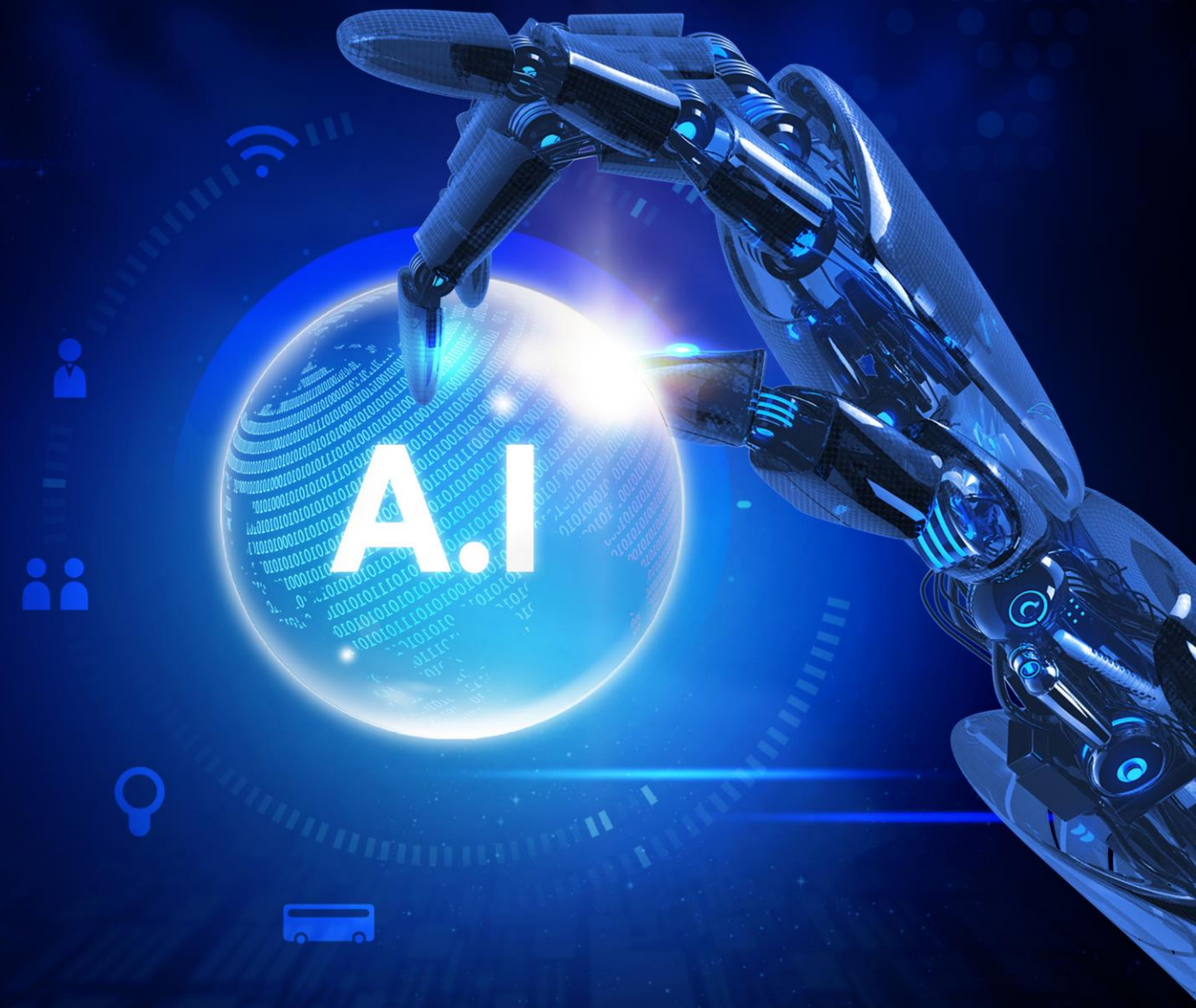
Digital Policy Vision and Strategy for

Leading Digital Korea



Dr. Kangyong LEE
Director, Head of Digital Strategy Team

Ministry of Science and ICT

Arctic Ocean
Atlantic Ocean
Pacific Ocean
Pacific Ocean
Indian Ocean
Atlantic Ocean
Namibia
Southern Ocean
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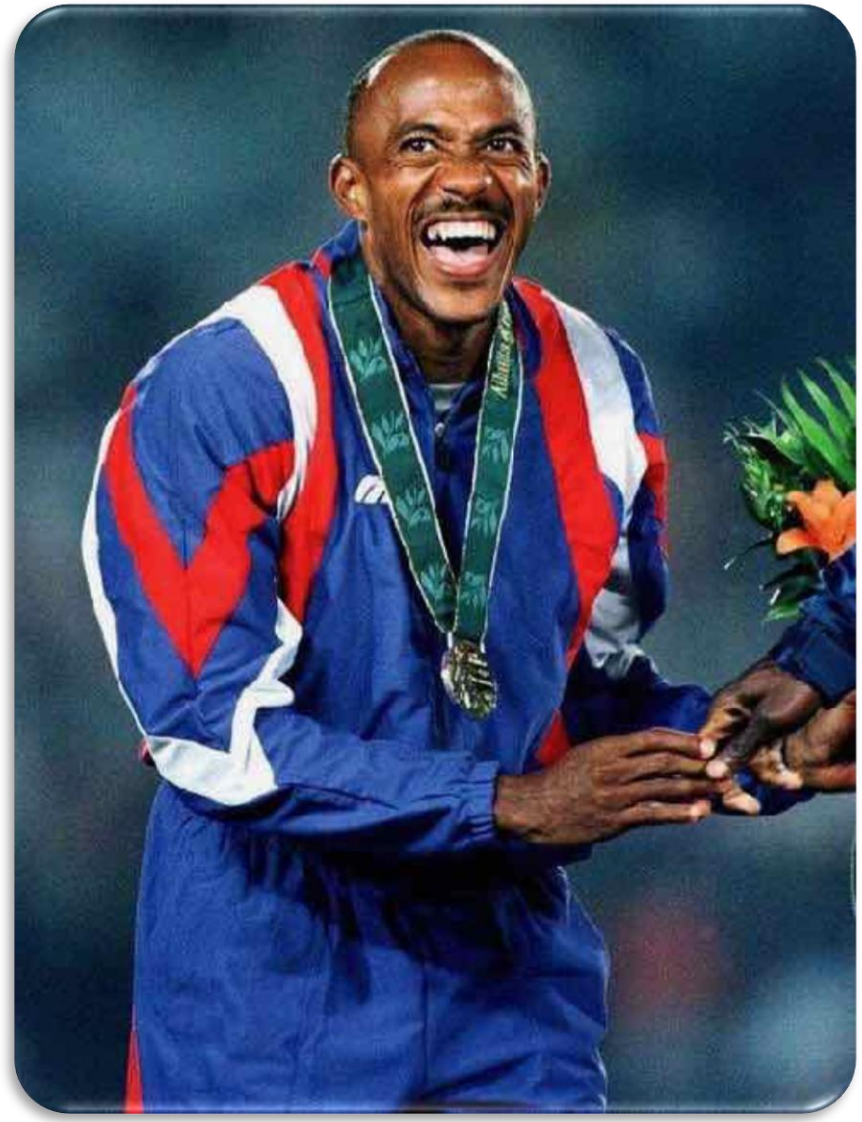


Contents

1 The Stage of Deepening Digitalization

2 National Digital Strategy

3 Establishing “New Digital Order”

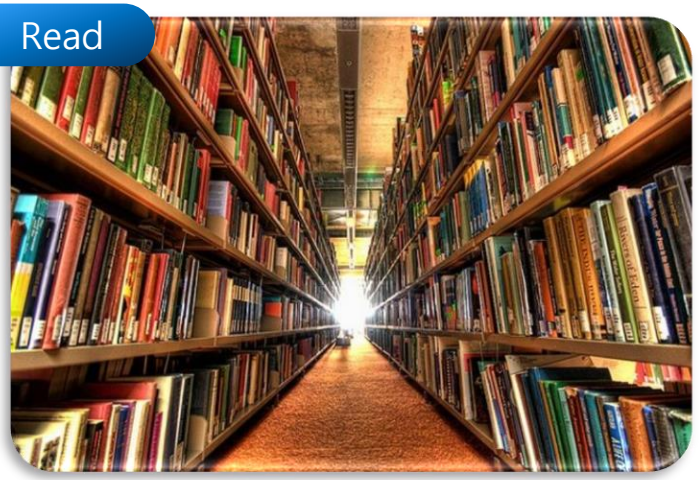
I.

