Dr. Kim, Min-Kyoo





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KRIVET Korea Research Institute for Vocational Education & Training

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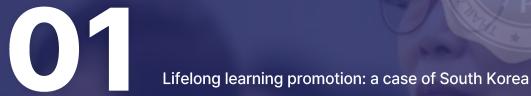
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- How we made a difference

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- Current status & diagnosis of life-long learning
- Policy direction & Tasks
- Implication

3. Future challenges and directions with ASEAN Countries

• Invest new infra for all(Digitalization, Decarbonization and Globalization)



Historical Background for Lifelong Lean and Future of Job



Why South Korea?

Historic background

Why South Korea?

How we made a difference

Korea government's road to lifelong learning for all

Future challenges and directions for all

Real industry

school cooperation model for developing countries

- TVET in Korea has widely been credited for effectively supporting the rapid economic growth in the last 40 years(UNESCO-UNEVOC, 2018)
- Korea has among the most educated youth population in the OECD area(OECD, 2019)
- Korea Meister high school was selected as the best practice in the world (Mckinsey, 2012)



How we made a difference(1)

>> Trends in Korea TVET Development

Historic background

Why South Korea?

How we made a diffenrence What is the Korean model for Lifelong learning

Korea government's road to lifelong learning for all

Future challenges and directions for all





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3

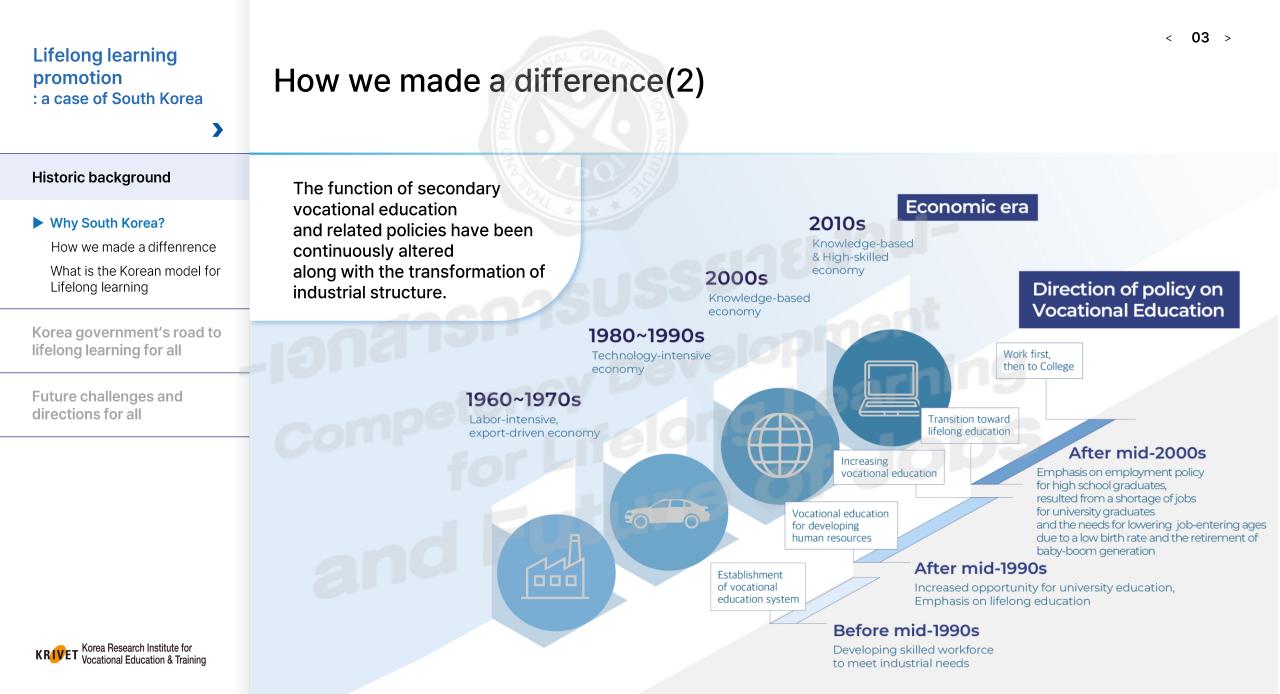
50 years ago, Korea built "Korea-Germany Busan Vocational Training Center (currently Korea Polytechnics East Busan Campus) and "Changwon Polytechnic College" (currently Korea Polytechnics Changwon Campus) with the help of Germany.



Female employees are working at a 'Hankuk semiconductor' factory in Bucheon, Gyeonggi Province, the predecessor of Samsung Semiconductor. It was a time when semiconductors were produced with basic and simple equipments such as microscopes.







