Brief introduction to achieve digital transformation for a sustainable society

NSTC 國家科學及技術委員會
National Science and Technology Council

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Feb.1, 2024

DX is a process. It is a process to achieve a sustainable development society.

Sustainable development society(SDS)

Digitization

DX

Digital Environment

Key

Technical:
Digital Technology

AI, IOT, BlockchainCloud and edge computing, data science, Smart networking, digital marketing

Non-technical:
Digital Talent

Cultivation of digital technology talents

DIGI

Talent

Digitization Core:
Information & data

The step of DX :
Digital innovation
Digital adaptation
Digital application
Digital learning

Sustainable Society

Improve &development research capabilities

Infastructure/

Digital Tech

Innovation

Digital Talent

Cultivation

Key talents,
training courses,
career development,
talent training system

What is DX

Digitization is the process of converting information into a digital (i.e. computer-readable) format

Digitalize : to change something such as a document to a digital form (= a form that can be stored and read by computers)

Transformation:a complete change in the appearance or character of something or someone, especially so that that thing or person is improved

- Thinking
- Technology
- Optimization process

⇒

New digital technology (tech)
+
business thinking (management)
+
technical application (execution)

A series of optimization processes(step by step)

Change internal organization→
launch new (operation, management, business) model

What is DX

Digital transformation/DX

Digital transformation refers to the use of **digital technology** and the introduction of **AI to change corporate organizations, operating processes and business models** in order to respond to the changing business market and customer needs.

Since **DX involves comprehensive changes in the entire organization**, it will force organizations to rethink **how to use technology, people and processes to completely transform the organization's operating model, value proposition, customer experience** and other aspects **to create new value** for the enterprise.

Digital Technology

Digital Technology: "Knowledge and tools with information and data as the core", including artificial intelligence, blockchain, cloud and edge computing, and even quantum computers, etc.

In the past, the global epidemic has been raging, proving that enterprises have successfully used cloud transformation to enable organizations to continue to grow performance even in the face of a difficult environment .

Sustainable Development/ SD

meets the needs of the present, without compromising the ability of future generations to meet their own needs

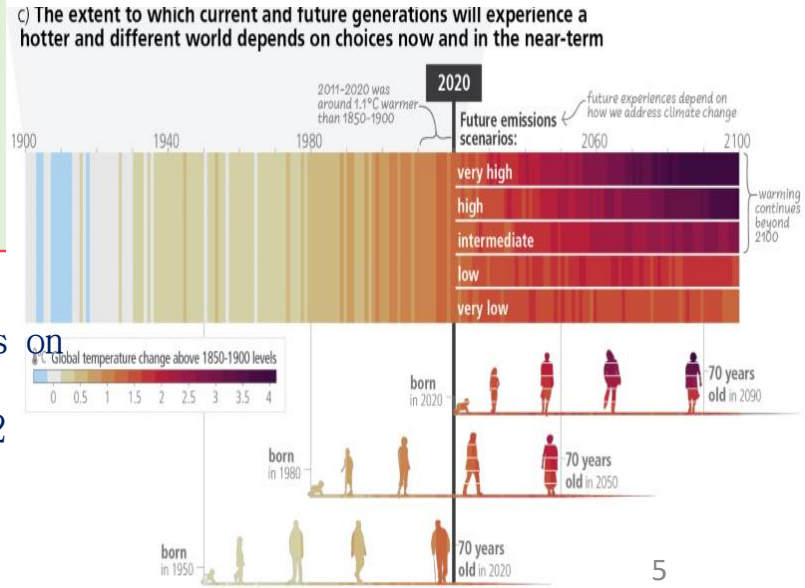
SD aspects

principle

- Human Rights-based Approach
- Gender Equality and Women's Empowerment
- Leaves No One Behind

- Sustainability of Social progress
- Sustainability of Economic growth
- Sustainability of Environmental protection

Focus on important connections such as People, Planet, Prosperity, Peace, and Partnership



2015 UN (Transforming our world: the 2030 Agenda for Sustainable Development)》，Facus on People、Planet、Prosperity、Peace、Partnership – (Sustainable Development Goals, SDGs)——17 core goals (Goals) and 169 specific goals (Targets), and an additional 232 indicators were established in 2017 to measure the actual situation.

1.Current situation

Outline of the Science, Technology, and Innovation Basic Plan

2.Review STI

Recognition of the Current Situation

Changes in the Situation at Home and Abroad

- ○ Beginning of a reorganization of the world order and increasingly intense leadership competition among countries surrounding science, technology, and innovation (STI)
- ○ Manifestation of global agenda threats such as the climate crisis
- ○ Information monopoly by IT platformers and uneven …n of great wealth

Accelerate

Expansion of the Novel Coronavirus Infection

- ○ Major Changes in the International Community
  - Rapid social changes in order to prevent the spread of the infection and to maintain economic activities
  - Disruption of the supply chain pressing each country to review the sustainability and resilience of its economy
- ○ Rapidly Changing Life in Japan
  - Transition to a new lifestyle such as work-from-home and online education

Review of STI policies

- ○ Digitalization for digitalization's sake and relative decline in research capabilities
  - Digitalization focuses on improving efficiency of existing operations and the original power of ICT is not being fully utilized.
  - Decline of international standing for research papers and severe research environment continues
- ○ Revision of the Basic Act on Science and Technology
  STI policies should contribute to comprehensive understanding and problem solving of human beings and society through the "convergence of knowledge" that fuses the natural sciences with humanities and social science

3. Aims-Vision

Balancing response to global issues with the reform of social structures in Japan is essential

Society That Japan Aims for (Society 5.0)

Sustainable and Resilient Society That Ensures the Safety and Security of the People

[Securing Sustainability]

- Realization of a **sustainable global environment** with a focus on achieving the SDGs
- Realization of a society in which **future generations can live in abundance while satisfying the needs of the present generation**

[Securing Resilience]

Realization **of comprehensive security** against threats such as disasters, infections, cyber terrorism, increasingly severe security environment, and disruption of the supply chain

A Society in Which Each Individual Can Realize Diverse Happiness (Well-Being)

[Realization of Economic Affluence and Qualitative Affluence]

- Realization of an educational, labor, and employment environment that enables everyone to **develop their own abilities** and **diverse work styles** that utilize such abilities
- Realization of an environment that allows people to **participate in society in health throughout their life** in an age of a 100-year lifespan
- Realization of a society that allows people to continue to have their dreams and always **participate in society with a positive view of their presence**

Incorporate **traditional Japanese values** of trust and sharing into this vision for society and transmit it to the world as **Society 5.0**.

Contribute to the international community and attract global **human resources** and **investment**

4. Necessary

What is Necessary to Realize Society 5.0

Transformation into a sustainable and resilient society through the fusion of cyberspace and physical space × Creation of "knowledge" as a source of value creation by designing a new society × Development of human resources to support a new society

Push through social transformation and advance investment looking ahead into the future (knowledge and human resources)

STI Policy for the Realization of Society 5.0

5.Realization

- Draw up policies based on **backcasting** from the future vision and **forecasting** from the current situation while utilizing **convergence of knowledge** and **evidence**, and flexibly improve them through evaluation.
- Aim for a total government R&D investment of approximately **30 trillion yen** and a total public and private R&D investment of approximately **120 trillion yen**.

Transformation into a sustainable and resilient society that ensures the safety and security of the people

(1) Creation of new value through the fusion of cyber space and physical space
- Digitalizing the government, launching a Digital Agency, and completing a data strategy (developing a base registry, etc.)
- Maintaining and developing next generation infrastructure and technologies for Beyond 5G, supercomputers, space systems, quantum technologies, semiconductors, etc.