The Stage of Deepening Digitalization and Future of Korea

Ministry of Science and ICT

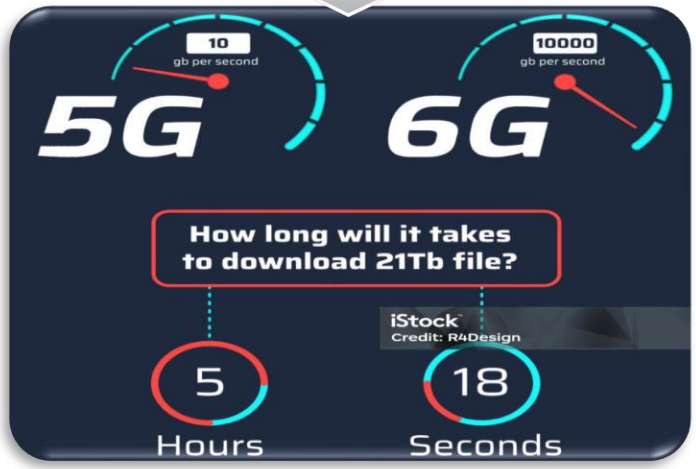
What is Digital?

Read



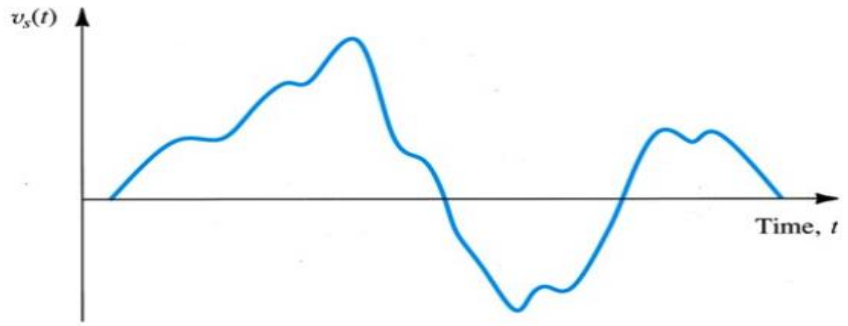
Computing

Download



What is Digital?

Analog



" I don't know what it means... "

Natural signals(Analog) are difficult for computers to understand and calculate

Digital

t0 = 0 = 0000
t1 = 2 = 0010
t2 = 4 = 0100
t3 = 5 = 0101
t4 = 4 = 0100
t5 = 6 = 0110
t6 = 8 = 1000
...

" I'll encrypt, compress, copy and send it! "

Translating natural signals in Digit makes it easier for computers to understand and calculate

The Stage of Deepening Digitalization

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Beyond digital technology assisting humans and overcoming human limits,
the era arrives where digital technology coexists with humans.

	Digitalization	Digital TX	Deepening Digitalization
Work (Office)	fast task processing, Information searching **DB formation**	Overcoming spatiotemporal limits **Cloud video conferencing**	Document creation **ChatGPT (Generative AI)**
Transport (Automobile)	Fast and accurate movement **Navigation**	Safety and convenience **Advanced driving assistance systems**	Without driver intervention **Fully autonomous driving**
Production (Agriculture)	Streamlining repetitive tasks **Automation machinery**	Enhancing productivity, Reducing costs **Smart farms**	Harvesting and Managing autonomously **AI (robotic) farmers**

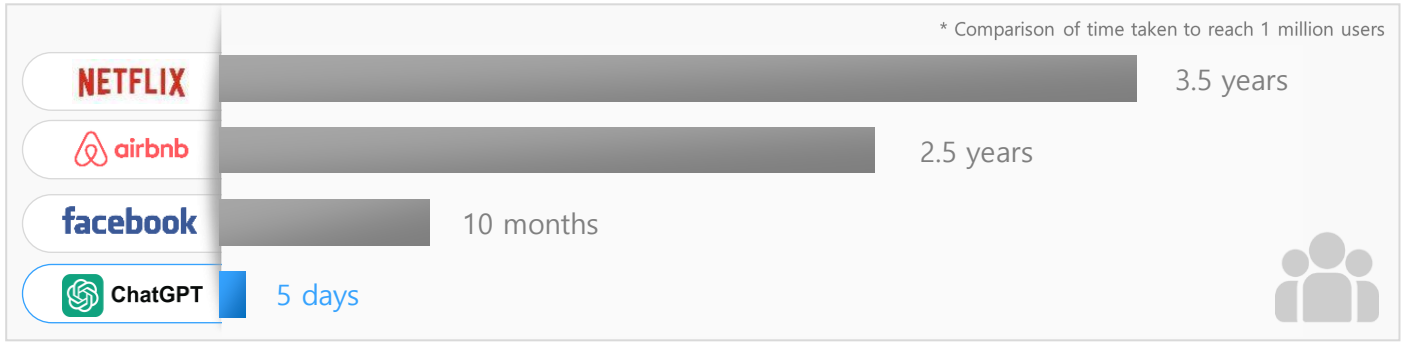
The Stage of Deepening Digitalization

ChatGPT, The Flare of AI Integrating into Daily Life

ChatGPT

✓ An conversation-optimized version of the hyper-scale AI, GPT, developed by OpenAI

Achieved 1 million users in 5 days and 10 million users in 40 days after release



Advantages and Limitations of ChatGPT

Advantages

Accurate conversational search capabilities, writing (creation) such as essays, poetry, novels, SW coding

Limitations

prone to generating false answers (hallucination), weak in computation tasks, etc.

Structural Transition Period Characterized by Both Crisis and Opportunity

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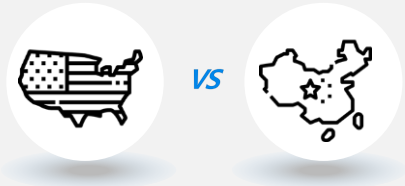
Security

Intensification of global hegemony competition

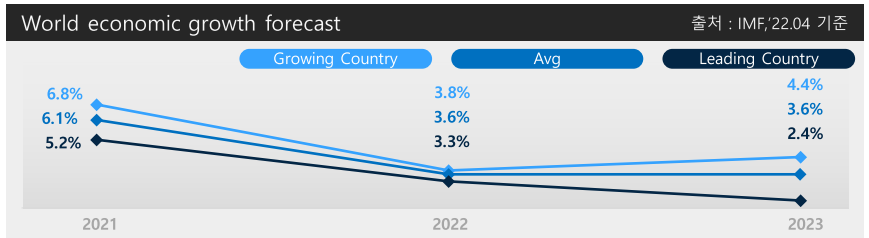


Supply chain restructuring and technological balkanization

- 5G
- Semi-conductor
- AI
- Quantum

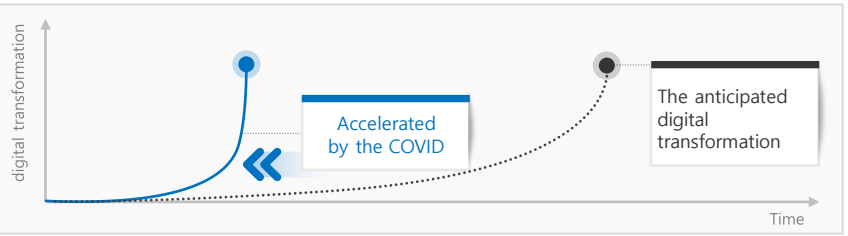
Economy

Long-term economic recession



Society

Acceleration of digital transformation



Environment

Climate change crisis

Global temperature rise of 1.5 ℃

Increase in disasters and calamities

Beyond overcoming the crisis, a new solution is needed to turn change into an opportunity for leap

What will happen to the Economy of Korea?