KR1

How we made a difference(3)

 Achievements of Vocational Training (VT)
 Increasement of per capita GDP has a linear relationship with the total no. of trainees by every 5 years Historic background Why South Korea? How we made a diffenrence Trainees for 5 years(Unit: 1,000 person) GDP per One person(\$) What is the Korean model for Lifelong learning 18,292 Korea government's road to 25000 lifelong learning for all 13,77 Future challenges and 20000 directions for all 15000 10000 5000 1,007 313 313 496 99 273 \sim Korea Research Institute f Vocational Education & Training

How we made a difference(4)

Historic background

>> Trends of Important figures over last 3 years

Why South Korea?

How we made a diffenrence What is the Korean model for Lifelong learning

Korea government's road to lifelong learning for all

Future challenges and directions for all

Category	2019	2020	2021
Trainings for Job Seekers	242,850	427,106	669,463
Trainings for 3,186,628 Current Employees		2,437,856	3,992,319
Total	3,429,478	2,864,962	4,661,782

* EIS(Employment Information Service) System from

Number of Trainees : About 4.6 million a year (about 8% of the Koorea population

Number of Training Courses : About 77,189 (2021) (Assessed by KSQA)

Number of Training Providers : About 4,238 (2021) (Registered by KSQA)



Current status & diagnosis of life-long learning

Reform current lifelong based TVET programs

Historic background

> Map of the Vocational Skills Development Training Project

Why South Korea?

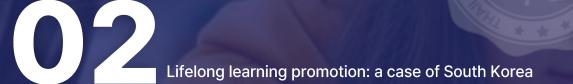
How we made a diffenrence What is the Korean model for Lifelong learning

Korea government's road to lifelong learning for all

Future challenges and directions for all

ิจสา	Employer	 Vocational competency development training for employers Consortium for the HRD Ability Magnified Program(CHAMP) Customized for each region and industry Industry-led training for youths Work-Learning Dual System 		
Private training	Individual	 National Tomorrow Learning Card System Training for key working-level HR(K-Digital training) K-Digital Basic competency training Training in national key strategic industries (including the training tailored to companies) Specialized training for high school 		
	Etc.	 Vocational competency development training for employers Consortium for the HRD Ability Magnified Program(CHAMP) Customized for each region and industry Industry-led training for youths Work-Learning Dual System 		
Public training	 Training for Multi-functional Engineers Training for Craftsman High-tech, specialized training for a middle-aged 			
Enterprise support	 Training for Multi-functional Engineers Training for Craftsman High-tech, specialized training for a middle-aged 			





Korea government's road to lifelong learning for all



Current status & diagnosis of life-long learning

Historic background

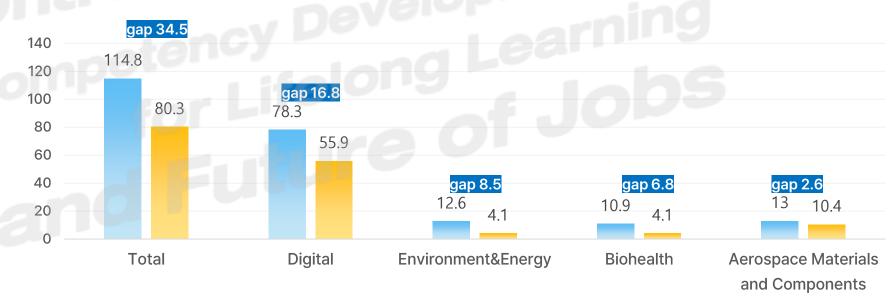
Korea government's road to lifelong learning for all

 Current status & diagnosis of life-long learning
 Policy direction & Tasks
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Future challenges and directions for all

Despite the rapid increase in demand for manpower in the advanced industry, supply is not keeping up.
 In the next five years (2023-2027), a shortage of 345,000 people in new technology fields such as digital, environment, and energy is expected(KRIVET)

