

# **Digital Technology Use in SOE Performance Monitoring and the Role of the Ownership Entity: The Case of Korea**

State-Owned Enterprises (SOE) Global Conference  
Session 5: Monitoring and Strengthening SOE Performance  
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# Digitalization as an Enabler of Active SOE Ownership

## OECD 2024 Guidelines: Active, Informed and Professional Ownership

- The OECD Guidelines state that the state should act as an informed and active owner, with SOE governance conducted in a transparent, accountable, professional, and effective manner.
- Ownership entities are expected to ensure:
  - Efficiency
  - Transparency
  - Level playing field
  - Sustainability and resilience
  - Public policy objectives

## Digital technologies can strengthen this ownership function by:

- Supporting timely and systematic performance reporting
- Enabling continuous monitoring and benchmarking
- Improving quality, accessibility, and transparency of disclosure
- Supporting oversight of governance, fiscal, sustainability, and risk information
- Widening access to information for citizens, investors, and stakeholders

**Digitalization is an enabling tool for stronger SOE performance monitoring, accountability, and ownership decision-making.**

# Korea's Institutional and Digital Systems for SOE Management

## 1. Efficiency – SOE Performance Evaluation Portal

### How performance evaluation contributes to public-sector efficiency

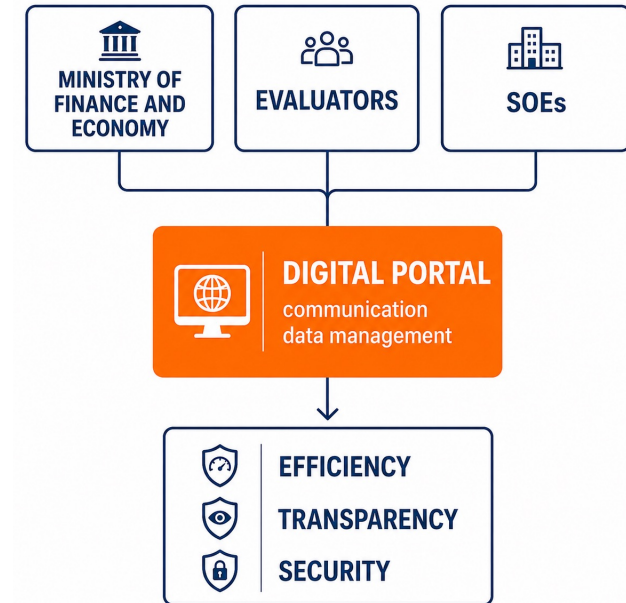
- Requires SOEs and public institutions to set, track, and manage KPIs
- Enables cross-institutional comparison and benchmarking
- Provides concrete evidence for operational improvement
- Strengthens a culture of continuous performance improvement

### Korea's performance evaluation system

- Annual evaluation of 87 public enterprises and quasi-governmental institutions (2024)
- More than 100 external experts participate in coordination with ministries and public institutions
- Combines extensive quantitative data and qualitative evidence
- Multi-stage process: written review → on-site inspection → appeal handling → finalization of results

### How the digital portal improves efficiency:

- Supports timely communication among evaluators, institutions, and government
- Centralizes reports, evidence, results, and appeals
- Records evaluator assignments, process logs, and disclosure history
- Strengthens security through role-based access and protection of sensitive data



# Korea's Institutional and Digital Systems for SOE Management

## 2. Transparency – Korea Information Disclosure Portal

Public disclosure allows citizens to review decisions, budgets, and records. It also gives citizens and stakeholders opportunities to participate in and monitor the policy process.

Korea's Information Disclosure Portal was launched in 2006 to strengthen citizens' right to know and enhance administrative transparency.