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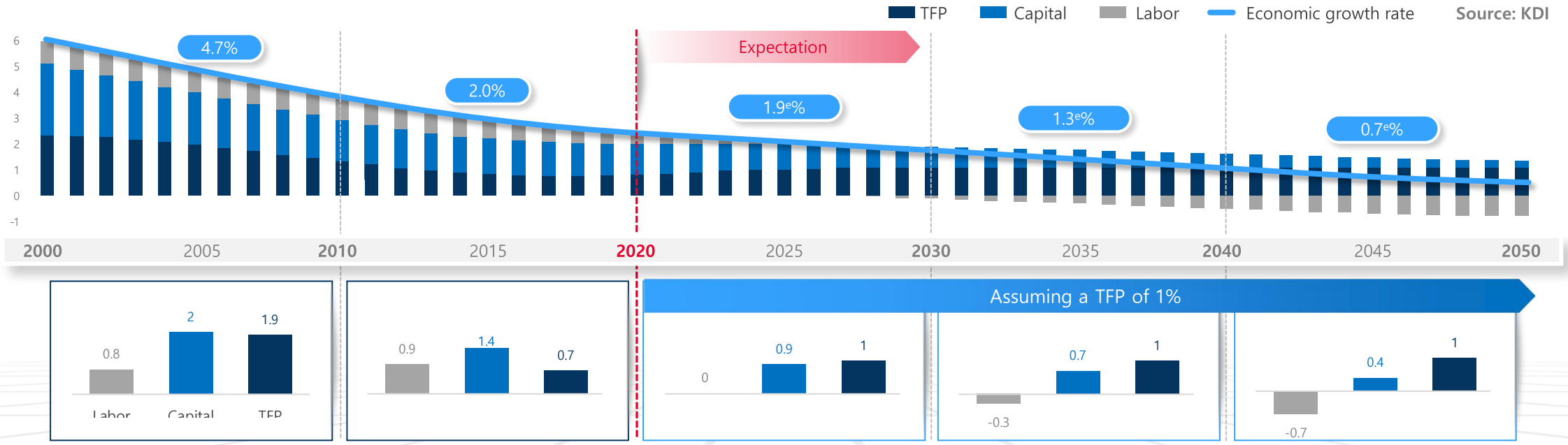
Economic growth rate and the contribution of various factors



Total Factor Productivity (TFP)

A productivity indicator that includes productivity not covered by the direct input factors such as labor and capital, such as technological innovation, regulatory improvements, labor relations, among which technological innovation is the most critical determinant

For the Economic Rebound

But

Decrease in the productive population due to low birthrate/aging population

Labor

Economic Growth

Capital

But

Economic recession / uncertainty Slowdown in capital investment

Total Factor Productivity

The key is total factor productivity!

- Disruptive technological innovation
- Education reform
- Social capital
- Legal and institutional framework
- ...

[Reference] TFP and Digital Technology

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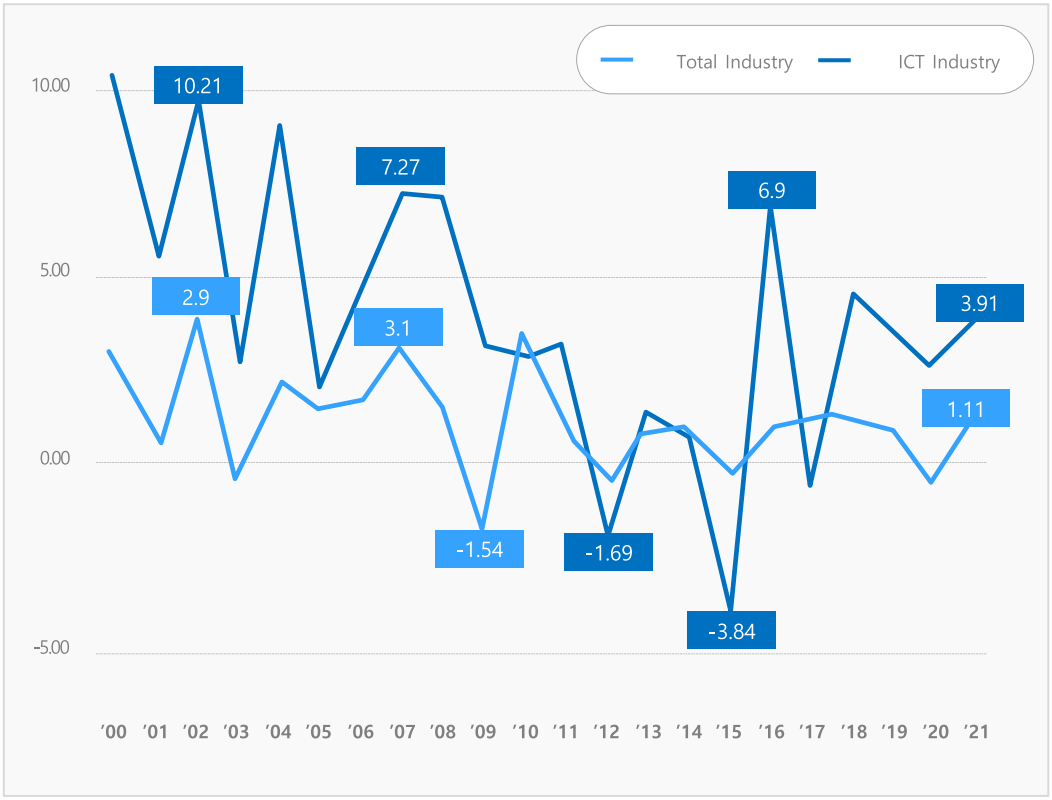
Increase rate (%) of TFP by industry



Source: KISDI

An additional creation of value-added worth USD 1.4 billion (0.1% of GDP)

- Increase in TFP across all industries
- Improvement in productivity through technological innovation

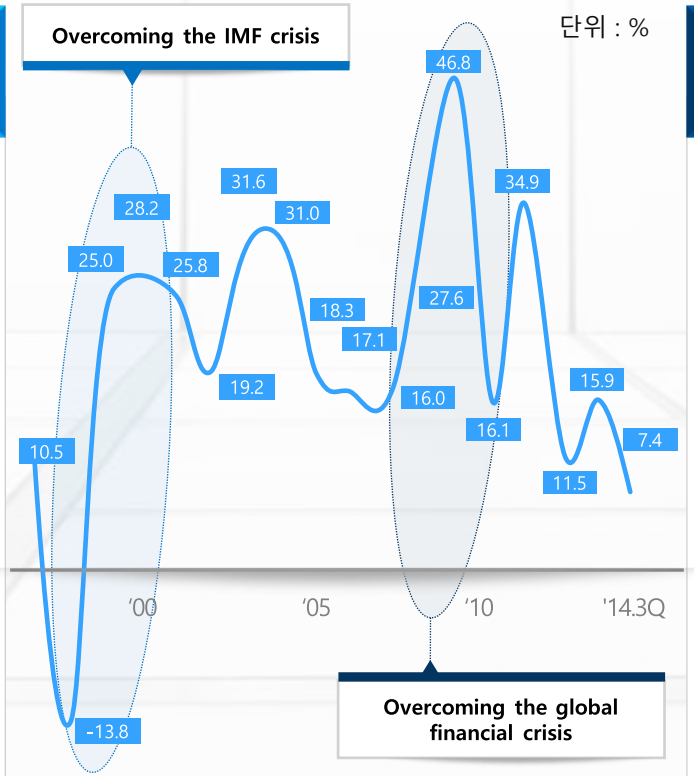
With a 1% increase in the TFP of the digital industry

The Solution to Overcoming Crises in Korea: Digital

The contribution rate of the digital industry to GDP growth

Construction of a high-speed internet network for national informatization ('05)

