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Letter from the Editor-in-Chief

Myanmar and Korea have many similarities and are complementary relationship. Therefore, we believe that research exchange will expand mutual understanding between Myanmar and Korea, and will be the cornerstone for mutual development.

KOMYRA and YUE have co-published The Myanmar Journal since August 2014. So far, many scholars have published numerous papers through the journal, and We are sure that this journal has helped many people understand Myanmar and Korea more clearly and closely.

The Myanmar Journal covers various issues in Myanmar and Korea. It covers various topics that can promote bilateral development and mutual understanding, not limited to specific topics such as economy, industry, society, education, welfare, culture, energy, engineering, healthcare, and agriculture.

We hope that this journal will continue to promote understanding of the current status and potential capabilities of Myanmar and South Korea and promote in-depth international exchange and cooperation.

We would like to express our deepest gratitude to the editorial board and YUE and KOMYRA for their valuable support in The Myanmar Journal publication.

February 28, 2022

Youngjun Choi *yj choi*

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The Myanmar Journal

The Myanmar Journal (ISSN 2383-6563) is the official international journal co-published by Yangon University of Economics (YUE) and Korea Myanmar Research Institute (KOMYRA).

This journal aims to promote the mutual cooperation and development of Myanmar and Korea through intensive researches in the entire filed of society, economy, culture, and industry.

It will cover all general academic and industrial issues, and share ideas, problems and solution for development of Myanmar.

Articles for publication will be on-line released twice a year at the end of February and August every year on the Myanmar Journal webpage (http://www.komyra.com/bbs/board.php?bo_table=articles).

A Study on Digital Inclusion under the 4th Industrial Revolution: Focusing on the Cases of the United States and the European Union

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ABSTRACT : As intelligent information technology, the core of the 4th industrial revolution, such as artificial intelligence and big data, emerges based on advanced digital technology, new industries are being created, expanding industrial effects and convenience for many people. On the other hand, in the digital environment, vulnerable groups such as the elderly and the disabled who cannot or cannot access or use computers and the Internet are at a disadvantage in acquiring and using information. Digitalization, which is proceeding rapidly, is exacerbating this phenomenon and widening serious social inequality. Therefore, by effectively promoting digital inclusion policies in the era of great digital transformation, it will be possible to improve the welfare of the people by supporting all citizens to equally enjoy the benefits of digitalization. In addition, it will be possible to achieve social cohesion and economic development by breaking the link in which current class inequality is transferred to inequality in a new society and alleviating social and economic inequality using digital innovative technologies.

Key words *:* Digitalization, Digital Inclusion, social inequality, elderly and the disabled, USA, EU,

I. Introduction

As intelligent information technology, the core of the 4th industrial revolution, such as artificial intelligence and big data, emerges based on advanced digital technology, new industries are being created, expanding industrial effects and

convenience for many people.

On the other hand, in the digital environment, vulnerable groups such as the elderly and the disabled who cannot or cannot access or use computers and the Internet are at a disadvantage in acquiring and using information. Digitalization, which is proceeding rapidly, is exacerbating this phenomenon and widening serious social inequality.

Efforts have been made to resolve the digital inequality caused by the digital divide, and digital inclusion is an effort to allow all citizens, including the socially marginalized, to use the digital environment appropriately (Kang Ki-bong, May 2021).

Therefore, policy research is required so that all citizens can enjoy the benefits of digitalization by expanding digital inclusion.

Meanwhile, the United States and the European Union are establishing related policies based on the concept of digital inclusion. In addition, there are many examples of various policies and laws for the elderly and marginalized and applied in practice. It is estimated that these policies and cases will suggest many implications for policies for the effective expansion of digital inclusion.

In this study, implications for expanding digital inclusion were drawn through case studies and policy analysis in the United States and Europe.

II. Digital inclusion concept

The digital inclusion policy is an effort by society as a whole to ensure that all citizens participate in the digital world without discrimination or exclusion and equally enjoy the benefits of digital technology.