- 2013: Introduced ICT-enabled original-document disclosure and extended it to SOEs and public institutions
- 2017: Removed fees for electronic disclosure, regardless of file size
- 2020: Expanded the disclosure scope and standards for public institutions' business expenses

**The portal enables citizens to access SOEs' and public institutions' decisions and records, strengthening transparency, accountability, and public trust.**

Trends in SOE Original-Document Disclosure, 2016-2024

Year	Requests	Disclosures	Disclosure Rate (%)
2016	145,366	85,297	58.7
2017	153,588	88,297	57.5
2018	152,894	86,265	56.4
2019	161,815	96,987	59.9
2020	156,147	99,341	63.6
2021	156,892	103,674	66.1
2022	159,208	109,451	68.7
2023	102,751	74,535	72.5
2024	99,657	70,660	70.9

Source: Korea Information Disclosure Portal

# Korea's Institutional and Digital Systems for SOE Management

## 2. Transparency – Data Analysis, Retrieval and Transfer System (DART)

Listed SOEs disclose corporate information to shareholders and the public through DART under the same market-disclosure standards as private listed companies. Disclosures include: periodic filings, event-driven disclosures, major reports, and external audit reports.

- Ensures equal access to information for market participants and the public
- Strengthens external monitoring and accountability of listed SOEs
- Supports OECD-aligned transparency and accountability for listed companies

### Digital technologies can strengthen transparency in SOEs by:

- Building public trust in policies and corporate activities
- Expanding accessibility and enabling public oversight
- Encouraging responsible decision-making through external scrutiny and verification

Disclosure Practices and Compliance Rates of Listed Korean SOEs

Category	Key Indicator	Private (n: 122, 2022)	Listed SOEs (n: 4, 2022)
Share holders	① Notice of general meeting at least 4 weeks in advance	42.60%	0.00%
	② Electronic voting	84.40%	75.00%
	③ General meeting held on agenda closing date	78.70%	75.00%
	④ Dividend policy and notice of dividend at least once a year	60.70%	25.00%
Board of Directors	⑤ CEO succession policy in place	59.80%	75.00%
	⑥ Internal control policy established and operated	91.00%	100.00%
	⑦ Separation of chairperson and CEO	27.00%	100.00%
	⑧ Cumulative voting adopted	4.90%	100.00%
	⑨ Policy to prevent appointment of unqualified directors	79.50%	100.00%
Audit Committee	⑩ No long-term financial support exceeding 6 years	100.00%	100.00%
	⑪ At least one annual training session for audit committee	99.20%	100.00%
	⑫ Independent internal audit office established	46.70%	100.00%
	⑬ Audit committee includes accounting/finance expert	99.20%	100.00%
	⑭ Quarterly meetings without management, with external auditors only	84.40%	100.00%
	⑮ Audit committee has access to key management information	100.00%	100.00%

Source: Kim, S., & Son, S. (2024). A study on the disclosure status and improvement directions of corporate governance reports of state-owned companies listed on the Korea Exchange. *Journal of Finance and Accounting Information*, 24(3), 1–31.

# Korea's Institutional and Digital Systems for SOE Management

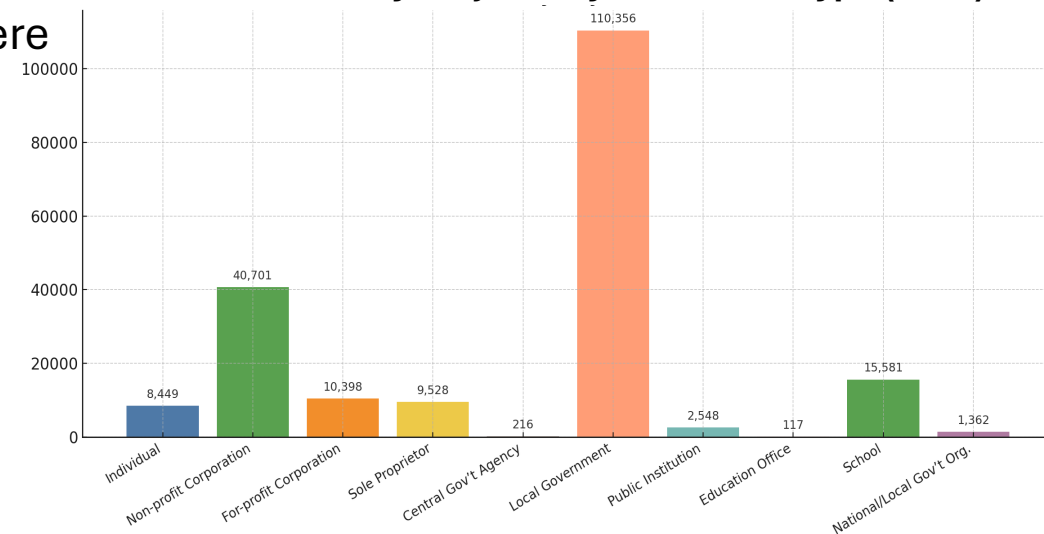
## 3. Level Playing Field – Integrated Government Subsidy Management System, e-Naradoum