> Projected shortage of personnel in new industries for 2023-27





Korea government's road to lifelong learning for all

▶ 직업능력개발의 현황 및 진단

Future challenges and

추진방향 및 과제

directions for all

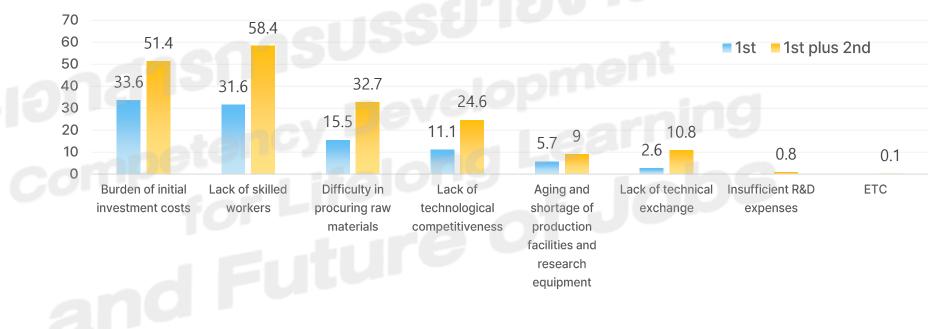
기대효과

Current status & diagnosis of life-long learning

Industrial transformation increases demand for new manpower

Historic background

> Challenges in the development of robotics industry technology



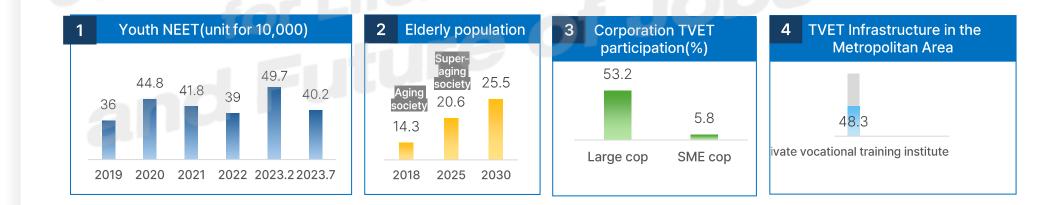
Source : Ministry of Trade, Industry and Energy & Korea Robot Industry Association (2023.12)



Current status & diagnosis of life-long learning

Vulnerable groups, SMEs, and local regions have low participation in job skill development

- Decrease in productive population due to population decline, aging, etc.
- Small and medium-sized enterprises have a low training participation rate of 5% due to lack of awareness of job skill development and administrative burden
 - Most of the participants and infrastructure for job training are concentrated in the metropolitan area (68.5% in the metropolitan area)



Historic background

Korea government's road to lifelong learning for all

 Current status & diagnosis of life-long learning
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Future challenges and directions for all



Current status & diagnosis of life-long learning

Strengthening support for vulnerable job training targets

Historic background

Korea government's road to lifelong learning for all

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Future challenges and directions for all

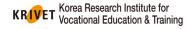
 As industries change rapidly, the importance of reskilling and upskilling continues
 * 1/3 of jobs worldwide will change by 2030 (World Economic Forum, '20)

> Skill based HR policy

A movement to utilize and apply skill-based data to all aspects of human resource management (job reassignment, competency assessment, career path development, provision of career development opportunities, etc.)

GSS 2022		
1. Reskilling/Upskilling (1)	12.5%	\leftrightarrow
2. Collaborative/social learning (2)	9.6%	\uparrow
3. Personalization/adaptive delivery (4)	8.1%	\checkmark
4. Coaching/mentoring (6)	7.6%	\uparrow
5. Learning analytics (3)	7.3%	\downarrow
6. Skills-based talent management new)	7.2%	new
7. Micro learning (7)	6.9%	\leftrightarrow
3. Learning experience blatforms (5)	6.7%	\checkmark
9. Consulting more deeply with the business (9)	6.1%	\uparrow
10. Showing value (8)	5.5%	\checkmark
11. Performance support (10)	4.9%	\checkmark
12. Artificial intelligence (12)	4.7%	\uparrow
13. Virtual and augmented reality(13)	4.7%	\uparrow
14. Mobile delivery (11)	4.0%	\checkmark
15. Curation (14)	2.7%	\checkmark
16. Other (16)	1.4%	\downarrow

GSS 2023		
1. Reskilling/upskilling (1)	12.0%	\downarrow
2. Artificial intelligence (12)	9.2%	\uparrow
3. Skills-based talent management (6)	9.0%	\uparrow
4. Learning analytics (5)	7.8%	\uparrow
5. Collaborative/social earning (2)	7.5%	\checkmark
6. Personalization/adaptive delivery (3)	7.5%	\checkmark
7. Coaching/mentoring (4)	7.4%	\checkmark
3. Consulting more deeply with the business (9)	6.6%	\uparrow
9. Showing value (10)	6.3%	\uparrow
10. Micro learning (7)	6.1%	\checkmark
11. Learning experience platforms (8)	6.1%	\leftrightarrow
12. Performance support (11)	4.9%	\uparrow
13. Virtual and augmented reality (13)	3.5%	\checkmark
14. The Metaverse (new)	2.6%	new
15. Mobile delivery (14)	2.2%	\checkmark
16. Other (16)	1.4%	\checkmark



Policy direction & tasks

1. Reform of vocational training(1)

Historic background

Expanding support and participation targets

Korea government's road to lifelong learning for all

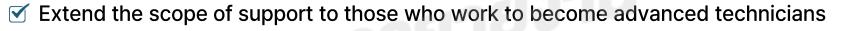
Current status & diagnosis of life-long learning

Policy direction & Tasks

Implication

Future challenges and directions for all

Korea Research Institut



- Support the use of cutting-edge technology* in corporate management by allowing business owners to participate
 - * Creating new business models, corporate application cases, and training by utilizing production-type AI, etc.

> Expansion of KDT training support areas

	Comp	21 new technology fields	bS	Convergence
	Digital	①Artificial intelligence ②cloud ③internet of things ④digital ④Metaverse ⑥General SW ⑦Blockchain ⑧big data ⑨cyber security		Humanities and Social Sciences/ New Technology
, ning	Advanced Industry	 Secondary battery @display 3d printing Bhigh-tech industry @Advanced materials Odrone @semiconductor @Nano @robot Bbiohealth @eco-up @Renewable Energy Hydrogen 		Occupations + New Technology Occupations

Policy direction & tasks

1. Reform of vocational training(2)

Historic background

Korea government's road to lifelong learning for all

Current status & diagnosis of life-long learning

Policy direction & Tasks Implication

Future challenges and directions for all

 establishment of a content-based joint training model that provides training to workers from cooperative small and medium-sized enterprises ('24.)