(2) Advancement of social changes and discontinuous innovation aimed at overcoming issues on a global scale
- Promoting R&D (utilizing funds, etc.) and reducing costs of innovative environmental innovation technologies and transitioning to a circular economy

(3) Building of a resilient, safe and secure society
- Identifying and R&D of important technologies for responding to threats and advancing social implementation and technology outflow countermeasures.

(4) Formation of an innovation ecosystem that is the foundation for creating new value-sharing industries
- Advancing an SBIR system and entrepreneurial education, forming start-up hub cities, and strengthening a co-creation system through industry, academia, and government collaboration

(5) Urban and regional development (development of smart cities) as the foundation for succeeding to the next generation
- Creating smart cities and super cities, their nationwide spread through a public-private collaboration platform, and international deployment at expos.

(6) R&D for solving various social issues, advancement of social implementation, and utilization of convergence of knowledge
- Social implementation through the utilization of convergence of knowledge, review and formulation of evidence-based national strategies, and advancement of R&D
- Advancing SIP and moonshot R&D, market gain through the utilization of intellectual property and standards, and advancing new science and technology diplomacy

* AI technologies; biotechnologies; quantum technologies; materials; space; ocean; environmental energy; health and medical care; food; agriculture, forestry, and fisheries; etc.

Demand from society

Injection of knowledge and human resources

Development of frontiers of knowledge and strengthening research capabilities as sources of value creation

(1) Rebuilding the environment to produce diverse and outstanding research
- Improving the treatment of doctoral students and expanding their career paths and securing posts for young researchers
- Promoting active participation of female researchers. strengthening basic research and academic research, and advancing joint international research and international brain circulation
- Strengthening the humanities and social sciences and creating convergence of knowledge (strengthening funding and DX of research in the humanities and social sciences)

(2) Construction of new research systems (promotion of open science and data-driven research, etc.)
- Managing and utilizing research data and acceleration of research utilizing smart labs, AI, etc.
- Maintaining and sharing research institutions, facilities, and equipment and fostering of new research communities and environment cultivated by research DX

(3) Promotion of university reform and expanding functions for strategic management
- Developing diverse and unique university groups (transition to a true management entities and further growth as research universities that are on par with top international universities)
- Creating a 10 trillion yen university fund

Education and human resource development to realize diverse happiness for each individual and ability to face challenges

Transition to an education and human resources development system that enhances people's ability to explore and attitude to continue learning
- Advancing STEAM education from the elementary and secondary education stage and the GIGA School Concept, and reducing teachers' burden
- Providing diverse curricula and programs at universities, etc. and fostering an environment and culture that promotes recurrent education

1.Current situation

Recognition of the Current Situation

日本內閣府 連結網址：
https://www8.cao.go.jp/cstp/kihonkeikaku/6honbun.pdf
第六期科學技術暨創新基本計畫

Changes in the Situation at Home and Abroad

-science, technology, and innovation (STI)
-the climate crisis of by IT platformers
-uneven distribution

Expansion of the Novel Coronavirus Infection

- Rapid social changes
- Disruption of the supply chain
- work-from-home and online education

Incorporate traditional Japanese alues of trust and sharing into this vision for society and transmit it to the world as Society 5.0.

Contribute to the international community and attract global human resources and investment

Balancing response to global issues with the reform of social structures in Japan is essential

2.Review STI

Review of STI policies

--Digitalization for digitalization's sake and relative decline in research capabilities

- Digitalization focuses on improving efficiency of existing operations and the original power of ICT is not being fully utilized.
- Decline of international standing for research papers and severe research environment continues

-Revision of the Basic Act on Science and Technology STI policies

-Revision of the Basic Act on STI policies should contribute to comprehensive understanding and problem solving of human beings and society through the "convergence of knowledge" that fuses the natural sciences with humanities and social science

3. Aims-Vision

Sustainability | Resilience | Safety | Security

Achieve economic prosperity and quality

日本內閣府 連結網址：
https://www8.cao.go.jp/cstp/kihonkeikaku/6honbun.pdf
第六期科學技術暨創新基本計畫

Society That Japan Aims for (Society 5.0)

- **Sustainable and Resilient Society That Ensures the Safety and Security of the People**
- **A Society in Which Each Individual Can Realize Diverse Happiness (Well-Being)**

Incorporate traditional Japanese values of trust and sharing into this vision for society and transmit it to the world as Society 5.0.

Contribute to the international community and attract global human resources and investment/

4. Necessary

What is Necessary to Realize Society 5.0

cyberspace | knowledge | human resources | social transformation | advance investment

1. Transformation into a sustainable and resilient **society through the fusion of cyberspace and physical space**
2. Creation of "knowledge" as a source of value creation by designing a new society
3. Development of human resources to support a new society

Push through social transformation and advance investment looking ahead into the future (knowledge and human resources)

5.Realization

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STI Policy for the Realization of Society 5.0

Draw up policies based on the future vision and forecasting from the current situation while utilizing convergence of knowledge and evidence, and flexibly improve them through evaluation.

Aim for a total government R&D investment of approximately 30 trillion yen Total public and private R&D investment of approximately 120 trillion yen.

Transformation society

Transformation into a sustainable and resilient society that ensures the safety and security of the people

Transformation

technologies

Knowledge and Research Capability

Development of frontiers of knowledge and strengthening research capabilities as sources of value creation

innovation

knowledge

Education and Human Resource Development

Education and human resource development to realize diverse happiness for each individual and ability to face challenges

research capabilities

Education

human resource

AI technologies; biotechnologies; quantum technologies; materials; space; ocean; environmental energy; health and medical care; food; agriculture, forestry, and fisheries; etc.

数位廳デジタルちょう

Establish a mechanism to ensure the reliability of data so that it can be used safely and with confidence

Measures

1.**Providing convenient public services** to residents, businesses, and employees

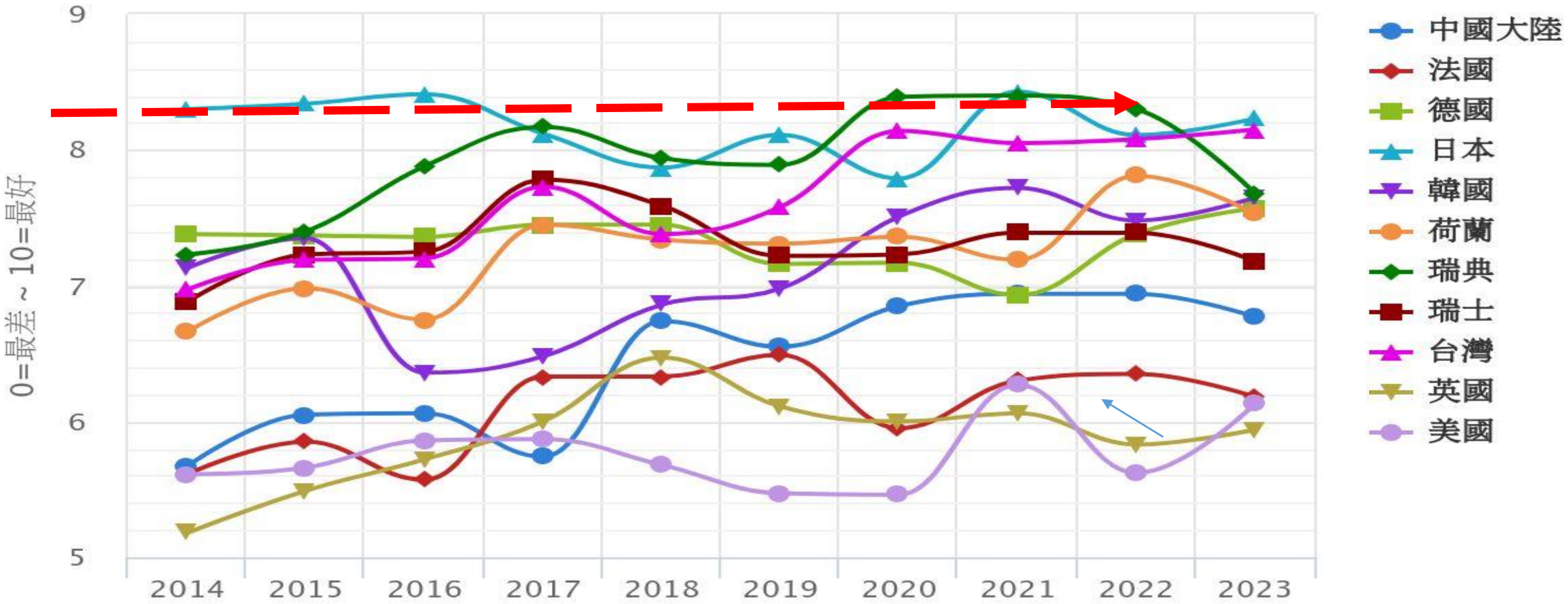
2.**Promoting growth strategies** in response to the preparation of digital infrastructure construction