- Established to manage subsidy allocation, execution, settlement, and post-management electronically
- Used by central government agencies, local governments, and subsidy project operators and recipients, including SOEs where relevant
- Provides key data on project status, beneficiaries, budgets, and execution records for government monitoring and public disclosure

### Impact:

- Enhances transparency in subsidy execution
- Helps prevent fraud and budget waste
- Improves efficiency through standardized data management
- Strengthens public trust through open access to information
- Supports a level playing field by improving transparency in subsidy allocation and execution

**Number of Subsidy Projects by Institution Type (2024)**



Source: <https://www.bojo.go.kr/>

# Korea's Institutional and Digital Systems for SOE Management

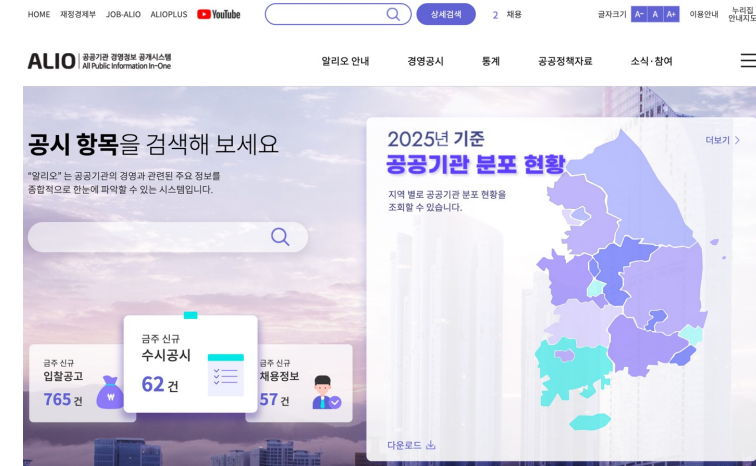
## 4. Sustainability & Resilience – ALIO and NGMS

### ALIO, Public Institutions Management Information System

- Discloses a wide range of public-institution data, including general status, workforce, pay, welfare, lawsuits, ESG, financial performance, and evaluation results
- Current limitation: much of the disclosed information is quantitative, making ESG context harder for citizens and policymakers to interpret
- New disclosure guidance aims to improve the accuracy, clarity, comparability, and reliability of ESG-related information
- New AI monitoring function: ALIO is also becoming a channel for disclosing public institutions' AI-use status, making AI adoption more visible to the ownership entity, citizens, and stakeholders

### NGMS, National Greenhouse Gas Management System

- Supports environmental sustainability and climate-crisis response through public-sector GHG target management
- Target public-sector organizations must submit the following year's reduction targets, report emission results, and undergo review