Utilizing excellent training programs for large corporations' own employees

Training facility		Training course
Current	Government infrastructure construction support (regulations such as self-payment)	Short-term focus (within 8 hours per day)
Revision	Utilization of existing infrastructure by large corporations	Modular, mid- to long-term (at least 40 hours)

Support systematic competency development of workers in small and medium-sized

businesses by conducting competency evaluation and certification* (in-house, private

qualifications, etc.) for training graduates.

* Large companies utilize existing in-house/private qualification systems or develop new ones to provide services to workers in small and medium-sized businesses

 \rightarrow Support for external consulting costs, etc. for qualification system supplementation and new development



Korea government's road to

Historic background

Policy direction & tasks

2. Reform of the qualification system (1)

Vocational Skill Development with KQF, SQF based on NCS (National Competency Standards)



Qualification system & Labor market

Policy direction & tasks

2. Reform of the qualification system (2)

Historic background

Korea government's road to lifelong learning for all

- Current status & diagnosis of life-long learning
- Policy direction & Tasks Implication

Future challenges and directions for all

Korea Research Institu

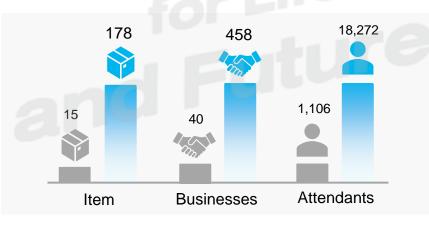
ocational Education & T

Program-Based National Technical Qualification

National technical qualification acquired through systematic completion of education and training courses designed with NCS (National Competency Standards) and internal and external evaluation



internal & external evaluation



Since the first 15 items were selected in 2015, new items are selected and operated annually.

As of 2021, 18,272 participants from 458 institutions in 103 events

• Year by year, the number of operating items, operating institutions, and participants continues to increase.

Policy direction & tasks

2. Reform of the qualification system (3)

> Work-based TVET through Korea Dual System

Korea government's road to lifelong learning for all

Historic background

Current status & diagnosis of life-long learning

Policy direction & Tasks

Implication

Future challenges and directions for all

Apprenticeship school

Students of specialized school become a learning worker in a company

 $2014 \quad 2021$ $9 \quad \Rightarrow 171 \text{ school}$ $494 \quad \Rightarrow 23,490 \text{ people}$

P-Tech

Pathways in Technical Education, oriented Convergent High Technology

Running integrated curriculum for high school and college (Polytechnic)

Cultivate middle and high skilled people responding to industry demands (1,414 participants, 2021)

Reducing pressure to enter higher education institute, So it is possible for high school students to make early entry to labor market

IPP Type

Industry Professional Practice

Work and learning dual system for university (4-years) by converging IPP with work and learning dual system.

2015 2021 14 → 35 university

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Current status & diagnosis of life-long learning

Adapts in the qualification system due to rapid industrial changes

Historic background

> Trends in Korea Dual program Development

Korea government's road to lifelong learning for all

✓ Top 15 Korea Dual program by Year (Based on participants)

Current status & diagnosis of life-long learning Policy direction & Tasks Implication

Future challenges and directions for all

	2016	2017	2018	2019	2020	2021	2022
1	Electronic productionL2	CNC milling processing L3	CNC milling processing L3	CNC milling processing L3	CNC milling processing L3	Electronic productionL2	SW developmentL5
2	manual welding(CO2)L2	Electronic productionL2	Electronic productionL2	Electronic productionL2	manual welding(CO2)L2	manual welding(CO2)L2	Mechapinal Element
3	sw developmentL4	Quality managementL3	Medical CoordinatorL3	Quality managementL3	Quality managementL3	SW developmentL5	CNC runng processing L3
4	Cutting processing(Milling) L3	sw developmentL5	CNCShelf processingL3	manual welding(CO2)L2	Electronic productionL2	CNC MingL3	Electronic productionL2
5	Cutting processing(Shelf)L3	Medical CoordinatorL3	Quality managementL3	medical careL2	Medical CoordinatorL3	Quality p nagementL3	Electronic device Hardware Development L3
6	Automobile maintenanceL2	CNCShelf processingL3	SW developmentL5	Medical CoordinatorL3	SW developmentL5	medical careL2	manual welding(CO2)L2
7	Double shot moldingL3	Electric ConstructionL2	manual welding(CO2)L2	Mechanical Element DesignL3	medical areL2	Mechanical Element DesignL3	Electronic productionL4
8	social workerL3	manual welding(CO2)L2	medical care 2	CNCShelf processingL3	Production anagementL3	Production managementL3	HotelFood and beverage serviceL3
9	salesL3	e-BisinessL3	sw developmentL	SW developmentL5	social workerL3	Medical CoordinatorL3	Food and beverage serviceL3
10	Mechanical Element DesignL3	medical careL2	Automobile maintenanceL2	sw developmentL3	Automobile maintenanceL2	social workerL3	sw developmentL3
11	sw developmentL3	sw developmentL3	Electronic device Hardware Development L3	Electronic device Hardware Development L3	Mechanical Element DesignL3	sw developmentL3	Assembly devicesHotelL3
12	Press mold manufacturinL3	Food and beverage serviceL3	social workerL3	Automobile maintenanceL2	manual welding(CO2)L4	Marketing StrategyL5	Tax,accounting managementL3
13	Medical CoordinatorL3	Automobile maintenanceL2	Mechanical Element DesignL3	Food and beverage serviceL3	CNCShelf processingL3	Electronic device Hardware Development L3	Automobile maintenanceL2
14	Project managementL3	salesL3	Production managementL3	Production managementL3	e-Business L3	Food and beverage serviceL3	Production managementL3
15	crane controlL2	Electronic device Hardware Development L3	Tax,accounting managementL2	Assembly devicesHotelL3	Electric ConstructionL2	Automobile maintenanceL2	Manufacturing Automatic control deviceL3



