

# **Remarks on US/Japan Digital Innovation and Advanced Technologies Hub**



**2022 Nov. 02**

**At UMD(College Park)**

**Takeda Shuzaburo, PhD**

**T&A**

# US/Japan Digital Innovation and Advanced Technologies Workshop: Shaping for Future

- Background and Ground rules of Workshop
- Suspended and Reopen
- Innovation and Three Global Crises
- Coming more Serious Crisis, the new cold war  
Techno-Autocracies vs Technol-Democracies  
new efforts
- Targets for 2023 and beyond  
Rules for Collaboration for T-D systems (for ex. US/Japan)

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# Reference: U.S.-Japan Digital Innovation Hub Workshop (1)


## The 12<sup>th</sup> U.S.-Japan Joint High-Level Committee Meeting on Science and Technology Cooperation (Washington D.C., 2013)

Importance of U.S.-Japan industry & academia collaboration in science and technology

Open  
Forum

### Organizers include:

 John Holdren, *Obama sr. science adviser*  
William Colglazier, *then science adviser to Sec of State*  
Charles Vest, *then NAE President; MIT President Emeritus*

 Shuzaburo Takeda, *then advisor to MEXT*  
Min. of Foreign Affairs, Japan

### Sponsors:

U.S. State Department  
Carnegie International Peace Foundation

### Objective

To establish a U.S.-Japan consortium that across the field of digital sciences promotes open innovation among collaborating universities, institutes and industry partners through comprehensive and international cooperation.



X =



### Diversity

Collaborative research opportunities with diverse and novel resources (e.g. data), ideas and approaches

### Industry-University Collaboration

Applied research with domestic and overseas industry partners for practical implementations

### HR Development/ Exchanges

Talented researchers apt for international stage fostered through unique experiences

## Workshops

Dr. Takeda, with various ministerial support, organized the first workshop as an example of grassroots U.S.-Japan digital-science cooperation. The workshop became an annual event with cooperation and participation from both U.S. and Japanese universities, research institutes and funding agencies.

### 2015: Washington D.C.

Participation from OSTP, US State Dept., AAAS, BHEF, NSF, Accenture, Amazon, etc.

### 2016: Washington D.C.

Co-organized with AAAS; participation from 30+ US universities

### 2017: Washington D.C.

[Topics] US-Japan collaborations; establishment of US-Japan consortium; exchange of innovative human resources, etc.

### 2018: Tokyo

[Topics] implementation of Japan-US Digital Innovation Hub; AI; cyber trust; education in the digital era, etc. > More info: <https://air.tsukuba.ac.jp/en/workshop2018/>

### 2018: Washington D.C.

[Topics] US-Japan S&T priorities; industry-academia collaborations; US-Japan agency priorities, etc.