3.**Achieving safe, secure**, and robust digital infrastructure construction

main tasks

1. National **intelligence system**:
2. A **common local digital foundation**
3. **My Number system**
4. Digitalization of the **public sector**:
5. **Data utilization**

主要國家歷年永續發展概況



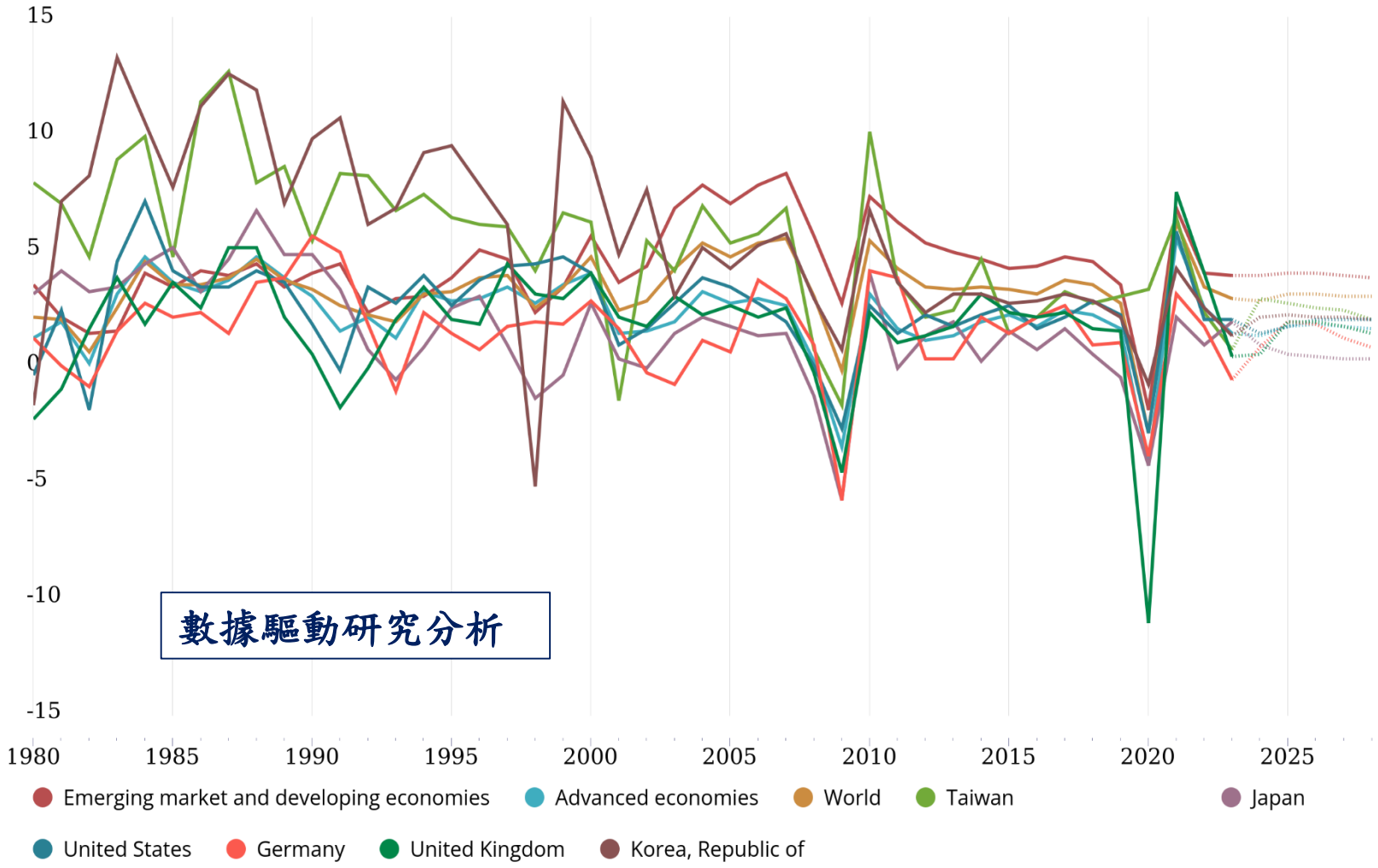
指標名稱	主要國家歷年永續發展狀況
指標單位	0=最差 ~ 10=最好
指標來源	IMD, World Competitiveness Yearbook
註釋	Sustainable development is a priority in companies.

日本在永續發展的表現優秀

IMF DATAMAPPER | DATASETS | WORLD ECONOMIC OUTLOOK (OCTOBER 2023) | REAL GDP GROWTH

IMF Data Mapper ®

Real GDP growth (Annual percent change)



數據驅動研究分析

Austria 0.8

SELECTION (2024)

- Emerging market and developing economies 4
- Advanced economies 1.4
- World 2.9
- Taiwan 3
- Japan 1
- United States 1.5
- Germany 0.9
- United Kingdom 0.6
- Korea, Republic of 2.2

ADD AN ITEM TO THE CHART

RESET

GDP (US$ million) by country

	Country/Territory	UN Region	IMF[1][13]		World Bank[14]		United Nations[15]	
			Estimate	Year	Estimate	Year	Estimate	Year
	World	—	101,560,901	2022	96,100,091	2021	85,328,323	2020
1	United States	Americas	25,035,164	2022	22,996,100	2021	20,893,746	2020
2	China	Asia	18,321,197	[n 1]2022	17,734,063	[n 3]2021	14,722,801	[n 1]2020
	European Union[n 4]	Europe	16,613,060	2022	17,088,621	2021	15,292,201	[16]2020
3	Japan	Asia	4,300,621	2022	4,937,422	2021	5,057,759	2020
4	Germany	Europe	4,031,149	2022	4,223,116	2021	3,846,414	2020
5	India	Asia	3,468,566	2022	3,173,398	2021	2,664,749	2020
6	United Kingdom	Europe	3,198,470	2022	3,186,860	2021	2,764,198	2020
7	France	Europe	2,778,090	2022	2,937,473	2021	2,630,318	2020
8	Canada	Americas	2,200,352	2022	1,990,762	2021	1,644,037	2020
9	Russia	Europe	2,133,092	2022	1,775,800	2021	1,483,498	2020
10	Italy	Europe	1,996,934	2022	2,099,880	2021	1,888,709	2020
11	Iran	Asia	1,973,738	[n 5]2022	231,548	2020	939,316	2020
12	Brazil	Americas	1,894,708	2022	1,608,981	2021	1,444,733	2020
13	South Korea	Asia	1,734,207	2022	1,798,534	2021	1,637,896	2020
14	Australia	Oceania	1,724,787	2022	1,542,660	2021	1,423,473	2020
15	Mexico	Americas	1,424,533	2022	1,293,038	2021	1,073,439	2020
16	Spain	Europe	1,389,927	2022	1,425,277	2021	1,281,485	2020
17	Indonesia	Asia	1,289,429	2022	1,186,093	2021	1,058,424	2020
18	Saudi Arabia	Asia	1,010,588	2022	833,541	2021	700,118	2020
19	Netherlands	Europe	990,583	2022	1,018,007	2021	913,865	2020
20	Turkey	Asia	853,487	2022	815,272	2021	720,098	2020
21	Taiwan	Asia	828,659	[n 6]2022	—		669,324	[17]2020
22	Switzerland	Europe	807,418	2022	812,867	2021	752,248	2020
23	Poland	Europe	716,305	2022	674,048	2021	596,618	2020
24	Argentina	Americas	630,698	2022	491,493	2021	383,067	2020
25	Sweden	Europe	603,922	2022	627,438	2021	541,064	2020