Current status & diagnosis of life-long learning

Future Demand forecast for Korea Dual program

Histo	oric	background	

Korea government's road to lifelong learning for all		Expected a rise In demand* within the next 5 years	Expected a fall in demand** within the next 5 years
Current status & diagnosis of life-long learning Policy direction & Tasks	Level of qualification	Includes a large number of highly skilled courses above L4	L2 or L3 high school/college level
Future challenges and directions for all	Qualification	SW Development_L5(18 institutions), sw development_L3(11 institutions), Quality management_L3(6 institutions), Mechanical Element Design_L3(5 institutions), Semiconductor Equipment_L5(5 institutions), Production management_L3(5 institutions), Electronic device Hardware Development _L3(5 institutions), CNC Milling Processing_L3(4 institutions), Structural analysis_L4(3 institutions), Ship equipment design_L3(3 institutions), Embedded SW development_L5(3 institutions), Manufacturing Automatic control device_L3(3 institutions), Electronic device Hardware Development_L2(3 institutions), Electronic device Hardware Development_L2(3 institutions), Electronic device Hardware Development_L5(3 institutions)	Mechanical Element Design_L3(4 institutions), manual welding(CO2 welding)_L2(4institutions), Quality management_L3(4institutions), CNC Milling processing_L3(3 institutions), CNCShelf processing_L3(3 institutions), machinery assembly_L2(3 institutions), Assembly devices Hotel_L3(3 institutions), Milling processing_L2(3 institutions), Automobile maintenance_L2(3 institutions), Electronic production_L2(3 institutions)

* Demand is expected to rise in high-tech manufacturing industries related to 'development' such as SW Development, Semiconductor Equipm ent, Electronic Device, Hardware and Automatic Control Devices.



** Demand is expected to fall in 'production' manufacturing sector such as manual welding, CNC and assembly, processing or maintenance.

Policy direction & tasks

3. Linkage between vocational training and qualifications (1)

Historic background

Korea government's road to lifelong learning for all

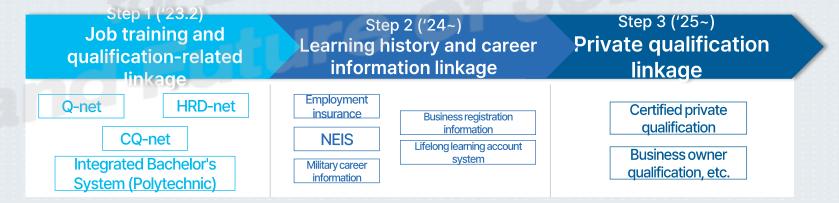
 Current status & diagnosis of life-long learning
 Policy direction & Tasks
 Implication

Future challenges and directions for all

- ✓ Worknet, Employment Insurance DB, Q-net, etc., personal competency information is linked to HRD-Net to provide individual job competency level diagnosis and customized training services ('24~)
 - •Establish a job competency bank information system to support systematic management of individual job competency information and gradually improve it to support individual-led lifelong career management ('23.9~)

* Job competency bank system: 'Individual job competency recognition and management system' that allows individuals to save and integrate various job competencies acquired throughout their lives and utilize them for employment and personnel placement, etc.