Preemption of becoming an internet powerhouse

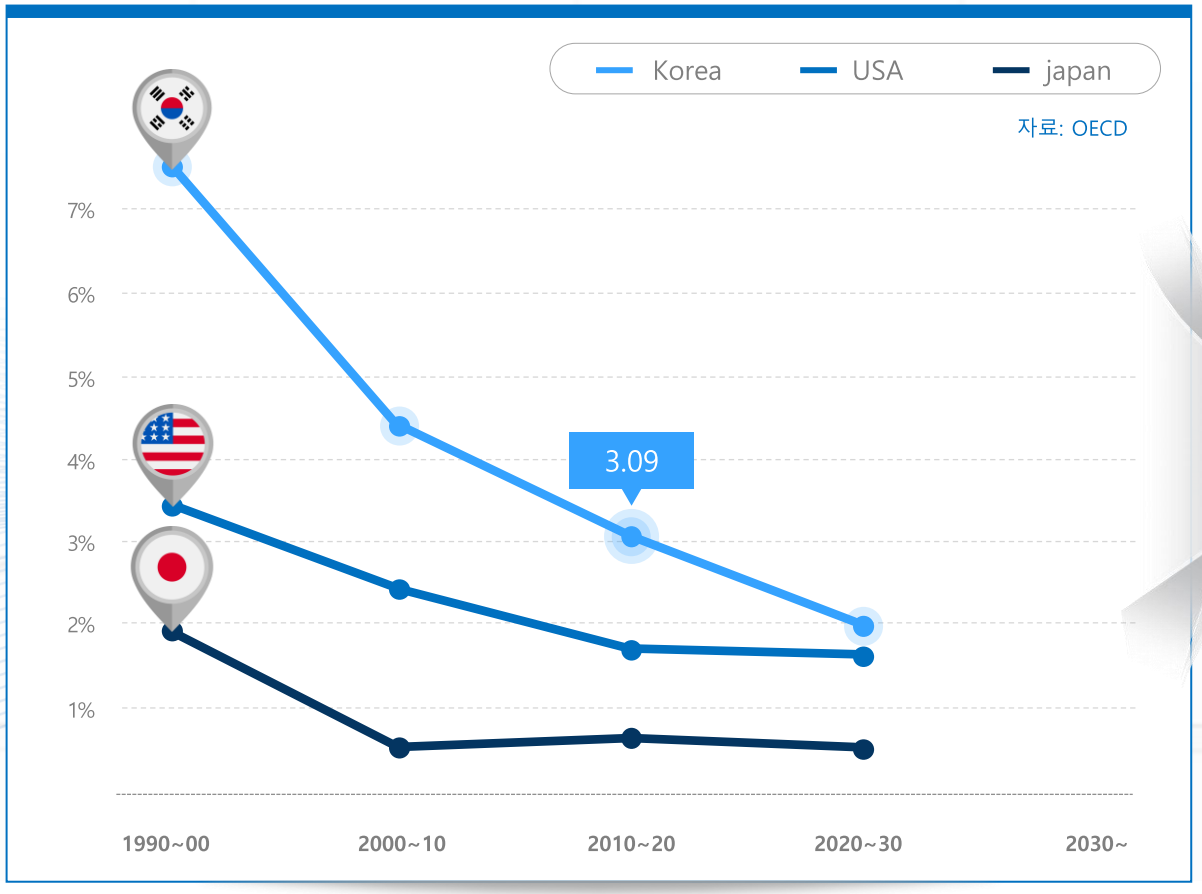


Full-scale mobilization of mobile services following the advent of smartphones ('07)

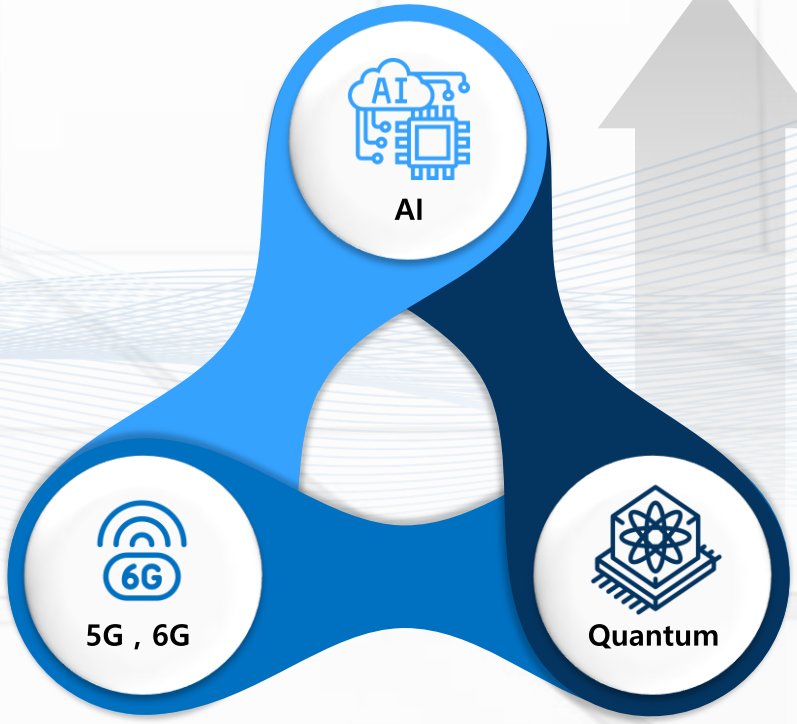
Leap to a mobile powerhouse

Digital Innovation is the Answer

Potential growth rate forecast (%) of major countries



Leap based on Digital Innovation



II.

National Digital Stragety

Ministry of Science and ICT

National Digital Strategy

Vision

Digital Korea that serves as a global role model

Objective

Establish a resilient and inclusive digital economy and society

5 Strategies

- Expanding Digital Economy
- Inclusive Digital Society

- Digital Platform Government
- Innovative Digital Culture

Global Solidarity

Spreading digital value through solidarity

Achievements

Visible major achievements were made
through the promotion of 101 tasks by 23 ministries over the year

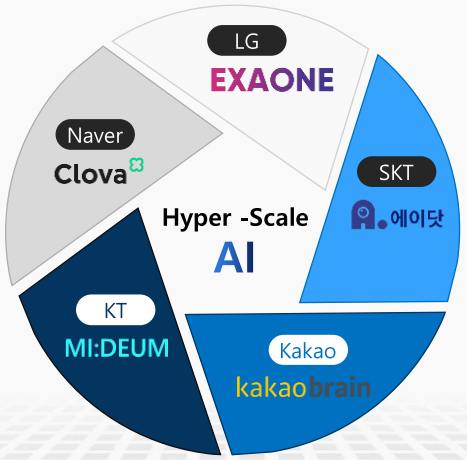
The World's Best Digital Capability

Challenging the world with **an independent hyperscale AI platform**

Platform

One of the four countries with independent hyperscale AI

* Korea, USA, China, Israel



Industrial Base

Securing core infrastructure for hyperscale AI industry

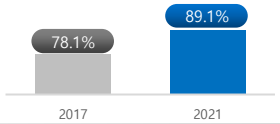
Data

Constructed **691** types of AI training data

Data Platform 21 areas, **7,753** types of data

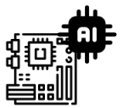
Algorithm

Continuous improvement in technological level compared to leading country(USA)



Computing Power

Launch of domestic AI semiconductors



Talent

Continuous increase in core AI talents('18~'22)

Ba.	81,499	(YoY 4.4% ↑)
Ma.	10,509	(YoY 11.5% ↑)
Ph.D.	3,936	(YoY 14.3% ↑)

AI Services

Active launch of hyperscale AI application services

- Medical — goodoc
- Advertising — wrtn
- Education — /*elice*/
- Finance — 삼쩜삼

The World's Best Digital Capability

Korea, a world leader in utilizing AI

Sharing AI benefits with all citizens + Fostering AI industry through large-scale demand creation

Enriching the daily lives

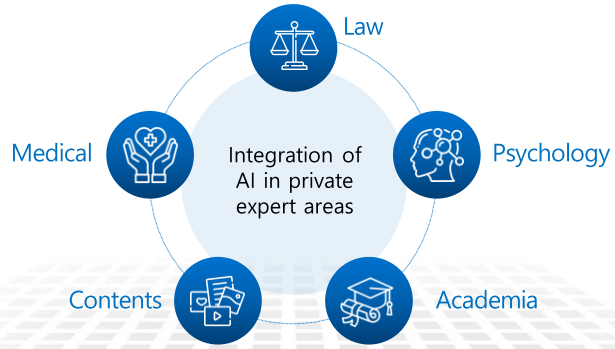
Welfare

- ✓ Health management for the elderly living alone
- ✓ Eliminating welfare blind spots

Medical Education

- ✓ Expansion of digital medical services
- ✓ Introduction of AI digital textbooks