Tokyo Olympics showcases Japan's DX energy

the Tokyo Olympics to demonstrate the results of "Society 5.0", a "race without spectators" during the epidemic, long distance and no contact requirements, making it the most technologically advanced Olympic event in history.

Tokyo was like a runway for cutting-edge technology during the Olympics: Japanese robots and self-driving cars were on display. A pure electric self-driving car participated in the opening ceremony to deliver the torch; the electric self-driving minibus e-Palette shuttled through the player village and was responsible for transportation, delivering food to the players, assisting remote fan interactions, a marksman robot with perfect shots, and various robots as event assistants , all appeared in Eastern Olympics.

JAPAN DX FACES DIFFICULTIES

Aging society

Traditional thinking

Japan DX faces difficulties

JP DX 日本數位化轉型 (デジタル　レトランス　フォーメーション)

Reasons

Aging society. Nearly 30% of the population is over 65 years old

Traditional thinking. Paper, fax, face-to-face assignments

Rigorous working methods. Cumbersome procedures

After the impact of the epidemic (rapidly changing environment)

The use of new digital tools is not friendly to the elderly

IT system

The government and traditional enterprises are not active in promoting digital tools

Org. Working type

Reform

Use online video conferencing

People who work from home and work remotely↑

Unmanned, non-cash payment tools, reducing direct contact

Enviroment

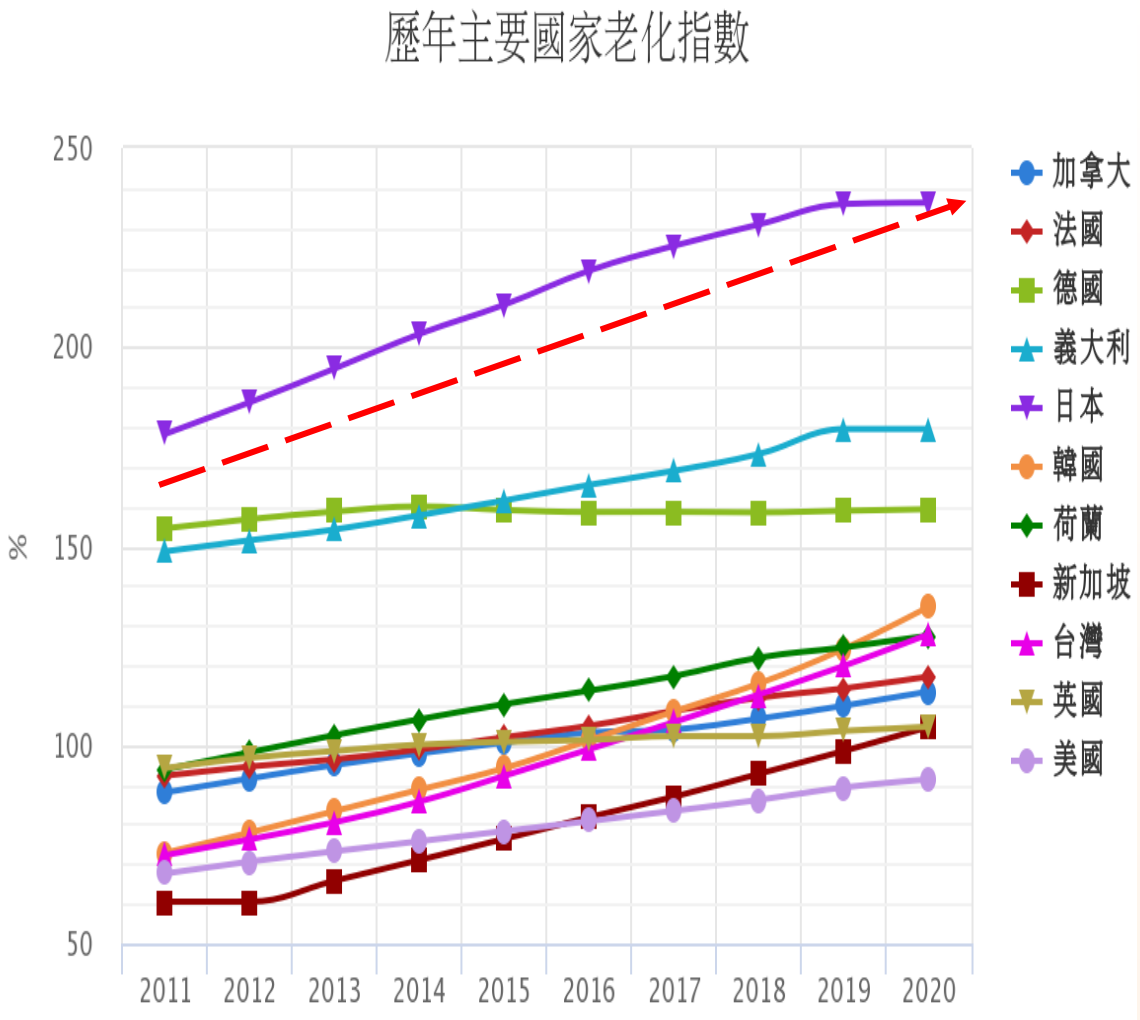
Technology

Talent

Japanese companies take advantage of (DX) tax incentives of less than 10%

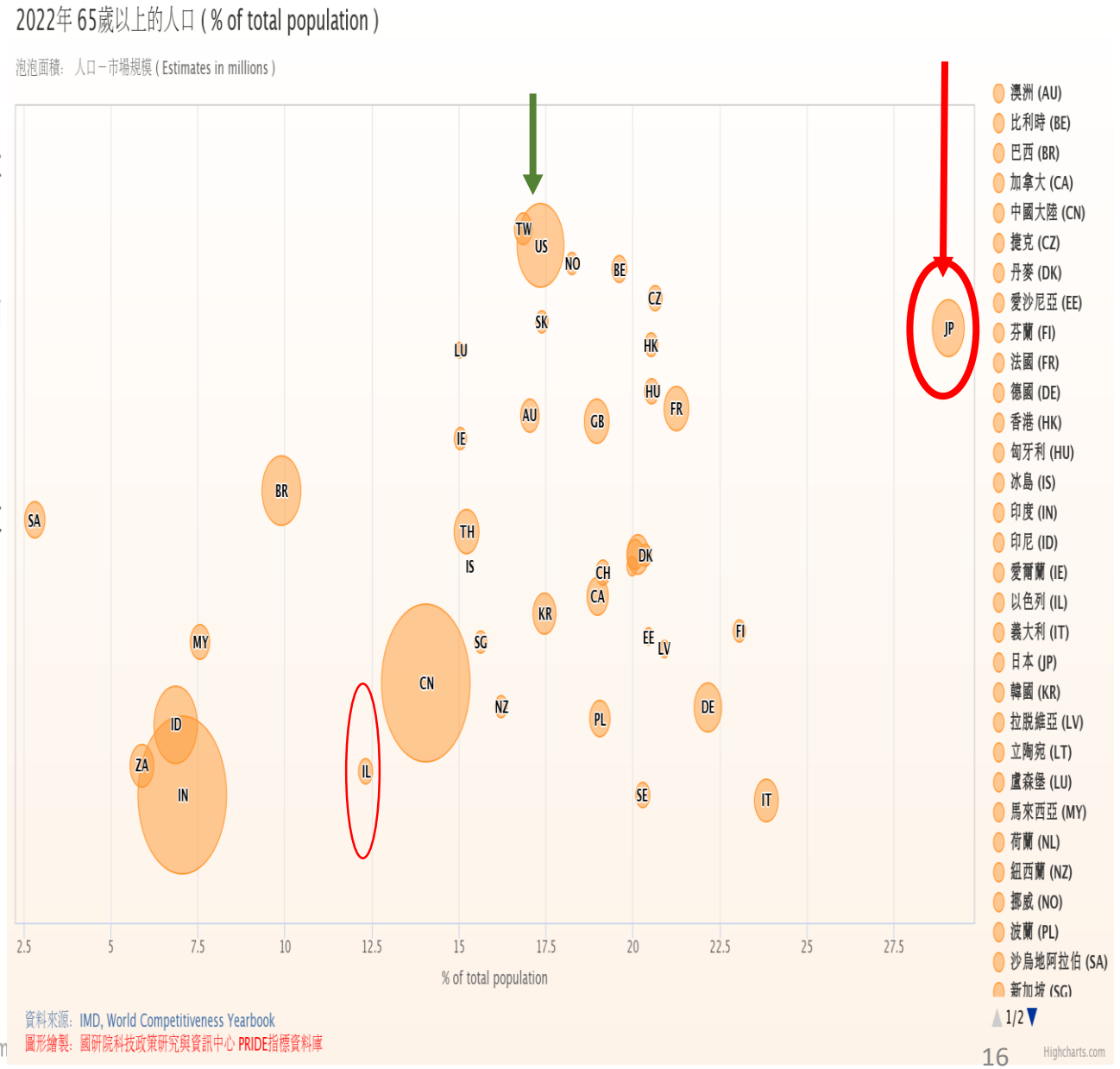
1.DX tax system - "DX certification" by METI
2DX specialized organization, network security countermeasures
3Board approval, the process of applying for certification takes several months
4 Professional talents in DX are needed
5 Management needs to formulate DX's business strategy.

Aging Index



老化指數係指65歲以上人口對0~14歲人口之比再乘以100。指標來源:內政部

Aging society



JAPAN DX FACES DIFFICULTIES

slow progress in digitalization | shortage of talents | poor system connection | complicated administrative procedures

The current situation of Japan's backward digitalization: sluggish progress in digitalization of central and local governments, shortage of talents, low administrative efficiency due to poor system connection, complicated administrative procedures, etc.

Japanese working style

METI-2018 announced the report "**Overcoming the 2025 Cliff of IT Systems and Comprehensive Development of DX**" and the "**2025 Cliff**" topic. The main reason is **that Japan's outdated IT system** will face great challenges in 2025. If Japanese companies do not make good use of digital technology, their annual economic losses will reach 12 trillion yen (approximately NT$3 trillion) from 2025. However, if they want to promote digital transformation (DX), **they face a serious shortage of IT talents.**