> Step-by-step expansion of job competency bank system linkage information (plan)



cational Education &

Policy direction & tasks

3. Linkage between vocational training and qualifications (2)

Historic background

Korea government's road to lifelong learning for all

Current status & diagnosis of

life-long learning

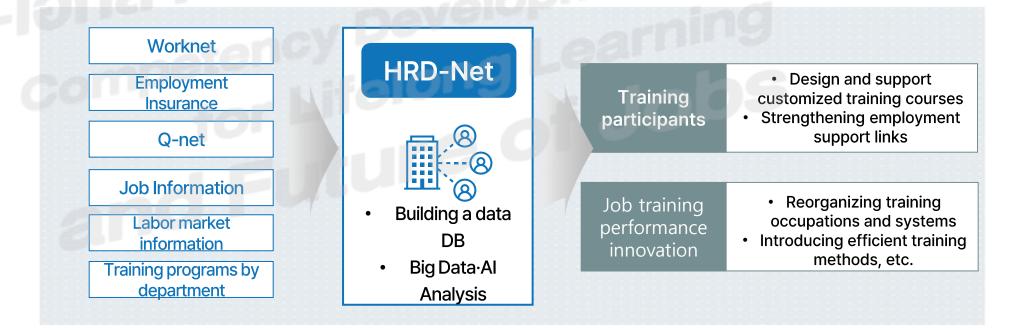
Policy direction & Tasks

Implication

Future challenges and directions for all

In order for all citizens to search and utilize information related to human resource development projects in one place, information on training programs by department is integrated and linked into HRD-net.

*Jobs, qualifications, job information, support targets and levels by business, training institution information, etc.





Policy direction & tasks

> HRD Road map, Corporation

3. Linkage between vocational training and qualifications (3)

Historic background

Korea government's road to lifelong learning for all

Current status & diagnosis of life-long learning

Policy direction & Tasks Implication

Future challenges and directions for all



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Stagnant Leap period Arrival

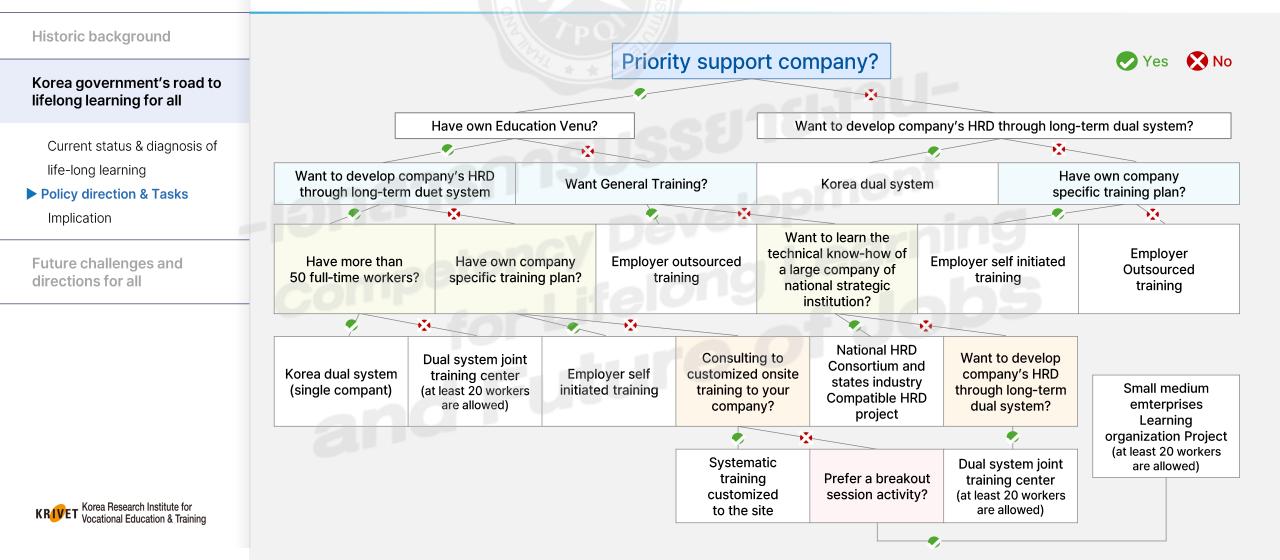
System	natic on-the-job training(S-OJT)
Suppor	rt learning system for SMEs
Korea c	dual program
Nationa	al Human Resource Development Consortitum
Human	resource development programs customized to state and industries
Employ	ver Vocational Education Development Training
HRD Se	elf assessment service
Human	Resource Development Conference
Korea li	ndustrial Professor
Certific	ation of Excellence HRD Institution



