring the World”



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

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



*James Sheats, HP Labs
Technology for Sustainability Initiative*

11May 1999



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



James Sheats, HP Labs
Technology for Sustainability Initiative

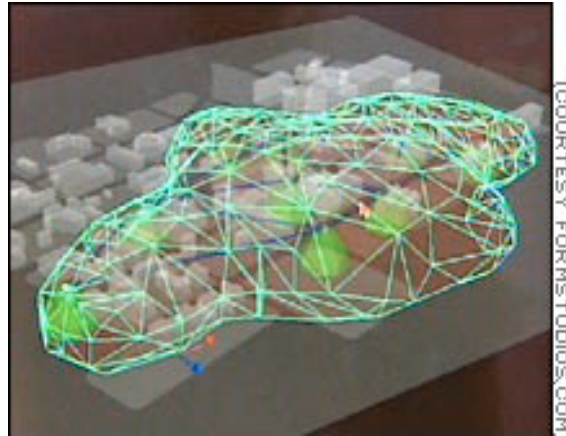
11 May 1999



Microwave Network among Hawaiian Islands



WiFi Cloud



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

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

CNN.com/SCI-TECH; July 31, 2002

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

Inventor of Wireless

Ms. Hedy Lamarr



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

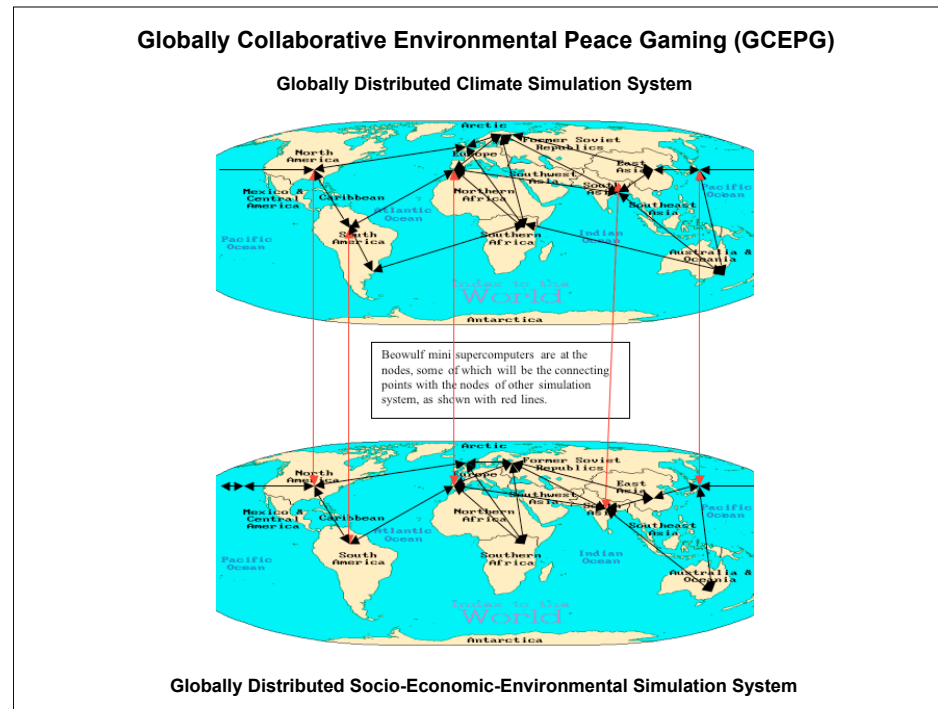
Mobil Learning Era

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



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E-mail and multimedia World Wide Web of Internet so far contributed significantly to the world society on the dissemination of information. The next phase of the Internet development with global neural (or GRID) computer networks should be the globally collaborative experiential learning and constructive creation of wisdom with interactive actions on virtual reality simulation models of joint global research and development projects on various subjects.

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

This will promote trustful friendship among youngsters around the world to realize the Knowledge Society of the 21st century, and their collective creativity will enlarge the size of pie for stakeholders to reach peaceful win-win consequences. Senator Fulbright once said that learning together and working together are the first steps toward world peace.

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.

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.**

GLOSAS Projects

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

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

Click "Current Reference Websites" in this home page.

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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)**

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