Source: <https://alio.go.kr>

NGMS 공자-자료 사용자등록

공공부문 배출량통계 목표관리대상업체 자료실

대상연도: 2024 기관구분: 공공기관 대상기관: [검색] Excel 다운로드

대상연도	기관구분	기관명	기준배출량 (tonCO <sub>2</sub> -eq)	온실가스 총 배출량 (tonCO <sub>2</sub> -eq)	온실가스 총 감축량 (tonCO <sub>2</sub> -eq)	온실가스 감축률 (%)	환경목표 달성유무(13.2%)	비고
2024	공공기관	한국기술교육대학교	10761	10503	258	2.398	N	
2024	공공기관	한국천문연구원	1024	941	83	8.105	N	
2024	공공기관	통일연구원	15	9	6	40	Y	
2024	공공기관	한국자산관리공사	4465	3586	879	19.686	Y	
2024	공공기관	한국개발연구원	2159	1995	164	7.596	N	
2024	공공기관	대외경제정책연구원	15	1	14	93.333	Y	
2024	공공기관	한국행정연구원	387	339	48	12.403	N	
2024	공공기관	한국교육과정개발원	1429	1294	135	9.447	N	
2024	공공기관	산업연구원	453	460	-7	-1.545	N	
2024	공공기관	한국보건사회연구원	13	4	9	69.231	Y	
2024	공공기관	한국노동연구원	15	0	15	100	Y	
2024	공공기관	한국해양수산개발원	619	624	-5	-0.808	N	
2024	공공기관	한국법제연구원	343	307	36	10.496	N	
2024	공공기관	한국환경연구원	10	2	8	80	Y	
2024	공공기관	한국교육개발원	1948	1615	333	17.094	Y	
2024	공공기관	한국농촌경제연구원	1043	912	131	12.56	N	
2024	공공기관	국토연구원	825	873	-48	-5.818	N	
2024	공공기관	과학기술정책연구원	11	1	10	90.909	Y	
2024	공공기관	한국조폐공사	28419	20106	8313	29.252	Y	

Source: <https://ngms.gir.go.kr>

# Korea's Institutional and Digital Systems for SOE Management

## 5. Public Policy Objectives – Public Institution Customer Satisfaction Survey

The Korean government conducts an annual Customer Satisfaction Survey to systematically assess service quality and identify areas for improvement. More than 180 public institutions participate, together with multiple stakeholders, including survey agencies, survey-design bodies, and fieldwork companies.

### Key operational challenges:

- Coordinating communication among diverse participants
- Managing large-scale project-level data
- Protecting personal information collected during surveys

A dedicated communication portal is used for instructions, data transfer, issue resolution, and feedback. This improves both efficiency and transparency in survey management.

**공공기관 고객만족도 조사 업무연락망**

본 시스템은 한국조세재정연구원과 유관 공공기관의 공공기관 고객만족도 조사 업무 협업을 지원하는 IT시스템입니다.

공지사항	자료등록	설계확인	계약
고객만족도 조사 관련 공지사항을 확인할 수 있습니다.	고객만족도 조사 관련 자료를 등록할 수 있습니다.	기관별 고객만족도 기본설계안을 확인할 수 있습니다.	(고객만족도/사회적기치 기여도) 계약 및 리스트 관련 문의 응답을 할 수 있습니다.
<ul style="list-style-type: none"><li>• 2024년도 공공기관 고...</li><li>• 2024년 공공기관 고객...</li><li>• 2024년도 공공기관 고...</li><li>• 2024년도 국민인식도 ...</li><li>• 2024년도 공공기관 고...</li></ul>	<ul style="list-style-type: none"><li>• [서울대학 고치과병원] ...</li><li>• [수경요청] 담당자 변경 ...</li><li>• 한국노인인력개발원 사...</li><li>• 2024년도 공공기관 고...</li><li>• 2024년 고객만족도 조...</li></ul>	<ul style="list-style-type: none"><li>• [국립생태원] 검토의견 ...</li><li>• 24년도 고객만족도 점...</li><li>• 2024년 공공기관 고객...</li><li>• 검토의견 없음</li><li>• [한국재용안전관리원] ...</li></ul>	<ul style="list-style-type: none"><li>• 2024년도 고객만족도 ...</li><li>• 중소벤처기업진흥공단 ...</li><li>• [공영홈쇼핑] 2025년 ...</li><li>• (담관) [공영홈쇼핑] 20...</li><li>• 국민건강보험공단 담당 ...</li></ul>

Source: <https://pcsi.kipf.re.kr>

The PCSI management portal provides notices, document registration, survey-design confirmation, and contract information. Through the portal, public institutions, contractors, and survey designers can access the information needed for survey implementation.