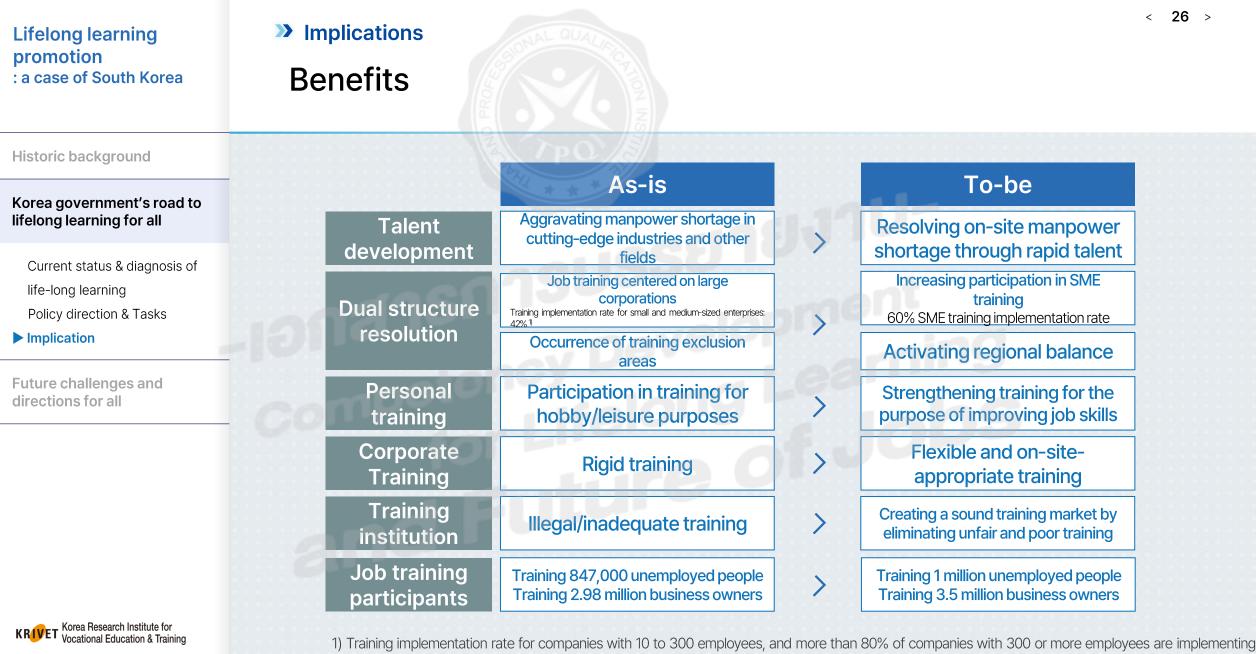
3. Linkage between vocational training and qualifications (4)

25 >

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Policy direction & tasks



training.

What is the Korean model for Lifelong learning

Historic background

Korea government's road to lifelong learning for all

- Current status & diagnosis of life-long learning
- Policy direction & Tasks
- Implication

Future challenges and directions for all

Government-led HRD

Implications

Korea, where industrial change is rapid

Government's preemptive response

Only competitive programs survive

Increasing government investment

Government R&D investment increases every year

Enabling government officials to make better decisions EX) KRIVET as a national thinktank

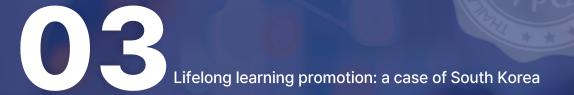
sectors launch new programs every year through fierce competition.

Various providers from the

government and private

Competitive Program

IVET Korea Research Institute for Vocational Education & Tra



Future challenges and directions With ASEAN Countries



Invest new infra for all (Decarbonization)

Historic background

Korea government's road to lifelong learning for all

Future challenges and directions for all

Invest new infra for all



Apple already announced in 2018 that it had succeeded in sourcing 100% of its electricity from renewable energy for its corporate operations.



Global companies such as Google, Amazon, and Starbucks are joining the use of renewable energy. And these companies are demanding that their business partners also participate in RE100.



Korea Polytechnic University is also responding to changes in industrial structure by focusing its vocational training on 'digital and low carbon' and accelerating the training personnel.

Al & Low Carbon Department **10** new ones Student enroll compared to previous year **2x ↑**



1 It is necessary to promote joint efforts to foster human resources in the low-carbon sector through cooperation with ASEAN countries.

The International Cooperation Fund and ODA need to focus on fostering low-carbon human resources and proactively respond to industrial changes.



Invest new infra for all(Decarbonization)

Historic background

Korea government's road to lifelong learning for all

Future challenges and directions for all

Invest new infra for all



Busan

Electric car

Low-carbon car maintenance (25) Low-carbon vehicle

advanced maintenance (20)

Secondary battery facility operation (25) Secondary

battery recycling (20)



Daegu

Secondary battery

system

Invest new infra for all (Digitalization)

Historic background

Korea government's road to lifelong learning for all

Future challenges and directions for all

Invest new infra for all



In order to secure global leadership in the AI field, we are actively promoting the recruitment and support of overseas talent. The White House announced plans to expand STEM visa pathways in an executive order on AI development and use

* Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artifical Intelligence ** Key talent policy contents include plans to expand visa pathways to attract STEM and AI talent

✓ Korea also has an active policy to secure excellent skilled talent from overseas



USA

Expansion of the work-study program for 1,000 foreign students in 2024 Expanding employment visas (E7 visas) to service industries as well as manufacturing industries



Invest new infra for all (Digitalization)