Transforming workplaces



Supporting SMEs and farmers/fishermen in using AI

SMEs | Farmers | Fishermen

Implementing smart public administration

Wildfire

Real-time wildfire monitoring AI system

Flood

Operation of AI-based flood forecasting platform

Ensuring public safety in disaster accidents

Administrative efficiency in government

Customs

Automatic X-ray image reading system

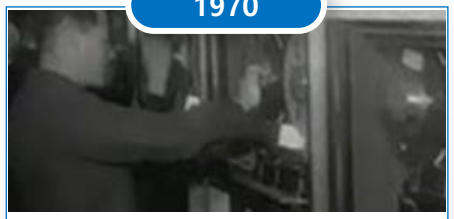
Patent

Use of dedicated hyperscale AI language model for patent examination

The World's Best Digital Capability

Foundation of Digital Powerhouse Korea - **Leading network infrastructure**

1970



Digitalization of Administrative Services

2001

Building Nationawide **Broadband Network**

~1970 | 2000s | 2010s | 2020s ~

2014

Commercialization of **LTE-A**

2019

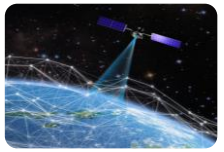
Commercialization of **5G**

Challenge to 6G

- ✓ **Next-Generation 6G Network**

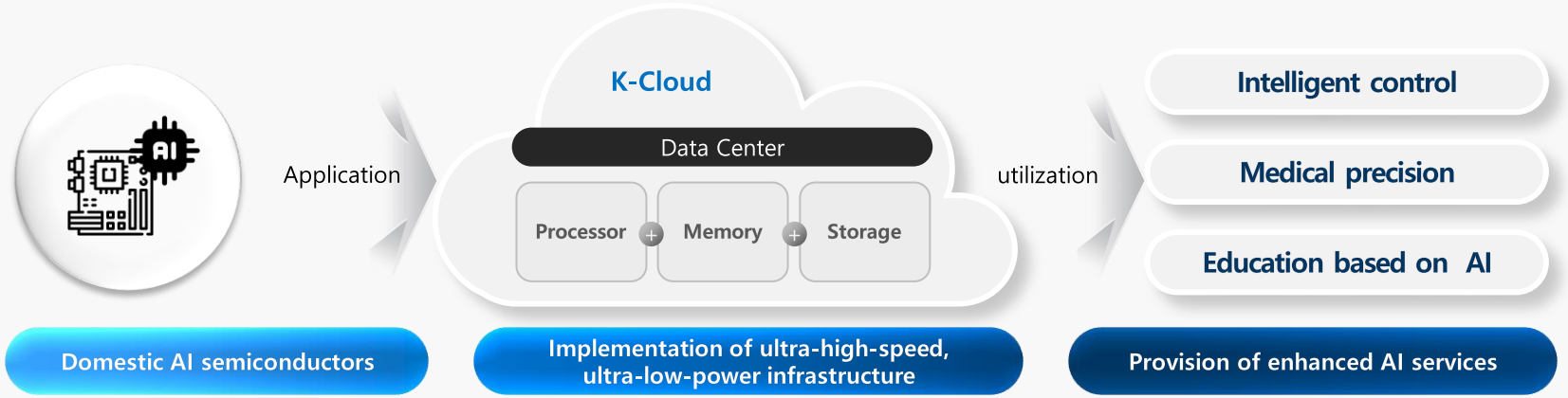
- ✓ **Cloud/AI-based Network (Open-RAN)**

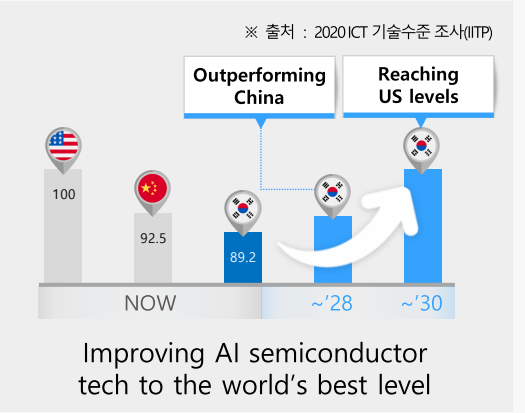
- ✓ **Satellite communications**



The World's Best Digital Capability

K-Cloud Project





Improving AI semiconductor tech to the world's best level

Training 1 million digital talents

Inside schools

Double the teaching hours for elementary and secondary education, expand college admissions, establish and expand graduate schools in 6 key fields*, expand software-focused universities (by '27, 100 total)

* AI, AI semiconductors, data, cybersecurity, metaverse, personal information protection

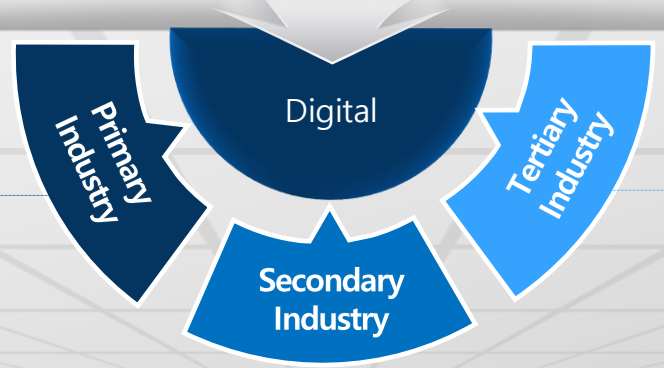
Outside schools

Expand educational opportunities for job seekers, current employees, and local residents

Expanding Digital Economy

Strengthening **competitiveness** and **innovation**
in **all industries** through **digital convergence**

labor shortages | **inadequate productivity** | **carbon emissions** | **automation** | **insufficient value creation**



Future growth engines of the agriculture and fishery industry

- ✓ Accelerating transition to data-driven smart agriculture
- ✓ Advanced livestock epidemic prevention system based on big data
- ✓ Advancement of distribution of marine products

Advancing to the future of manufacturing

- ✓ Accelerating digital transformation of small and medium-sized manufacturers
- ✓ Industrial data sharing collaboration among manufacturing companies
- ✓ Normalization of unmanned delivery with robots

Strenthening competitiveness in the service industry

- ✓ Non-face-to-face cultural services and tourism big data
- ✓ Creation of new biohealth markets
- ✓ Establishment of smart logistics networks

Inclusive Digital Society

Establishing a foundation for ensuring digital benefits for **all citizens, in all regions**

1 Building a smart safety system across all living industries

- ✓ Establishing a safe food system
- ✓ Strengthening river safety
- ✓ Railway safety, response to fire, and crowded accident scenarios

2 Improving welfare without digital exclusion

- ✓ Providing digital education for children in protection and young adults preparing for independence
- ✓ Proactive identification of at-risk households using data
- ✓ Welfare registered mail service by post office

3 Guaranteeing digital access

- ✓ National digital utilization education
- ✓ Enhancing information accessibility for the elderly and disabled

Regional digital innovation

Regional digital innovation districts + Cultivation of regional strong SMEs + Smart Villages

Digital Platform Government

Creating the World's Best **Digital Platform Government** with AI and Data

A Government for the People

- All services in one place
  By '26, integration and provision of over 1,500 types of services including certificates, tax filings, and welfare applications
- Korean Dream Project
  Customized youth portals, artificial intelligence welfare assistants, and other public-oriented projects to solve social issues

Smart One-Team Government

- Breaking down data silos
- Scientific administration based on artificial intelligence and data
- Building innovative infrastructure for a One-Team Government

Direction

Public-Private Cooperation

- Cultivating AI and data as national strategic industries
- Cultivating the GovTech industry that innovates government services
- Expanding the DPG's innovation capabilities regionally

Trusted and Secure DPG

- Strengthening citizens' rights to personal information
- Introducing a new security system to match the new environment
- Securing global competitiveness in the security industry

Innovative Digital Culture

Creating a **Private-Led** Digital Innovation Culture

Citizen

Encouraging voluntary digital capacity improvement and utilization

- ✓ Awarding digital badges that prove various digital education, experience, qualifications, and records
- ✓ Establishing a "Digital Talent Alliance" where corporations, universities, and the government cultivate talent together

Government

Enhancing Vitality of New Industries Through Regulatory Innovation

- ✓ Shortening the deliberation period for ICT regulatory sandboxes Imposing an improvement obligation on regulatory agencies Minimizing and rationalizing additional conditions for special proofs Establishing a regulatory innovation system based on proof-of-concept data

Region

Expanding Digital Transformation Based on Solidarity and Cooperation

- ✓ Supporting the formation of "Digital Solidarity" for collaborative digital transformation among corporations

Enterprise

Promoting a Culture of Challenge and Innovation in Enterprises

- ✓ Cultivating digital startups through innovation donations from major, senior corporations
- ✓ Activating private investment-type public software projects to utilize private innovation

Global Solidarity

Kor-ASEAN AI Youth Festa ('23.9)

"Supporting Innovation to Spread Globally"

- Korea-ASEAN Digital Innovation Flagship
- Meetings with the future generations of ASEAN

ASEAN-Indo Pacific Forum ('23.9)

"Accelerating Digital Cooperation with ASEAN"

- Digital Wellness
- Cybersecurity, etc.