# AI Adoption as SOE Performance Strengthening

AI use is moving from isolated pilots to monitored performance management.

Connecting AI to public institution performance through:

- **Performance incentives:** AI use and management/technology innovation are reflected through innovation bonus points in the public institution management evaluation framework
- **Disclosure and monitoring:** Public institutions' AI-use status is being added to ALIO disclosure, making AI adoption visible and comparable
- **Performance strengthening:** AI use to be assessed by whether it improves productivity, safety, service quality, policy outcomes, and accountability

**As of 2025,**

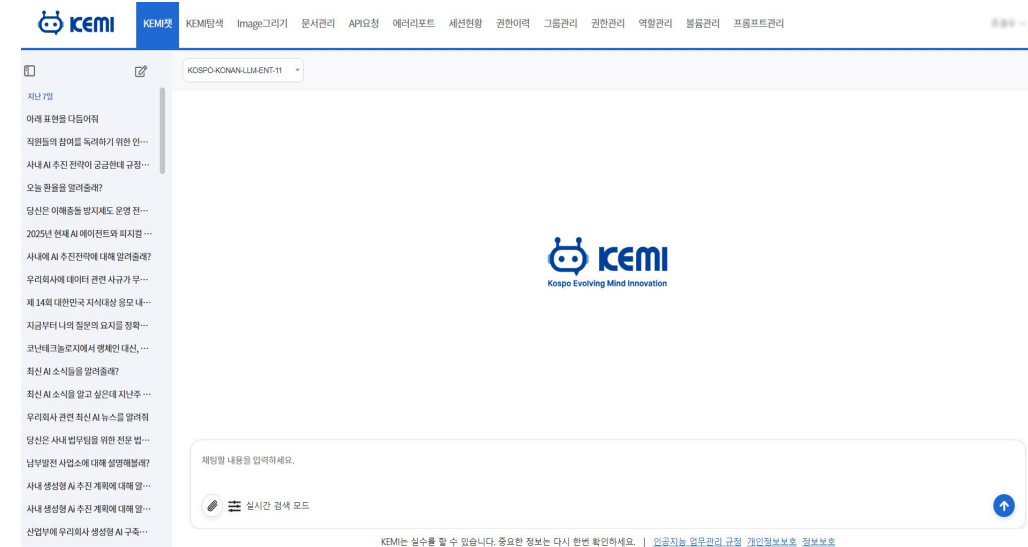
- **132 of 343** public institutions, or 38.4%, are using or building AI
- **381 AI use cases** are currently in use or under development
- By institution type
  - Public enterprises: 74.2%
  - Quasi-governmental institutions: 73.3%
  - Other public institutions: 25.8%
- Top policy fields
  - Employment and welfare: 12.1%
  - Energy: 9.7%
  - Industry and research: 9.4%
  - Public safety and finance: 9.2%
- Top use purposes
  - Productivity improvement: 47.0%
  - Disaster/safety management: 15.0%
  - Civil complaints/consultation: 10.8%
  - Citizen convenience: 9.4%

# AI and Digital Technology Use by Korean SOEs

## ① Korea Southern Power Company – KEMI: In-house Generative AI System

Korea Southern Power Company has established KEMI, an in-house generative AI system. KEMI can learn from and leverage internal data while reducing the risk of external data leakage.

This capability enables the company to build AI services tailored to its operations, including analysis of power-plant operational data, energy policy information, and internal administrative processes.