Historic background	Nation	Nation Case		Туре			
Korea government's road to	INALION			b	с	d	
lifelong learning for all		Aribus' innovation			~	~	
Future challen was and	Germany ABB's modernization of dual program training				~	~	
Future challenges and directions for all		Establishing a separate career development path for potential talents	<			~	
	Denmark 🛟	Establishment of knowledge sharing center for robot technology and automation	<				
Invest new infra for all	Running Jule Verne manufacturing academy				~	~	
	France Operating qualification campuses and transportation sector jobs	Operating qualification campuses and transportation sector jobs				~	
	Ireland	Developing new dual program under the wave of technology changes		~			
		Modernization of occupations in designated technician dual program	~				
	Bosch industry 4.0 human resources development program	Bosch industry 4.0 human resources development program		~	~		
	Italy 🌗	Advancement of dual program in advanced manufacturing sector					
	Australia 🚳	Simens dual program advanced pilot program	~	~	~		
	Australia Varley group's advancement of dual program						
	USA 🕌	Optimization of dual program in Oberg industry					
	USA 👹 Mecha	Mechatronics dual program of Festo Didactic	~		~		



Note) a: Modernization of existing occupations, b: Development of new & emerging occupation program, c: development of new corporate-led dual programs (ex. Private autonomous dual programs, etc.), d: Systematization of dual program processes within clusters

Invest new infra for all(Globalization)



Korea government's road to lifelong learning for all

Future challenges and directions for all

Invest new infra for all

PUBLIC SPACE		PRIVATE SPACE
National qualifications frameworks	Occcupation entry	Certifications for continuing professional
VET qualifications	Upskilling, reskilling	development (professional bodies)
General qualifications	Integration of certificates	Certification Vendor qualifications
Higher level qualifications (including universities)	Recognition of prior learning	Topping up and gap-filling certification



출처: Anastasia Pouliou(2024) EXPLORING THE EMERGENCE OF MICROCREDENTIALS IN VOCATIONAL EDUCATION AND TRAINING (VET). Cedefop.

Invest new infra for all(Globalization)

Historic background

Korea government's road to lifelong learning for all

Future challenges and directions for all

Invest new infra for all

> Mutual recognition agreement of qualification between countries is the effective way for facilitating the movement of skilled person.

Example of Korea's MRA on qualification with >



Architect APEC Architect

- Korea EU (on-going)
- Korea US (on-going)

Engineer

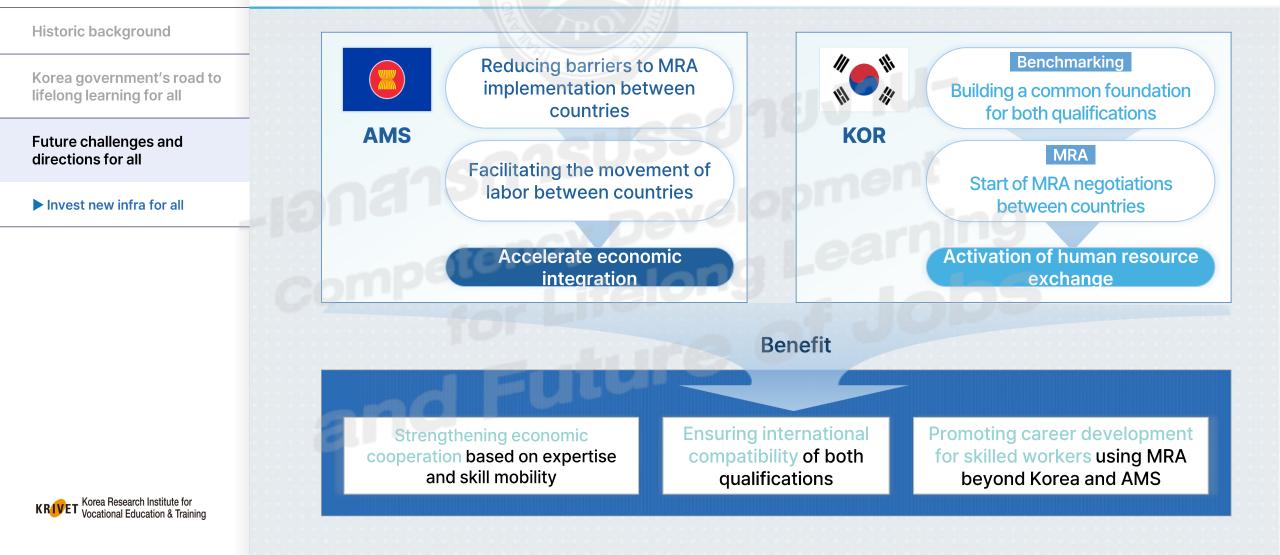
International Engineer (2015)

- Korea Australia (2015)
- Korea US (2016, Texas only)

Certificate

- Korea · Japan (IT, 2001) ٠
- **Korea China** (IT, 2006) ٠
- Korea Vietnam (IT, 2008) ٠
- Korea Thailand ٠ (Welder, 2024 on-going)

Invest new infra for all(Globalization)





Thank you