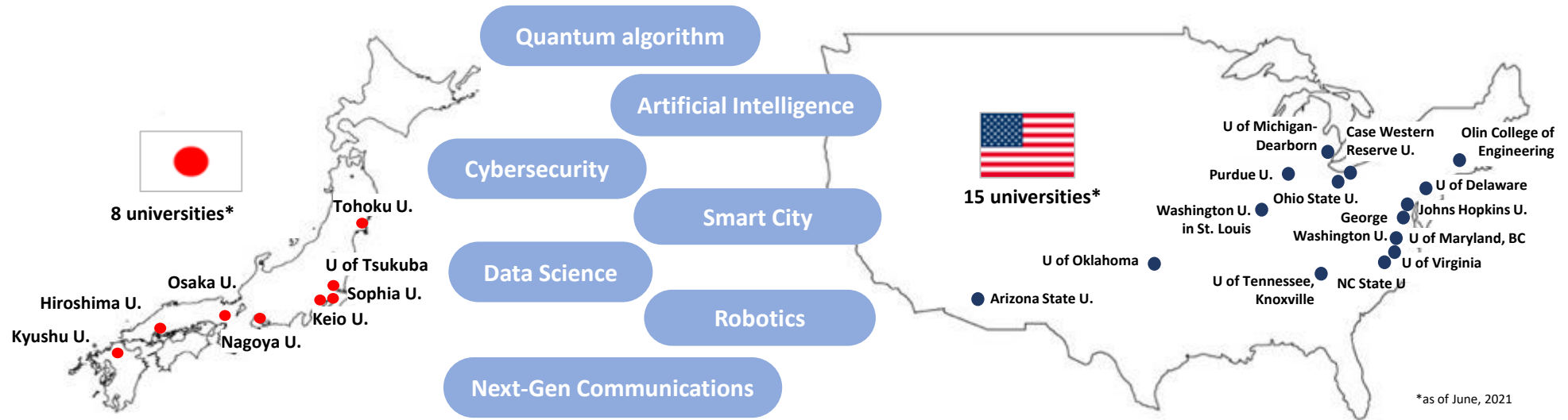
### 2019: Tsukuba, Japan

[Topics] digital innovations and wellness; sustainable development; smart city/mobility; alliance in the new digital age, etc. > More info: <https://air.tsukuba.ac.jp/en/workshop2019/>

\* 2020: scheduled in June; cancelled due to Covid-19

# U.S.-Japan Digital Innovation Hub Workshop

To establish a comprehensive partnership among the participating U.S. and Japanese universities, along with the relevant industries and government agencies, which cultivates and promotes innovation in the field of digital technology



## Workshops

- Held alternately in U.S. and Japan
- Exchange good practices
- Explore new collaboration possibilities among universities, industry & funding agencies



## Industry-University Collaboration

- Joint research/projects with industry partners for practical applications



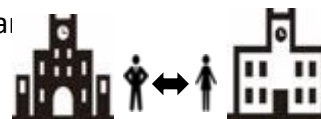
## Joint Research

- Joint research/projects with financial support from funding agencies, e.g. NSF, JST, NEDO



## Exchange Programs

- Faculty exchange between U.S.-Japan universities
- Student exchange programs



## Joint Education

- “Campus-in-Campus”
- Innovation/entrepreneurship education



# Past Workshop (2018 Washington D.C.)

**Date:** June 28-29, 2018

**Venue:** Arizona State University in Washington D.C. (28<sup>th</sup>); The Embassy of Japan (29<sup>th</sup>)

## Participants (Academia):

U.S.	Arizona State University Case Western Reserve University Johns Hopkins University North Carolina State University Olin College of Engineering Purdue University The Ohio State University University of Delaware University of Michigan-Dearborn University of Tennessee at Knoxville University System of Maryland
Japan	Hiroshima University Keio University Kyushu University Nagoya University Tohoku University Osaka University Sophia University University of Tsukuba

## Participants (Others):

U.S.	American Association for the Advancement of Science (AAAS) Business-Higher Education Forum (BHEF) Chertoff Group, LLC National Science Foundation (NSF) Northrop Grumman Technology Services
Japan	Advanced Industrial Science and Technology (AIST) Denso Corp. Embassy of Japan Institute of Physical and Chemical Research (RIKEN) Japan Science and Technology Agency (JST) Ministry of Economy, Trade and Industry (METI) Ministry of Education, Culture, Sports, Science and Technology (MEXT) New Energy and Industrial Technology Development Organization (NEDO) NTT DATA Corp. Takeda and Associates

## Panels/Discussions:

- US-Japan Key S&T Strategic Priorities
- US-Japan Academic/Industrial Collaborations
- US-Japan Agency Priorities
- Cybersecurity
- Proposals for Collaborations

# Past Workshop (2019 Tsukuba, Japan)

**Date:** June 7 & 10, 2019

**Venue:** University Hall, University of Tsukuba

## Participants (Academia):

U.S.	Case Western Reserve University
	Johns Hopkins University
	North Carolina State University
	Olin College of Engineering
	Purdue University
	The Ohio State University
	University of Delaware
	University of Michigan-Dearborn
	University of Tennessee
Japan	Hiroshima University
	Keio University
	Kyushu University
	Nagoya University
	Tohoku University
	Osaka University
	Sophia University
	University of Tsukuba