JAPAN DX FACES DIFFICULTIES

The Japanese government continues to promote digitalization policies: What will the Digital Agency do?
How does the Japanese government continue to promote the digitalization of public sector operations?

bureaucracy

Import digital technology

Digitizing government operations, introducing AI, system integration, and more effective data operation mechanisms

online business ranking

System integration and online operations

Phased promotion of the digital department:
Step 1 is to introduce DX into the operations of the Japanese government, so that operations can be based on science rather than habits.
Step2 is to set up a digital service station to replace the forced paper-based and face-to-face work
Step 3 is to establish digital cooperation between the public and private sectors, stimulate innovation in the IC industry of 10% of GDP, cooperate with the business of various public agencies, and coordinate and cooperate.

JAPAN DX FACES DIFFICULTIES -TALENT SHORTAGE

Japanese government lacks IT talents

Japan's IT industry -layers of subcontracting and low salary

Japan's IT talents overly concentrated in IT companies

Education system cultivates talents problem

Low salary

The average annual income of Japanese IT talents is 4.13 million yen for those in their 20s, 5.26 million yen for 30s, 6.46 million yen for 40s, and 7.54 million yen for 50s. This is because many Japanese companies use seniority rankings. /system relationship.

The Financial Services Agency-"DX business promotion facility engineer" with salary of 10 million yen. It is higher than that of ordinary civil servants, but compared with the private sector, especially foreign-funded enterprises, the annual salary of 10 million yen is considered a low salary.

Digitization in education

the GIGA School

The Digital Agency supports the GIGA School project of the METX assists in standardizing educational information and publishing information standards, and establishes a Roadmap with four other relevant organizations.

DX of Japanese education (student use of tablet computers plan) MEXT 2022/11
1 Each student is equipped with a laptop (tablet) (junior high school, elementary school - completed)
2. IT- learning objectives
3. Promote learning methods and teaching methods
4. Organizational work model

1.Ipad teaching revolution: Classes can be completed online.
2.Digital textbook: MEXT2024 implementation, 2022-experimental plan.
3.GIGA School Project—Environmental Construction2019→ One terminal device per person + high-speed and large-traffic network + promotion of cloudizationIn
4.Digital tablet e-book
Global and Innovation Gateway for all schools.