Existing digital divide bridging policies focused on ensuring information access for the underprivileged and reinforcing information utilization capabilities. On the other hand, digital inclusion is a more active dimension in which all citizens have the motivation to participate in the digital society and actively seek and enjoy the benefits of digital.

Table 1. Definition of Digital Inclusion in Major Countries and Institutions

Nation	Organization	Definition
Europe	EU	Digital inclusion is an effort to enable everyone to contribute and benefit the digital economy and society.
	ENTELIS	Digital inclusion is a policy to bridge the digital divide and promote digital literacy, and a strategy to provide education, services and opportunities to meet digital challenges.
UK	Government of UK	Digital inclusion is having the accessibility, skills and motivation to go online with confidence to access the

		opportunities of the Internet.
Australia	Austrailian Digital Inclusion Index	Digital inclusion refers to the use of technology as a channel to improve quality of life, drive education, and promote economic well-being across all elements of society.
New Zealand	20/20Trust	Digital inclusion is the social cohesion of the 21st century, where individuals and marginalized groups can access ICT and ensure the use and utilization of technology, so that they can participate and benefit from the knowledge and information society.
	Digital Inclusion Research Group	Digital inclusion means that everyone has an equal opportunity to participate in society using digital technologies.

Source: NIA, 2020.1.

Table 2. Key Policy Elements for Digital Inclusion

key policy elements		Bridging the information gap	digital inclusion
Capacity	To have the capacity to participate and grow in the digital society	O	O
Environment	Creating a digital environment in which no one is discriminated against or excluded	O	O
Utilization	Active use of digital technologies and services to improve people's quality of life	-	O
Infrastructure	Laying the foundation for digital inclusion through the participation of civil society, business and government	-	O

Source: NIA, 2020.1.

III. U.S. and European Union digital inclusion policies

1. U.S. Digital Inclusion Policies[1)]

In order to bridge the digital divide and lay the groundwork for digital inclusion, the United States is emphasizing the following policies and implementing them. First, it establishes clear goals and plans to which appropriate manpower and funds can be input. Second, it also enables communities to acquire the necessary expertise and to share and learn needs-based programs at local, regional and state levels. Third, local libraries and community-based nonprofits and educational institutions are emphasizing the role of hubs of digital expertise and access. Fourth, many communities are using

1) https://www.ntia.doc.gov/blog/2018/five-digital-inclusion-trends-united-states

performance measurement and collected data to increase the effectiveness and scope of the program. Fifth, communities are leveraging local, private, and federal assets to attract investments in broadband infrastructure.[2)]

The US government recognizes that Digital Inclusion is more than a social program that gives people access to computing and information technology. Digital inclusion is essential in all American communities, and strong Internet access is seen as a factor in which the United States can thrive socially and economically (ntia, 2022).

The National Telecommunications and Information Administration (NTIA) highlights several important trends driving broadband access and digital inclusion in the United States. In the United States, trends in digital inclusion include policy and economic initiatives at the federal, state, and local levels with a focus on well-planned initiatives, program consolidation, library modernization, and performance measurement. Underlying this trend is a drive to streamline regulations and create incentives for investments in broadband infrastructure.

1) Digital inclusion plan

More governments and coalitions are creating citywide, regional and statewide broadband and digital inclusion planning programs. These initiatives include dedicated staff, grant programs, and outcome-based measurement.[3)]

Chicago (link is external) and Philadelphia create city-wide digital inclusion coalitions, and cities, towns, counties and states across the country bring together stakeholders to assess needs and assets, develop a vision, implement programs, and deliver results An operational plan is being established to measure NTIA's

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2) BroadbandUSA is within the National Telecommunications and Information Administration (NTIA). The BroadbandUSA program serves state, local, and tribal governments, industries, and non-profits seeking to expand broadband connectivity and promote digital inclusion. BroadbandUSA facilitates planning and financing efforts through solution-neutral guides and resources. It also promotes regional and regional planning workshops, the National Broadband Availability Map (NBAM), and facilitation of interagency coordination that provide opportunities to convene with broadband stakeholders across the country. broadbandusa, https://broadbandusa.ntia.doc.gov/

3) The National Telecommunications and Information Administration (NTIA), located within the US Department of Commerce, is an executive agency that advises the President on telecommunications and information policy issues. NTIA's programs and policy decisions are primarily focused on expanding broadband Internet access and penetration in the United States, making the Internet an engine for continued innovation and economic growth. These goals are critical to America's competitiveness in the modern global economy and to addressing the nation's most pressing needs, such as improving education, health care, and public safety. In addition to collaborating with other executive agencies to develop executive positions, the NTIA represents the executive branch in national and international communications and information policy activities.