Source: Korea Southern Power Company

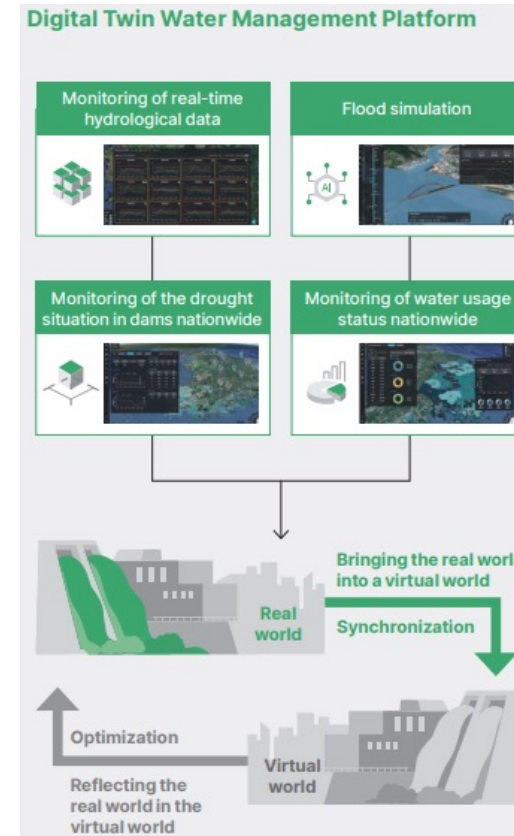
# AI and Digital Technology Use by Korean SOEs

## ② K-water – Digital Twin Dam Management and AI Water Treatment Plants

K-water has introduced Digital GARAM+, a digital twin system for dam and water-resource management. The system links real-world data with a virtual simulation environment. It collects and analyzes key data, including water levels, discharge volume, and structural safety, and uses this information for simulation, prediction, and decision support.

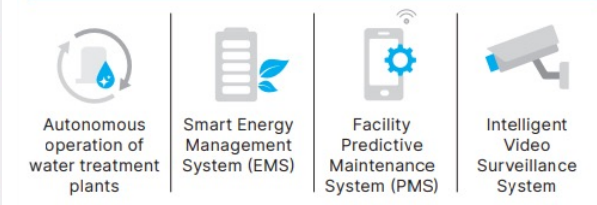
K-water is also introducing AI-powered water treatment plants. These systems digitalize the treatment process end-to-end by analyzing water quality and quantity data in real time, optimizing chemical dosing and pump operations, and supporting early detection of pollutants or abnormal conditions.

K-water is expanding AI-powered water-treatment plants nationwide.