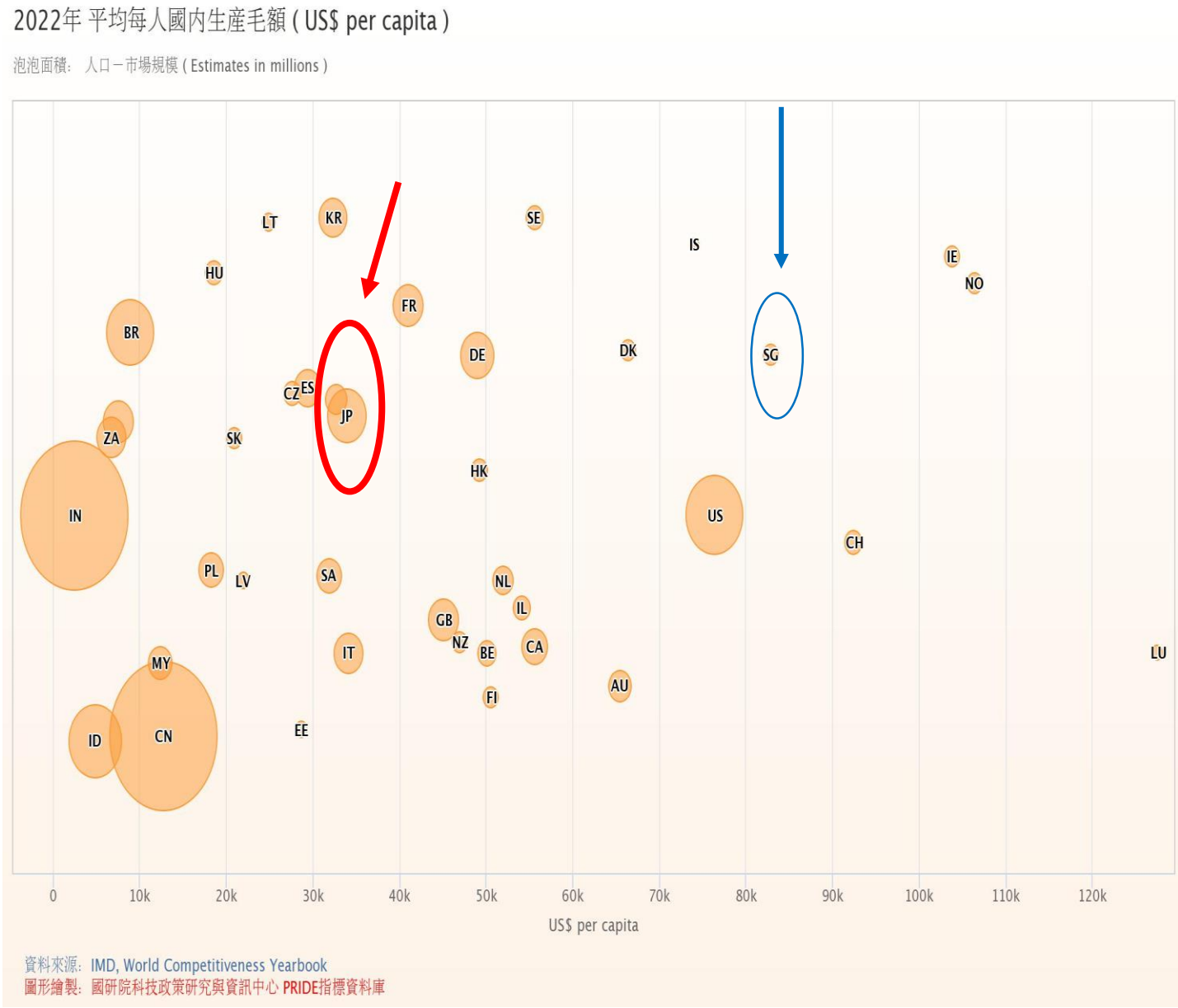
Make full use of network IT and digital devices to cultivate students' ability to adapt to the future society.

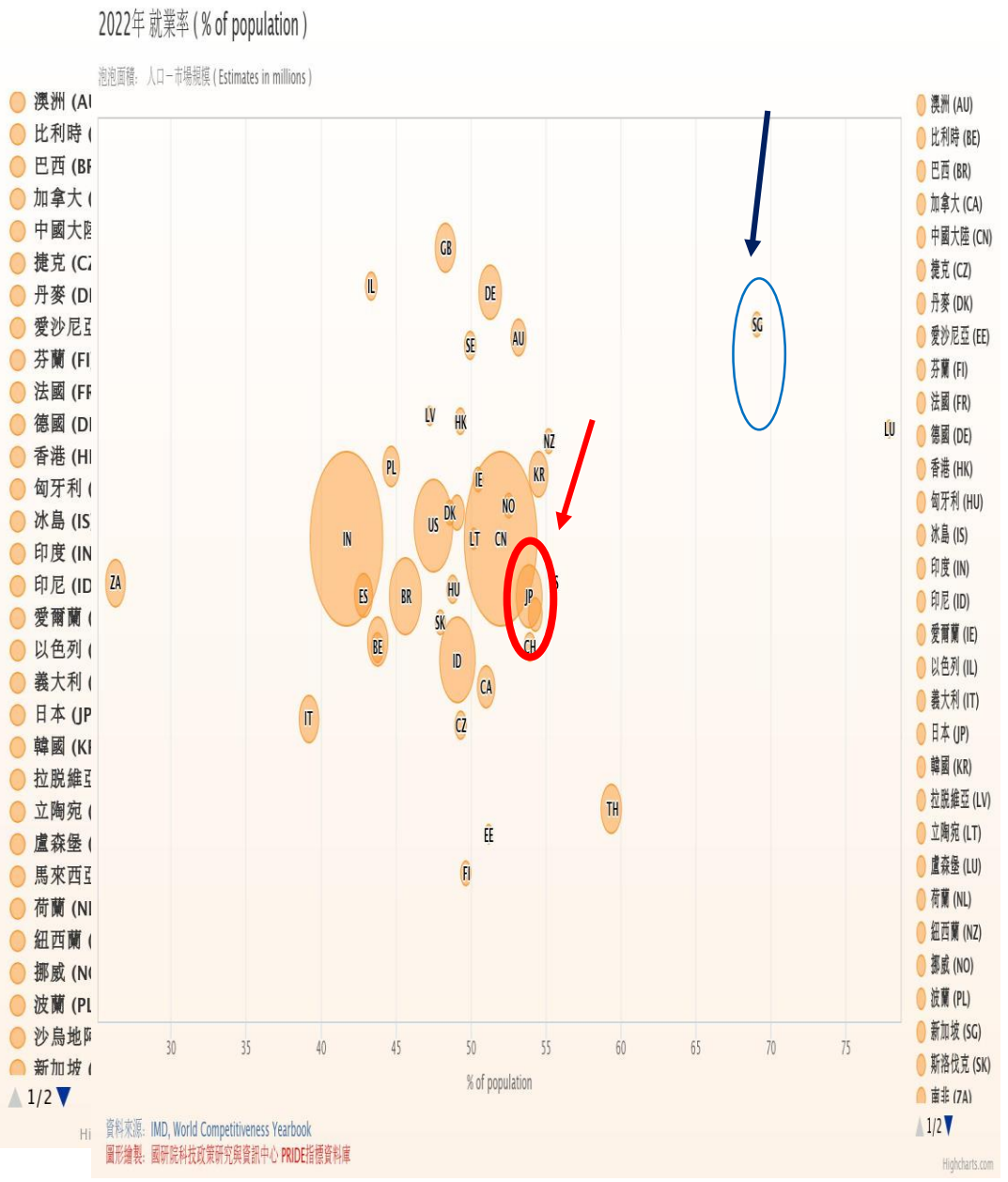
➪Digital Year, 3 years ahead of schedule