K-Global @ Silicon Valley ('23.9)

"Strengthening Cooperation Between Companies in Digital Areas"

- Technology forums
- Exhibition consultations, etc.

Digital Export Pioneers

'23.6 ASEAN

$2.76m in export contracts
33 MoU concluded

'23.9 USA

$11.12m consultations

'23.10 UAE

$5.3m in contracts
2 MoUs

Enhancing the Competitiveness of K-Content

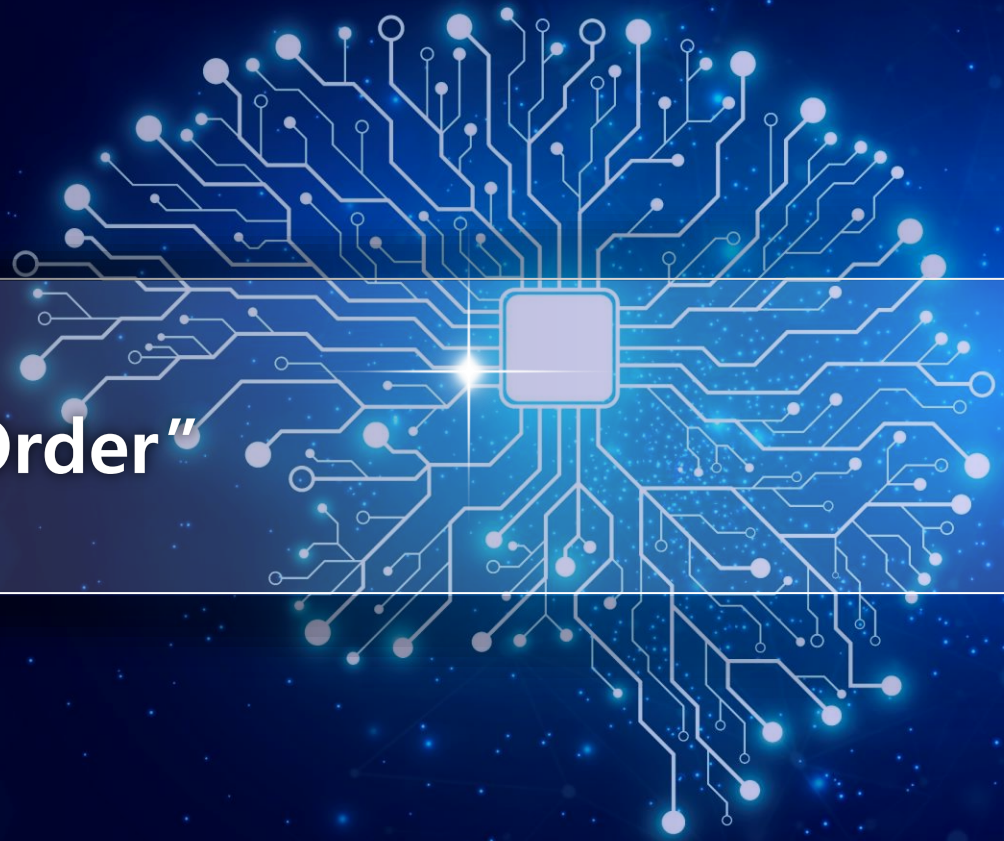
- Expanding tax deductions for video content production costs (10% → up to 30%)

Support for Growth and Export of Digital Companies

- Creating a fund of 600 billion won
- Supporting policy finance of a total of 3.6 trillion won

III.

Establishing “New Digital Order”



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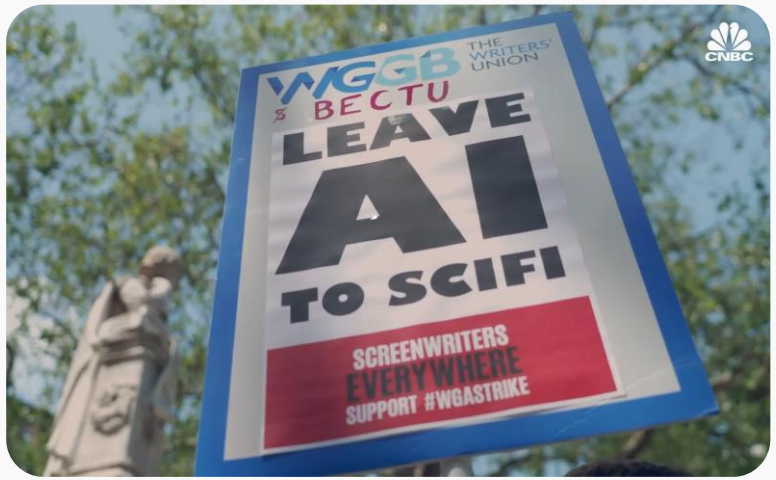
Issues from Deepening Digitalization

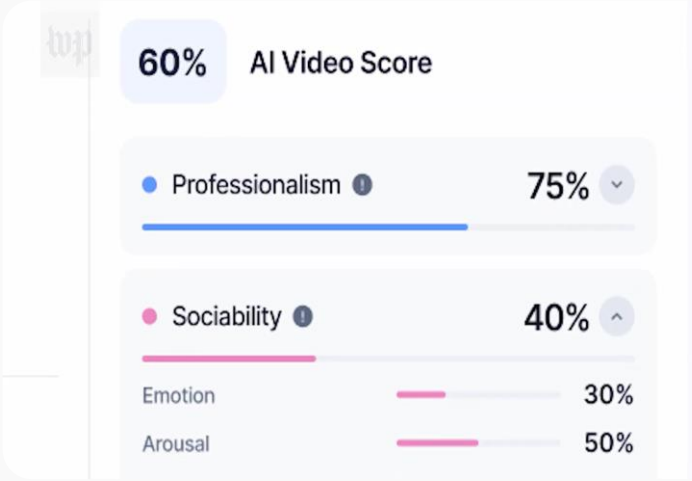
Generative AI (e.g. Chat GPT)

Copyright/IP rights recognition of AI-generated works



AI interview

Trustworthiness of AI-based evaluations



Autonomous vehicles

Liability and compensation in case of accidents during full autonomous driving

Need for New Digital Order and Norms

SEP 2022 — New York Initiative

Highlighting the need for new digital order

JAN 2023 — World Economic Forum (Davos)

Emphasizing the global solidarity for establishing new digital order

APR 2023 — Speech from Harvard University

Presenting the role of digital order to maximize the freedom and welfare of global citizens

JUN 2023 — Paris Initiative

Presenting specific directions for global digital norms

AUG 2023 — G20

Calling for progress in concrete discussions on establishing global digital norms

SEP 2023 — New York Digital Vision Forum

Presenting the basic principles of “Digital Bill of Rights”

Need for New Digital Order and Norms

Establishment of a **“New Digital Order"** is required so that the nation and overall society can accommodate **structural changes of deepening digitalization.**

Humanity has formed an order that reflects Zeitgeist (the spirit of the time) in every inflection point of social and technological changes.

Rapid changes are expected in the stage of Deepening Digitalization. Thus, it is required to well-reflect changes of the time in a timely order.