BroadbandUSA technical support team works directly with the community on digital integration plans and strategies.

2) Program Integration

Because federal agencies understand that broadband access and digital literacy are important aspects of their mission, they are pushing broadband and digital inclusion as "eligible expenses" to government programs and money flows. For example, the Department of Housing and Urban Development requires new public housing to include broadband wiring.

HUD is partnering with the EveryoneOn (link is external link) organization to create the ConnectHOME program and help residents of participating communities connect to the Internet.

As part of an economic development program within the Department of Commerce, the Economic Development Agency identified broadband as a "qualified cost" and started investing in broadband under disaster relief efforts.

At the local level, Charlotte (link is external) has created a digital inclusion alliance that unites cities, counties, public school systems, libraries and several non-profit organizations to close the digital divide from 19% to 9%. Created an operational plan focused on technology, digital literacy and opportunity creation for Mecklenburg County residents by 2026.

3) Modernize the library

The United States has a strong network of 9,000 public libraries with more than 17,000 library outlets. Almost every community in the United States has a library, many of which offer free computer use and digital literacy education.

Libraries play an important role in digital inclusion. The library is a community hub for digital access, research, and content creation.

4) Performance Measurement[4)]

Performance measurement is important early in programs to assess digital gaps and needs and expand digital opportunities, but is also essential as programs are developed and changed.

Performance measurement requires access to information, and at the federal level, surveys are conducted through NTIA's computer and Internet surveys. Every two

4) https://www.ntia.doc.gov/blog/2018/five-digital-inclusion-trends-united-states

years, it surveys more than 123,000 Americans from about 52,000 households to measure performance.

5) Asset Utilization

Although wired and wireless broadband Internet services are available in many areas of the United States, access to broadband services is lacking, particularly in rural areas.

Digital inclusion relies on community investment in broadband infrastructure. The US government has made bridging the broadband gap a US policy priority, and is issuing executive orders that make available federal assets to support rural broadband expansion.

NTIA is leveraging federal assets to encourage private investment through the Broadband Interagency Working Group (BIWG) with the US Department of Agriculture and the White House Office of Science and Technology Policy.

Table 3. US Digital Inclusion Act (2021-2022)

IIJA: Infrastructure Investment and Jobs Act	$1.2 trillion infrastructure act Also known as BIL: Bipartisan Infrastructure Law	Date Passed: 11/15/21
ARPA: American Rescue Plan Act	$1.9 trillion economic stimulus to help the US during the pandemic	Date Passed: 3/11/21
CAA: Consolidated Appropriations Act	$2.3 trillion spending act that combines $900 billion in stimulus relief for the COVID-19 pandemic in the US with a $1.4 trillion omnibus spending bill for the 2021 federal fiscal year	Date Passed: 12/27/20

Source[5]: https://www.digitalinclusion.org/

5) https://www.digitalinclusion.org/wp-content/uploads/2022/03/2022-Policy-CheatSheet-1.pdf

Table 4. America's Digital Inclusion Program (2021-2022)