## Participants (Others):

U.S.	Chertoff Group, LLC
	National Academy of Engineering (NAE)
	Samsung Research America
Japan	Artificial Intelligence Research Center (AIRC)
	Hitachi Ltd.
	Institute of Physical and Chemical Research (RIKEN)
	Japan International Cooperation Agency (JICA)
	Japan Science and Technology Agency (JST)
	Ministry of Economy, Trade and Industry (METI)
	Ministry of Education, Culture, Sports, Science and Technology (MEXT)
	Ministry of Foreign Affairs (MOF)
	Ministry of Internal Affairs and Communications (MIC)
	New Energy and Industrial Technology Development Organization (NEDO)
	NTT TechnoCross Corp.
	Takeda and Associates

## Sessions:

- Digital Innovations and Wellness
- Sustainable Development, Disaster Resilience, Smart City, Mobility, Education, etc.
- Trusted AI, Cybersecurity, Blockchain, AI Ethics and Accountability, etc.
- Alliance for the New Age of Digital Science
- Human Development for Social Innovation in Digital Era
- Academia-Industry Cooperation and Japan-US Joint Research for AI/Cyber

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# Ground Rules(基本)



**Rule 1.** Workshop participants are leaders of the organization (Presidents, Deans, Chair and so on) ・ ・ Digital Innovations/Advanced Technologies are one to shape to future, and it is the role of leaders to promote(of course top researcher are welcome to participate, but more for leaders) ・ ・ デジタル研究者ではなく大学のリーダーが中心。理由はリーダーが次の時代を作る

**Rule 2.** Workshop should be a place for Leaders to learn each others- -often cross boundaries and crossing borders learning. Learning together means collaborating with ・ ・ リーダーが分野を超え、また国境を超え相互に学ぶ場

**Rule 3.** Workshop should be a Grass-roots movement- -use one's own budget and ability(though governmental support be welcomed), and build trust, increase transparency, identify common ground. Long March and Resilience for the future will be established ・ ・ 政府支援型ではなくグラスルーツ型（政府の支援は歓迎するが）。理由は時間をかけて互恵性や透明性といった自主的なルール作り

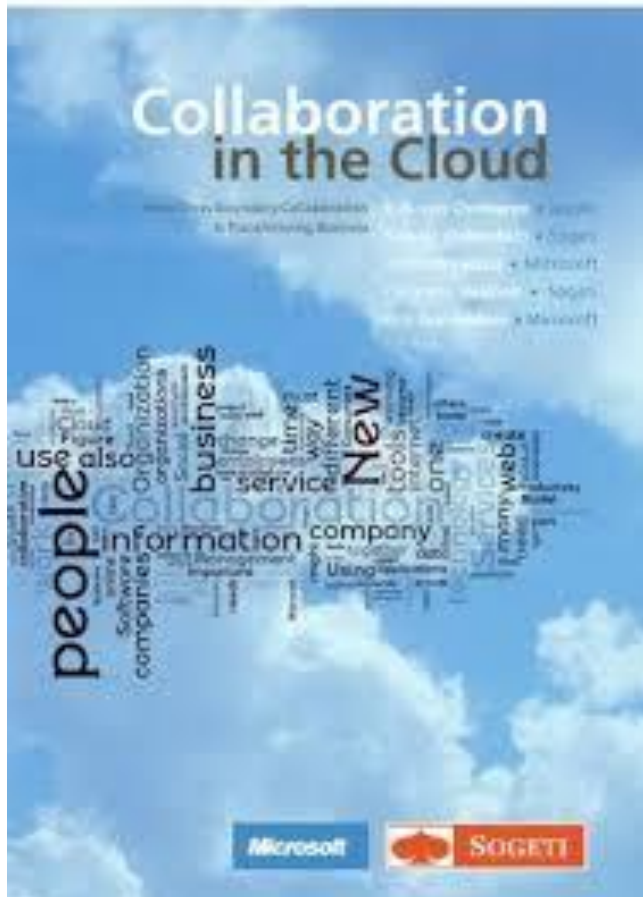
# **Rule 1. Workshop should be a learning place for leaders who shape to future** 未来を導く人たちの学びの場

digital innovation and advance technologies(QISE, AI, Cyber・・・) are bridges for the future