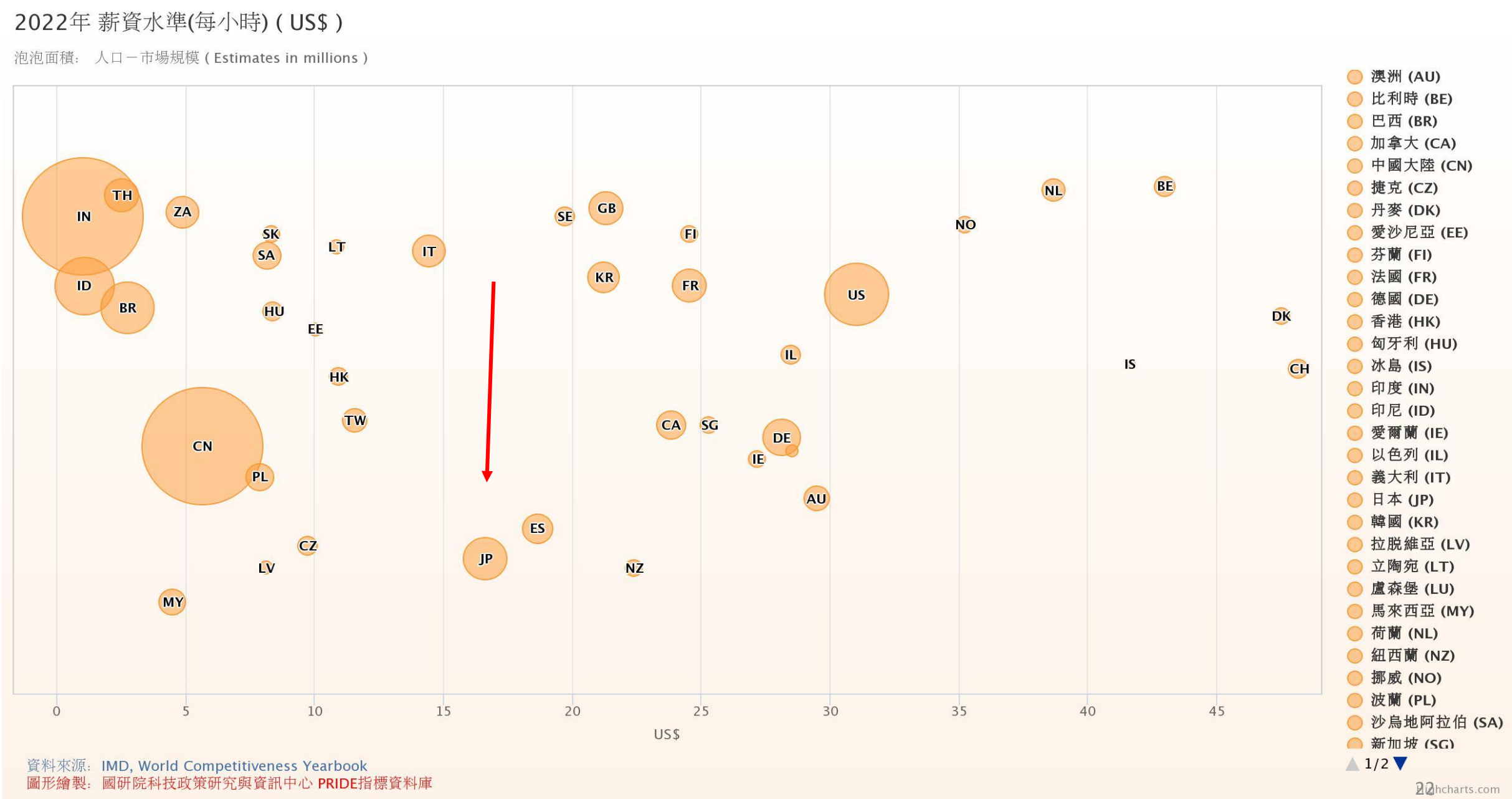
Goal→Through the introduction of ICT, we will ultimately realize an environment of "individualized and adaptive" learning and "autonomous" learning.

Introduction→adaptation period→utilization period
➪ Support teachers "establish an ICT support staff" system.

Education is the most powerful weapon which you can use to change the world.


2022年 平均每人國內生產毛額 (US$ per capita)
泡泡面積: 人口－市場規模 (Estimates in millions)
LT
KR
SE
IS
IE
HU
NO
FR
BR
DE
DK
SG
CZ
ES
JP
ZA
SK
HK
IN
US
CH
PL
LV
SA
NL
IL
GB
NZ
BE
CA
IT
LU
MY
AU
FI
ID
CN
EE
0
10k
20k
30k
40k
50k
60k
70k
80k
90k
100k
110k
120k
US$ per capita
資料來源: IMD, World Competitiveness Yearbook
圖形繪製: 國研院科技政策研究與資訊中心 PRIDE指標資料庫


2022年 就業率 (% of population)
泡泡面積: 人口－市場規模 (Estimates in millions)
澳洲 (AU)
比利時 (BE)
巴西 (BR)
加拿大 (CA)
中國大陸 (CN)
捷克 (CZ)
丹麥 (DK)
愛沙尼亞 (EE)
芬蘭 (FI)
法國 (FR)
德國 (DE)
香港 (HK)
匈牙利 (HU)
冰島 (IS)
印度 (IN)
印尼 (ID)
愛爾蘭 (IE)
以色列 (IL)
義大利 (IT)
日本 (JP)
韓國 (KR)
拉脫維亞 (LV)
立陶宛 (LT)
盧森堡 (LU)
荷蘭 (NL)
紐西蘭 (NZ)
挪威 (NO)
波蘭 (PL)
新加坡 (SG)
斯洛伐克 (SK)
南非 (ZA)
1/2
GB
IL
DE
AU
SE
SG
LV
HK
LU
NZ
PL
KR
IE
NO
US
DK
IN
LT
CN
ZA
ES
BR
HU
JP
SK
BE
ID
CA
IT
CZ
TH
EE
FI
30
35
40
45
50
55
60
65
70
75
% of population
資料來源: IMD, World Competitiveness Yearbook
圖形繪製: 國研院科技政策研究與資訊中心 PRIDE指標資料庫
Highcharts.com



資料來源： IMD, World Competitiveness Yearbook
圖形繪製： 國研院科技政策研究與資訊中心 PRIDE指標資料庫

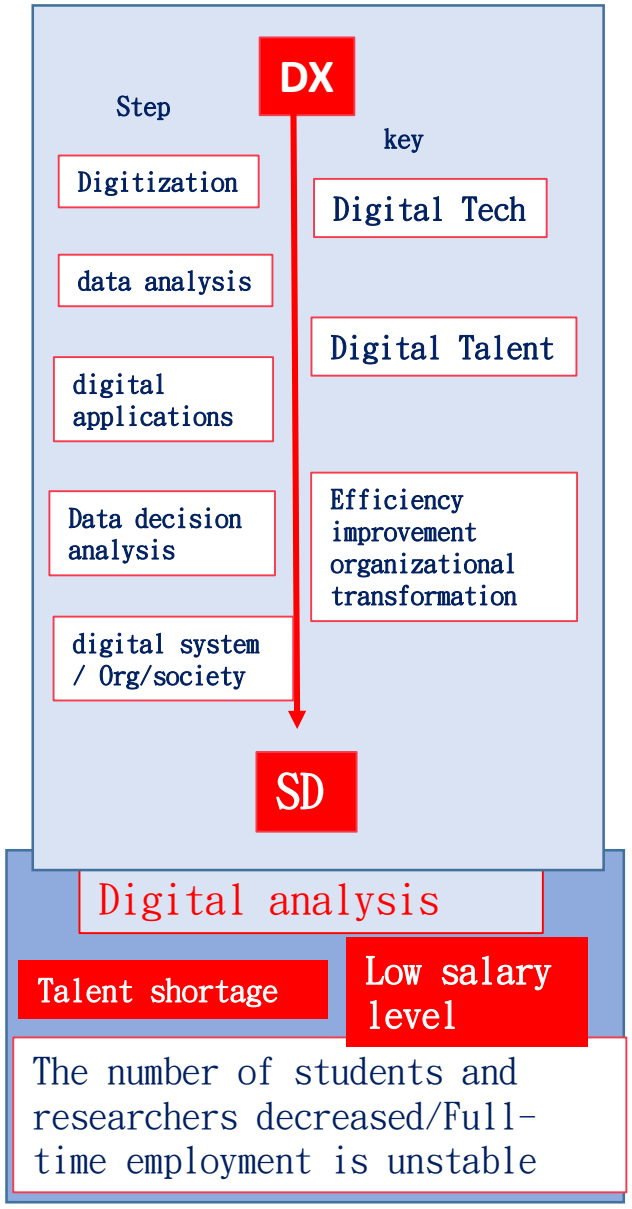
主要國家大學以上畢業生人數－依研發領域區分 / Graduates by Field of Research and Develpoment (FORD)