Affordable Connectivity Program (ACP)	Established by: IIJA	FCC broadband discount program (continued version of the EBB starting in 2022) $30 benefit for non-Tribal households $75 for Tribal households
Broadband Equity, Access, and Deployment (BEAD) Program (PDF pg. 756)	Established by: IIJA	$42.45 billion to states for broadband deployment in unserved and underserved areas, broadband adoption, connecting anchor institutions, etc.
Capital Projects Fund (CPF)	Established by: ARPA	$10 billion for states to carry out projects that directly enable work, education, and health moni- toring, including remote options, in response to the public health emergency
Connecting Minority Communities (CMC) Pilot Program	Established by: CAA	$268 million in grants to eligible HBCUs, TCUs, and MSIs in anchor communities for the purchase of broadband internet access service or any eligible equipment, or to hire and train information technology personnel
Coronavirus State and Local Fiscal Recovery Funds (SLFRF)	Established by: ARPA	$350 billion to state, local, and Tribal governments to support recovery from COVID-19
Digital Equity Act (DEA) Grant Programs	Established by: IIJA	State Digital Equity Planning Grant Program (PDF p. 788) - $60 million to states for developing State Digital Equity Plans State Digital Equity Capacity Grant Program (PDF p. 784) - $1.44 billion to states for implementing State Digital Equity Plans Digital Equity Competitive Grant Program (PDF p. 794) - $1.25 billion to grantees for digital inclusion activities
Emergency Broadband Benefit Program (EBB)	Established by: CAA	FCC broadband discount program ($50 benefit for non-Tribal households). Transitioned into the Affordable Connectivity Program (ACP) on December 31, 2021.
Emergency Connectivity Fund (ECF)	Established by: ARPA	Program to help libraries and schools purchase devices and broadband equipment

Source: https://www.digitalinclusion.org/

2. European Union's key digital inclusion policies[6)7)]

The shift to the digital world has brought us many opportunities, but not everyone has equal access to these opportunities.

The EU is working to make the Internet more accessible:

√ accessible ICT: to make ICT more accessible to all and promote the development of accessible technologies;

√ Assistive technologies: support ICT development that supports people with disabilities in the digital world;

√ skills and digital skills: to support citizens to combat marginalization and social exclusion from society (including occupations) through ICT in education;

√ Social inclusion: Increase the participation of marginalized people in public, social and economic activities through social inclusion projects.

The European Union recognizes another barrier to online participation is language.[8)] The EU is taking steps to encourage multilingual use online. More than 200 million euros have been invested in this sector over the past 10 years. It also launched the Connecting Europe Facility with eTranslation service providing multilingual support for digital services and public administration across the EU.

1) Accessible ICT (ICT) to make ICT accessible to everyone

ICT accessibility is complemented by assistive technology, and interoperability of ICT and ICT-based services is required to provide equal access to ICT-based services. This area relates to the EU implementation of

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6) https://digital-strategy.ec.europa.eu/en/policies/digital-inclusion

7) The European Union is setting the concept of 'digital inclusion' as its policy goal instead of the concept of 'bridging the digital divide or information gap'. The digital disparity policy focuses on diagnosing information exclusion groups and devising support measures by focusing on differences in access to information technology. On the other hand, the digital inclusion policy recognizes digital technology as an essential commodity for social communication and economic activity, and focuses on expanding digital opportunities for all citizens. It also assumes clear policy goals of social inclusion, economic competitiveness, and individual quality of life.

8) The EU has 24 official languages and more than 60 regional and ethnic languages.

the United Nations Convention on the Rights of Persons with Disabilities. The Convention has an obligation to remove barriers to access and to adopt and promote the design of approaches for this purpose.

The Commission has therefore adopted the European disability strategy 2010-2020 to support the implementation of the Convention in the EU, Regulation 1025/2012 (EU. Regulation 1025/2012) states that: . "The European standardization system should also take full account of the UN Convention on the Rights of Persons with Disabilities. Therefore, it is important that organizations representing the interests of consumers sufficiently represent and include the interests of persons with disabilities. In addition, the participation of persons with disabilities in the standardization process should be facilitated by all possible means."

Directive (EU) 2016/2102 on the accessibility of public sector bodies' websites and mobile application (WAD) It specifies accessibility requirements specified in Article 4 for the content of websites and mobile applications that meet the relevant integration standards.

In December 2018, a reference to harmonized standards for websites and mobile applications created in support of Directive (EU) 2016/2102 was published in Commission Implementation Decision (EU) 2018/2048. EN 301 549 V2.1.2 (2018-08) A unified standard for accessibility requirements for ICT products and services was presented. This guidance provides a methodology for monitoring website and mobile applications for compliance with requirements.