**Good Leaders are the one who can make a resilience/democratic society** 良いリーダーはレジリエンス

## Rule 2. Workshop be a learning place for the collaborators 国境を越え産学を超え学びの場



Leader's role is to learn. That is, Cross-Boundary/Border Collaboration is promoting to future

# **Rule 3. Workshop be grassroots movement**(草の根運動)

**(a) Keep Reciprocity, (b) Transparency, and (c) Collaborative activities among Techno-Democracies, and applies Tit for Tatt rule against Techno-Autocracies (d) Long March for the future**(時間をかけての進行)



**Grassroots movements**



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# Suspended and Reopening

- **It has started 2015, held 6times (at U.S. and Japan)**

6<sup>th</sup> Workshop was held June of 2019 at Tsukuba U, then Suspended by COVID-19 (2020)



COVID-19 test in Wuhan, China

- **Reopening efforts have started(September of 2022)**

Key persons who took leadership: “Prof. Nii Attoh-Okine, Chair CEE of UMD, Prof. Larry Nagahara, Vice Dean for Research JHU and Prof. Sakurai, AI Center Director Tsukuba U, Prof. Koyama, Director NU-Tech

- **7<sup>th</sup> Workshop at IDEA Factory UMD(November 1<sup>st</sup> and 2<sup>nd</sup> of 2022)**

Japanese participants; Leaders from Tsukuba U., Nagoya U., Tohoku U., Sophia U., from few leading companies, Embassy of Japan, JST(Japan Science & Technology Agency), JETRO (Japan Extraordinary Trade) and others

U.S. participants; From UMD, JHU, OSU, Maryland State and NSF and others



From the picture of DePaul University

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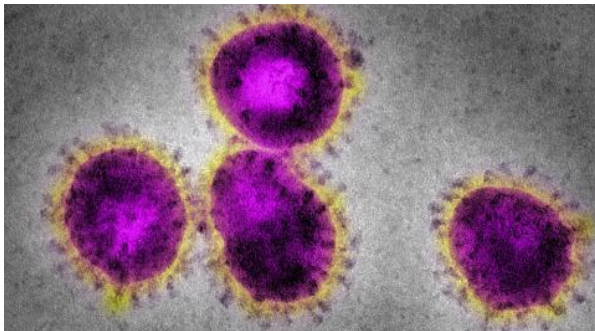
# Global Crises 世界が直面する危機

For the past years, the world has been facing crises. These are climate change, pandemics, and the Ukrainian invasion. Each from a different reason.



## Climate Changes

SDGs ログ公式サイト <https://www.sdgs-log.com/>



COVID-19 Dec. of 2019, first carrier was at Wuhan, China WHO公式情報特設ページ



Ukraine Invasion,  
at Kiev Reuter Feb. 23 2022

**Is there anything that can ameliorate these crises? これらの危機を解消する手段は？**



# Innovation and Advanced Technology leads to solution of these Crises

イノベーションとアドバンスドテクノロジーがコロナウィルス、ウクライナ、気候変動を軽減する手段



Min. Nishimura and Sec. Raimondo

“I am very pleased that the Digital Innovation and Advanced Technology Workshop by the United States and Japan is once again being revitalized. In particular, innovation, which is the theme of today's meeting, is an important issue that must be supported and advanced as soon as possible in Japan and the U.S..