國家 年 學歷 Country Year Qualification		研發領域 FORD	總 計 Total	理 Natural Sciences	工 Engineering & Technology	農 Agricultural Sciences	醫 Medical Sciences	人文 Humanities	社會 Social Sciences
中華民國 ROC (Taiwan)	**2021**	**博士 Ph.D.**	**3 488**	**450**	**1 175**	**67**	**506**	**695**	**595**
		碩士 Master	**52 139**	**3 502**	**20 166**	**795**	**2 453**	**7 431**	**17 719**
		學士 Bachelor	**212 199**	**9 538**	**59 446**	**2 902**	**16 469**	**40 830**	**82 625**
日 本 Japan	**2019**	**博士 Ph.D.**	**15 128**	**1 295**	**3 161**	**917**	**6 372**	**2 523**	**860**
		碩士 Master	**74 720**	**7 483**	**33 567**	**4 350**	**5 165**	**15 807**	**8 348**
	2022	**學士 Bachelor**	**590 137**	**17 786**	**87 923**	**17 765**	**66 893**	**189 808**	**209 962**
美 國 United States	2019	博士 Ph.D.	94 164	15 873	13 951	4 886	26 656	22 344	10 454
		碩士 Master	843 449	37 791	112 341	7 393	135 324	253 585	297 015
		學士 Bachelor	2 038 431	184 544	258 636	41 848	257 282	620 314	675 807
英 國 United Kingdom	2020	博士 Ph.D.	21 000	6 625	3 270	150	3 055	4 650	3 250
		碩士 Master	324 700	41 065	28 040	2 175	33 155	92 010	128 270
		學士 Bachelor	448 435	87 065	39 485	4 165	59 790	116 730	141 195
德 國 Germany	2020	博士 Ph.D.	26 220	8 432	3 357	840	7 612	2 864	3 115
		碩士 Master	206 557	24 558	38 893	4 200	17 007	68 538	53 361
		學士 Bachelor	244 136	34 258	51 103	4 489	8 958	41 505	103 823
法 國 France	2020	博士 Ph.D.	9 332		(5 758)		270	2 208	1 096
		碩士 Master	148 000		(32 536)		10 545	55 212	49 707
		學士 Bachelor	224 296		(54 720)		12 531	82 623	74 422
中 國 PRC	2021	博士 Ph.D.	72 019	14 906	26 659	3 254	12 546	5 609	9 045
		碩士 Master	700 742	46 548	240 740	30 338	76 711	123 338	183 067
		學士 Bachelor	4 280 970	280 389	1 403 297	71 879	302 039	1 035 977	1 187 389

Data sources：1.Department of Statistics, Ministry of Education, ROC (Taiwan). Data sources：2.Ministry of Education of the PRC. Data sources：3.International Comparison of Education Indicators, Ministry of Education, Culture, Sports, Science and Technology, Japan.

Summary

Vision Sustainable and Resilient Society that ensures the Safety and Security of the People



Solution STI Policy for the Realization of Society 5.0

To solve the problem of improving research capabilities and strengthening S&T innovation, in accordance with STI guidance strategy plan:

Strengthen S&T innovation

Strengthening the scientific and technological innovation system/

- Secure R&D funding/
- Promotion strategy of public-private cooperation
- Strengthening of international cooperation/
- Strengthen the government system and coordination functions/

CAO　CSTI　数位廳　MEXT　METI

Improved R&D capabilities

S&T Innovation Policies and Measures/

Ccultivating S&T innovation talent/

Diversified and outstanding fields of knowledge innovation /

researcher system, researcher salary level, enhanced scholarships, tuition exemptions, pathways for outstanding students, young researchers, female researchers, basic research, international joint research, and humanities and society scientific support.

R&D infrastructure

Construction of Research System/

creating an open science and data-driven research environment

high value-added research activities加速

2022（SINET）

2021超級電腦「富岳」

Improving the quality and quantity of academic infrastructure.

S&T innovation

R&D capabilities and Talents

R&D infrastructure

Digital talent cultivation

Technology

Talent

DX- ASAP

A (AI, artificial intelligence)

With the advent of Chat GPT, AI is no longer limited to a few industries or sectors. Making good use of internal and external accumulated data to provide better decision-making support through AI will accelerate the organization's digital transformation

S (SaaS, software as a service)

Making good use of various types of application software can significantly reduce the large amount of resources or costs often required in the early stages of transformation.

A (Adaptation, Adoption, thinking change)

Tools and brains are becoming digital, and methods and processes need to be redesigned in order to improve overall operational efficiency.

P (People Centric, people-oriented)Digital

DX is a process of "continuous innovation". All employees need to agree on the goals of transformation, accept digital technology, and strengthen investment and cultivation of "digital talents."

The key to success in DX

How to implement talent training in the era of DX

Identify key talent
Planning talent development courses
Provide career development paths
Establish a talent cultivation system

Establish an organizational talent cultivation standard system and introduce functional models or related management tools

Cultivation of "digital talent " for AI smart applications

the communication network resilience plan

"Personal Learning Cloud" (PLC) and integrate various learning tools

Taiwan Digital talent cultivation

DIGI+ & Talent Circulation Alliance

Training target: junior to master's students studying in universities.
Operation method: enterprises must first apply to become a practical training unit.

Application field type (key study field)

1. **AI**: machine learning, deep learning, image recognition, semantic analysis, etc.
2. **Data science**: data processing, data analysis, data visualization, web crawlers, etc.
3. **Smart Internet**: 5G, Internet of Things, cloud computing, Internet communication technology, information security, etc.
4. **Smart content**: AR (augmented reality), VR(virtual reality), 3D design, UI/UX design, etc.
5. **Digital marketing**: e-commerce, cross-border e-commerce, online marketing, social marketing, FinTech, etc.

Cross-field capabilities:talents in the application of AI artificial intelligence, big data analysis, and cloud technology

2022.11.25「2022日台量子先端科学技術研究開発ワークショップ」を開催しました

2022年12月12日 17:00 | ニュース

東北大学研究推進・支援機構　知の創出センター及び台北駐日経済文化代表処（駐日代表処）科学技術部の共同主催により、11月25日に「2022日台量子先端科学技術研究開発ワークショップ」（2022 Japan-Taiwan Advanced Quantum Technology Research and Development Workshop）を東北大学「知の館」のリアル会場とオンラインのハイブリッド形式で開催されました。

TECRO-JP	**Representative Frank C.T. HSIEH**
The Mayor of Sendai	Mayor Kazuko KOORI (tbc)
Tohoku University	President Hideo OHNO
NIMS	President Kazuhiro HONO
NCKU	President Huey-Jen Jenny SU
Osaka University	Vice President Genta KAWAHARA (online)

Promoting collaboration between Japan and Taiwan

2023 Japan-Taiwan

Next Generation Young Talent Science and Technology Workshop

- Future Emerging Technology and Talent

Date: September 29, 2023
Venue:Tokyo Electron Limited conference room

HOSTING PARTIES

TEL

國立中央大學 National Central University

東京工業大学 Tokyo Institute of Technology

台北駐日經濟文化代表處
TECRO in Japan

PARTNERS/PARTICIPANTS

tsmc

DAICEL 株式会社ダイセル

台北駐日経済文化代表処
科技組

慶應義塾 Keio University

IMaSS Institute of Materials and Systems for Sustainability

Zeroboard

Taiwan THE HEART OF ASIA 台湾観光局

台北駐日経済文化代表処
台湾文化センター

國立清華大學 NATIONAL TSING HUA UNIVERSITY

國立中興大學 NATIONAL CHUNG HSING UNIVERSITY

NSTC 國科會

Invitation

Looking for partners
(Co-hosted or participating partners)

Thank you