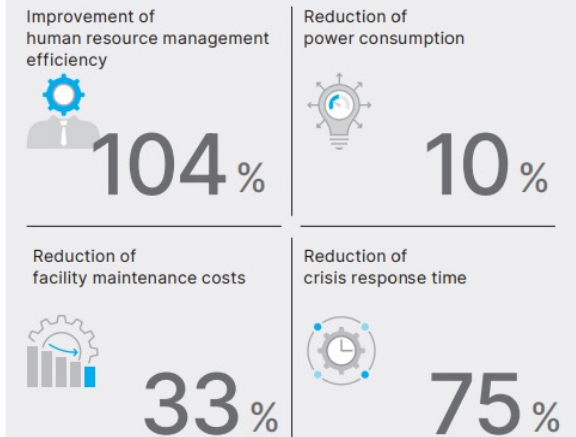


Source: K-water

### Features of AI Water Treatment Plant



### Operational Performance of Hwaseong AI Water Treatment Plant



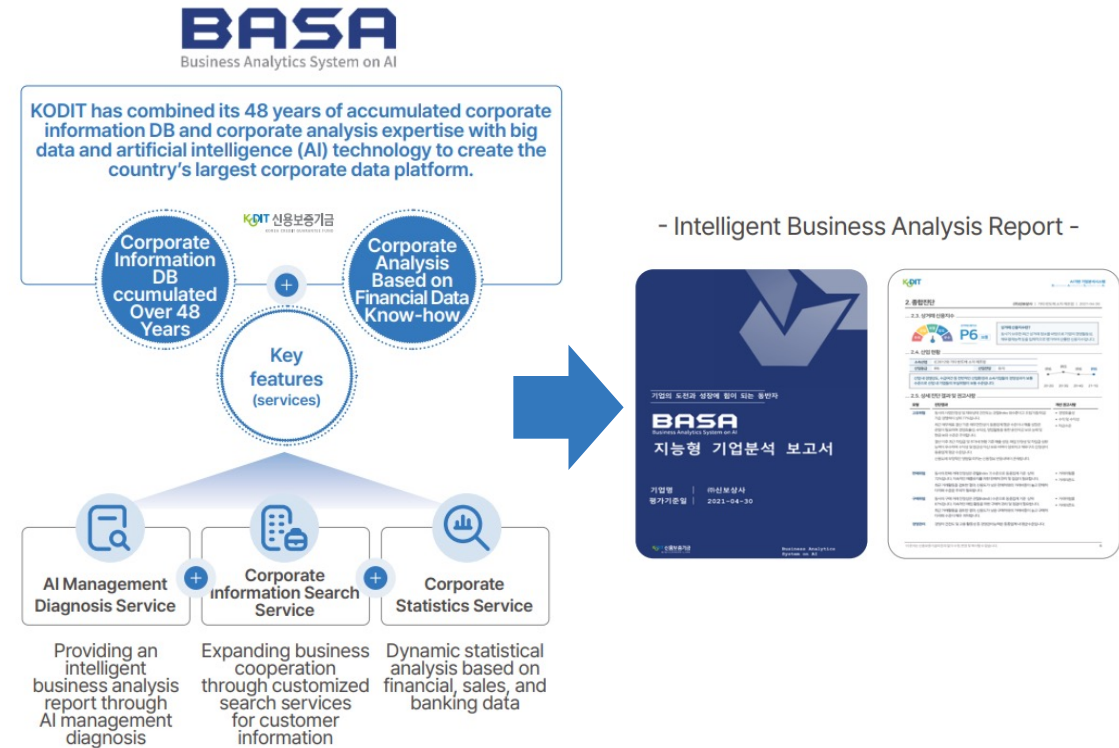
# AI and Digital Technology Use by Korean SOEs

## ③ Korea Credit Guarantee Fund – BASA: Business Analytics System on AI

The Korea Credit Guarantee Fund, KODIT, supports companies that lack sufficient collateral by providing credit guarantees, helping them access financing and promoting a sound credit system through the effective use of credit information.

Building on its large corporate database and credit-analysis expertise, KODIT has developed and operates BASA, Business Analytics System on AI, a platform that combines big data and AI.

BASA provides AI-based business diagnostics, company information search, policy performance analysis, and corporate statistics.



Source: Korea Credit Guarantee Fund  
BASA consists of three main services

- AI Management Diagnosis Service: provides intelligent business-analysis reports through customized AI-based diagnostics
- Corporate Information Search Service: offers tailored company-information search functions and supports business cooperation
- Corporate Statistics Service: provides dynamic statistical analysis based on financial, sales, and banking data

# The Role of Ownership Entities in Digital Technology Adoption

## 1. Supporting and Supervising AI Adoption

Korea is pursuing national AI competitiveness through large-scale public-private investment, and SOEs are increasingly adopting AI and related digital technologies.

Ownership entities should play a dual role: **facilitator** and **supervisor**.