**Innovation leads to solution of these crises of our time: the Corona virus, Ukraine, and climate change**, and I look forward to your efforts in this area. I wish for the continued growth of the University of Maryland and the deepening of Japan-U.S. exchanges”

**Yasutoshi Nishimura**

Minister of METI (Minister of Economy, Trade and Industry) delivered to 7<sup>th</sup> **US/Japan Digital Innovation and Advanced Technologies Hub** at UMD, IDEA Factory, on 2022 Nov.2<sup>nd</sup>

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## Another Serious Crisis より深い危機が

### “Foothill of the Cold War”

Henry Kissinger, former Secretary of State, warned at the Bloomberg economic Forum in Beijing that “U.S. and China are at the foothill of the Cold War”. He also warned that an escalating trade war would bring another Cold war. キッシンジャーは2019年の北京のブルンバーグフォーラムで世界は冷戦の麓にあり、このまま貿易戦争が続くと冷戦への警告・・ただ、技術激化で新たな冷戦へ



Henry Kissinger, age of 96,  
at Beijing, 2019 Nov.

### Techno Utopia vs Techno Dystopia

冷戦の構図、テクノユートピアとテクノディストピア

The new Cold War began not with escalating trade war, but with escalating technology war.

Many people of the West believe that the future brought about by the promoting AI and other advanced technologies is a techno-utopia that makes the most of each individual's abilities.

There is another story. That is, George Orwell, in his novel “1984,” presented a totalitarian country ruled by Big Brother, where all people be under complete surveillance by means of tele-screens developed by the authorities.

In fact, the development of AI and related technologies at Authoritative countries can bring it under more complete surveillance than Orwell's telescreens. This is not a techno-utopia but techno-dystopia.



George Orwell, novel  
“1984”

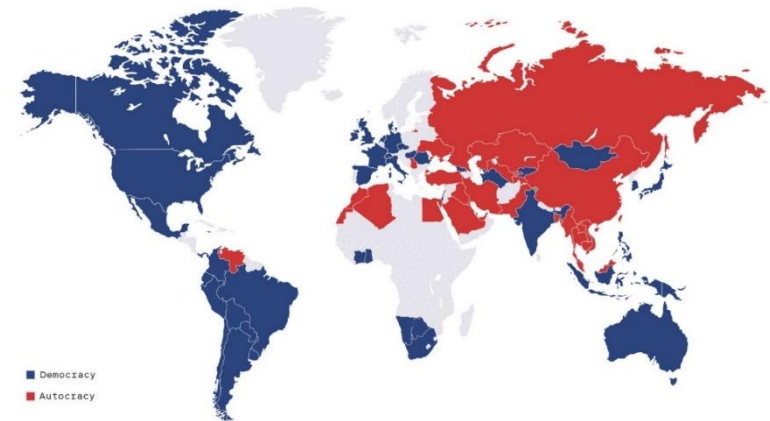
# Two types of Advanced Technologies

## Techno Democracies vs Techno Autocracies

先端技術の発展はテクノデモクラシーとテクノ権威主義国へ分裂と対立

- In the recent Foreign Affairs Jared Cohen and R. Fontaine have articulated the concept of the “techno-democracies vs techno-autocracies ” ・ ・ J. CohenとR. Fontaineはフォーリンアフェアーズでの論文で明確にテクノデモクラシーとテクノ権威主義体制への峻別
- There are several signs that Chinese ATs are developing faster than the Western- -for ex. China ranks first in the world in both the number and quality (number of citations from other papers) of academic papers in the natural sciences, according to a research(report by the Institute of Science and Technology Policy of the MEXT, Ministry of Education, Culture, Sports, Science and Technology, Japan ・ ・ 文科省の科学技術政策研究所の調査ではテクノ権威主義体制からの良質な論文数がテクノデモクラシーの国を上回りだした
- Global investment in the quantum sector is growing, with an estimated \$30 billion in FY2022 . Again, China is leading(the major investing countries are China \$15 billion, Germany \$3.1 billion, France \$2.2 billion, UK \$1 300 million, \$1.2 billion in the U.S. (National Quantum Initiative), \$1.1 billion in the EU (European Quantum Flagship), \$1.1 billion in Canada, \$1.1 billion in the U.S. 1.1 billion, Canada \$1.1 billion, India \$1 billion, Japan \$0.7 billion (by Avik Dutt, ECE, UMD) ・ ・ UMDのDuttの研究では世界の量子科学への投資の半分は中国

T-A(in red) and T-D(in blue)