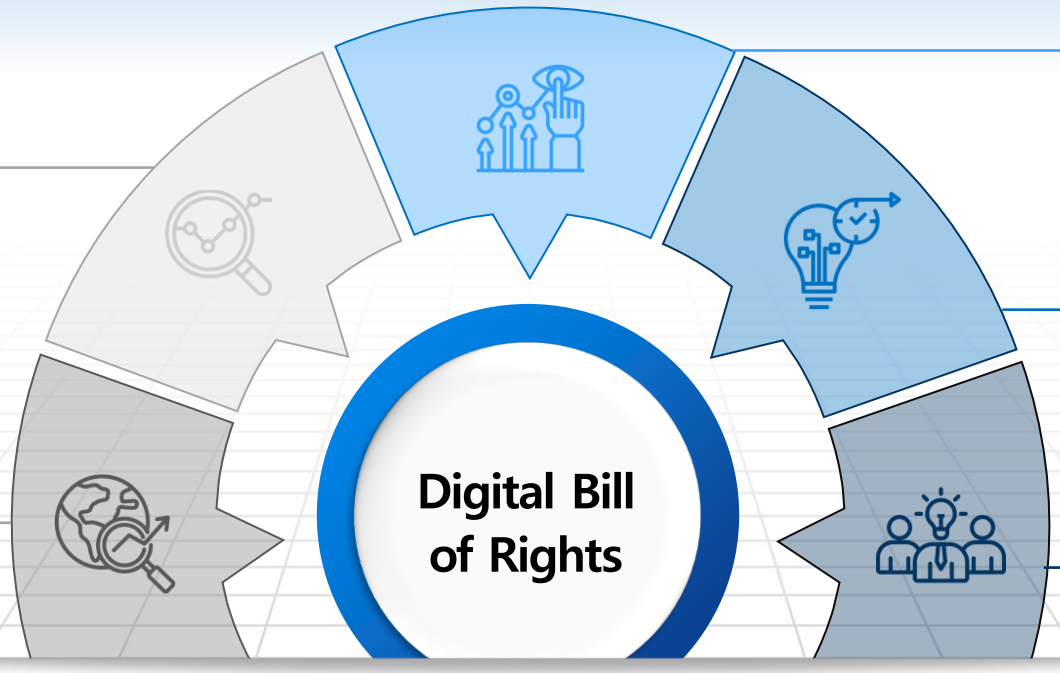
Systematic establishment of norms through **common standards and principles** is required as the new order would affect a wide range of sectors of our society.

Preparing the “Digital Bill of Rights”

The principles for the digital shared prosperity society were suggested to achieve our goals.

Digital Society for Shared Prosperity

Where **digital innovation** is sought together, benefits are shared **fair and just.**



- Analysis of digital issues
- Analysis of global trend
- Principles and vision of digital policy
- Digital future outlook
- Opinions from experts and stakeholders

Digital Future Outlook

Vision of Digital Society for Shared Prosperity

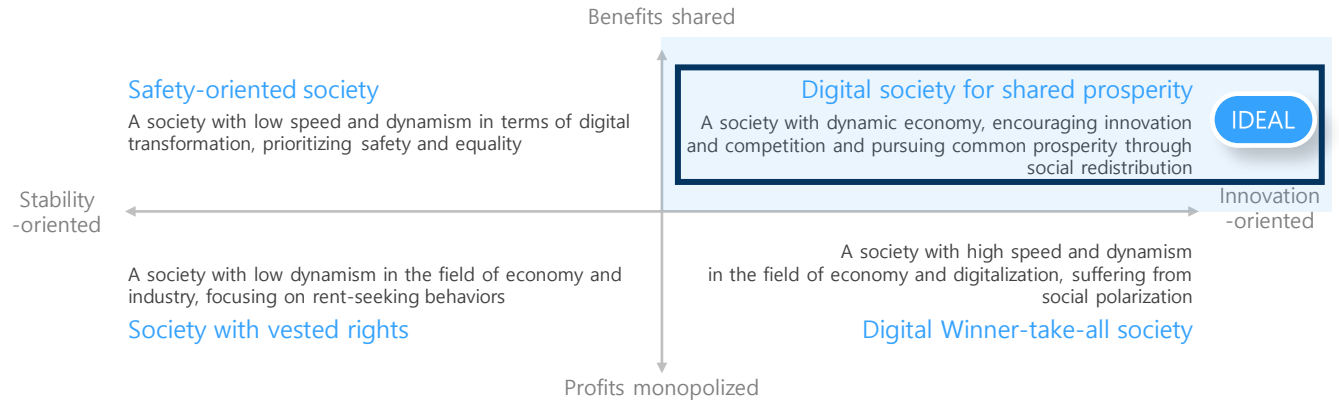
Digital Society for Shared Prosperity

that seeks digital innovation
while enjoying its benefits together

4 Mega-Trend of Digital Transformation

- Omnidirectional expansion of platforms
- Automation and Diversification of labor
- Hyper-personalization and Customization
- Virtualization and Convergence

Future Outlook Scenario



Analysis of Global Digital Norms

Analyzing **declarations and charters** related to digital matters published by the countries, verifying **common values and contents** (around 570 clauses)

EU
European Declaration on Digital Rights and Principles

Spain
Charter of Digital Rights

Italy
Declaration of Internet Rights

UN
Roadmap for Digital Cooperation

USA
Blueprint for an AI Bill of Rights

Portugal
Portuguese Charter on Human Rigths in the Digital Age

Brazil
Internet Bill of Rights

OECD
Rights in the Digital Age

UK
Plan for Digital Regulation

Canada
Canada’s Digital Charter

AUDRi
9 Digital Principles

Charters commonly include **'human dignity** (human rights)', **'accessibility to digital’, 'freedom of expression'**, etc., however, there is a lack of content related to **innovation** and the **values** and **visions** that **all global citizens should pursue together.**

Social Discourse and Issue Analysis

Setting the direction for the content and structure of the Digital Bill of Rights
by reflecting a variety of opinions from experts and stakeholders from all sectors.

Younger Generation	Presidents of Universities	9 Major Academic Societies	Scholars of digital domain	Experts of AI Ethics	CEOs

- ✓ Research teams with related institutions (Oct 2022 ~)
- ✓ Study on Digital Mega-Trend Transformation (joint with 9 academic societies)
- ✓ Consultative Body for New Digital Order (Mar 2023~)
- ✓ Field discussions and Digital Public Sphere
- ✓ Discussion and consultation with Digital Society experts
- ✓ Consultation with legal experts in various fields

Identifying contentious issues that arise with the deepening digitalization and analyzing key issues
considering their impact and urgency.

Five Guiding Principles for the Digital Bill of Rights

Five Guiding Principles for the Digital Bill of Rights

New York Digital Vision Forum (Sep 21th, 2023)

> This Digital Bill of Rights will serve as the international community's compass to navigate the era of deepening digitalization by setting out five guiding principles for the building of a brighter digital future.

Freedom	✓ Guarantee of Freedom and Rights
Fairness	✓ Fair Access and Equal Opportunity to Digital
Safety	✓ Security and Trust Assurance
Innovation	✓ Fostering of Digital Innovation
Solidarity	✓ Advancement of Human Well-Being

Overview of the Digital Bill of Rights

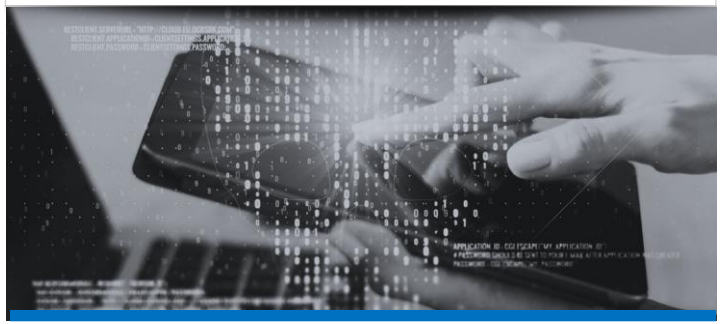
Basic directions for a **‘new digital order’** in **the era of deepening digitalization**

Definition

A charter codifying basic directions to guide establishment of a new digital order

Purpose

To provide a national-level standards and principles in the era of deepening digitalization, and basic directions for a universal digital order that enables global leadership



Title

The charter is formally titled 『Charter on the Values and Principles for a Digital Shared Prosperity Society』, and 『Digital Bill of Rights』 as the official subtitle, to make it more easily understandable.

Features

Reflecting **global common values** while highlighting **our unique differentiation**

1

Beyond discussions centered on AI, presenting an exemplary future that global citizens shall pursue together by encompassing overall digital aspects such as literacy enhancement, divide resolution, etc

2

Defining differentiated principles and rights such as demands for alternatives, legitimate compensation for assets, besides ethical and normative discussions, and emphasizing the acceleration of digital innovation

3

Preparing a commentary guide linked to specific government policies, cases, and issues to enhance the efficacy, considering the declaratory nature of the charter

Key Principles for Digital Bill of Rights

1

Guarantee of Freedom and Rights

Freedom and rights in digital environment are firmly guaranteed based on human dignity and respect for values.