2) Assistive technologies to support the elderly and the disabled

The EU is supporting the R&D of ICT solutions to support the independent and active life of the elderly through the Ambient Assisted Living (AAL) program.[9] For EU member states, ICT innovation service application research and pilot projects related to 'Well Aging' are supported for 2-3 years after market launch.

In 2014, AAL was upgraded to AAL2. AAL2 is concentrating on the spread and commercialization of R&D achievements such as developing

9) Park Seon-mi et al., Case Study of ICT Utilization for Response to a Super Aged Society, Seoul Digital Foundation, 2019.12.

modular products and providing integrated solutions by interconnecting existing AAL projects.[10)]

3) Skills and digital skills for marginalized and socially excluded groups

Currently, more than 70% of companies in the EU are surveyed that a lack of staff with adequate digital skills is an obstacle to investment. [11)]

All Europeans need digital skills to study, work, communicate, access online public services and find reliable information.[12)] According to the Digital Economy and Social Index (DESI), 4 out of 10 working adults in Europe lack basic digital skills. There is also a low percentage of women in technology-related occupations and research fields, with only 1 in 6 ICT professionals and 1 in 3 science, technology, engineering and math (STEM) graduates being women.

The European Commission has set a digital education action goal to ensure that 70% of adults have basic digital skills by 2025. It aims to reduce digital literacy among 13-14 year-olds, who lack computing and digital literacy skills, from 30% in 2019 to 15% by 2030.

4) Social inclusion to expand social participation of the underprivileged

The European Union's social policy goals are to promote employment, improve living and working conditions, provide an adequate level of social protection and develop measures to prevent exclusion.[13)]

In June 2010, the European Council presented a 10-year vision for Europe, adopting a strategy for smart, sustainable and inclusive growth through Europe 2020. This strategy includes five main goals:

- employ
- Research and development
- Climate change and energy efficiency

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10) AAL supports the development of products and services for people facing aging and the elderly in need. http://www.aal-europe.eu/
11) https://digital-strategy.ec.europa.eu/en/policies/digital-skills-and-jobs
12) https://digital-strategy.ec.europa.eu/en/policies/digital-skills-and-jobs
13) EU Social Inclusion Policy, https://www.gov.ie/en/publication/809685-eu-social-inclusion-policy/

- education
- Poverty Reduction

IV. Conclusion and Implications

In the era of great digital transformation, by effectively promoting the digital inclusion policy, it will be possible to enhance the welfare of the people by supporting all citizens to enjoy the benefits of digitalization equally. In addition, it will be possible to achieve social cohesion and economic development by breaking the link in which current class inequality is transferred to inequality in a new society and alleviating social and economic inequality using digital innovative technologies.

On the other hand, if the US and EU look at their digital inclusion policies, the following implications can be drawn.

First, it is a definition of digital inclusion that fits the trend. The definition and detailed concept of digital inclusion is changing, and since digital inclusion policy has an important effect on the scope of application and implementation method, it is required to consider the cases of major countries (USA, EU, etc.) and establish it in accordance with reality. .

Second, clear regulations on the digitally vulnerable are required. Specifically, it is necessary to clarify the target of policy application by adding detailed classifications such as the disabled, the elderly, low-income class, and rural residents.

Third, the use of easy-to-understand digital terminology. It is necessary to refine and distribute unfamiliar and difficult digital terminology to familiar terms to the underprivileged.

Fourth, accurate digital inclusion performance measurement is required. For digital inclusion policies to be effective and sustainable, improvements based on accurate performance metrics are required.

Fifth, the participation of private and private companies is required to successfully expand digital inclusion. Active participation of the private sector and private companies is essential for effective digital inclusion policies. Therefore, it is necessary to discover areas in which private companies will participate, and to consider ways to provide budgets and incentives for

them.

Sixth, it is required to raise awareness of digital inclusion in terms of cost to reduce future social costs and expand efficiency. It is expected that costs such as intelligent information service providers, local governments, and the government will be incurred for digital inclusion, and it is necessary to raise awareness that these costs are not unnecessary costs, but are essential investments for social convergence and development.

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