New version of the "Free World-Iron Curtain"

先端技術がもたらした新たな自由社会とファイアウォール。しかも、近年、テクノ権威主義国が優位に見える ・ ・ 民主体制の対応は

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# Rebuilding the Japan-U.S. Economic Relationship in a New Era



Fumio Kishida  
MOFA Minister(then)

- In the November 2016 U.S. presidential election, a Republican presidential candidate, Mr. Donald Trump, who was unknown to Japanese, was elected. Good Japan-U.S. economic relations are very important for Japan, and it is necessary to build a resilient bilateral system so that relations between the two countries will run smoothly regardless of who becomes president. MOFA Minister Fumio Kishida(then) called this as a new era and asked "the 2016 study group on Japan-U.S. Economy," comprised of industry, academia, and the media, to compile pillars of the new era.
- Pillar I: Need for Further Promotion and Deepening of the Japan-U.S. Economic Relationship and Promotion of Cooperation
  - Cooperation in the development of cutting-edge technologies in a manner Japan and the U.S. would be able to play a leading role.
- Pillar II: The Need to Promote Multilevel Dialogue That Is in Line With the Cooperation in a New Era
  - While the orthodox channels between the governments of both countries are important, however, more channels need to be utilized in the New Era. It will be necessary for the Government and the Founding Agency to proactively create a mechanism for companies, local governments, universities, research institutes, NGOs, and many other stakeholders to work together on education, technological innovations, advanced technologies such as AI, Cyber and QIS that will bring the future to Japan and the U.S.
- Pillar III: The Need to Exercise Japan-U.S. Leadership towards Advancing Free Trade (that is, Leadership towards Free World)
- Pillar IV: The Need to Advance a Strategic Public Private Partnership

# New Era, Rebuilding for the future of Democracies

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- "The future lies [with] who can own the future, as it relates to technology, quantum computing, a whole range of things, including the medical fields," said Biden. "China is out investing us by a long shot because their plan is to own that future." President Biden, March 2021
- Then, 15<sup>th</sup> months later, Congress passed bipartisan CHIPS+ Act in late July 2022; Then, President Biden signed the Act into the law, August 9<sup>th</sup>



"Rally of techno-democracies to stand up to China and other techno-autocracies." said President Biden, August 9<sup>th</sup> , 2022



# CHIPS + Act

## Far exceeds the budget of the Apollo program

The Apollo program totaled \$140 billion(current value)- -  
and a \$4.2 trillion annual return to the U.S. GDP.

- ・アポロ計画は1400億ドル、米GDPには4.2兆ドルのリターン

CHIPS+Act be \$280 billion (\$52.7 billion for chip-related activities- -rest spend to increase research and innovative power)- -recover U.S. science and innovation power may take a time.

- ・半導体の復活が主でなく科学・イノベーションの復活

So, will this help the U.S. revive U.S. power?

There are some points to check:

1. China is spending more than this.
  2. it is necessary to restructure the U.S. science and technology system.
  3. New Industrial Policy
  4. How to coordinate among Democracies !
- ・幾つかのチェックポイント。また、日本は何を学ぶか！



詩歌、音楽、弓術、医術も司る太陽神アポロ(アテネ神殿の彫刻) 宙畑より



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# Targets for 2023 and beyond

## Rules for Collaboration for T-D systems (for ex. US/Japan)

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- The workshop should not be run for political purposes of any kind even in the new cold war.
- On the other hand, the workshop should keep its original purpose - to create a future that is free, trustworthy, and in which each individual can maximize his or her own abilities.
- The workshop needs to make new rules for cooperation among Techno Democracies - -how to maintain openness in science and so on.
- In 2023, the Japanese government will host the Hiroshima G7 Summit.
- I personally hope, next workshop will be held in Japan



Oriental Zodiac Sign  
Decoration for 2023 - Fuku-  
Usagi (Lucky Rabbit)

Thank you.



## Seventh US/Japan digital Innovation and Advanced Technologies AT UMS/JHU

2022 Nov.1 and 2nd