2

Fair Access and Equal Opportunity

Opportunities for competition and innovation are fairly guaranteed, while benefits of innovation would be enjoyed by the digital society as a whole.

3

Security and Trust Assurance

Trust is secured to prevent digital technologies from risking social safety.

4

Fostering of Digital Innovation

Continuous development and innovation of digital technologies is encouraged, laying a foundation for digital innovation.

5

Advancement of Human Well-Being

Solidarity with the international community based on universal values and mutual trust to contribute to well-being of humanity.

Key Points of the Digital Bill of Rights

Guarantee of Freedom and Rights in the Digital Environment

Guarantee of Digital Access

Guaranteeing a stable network environment,
Accessing and
using various digital services
without discrimination

Freedom of Digital Expression

Expressing one's opinions
in the digital environment
freely but responsibly

Respect for Digital Diversity

Protection from unreasonable discrimination
and prejudice,
Respect for social and
cultural diversity

Access and Control of Personal Information

Access to and control over one’s
information, such as demanding
to viewing, correcting, deleting, transferring

Demand for Non-Digital Alternatives

Demanding means to replace
digital methods in the
public domain

Guarantee of Digital Work and Rest

Working safely and healthily
in various work environments, Guaranteeing
rest from digital connectivity

Key Points of the Digital Bill of Rights

Ministry of Science and ICT

Guarantee of Freedom and Rights in the Digital Environment

Persons with disability · elderly's accessibility to kiosks

Growing number of kiosks… Persons with disability had to give up to place an order and leave the store

Right to disconnect

6 out of 10 employees "receive task directives after working time"

Article 6

Guarantee of Digital Access

Every individual shall be guaranteed a stable network environment and to access and use various digital services anywhere and anytime **without discrimination** through the same.

Article 11

Guarantee of Digital Work and Rest

Every individual shall be guaranteed to work safely and healthily in various labor environments arising from the development of digital technology and shall be guaranteed **rest away from digital connections.**

Key Points of the Digital Bill of Rights

Fair Access and Equal Opportunities to Digital

Guarantee of Digital Access

Guaranteeing a stable network environment,
Accessing and
using various digital services
without discrimination

Freedom of Digital Expression

Expressing one's opinions
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Key Points of the Digital Bill of Rights

Fair Access and Equal Opportunities to Digital

Using published work to train AI models

Training is okay, but authorship is not?
AI copyright in confusion

Article 13

Protection of Digital Assets

Digital assets resulting from personal investment and effort shall be properly protected. Contracts associated with their transactions shall be fair and guaranteed to be entered into freely.

Key Points of the Digital Bill of Rights

Safe and Reliable Digital Society

Ethical Development and Use of Digital Technology

Responsible and ethical development and use of digital technology

Response to Digital Risks

Preventing and managing through means and procedures that allow appropriate actions, disclosing risk information

Protection of Digital Privacy

Protection from illegal identification and tracking such as digital surveillance, location tracking

Fostering of Sound Digital Environment

Preventing the production and distribution of false/ manipulated information, illegal/harmful information, etc

Protection of Children and Youths

Guaranteeing activities in digitally designed spaces appropriate for age, specially protecting from digital crimes

Key Points of the Digital Bill of Rights

Safe and Reliable Digital Society

Digital risks and response system

Accident resulted in driver's death...
Self-driving cars responsible?

Article 18

Response to Digital Risks

Digital risks shall be prevented and managed through means and procedures that allow for adequate measures to be taken.
Information about these risks shall be disclosed transparently in an easily understandable and transparent manner.

Key Points of the Digital Bill of Rights

Promotion of Digital Innovation Based on Autonomy and Creativity

Freedom of Digital Innovation Activities

Guaranteeing the freedom to engage in economic, social, and cultural activities that promote digital innovation

Improvement of Digital Regulation

Forming a reasonable regulatory system that respects the autonomy of the private sector, improving unreasonable regulations

Support for Digital Innovation

Supporting close cooperation between the private sector and government, like talent development, and entrepreneurship activation

Conflict Resolution in Digital Transition

Managing and preventing social conflicts, creating a consensus base through dialogue and deliberation among various stakeholders

Key Points of the Digital Bill of Rights

Autonomy and Creativity-based Digital Innovation

Regulatory friction to innovation

Emerging industries blocked by outdated regulations …
Growing voice for deregulation

Article 23

Improvement of digital regulation

To promote digital innovation, a reasonable regulatory framework that respects private autonomy should be established, while unreasonable regulations be improved, with consideration for
the pace of technological advancement, industry maturity, and societal acceptance.

Key Points of the Digital Bill of Rights

Advancement of Human Well-Being

Sustainable Digital Society

Minimizing negative impacts and damages to the environment, ecology, and climate systems, contributing to the expansion of human welfare

Global Reduction of Digital Divide

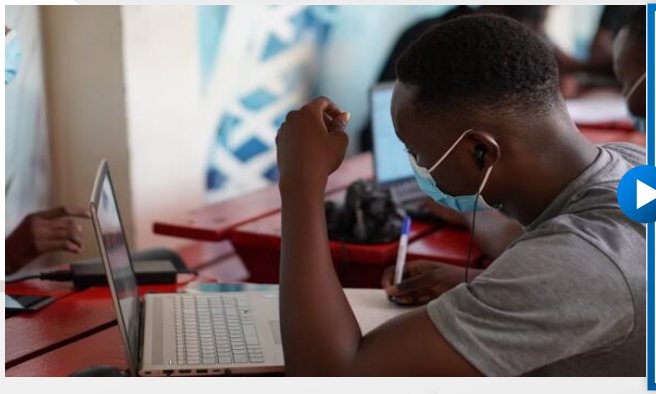
Expanding digital ODA for resolving digital divides between countries and for the shared prosperity of global citizens

Cooperation for Global Digital Norms

Establishing cooperative governance for forming and enforcing global digital norms and responding to digital risks

Key Points of the Digital Bill of Rights

Advancement of Human Well-Being



Digital divide between nations

2.7 billion, a third of world's population, are offline

Article 27

Global Reduction of Digital Divide

Nations should cooperate with the international community to reduce digital divide among nations and expand international digital development cooperation for the common prosperity of global citizens.

Follow-up Plans

Diagnosis to the State of Response to Deepening Digitalization

- Policy trends
- Status of institutional improvements
- Perception surveys
- Detailed discussions on each issues

Inter-Governmental Roadmap For Deepening Digitalization Policy

MSIT With the Ministries

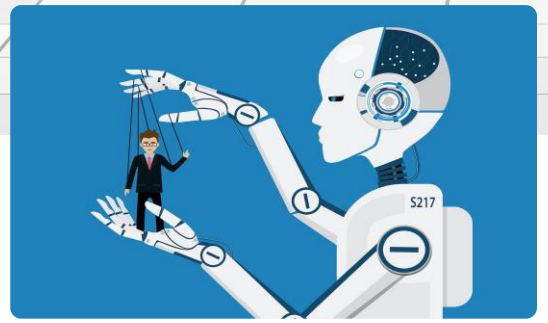
Legislative amendments + **System improvements** + **Policy reflections**

Korean Government will address the era based on the **Digital Bill of Rights** at **a national level.**
Korea committed to active sharing **Korea’s exemplary responses** with the international community.

Follow-up Plans

8 Major Issues of Deepening Digitalization

- Approaches to Recognizing Copyright in the Development and Utilization of AI
- Measures for ensuring safety and trust ethics in AI technology
- Measures to Guarantee the Right to Disconnect
- Approaches for Addressing Fake News Using Deepfakes
- Enhancing Digital Accessibility and Securing Alternative Means
- Response to Digital Disasters, Cyber Threats, and Crimes
- Preparation of Policy Measures for Stable Implementation of Telemedicine
- Scope of Introduction and Measures for the Right to be Forgotten



International Cooperation for the Global Digital Norms

Global Solidarity | **Spreading the values and principles**

UK
AI Safety Summit

OECD
Digital Society Initiative

UN
UN Global Digital Compact

International Cooperation Group

Republic of Korea, with OECD colleagues,
will responsibly **contribute to** the discussion of the **global digital norms**

Ministry of Science and ICT

In the stage of deepening digitalization,

Accelerating digital economy and Leading new digital order · norms

THANK YOU!