### As facilitators, ownership entities should:

- Provide institutional and financial support for AI adoption
- Develop common technology guidelines, standard models, and data protocols
- Promote capacity building for SOE executives, boards, and staff

### As supervisors, ownership entities should:

- Set guardrails for privacy, cybersecurity, algorithmic bias, accountability, and cost control
- Monitor performance, risks, and compliance with public-sector AI ethics guidelines
- Evaluate whether AI projects improve service quality, efficiency, and accountability

**2026 공공기관 AI 혁신 챌린지**  
Public Institution Innovation Challenge 2026

**참가대상** : 전 국민 AI 경진대회 (AI Challenge for All) | 2026 공공기관 AI 혁신 챌린지

**공모분야** : ① AI 서비스 실증·PoC(지정/자유주제), ② AI 활용 우수사례(지정/자유주제)  
※ (지정주제) \*사회 안전 해결 과 관련된 주제라면 모두 해당

**접수기간** : 2026. 6. 1.(월) ~ 2026. 8. 28.(금) 18시

**대회일정**

공고 게시	신청서 접수	서면 심사	발표 심사	결과 발표	시상식
4.24	8.31~9.29	8.31~9.24	9.22~9.23	10.7	10.14~12
세부 공고문 게시	참가신청서, 수행보고서, 동의서 제출	수행보고서 기반 평가 (2배수 선별)	PPT 발표 기반 평가 (1배수 선별)	공모 분야별 우수과제 선정	개별(10월), 통합(12월) 시상식 개최

**접수방법** : 이메일(AI2026@nia.or.kr) 접수  
① 참가신청서, ② 수행보고서, ③ 개인정보 수집·이용·제공 동의서, ④ 기업 요건 확인 서류(필요시)를 작성하여 제출  
※ 전국민 AI 경진대회 통합 홈페이지 (https://aichallenge4all.or.kr) 참조

**시상내역** : 상장 30점, 상금 총 1,200만원

구분	수량	AI 서비스 실증·PoC (지정주제/자유주제)	AI 활용 우수사례 (지정주제/자유주제)
대상	2점	1점 (총 100만 원)	1점 (총 100만 원)
최우수상	8점	4점 (총 200만 원)	4점 (총 200만 원)
우수상	10점	5점 (총 150만 원)	5점 (총 150만 원)
AI 혁신상	10점	5점 (총 150만 원)	5점 (총 150만 원)

**문의처** : 한국지능정보사회진흥원 | 경진대회 운영사무국 (AI2026@nia.or.kr, 053-230-1456)  
재정경제부 | 공공혁신기획과 (044-215-5611, 5615)  
과학기술정보통신부 | 디지털사회기획과 (044-202-6133)

**참가 신청서 다운로드**

주최/주관 : 재정경제부 | 과학기술정보통신부 | NIA 한국지능정보사회진흥원

Source: <https://www.alio.go.kr>

# The Role of Ownership Entities in Digital Technology Adoption

## 2. Strengthening Data and System Integration

The Korean government manages and discloses SOE and public-institution data through separate systems, including ALIO, e-Naradoum, and NGMS. However, limited interoperability among these systems reduces the overall usefulness of the data.

### **Key measures needed:**

- Data standardization
- System interoperability
- Institutional support for data integration

SOEs and public institutions serve as important data hubs in public policy. Interconnecting, integrating, and analyzing these data would strengthen evidence-based decision-making across policy areas.

# The Role of Ownership Entities in Digital Technology Adoption

## 3. Building an Ecosystem for Responsible Digital Technology Adoption

Digital innovation in SOEs cannot be achieved by individual institutional efforts alone. It requires a government-level ecosystem.

Ownership entities should create collaboration platforms that bring together government, SOEs, private companies, research institutes, and universities. These platforms can help SOEs use new technologies such as AI, digital twins, and big data more effectively.

### **Key measures include:**

- Establishing a shared AI cloud platform for SOEs
- Sharing best practices across SOEs
- Creating collaborative networks with private technology companies
- Implementing AI capacity-building programs for public-sector employees

In parallel, ownership entities should ensure responsible digital use by setting AI ethics standards and data-security principles that help SOEs apply technology in a balanced and accountable manner.

The ownership entity's role is not simply to promote digital technology. It is to make digital technology serve public accountability, performance, and trust.